TU Delft

Delft University of Technology

Modes and Models for the Masses

Drawing Lessons from Mumbai's Experiments with Affordable Housing

Varma, R.

DOI
10.4233/uuid:cfadc926-0c8c-45fb-a8d4-08f8a3c40f6a

Publication date
2025

Document Version
Final published version

Citation (APA)
Varma, R. (2025). *Modes and Models for the Masses: Drawing Lessons from Mumbai's Experiments with Affordable Housing*. [Dissertation (TU Delft), Delft University of Technology].
https://doi.org/10.4233/uuid:cfadc926-0c8c-45fb-a8d4-08f8a3c40f6a

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

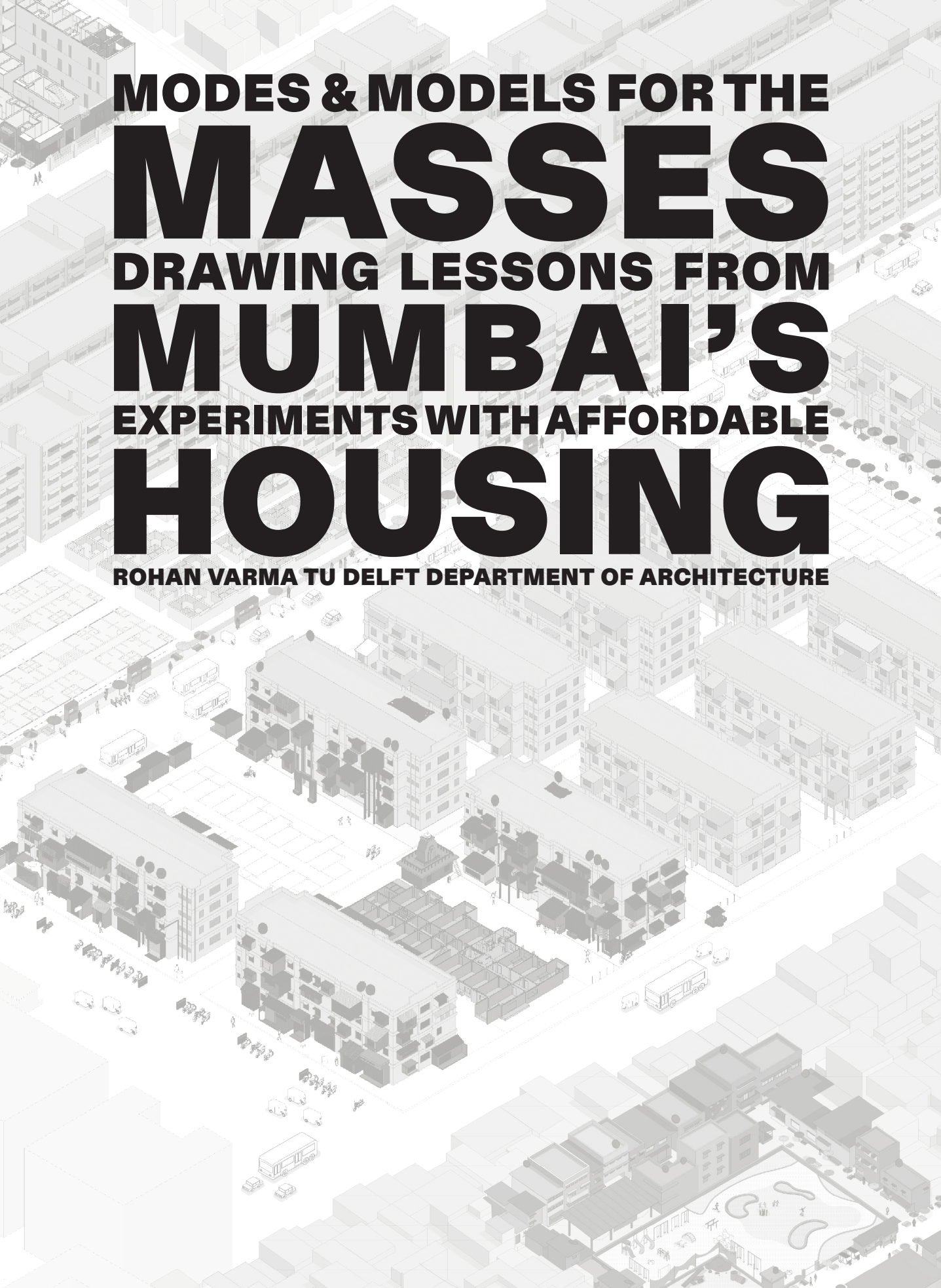
Copyright
Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy
Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

This work is downloaded from Delft University of Technology.
For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.

MODES & MODELS FOR THE MASSES
DRAWING LESSONS FROM MUMBAI'S EXPERIMENTS WITH AFFORDABLE HOUSING

ROHAN VARMA TU DELFT DEPARTMENT OF ARCHITECTURE





MODES & MODELS FOR THE MASSES

TU Delft

Book Design Rohan Varma
Cover Artwork Rohan Varma
Printing Elco Print, Amsterdam
Binding Boekbinderij Hennink, Amsterdam

Keywords India, Mumbai, Slums, Informal Settlements, Affordable Housing, Housing Policies, Housing Design, Architectural Ethnography

ISBN 979-8-90046-547-0
© 2025 Rohan Varma

This dissertation is available to the public via the TU Delft Repository:
https://repository.tudelft.nl

The printing of this dissertation has been made possible by the TU Delft Faculty of Architecture and the Built Environment, Department of Architecture, and the Section Public Building & Housing Design.

All rights reserved. No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without written permission from the author.

Unless otherwise specified, all the photographs in this thesis were taken by the author. For the use of illustrations effort has been made to ask permission for the legal owners as far as possible. We apologise for those cases in which we did not succeed. These legal owners are kindly requested to contact the author.

For any questions, comments, remarks, please contact:
r.varma@tudelft.nl

MODES & MODELS FOR THE MASSES
DRAWING LESSONS FROM MUMBAI'S EXPERIMENTS WITH AFFORDABLE HOUSING

Dissertation
for the purpose of obtaining the degree of doctor
at Delft University of Technology
by the authority of the Rector Magnificus prof.dr.ir. T.H.J.J. van der Hagen
chair of the Board for Doctorates
to be defended publicly on
Monday 27 October 2025 at 17:30 o'clock

by

Rohan VARMA
Master of Science in Architecture, Urbanism and Building Sciences,
Delft University of Technology, The Netherlands
born in Kolkata, West Bengal, India

This dissertation has been approved by the promotors.

COMPOSITION OF THE DOCTORAL COMMITTEE

Rector Magnificus,	chairperson
Prof.ir. D.E. van Gameren	Delft University of Technology, promotor
Prof. R. Mehrotra	Harvard University, USA, promotor
Dr. N.J. Amorim Mota	Delft University of Technology, promotor

INDEPENDENT MEMBERS

Prof.dr.ir. M.G. Elsinga	Delft University of Technology
Prof.dr. J. Gosseye	Delft University of Technology
Dr. C.E.L. Newton	Delft University of Technology
Prof. S. Padora	CEPT University, India
Dr. R.C. Rocco de Campos Pereira	Delft University of Technology, reserve member

FUNDING

The research for this dissertation has been entirely self-funded and has not benefited from any direct financial support from the Delft University of Technology or any other institution or organisation. However, part of the fieldwork conducted in 2021 and 2022 was covered by a fellowship granted by the Delft Global Initiative.

Our cheap housing schemes should be thought of chiefly in terms of providing sanitation, lighting and water supply...we can add to this as occasion offers and resources are available.

Prime Minister Jawaharlal Nehru in a speech in Chandigarh in 1954

The 'Pradhan Mantri Awas Yojana' is not just an infrastructure dream, it is a mission. It is not meant to create walls or to provide land. It is a big program to fulfil the dreams and aspirations of the people. It aims to give every single Indian a house.

Prime Minister Narendra Modi announcing the "Housing for All" mission in 2015

For Mumbaikars—most of whom are migrants—but have made Mumbai their home and, in doing so, made it the “city of dreams.”

For my father, Capt. Rajeev Varma, who, like many Mumbaikars, moved there with dreams and passed them on to me.

And for my mentor, Charles Correa, who spent his life “planning and dreaming” to build a better city for every Mumbaikar.

CONTENTS

Preface & Acknowledgements 12
Summary 16
Samenvatting 18
Propositions 20
Stellingen 22
Photo Essay 24

1 PROBLEMS & POSSIBILITIES: AN INTRODUCTION TO THE HOUSING QUESTION
1.1 The Challenge of Slums: The View from Mumbai 34
1.2 Framing the Problem & Research Hypothesis 45
1.3 Research Aims & Questions 49
1.4 Research Methods 50
1.5 Limits & Scope of Thesis 53
1.6 Research Structure 55

2 PARADIGMS IN PRACTICE: GLOBAL & LOCAL PERSPECTIVES
2.1 Scanning for Strategies: A Theoretical Framework 60
2.2 The First Paradigm: Conventional Strategies 66
2.3 The Second Paradigm: Non-Conventional Strategies 84
2.4 The Third Paradigm: Return to Conventional Strategies 96

3 POLICIES & PHYSICAL FORM: MASS HOUSING IN MUMBAI
3.1 Models for the Masses: Five Modes for Building Affordable Housing 108
3.2 Social Housing 134
3.3 Self-Help & Sites-and-Services 158
3.4 Slum Improvement & Upgradation 178
3.5 Slum Redevelopment 196
3.6 Slum Resettlement & Rehabilitation 216
3.7 Mapping Mumbai 242
3.8 Mumbai Matrix: An Atlas of Housing in Mumbai 256

4 PATTERNS OF INHABITATION: A DAY IN THE LIFE OF FIVE PROJECTS
4.1 Dwelling in Mumbai: A Survey of Five Models 352
4.2 Social Housing: BDD Chawls 382
4.3 Self-Help & Sites-and-Services: Charkop 394
4.4 Slum Improvement: Shivaji Nagar 408
4.5 Slum Redevelopment: Matoshree SRA 422
4.6 Slum Resettlement: Lallubhai Compound 438

5 PERSPECTIVES FOR THE FUTURE: DRAWING CONCLUSIONS
5.1 Strategies & Solutions: A Framework for Policy Recommendations 454
5.2 Plurality 458
5.3 Participation 462
5.4 Progressive Development 466
5.5 Productivity 470

6 ENVOI: LEARNING FROM MUMBAI 476

7 APPENDIX
7.1 Notes & References 482
7.2 Image & Illustration Credits 502
7.3 Abbreviations 506
7.4 Bibliography 508
7.5 Biography & Curriculum Vitae 516

PREFACE & ACKNOWLEDGEMENTS

"There is no doubt in my mind that this rapid urbanisation (triggered off by tidal waves of distress migration) is going to be *the* crucial political issue of the next three decades. Yet, surprisingly enough, there does not exist today a theoretical schema which can provide a basis for coherent action. The conceptualisation of such a schema must be given the highest priority. And it will have to be done by those who are involved, day after day, in the issues – just as the great theoreticians of guerrilla warfare were not academics, but the ones that did the actual fighting: Mao Tse-tung and Che Guevara."

This extract is drawn from Charles Correa's preface to his pioneering 1985 manifesto for the "Third World" city, *The New Landscape*. As you will find elsewhere in this dissertation (in fact, repeatedly), Correa's manifesto and the issues and ideas he deals with in his book have formed the foundations of this research project – the bare bones on which this dissertation has been fleshed out. That said, Correa would have, in all likelihood, been a bit sceptical of a dissertation such as this one. As the epigraph above makes plain, Correa – an architect with the zeal of an activist – harboured a particular disdain for purely academic exercises despite his lifelong engagement with academia. In the same preface, he dismantles the tradition of dense, jargon-heavy writing that often characterises theoretical discourses on architecture and urbanism:

> "I have tried to keep the text as brief as possible. Allergic to padding, I've always suspected that the most incisive ideas can be expressed with the greatest finesse. $E = mc^2$. Right or wrong, that's a great artist speaking."

Unlike Correa, I have not managed to distil my thoughts and findings with comparable brevity. This dissertation, like most in our field, is undeniably long – a reminder that I still have much to learn. And for all its length, it refrains from prescribing concrete solutions. If this journey has taught me anything, it is that the challenges we face – especially those around housing – rarely reduce to a simple right-or-wrong equation. What counts as "right" is almost always a question of context: of reading circumstances carefully, and of framing responses on the solid ground of thoughtful, methodical research.

That, in a nutshell, is the aim of this work. At its core, this dissertation is a modest attempt to formulate the kind of "theoretical schema that can provide a basis for coherent action" that Correa called for four decades ago – a need that remains urgent, particularly in the sprawling metropolises of the Global South. It is in this spirit that this book departs from the conventions of the typical dissertation. In both content and form – its language, structure, and graphic layout – it strives to occupy a space between that of a dissertation, an architectural monograph, and an atlas.

The book's structure reflects this ambition. It is arranged in sections, each exploring a different scale and scope, each organised around a visual theme, with subtle variations. This is deliberate. I am acutely aware that few people read dissertations from cover to cover. By breaking it into smaller, self-contained parts, I hope to invite readers to dip in wherever their curiosity leads.

The work, therefore, speaks to two audiences at once. On one hand, it is a scholarly study, addressed to researchers, students, and practitioners seeking to understand not only the historical trajectory of housing and urban development in Mumbai – and in other cities like it – but also the shifting theoretical frameworks that shape those trajectories. On the other hand, I have strived to make it accessible to a broader public, employing a graphic language rich in photographs and drawings to illuminate the problems at hand and the possibilities that lie ahead. To paraphrase one of my promotors, it has been my naïve goal to disguise this dissertation as "an instrument for advocacy" – research as a form of practice that helps build feedback loops, informing and influencing what happens on the ground.

With those ambitions now laid bare, I must take a few moments to acknowledge the many people, institutions, and sources without whom this work would never have taken shape. Foremost among them are my promotors – Dick van Gameren, Rahul Mehrotra, and Nelson Mota. Each, in their own way, has been far more than a supervisor; they have been co-authors on this journey. Time and again, in the midst of confusion, frustration, and doubt, I have found myself turning to their expertise and experience to steady my course. Their guidance has been the constant thread running through these pages, shaping arguments, sharpening questions, and reminding me of the larger purpose behind the work. For each of them, I would like to offer a few words of appreciation.

First, to Rahul, who despite a schedule that constantly carries him across the globe, always found time – whether on the ground or in the air – to read my scattered emails and respond with characteristic clarity and insight. His early endorsement to speak at the 2018 State of Housing conference in Mumbai proved pivotal in shaping the theoretical framework of this dissertation. But most of all, I have looked to Rahul as a source of inspiration. As someone who has written more on Mumbai than anyone I know, his guidance has been a compass – guiding, orienting, and helping me move forward with confidence.

Then, to Nelson, who from the outset brought his tireless energy and enthusiasm to shaping this project – prodding me to sharpen my arguments and challenging me to refine my methods. His image of research as a martini glass – wide at the start, narrowing in focus, then widening again for broader discourse – became a guiding metaphor, refined through many lively conversations (and the occasional real martini) that often took place in far-flung places – from the serene landscapes of Geoffrey Bawa's estate in Sri Lanka to the dense *villa miserias* of Buenos Aires. On each of these trips, Nelson has been an encouraging colleague and companion.

And finally, to Dick, whom I first met at a workshop at KRVIA in Mumbai in 2010. I vividly remember our trip to the northern fringes of the city to study the informal settlements of Nalasopara – a site we would revisit seven years later with students from Delft. Thanks to Mumbai's traffic, we had ample time in the car to discuss our common interest in affordable housing. A few months later, when I moved to Delft for my master's degree, a chance encounter with Dick at our faculty's favourite meeting spot – the Espressobar – marked the beginning of a long and formative association that has since led to me working with him in many capacities: first as his student assistant, later as an architect at his practice, Mecanoo Architecten, and eventually as his assistant at the Dean's office. Over the years, we have collaborated on lectures, studios, exhibitions, and books – experiences that have shaped me not only as an architect but also as a researcher, an educator, and, in many ways, as a person. For all his mentorship and friendship over nearly fifteen years, this dissertation is, in no small part, a reflection of the many conversations we have shared about housing and cities – conversations I hope will continue well beyond my defence.

As one can imagine, in a study of this kind, one accumulates many debts – of guidance, support, and kindness – that extend well beyond one's official promotors. I am grateful to our secretaries – Judith, Salma, and Caitlin – whose quiet efficiency kept everything on track; to colleagues with whom I have taught and learned – Marina Tabassum, Frederique van Andel, Harald Mooij, Pierijn van der Putt, Robbert Guis, Rocio Conesa Sánchez, Anteneh Tesfaye Tola, Brook Teklehaimanot Haileselassie, and Antonio Paoletti; and to Linda van Keeken and Amber Leeuwenburgh from the Dean's office, for their support and good humour over the years.

Beyond the Dean's office, I am especially grateful to Roberto Rocco, who first sparked my interest in writing about informality. My chapter in *The Routledge Handbook on Informal Urbanisation*, edited by Roberto, was the first step on this path, and I remain deeply indebted to him for opening that door. I am also thankful to Roel Kamerling of Delft Global for providing the financial support that made my two trips to Mumbai for fieldwork possible.

To my opponents – Marja Elsinga, Janina Gosseye, Caroline Newton, and especially Sameep Padora – I owe a deep debt of gratitude. Sameep's book *In the Name of Housing* inspired my focus on housing types and typologies in Mumbai and influenced the drawn documentation methods that inform this dissertation's "animated atlas."

My thanks extend well beyond academia. In Mumbai, I am especially indebted to Drishti Gandhi, Saumil Sanghavi, Srusti Shah, Annuja Shah, Jaee Naik and Orville Monteiro – all former assistants in my office – who painstakingly joined field trips and supported my endevour to document and illustrate the many projects you will find in this book.

Still in Mumbai, my childhood friends – Pratyush, Arjun, and Tapan, thankfully all non-architects – have been indispensable sparring partners in many spirited debates about the city's development (or lack thereof). I am equally grateful for the warmth and friendship I have found in my adopted home in the Netherlands: The Matts, Pavlo, Gabriela, Emma, Leonie, Sergio, Sonia, Mansi, Fabian, Raoul, Elise, Anirudh, Arvind, Madhavi, Rich, Paulina, Olaf, Vidhee, Akshay, Adrienne, Angelina and Aleksandra – you have each helped me feel at home (and at times even given me a home), lifting my spirits when I most needed encouragement. A special word of thanks goes to Gonzalo and Juan, great friends who have helped me grow wiser and have graciously agreed to stand beside me as paranymphs at my defence.

Among institutions, I would like to thank KRVIA, where my journey in architecture began, and Nondita Correa Mehrotra of the Charles Correa Foundation for access to its archives and for inviting me to participate in several of its programmes.

And of course, none of this would have been possible without the love and patience of my parents. I embarked on this project around the time I turned thirty – an age when one might typically be building a home. Instead, I threw caution to the wind and pursued my dream of combining a small practice in India with a foothold in academia in the Netherlands. Despite my many missteps along the way, I remind myself daily that I am fortunate to have parents who let me chase my dreams.

Over the years, as I chased these dreams, my foothold in the Netherlands has grown firmer. I am now building a new home in Amsterdam with Mira, who entered my life as if by fate toward the end of this doctoral journey and has been a wonderfully supportive and caring partner in these *laatste loodjes* – the final, most demanding stretch. Finalising this dissertation has kept me occupied on more evenings and weekends than she would have liked, but her patience has given me the space and time to complete this work to the best of my ability.

In closing, I have three final acknowledgements to make. First, as the dedication that opens this book reveals, I owe an immense debt to Charles Correa. The two years I spent in his office profoundly shaped my approach to architecture and to life. Among other tasks, I assisted him with what would become his last book, *A Place in the Shade: The New Landscape & Other Essays*. Too young at the time to fully appreciate it, I now understand the extraordinary privilege he extended to me by inviting me to work on that book alongside him. I often wonder whether I would have gravitated towards academia had that not happened.

Secondly, as a self-funded doctoral candidate, I have sustained myself primarily through teaching. The Dutch verb *leren* means "to learn," though I have also heard it used, perhaps loosely, to mean "to teach." Whether strictly grammatically correct or not, I must confess I am not sure how much I have been able to teach. But I can say with certainty that I have learnt a great deal from teaching – and from all my students. Teaching has also led me to absorb many quiet lessons from the books in our library, which I turn to every day in preparing for lectures and coursework.

Lastly, this dissertation's primary subject is housing in the city, particularly in Mumbai. Despite all its challenges (which it has in abundance), I have loved that city for as long as I can remember and will always call it home – even though I have now lived in Amsterdam longer than I lived in Mumbai. Yet, whenever I am asked where I come from, my proud answer is always "Mumbai." Its people, neighbourhoods and bustling streets have taught me more than any architecture school ever could. Looking back, I am convinced that I became an architect because of Mumbai – and for that, I owe the city everything.



As I write these words of gratitude, I am reminded that cities like Mumbai and Amsterdam are great precisely because they are migrant cities, shaped by people and communities who came from elsewhere, often with little but their hard work and ambition. Yet it is this very openness that is now increasingly under threat. Among the many challenges we face today – from growing socio-spatial inequalities to the climate crisis – the resurgence of anti-immigration movements, fuelled by populist leaders and myopic attitudes, attacks the very DNA that makes cities thrive. Will we live in open societies like those that first built Mumbai and Amsterdam, or will prejudice close our doors to the people who build and enrich our cities?

Over the past two years of writing this dissertation, I have often looked out my window at De Dageraad, a landmark of Dutch social housing built in the early twentieth century, and wondered: how did this beautiful ensemble come into being, and why do we no longer build with such ideals – in Amsterdam, Mumbai, Dhaka, or Buenos Aires? A quick search credits Michel de Klerk and Piet Kramer as the architects of its design. But as this dissertation attests, whether we look at De Dageraad or LIC Colony in Mumbai, the creation of such projects relies on many more actors and voices. If we are to build humane and equitable cities for everyone, all these actors – architects, policymakers, and citizens – must participate. And act.

This dissertation, with all its faults, is offered as one small step toward building a theoretical schema for such collective action.

Rohan Varma
Amsterdam, September 2025

SUMMARY

With the world's slum population—currently over a billion people—expected to triple by the year 2050, "informal urbanisation" or "auto-construction," as several scholars have argued, can no longer be considered marginal. If estimates by the United Nations are to be believed, about two-thirds of all future urbanisation will take shape outside formal processes and protocols, and a vast majority of it—nearly ninety per cent—will occur in the rapidly urbanising territories of the Global South. In such emerging contexts, what planning tools and methods can governments devise to meet the demands of the existing housing stock and future growth? What trade-offs between top-down and bottom-up planning can ensure the production of affordable and sustainable communities? And how can architects and planners rethink design strategies and standards to anticipate and accommodate informal practices rather than hinder them?

This dissertation examines the range of state-led strategic policy instruments to this end. With the aim of informing new modes of practice, production, and intervention in low-income neighbourhoods, it constructs an empirical study of past attitudes and approaches to the "slum" from a particular site: the Mumbai Metropolitan Region (MMR). Over the past century, the slum has emerged as the city's dominant housing type and the foremost object of its policy interventions. With nearly six of every ten inhabitants residing in government-recognised slums, Mumbai is currently home to one of the highest slum populations of any city in the world. However, its built form also reveals it as a test-bed for an impressive range of public interventions in affordable housing. Starting in the late nineteenth century, the city has seen various actors—the public, private, and popular sectors (and various combinations thereof)—engage in a wide range of planned interventions, from top-down strategies involving slum clearance, resettlement, and redevelopment to more experimental, bottom-up schemes that have encouraged in-situ upgradation, self-help, and the active participation of communities.

Through the deployment of multi-disciplinary and overlapping lenses of "Policies," "Physical Form," and "Patterns of Inhabitation," this dissertation traces the formation of these paradigmatic policy shifts from a global perspective but centres its attention on the physical form of these policies and their transformation over time in the MMR. By illustrating the tension between planned, designed interventions and the informality and ingenuity of user-generated additions and appropriations, this research attempts to create new metrics to assess the physical performance of past policies and programmes and point directions for the future.

The dissertation holds five sections, an envoi, and an appendix that contains supplementary material. When read from beginning to end, the structure of this dissertation is as follows:

The introductory section, *Problems & Possibilities: An Introduction to the Housing Question,* outlines the key issues, problems, and general structure of this research project and explains its core theoretical framework, research questions, aims, limits, and methods.

The second section, titled *Paradigms in Practice: Global & Local Perspectives,* provides a brief historical overview of the evolution of housing policy and design across three paradigms told through three chapters. Highlighting past and more recent experiments, this section aims to identify parallel and diverging lines of development across the Global North and Global South and to link the influences and impact of global approaches, agents, and agencies on Mumbai's housing landscape.

The third section, *Policies & Physical Form: Mass Housing in Mumbai,* then disrupts and problematises the general narrative of Mumbai's evolving policy landscape that has been conventionally periodised into neat categories of "controller," "provider," and "facilitator" paradigms. Instead, it reads the city's layered policy timeline across five chapters that trace the historical evolution of its five main strategies—or modes—implemented. These are: Social Housing, Self-help & Sites-and-Services, Slum Improvement & Upgradation, Slum Redevelopment, and Slum Resettlement. Set against the background of larger political, economic, and social movements in the city, these five chapters survey shifting modes of production, patronage, and their resulting physical form. An atlas of twenty-five housing types that emerges from this study bookends this section, along with an analytical survey across four metrics: "Urban Form," "Plot Density," "Footprint & Circulation," and "Dwelling Types."

The fourth section, titled *Patterns of Inhabitation: A Day in the Life of Five Projects,* further analyses strategies elaborated in the preceding section but focuses on the correlations between physical form and people's everyday practices through the deployment of "architectural ethnography"—a research methodology currently being developed as part of the educational program of the Global Housing design studios at TU Delft. Overlapping the Delft "Plan Analysis" method with micro-ethnographic tools such as observation, time series analyses, and site surveys, this section undertakes cross-comparative research of five case studies by focusing on one dominant example of each mode identified in the preceding section. Combining primary and secondary forms of research and through the instruments of drawings and photographs, this section—imagined as an "animated atlas"—illustrates and indexes people's everyday practices across four lenses—"Domestic," "Social," "Cultural," and "Economic"—and across four scales: the "Public," the "Semi-Public," the "Semi-Private," and the "Private."

Finally, the fifth section, *Perspectives for the Future: Drawing Conclusions,* extracts the empirical evidence collected in the dissertation and presents a framework of four key policy recommendations: "Plurality," "Participation," "Progressive Development," and "Productivity." The dissertation concludes with an envoi that, building on the Indian architect Charles Correa's theory of "disaggregation," advocates for a broad spectrum of policy approaches, both preventive and curative, that blur the dichotomies between formal and informal housing and top-down and bottom-up practices. It argues for policies and programmes to recognise the complementary roles of various actors and agencies and the simultaneous validity of multiple strategies over just one.

However, rather than attempt to find optimal solutions for Mumbai, this dissertation's larger ambition is to posit the city's evolving policy and physical landscape as a fertile site for understanding the emerging urbanism of the twenty-first century and its laboratory of housing models that offer valuable lessons for policymakers, architects, and planners operating globally to learn from—and build with—people and communities.

■

SAMENVATTING

Met de verwachting dat de wereldwijde bevolking van sloppenwijken – momenteel meer dan een miljard mensen – tegen 2050 zal verdrievoudigen, kan “informele verstedelijking” of “eigenbouw”, zoals verschillende wetenschappers hebben betoogd, niet langer als marginaal verschijnsel worden beschouwd. Volgens schattingen van de Verenigde Naties zal ongeveer tweederde deel van alle toekomstige verstedelijking buiten formele processen en regels plaatsvinden, en zal een overweldigend deel daarvan – bijna negentig procent – zich voordoen in de snel verstedelijkende gebieden van het Mondiale Zuiden. Met deze opkomende omstandigheden rijst de vraag welke planningsinstrumenten en -methoden overheden kunnen ontwikkelen om te voorzien in de overweldigende vraag naar huisvesting nu en in de toekomst. Welke afwegingen tussen top-down en bottom-up planning kunnen leiden tot toegankelijke en duurzame gemeenschappen? En hoe kunnen architecten en stedenbouwkundigen bestaande ontwerpstrategieën en -normen herzien om te anticiperen op informele praktijken en deze te accommoderen in plaats van ze te belemmeren?

Dit proefschrift onderzoekt het scala aan door de staat geïntroduceerde en geleide strategische beleidsinstrumenten om huisvesting voor ieder te realiseren. Om nieuwe vormen voor de praktijk, productie en interventie van huisvesting in lage-inkomenswijken te ontwikkelen wordt in het proefschrift een empirische studie opgebouwd van eerdere posities en benaderingen van de ‘sloppenwijk’ binnen een specifieke context: de Mumbai Metropolitan Region (MMR). De afgelopen eeuw is de sloppenwijk uitgegroeid tot het dominante type van woningproductie van de stad en het belangrijkste onderwerp van beleidsinterventies. Met bijna zes op de tien inwoners die in door de overheid erkende sloppenwijken wonen, herbergt Mumbai momenteel een van de grootste sloppenbevolkingen ter wereld. Tegelijkertijd onthult de gebouwde omgeving van de stad haar rol als proeftuin door de aanwezigheid van een indrukwekkende reeks publieke interventies op het gebied van betaalbare huisvesting. Sinds het einde van de negentiende eeuw hebben verschillende actoren – de publieke, private en informele sector (en diverse combinaties daarvan) – deelgenomen aan uiteenlopende geplande interventies: van top-downstrategieën zoals ontruiming, herhuisvesting en herontwikkeling tot meer experimentele bottom-up initiatieven die in-situ-upgrading, zelfbouw en actieve gemeenschapsdeelname hebben gestimuleerd.

Door gebruik te maken van multidisciplinaire en overlappende invalshoeken – "Beleid," "Fysieke Vorm," en "Bewoningspatronen" – volgt dit proefschrift allereerst de vorming van paradigmatische beleidsverschuivingen vanuit een mondiaal perspectief om vervolgens de aandacht te richten op de fysieke vorm van deze beleidsmaatregelen en hun transformaties in de loop van de tijd binnen de MMR. Door de spanning te tonen tussen geplande en ontworpen interventies enerzijds en de informaliteit en vindingrijkheid van door gebruikers gegenereerde toevoegingen en toe-eigeningen anderzijds, tracht dit onderzoek nieuwe maatstaven te creëren om de fysieke prestaties van eerdere beleidsmaatregelen en programma’s te evalueren en richting te geven aan toekomstig beleid.

Het proefschrift bestaat uit vijf secties, een richtinggevende conclusie en een bijlage. Van begin tot eind is de structuur als volgt: De inleidende sectie, *Problems & Possibilities: An Introduction to the Housing Question*, schetst de belangrijkste vraagstukken, problemen en de algemene opzet van dit onderzoek, en licht het theoretisch kader, de onderzoeksvragen, beperkingen en methoden toe.

De tweede sectie, *Paradigms in Practice: Global & Local Perspectives*, biedt een beknopt historisch overzicht van de evolutie van huisvestingsbeleid en woningontwerp over drie paradigma’s heen. Door eerdere en meer recente experimenten te belichten, identificeert deze sectie parallellen en verschillen tussen het Mondiale Noorden en Zuiden, en traceert zij de impact van mondiale benaderingen, actoren en instanties op het woninglandschap van Mumbai.

De derde sectie, *Policies & Physical Form: Mass Housing in Mumbai*, problematiseert het gangbare narratief van de ontwikkeling van beleid in Mumbai, dat traditioneel is ingedeeld in de paradigma’s van "controller," "provider," en "facilitator". In plaats daarvan leest deze sectie de gelaagde beleidstijdlijn van de stad via vijf hoofdstukken die de historische evolutie van vijf kernstrategieën – of "modes" – volgen: Social Housing, Self-help & Sites-and-Services, Slum Improvement & Upgradation, Slum Redevelopment en Slum Resettlement. Deze vijf hoofdstukken, geplaatst in de context van bredere politieke, economische en sociale bewegingen, onderzoeken verschuivende productiemethoden, opdrachtgeverschap en de resulterende fysieke vormen. Een atlas van vijfentwintig woningtypen en een analytisch overzicht op vier meetpunten ("Urban Form," Plot "Density," "Footprint & Circulation" en "Dwelling Types") sluiten deze sectie af.

De vierde sectie, *Patterns of Inhabitation: A Day in the Life of Five Projects*, verdiept de in de voorgaande sectie beschreven strategieën en richt zich op de correlatie tussen fysieke vormen en het dagelijks gebruik ervan door bewoners. Door middel van “architectonische etnografie” – een onderzoeksbenadering die binnen het onderwijs- en onderzoeksprogramma van de Global Housing Design Studios van de TU Delft wordt ontwikkeld – wordt een vergelijkend onderzoek van vijf voorbeeldprojecten uitgevoerd. Met tekeningen en foto’s als instrumenten visualiseert en beschrijft deze sectie het dagelijks leven van bewoners langs vier lenzen ("Domestic," "Social," "Cultural," "Economic") en op vier schaalniveaus: "Public," "Semi-Public," "Semi-Private" en "Private."

De vijfde sectie, *Perspectives for the Future: Drawing Conclusions*, destilleert het verzamelde empirische bewijs en presenteert een raamwerk van vier kernbeleidsaanbevelingen: "Plurality," "Participation," "Progressive Development" en "Productivity." Het proefschrift sluit af met een richtinggevende conclusie die, geïnspireerd door de theorie van de Indiase architect Charles Correa over “disaggregatie”, pleit voor een breed spectrum aan beleidsbenaderingen – zowel preventief als curatief – die de scheidslijnen tussen formele en informele huisvesting en tussen top-down- en bottom-up praktijken laten vervagen.

Het doel van dit proefschrift is niet om optimale oplossingen voor Mumbai te formuleren, maar om de evoluerende beleids- en fysieke context van de stad te positioneren als een vruchtbare plek om de opkomende stedelijkheid van de eenentwintigste eeuw te begrijpen. Mumbai’s laboratorium van woningbouwmodellen biedt waardevolle lessen voor beleidsmakers, architecten en stedenbouwkundigen wereldwijd om van te leren – en om verder op te bouwen, samen met mensen en gemeenschappen.

■

PROPOSITIONS

of the dissertation by Rohan Varma “Modes and Models for the Masses: Drawing Lessons from Mumbai's Experiments with Affordable Housing”

1. Rather than 'Housing *FOR* All', India's policy-makers should facilitate 'Housing *BY* All'. (This proposition pertains to this dissertation)

2. When it comes to housing the masses with the most minimal means, architects should programme the built form to be evolved by people over time and the unbuilt, especially the commons, to structure and generate community. (This proposition pertains to this dissertation)

3. Housing low-income populations in high-rise towers is a high-cost solution to a low-cost problem. (This proposition pertains to this dissertation)

4. Rather than fixate on a single solution, policy-makers should seek less inspiration from French-style fine dining and more from Indian *thalis* and celebrate choice, diversity and the validity of multiple solutions over just one. (This proposition pertains to this dissertation)

5. With nearly ninety per cent of all future urbanisation expected to occur in the Global South, architecture and planning theory must venture beyond the Euro-American canon and be built on the grounds of these rapidly developing territories.

6. Only by studying the tension between planned or designed interventions posed against the informality and ingenuity of user-generated additions as well as appropriations will architects receive the feedback necessary to amplify their agency.

7. Under neoliberalism, urban development is increasingly viewed as a site for private profit rather than public good.

8. If "architecture is an agent for change," as Charles Correa famously claimed, the architect – especially in the Developing World – must also don the hat of an activist to confront and challenge social and spatial injustices.

9. For academic research to have a public presence, architecture researchers and academics should not just focus on the written word but also use their primary disciplinary tools – i.e., visual literacy and drawings – to communicate to the general public.

10. In an era that often celebrates specialisation, architects should remain generalists and follow the famous statement of science fiction writer Robert Heinlein: "Specialisation is for insects".

These propositions are regarded as opposable and defendable, and have been approved as such by the promotors:

Prof.ir. D.E. van Gameren
Prof. R. Mehrotra
Dr. N.J. Amorim Mota

STELLINGEN

bij het proefschrift van Rohan Varma, “Modes and Models for the Masses: Drawing Lessons from Mumbai's Experiments with Affordable Housing”

1. In plaats van ‘Housing *FOR* All’ zouden beleidsmakers in India ‘Housing *BY* All’ mogelijk moeten maken. (Deze stelling heeft betrekking op dit proefschrift)

2. Bij het huisvesten van de zeer grote groep met de meest minimale middelen moeten architecten het gebouwde zo opzetten dat het zich in de loop van de tijd door de bewoners aangepast kan worden, en het ongebouwde – met name de ruimte die met elkaar gedeeld wordt – zo structureren dat het gemeenschap kan vormen en ondersteunen. (Deze stelling heeft betrekking op dit proefschrift)

3. Het huisvesten van lage-inkomensgroepen in hoogbouw is een kostbare oplossing voor een probleem dat om goedkope antwoorden vraagt. (Deze stelling heeft betrekking op dit proefschrift)

4. Beleidsmakers zouden zich minder moeten fixeren op één enkele oplossing en daarbij minder inspiratie halen uit Franse haute cuisine, en meer uit Indiase *thalis* – waarbij keuze, diversiteit en de waarde van meerdere oplossingen boven slechts één enkele oplossing worden gevierd. (Deze stelling heeft betrekking op dit proefschrift)

5. Aangezien bijna negentig procent van alle toekomstige verstedelijking naar verwachting in het Mondiale Zuiden zal plaatsvinden, moet architectuur- en planningstheorie zich buiten de Euro-Amerikaanse canon begeven en zich baseren op context en cultuur van deze snel ontwikkelende gebieden zelf.

6. Alleen door de spanning te bestuderen tussen geplande of ontworpen interventies enerzijds en de informaliteit en vindingrijkheid van door gebruikers gegenereerde toevoegingen en toe-eigeningen anderzijds, kunnen architecten het inzicht verkrijgen dat nodig is om hun rol en positie te versterken.

7. Onder het neoliberalisme wordt stedelijke ontwikkeling steeds vaker gezien als een gebied voor particuliere winst in plaats van algemeen belang.

8. Als “architectuur een agent van verandering is”, volgens de befaamde uitspraak van Charles Correa, dan moet de architect – vooral in de ontwikkelingslanden – ook de rol van activist op zich nemen om sociale en ruimtelijke ongelijkheid te confronteren en aan te vechten.

9. Om academisch onderzoek in het publieke debat te laten landen zouden architectuuronderzoekers en -academici zich niet alleen moeten richten op het geschreven woord, maar ook hun primaire disciplinaire middelen – visuele geletterdheid en tekeningen – moeten gebruiken om met het brede publiek te communiceren.

10. In een tijdperk dat vaak specialisatie verheerlijkt, zouden architecten generalisten moeten blijven en de beroemde uitspraak van sciencefictionschrijver Robert Heinlein volgen: “Specialisatie is voor insecten”.

Deze stellingen worden beschouwd als betwistbaar en verdedigbaar, en zijn als zodanig goedgekeurd door de promotoren:

Prof.ir. D.E. van Gameren
Prof. R. Mehrotra
Dr. N.J. Amorim Mota



1

The housing problem in Mumbai has reached critical proportions. More than half of the population in India's financial capital dwells in slums and slum-like conditions



2



Yet, the paradox is that while over 6 million people in Mumbai lack access to adequate and affordable shelter, rampant construction aimed at middle and higher income groups has also led to an inventory of nearly half a million vacant homes

3

4



Launched in 2015, the national “Housing for All” mission aims to tackle this urban housing shortage by delivering more than a million houses in Mumbai, mainly through public-private partnerships as the primary delivery mechanism

5



However, such an “enabling” approach to housing production, that first gained traction in the years following economic liberalisation starting in 1991, have with the introduction of the "Housing for All" mission increasingly come to view housing as a commodity, rather than a place to dwell



6

7



This commodification of housing has marked a clear turn towards what Asher Ghertner terms "proprietary of property" – a paradigm where housing is seen mianly as a site for private profit, not a public good

8

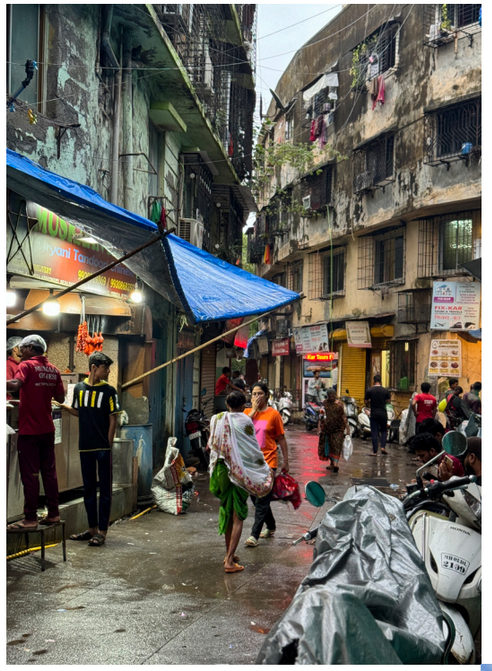


With housing for lower-income groups now reduced to a game of numbers, standardised, monotonous and inflexible high-rise, high-density housing have emerged as the default typology deepening the fracture between housing as habitat and housing as real estate



9

As a result, a policy such as the "Housing for All" mission is largely unable respond to the economic realities as well as the social, economic and cultural practices of people for atleast three major reasons...



11

10



First and foremost, as Indian architect Charles Correa often said, “migrants don’t come to cities looking for housing. They come in search of work.” And this work can often be informal, temporary or seasonal. Without acknowledging this fact and by focussing solely on home-ownership, current housing policies ignore patterns of urbanisation that demand a greater diversity of tenures as well as housing typologies that are malleable enough to accommodate people’s changing needs and live/ work requirements



12

Secondly, such policies have also been instrumental in introducing what planner and academic Gautam Bhan calls a “new urban grammar” – concepts, categories and classifications that have stripped housing of its relationship with the city and how people live



14

13



And thirdly, by concentrating predominantly on scaling private sector involvement in housing, the current national housing policy crucially overlooks the fact that individual households, communities and local contractors – what can be called the ‘bazaar sector’ – build, even today, nearly 7 out of every 10 homes in India

15



In such emerging contexts, what planning tools and methods can governments devise to meet the demands of the existing housing stock and future growth?

16



What trade-offs between top-down and bottom-up planning can ensure the production of affordable and sustainable communities?



17

And, how can architects and planners rethink design strategies and standards to anticipate and accommodate informal practices rather than hinder them?

1.1 THE CHALLENGE OF SLUMS: THE VIEW FROM MUMBAI 34
1.2 FRAMING THE PROBLEM & RESEARCH HYPOTHESIS 45
1.3 RESEARCH AIMS & QUESTIONS 49
1.4 RESEARCH METHODS 50
1.5 LIMITS & SCOPE OF THESIS 53
1.6 RESEARCH STRUCTURE 55

PROBLEMS AND POSSIBILITIES

AN INTRODUCTION TO THE HOUSING QUESTION



THE CHALLENGE OF SLUMS

THE VIEW FROM MUMBAI



Fig. 1 Aerial photograph of Prem Nagar taken in 2012. Notice, no two houses are the same.

"Consider the case of Bombay. Twenty years ago squatters were less than 400,000 in a population of 4.5 million. Today they are almost 4.5 million in a population of nine million. Thus, while the nation has grown by fifty per cent, and the city by hundred per cent, the squatters have increased by more than 1100 per cent! Facts like these are going to change the images that are triggered off in our minds by the word 'city'."

Charles Correa, *The New Landscape: Urbanisation in the Third World*, 1985

At the foot of the 15-storey building where I live in the northern suburb of Malad in Mumbai[1] lies a government-notified "slum"[2] named Prem Nagar. Hardly three decades old, it has grown gradually on mangrove swamps and disputed land that, until the 1980s, was considered a faraway outskirt of the city. Today, Prem Nagar, when seen through my bedroom window, resembles a sea of one-to-three-storied dwellings – some *pucca* (permanent; stable) and some *kutcha* (temporary; unstable). It is not an unusual sight for this city. Bordering the "privatopia's" of Mindspace – a 44-hectare planned township built in the early 2000s by one of India's largest commercial real estate developers – Prem Nagar, home to nearly sixty-thousand people, is a stark reminder of the sharp disparities that exist between the haves and have-nots all over Mumbai.[3] Unlike its neighbouring gated communities, typically composed of two or more identical multi-story tower blocks, no two dwellings in Prem Nagar are exactly the same.

In general, dwellings that have existed on paper before the so-called "cut-off date" for regularisation (January 1st 2000) appear more consolidated partly because of the security of tenure that the Maharashtra Slum Areas Act[4] provides and also because the mode of building in Mumbai, as in so many cities of the Global South, is incremental: slow, self-built, negotiated at each step with actors that include both the state and the subaltern.[5] Those who have arrived after that date are labelled "squatters", "slum dwellers", "illegal", "encroachers", and "outsiders". Their dwellings reflect the instability of their everyday existence.

The particular choice and preference for a term is not just a matter of semantics. The denial of Prem Nagar as a "formal" neighbourhood and its objectification and classification as a 'slum' has historically triggered – not just in Mumbai but across the world – modes of action from local and supralocal authorities that have ranged from large-scale slum clearance, resettlement and redevelopment schemes to more acupunctural and even expansive infrastructural schemes that have encouraged in-situ upgradation and self-help. At times, such strategies have also been resisted or shaped by civil society – community-based organisations and other forms of grassroots movements who have actively leveraged civil rights to carry out pioneering work to improve the liv-



2



3



4

Fig. 2 BDD chawls, one of the first public housing projects built in the early 1920s by the colonial Bombay Development Directorate (BDD).
Fig. 3 View of a courtyard within a typical cluster of the World Bank-sponsored sites-and-services scheme in Charkop in northern Mumbai.
Fig. 4 A recent large-scale high-rise public housing project built by MHADA in the northern fringes of the Mumbai Metropolitan Region.

ing conditions of informal settlements through self-organisation and neighbourhood building.

This dissertation's central project is to trace the *formation* of these paradigmatic policy shifts but centre its attention on the physical *form* of these policies and their *transformation* over time. With the aim to inform new modes of practice, production and intervention in low-income neighbourhoods, it constructs an empirical study of past attitudes and approaches to the 'slum' from a particular site: the Mumbai Metropolitan Region (MMR).

Over the past century, the slum has emerged as the region's dominant housing type and the foremost object of its policy interventions. With nearly six of every ten inhabitants – about ten million people – residing in government-recognized slums,[6] Mumbai is currently home to one of the highest slum populations of any city in the world. But its built form also reveals it as a testbed for an impressive range of experiments – and failures – in producing, supporting and facilitating affordable housing.

Starting in the late nineteenth century with the setting up of the Bombay Improvement Trust (BIT) following the 1896 bubonic plague, the city has seen various actors – the public, private and popular sectors (and various combinations thereof) – engage in a wide range of planned interventions that have resulted in a city with a kaleidoscopic physical landscape that varies from self-built one-to-three-storied dwellings to walk-up *chawls* (tenement houses) to even thirty-storied towers and slabs.

How did this housing landscape come into being? What are the primary modes or strategic policy instruments that have shaped Mumbai's housing fabric? What types of housing do they generate? How do these urban forms relate and respond to people's living and working patterns? And finally, what can we learn from this history to inform a more sustainable and affordable future for all? To explore answers to such questions, this dissertation first asks: what is a 'slum'?

DEFINING A SLUM

Although the term 'slum' can trace its origins to the East End of London around the early half of the nineteenth century, it is now almost inevitably associated with the proliferation of so-called "spontaneous settlements" in the rapidly urbanising megacities of the Global South.[7] However, despite this widespread global adoption of the term, the definition of a slum varies significantly by country, state and city. In their landmark 2003 report, *The Challenge of Slums,* UN-Habitat provides this definition of a slum:

> "An area that combines, to various extents, the following characteristics: inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding; insecure residential status."[8]

Within the same report, Kofi Annan, the Secretary General of the United Nations (UN), is quoted as stating:

> "Without concerted action on the part of municipal authorities, national governments, civil society actors and the international community, the number of slum dwellers is likely to increase in most developing countries. And if no serious action is taken, the number of slum dwellers worldwide is projected to rise over the next 30 years to about 2 billion."[9]

In India, the Registrar General of India (RGI) adopted the following definition for the Census of India in 2001:

> "A compact area of at least 300 populations or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities."[10]

Laura Nolan points out that although previous definitions framed by agencies such as the UN combined physical, spatial, social, and behavioural aspects of urban poverty, current definitions focus primarily on environmental (material; visual) and legal adequacies.[11] But do these definitions adequately describe the dwelling conditions of low-income neighbourhoods in Mumbai?

Prem Nagar is, once again, a valuable site to study in this investigation. Observing the neighbourhood grow and consolidate over the years, I realised that what appears to be a homogeneous sea of poverty from above is, at ground level, an assemblage of incredibly diverse and productive communities differentiated by caste, religion, language and occupation. Along a *nullah* (open drain) running east-west is a commercial street that borders this self-built neighbourhood. Lined with small-scale retailers, workshops, vegetable sellers and tea stalls, this porous "border",[12] to borrow Richard Sennett's usage of the term, acts as a mixed-use zone for income generation and is illustrative of what the urbanist-educator duo Prasad Shetty and Rupali Gupte refer to as "transactional capacities". With living and labour enmeshed, the street is a reminder that the 'house' – especially in Mumbai, where an estimated 70 per cent of the city's workforce is employed in informal, often home-based economies – needs to be understood not just as an economic asset but, as Martha Chen claims, also as a "productive asset"[13].

Transactional capacities extend well beyond Prem Nagar. Although Mindscape was planned as a self-sufficient township aimed at attracting the middle class, what we see emerge in the area is a whole new layer of "bazaar-like urbanism"[14] of make-shift and mobile stalls that occupy pavements, small pockets of open spaces and other forms of interstitial spaces on a temporal, ever-changing basis. The seemingly disparate and distinct worlds of Mindscape and Prem Nagar, in fact, intersect and interact on many levels.

FORMAL/INFORMAL

Learning from such emerging urbanisms of Mumbai, Rahul Mehrotra questions dualistic thinking that pits the formal versus the



5



6



7

Fig. 5 The makeshift *bazaar* that comes to life in the late afternoons and evenings along Link Road that borders Prem Nagar on the west.
Fig. 6 An open-air laundry in Ganesh Murthy Nagar – a 'slum' nestled within the financial district in South Mumbai.
Fig. 7 View of the pottery industry in Dharavi – "Asia's largest slum".

informal – both relatively new terms that entered the lexicon of architecture and planning discourse following the British anthropologist Keith Hart's coining of the term "informal sector"[15] in the early 1970s. However, while Hart's term was primarily framed as a label for "economic activities which take place outside the framework of official institutions"[16] in architecture and planning, the term "informal settlements" can also describe settlements that appear inadequate in material or environmental terms.

Southern urban theorists, such as Ananya Roy, for example, make a distinction between what she calls "elite informality"[17], which for her includes the coalitions formed between local city governments, private developers and housing authorities, and "subaltern informality"[18], which is characterised by the actions of the urban poor and often deemed "illegal" or even "criminal" by the state. According to Roy:

> "The planning and legal apparatus of the state has the power to determine ... what is informal and what is not, and to determine which forms of informality will thrive and which will disappear...to construct and reconstruct categories of legitimacy and illegitimacy."[19]

Informality is, therefore, as Lisa Bjorkman has also suggested, both conceptually and physically constructed.[20] Seeking synthesis, Mehrotra adverts a blurring of such binaries that he deems counterproductive in understanding the dynamics and complexities of twenty-first-century urbanism. Drawing on several examples from Mumbai, Mehrotra puts forth his thesis of the 'Kinetic City' that challenges the reading of cities purely through conventional, static entities such as architecture and two-dimensional cartographic land-use maps. For Mehrotra, the Kinetic City is one where "models collapse into singular entities and where meanings are ever shifting and blurred."[21]

Drawing from the experience of Indian cities, the Indian planner and housing activist Gautam Bhan dislikes the term 'slum', preferring instead to call such settlements *'basti's'* - a Hindi/Urdu word used widely across North and West India derived from the word *'basna'*, simply meaning 'to dwell'.[22] Bhan's critique is part of a larger global movement that, in developing a "theory from the South", has sought to challenge the usage of colloquial terms such as 'slums' or *'zopadpatti'* or *'jhuggi-jhopari'* in India, *'favela'* in Brazil, *'villa miseria'* in Argentina, or 'shanty towns' in South Africa.[23]

Ananya Roy, too, argues for a more thorough examination of terminologies. Oscillating between the two extreme views that, on the one hand, see slums as a dystopian picture of squalor and misery and, on the other hand, as places of resilience, entrepreneurship and the "triumph of the human spirit"[24], she uses the lens of "subaltern urbanism"[25] to caution against dualistic thinking and provokes us to imagine the "slum as a terrain of habitation, livelihood, self-organisation and politics."[26]

In her work, she does refer to such pockets of urbanity as 'slums', but with this disclaimer:

> "The term slum is an inadequate shorthand for the sheer heterogeneity of urban political economy: the diversity of informal and para-legal property arrangements, the dense economies of work and livelihood, and the complex formations of associational life and popular politics. If we recognise the slum not as defective or deviant, but rather as integral to the logic of urbanization, then of course it becomes evident that the slum, despite its inadequate nomenclature, signifies the global urban future of the world's urban majority."[27]

Despite these ground realities, informal settlements or slums often remain – deliberately – invisible in official documents and maps. As Jorge Hardoy and David Satterthwaite proclaim in their 1989 book *Squatter Citizen:*

> "You can find maps in use by city planners still representing large squatter settlements as unbuilt areas or open space, as if the illegally developed sites occupied by thousands of households somehow did not exist. Such maps illustrate official attitudes to these settlements, even when such settlements house a third or more of an entire city's population and workforce."[28]

But do such academic exercises stop bulldozers?

DOMINANT PARADIGMS

A typical response, perhaps the most pervasive public sector intervention, is slum clearance. At times, but not always, this is accompanied by building new subsidised or free public housing away from the site in an approach or mode known as 'Slum Resettlement'. An early example of slum clearance and resettlement (Chapter 3.6) in Mumbai borders Prem Nagar to the south. Covering nearly 60 hectares across two plots and accommodating almost 3700 houses, Motilal Nagar is a large resettlement colony built in the early 1960s to rehabilitate slum dwellers who were forcibly evicted from more prime lands in South Mumbai. With land values vastly lower sixty years ago, we find there a generous layout of streets in a grid formation on which simple ground-storey row houses were built as starter homes.

As a form of intervention, Motilal Nagar appears to be a precursor for another low-income housing scheme developed on a greenfield site in the mid-1980s a few kilometres north of Prem Nagar in Kandivali. Here again, we find a grid of streets, but with fundamental design differences. As opposed to Motilal Nagar, the planners of Charkop in Kandivali explicitly designed the scheme keeping in mind that people could augment the sizes of their limited houses over time with additions and expansions in an approach known as 'Sites-and-Services' (Chapter 3.3), a slum prevention strategy



8



9



10

Fig. 8 Motilal Nagar, a planned resettlement colony in built in the 1960s.
Fig. 9 A typical street in Charkop – a World Bank-sponsored sites-and-services scheme implemented in the late 1980s.
Fig. 10 Typical MHADA high-rise low-income towers under construction adjoining Prem Nagar.

favoured by the World Bank throughout much of the 1970s and 1980s not just in Mumbai but globally. Nearly four decades later, most original houses have expanded vertically, sometimes adding two or even three floors accessed via external staircases that enable residents to rent vacant or additional rooms as sources of income. Several of these modifications also include small shops or commercial spaces on the ground floor, converting, just in the case of Prem Nagar, homes into “productive assets”[29] by collapsing living and working into a single space.

However, not all interventions have benefited from a low-rise, high-density approach. Sandwiched between Prem Nagar and Motilal Nagar are three interlinked and identical twenty-two-storied towers currently under construction by the state housing agency, MHADA (Maharashtra Housing and Area Development Authority). Built under the rubric of 'Social Housing' (Chapter 3.2), when completed, the project will provide nearly 2683 homes to two income group categories now synonymous with affordable housing in India: ‘Economically Weaker Sections of society’ (or EWS, for short) and ‘Lower Income Groups (or LIG)’. With the cheapest units priced between thirty-five and forty lakh rupees (approximately USD 42,000-50,000), the development will prove largely unaffordable for most Prem Nagar residents.

Variations of the high-rise, high-density approach can also be found elsewhere in the city, mainly since the introduction of the New Economic Policy (NEP) in 1991 that signalled the state’s retreat as the primary ‘provider’ of affordable housing, Mumbai has been a testing ground for what Vinit Mukhija classifies as a novel “third approach”.[30] Termed 'Slum Redevelopment' (Chapter 3.5), this approach is, as he claims, different from the slum clearance and resettlement policies dominant in the early and mid-twentieth century and the slum improvement and sites-and-services paradigms popularised in the 1970s and 1980s. Leveraging public-private partnerships and using “land as a resource”, slum redevelopment enables private developers to rehouse slum dwellers for “free” – in-situ – in high-rise tenement buildings in exchange for additional development rights that can be used to construct higher-income housing or commercial projects for profit, in most cases, also on the same land. The result: Using Hernando de Soto’s theories, slum redevelopment in Mumbai is a textbook case of converting “dead capital” into “liquid capital.”[31] Although first implemented in the financial capital of Mumbai, this approached has been dubbed the so-called "Mumbai model" and has since the early 2000s, been officially absorbed into nationwide planning policy, including the current national housing policy called the Pradhan Mantri Awas Yojana-Urban (PMAY-U), or simply, the ‘Housing for All’ mission. In doing so, it also marked a clear move towards what Asher Ghertner terms the “proprietary of property”[32] – a paradigm where housing is seen mainly as a site for private profit, not a public good.

The counterargument to such disruptive modes and models and one recommended by many housing activists and agencies such



11



12

Fig. 11 View of a typical slum redevelopment project with high-end high-rises at the back.
Fig. 12 Public toilets on the northern edge of Prem Nagar – an example of the slum improvement and upgrading.

as UN-Habitat is 'Slum Improvement and Upgradation' (Chapter 3.4). With the primary aim of integrating low-income neighbourhoods into the larger fabric of cities through the provision of security of tenure, essential services, amenities, and infrastructure, this strategy is the most sensitive to the social and economic networks that people have built for themselves. However, as Werthmann also states, there are no transparent best practices regarding this strategy, and several slum upgrading schemes confront challenges such as high costs, limited coverage and resources, complex land tenures and lack of political will.[33]

Over the past twenty-odd years, the changing view outside my bedroom window attests to the challenges of framing "solutions" to "housing problems". The influential housing activist and architect John Turner describes this as the friction that arises when trying to match the "macrosupply" of the authorities and professionals with the "microdemands" of people and their communities. Yet, at the same time, he also acknowledges that the "microsupply" provided by self-built processes can significantly conflict with the "macrodemands" of the city.[34] If Turner is right, how then can we – the technocrats – learn to share control?

1.2 FRAMING THE PROBLEM

In 1985, the Indian architect and planner Charles Correa (1930-2015) wrote *The New Landscape*. The book draws from a vast repository of examples, statistics and policies worldwide to argue for more affordable and equitable urban development in India. In less than a hundred and thirty pages, Correa addresses various issues and scales – from rethinking land-use policies and public transportation systems to even proposing a 'Bill of Rights for housing in the Third World'. The result is eight short chapters – a manifesto for the Third World city – that, for Correa, was necessary for constructing a "theoretical schema which can provide the basis for coherent action."[35]

The "action", in the case of *The New Landscape,* revolves mainly around questions of housing – both at the scale of the individual dwelling and the city. In various chapters of the book, Correa offers approaches to building affordable housing that contrast the cookie-cutter approach of "conventional" housing policies, the kind we can find in Mumbai's M-East Ward. Closer in spirit to the thinking of housing activists like Charles Abrams and John Turner than to those of Le Corbusier, Correa argues for a more pluralistic approach to housing, one that could involve many different participants and many delivery systems. In the essay *Disaggregating the Numbers*, Correa states:

> "If we consider, for example, the remarkable opus of Modern Architecture in this century, we find that the most glaring failure has been in the field of mass housing. Without doubt, the architects earnestly and sincerely believed that they were going to create a more humane and liveable habitat. In actual fact, in most cases what they produced was

> faceless, ugly and dull. Is it a matter of design talent? I think not. Rather, it was an inevitable outcome of methodology, of the way we picked up the problem."[36]

So, then, what is the problem? Further in the essay, Correa claims that programmes and policies that favour centralised or top-down modes of mass housing production – irrespective of whether they are built by the public or private sectors – typically fail. According to him, both produce housing along the principles of the Ford assembly line. A statement from the same chapter proclaims in bold: "Ideal House x 10,000 ≠ Ideal Community".[37]

While they may not generate community, do such approaches at least reach the scale of demand needed? Indulging in a brief numbers game, let us first review the current state of public housing in Mumbai. In 2015, the then Maharashtra state minister for housing, Prakash Mehta, announced an ambitious scheme to build 1.1 million homes in Mumbai as part of the national 'Housing for All' mission. Half of these were to be built by 2020, mainly through an enabling framework that uses public-private partnerships as the primary delivery mechanism. Yet, with the average "affordable home" built through public-private partnership models costing well over 40 lakh rupees (50.000 USD) in Mumbai, most such projects mean little to the urban poor. Even if one goes by the state's definition of affordability for 'economically weaker sections of society' (EWS), this would mean that affordable homes should cost below 15 lakh rupees (about 18.000 USD) – a figure far too low to incentivise the market without extravagant subsidies and compromises by the state (such as what happens under slum redevelopment or resettlement schemes).[38] Thus, we encounter a strange paradox: rampant construction aimed at higher-income groups in a city with a housing shortage of over a million homes has also led to a growing vacant housing inventory estimated at 0.48 million homes.[39] Numbers like this reveal not only a grotesque mismatch between supply and demand but also the market's failure to play the role of the state.

But does the state as the provider fare any better? If we continue quantifying recent affordable housing production, Maharashtra's state housing board, MHADA, has an even poorer record. In 2019, its annual Mumbai lottery put up only 217 houses for purchase.[40] In 2018, it was a bit better – 1384 houses – but hardly a figure that makes any difference in a city the size of Mumbai.[41] And it isn't just that they build such few projects; it's also what they build, how much they cost and where they build them. Scan through MHADA's website, and one will come across standardised and repetitive tower blocks – L-type, I-type, H-type – built in far-flung corners of the city and devoid of those essential ingredients that generate habitat.

Hussain Indorewalla critiques both approaches and claims that "for more than a century, the municipal government and the various parastatal agencies operating in the city have been more efficient at dis-housing than housing the urban poor."[42] In another article, *Does Mumbai really need 11 lakh (1.1 million) more houses?* Indorewalla describes Mehta's housing plan as nothing more than "a sophisticated land-grab scheme".[43] Even though it is widely known that nearly 96 per cent of the demand for housing comes from the EWS, the draft Maharashtra Housing Policy envisions only 56.8% units for the urban poor, with the remaining intended for middle and higher-income groups.

Despite this, some have hailed the government's approach post-economic liberalisation that began in the early 1990s as more "participatory, facilitative and inclusive, with more room for the market"[44] and continues to advocate for strengthening 'enabling' strategies centred around public-private partnerships and large-scale urban renewal. On the other hand, others have heavily criticised current policies for being nothing more than a "land grab", reflecting the "steady, if not linear, erosion of the entitlement of the urban poor"[45] and advocate for greater emphasis on upgrading existing inadequate housing stock along with renewed participatory and democratic planning tools.

Here again, we must look to Prem Nagar to test this hypothesis. Alongside providing security of tenure, various government and non-governmental agencies have, over the past twenty years, attempted to improve and upgrade the living conditions in Prem Nagar by providing basic infrastructure and services through a mode typically defined as 'Slum Improvement and Upgradation', that include providing health and sanitation facilities such as building community toilets. Regrettably, India is home to nearly sixty per cent of the estimated one billion people on the planet who lack access to a toilet.[46] Dense urban centres like Mumbai exacerbate this problem, and Prem Nagar is no exception. Every morning, long queues form outside the seven community toilets that serve this neighbourhood. Each toilet block follows a template found across the city and consists of a ground-storey rectangular structure built of load-bearing walls, asbestos or concrete roofing, and, in most cases, twenty toilet stalls divided equally into separate sections for men and women.

However, the problem with this approach is twofold. The first is the poor design, location, management, and upkeep of such facilities. In a 2016 study conducted by city authorities of the 750-odd community toilets built under the World Bank-initiated Slum Sanitation Program (SSP), 58 per cent had no electricity, while 78 per cent had no access to water in addition to other inadequacies such as lack of privacy and supply of sanitation facilities such as sanitary napkins for women.[47]

The second problem is that of adequate supply. The community toilets built under the SSP totalled 26,379 seats, resulting in a ratio of roughly one toilet seat for 190 people – nearly four times the government-accepted World Health Organization (WHO) norms of one toilet seat per 50 people.[48]

Despite these facts, Maharashtra's then Chief Minister, Devendra Fadnavis, claimed in 2017 that Mumbai had reached its target of becoming an "open-defecation-free" (ODF) city through

its “one-home-one-toilet” policy.[49] Such claims have since been proven to be completely false. According to the 2022 Mumbai Climate Action Plan (MCAP) prepared by the Municipal Corporation of Greater Mumbai (BMC), one in every three homes in India’s financial capital lacks a functioning water tap, and nearly 42 per cent of all households in the city depend on community toilets.[50] Despite a century’s worth of slum improvement measures, almost half a million residents (a population greater than that of Minneapolis) living in India’s financial capital have no choice even today but to defecate in the open.[51] Facts such as these also cast doubts over the efficacy of slum improvement and upgrading strategies as being able to solve Mumbai’s “slum problem”. Which approach is more sustainable and able to meet the demands, both in quantitative terms and qualitative?

This dissertation is, in many ways, a reaction to Correa’s theory of “disaggregation” and builds a research project around this single hypothesis: neither the public sector nor the private sector alone, or various combinations there-off, have proved capable or even willing to build housing that is affordable, adequate and at the scale and pace that is required for the targeted demographics that need them the most. As a result, it is the informal sector – often manifested as slums – that remains the only affordable and viable option for a majority of the city’s low-income dwellers. Today, there are few cities in the world where the disparities between rich and poor, formal and informal, are more apparent than in Mumbai. As Mike Davis so poignantly pointed out, the city of Mumbai is "the global capital of slum dwellers"[52] with even conservative estimating that more than 60 per cent of its population, currently live in informal settlements that have grown in pockets throughout the city, with little access to adequate housing, infrastructure and urban services.[53]

Looking beyond Mumbai, and if estimates by the UN are to be believed, about two-thirds of all future urbanisation will take shape outside formal processes and protocols, and a vast majority of it – nearly ninety per cent – will occur in the rapidly urbanising territories of the Global South.[54] In such a context, “informal urbanisation” or “auto-construction”, as several scholars have argued, can no longer be considered marginal.[55] This research project hypothesises that the underlying lesson of the past century is that the challenges of housing the greatest number can only be met if people – and the habitats they produce – are recognised as being part of the solution and not the problem. The other part must come from policies and design strategies that can respond both to the macro demands of the city and the micro demands of people and their communities. This necessitates refraining from framing housing policies and modes of housing provision and intervention as binaries – formal versus informal, private versus public sectors, large-scale interventions versus small-scale improvements.

What does this mean for housing design, and how can architects re-think their methods for building for the masses? This is where a study of Mumbai as both the poster child of the emerging urban future and a site of housing experimentation and innovation can offer lessons for building an alternate future. Despite all its problems, Mumbai’s housing landscape is a repository of strategies – modes – that have ranged from small-scale retrofitting schemes to large-scale urban renewal – resulting in a catalogue of models that illustrate a wide variety of approaches that sometimes involved direct involvement of the state, sometimes along with the private sector, and at times also with the marginalised masses who have forged collaborations with local, state, national and national and even multilateral agencies to claim their “right to the city”.[56] This city and its various models for the masses provide fertile ground for architects, planners, and urban designers to study past paradigms to develop new skills and strategies for the future. This dissertation is a search for those strategies.

1.3 RESEARCH AIMS & QUESTIONS

One of the main aims of this research project has been to recognise Mumbai as a site for understanding the emerging urbanism of the twenty-first century and as a field of housing experimentation that holds lessons for students, practitioners and policy-makers worldwide. This dissertation argues that Mumbai, with a century of mass housing experimentation behind it, is a city from which we can (and should) ask:

What planning tools and strategies have governments devised to meet the demands of existing housing stock and also future growth?

What trade-offs between top-down and bottom-up planning have ensured the production of affordable and sustainable communities?

And what strategies have architects and urban designers employed to anticipate and accommodate informal practices rather than hinder them?

With this as a foundation and these questions as a trigger, this dissertation has four core aims:

Firstly, it seeks to embed Mumbai and India’s housing story within a larger global history of changing paradigms and approaches to highlight both parallel and diverging lines of development. By widening the field of view to this global scale, it aims to identify the influences and impact of global approaches, agents and agencies on the city’s housing landscape.

Secondly, it seeks to disrupt and problematize the general narrative of Mumbai’s evolving policy landscape, which has conventionally periodised policies into neat chronological categories of ‘controller’, ‘provider’, and ‘facilitator’ paradigms. Instead, this research focuses on modes of housing production that cut across historical periods, agencies, and scales to present a more complex and comprehensive history.

Thirdly, through a multidisciplinary framework that overlaps three lenses: 'Policies', 'Physical Form', and 'Patterns of Inhabitation', this research attempts to challenge conventional canons of understanding and studying housing that currently place an asym-

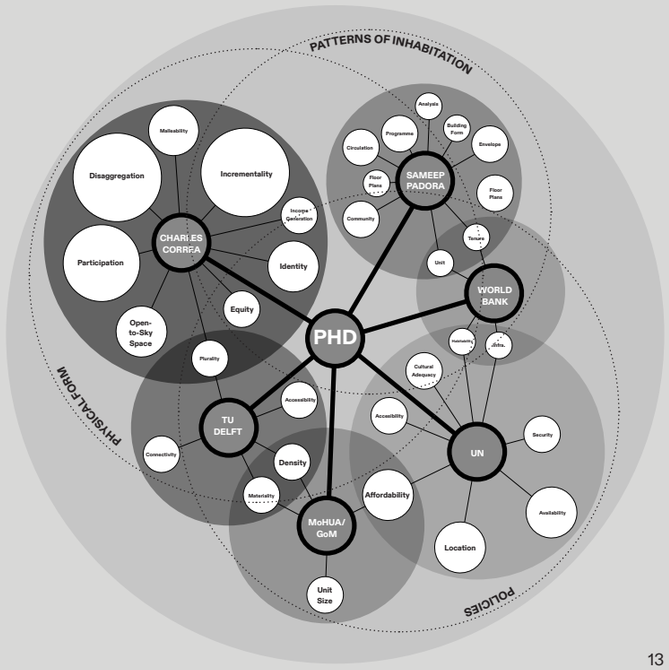
metrical emphasis of quantitative metrics as the only measure of past policies and programmes. Instead, the primary aim of this dissertation is to conclude with a set of new lenses to assess the physical performance of past policies and point directions for the future.

1.4 RESEARCH METHODS

This dissertation argues that the complexities of studying a topic like housing necessitates the use of mixed methodologies. In addition to scanning existing literature on the subject from a variety of disciplinary perspectives, this dissertation aims to contribute to discourse by widening the analytical scope of the project, borrowing from the fields of policy studies, social sciences and, of course, architecture and urban studies. This interdisciplinary approach informs both the theoretical framework and the research methodology of the dissertation.

Through the deployment of multidisciplinary and overlapping lenses of 'Policies', 'Physical Form' and 'Patterns of Inhabitation', the central project of this dissertation is to trace the *formation* of Mumbai's paradigmatic housing policy shifts and their impact on evolving physical *form* and subsequent *transformation* over time to find the optimal trade-offs between top-down and bottom-up planning and formal and informal housing practices.

The dissertation contains five sections, including this introductory section and an envoi. Each intervening section begins with a chapter on methodology and outlines its key theoretical framework, methods, and limitations. While the second section 'Paradigms in Practice' and the third section 'Policies and Physical Form' borrow heavily from secondary sources such as literature and archival material, the fourth section 'Patterns of Inhabitation' employs both primary and secondary sources that are also reflected in the research methods adopted for conducting fieldwork and gathering data. Building on this research method, termed 'architectural ethnography', this dissertation aims to promote a more humanistic approach to analysing and studying housing and settlement design, considering temporality and human agency as crucial factors in shaping the built environment. Composed in the form of an "animated atlas", this section combines the Delft 'Plan Analysis' method with ethnographic tools that include site surveys (collected in the format of maps, photographs and videos), direct observation (collected in the form of field notes and sketches) and synthesised in the format of 'time-series analysis' drawings (post-occupancy studies that map the transformation and use of space over time through drawings, particularly, detailed isometrics and photographs all accompanied by short narratives). It examines people's everyday practices across four dimensions: 'Domestic', 'Social', 'Cultural', and 'Economic' and across four scales: the 'Public', 'Semi-Public', 'Semi-Private' and 'Private'. While each scale and dimension can be considered independently, the investigation also considers their various interrelations to make broad conclusions.



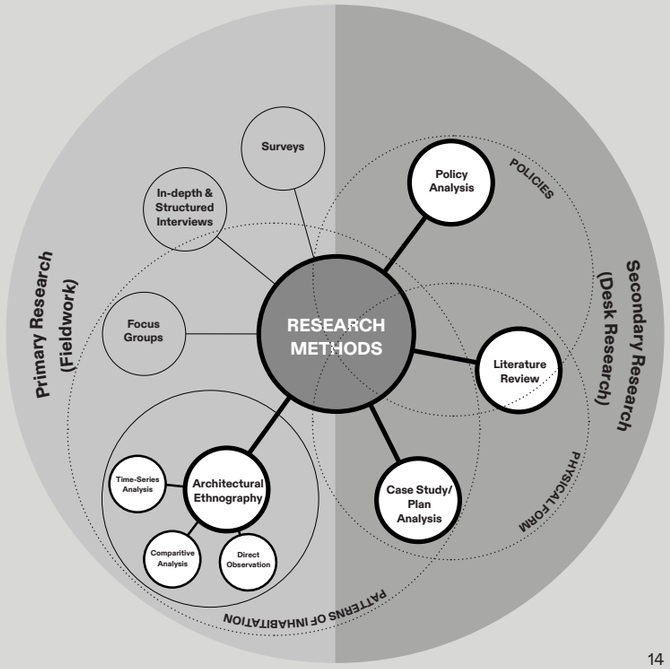


Fig. 13 Diagram illustrating key theoretical references and the overlapping of three lenses: "policies," "physical form," and "patterns of inhabitation."
Fig. 14 Diagram illustrating the main research methods adopted in this thesis.

It is essential to state here that the research methods employed in this dissertation have also been developed as an educational tool for various Global Housing design studios at TU Delft, including the graduation studios of 'Mixing Mumbai' that I co-taught – and continue to teach – alongside Dick van Gameren, Marina Tabassum and Nelson Mota. Since 2017, these semester and year-long design studios that I have been involved with have studied four cities across the Global South: Mumbai, Dhaka, Sylhet and Buenos Aires, which have greatly shaped this research project. 'Architectural ethnography' was also a research methodology explored for an elective workshop with students of the KRVIA in Mumbai in the autumn of 2019. More recently, I have had the opportunity to further explore this technique and method as part of the elective 'Architectural Ethnography' organised in the springs of 2023, 2024 and 2025 at TU Delft and co-taught alongside Nelson Mota, Pierijn van der Putt, Alejandro Campos Uribe and Antonio Paoletti in collaboration with students, teachers and researchers of Leiden University Medical Centre (LUMC) and the Hogeschool Leiden.

As a concluding note on methodology, and particularly related to the section 'Patterns of Inhabitation', direct observation of reality is used as a basis for further action and recommendations. That said, carrying out fieldwork faced several challenges: The first was distance. With the site of research, a nine-hour flight away from TU Delft, and in the absence of complete financial support for this PhD project, fieldwork had to be planned around other projects and deadlines. However, in 2017 and 2018, this research benefited from two study trips that were conducted as part of my teaching assignments with TU Delft's Global Housing studios, which enabled me to visit several housing projects in Mumbai along with other researchers, students and practitioners that helped not just carry out extensive surveys but also helped select and fine-tune the various methodological lenses that this dissertation has finally employed.

Several other short trips were also made possible due to invited teaching commitments in Mumbai (for example, at the Kamla Raheja Vidyanidhi Institute for Architecture or KRVIA, where in 2018 and 2019, both Dick van Gameren and I were invited to teach semester-long studios on housing), and invited public lectures and events such as the travelling exhibition on Charles Correa's housing designs that were developed in collaboration with the Charles Correa Foundation (CCF) that travelled to four Indian cities enabling, in the process, several trips also to carry out fieldwork.

Two more field trips of a few weeks each were made possible between 2018 and 2019 using the PhD budget available to all doctoral candidates at the Department of Architecture at TU Delft. Thus, while this project did not involve extensive field trips to Mumbai that lasted more than two or three weeks in length, it did benefit from several short trips that, in turn, enabled me to visit case studies repeatedly also to document changing dwelling patterns and appropriations across time – an aspect that is central to the ethnographic approach adopted for this dissertation.

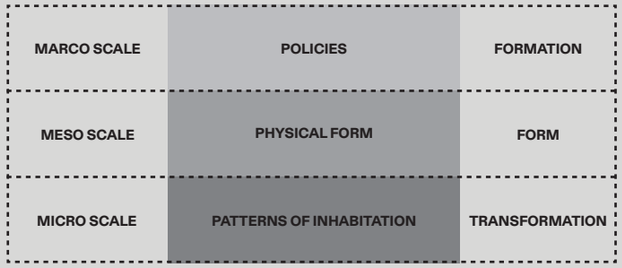
A significant challenge concerning fieldwork came with the COVID-19 pandemic starting in early 2020, severely restricting international travel between 2020 and 2021. This fundamentally impacted research methods and resulted in an adapted, limited methodology that has since relied only on methods that do not necessitate direct interactions with people and communities. This includes direct observation and time-series analysis for collecting data and conducting post-occupancy studies. Other forms of ethnographic research methods, such as semi-structured interviews, structured interviews, and focus groups that were once explored as possible research methods were abandoned in light of the challenges posed by the pandemic.

However, in 2022, with travel restrictions eased, this research benefited from a grant specifically intended for travel and to carry fieldwork that was awarded to me as a recently-appointed Delft Global Fellow. This enabled me to revisit Mumbai twice for about two weeks each and establish contact with local research and educational organisations, such as the Urban Design Research Institute (UDRI) and the KRVIA in Mumbai. Both these trips were fruitful in helping me access archival and other forms of material and data such as maps, reports, publications, GIS information, statistics, etc. Other sources for material outside of the repository and library of TU Delft include the Maharashtra State Archives (MSA), the Asiatic Society of Mumbai, the Charles Correa Foundation (CCF), Aga Khan Trust for Culture (AKTC) and open-access databases of various other organisations and educational institutes.

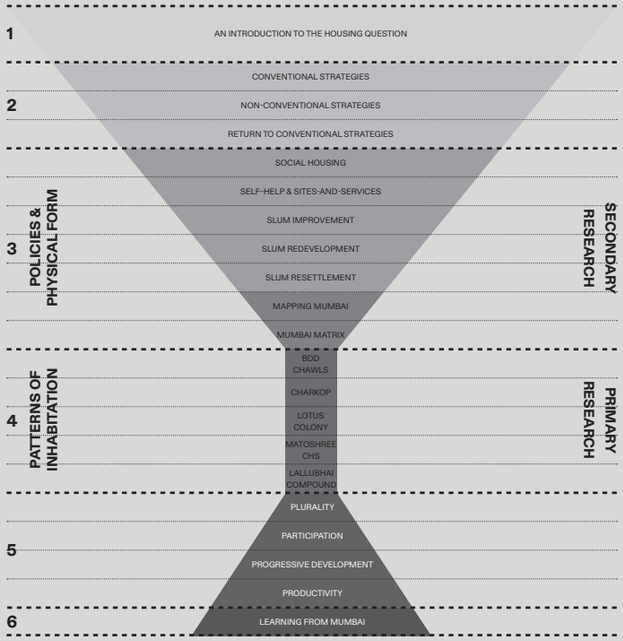
1.5 LIMITS & SCOPE OF THESIS

This dissertation focuses on the correlation between housing policies, physical form and people's patterns of inhabitation from a particular site: the Mumbai Metropolitan Region (MMR). While the diversity of housing types in the region cannot be categorised in any watertight matrix, this research does, however, seek to present a reading of the key shifts in housing policy through the five modes mentioned earlier in Chapter 1.1. It also acknowledges that while these modes do not encompass all approaches adopted by the state to address the housing question in the city, they do, however, represent the most dominant paradigms in practice since the entry of public sector intervention in affordable housing in the city. Alongside these modes, various other direct and indirect actions by the state, such as rent control mechanisms, the introduction of planning tools such as Transfer of Development Rights (TDRs), Floor Space Indexes (FSIs), and preparation of Development Plans (DPs) have all played a fundamental role in forming and transforming the city. Such forces will be discussed within chapters that relate to them but do not form core chapters or sections on their own. The focus throughout is on the five modes and the models they produced.

This brings this discussion on limitations to the primary lens of this research project, which is to examine the housing landscape



15



16

Fig. 15 Figure illustrating the three overlapping lenses – and their impact across three scales focussing not just on the *form* of housing, but also their initial *formation* and eventual *transformation* by people and communities.

Fig. 16 The Martini glass – depicting the structure of this dissertation, and summarising its key sections and research methods.

in the MMR through an analysis of architecture and urban form. Thus, while the dissertation and its methodology acknowledge that housing design is inextricably linked to larger socio-political and economic forces, it does not attempt to provide any quantitative analyses of such forces. The scope of the dissertation is limited to gathering evidence of the built implications of housing policies and programmes and on how people dwell and work within these projects.

Lastly, the diversity and quantity of built housing experiments in Mumbai demanded a selection criterion that limited the ethnographic study in Section 4.0 to five specific cases, one from each mode. Within this framework, and to cast a wide net and enable cross-comparative analysis, models of similar types and urban forms were purposely not selected. Instead, a variety of housing types and urban forms ranging from plot-based projects to large-scale, high-rise, high-density projects made the final cut to allow for a cross-sectional reading of Mumbai's diverse housing landscape.

1.6 RESEARCH STRUCTURE

The dissertation has five sections, an envoi and an appendix that contains various forms of supplementary material. Barring the first section, each section starts with a short chapter that outlines the aims, theoretical frameworks, and methods of that section before delving into individual chapters.

The first section, *Problems & Possibilities: An Introduction to the Housing Question,* introduces the reader to the key protagonist of Mumbai's housing challenges – the slum – and investigates its etymology and usage from the perspective of the "south", and after that announces the key modes and models by which the state has sought to deal with the slum question in the city. Following this, the chapter will continue to outline the dissertation in several steps: In Chapter 1.2, 'Framing the Problem' will state the key challenges and establish the working hypothesis of this dissertation. Chapter 1.3 will then state the core research aims and questions. Chapter 1.4 briefly describes the various methods used in the dissertation, including fieldwork conducted and the sources used in the dissertation. Chapter 1.5 states the limits and scope of the research. And finally, Chapter 1.6 concludes with a summary of the structure of this dissertation.

The following section, titled *Paradigms in Practice: Global & Local Perspectives,* will place the site of research within a larger geographical and spatial context that will make use of Patrick Wakely's three categories of "conventional", "non-conventional", and "return to conventional" housing strategies to provide for a brief overview of the evolution of housing paradigms for low-income urban dwellers using a global lens.[57] Spread across three chapters, this section will serve as a background to the problem and narrate a complex and layered global history of the evolving story of housing and urban development policies with a specific focus on key projects and protagonists that emerge in this story.

Starting with nineteenth-century public sector interventions in the industrialising cities of Europe and America and right up to policies currently underway in developing countries such as Ethiopia and Brazil, this section will position these long lines of development in conversation with the Indian context to highlight both parallels and diverging approaches to the housing question. As a framing of the current context for the research, this section will give particular attention to the terminology and performance of India's ongoing national housing mission, 'Housing for All,' which has, in many ways, triggered a curiosity that led to this dissertation.

The third section, *Policies & Physical Form: Mass Housing in Mumbai,* begins with an introductory chapter that provides a brief historical overview of the city and its state of housing through the work of key authors and institutions that have carried out studies of Mumbai's shifting housing form. After that, this section will provide a reading of Mumbai's layered policy timeline across five chapters that trace the evolution of the five primary modes implemented in the city: Social Housing, Self-help & Sites-and-Services, Slum Improvement & Upgradation, Slum Redevelopment, and Slum Resettlement. Set against the background of larger political, economic, and social movements in the city, these five chapters will survey the workings of each strategy to highlight shifting modes of production and patronage and the resulting housing and urban form. In doing so, this section covers a vast typological terrain: from self-built and self-initiated community projects to large-scale towers and slabs delivered and facilitated by both the public and private sectors. A systematic catalogue of twenty-five housing types bookends this section to foster a comparative analysis of Mumbai's evolving housing landscape through four typological and morphological metrics: 'Urban Form', 'Plot Density', 'Footprint & Circulation' and 'Dwelling Types'.

The fourth section, *Patterns of Inhabitation: A Day in the Life of Five Projects,* further analyses the strategies elaborated in the first section but centres its attention on the correlations between physical form and people's everyday practices through the use of 'architectural ethnography' – a research methodology currently being developed as part of the educational program of the Global Housing design studios in TU Delft. Overlapping the Delft 'Plan Analysis' method with micro-ethnographic tools such as direct observation, site surveys and time-series analyses, this section undertakes cross-comparative research of five case studies, one dominant example of each mode, expressed through different housing types that have emerged over time: chawls, incremental houses, self-built constructions, walk-up apartments and high-rise towers and slabs. Combining primary and secondary forms of research and through the instruments of short narratives, drawings and photographs, this section illustrates and indexes people's everyday practices across four lenses – 'Domestic', 'Social, Cultural, and Economic and across four scales: the 'Public', the 'Semi-Public', the 'Semi-Private' and the 'Private'.

The fifth section, *Perspectives for the Future: Drawing Conclusions*, extracts the empirical evidence collected in the dissertation and presents a framework of four key policy recommendations: 'Plurality', 'Participation', 'Progressive Development', and 'Productivity'. In doing so, these policy recommendations help re-think housing both as a site for living and an instrument for human and societal development that emphasises and enhances people's capabilities to claim their right to the city.

Finally, the dissertation concludes with an envoi that building on the Indian architect Charles Correa's theory of "disaggregation", advocates for a broad spectrum of policy approaches, both preventive and curative, that blur the dichotomies between formal and informal housing and top-down and bottom-up practices. It argues for policies and programmes to recognise the complementary roles of various actors and agencies and the simultaneous validity of multiple strategies over just one.

But at its core, rather than attempt to find optimal solutions for Mumbai, this dissertation's larger ambition is to posit the city's evolving policy and physical landscape as a fertile site for understanding the emerging urbanism of the twenty-first century and its laboratory of case studies as housing models that offer valuable lessons for policy-makers, architects and planners operating globally to learn from – and work with – people and communities. ■

2.1 SCANNING FOR STRATEGIES: A THEORETICAL FRAMEWORK 60
2.2 THE FIRST PARADIGM: CONVENTIONAL STRATEGIES 66
2.3 THE SECOND PARADIGM: NON-CONVENTIONAL STRATEGIES 84
2.4 THE THIRD PARADIGM: RETURN TO CONVENTIONAL STRATEGIES 96

PARADIGMS IN PRACTICE

GLOBAL AND LOCAL PERSPECTIVES



SCANNING FOR STRATEGIES

A THEORETICAL FRAMEWORK



Fig. 1 Built in 1890 by Alfred T. White, the Riverside Tenements in Brooklyn remain a revolutionary philantropic model for building humane and profitable dwellings for working class workers and families.

“Building lots of houses for people and places one does not know, where money is scarce and statistical information is unreliable, is neither an efficient nor an equitable way of solving housing problems, nor is it good design practice.”

Nabeel Hamdi, *Housing without Houses: Participation, Flexibility, Enablement,* 1991

In his preface to John Turner’s 1976 book *Housing by People*, Colin Ward wrote:

> “The moment that housing, a universal human activity, becomes defined as a problem, a housing problems industry is born, with an army of experts, bureaucrats and researchers whose existence is a guarantee that the problem won’t go away.”[1]

While Ward, a housing activist and self-proclaimed anarchist, was critical of the paternalistic approach of technocrats, the German architect Otto Koenigsberger, on the other hand, in his paper *Intentions of Housing Policy Alternatives*, provides an opposite view:

> “A healthy growing society will always have a housing problem. If I ever met a society that claimed to have solved all its housing problems, I would look at it with great suspicion and conclude that is must be in a worrying state of decline.”[2]

But he too, like Ward, was critical of a purely public-sector driven approach to building housing. In the same paper, he further adds:

> “In the late 50s, and early 60s, practically all public housing policies, whether urban or rural, ran out of steam. Except for the island city states of Singapore and Hong Kong, there was no country or city that could hope to produce public housing in sufficient numbers to cope with a steadily worsening situation.”[3]

In his book *Housing in Developing Cities: Experience and Lessons,* the English urban planner and educator Patrick Wakely traces the evolution of such public housing policies. He argues that public intervention in housing in the 20th century can be broadly categorised into three main approaches, or paradigms. The first he terms ‘conventional strategies’ involve the “direct construction of ‘public housing’ that is let or transferred to low-income beneficiaries at sub-market rates.”[4] At times, however, these programmes and subsidies can or have also involved the use of the private sector

and are generally transferred to low-income households at subsidised or sub-market rates.

The second strategy, Wakely defines 'non-conventional' housing strategies that focus on providing "social, technical and legislative supports"[5] that enable the production and maintenance of housing, often with people's participation, including "self-help". Such strategies, he claims, are generally two-fold, the first aim being to improve and upgrade existing informal settlements. The second is to develop new low-income neighbourhoods by providing serviced land at affordable, often subsidised rates for neighbourhood development.

The third and last strategy he outlines is what he terms a return to conventional' strategies where, once again, countries in the Global South are seeing "the re-emergence of government-sponsored and/or government-built public housing for urban low-income groups"[6] often delivered through various models of public-private partnerships.

In his book *Housing without Houses*, published in 1991, Nabeel Hamdi also reviews housing policy shifts. However, unlike Wakely's terminologies, Hamdi conflates both 'conventional' and 'return to conventional' paradigms into a single category: the 'provider' paradigm. 'Non-conventional' strategies are then what he terms the 'support' paradigm.[7]

In his writings, he makes strong arguments in favour of the 'support' paradigm that recognises the complementary roles of various actors and agencies, including the public, private and people sectors. Building on the ideas of housing activists such as John Turner and John Habraken, Hamdi advocates for planning tools and methods based on spontaneity, improvisation and incremental development.[8]

Aspects of such an approach are echoed in the writings of Matt Nohn and Reinhard Goethert. In their 2017 book, *Growing Up! The Search for High-Density Multi-story Incremental Housing*, Nohn and Goethert contend the following:

> "Incremental construction is not only the single largest creator of new affordable housing units worldwide, meeting the changing needs and priorities of poor families over time, but also a useful tool for aiding governments to deliver housing rapidly and at a large scale, reducing public management burden and capital costs significantly."[9]

They further add:

> "Multi-story incremental housing is re-emerging on the international policy agenda. Therefore, development experts are revisiting incremental and multi-story construction experiences worldwide – be it in the scope of informal self-development, sites-and-services projects initiated by governments or development agencies or slum upgrading and reconstruction efforts after disasters."[10]

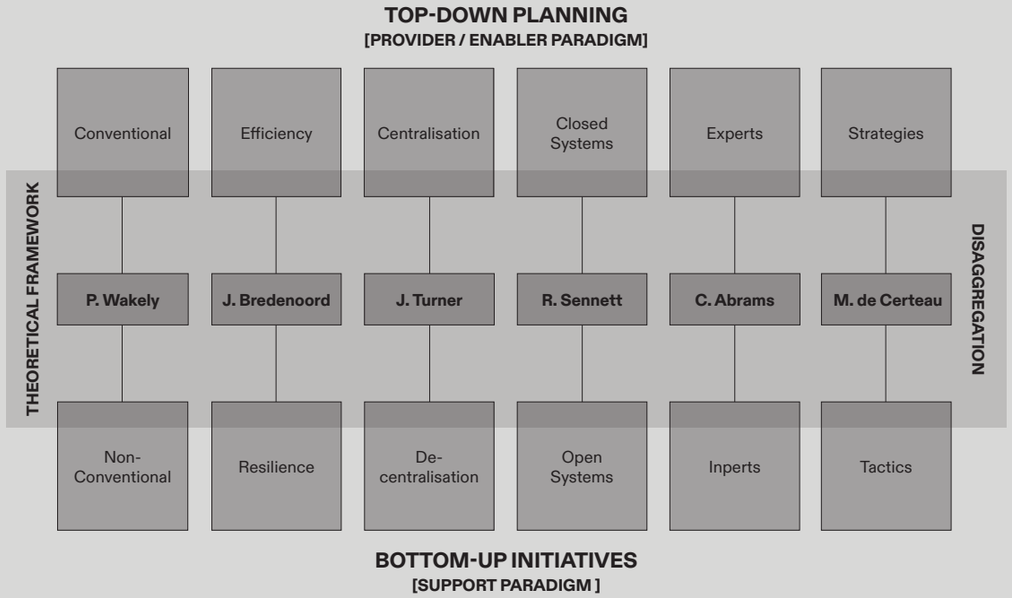


Fig. 2 Diagram illustrtaing the key theoretical references that have shaped this research, with a specific focus on finding a middle-ground between top down planning and bottom-up initiatives.

Elemental, a Chilean architectural practice, is at the forefront of developing modes for this mode. In their 2013 book, *Incremental Housing and Participatory Design*, the authors state:

> "The housing problem in the world will only be solved if we are able to combine top-down public policies with bottom-up self-construction capacity."[11]

This tension between formal and informal housing, top-down and bottom-up approaches and subsequent debates about whether the focus should be on following the 'provider' paradigm or 'support' one has been at the centre of housing and urban development discourse for decades. In Mumbai, for example, official state documents have classified the shifting role of the government into three similar categories 'controller', 'provider' and 'facilitator' with a clear focus on the latter amply visible in the formulation of the current national housing policy – the Pradhan Mantri Awas Yojana-Urban (PMAY-U).

Christian Werthmann traces the evolution of these dominant paradigms but argues against the binaries of 'provider' and 'supporter'. According to him, attitudes and approaches towards urban informality and the need for affordable housing broadly consist of five (not necessarily chronological) stages: 'denial', 'eradication', 'tolerance', 'improvement' and 'anticipation'.[12] These, he argues, better represent the broader range of approaches implemented to deal with informality. As terms, these are also echoed by Amita Bhide to describe the evolution of the "slum discourse" in the city of Mumbai into categories of 'negation' (between the 1950s and 1960s), 'tolerance' (1970s) and 'acceptance' (1980s).[13]

However, Claudio Acioly, who served as chief of UN-Habitat's Housing Policy Section for several years, advises against looking at approaches purely from what he terms "reactive" or "curative" measures that deal only with existing informal settlements. Alongside these, he makes a compelling case to define housing and urban development policies through what he calls a "twin track" approach where slum improvement and upgrading strategies should be implemented alongside large-scale "proactive" and "preventive" strategies, that include measures to open up serviced urban land and produce quantities of affordable housing stock that can absorb low-income populations.[14]

In a valuable contribution to the topic, Jan Bredenoord, Paul van Lindert and Peer Smets, in their book *Affordable Housing in the Urban Global South: Seeking Sustainable Solutions*, review current housing policies across Asia, Africa and Latin America. Their research looks at the framework and implementation of several schemes, including the role of different actors - from national governments and private developers to local community organisations. A way forward, they claim, lies in understanding that sustainable housing solutions demand an optimal trade-off between 'efficiency' (standardisation, repetition) and 'resilience' (diversity, ability to change).[15]

Which approach or strategy best strikes this balance between efficiency and resilience? As a first step towards arriving at an answer, this section will build on Patrick Wakely's three categories of 'conventional, 'non-conventional', and 'return to conventional' housing strategies to provide a brief overview of the evolution of housing paradigms for low-income urban dwellers using a global lens. Spread across three chapters, this section will serve as a background to the problem and will narrate a complex and layered global history of the evolving story of housing and urban development policies starting with nineteenth-century public sector interventions in the industrialising cities of Europe and America and right up to policies currently underway in developing countries such as Ethiopia and Brazil, this section will position these long lines of development in conversation with the Indian context to highlight both contrasts and continuities in approaches to the housing question. Through readings of existing literature and archival drawings and images, this section provides the historical background to the "slum problem" and forms the foundation on which modes for mass housing in Mumbai will be explored in the following section.

■

THE FIRST PARADIGM

CONVENTIONAL STRATEGIES

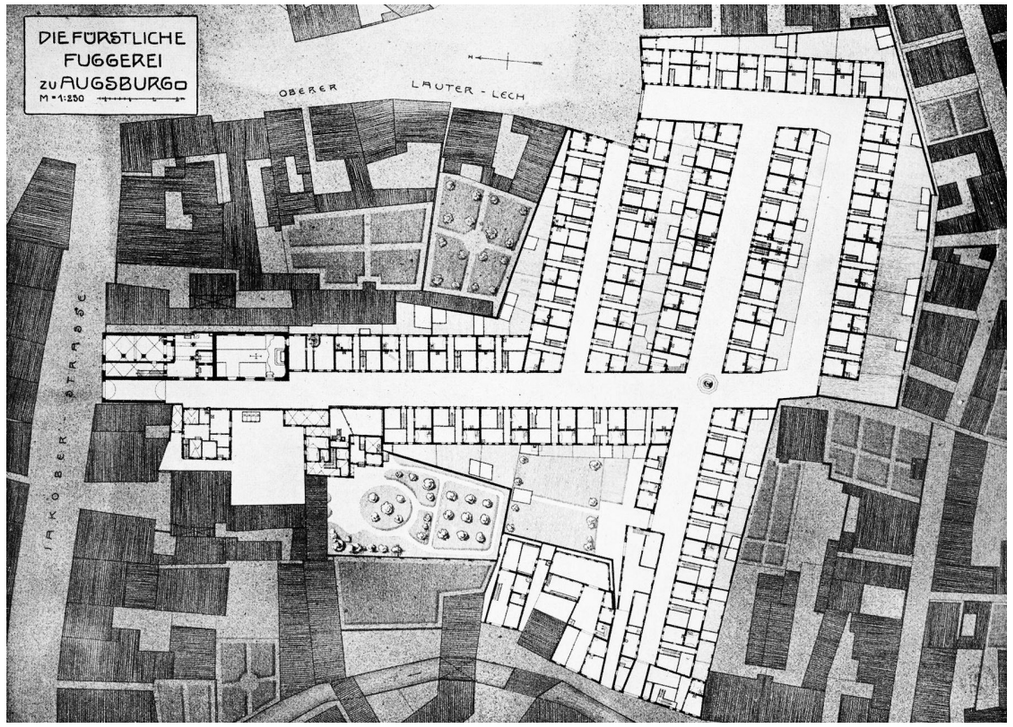


Fig. 1 Plan of the Fuggerei – a "village within the city" largely considered to be the world's oldest social housing project built in the early 16th century in Bavaria, Germany.

"Far from improving the housing of the poor, as its proponents expected, public housing has done just the reverse. The number of dwelling units destroyed in the course of erecting public housing projects has been far larger than the number of new dwelling units constructed....But this has only made the problem for the rest all the worse, since the average density of all together went up."

Milton Friedman, *Capitalism and Freedom,* 1962

The Fuggerei, located in the Bavarian city of Augsburg, is perhaps the world's oldest social housing project.[1] Built around 1520 by the wealthy merchant Jakob Fugger, it continues to provide housing to about 150 economically disadvantaged (catholic) residents in its 140 apartments that average about 45 square metres in size in uniform two-storied pitched-roof linear blocks. Remarkably, the rent – a mere 88 cents per year – hasn't increased in five centuries.[2] With its city walls, three gates and a small church, the scheme is often described as a medieval gated community – a "village within the city" – that stands even today as a model for affordable social housing.

PHILANTHROPIC PROJECTS

More than three centuries later, in industrialising 19th-century England, we find similar acts of philanthropy but at a much larger and more ambitious scale. Before the entry of public-sector agencies such as the London City Council (LCC) in controlling, providing or facilitating accommodation for low-income populations, housing in urban areas was universally seen as a self-built or market activity.[3]

However, following the publication of Friedrich Engel's, *The Condition of the Working Classes in England in 1844* as well as *The Communist Manifesto* co-authored by Karl Max and Engels, there was a growing concern for the welfare and living conditions of the working class amongst the wealthy upper classes in England. One such example was George Peabody, considered by many to be the "father of modern philanthropy"[4], who in 1862 established the Peabody Trust to provide decent, affordable housing for the "artisans and labouring poor of London".[5] Building on other philanthropic schemes such as the Model Lodging House completed in 1845 by the Society for Improving the Condition of the Labouring Classes on George Street in St. Giles and the Spicer Street Artisans' Homes built in 1849 by the Metropolitan Association for Improving the Dwellings of the Industrious Classes, Peabody eventually donated nearly 500,000 pounds by the time of his death in 1869 – a vast sum for those days – that over its more than century-and-a-half existence has helped build over 100,000 dwellings across London and surrounding counties.[6]

The first Peabody scheme was built on a triangular plot at the junction of Commercial and Folgate Streets in Spitalfields and was designed by Henry Astley Darbishire. Opening in 1864, the five-storied block combined low-income dwellings with provisions for shops and laundries on the ground and first floors (revenues from which helped keep the rent of the apartments low).

Between 1863 and 1885, Darbishire remained Peabody's in-house architect and would develop the standard housing block for the Trust's philanthropic projects that would be used even after his tenure. Starting with the second project built in Islington in 1865, Darbishire developed layouts arranged, whenever possible, around courtyards or squares that provided residents, particularly children, a safe haven from busy public life.

The design of the blocks themselves was rational: rectangular, the floorplan allowed multiple blocks to link on their shorter side walls but avoided more complicated angular joineries like the one in Spitalfields. Each standard block was between four to six stories tall and contained ten rooms ranging from modest one-room units to more spacious three-room apartments. For further efficiency, sanitary facilities on each floor were placed around the centrally-located stairwell, helping minimize maintenance costs. Although Darbishire would make minor adjustments to future projects, he maintained a con-

sistent and distinctive house style and built several Peabody Estates, such as the one in Westminster in 1869, Blackfriars Road in 1871 and Whitechapel in 1880.

But despite such benevolent attempts by organisations such as the Peabody Trust to improve living conditions (which, together with other similar private organisations, came to be known as the Model Dwellings Companies), London was still struggling to meet the demands of a rapidly urbanising and industrialising society. By the end of the nineteenth century, the city had grown to a population of 5.5 million – a five-fold increase from the million-odd resident population at the start of the century.[7]

Across the Atlantic, we find a similar story. Over the 19th century, New York City grew from a modest-sized town of 60.000 inhabitants in 1800 to a metropolis of nearly 3.5 million people by 1900.[8] These massive waves of immigration fuelled the growth of tenement housing, and by the turn of the century nearly two-thirds of all New Yorkers – about 2.3 million people – in so-called "dumbbell" and "railroad" tenements on narrow and long 25 feet-wide lots that the architect Ernest Flagg would describe as the "greatest evil which ever befell New York City."[9]

Recognizing the urgency of the growing housing problem, the New York City Metropolitan Board of Health published their first report in 1866 on the state of tenement housing in a 300-page document titled *Inspection of Tenement Living*:

> "The streets were uncleaned; manure heaps, containing thousands of tons, occupied piers and vacant lots; sewers were obstructed; houses were crowded, and badly ventilated, and lighted; privies were unconnected with the sewers, and overflowing; stables and yards were filled with stagnant water, and many dark and damp cellars were inhabited. The streets were obstructed, and the wharves and piers were filthy and dangerous from dilapidation; cattle were driven through the streets at all hours of the day in large numbers, and endangered the lives of the people."[10]

Poor living conditions such as these prompted many innovative schemes by "housing reformers" such as Alfred Tredway White, who advocated a model of "philanthropy plus five per cent"[11] and built a number of the city's very first social housing projects, including Tower Buildings (now Cobble Hill Towers) in 1879 and the elegant 280-unit Riverside Buildings in 1890. However, forty years of the philanthropic dividend-developer approach had resulted in just 3588 apartments by 1910.

The limited success of housing developments built by private philanthropy in New York prompted a *New York Times* article in 1896 to announce the following:

> "Philanthropy, pure and simple, will never greatly improve the housing of the people. The problem is too vast."[12]

Together with Jacob Riis's 1890 classic *How the Other Half Lives: Studies among the Tenements of New York* there was growing evidence of the living conditions of the working classes that demanded action from the public sector.

HOUSING AND HEALTH

The history of urban planning is, in many ways, a reaction to health-related events – from the cholera outbreak in London in 1854 that improved the city's sanitation systems to the epidemics of smallpox and tuberculosis in 1863 in North America that resulted in the Tenement Act of 1867, mounting awareness about the interrelationships between the physical fabric of cities and public health and safety have for the most part forced governments and industries to react proactively and emphatically.

In India, for example, the 1896 bubonic plague in Bombay (now Mumbai) triggered for the first time the direct intervention of the colonial government in building sanitary dwellings for the city's poor labouring classes. Before this period, the urban poor in Mumbai largely found accommodation in two house types: the ubiquitous self-built shop-houses found throughout the city's dense inner-city areas and the 'chawl'.

This second type was generally built by private landlords and cotton mill owners on agricultural lands surrounding the city's booming cotton mills. However, starting with the establishment of the Bombay Improvement Trust (BIT) in 1898, the British colonial government adopted the chawl type as the preferred typology to house the city's low-income dwellers and modelled their slum improvement strategies on contemporary English and Scottish town-planning institutions that enabled them to "not only to build housing, but also to demolish slums and widen roads, and improve sanitation, particularly in the problematic working-class neighbourhoods.

In general, the second half of the nineteenth century saw the passing of sweeping legislation and housing acts worldwide that led to the first public sector interventions in matters pertaining to the provision, control and management of affordable housing production for low-income urban residents. They also triggered grand visions for the redesign and redevelopment of entire precincts in a city. A dominant voice and pioneer in this field, and a recurring figure in this story, would be Le Corbusier, who in 1928 declared:

> "Hygiene and moral health depend on the layout of cities. Without hygiene and moral health, the social cell becomes atrophied."[13]

THE PROVIDER PARADIGM

In his book *Housing in Developing Cities*, Patrick Wakely claims that housing approaches – particularly in the Developing World – can be broadly categorised into three largely chronological approaches. The first approach he terms "conventional" strategies. For Wakely, these include the "direct construction of 'public housing' that is let or transferred to low-income beneficiaries at sub-market rates" but can also include the "provision of financial supports (subsidies) and non-financial incentives to private sector producers and consumers of urban housing."[14]

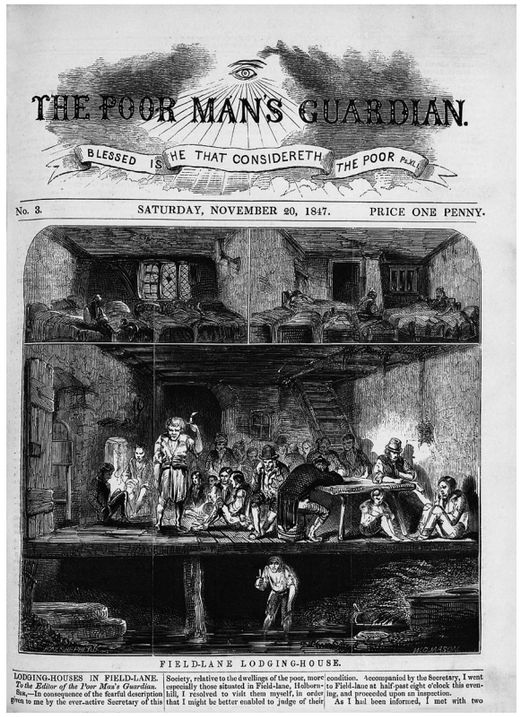
However, by widening one's gaze to a more global perspective, we can date the origins of such an approach to at least a few decades earlier and closer to the end of the nineteenth century. Starting in the industrialising cities of Europe and North America, projects such as Boundary Estate in the East End of London – one of the earliest social housing schemes to be built by local government authority – was a result of Artisans' and Labourers' Dwellings Improvement Act of 1875 that empowered the then newly established London City Council (LCC) to clear a six-hectare slum area by the name of Old Nichol that was home to nearly 6000 residents in some 730 houses. Known then as the Bethnal Green Improvement Scheme, the project was designed by Owen Fleming, the principal architect of the LCC at the time, who led the council's New Housing of the Working Classes Department between 1889 and 1907. Fleming's design eventually took the form of 21 five-storied red-brick apartment blocks that radiated outwards from a central circular open space and included community facilities like laundry areas and workshops.

Celebrated at the time for establishing "new aesthetic standards for housing the working classes"[15] in well-lit and ventilated two-and-three-roomed apartments, the scheme had one crucial drawback: of the 1069 newly built apartments meant to accommodate 5524 people, only 11 of the original Old Nichol residents moved back into Boundary Estate when it was completed in 1900. The vast majority of original inhabitants were forced to relocate to other less desirable, low-value fringes of the city, such as Dalston and Bethnal Green, where the Salvation Army's Social Wing eventually set up shelters for the homeless along with soup kitchens. In the end, Boundary Estate didn't achieve its purpose of eradicating slums. It simply moved the problem elsewhere.[16]

Examples of this pervasive paradigm involving slum clearance and displacement, all disguised as "progress" and "development", can be found across the Global North and South. In Mumbai, as several scholars such as Hussain Indorewala and Nikhil Rao have attested, the colonial government was better at dis-housing people than housing them.[17] In the first two decades of the Bombay Improvement Trust, the trust had demolished 24,428 houses and constructed only 21,387, not only resulting in an overall deficit in purely quantitative terms, but also in effect evicting the lowest-wage workers from their dwellings and replacing them with higher-earning workers in the newly built sanitary dwellings.[18]

In New York, the major switch towards public sector engagement in the direct and indirect production of affordable housing came in two quick and successive events: The first was when Fiorello LaGuardia was elected Mayor in 1934, signing within seven weeks of his arrival legislation (prepared in part by the housing pioneer Charles Abrams) that would create the first municipal housing authority in the country: The New York City Housing Authority (NYCHA) which remains the largest such authority in North America.[19] And the second came soon after, in 1936 when Governor Alfred E. Smith passed the following legislation for the state of New York:

> "that there is not an adequate supply of decent, safe, and sanitary dwelling accommodations for persons of low income; that these conditions cause an increase and spread of disease and crime and constitute a menace to


THE POOR MAN'S GUARDIAN.

BLESSED IS HE THAT CONSIDERETH THE POOR Psalm

No. 3. SATURDAY, NOVEMBER 20, 1847. PRICE ONE PENNY.

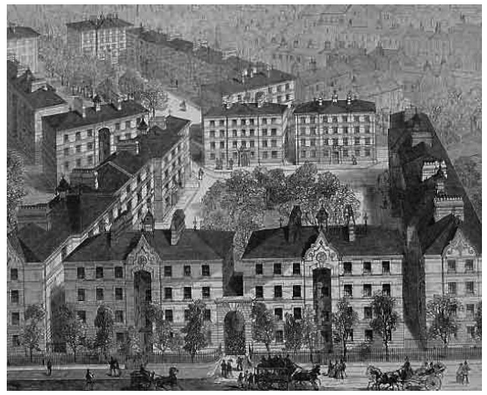
FIELD-LANE LODGING-HOUSE.

LODGING-HOUSES IN FIELD-LANE.

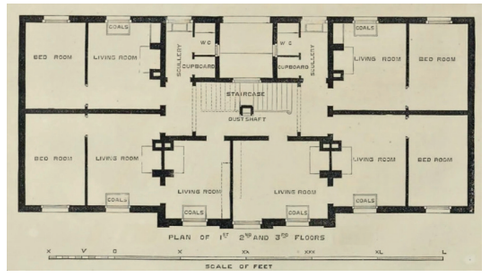
To the Editor of the Poor Man's Guardian.

Sir,—In consequence of the fearful description given to me by the ever-active Secretary of this Society, relative to the dwellings of the poor, more especially those situated in Field-lane, Holborn—to Field-lane at half-past eight o'clock this evening, and proceeded upon an inspection.

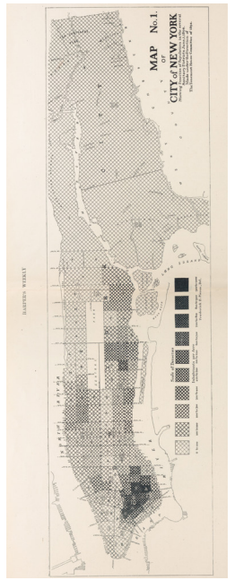
2



3



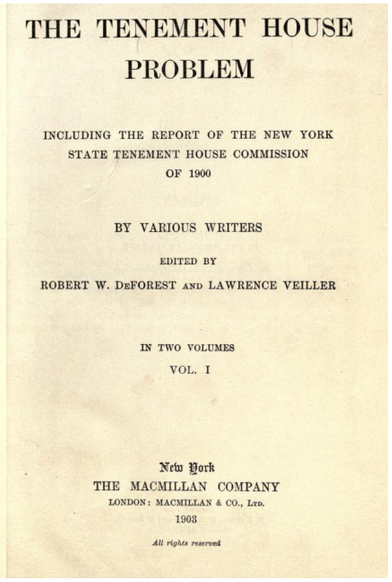
4



5


THE MOST DENSELY POPULATED SPOT IN THE WORLD—THE LOWER EAST SIDE OF NEW YORK.

6


THE TENEMENT HOUSE PROBLEM

INCLUDING THE REPORT OF THE NEW YORK STATE TENEMENT HOUSE COMMISSION OF 1900

BY VARIOUS WRITERS

EDITED BY

ROBERT W. DEFOREST AND LAWRENCE VEILLER

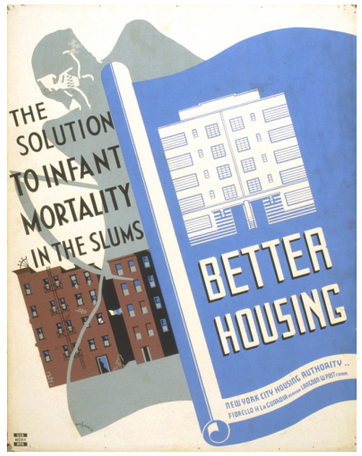
IN TWO VOLUMES

VOL. I

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1903

All rights reserved

Fig. 2 Extract from the 'Poor Man's Guardian' newspaper, 20 November 1847.
Fig. 3 Drawing of Peabody Square located on Blackfriars Road, London.
Fig. 4 Plan of a typical Peabody housing block, ca. 1872.
Fig. 5 Map of Manhattan showing densities within "sanitary districts", 1894.
Fig. 6 Cover of the 1903 report describing houses unfit for inhabitation.



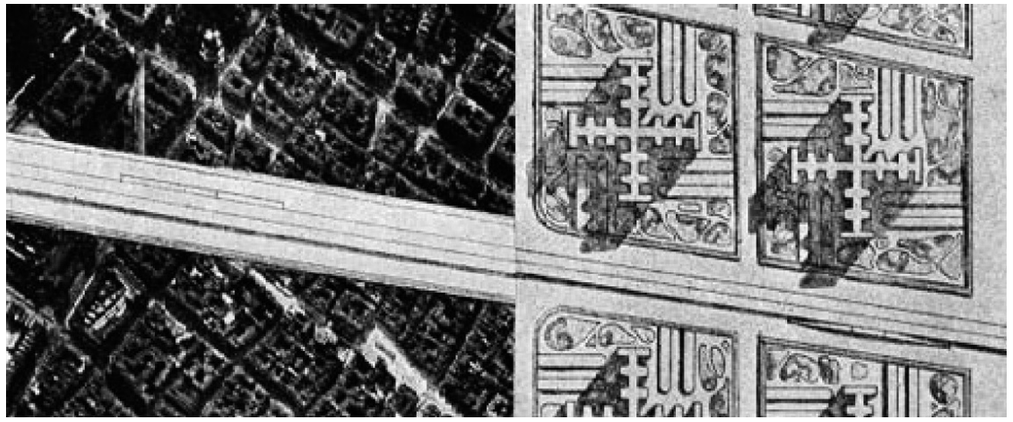
7



8



9



10



11



12

Fig. 7-9 Brochures prepared by New York City authorities to promote better living conditions.
Fig. 10 Photo montage of Le Corbusier's Plan Voisin for Paris, 1925.
Fig. 11-12 Plan of the Nichol (L) – before demolition that made way for Boundary Estate, the world's first council estate, ca. 1890s (R).

> the health, safety, morals, welfare, and comfort of the citizens of the state, and impair economic values; that these conditions cannot be remedied by the ordinary operation of private enterprise; that the clearance, replanning, and reconstruction of the areas in which un-sanitary or substandard housing conditions exist and the providing of decent, safe, and sanitary dwelling accommodations in said areas and elsewhere for persons of low income are public uses and purposes for which public money may be spent and private property acquired."[20]

PUBLIC & "QUASI-PUBLIC HOUSING"

With affordable housing increasingly seen as a public responsibility in New York City, and with Title 1 of the US Housing Act enacted in 1949, vast federal subsidies were made available in the post-war years for the clearance of slum or "blighted areas", plot aggregation, and their wholescale redevelopment or "urban renewal" by (mostly) private developers. Although the very first NYCHA urban renewal scheme, the so-called First Houses, would be built as early as 1936, the policy of slum clearance would see its most wide-scale adoption and implementation by Robert Moses, who, as chairman of the Mayor's Committee on Slum Clearance between 1949 and 1960, would personally obtain planning permits for thirty-two large-scale urban renewal projects, sixteen of which were executed under his supervision and another four that would be completed after his tenure.[21] Notable projects that came out of this program include Jacob Riis Houses built in 1949, Manhattanville Houses completed in 1961, and Penn Station South, completed in 1962.

In all three cases, dense tenements that occupied entire city blocks were replaced with uniform slabs and tower blocks, generally in a cross or pinwheel formation that clearly shows the impact of Le Corbusier's *Plan Voisin* as a model for urban renewal in New York. However, unlike Le Corbusier's 1925 vision to dramatically transform the right bank of the river Seine in Paris, New York's planners opted for the more practical block-by-block transformation that kept free, on average, about two-thirds of the area for light and ventilation. Nevertheless, despite the improved adequacy of the dwelling conditions, these so-called "projects" came at the cost of gentrification and increased segregation (mostly along racial lines). It is estimated that particularly during Robert Moses's tenure, the country's largest slum clearance programme displaced, by some accounts, nearly 85 per cent of all inhabitants who once resided in formerly-declared slum areas, a vast majority of whom were of African-American and Latino origin.[22]

However, not all conventional housing schemes have involved large-scale slum clearance. Also in New York City, the Queensbridge Houses, built in New York in the late 1930s, sits on a formerly low-value manufacturing area with a sparse residential population. Designed by William F.R. Ballard, then the Chief Architect of the NYCHA, the scheme's characteristic Y-shaped apartment blocks aimed to accommodate nearly 7000 people in approximately 3100 units – then the largest public housing project in the country – in an urban configuration that maximised sunlight and ventilation by virtue of its limited footprint and shape that increased the total surface area of its building envelope.[23]

EXPERIMENTS IN EUROPE

A similar concern for providing the maximum number of dwellings with adequate light and air can also be found on greenfield sites across Europe. The Hufeisensiedlung ("Horseshoe Estate"), built in Berlin between 1925 and 1933 and designed by architects Bruno Taut and Martin Wagner, is a famous example. Now a World Heritage Site[24], the Hufeisensiedlung, with its characteristic horseshoe-shaped building, was planned around a large interior garden designed by landscape architect Leberecht Migge. Two and four-bedroom units make up this nearly 2000-unit complex with communal attics on the top floor that also houses laundries and storerooms. The Hufeisensiedlung was not a stand-alone project but part of a much larger social housing program by the Weimar Republic that, between 1910 and 1933, built 140,000 apartments just in Berlin. Large-scale housing estates such as the Siemensstadt Settlement, built between 1929 and 1934 and designed by a star line-up of architects, including Walter Gropius, Hans Scharoun and Hugo Häring, is another famous example from this period.

Around the same time, a remarkable series of housing design experiments were initiated in the neighbouring Netherlands after the passing of the *Woningwet* (Housing Act) of 1901. Dick van Gameren, in his book *Dutch Dwellings,* traces the impact of this important piece of legislature that, in addition to establishing building standards and empowering local authorities to undertake slum clearance and redevelopment, also required cities of more than 10,000 inhabitants to prepare urban extension plans.[25] Thus, with the passing of one act, architects became crucial agents in shaping a model that continues till the present era, with nearly 2.4 million subsidised social (rental) units housing nearly a quarter of the country's overall population.[26]

But in the early 1920s, and following an initial "rational phase", Van Gameren describes how the 1901 Housing Law would in Amsterdam lead to a new architectural movement called the 'Amsterdam School'. Led by a group of young and upcoming architects, including Michel de Klerk, Piet Kramer and Joan van der Mey, and supported by Social Democrats in power at the time, social housing was thought of as a cornerstone of an equal and just society expressed through architecture that in contrast to the *laissez-faire* attitude of the early twentieth century as well as the so-called "rational phase" would help impact identity and diversity within the framework of large housing ensembles. Such patronage would, in the years until the start of World War Two, result in a number of "workers' palaces", of which Het Schip (completed in 1919; now partly a museum of social housing), De Dageraad (1920) and Vrijheidslaan (1923) are the prime examples.

Interestingly, we also find radically different experiments underway in the Netherlands around precisely the same time. In Betondorp (concrete village), a neighbourhood in the east of Amsterdam, acute housing shortages following the end of the First World War triggered an experiment that explored the possibility of using concrete to achieve large numbers of dwellings in a short time and on a limited budget.

This experiment would later inspire Martin Wagner, one of the architects of Hufeisensiedlung, who would be instrumental in developing and promoting prefabricated construction methods and systems, most famously in the Berlin-Friedrichsfelde district between 1926 and 1930. Named *Plattenbau (*panel building*)*, this construction system would be widely adopted across East Germany and neighbouring countries, for example, in the Czech Republic, where it is called *Panelák* and Poland, where it goes by the name of *Wielka płyta* – home to nearly 4 million apartments even today.

Although not a *Plattenbau* project, we find as well in Amsterdam another very large-scale housing project built of concrete in the Bijlmermeer. Starting construction in the late 1960s in the southeast of Amsterdam, long, hexagonal concrete slabs of eleven-storied apartment buildings dominate a characteristically Dutch polder landscape. At first glance, archival photographs of the scheme are bold and daring. Bearing similarities to Park Hill in Sheffield and Le Mirail in Toulouse in France, both built in the early 1960s as experiments inspired by the urban planning ideals of the Le Corbusier-led *Congrès Internationaux d'Architecture Moderne* (CIAM), the sheer size and scale of the Bijlmermeer remain extraordinary. At one point, the project, with its 13,000 apartments, aimed to house an astonishing one in every eight Amsterdam residents. But like the infamous and now demolished Pruitt-Igoe housing complex built in St. Louis that came before it, a large portion of Bijlmermeer, criticised for decades for its social problems, crime, and lack of adequate maintenance, met with the same fate: dynamite. In the years following demolitions that began in 1995, the land use of Bijlmermeer has been densified. A large number of demolished slabs have made way for single-family dwellings, and the total number of original high-rises has been reduced from 95 to 45 per cent.[27]

THE MODERNIST DREAM IN LATIN AMERICA

Similar examples of large-scale subsidised public housing can also be found in the Developing World. Justin McGuirk's architectural travelogue *Radical Cities* starts with a description of Nonoalco-Tlatelolca – Mexico's largest housing estate, completed in 1964. Designed by Mario Pani, a lifelong admirer of Le Corbusier, the scheme is a variation of the Swiss-French architect's "tower in the park" concept. With 15,000 apartments spread across 102 apartment buildings that varied between four and twenty-two floors and housing at one point nearly 100,000 people, Nonoalco-Tlatelolca – "a modernist utopia" – makes even Pruitt Igoe look modest in comparison. However, the project, much like Boundary Estate or Manhattanville that came before it, is a classic slum clearance scheme gone wrong. Instead of rehabilitating the original residents, the new buildings became home to bureaucrats and other middle-income government employees. Following extensive damage during the 1985 and 1993 earthquakes and a result of decades of neglect and lack of maintainance, the project today is in a state of disrepair, crime-ridden, with reports that about half of all residents have been victims of or witnesses to a crime.[28]



13



14



15



16



17

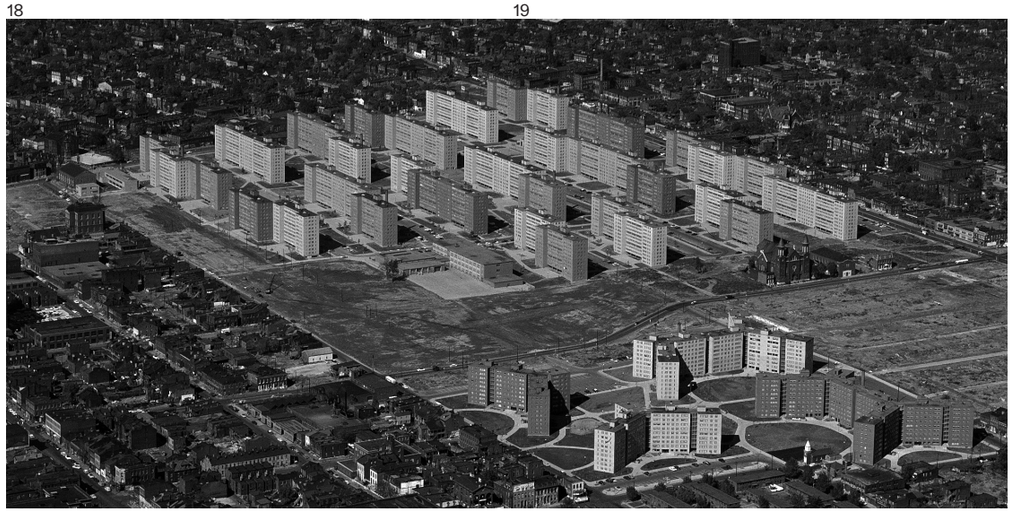
Fig. 13 Aerial photograph of Spaarndammerbuurt in Amsterdam with Zaanhof and Het Schip.
Fig. 14 Aerial photograph of the Hufeisensiedlung built in Berlin between 1925 and 1933.
Fig. 15 Aerial photograph of Betondorp in the south-east of Amsterdam.
Fig. 16 Aerial view of the large honeycomb blocks of the Bijlmermeer in Amsterdam, ca. early 1970s.
Fig. 17 Tabula rasa social housing in Berlin – drawing inspiration from CIAM.



18



19



20



21

Fig. 18 Nonoalco-Tlatelolca, Mario Pani's version of Le Corbusier's "towers in the park" concept built in Mexico City in 1964.
Fig. 19 The 23 de Enero housing complex in Caracas built around 1958.
Fig. 20 From its opening in 1954, the Pruitt-Igoe project in St. Louis became the symbol for social and planning tensions that plagued much of the post wars decades in the US.
Fig. 21 The demolition of Pruitt-Igoe in 1972 that proved to be a watershed moment in the history of mass housing design in the Western world.

Still in Latin America, we find another large-scale modernist project with a similar fate. The 23 de Enero housing complex in Caracas (originally named Unidad Residencial 2 de Diciembre to commemorate the day the dictator Marcos Pérez Jiménez came into power) was opened in 1958. Designed by Carlos Raúl Villanueva, the project is a result of the dictator's *Nuevo Ideal Nacional* (New National Ideal), a program that included framing a policy for social housing in Venezuela, amongst a whole reorganization of the country's industrial and economic development. Spread across 220 acres, 9000 units were built in a formal arrangement of 28 fifteen-storied slabs and 42 smaller blocks of four stories, all inspired by Le Corbusier's *Cité Radieuse,* and not unlike what Pani would adopt for Nonoalco-Tlatelolca a few years later. Like its Mexican counterpart, the *superbloques* of 23 de Enero (renamed in 1958 to commemorate the date of overthrowing the dictatorship) would become crime-ridden and overcrowded, with squatters inhabiting the unfinished project and with *ranchos* (slums) appropriating and reshaping the "park" between the "towers".

For McGuirk, both Nonoalco-Tlatelolca and 23 de Enero are emblematic of the widespread criticism that large-scale modernist housing estates would attract by the mid-twentieth century. In his book, McGuirk states: "For all its bravura, Latin America is where modernist Utopia went to die."[29] It is a statement that echoes an earlier one from Charles Jencks, who famously announced the death of modernism with the demolition of Pruitt-Igoe in 1972.

ANOTHER MODERNISM

However, the modernist project to house all urban residents had also taken on different shapes and forms in other contexts. Moving away from the dogmatic 'Functional City' approach of CIAM promoted in the *Charte d'Athènes* of 1933 that encouraged strict monofunctional zoning, an offspring group of young, radical "CIAM dissidents" would, in the years starting in 1953, come together to create a forum for re-positioning architecture in relation with the social sciences. Their central concern would be the challenges of building *Habitat du plus grand nombre* (housing for the greatest number)[30] or, simply, 'habitat'. Naming themselves Team 10 (in reference to the 10th CIAM congress where they attempted to draft a 'Charter of Habitat'), a list of its members now read as a supergroup of the 1960s vanguard: Alison and Peter Smithson from England, Jaap Bakema and Aldo van Eyck from the Netherlands, Giancarlo de Carlo from Italy, Georges Candilis from France and Shadrach Woods from America, in addition to a number of extended members in places as far as Japan and India. But while no Charter of Habitat was ever formally drawn up, over the next two decades, architecture and planning discourse would come to be dominated by members of Team 10 and their largely Euro-American affiliates who proposed an ecological notion of 'habitat', that according to Tom Avermaete evoked an "epistemological shift within CIAM."[31] redirecting how housing would be studied, analysed and built.

Perhaps, the most visible expression of these new ideals is found not in Europe but in Africa, where the work of Candilis and Woods, as members of the group ATBAT-Afrique alongside Michel Ecochard, would first generate interest amongst CIAM circles in 1953 for building a "new language of architecture generated by patterns of inhabitation"[32] inspired by the bidonvilles (slums) of North Africa. In their project Cité Verticale in Casablanca (then still under French colonial rule), a group of three mid-rise slabs containing multiple exaggerated patios and collective living spaces sit within a much larger masterplan designed by Ecochard – the Carrières Centrales – that uses an eight-by-eight-metre-grid derived from extensive anthropological surveys conducted by the *Service de l'Urbaniste,* which Ecochard (himself a trained architect and archaeologist) directed between 1946 and 1952.

The central concern of this new approach was the recognition of the vernacular or the everyday as a starting point for all architecture and planning. Shadrach Woods, for example, would advocate this approach by claiming that "the structure of the city lies not in its geometry but in the human activities within it."[33] In most cases, this turn towards a more sociological and anthropological approach to housing design would, from the 1950s, lead to a remarkable set of low-rise housing experiments that would find large-scale applications far beyond Morocco's borders.

HOUSING EXPERIMENTS IN INDIA

Since independence in 1947, the government of India has developed a complex architecture of central and state housing boards, finance institutions and local agencies that have conceived and implemented a range of policy interventions aimed at providing housing for lower-income groups that have long positioned India at the forefront of mass housing design. In line with Wakely's identification of three major approaches to housing production, a brief survey of these policies from independence till now reveals similar trends.

Under the leadership of Jawaharlal Nehru, India's first Prime Minister, India adopted the Soviet model for centralised planning in the form of the Planning Commission, of which Nehru was the Chairman. Designed to fix sectoral targets for growth and allocate finances for their implementation, the Planning Commission marked India's entry into socialist-style planning. In terms of housing, this resulted in strong state control and the government's direct involvement in providing and constructing housing, mainly for government employees but also for refugees and lower-income groups, especially the so-called economically weaker sections of society (EWS). In such a context, housing for the poor was seen by the government as a social or welfare responsibility rather than an economic opportunity.[34]

With the establishment of India's first Five Year Plan commencing in 1951 were formed institutions and agencies such as the Organisations such as the Ministry for Works & Housing (now Ministry for Housing & Urban Affairs, MoHUA), Public Works Departments (PWDs), National Building Organisation (NBO), and the Town & Country Planning Organisations (TCPO) that were tasked with the framing, designing and constructing of low-cost housing. In this first "conventional" phase starting in the 1950s and early 1960s, architecture and planning were deployed as instruments of the newly independent Indian socialist state to build an "idea of India"[35] – Nehru's visions for a modern and industrial city-centric welfare society that contrasted with the Gandhian model of decentralized, predominantly rural-centric development.

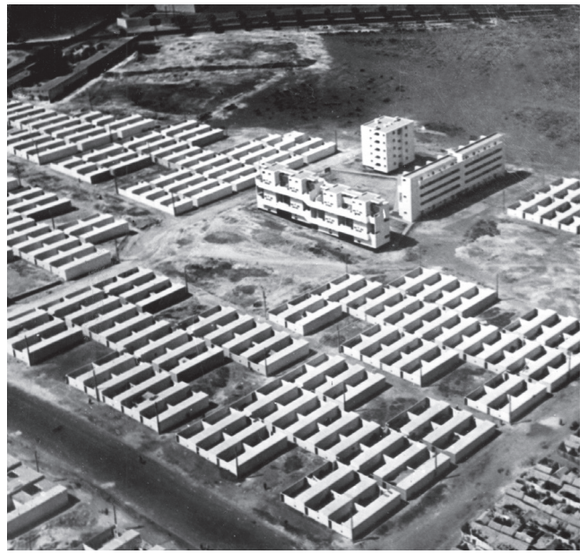
Starting in 1951, schemes such as the Integrated Subsidised Housing Scheme for Industrial Workers and EWS (1952), Low Income Group Housing Scheme (1954) and Rental Housing for State Government Employees (1959) channelled the highly centralised welfare state of the 1950s and 1960s to provide finished social housing at heavily subsidised rates.[36] However, unlike the high-rise tower and slab typologies that emerged in places such as Mexico and Venezuela, or for the matter, England and America, in India, the first wave of state-controlled direct housing provision did not produce high-rise high-density models. Rather, a response to limited resources and budgets resulted in a more cellular, low-rise approach. In 1954, the Indian government, in conjunction with a United Nations Regional Seminar on Housing and Community Improvement (directed by Jaqueline Tyrwhitt, a key personality within CIAM circles), organized an International Exhibition on Low-cost Housing in New Delhi to promote the idea of low-cost housing that included the designs for a "model village".[37]

A very early example of this can be seen in the various sectors of the newly planned city of Chandigarh designed by Le Corbusier. During its construction, Nehru expressed his view on housing the poor: "Our cheap housing schemes should be thought of chiefly in terms of providing sanitation, lighting and water supply...we can add to this as occasion offers and resources are available."[38] Unknowingly, perhaps, Nehru became an early advocate for the 'sites-and-services' approach. Taking this as a departure point and learning as well from their work in Africa and their studies on 'tropical architecture', the British architect-couple Jane Drew and Maxwell Fry designed a series of low-rise housing types in Chandigarh for a wide spectrum of income groups. The first constructed portion of the city, Sector 22, contains housing types designed by both Drew and Fry, with the former's Type 13-D – the so-called 'peon houses'. The project consists of small and narrow houses clustered in rows. Each house contains three modest rooms with the service spaces placed in the walled backyard of each house. Tied together by high walls on the outside boundary and accessed through arched openings gives the project a village-like scale character in the middle of a new modern city. When completed, Nehru commented on the project that said that it was the only cheap housing he had seen that did not look cheap.[39]

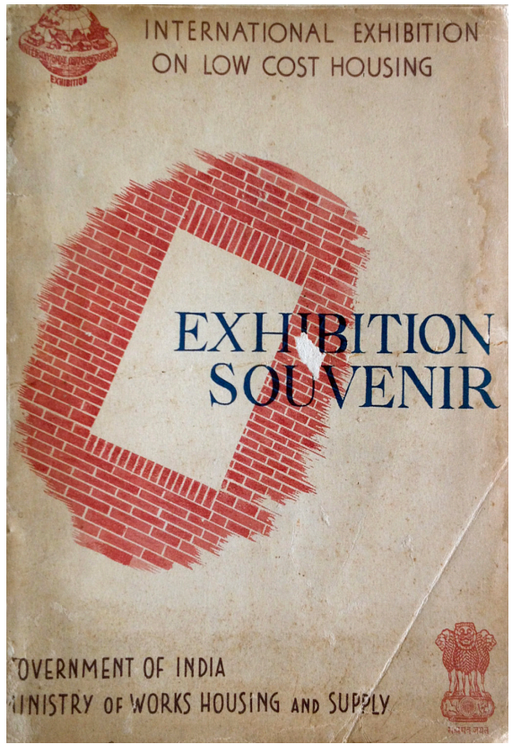
A similar variation of this type would also be explored by the Greek architect and planner Constantinos Doxiadis in the early 1960s. Following an invitation by President Mohammad Ayub Khan to plan the newly formed country's capital Islamabad, Doxiadis would draw inspiration from Chandigarh's layout and design a city based on a large grid with sectors that measured two by two kilometres. Each sector, for example, a typical Community Class V, was planned to be self-contained and was expected to accommodate roughly between twenty thousand and forty thousand people in a variety of housing types (for various income groups) that, like



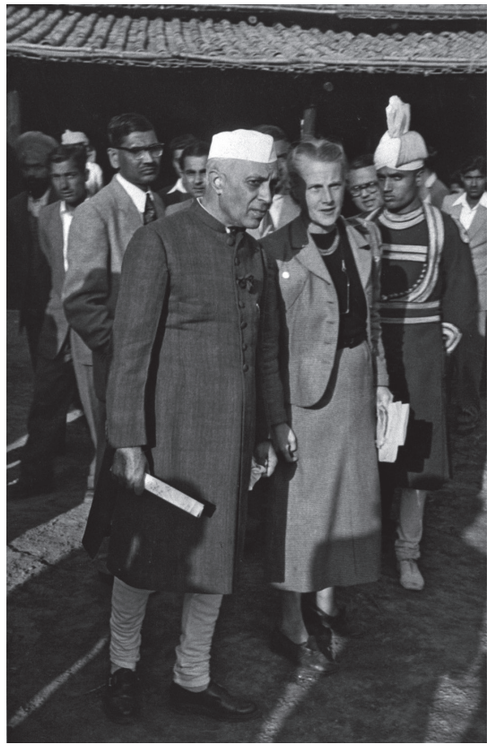
22



23

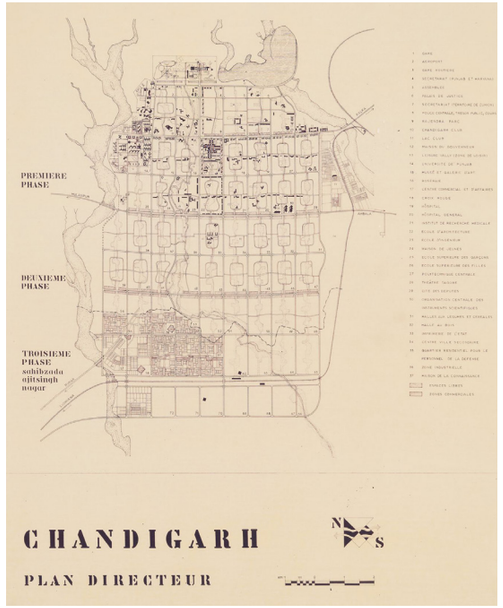


24

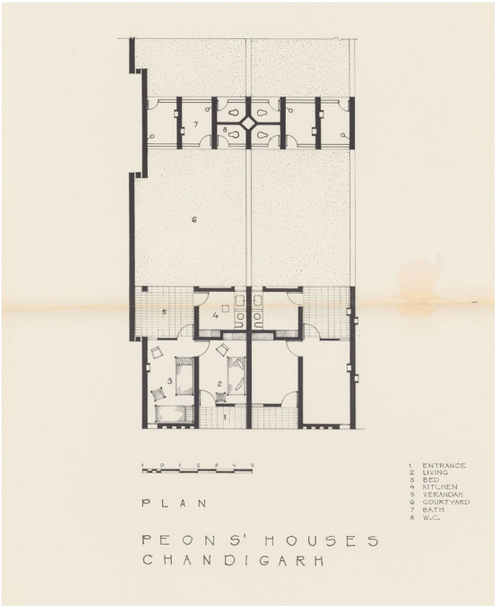


25

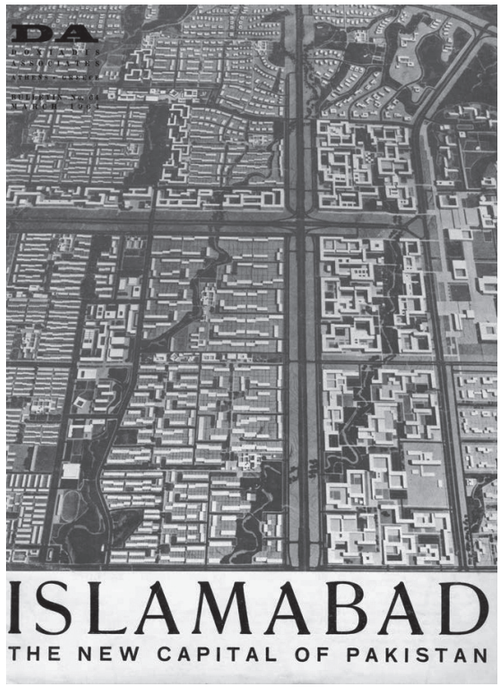
Fig. 22 A fragment of the grid *Habitat du plus grand nombre*.
Fig. 23 Aerial view of Carrières Centrales by Michel Ecochard.
Fig. 24 Cover of the booklet on Low-Cost Housing that was held in 1954.
Fig. 25 Jawaharlal Lal Nehru and Jacqueline Tyrwhitt at the exhibition in 1954.



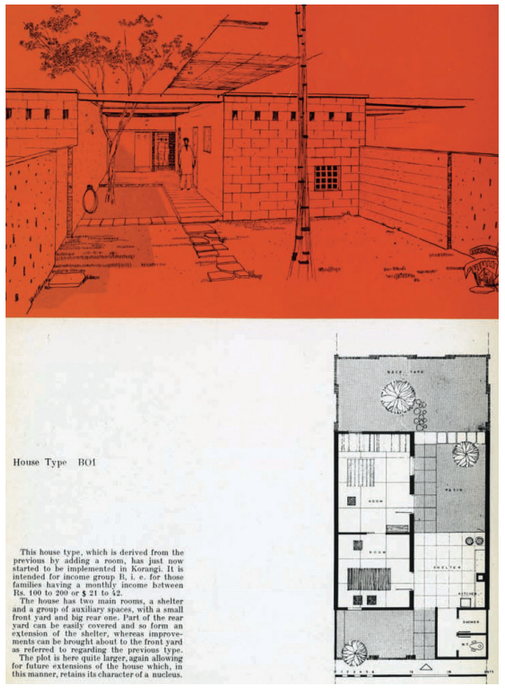
26



27



28



29

Fig. 26 Masterplan for Chandigarh prepared by Le Corbusier, ca. 1950s.
Fig. 27 Plan of the two-room 'Peon's Houses' in Sector 23 in Chandigarh.
Fig. 28 Brochure prepared by Doxiadis describing the designs for Islamabad.
Fig. 29 A dwelling unit in the catalogue of house types in Korangi Township.

Type 13-D in Chandigarh, also followed a low-cost, low-rise, high-density configuration with equal emphasis given to both indoor living (with a minimum of two rooms and a private kitchen and bathroom) and outdoor living (in the form of an open-to-sky courtyard at the back). A similar approach to creating self-sustaining communities would also be explored by Doxiadis in Karachi for the massive Korangi Township, a resettlement colony for half a million muhajirs (migrants fleeing India following partition in 1947). Both these projects illustrated his concept of the ideal twentieth-century city that he called the "Dynopolis"– an ever-growing grid of neighbourhood sectors that in Doxiadis's mind should eventually create a borderless, single planet-wide city: "Ecumenopolis".[40]

In the following decades, both Chandigarh and Islamabad's low-rise housing schemes would have a lasting impact. Ideas of using local materials, responding to local climatic patterns and limited resources would, in the decades to come, lead to a rich and extensive portfolio, particularly in India.

A key protagonist in this development was the Indian architect Charles Correa (1930-2015). In 1961, a national competition for ideas for low-income housing organised by the Gujarat Housing Board and with a jury consisting of Jane Drew and the Indian architect Achyut Kanvinde awarded the first prize to Correa's Tube House design. Inspired by the wind-catcher houses found in the hot-dry climates of north India and the Arab World, Correa managed to achieve the densities required with long and narrow terraced houses, with a sloping section that explored the possibility of cross ventilation through an air-vent located at the apex of the roof. Although the project would finally only be realized through one prototype, it is an early example of Correa's belief that "form follows climate"[41] and would inform much of his early work, leading to a consistent series of designs for affordable housing such as his scheme for employee housing in Cablenagar township in Kota (partially built, 1967), public housing that included rental government-employee housing at LIC Colony in Mumbai (1969-72) and the staggered tube-like Tara Apartments built in New Delhi (1975-78).[42]

Similar experiments on the low-rise, high-density model were also carried out by Correa's contemporaries, the most prolific of whom would be Balkrishna Doshi (1927-2023) and Raj Rewal (1934). As a former assistant to Le Corbusier, Doshi's early projects display, even more than Correa's, a strong Corbusian influence clearly seen ,in the design and layout of the terraced houses for the Ahmedabab Textile Industry's Reasearch Association (ATIRA) in Ahmedabad from 1957.[43]

Other stand-out state-driven projects from Doshi's early career include the 2000-unit township for the Gujarat State Fertilizers Corporation (GSFC) built in Baroda in 1968 and the Electronics Corporation of India (ECIL; 1972). Moving away from a Corbusian aesthetic, one can notice in Doshi's works in the 1970s a search for regionality that is better expressed in his designs for the Life Insurance Corporation (LIC) Colony, also built in Ahmedabad in 1973. Here, a ziggurat-like form allows for each family to colonize and extend their homes over time – a project that one could argue was equally inspired by Doshi's observations of life in India as well as the many exchanges he had with members of Team 10 on concepts such as 'identity' and 'growth and change'.[44]

A similar exploration of stacking dwellings in stepped-like granular constructions can also be observed in the work of another Indian architect, Raj Rewal (1934).[45] Having worked in the office of Michel Ecochard in Paris, Rewal is, like Doshi, a link between the post-war generation of CIAM and Team 10 members and India. Over a four-decade-long career, Rewal has developed a consistent oeuvre of housing projects – for both low and middle-income groups – all based on stacking and staggering units clustered around courtyards inspired by the vernacular architecture of India.

The Sheikh Sarai Housing project from 1970 exhibits several of Rewal's design ideas. Containing dwellings of different sizes for different sections of society, the project is characterised by a dense pattern of low-rise, high-density blocks structured around a sequence of open spaces interlinked by partly covered pedestrian pathways.[46]

Throughout his career, Rewal would explore several variations of stacking small clusters of houses to form large housing ensemebles. His most well-known scheme, the 500-unit Asian Games Village (1980-1982), also in New Delhi, shows this approach clearly. But perhaps, it is his low-income housing project in Navi Mumbai and built for for the City and Industrial Development Corporation (CIDCO) between 1988 and 1993 is even more masterful in terms of clustering various sizes and categories of dwellings as one cohesive composition.

Designed to provide 1048 affordable homes for a range of income groups, from from 18 square meters for low-income groups to more substantial 105 square meter dwellings for middle and higher-income groups, the project is an intelligent choreography of collective and private spaces, all interlinked by meandering streets and courtyards.[47]

However, this switch towards low-rise high-density housing did not stay confined solely to the territories of the Developing World but would also find patronage across the Developed World. In the early 1970s, the architect and planner Oscar Newman published his book *Defensible Spaces*. Reacting to the problems of New York City's public housing, the thesis presented by Newman suggested that the form of housing played a crucial role in shaping communities and alleviating – or elevating – poverty and crime. Following in the footsteps of Jane Jacobs, whose term "eyes on the streets"[48] had already broached the subject in 1961, Newman's advocacy for low-rise housing shared much in common with the 1973 exhibition 'Another Chance for Housing: Low-rise Alternatives' which was designed by the Institute for Architecture and Urban Studies and displayed in the Museum of Modern Art (MoMA) in New York. The exhibition centred around two schemes, one of which was the Kenneth Frampton-designed Marcus Garvey Park Village (1973-76).[49] Offering "new solutions for urban and suburban housing project design," the exhibition's primary objective, as mentioned by Arthur Drexler, the Museum's director for architecture and design, was to provide alternatives to this problem:

> "Urban public housing since World War II has concentrated on high-rise apartment towers, usually spaced far apart and often independent of the existing street pattern. Community hostility to many of these housing projects is based in large part on their overpowering size and impersonal character. High-rise buildings make it difficult for parents to look after children at play, while dependence on elevators and extensive public corridors creates problems of security and maintenance, no matter how well the buildings may be designed."[50]

Similar attempts to find substitutes for the ubiquitous high-rise tower and slab model were explored in a variety of contexts, cutting across geographical and political spectrums from Kenzo Tange's (unbuilt) 1960 plan for Tokyo to Piet Blom's Kasbah project built in Hengelo in 1973. In Portugal, for example, Alvaro Siza's Malagueira scheme in 1977 explored low-rise, high-density as a model that also introduced the element of time within the design – a factor that Nelson Mota argues was "a vital aspect for the negotiation between the authority of the architect and the agency of the residents."[51]

PROGRESSIVE DEVELOPMENT MODELS

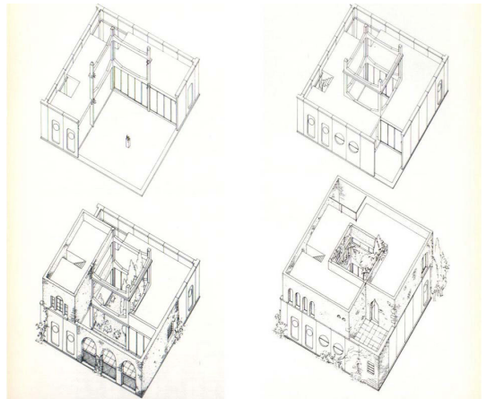
This relationship between housing form, the authority of the architect and the agency of the residents developed through time is perhaps best illustrated in Lima through PREVI (*Proyecto Experimental de Vivienda*) – an experimental housing project that was co-sponsored by the United Nations and Fernando Belaúnde Terry, the president of Peru at that time (himself a trained architect), and organised by Peter Land, an architect from England which aimed to explore ways to deal with rapid urbanisation and the problems of illegal squatter settlements in Lima's peripheral neighbourhoods through aided self-help and methods of incremental housing. Designed as an architectural competition in 1966, PREVI invited proposals from 13 Peruvian and another 13 from internationally-renowned architects (including some former CIAM and Team 10 members) such as Josic-Candilis-Woods from France and America, Aldo van Eyck from the Netherlands, Oskar Hansen from Poland, Fumihiko Maki from Japan, James Stirling and Christopher Alexander from England and Charles Correa from India.[52]

PREVI's project brief demanded strategies for a model neighbourhood of 1500 dwellings composed of low-rise, high-density models that would allow for "progressive development" through small-scale, incremental growth. However, following the competition in 1969, the jury decided against awarding a single contract for the entire neighbourhood. Instead, the decision was to build 24 out of the 26 invited schemes in smaller capacities that came together as a collage of concepts on a master plan prepared by Peter Land.

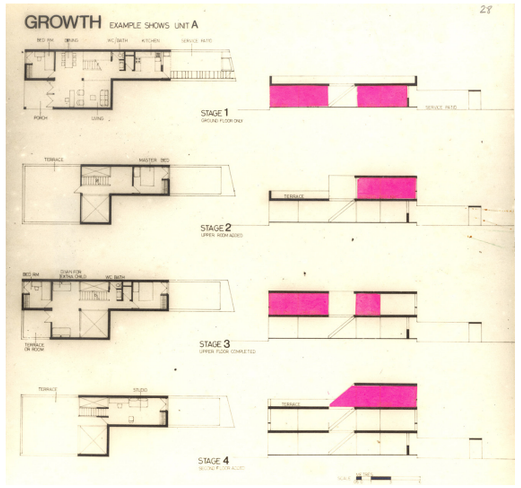
Several of these concepts used the narrow terraced house typology as a starting point. In Correa's scheme, for example, we find again the use of extended, narrow plans previously explored in his projects for low-income housing in India. Clustered together in rows, the scheme is simple, dense and allows for extenstions in the vertical axis, shaped around internal courtyards that help maintain ad-



30



31



32

Fig. 30 An aerial photograph of the PREVI project taken in 1976 that shows the larger masterplan prepared by Peter Land that contained 24 different housing schemes designed by well-known local and international architects.

Fig. 31 James Stirling's entry for PREVI consisted of a basic L-shaped dwelling for four persons that could over time, through self-construction, become larger or transform to two dwellings stacked on each other.

Fig. 32 Correa's PREVI entry consisted of narrow tube-like plans where vertical incremental growth could expand a modest one-bedroom dwelling into a substantial five or six-bedroom townhouse.

equate light and ventilation even with future additions and appropriations.

Similar variations on the terraced housing type are also evident in the scheme of Candilis-Josic-Woods, who opted for alternating narrow and wide bay widths – 2.7 meters and 4.5 meters wide – that, when clustered, could create back-to-back one and two-storied patio houses. A comparable exercise can also be seen in the collaborative project by the Japanese trio of Kikutake-Kurokawa-Maki, where the idea of 'growth and change' required by the project brief resonated perfectly with the ideologies of the Metabolist movement, of which all three were founding members.

But perhaps, Christopher Alexander's scheme stands out as the prime example of a house that could produce an almost infinite variety of homes.[53] Following a "choice process" derived from extensive studies of self-built settlements in Peru and other societies, Alexander's scheme introduced ideas of participatory design across "many hierarchies of clearly articulated domains" that, for him, were necessary to create "an entirely new anatomy of urbanism."[54] Half a decade later, Alexander would use the ideas developed at PREVI to fine-tune his theories on participatory design in his 1977 classic-book *A Pattern Language,* which aimed to provide lay persons and end-users a framework with which one could shape the built environment.

Although PREVI's modest scale (with only 500 units finally built) is a mere fraction of the size of most well-known public housing schemes, it represented a fundamental change in how the state could "provide" housing. McGuirk, for instance, credits its PREVI with marking "the end of the architect's reign as the most powerful force in city-making."[55] A role that would have, in all likelihood, made architects like Alexander, Maki and Correa wary in the first place. This shift from a purely 'provider' or paternalistic paradigm to a more emancipatory one that supported participation and self-building would, in the coming decades – particularly after the 1976 UN-Habitat Conference (generally referred to as 'Habitat 1') – become a key approach by which government and international agencies would address the housing question.

■

THE SECOND PARADIGM

NON-CONVENTIONAL STRATEGIES



Fig. 1 British architect and theorist, John Turner's writings of self-built settlements in Peru spearheaded a shift in housing discourse that at very fundamental level argued for greater user-participation.

"When dwellers control the major decisions and are free to make their own contributions in the design, construction, or management of their housing, both this process and the environment produced stimulate individual and social well-being. When people have no control over nor responsibility for key decisions in the housing process, on the other hand, dwelling environments may instead become a barrier to personal fulfillment and a burden on the economy."

John F. C. Turner et al., "The Meaning of Autonomy," in *Freedom to Build,* 1972

In an issue from 1963, the British architect John Turner provided a positive analysis of the self-built (auto-constructed) *barriadas* found on the outskirts of Lima.[1] Recognising such settlements as part of the solution and not the problem, Turner endorsed a hybrid model of urbanism that called for a dialogue between "unaided or help-yourself methods" and "planned interventions" by professionals.[2] As a self-proclaimed "moderate anarchist", he was critical of conventional, often centralised housing provision mechanisms. Closer in spirit to the ideas and thinking of the Scottish Biologist Patrick Geddes than to the revolutionary visions of Le Corbusier, Turner concluded that government intervention should be to "direct and coordinate existing forces and resources (and not to abandon them to create havoc or attempt to replace them)."[3]

This approach implied acquiring land at scale, providing essential, minimum services, and allowing the dweller both freedom and control in shaping, financing and controlling their own living environment.

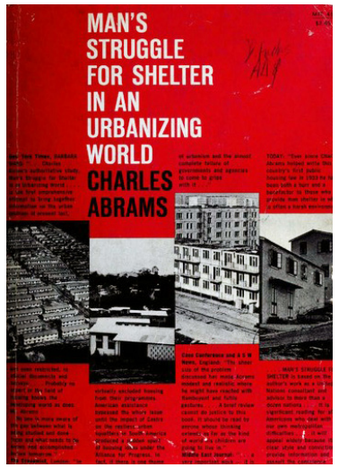
After leaving Peru in 1965, Turner moved from fieldwork to theory during his tenure at the Harvard-MIT Joint Centre for Urban Studies, where meetings with Charles Abrams (who in 1964 had published *Man's Struggle for Shelter in an Urbanizing World*) would further help develop Turner's ideas on (aided) self-help housing.

In *Freedom to Build,* published in 1972, and co-edited by Turner and Robert Fichter, the cover summarises the basic thesis of their approach:

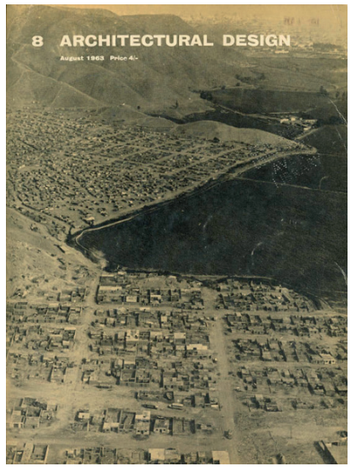
> "From their worldwide experience the authors show that where dwellers are in control, their homes are better and cheaper than those built through government programs or large corporations."[4]

This approach was based on another philosophy that Turner would become widely known for: that housing must be considered not a "product" but a "process".[5] His subsequent book *Housing by People,* published in 1976, would further the debate between 'heteronomous systems' (conventional housing programmes) and 'autonomous systems' (self-built construction) and would become a focal point in the debates during 'Habitat 1' – the first United Nations Conference on Human Settlements held in Vancouver in 1976 – where Turner was invited as a speaker.[6] In fact, the conference played a pivotal role in bringing global attention to the magnitude and consequences of rapid urbanisation, particularly in low-income countries. A significant outcome of this event was the Vancouver Declaration – the founding document of what later can be to be known as the United Nations Human Settlements Programme (UN-Habitat), active even today.[7]

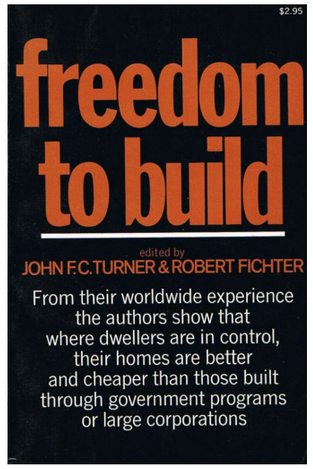
The Habitat I conference marks the pinnacle of a worldwide movement toward revitalizing housing policies and design strategies, which surged in the three decades following the second World War. It underscored the significance of pursuing solutions that strike a balance between economic and technological efficacy, while also prioritizing social and environmental sustainability, with a particular emphasis given to the "extremely serious condition of human settlements (...) which prevails in developing countries."[8] In addition, the 44-page "Action Plan" summarised recommendations in five sections: Section A (Settlements policies and strategies); Section B (Settlement Planning); Section C (Shelter, infrastructure and services); Section D (Land); and Section E (Public Participation). Through these five recommendations, Habitat 1 was instrumental in introducing alternative approaches to conventional housing programmes.



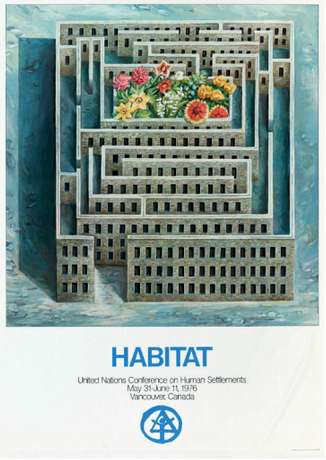
2



3



4



5



6

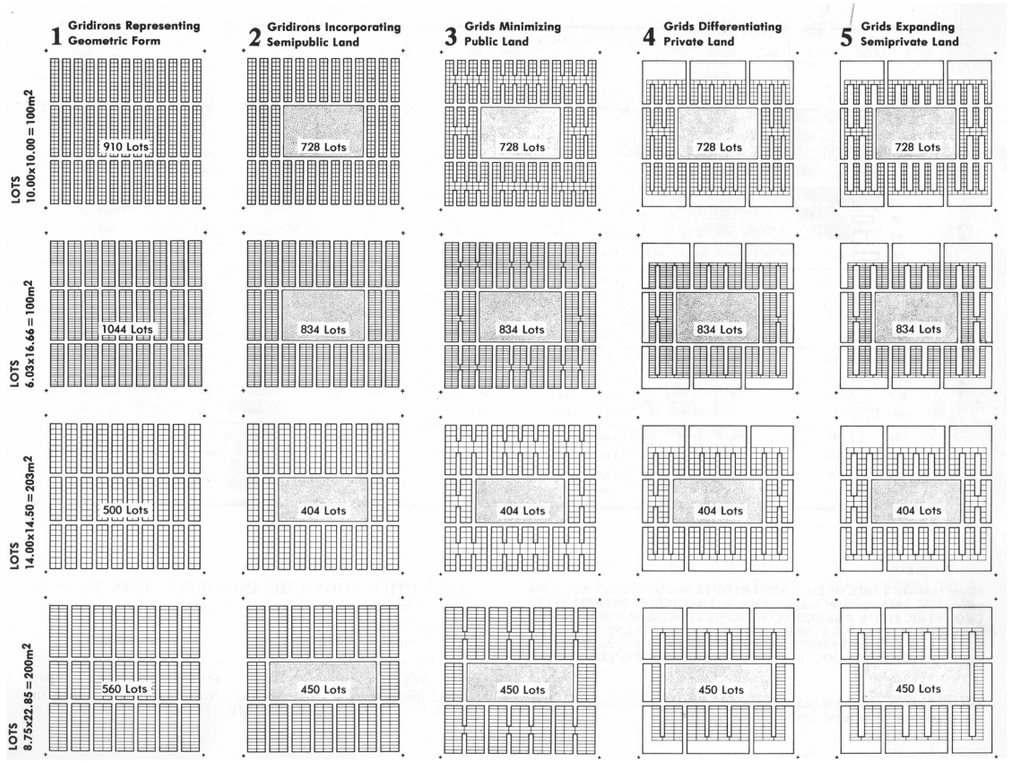


7

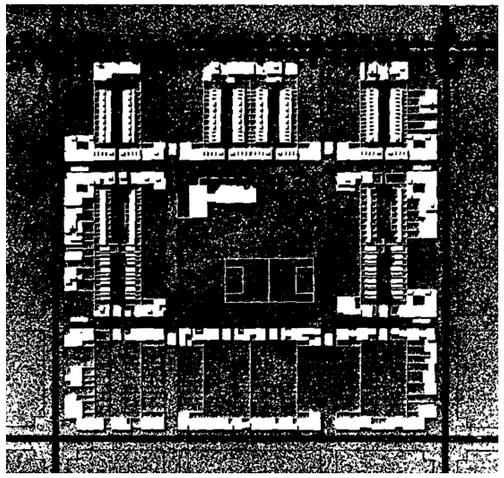


8

Fig. 2-4 Influential books that championed participatory housing models.
Fig. 5-6 Poster of Habitat 1 and a photograph of a session.
Fig. 7-8 Among others who participated in the conference were Barbara Ward, Christopher Alexander, Moshe Safdie and Charles Correa.



9



10

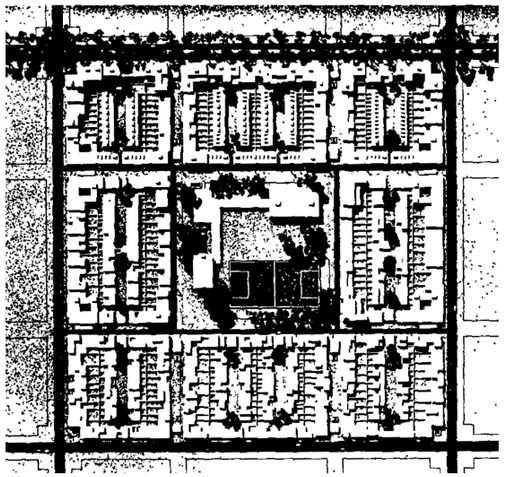


Fig. 9 Optimization of a residential grid, based on plot size and configuration as described in Horacio Caminos and Reinhard Goethert's *Urbanization Primer.*
Fig. 10 Initial layout of a demonstration model (L), and the saturated condition (R), extracted from *Urbanization Primer.*

Wakely considers these to be the second act in the story of evolving housing paradigms. In his terms, these "non-conventional" strategies focus not on providing completed subsidised housing but on providing "social, technical and legislative supports"[9] that enable the production and maintenance of housing, often with people's participation. Such strategies, according to Wakely, can generally involve two instruments: aided self-help (of which sites-and-services are one possibility) and slum upgrading (or improvement).

HOUSING & THE WORLD BANK

Throughout the 1970s and 1980s, the World Bank's urban policies would be strongly influenced by both Turner and Habitat 1. This, in turn, meant that aided self-help and slum upgrading would emerge in an international capacity as viable alternatives to the conventional or provider paradigm of the mid-twentieth century. Starting in 1972, the Bank introduced the concept of sites-and-services, the aim of which was to develop new low-income neighbourhoods on greenfield sites through the provision of serviced land and plots (on a full-cost basis and, at times, along with the provision of a 'core' or 'starter house'), along with varying degrees of infrastructure at affordable, often subsidised rates for neighbourhood development.[10]

In 1978, MIT professors and researchers Horacio Caminos and Reinhard Goethert published *Urbanization Primer.* In it they present a compelling argument in favour of the sites-and-services approach, particularly within the context of rapid urbanization in developing nations. They deliberated between providing "complete dwellings to a few beneficiaries or providing only basic utilities and services to a much larger sector of the population."[11] Building upon the existing 'self-help' paradigm, the sites-and-services model embodied a symbiotic relationship between top-down infrastructure design, referred to as 'services,' and the grassroots, incremental improvement of housing constructed on allocated plots, termed as 'sites."[12]

In *Urbanization Primer*, Caminos and Goethert conducted extensive research to create a comprehensive framework of project evaluations, site analyses, and design criteria to enhance the efficiency of site-and-services schemes. Their work explored diverse design options and devised an optimal layout with plots that averaged 100m^2 at an average density of 60-65 dwellings per hectare. The layout was presented in two phases, evolving from an initial stage of development at 200 persons per hectare to a saturated stage of development at 600 persons per hectare,[13] always considering 12m^2 dwelling area per person.[14]

These principles and strategies, outlined and depicted in the *Urbanization Primer*, stemmed from the collaborative efforts of multiple contributors associated with the Urban Settlements Design in Developing Countries program at the School of Architecture and Planning, Massachusetts Institute of Technology which drew insights from various members operating in regions commonly referred to as the Developing World, including Dhaka (Bangladesh), Dakar (Senegal), and Arequipa (Peru). However, despite the diversity of sources that contributed to the preparation of *Urbanization Primer*, the principles and strategies advocated in its pages disregarded the specific nature of distinct geographic, cultural and environmental contexts. Rather, the authors argued that their main goal was "to identify and quantify simple urban elements that can be found in any dwelling environment under different social, economic, and political conditions."[15]

In the coming years, their research for the optimum layout in sites-and-services schemes would set the standards for the worldwide dissemination of this approach. Eventually, sites-and-services housing schemes, mostly due to the sponsorship of the World Bank, between 1972 and 1998 would result in built projects in 53 countries at a cost of nearly 15 billion US dollars.[16]

One of the earliest examples of sites-and-services is the case of the Senegal Sites-and-Services Project (Credit 336-SE). Initiated by the World Bank in collaboration with the Government of Senegal in 1973 and completed in 1981, this 8 million USD project was the Bank's first urban project. Its objectives were threefold: To provide alternatives to conventional housing solutions. Secondly, to mobilize private savings for the production of shelter. And thirdly, to develop an institutional capacity to plan and develop similar projects for other urban areas. This project included developing 400 hectares of serviced plots, including community facilities in the capital of Dakar, providing 14,000 plots (that ranged in size from "small" plots that measured 150 m2 to "large" plots that measured 300 m2) for 140,000 people and an additional 60 hectares of serviced sites in the secondary centre of Thies, providing 1,200 plots for over 12,000 people.[17]

It is important, however, to recognize and remember that sites-and-services are not a one-size-fits-all approach and that the physical form of schemes can vary considerably. Take, for instance, the case of Nefas Silk in Addis Ababa. The project brief demanded a typological, functional, and social mix. In total, about 3150 residential plots, 164 plots for mix-use activities (commercial and residential) and 186 industrial plots were developed in the early 1980s in a 130-hectare site in the Nefas Silk district and funded by the World Bank.[18]

The initial blueprint for the Nefas Silk site aligned with certain design principles and managerial approaches advocated in the *Urbanization Primer*. However, the scheme's effectiveness fell short of the optimal layout proposed by Caminos and Goethert. A significant portion of the project's 130 hectares was allocated to serviced plots, each measuring 144m2 (8×18m), which exceeded the size recommended by the MIT researchers (which was to be about 100 m2 in size). Additionally, during the initial development phase, the overall density in Nefas Silk stood at a mere 26 dwellings per hectare, considerably lower than the 60-65 dwellings per hectare recommended in the *Urbanization Primer*.

Over time, and similar to many sites-and-services schemes, housing units expanded over time in Nefas Silk. However, due to the relatively large plot sizes, expansion primarily occurred horizontally, thus circumventing the expense and technical complexities associated with adding extra floors.[19]

SITES-AND-SERVICES IN INDIA

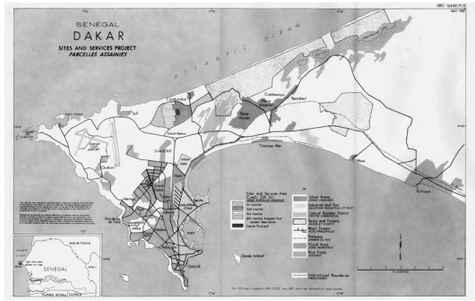
With increasing evidence that the subsidy-driven 'provider' model adopted during the first three decades after independence for delivering housing had limitations, attention shifted towards improving living conditions within existing informal settlements and devolving responsibility towards state governments. Building on the ideas of people like John Turner, and influenced to a great degree by international events such as Habitat 1 and their impact on institutions such as the World Bank, subsidies in India were now targeted towards providing essential services and infrastructure with the hope that these would encourage investments in housing by the residents themselves. The 'Aided Self-Help' and 'Sites-and-Services' schemes implemented in various parts of the country in the late 1970s and through the 1980s resulted from this shift in approach.

The first sites-and-services scheme in India is in Chennai (formerly Madras). Built for the Madras Urban Development Authority in 1973 and designed by Christopher Charles Benninger, a Harvard-trained India-based American architect who, for his graduate thesis in 1967, developed a student project on the sites-and-services approach before it became mainstream thinking in the 1970s. In Chennai, Benninger had the opportunity to put into practice his ideas through the Sites-and-Services Shelter Programme, which entailed developing some fifteen thousand plots spread across four sites, the largest at Arambakum.[20]

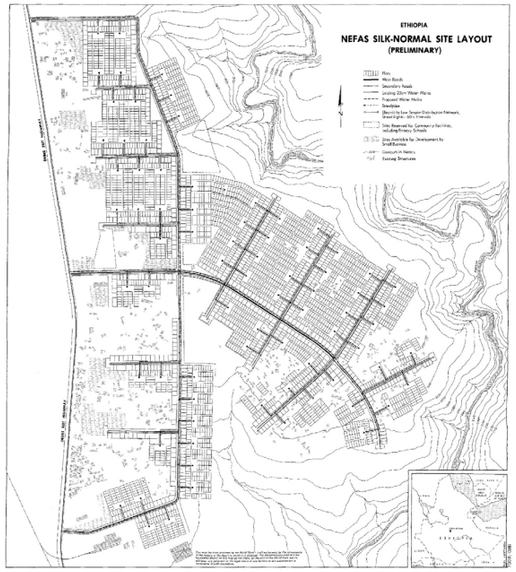
The scheme itself was an aggregation of two basic plots of different sizes and core options that were grouped to create variation at the cluster level. The smallest plot (Type A) measured about 40 m2 on narrow lots roughly four metres wide and about 10 metres long. These basic plots consisted of a plinth and a wet core that contained a bathroom and toilet. The second type (Type B) was marginally larger at 47 m2 but had a thinner profile, just 3 metres wide and just about 15 metres long. Here, in addition to a wet core containing a bathroom and toilet, there were also two side walls and a small thatched roof to serve as a starter house. Interestingly, drawings within the World Bank's documentation of the project even go to the extent of showing stages of evolution over time leading to clusters that form long terraced house typologies that could grow to two or even three stories over time.[21]

In the following decade, the World Bank would amplify its presence in India with more programmes for slum upgrading and sites-and-services as in the case of the Bombay Urban Development Program (BUDP) implemented in the city in collaboration with the Government of Maharashtra between 1985 and 1994. With a total investment of nearly one billion US dollars, the programme led to several schemes for different neighbourhoods in Mumbai, such as in Charkop and Airoli (both cases, among others that were built under the BUDP are further discussed in Chapter 3.5).

However, the most famous sites-and-services scheme in India can be credited to Balkrishna Doshi, whose ideas on low-income housing and incrementality are best described in his project in Aranya in Indore, built in the mid-1980s. Designed to accomodate nearly 60.000 people in some 6500 dwellings across 85 hectares, Doshi's master plan builds on multi-scalar principles of the 1976 docu-



11



13

SENEGAL
SITES AND SERVICES PROJECT
(Credit 336 SE)



A typical two room unit ready for occupancy.



A family settles in a two room unit and puts up a palm fence for privacy.

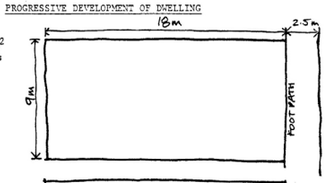
A house financed by a Banque de l'Habitat du Senegal Loan.

12

Ethiopia
First Urban Development Project

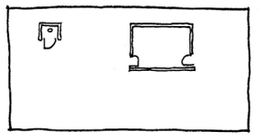
PROGRESSIVE DEVELOPMENT OF DWELLING

Serviced plot 160 m^2 with footpath access to shared standpipe (1 per 44 plots)

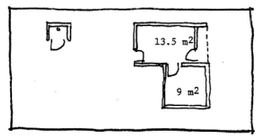


Pit latrine
plus
1 room 13.5 m^2

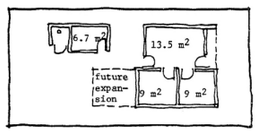
Total area: 14.5 m^2
Cost (chicka):
pit latrine B 200
dwelling B 1,000
Total B 1,200
(US$600)



Pit latrine plus
2 rooms, one 13.5 m^2
the second 9 m^2
Total area: 23.5 m^2
Cost (chicka):
pit latrine B 200
dwelling B 1,600
Total B 1,800
(US$900)

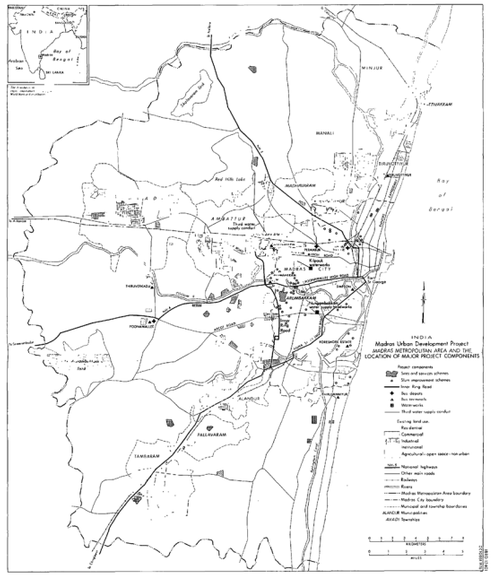


Pit latrine plus
Separate kitchen of 6.7 m^2
and 3 rooms, one 13.5 m^2
2 rooms 9 m^2
Total area: 39.2 m^2
Cost (chicka):
pit latrine B 200
dwelling B 2,500
Total B 2,700
(US$1,350)

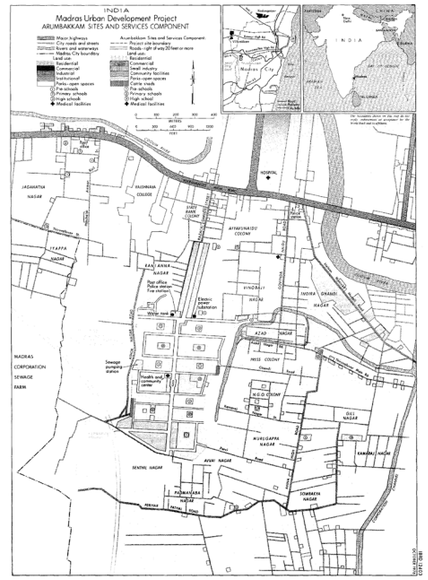


14

Fig. 11 Map of the Senegal Sites-and-Services Project in Dakar – the World Bank's first urban project that provided 14.000 plots with dwelling types that could grow over time.
Fig. 12 Photographs of a unit built under the Senegal sites-and-services scheme.
Fig. 13 Masterplan of the Nefas Silk sites-and-services scheme in Ethiopia.
Fig. 14 Drawings showing various options of dwelling types provided as part of the First Urban Development Project in Ethiopia, circa early 1980s.

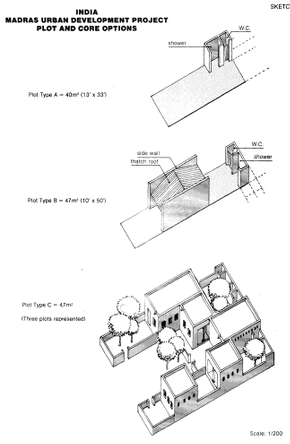


15



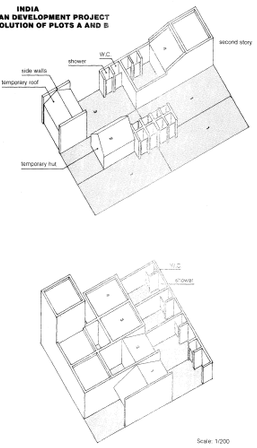
16

INDIA
MADRAS URBAN DEVELOPMENT PROJECT
PLOT AND CORE OPTIONS

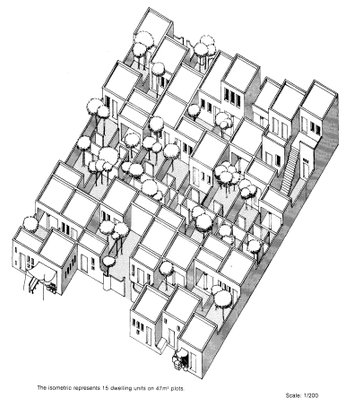


SKETCH 1

INDIA
MADRAS URBAN DEVELOPMENT PROJECT
POSSIBLE EVOLUTION OF PLOTS A AND B



INDIA
MADRAS URBAN DEVELOPMENT PROJECT
PLOT C CLUSTER
(REPRESENTING ALSO THE FINAL STAGE OF EVOLUTION OF PLOTS B)



17

INDIA
MADRAS URBAN DEVELOPMENT PROJECT
TYPICAL IMPROVEMENT OF HIGH DENSITY SLUM



18



Fig. 15 Map showing locations of sites-and-services and slum improvement schemes as part of the World Bank Madras Urban Development Project.
Fig. 16 Plan of the Arumbakkam sites-and-services scheme designed by Christopher Charles Benninger for MUDP.
Fig. 17 Drawings showing dwelling types and their evolution over time.
Fig. 18 Alongside sites-and-services schemes, MUDP also comprised of slum improvement schemes that focused on improving environmental conditions through regularisation of land, paved roads and provision of basic services and amenities.

ment, the *Habitat Bill of Rights* that Doshi co-authored along with George Candilis, Moshe Safdie, Nader Ardalan and Josep Luis Sert, and presented at Habitat 1, Aranya at the largest scale (the 'Urban Community' or 'Township') consists of a clear hierarchy of roads that divides the site into six identifiable sectors – all mixed-use and mixed-income except for the south-eastern sector that was planned primarily for higher-income groups to cross-subsidise the total costs of the project.[22]

Each of these sectors contains the second scale – the 'Pedestrian Precinct' – that cuts across diagonally and occasionally bulges out to accommodate various other social facilities and amenities, such as kindergartens, play areas and shops. To foster a greater sense of community, Doshi introduced a third scale, termed the "Cluster", inspired by the *'pols'* of Ahmedabad consists of small semi-private spaces for 10-50 houses. Finally, at the smallest scale are a wide variety of 'Dwelling' units that differ in type and size (from plots measuring just 32 m2 – far smaller than the African cases mentioned earlier – to ones as large as 600 m2), allowing for a mix of different income groups. These ranged from sites with a service core to sites with a service core, plinth and a room.

In addition to the master plan, Doshi's office also built 80 demonstration houses, with the hope that future residents of Aranya could understand the possibilities of each of their plots. With the idea of growth and change embedded into the very DNA of the project, Aranya today has grown to resemble a typical Indian town with a mix of dwellings, open streets and squares.

INCREMENTAL HOUSING & PARTICIPATORY PLANNING

Another Indian architect who would participate in the Habitat 1 conference was Charles Correa. Serving as a consultant to the UN Secretary-General for Habitat 1, Correa was part of a larger global movement that argued for decentralized housing policies that moved away from the Ford Assembly line model of the provider paradigm to one that re-introduces people's participation in the creation of their dwelling environments.

A built expression of these ideas can be found in Correa's 1983 incremental housing project located in Belapur in Navi Mumbai. Similar to his earlier schemes for low-rise high-density housing, such as the PREVI project in Lima from the early 1970s, there is a focus on user participation and incrementality. But, instead of long and narrow row housing as seen in PREVI as well as in earlier schemes such as the Tube House (1961) and Cablenagar Township (1967), the scheme in Belapur contains a range of differently sized stand-alone units that can grow, centred around the use of open-to-sky courtyards.

Similar experiments in building versions of low-rise incremental housing can also be found elsewhere in India. In Ahmedabad, for example, the Integrated Urban Development Project (IUDPO) of Vasna emerged in response to the devastation caused by the 1973 floods of the Sabarmati River, which displaced over 3,000 squatter-settlements along its banks.[23] Initiated by the Ahmedabad Study Action Group (ASAG), a professional interdisciplinary non-governmental organization (NGO) led by architect Kirtee Shah, the project aimed to address the pressing need for relocation and holistic development among affected communities on a 43-acre site made available by the Government of Gujarat.

Developed as a participatory planning project, ASAG's proposal was based on two fundamental principles. The first involved conducting surveys in the immediate aftermath of the floods to identify specific target groups and sizes of households to gain their involvement in the relocation and resettlement strategy. Secondly, the design team recognised the need for a comprehensive developmental strategy over mere housing provision to bring about both physical, but also economic and environmental improvement.

The resulting design, despite qualifying as a flood-affected rehabilitation project that could attract full government subsidies, evolved as a low-rise project that was built on the idea of self-help. Each family was allocated a 30-square-meter plot, on which a 25-square-meter dwelling was erected. These residences included a variety of living spaces, covered verandas, cooking and storage areas, and a communal service yard. Each home was also fitted with essential utilities like water taps, and sewer connections, and the structure was built of robust brick and cement walls covered by asbestos cement roofing. In the interest of reducing costs further, the architects of ASAG focussed on achieving maximum efficiency by placing one toilet block between every two houses, designing back-to-back houses to increase density and minimize the costs for service lines and infrastructure, as well as planned homes in such a way that each house could share walls with neighbouring homes. In addition, the design also prioritised the use of traditional materials such as mud and cow dung for wall plastering and flooring, keeping in line with the community's outdoor living traditions.

At the larger scale of the cluster, and to facilitate community and familial interactions, the housing design integrated interconnected courtyards. These courtyards, typically measuring approximately 12 by 16 meters and surrounded by eight houses, were designed to function as central hubs for individual households and collective social activities to promote a strong sense of community and to improve the overall quality of family life. However, unlike Correa's Belapur project, the architects at Vasna decided to implement a single dwelling and cluster design driven by the belief that standardising designs would enable cost reduction through shared amenities and common walls. Furthermore, they argued that uniform housing units would yield economies of scale in material procurement and streamline supervision and quality assurance processes. While this approach succeeded in maintaining costs within the allocated budget, subsequent reflection and increased experience revealed the necessity for developing multiple design options to accommodate diverse needs and financial capacities.

SLUM UPGRADING PROGRAMMES

Concurrently, alongside sites-and-services schemes and variations of incremental housing, another mode of housing intervention would appear in the 1970s that would replace architecture as the primary instrument with infrastructure and legal supports. This shift, known as slum improvement and upgrading, tackled dwelling and environmental conditions of existing settlements and focused on promoting tenure legalization and providing basic services and amenities. The central project of most slum upgrading schemes was to provide security of tenure, converting squatters from illegal encroachers into legal owners.

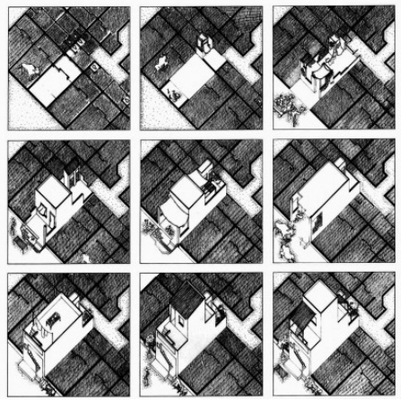
Although the logic of the World Bank's slum upgrading schemes shares much in common with Turner's ideas on self-built autonomous communities, several scholars have also pointed out key differences. For example, Jan van der Linden argues that while Turner was suspicious of market forces, the World Bank, in contrast, looked to leverage market forces to provide greater housing quantities.[24] Secondly, while Turner's ideas grew out of a concern for enabling freedom for people to make their own choices, the World Bank's approach was a far more pragmatic one, concerned more with the costs and complications associated with previous strategies (slum clearance, urban renewal) than with any benevolent attitudes. And lastly, economists like Hernando de Soto have further argued that the primary result of any slum upgrading schemes was to use former squatters newly granted legal status to allow them to access credit for house building and improvements.[25]

Over the years, this approach to improving and upgrading existing informal settlements has resulted in various national and local programmes. In India, slum upgrading policies of various kinds were implemented throughout the 1970s and 1908s, evident in the passing of the Maharashtra Slum Improvement Act of 1971, the Environmental Improvement of Urban Slums in 1972 and the Urban Basic Services Scheme of 1986.

However, far more innovative schemes can be found elsewhere. The world's first urban slum upgrading program was the Kampung Improvement Programme (KIP), first implemented in Jakarta between 1969 and 1998.[26] The programme remains impressive in scale and outlay, having improved living conditions for about half the population of Jakarta (about 7 million people) through the provision of three instruments: paved access roads, bridges and footpaths; introducing infrastructure for clean water supply, sanitation and drainage canals; and the building of basic amenities such as schools and health clinics. Although the programme refrained from providing direct housing assistance, it indirectly improved dwelling conditions in *kampungs* (traditional urban neighbourhoods) by improving accessibility, floor resilience, and greater income-generating activities within existing neighbourhoods.[27]

Since its inception in 1969, and with the World Bank's support of the KIP from 1974 onwards, the outlay of the programme has extended far beyond Jakarta's city limits and transformed a local initiative into a national housing policy. To date, it has spread to 800 cities in Indonesia and benefited almost 30 million people, which ranks it as one of the most successful urban poverty relief programs in the world and has also received the Aga Khan Award for Architecture in 1980.[28]

Building on the principles of the Kampung Improvement Programme, we find in Brazil another



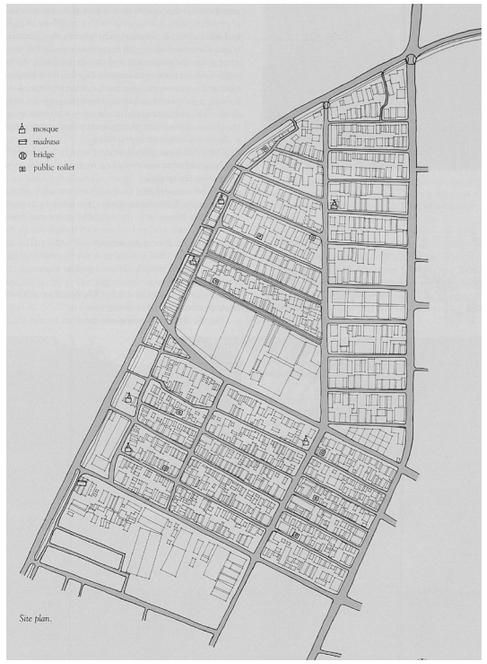
19



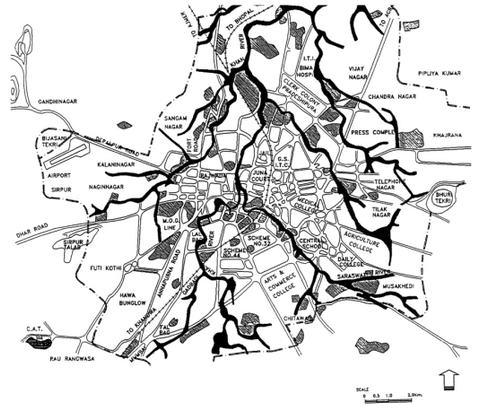
20



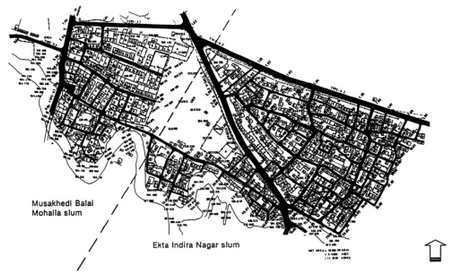
21



22



23



24

Fig. 19 Isometric drawing of Aranya showing the possible evolution of a serviced plot from a plinth to a two-level townhouse.
Fig. 20 Photograph from the late 1980s showing a street in Aranya soon after completion.
Fig. 21 Photograph taken in 2020 showing growth and change over forty years in Aranya.
Fig. 22 Site surveys – the first step in improving the kampungs in Indonesia.
Fig. 23 Plan of Indore showing the relationship between informal settlements (hatched in grey) with major canals and waterways (hatched in black).
Fig. 24 Plan showing the site surveys conducted to identify major streets and pathways to be improved.

notable programme named the Favela Bairro Project. Implemented in Rio de Janeiro from 1994 until 2008, it is perhaps the best-known slum upgrading programme in Latin America. With a multi-pronged approach, the project addressed a number of key issues: poor sanitation, inadequate housing, and lack of access to public services, all with the aim to transform many of the city's favelas into more liveable communities and neighbourhoods. Financed by the Inter-American Development Bank (IADB) with a 180 million US dollar loan, the project sought to reduce poverty through infrastructural improvements, regularisation of land and provision of social amenities.[29]

A key project component involved forming coalitions between multiple actors and agencies: government departments, local NGOs, institutions, the private sector, people and professionals. Replacing disruptive relocation and resettlement strategies in favour of maintaining residents in areas they already occupied, the project enabled, through a contest and bidding process, the possibility for residents to select proposals for interventions in infrastructure, social services, and employment-generation programs. In addition, the Favela-Bairro project also included components of community development, sanitation, and environmental education, as well as support for the regularization of irregular settlements. Although not without faults, the project eventually catered to a quarter million people in about 73 communities and helped not just improve the general standard of living but also made very direct impacts concerning the social-economic competitiveness of the residents, improving their technical skills and creating in the process, greater income generating activities for them.

Perhaps the best-known scheme for slum upgrading in India can again be found in Indore. Slum Networking is a concept developed by the engineer Himanshu Parikh, who, in the city of Indore, developed a holistic approach to intervening in low-income neighbourhoods through a community-based, participatory approach that involved a number of different mechanisms: from building new stormwater drainage systems to revitalising public spaces and to the building of basic amenities such as health and educational centres. With the overarching aim of integrating the city's approximately 183 slums into viable neighbourhoods, the project focused on the Krishnapura slum and, like the KIP in Indonesia, was also a recipient of the Aga Khan Award for Architecture, whose jury commended the project for developing an approach that "would go a long way in overcoming the weakness of conventional urban upgrading projects, which seldom attempt to integrate slums into the urban fabric."[30]

CRITIQUING SUPPORT POLICIES

As impressive as these numbers seem, non-conventional strategies have also attracted widespread criticism. Turner, generally regarded as a housing and participatory planning pioneer, was singled out by Mike Davis in his apocalyptic 2006 book *Planet of Slums* as being a "singularly effective populariser and propagandist"[31] responsible for the 'romanticising' of slums and their growth post the 1970s. Another critique would come much earlier in Rod Burgess's 1982 article 'Self-Help Housing Advocacy: A Curious Form of Radicalism' that argued that focussing on dweller-control in housing eventually amplifies the role of the market that, in turn, produces greater housing shortages. Nelson Mota and others have also pointed out that several authors also judge such non-conventional strategies from a Marxist point of view and see it as nothing more than the state absolving itself of providing affordable housing to its economically disadvantaged or marginalised communities.

At a more practical, bureaucratic level, slum upgrading, improvement as well as site-and-services schemes faced considerable obstacles, particularly regarding land acquisition, tendering, inadequate cost recovery and inadequate coordination between public sector agencies. Writing in 1976, Michael Cohen, who shaped much of the World Bank's urban policies between 1972 and 1999, stated that these projects failed what he called the "challenge of replicability."[32] Recognising that such projects would not alone be capable of solving the problem at hand, the World Bank, by the 1990s, would move away from its "project-based" model and towards an approach that better understood the housing market.[33]

■

THE THIRD PARADIGM

RETURN TO CONVENTIONAL STRATEGIES



Fig. 1 A newly-built social housing project in Buenos Aires.

Housing policymaking must thus move away from its previously narrow focus on a limited engagement of government in the direct production of lowcost housing. It must now guide the performance of the housing sector as a whole, including that of the formal and informal private sector, with a stronger emphasis on its overall role in national economic development.

Quote from the widely influential World Bank report *Housing: Enabling Markets to Work,* 1993

In 1993, a significant switch would come in the field of affordable housing. Recognising the limitation of the 'support' paradigm and moving away from its earlier policy of the "limited, project-based support of public agencies"[1], the World Bank put out a report that, in the years to follow, would impact the production and financing of housing across both the Developed and Developing World. The very first page of the 1993 report *Housing: Enabling Markets to Work* states this:

> "Governments are advised to abandon their earlier role as producers of housing and to adopt an enabling role of managing the housing sector as a whole."[2]

This switch from the 'provider' or 'support' paradigm to an 'enabling' one is, for Wakely, not entirely new. According to him, this third public policy shift represents the following:

> "a seeming return to 'conventional' housing procurement by providing incentives (regulatory concessions and financial subsidies) to private sector capitalist developers to construct dwellings for low-income group households, thereby denying households and communities the limited role that they had had in determining the development of their own domestic environments."[3]

Housing is again at the forefront of the development agenda in the current era, with affordable housing explicitly mentioned as part of Goal 11 of the UN's Sustainable Development Goals (SDGs). And with good reason too. From Caracas in Venezuela to Cairo in Egypt, the housing crisis today is global in scale. The United Nations estimates that nearly a sixth of the world's urban population – some 1 billion people – are homeless or living in slums[4]. Of this, nearly 80 per cent of the total slum population can be attributed to three geographical regions: 370 million slum dwellers in Eastern and South-Eastern Asia, 238 million in sub-Saharan Africa, and 227 million in Central and Southern Asia.[5] In Pakistan, for instance, this translates to a demand for nearly 400,000 units to be built annually for the next 15 or 20 years.[6] In Indonesia, the numbers are even larger. The country must build between 800,000 and 900,000 units annually to meet rising demands.[7] In total, the UN estimates that about 3 billion people will require adequate and affordable housing by 2030.[8] How should the state intervene in such an emerging urban future?

Scanning recent housing policies and programmes, Wakely claims that the policy response to such demands is in "disarray".[9] Following years of participatory and support-oriented policies, current housing programmes resemble what he calls a "return to conventional" housing strategies – a third phase in the story now centred almost exclusively in the Developing World. Much like in the early and mid-twentieth century in Europe and America, we can find in the Developing World today "the re-emergence of government-sponsored and/or government-built public housing for urban low-income groups"[10], often delivered through various models of public-private partnerships. But it also includes, at times, the involvement and participation of local community groups and non-governmental organisations.

Wakely's arguments, especially those about the current era, are confirmed in recent research by Robert Buckley, Achilles Kallergis and Laura Wainer. In their paper *The emergence of large-scale housing programs: Beyond a public finance perspective,*

the authors identify sixteen national-level multi-billion-dollar housing programs that have emerged in the Global South over the past decade alone. Several of these are located in the emerging economies of the so-called BRICS countries, such as Brazil, Russia, India, China, and South Africa. In addition, several large-scale housing programs can also be found in Sub-Saharan Africa as well as South-East Asia.[11] According to their numbers, these programs follow what had been, by and large, a long period with limited public intervention in housing and where housing policy itself had "lost its voice."[12] But while governments in recent years have redeveloped the art of framing large-scale mass housing programs, an overview of their design and implementation raises several concerns as to their ability to be able not just to reach the scale of demand needed but also on a more qualitative level, cater to the needs and everyday practices of their intended target groups.

THE RETURN OF THE STATE: ETHIOPIA'S GRAND HOUSING PROGRAMME

Take, for instance, the case of Ethiopia. With almost 85 per cent of its urban population currently living in informal settlements, the government initiated in 2005 the 'Integrated Housing and Development Program' (IHDP) that aimed to build 400,000 individual home-ownership units through a mortgage system across the country.[13] A typical IHDP block consists of four to five stories, with a mixture of one, two and three-bedroom, self-contained apartments. Although lacking in high-quality materialisation and architectural expression, the standard block of the IHDP recalls the layout of a much earlier model seen in the Peabody estates in London that also focussed on introducing a mix of unit types and sizes within a single block that could be arranged on different sites in standalone, strip and courtyard formations. But, beyond the program's design, the IHDP is notable for at least three other reasons.

Firstly, the IHDP is a rare example of a large-scale national housing program from this century where the state still assumes full responsibility for building housing for people underrepresented by the private market. In 2006, the country's Housing Development Program Office (HDPO) established an agreement with the Commercial Bank of Ethiopia (CBE) to enable beneficiaries to avail of low-interest, below-market mortgages to encourage homeownership for low-income populations, thirty per cent of which will be reserved for women.

Secondly, the program reduced costs by nearly 40 per cent compared to other standard models through design and construction innovations.

And thirdly, the program was designed to use the construction sector to strengthen the economy by creating 200,000 jobs and indirectly promoting the development of nearly 10,000 micro-enterprises.[14] Thus, the IHDP was conceived as a housing program and an instrument to alleviate poverty.

However, recent research highlights that the program was neither able to achieve its targets or achieve its intended spatial outcomes. In the first decade since its launch, it was estimated that only 171,000 units had been built.[15] Although the program was first launched in 56 towns across the country, its most significant impact can be seen only in the capital, Addis Ababa, with the program suspended elsewhere. There are at least three main reasons for this:

Firstly, with land acquisition proving a significant hurdle, most IHDP condominium blocks were built on the outskirts of cities on cheap land with little to no access to public transportation or economic opportunities. Thus, even though the units were affordable compared to developments of a similar standard, their far-away locations inadvertently raised living costs for their end-users and failed to integrate within the existing urban fabric.

Secondly, the speed of construction proved unable to meet deadlines, with approximately 50 per cent of all projects running behind schedule, partly because of delays caused by poor city infrastructure. As a result, the average price of a condominium unit has risen between 200 and 300 per cent, thus falling beyond the affordability bracket of most of its intended beneficiaries.

And lastly, the program's exaggerated focus on efficiency and replicability resulted in a standardised, top-down design that proved counterproductive and was mainly unable to accommodate the dwelling practices of the people who occupied them. Post-occupancy studies also describe the projects as "eyesores" that faced greater resistance in smaller, low-rise towns.[16]

THE STATE AS 'ENABLER': BRAZIL'S *MINHA CASA, MINHA VIDA*

Moving away from Africa and back again in Latin America, we have another ambitious national large-scale mass-housing program in Brazil that aimed to deliver approximately 3.4 million units be-



2



3



4



5

Fig. 2-3 Photograph and plan of a typical IHDP development in Addis Ababa.
Fig. 4-5 A typical MCMV scheme in Brazil disconnected from the city.

tween 2009-2014. Named *Minha Casa, Minha Vida* (MCMV) – "My House My Life", the programme, unlike Ethiopia's IHDP, uses a combination of subsidies (targeted at a range of income groups, including low-income households previously ineligible for home mortgages), as well as tax incentives and financial mechanisms directed at private developers. Administered by the public Caixa Economica Federal Bank, the primary aim of this programme was to reduce the housing deficit in the country, which in 2019 stood at about 5.5 million homes – 80 per cent of which were needed in urban areas.[17] In their book, *Minha Casa—Nossa Cidade* ("My House, Our City"), Marc Angélil & Rainer Hehl describe the program's design and its resulting architecture and implementation. Here again, we find a focus on efficiency and repetition. A typical walk-up MCMV block consists of 4 two-bedroom apartments, around 50 square metres, arranged around a central core, and often 3-4 storeys tall.

However, a typical MCMV house in less urban areas could also be a 50-square-metre pitched roof single-family house. In either case, the house types are not designed or built by the state but are built by private developers who respond to the minimum standards defined by the state. But with housing thought of simply as the aggregation of home 'units', whether as walk-up apartments or single-family homes, most MCMV schemes, like the Ethiopian condominium blocks, can be found rubber-stamped across the outskirts of cities. This has, of course, attracted considerable criticism. A 2019 survey by the *Tribunal de Contas da União* (TCU), and the *Fundação Getúlio Vargas* (FGV) revealed that the programme's primary result was to relocate low-income populations to the peripheries. Another critique of the programme comes from the anthropologist Antonio Risério, who remarked that with the MCMV programme "we are building today the favelas of tomorrow"[18]

There are also reports and studies concerning increased crime (violence, drug usage) as well as structural deficiencies in MCMV projects. Despite these criticisms, and as recently as 2023, Brazil's recently re-elected President, Luiz Inácio Lula da Silva, announced the program's resumption, which by 2014 had built approximately 2.4 million against the original target of 3.4 million homes. To fill the previous deficit as well as meet new demands, Lula's renewed plan is to build an additional 2 million homes by 2026.

'HOUSING FOR ALL' IN INDIA

A similar trend towards market-oriented policies can also be observed in India. By the 1980s, inadequate budgets and excessive and ineffective government control stifled economic growth. In line with global trends of that time prompted by the World Bank's influential 1993 policy document and on the brink of bankruptcy, a different form of political economy began to emerge – and with it, a new form of architectural patronage.

On July 24th 1991, India's then-finance minister, Dr Manmohan Singh, laid out a blueprint for economic reforms in a speech in parliament. The reforms ushered in a new era that was to be characterised by decreased state control and an increased role of the market. In stark contrast to the closed socialist economy of the Nehruvian era, the architects of India's neoliberal era switched gears in favour of a more capitalist and dynamic open economy.

But in terms of housing, the third and current phase in terms of policy approaches, in reality, came into effect four years earlier. In 1987, a draft of the first National Housing Policy (NHP) had already suggested a more facilitative role for the government instead of a direct one.[19] In other words, starting in the early 1990s, the state no longer saw itself as the primary producer of affordable housing – a role subsequently offered to private developers.

India, post-economic liberalisation, faces a number of paradoxes. While it's Gross Domestic Product (GDP) has grown annually at an average of 6-7 per cent in the years following economic liberalisation, making it today the fifth-largest economy in the world by nominal GDP and third largest by Purchasing Power Parity (PPP), it remains at a staggeringly low 142nd position when you look at its nominal GDP per capita, and 125th by PPP on a per capita basis.[20] So, despite its nearly 3.5 trillion US dollar economy, nearly 84 per cent of the country's population lives on less than 7 US dollars a day, and over 287 million Indians remain illiterate (the highest number in the world). With one in every six urban Indians living in slums or homelessness, this translates to an urban housing shortage of approximately 18.78 million households, of which nearly 96 per cent concern the economically weaker sections of society (EWS) and lower-income groups (LIG).[21]

Recognising the urgency of this ongoing crisis, the government, which in the early 1990s and now had taken a step back from being the direct provider of housing, has again made housing a key focus of its national political agenda. In 2015, the Narendra Modi-led government initiated an ambitious 31 billion USD nationwide programme under the "Housing for All" rubric. Officially called the *Prime Minister's Awas Yojana* (PMAY; Prime Minister's Housing Plan), it aimed to build 30 million homes in rural India (PMAY-R), in addition to delivering 20 million urban houses (PMAY-U) by 2022, however, with one key feature: It would not be the public sector, but the private sector that will deliver a majority of this quantum, primarily through public-private partnerships (PPPs) and financial concessions and subsidies of various kinds.[22]

On closer inspection, the programme builds on previous policies, most notably the Rajiv Awas Yojana (RAY) housing scheme that came out of another ambitious urban mission, the Jawaharlal Nehru Urban Renewal Mission (JnNURM) introduced in 2005. But, while RAY's two-pronged approach to creating "slum-free cities" focused on both new housing production through PPPs as well as "improving and provisioning of housing, basic civic infrastructure and social amenities in intervened slums"[23], the current PMAY scheme, as Gautam Bhan emphasises, focuses primarily on the construction of new housing units where "the main mode of spatial intervention is 'in-situ slum redevelopment'", and that the "possibility of 'upgradation' or 'incremental housing' has been removed – only new houses are to be built."[24]

With the focus now on the 'unit' and not the territory of the slum, the PMAY scheme intends to achieve its aims through four "verticals". These are: 'in-situ slum redevelopment' (ISSR) that focuses on "using land as a resource through private participation"[25]; 'Credit Linked Subsidy Scheme (CLSS)' which provides rebates on housing loans; 'Affordable Housing in Partnership (AHP) that creates financial incentives for greater public-private partnerships for building new housing; and lastly, the 'Beneficiary-led Individual House Construction (BLC)' that provides grants for individual home improvements for existing home-owners.

However, despite well-intentioned plans, the programme has failed to achieve its targets. As of mid 2024, only about 8.5 million homes have been constructed and delivered to beneficiaries (out of the revised, scaled-down target of 11.22 million homes determined in 2019).[26] With guidelines that define an "affordable house" under the PMAY scheme at complete odds with how people live and their income capacities, a study from 2016 claimed that nearly 23 per cent of the total houses built under the scheme were found vacant.[27] In a country where nearly 65 million people live in slums, India today has a vacant housing stock of approximately 11 million units,[28] signalling not only a complete mismatch between supply and demand but housing's degraded role as "an instrument for profitmaking — a conflict between housing as home and as real estate."[29]

Although Gautam Bhan is correct in his critique of PMAY's objectives in the large megacities of India, recent studies by the Delhi-based Centre for Policy Research (CPR) tell a more nuanced story. Sama Khan's research at the CPR from 2020 informs us that when evaluating the implementation of the PMAY, it becomes crucial to look at its performance across a variety of urban centres – from small towns (population less than 100,000 inhabitants) to medium cities (100,000-1 million inhabitants), to million-plus cities (populations greater than 1 million inhabitants).[30]

Her first observation dispels conventional thinking that tends to project the PMAY scheme as being more active in India's large metropolises. But when one studies its total outlay so far, more than 40 per cent of its sanctioned units are located in smaller towns, with only a bit more than 20 per cent located in India's million-plus cities.[31]

This leads to her second point. While it is it generally believed that the PMAY primarily encourages private-sector partnerships (ISSR, CLSS, AHP), the reality is that those three modes combined cumulate to only a bit more than 40 per cent of the total outlay so far.[32] It is, in fact, the BLC vertical that dominates housing construction at the national level and not public-private partnerships.

Looking closer, the same data will also reveal general preferences for specific modes across the three scales. While the smaller towns prefer utilising the BLC vertical, medium-sized cities opt for both BLC and AHP units.[33] In contrast, the million-plus cities are dominated by AHP and, to a smaller extent, BLC and ISSR verticals.[34] Thus, empirical evidence of how the PMAY-U has performed also depends on where one looks. Nevertheless, what is shared amongst all these approaches is a focus on the individual home 'unit' and not the 'territory' of an entire slum, as was the case with RAY.

This overriding imagination of housing as a *pucca* house – defined currently by the state as "an all-weather single unit or a unit in a multi-storeyed super structure having carpet area of up to 30 sq. m.

with adequate basic civic services and infrastructure services like toilet, water, electricity etc."[35] has led to a purely quantitative approach to understanding housing that draws some parallels with the large-scale housing programmes of Brazil and Ethiopia. An overemphasis on efficiency and replicability invariably produces models far removed from the social and cultural practices of those inhabiting them. Moreover, the housing produced is simply out of reach of the poorest sections of our society – waste pickers, domestic workers, daily-wage labourers, home-based workers, and street vendors.

A reading of the PMAY scheme also reveals that the policy fundamentally ignores the country's urbanisation processes. Amitabh Kundu, for example, who headed the committee that determined the housing shortage in the country, warns of "exclusionary urbanism"[36] where the focus on megacities will reduce with the emergence of small and medium towns and lead to greater inequalities. Chinmay Tumbe, an economist and demographer, focuses on the emergence of "remittance urbanism"[37] arguing that policies fail to understand the nature of urbanisation and economy in the country.

Along these lines, another aspect that the COVID-19 pandemic has most recently and visibly brought to the fore is the staggering disconnect between housing policies and oscillating migratory patterns of a vast section of India's working force. Mehrotra terms these dynamics "flux" – arguing that India is not simply 31 per cent urban as indicated by the 2011 census, but depending on how one defines 'urban', is, in fact, nearly 60 per cent urban for six months of the year and about 40 per cent urban for the other six.[38] As is the case with all statistics in India, this difference is humongous, with millions navigating between villages, towns and cities on a seasonal basis, often finding work only in the informal sector – without job security and guaranteed access to social protection programmes.

When viewed this way, it's obvious that home-ownership schemes, as promoted in current housing policies, do not apply to "all". Looking beyond political rhetoric, it's clear that the 'Housing for All' mission's real aim is not just to build houses but to create a property market. Its sole ambition to build new units and encourage home ownership misinterprets both the nature and geography of the housing shortage and the complex dynamics of migratory processes that all demand a greater diversity of tenure systems and types of housing. Not only does this mean that recent rental housing programmes need to be scaled up, including the simultaneous legitimisation of a wider spectrum of forms of tenure, but we also need a fundamental shift in how policies define their scopes and targets and the strategies they employ to fulfil them.

NO SINGLE SOLUTION: THAILAND'S ALTERNATIVE APPROACH

Reviewing recent housing programmes in Ethiopia, Brazil and India, it becomes evident that there is a certain crisis of large-scale housing when policies focus solely on efficiency, irrespective of whether they are built under the 'provider' or 'enabler' paradigm. An antithesis to both these schemes, and one of the more interesting examples of a government-sponsored housing programme, can be found in Thailand in South-East Asia. Named the *Baan Mankong (Secure Housing) Collective Housing Program*, it is a nationwide slum-upgrading policy aimed at providing existing slum dwellers with the security of tenure and improving their living conditions through the provision of utilities and improved housing stock.

Introduced in 2003, the scheme relies on government funds through subsidies and soft loans that are channelled to low-income communities, where the people themselves are the main actors in transforming their neighbourhoods. A key player in this is the Community Organisations Development Institute (CODI) – a public body that acts as a facilitator through which poor communities collaborate closely with their local governments, architects and NGOs to plan their neighbourhood upgradation.

Since its introduction, the program has been implemented in over 300 cities nationwide, covering over 90,000 households.[39] Development can come in the form of five main types: 'on-site upgrading' that, through incremental housing and the provision of essential services and utilities, improves living conditions without uprooting existing housing stock; 'on-site reblocking' that rearranges houses to provide better infrastructural services and roads; 'on-site reconstruction' that involves the demolition of existing homes that are re-built on the same site under long term leases or after people have negotiated to purchase the land; 'land-sharing' that resolves conflicts between the land-owners and the community; and lastly, (although rarely deployed), 'relocating' to a nearby site usually within 5 kilometres from their existing neighbourhoods.


HOUSING FOR ALL!

PM Modi inaugurates 3,024 EWS flats in Delhi to rehabilitate slum dwellers

Narendra Modi hands over keys to the beneficiaries at Vigyan Bhawan in Delhi

First India Bureau

New Delhi: Highlighting the welfare policies of the central government for the poor, Prime Minister Narendra Modi on Wednesday said today marked a historic day as several citizens staying in Jhuggi-Jhopdi clusters in Delhi will now have their own houses.

PM on Wednesday inaugurated 3,024 newly constructed EWS flats at Kalkaji, Delhi built for rehabilitating slum dwellers under the 'In-Situ Slum Rehabilitation' Project. PM Modi also handed over keys to eligible beneficiaries from Bhoomiheen Camp at Vigyan Bhawan in Delhi.

He said the campaign was started to provide pucca houses to the poor families of Delhi. In the first phase of Kalkaji Extension alone, he said more than 3,000 houses have been built.

PM Narendra Modi hands over the symbolic key to slum-dwellers of Bhoomiheen Camp as Union Minister of Housing & Urban Affairs Hardeep S Puri looks on at Vigyan Bhawan in New Delhi on Wednesday.

"Other families residing here will also get a chance to housewarming very soon. I have faith that these efforts by the central government will play a key role in making Delhi an ideal city. Our government is paying equal attention, especially to the urban poor."
—Narendra Modi, Prime Minister

Shah takes 'many CM faces' jibe at Cong in HP

Nadaun: Home Minister Amit Shah on Wednesday took a swipe at the Congress saying it is a party of 'rajas and ranis' and even though many chief ministerial aspirants might be in the fray in Himachal Pradesh no one will get a chance in reality.

Thakur's scathing attack at Rahul Gandhi

Dehra: Union Minister Anurag Thakur made a big attack on Rahul Gandhi. He said that Rahul has not been able to connect his sister Priyanka till date in the Bharat Jodo Yatra. Thakur addressed public meetings in favor of BJP candidate Ramesh Dhawala here.

REPORT P5 » PM MODI ADDRESSES INVEST KARNATAKA 2022 VIRTUALLY | MISSION REPEAT: AMIT SHAH, JP NADDA & ANURAG THAKUR CAMPAIGN IN HIMACHAL

6


Centre for Social and Economic Progress | CSEP Independence | Integrity | Impact

Policy Brief | February 2021

India's housing paradox: Empty houses and housing shortages

Sahil Gandhi, Richard Green and Shaonlee Patranabis

Note: This policy brief draws heavily on the empirical findings of the CSEP working paper, "India's housing vacancy paradox: How rent control and weak contract enforcement produce unoccupied units and a housing shortage at the same time" by the same authors to propose relevant policy recommendations. The working paper can be accessed at https://csep.org/jbp38Lm

Support for this research was generously provided by the Omidyar Network India. CSEP recognises that the value it provides is in its absolute commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment and the analysis and recommendations found in this report are solely determined by the scholar(s).

Key takeaways

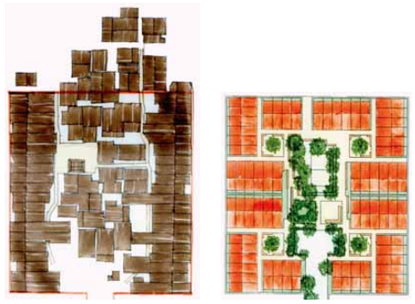
- The housing market in India suffers from distortions. The rate of vacancy is high (12.3%), as is the need for affordable housing (18.78 mn units).
- Landlords are disincentivised from renting their houses because of the legacy of stringent pro-tenant rent control and inadequate state capacity for enforcement of contracts.
- Improving rent control legislation and rationalising the process of contract enforcement could result in bringing vacant houses into the market.

India will nearly double the size of its urban population between 2018 and 2050. Over half of the Indian population will be facing a significant challenge soon — finding affordable and sufficient housing.

7



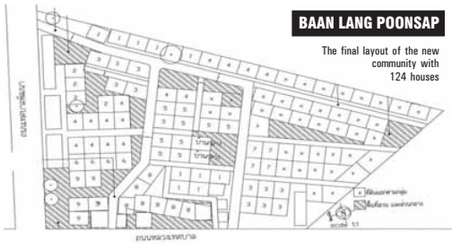
8



9



10



11

Fig.6 Narendra Modi announcing the 'Housing for All' mission in 2015.
Fig. 7 Cover of *Business India* with a feature on the housing programme in India.
Fig. 8-11 Drawings of projects that illustrate the variety of approaches possible under the BMP.

Gautam Bhan cites the Thailand case as a possible model for slum improvement in India. In fact, in his work as a consultant to the government of Odisha, one of India's poorest states in the east of the country, he has helped draft a housing policy along the lines of the *Baan Mankong* program. However, when one looks back at the history of housing production in India, the case of Odisha remains the exception and not the norm.

WHICH WAY FORWARD?

Looking back, the rich and complex history of public sector intervention in housing reveals recurring modes and models that create long lines of development that cut across geographies and political spectrums. The history of housing, therefore, is also the history of globalisation, with policies, programmes, and people travelling and determining how housing is financed and formed. Yet, as Florian Urban has described in his 2012 book *Tower and Slabs*, modes and models vilified in one place seem to work in another. Contradictory as this may seem, Urban's study reaffirms the fact that the success or failure of a housing strategy can never be brought down to just one factor: the policy or the physical form alone, but requires an in-depth analysis of a variety of variables that include location, densities, climate as well as changing social, cultural and political factors. In the book's preface, Mark Jarzombek summarises one such example: "In some cases, towers replaced the slum, but in other places, as in Mumbai, towers are effective in the reproduction of slums."

Thus, although the 'New Urban Agenda'[40] adopted at the Habitat III conference in Quito in 2016 outlines broad strategies at five different levels: national urban policies, rules and regulations, urban planning and design, financing urbanization and local implementation, the success or failure of these strategies depend on how national and local governments will interpret and implement these recommendations. Joan Clos, the executive director of UN-Habitat and secretary-general of Habitat III points out that "the future of cities largely depends on the way urbanization is managed and public-private collaboration is leveraged"[41]. In such an emerging future, the evolution of housing in Mumbai becomes a vital case study. Changing housing paradigms in the city have echoed Wakely's thesis of three broad approaches, but it also reveals notable exceptions and innovations. Because, for all its problems, Mumbai is also a rich repository of noteworthy experiments against forces of top-down planning and "impatient capital"[42]. Starting in the 1970s, India's democratic set-up has allowed new modes of practice and production to emerge that challenge conventional approaches. Reacting to previous state-led policies on forced evictions, and partly due to the declining role of the state, grassroots movements, often in collaboration with local architects, activists and NGOs, have been actively leveraging civil rights to resist, negotiate and participate in housing and city-making projects.

In Mumbai, P.K. Das stands out as an architect-activist.[43] Understanding the grave realities of housing, and with the aim to garner community support to fight for the building of more affordable social housing, Das co-founded the *Nivara Hakk Suraksha Samiti* (NHSS), which aims to build alternatives to private sector-led development through activism. Sangharsh Nagar, the NHSS's largest and most well-known scheme, a colony of as many as 18,000 families, was, for very long, the largest slum resettlement scheme not just in the city but the country.[44]

But while Das's work is often large-scale, we can also find in the city alternate forms of practice that are far smaller in scale, and ones that are more inclined towards bottom-up approaches.[45] A well-known organisation of this approach is the Dharavi-based URBZ that believe in research and advocacy that are centered around in-situ upgrading and improvement.[46] Coordinating between communities, architects and the *bazaar*, their practice has helped build single-family homes as well other small-scale projects in Dharavi and elsewhere.

But perhaps the best-known NGO of this kind in Mumbai is the Society for the Promotion of Area Resource Centres (SPARC). Formed in 1984, SPARC, together with the National Slum Dwellers Federation (NSDF) and *Mahila Milan* (which in Hindi means 'Women Together'), call themselves *the Alliance*. Over the years, these organisations have either independently or collaboratively worked with architects and communities on various projects. To date, they have built over 6500 units, upgraded nearly 3000 homes, and helped rehabilitate more than 33,000 households affected by forced evictions.[47] These are numbers most architects would envy. Arjun Appadurai, a cultural anthropologist and himself a co-founder of a local NGO, *PUKAR* (Partners for Urban Knowledge Action and Research), praises the work of *the Alliance* as an example of what he terms "deep democracy"[48] – a model where marginalised masses can collaborate with local, state, national and even multilateral agencies to claim their "right to the city".[49]

Although varied in scope and approach, these growing grassroots movements represent new modes of housing production and spatial practice, democratising tools of planning and architecture and allowing design decision-making processes to include multiple actors and stakeholders - the state, the private sector, and the *bazaar.* But can they actively reach the needed scale of demand alone? Have such bottom-up approaches led to better dwelling conditions?

The built form of Mumbai's housing landscape ranges from small-scale retrofitting schemes with the most minimal footprints to large-scale urban renewal schemes for the masses. As a site, the city offers the possibility of analysing the simultaneous validity of various approaches rather than fixating on a single delivery system.

■

POLICIES AND PHYSICAL FORM
MASS HOUSING IN MUMBAI

3.1	MODELS FOR THE MASSES	108
3.2	SOCIAL HOUSING	134
3.3	SELF-HELP & SITES-AND-SERVICES	158
3.4	SLUM IMPROVEMENT & UPGRADATION	178
3.5	SLUM REDEVELOPMENT	196
3.6	SLUM RESETTLEMENT & REHABILITATION	216
3.7	MAPPING MUMBAI	242
3.8	MUMBAI MATRIX: AN ATLAS OF HOUSING IN MUMBAI	256

MODELS FOR THE MASSES

FIVE MODES FOR BUILDING AFFORDABLE HOUSING



Fig. 1 View of Kalbadevi in 1890. These inner city areas housed the earliest migrant populations of the city in low-rise, high-dense mixed-use dwellings.

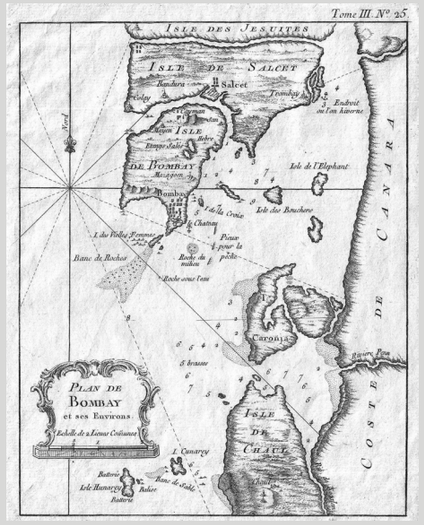
"There will soon be more people living in the city of Bombay than on the continent of Australia. *Urbs Prima in Indis* reads the plaque outside the Gateway of India. It is also the *Urbs Prima in Mundis*, at least in one area, the first test of the vitality of a city: the number of people living in it. With 14 million people, Bombay is the biggest city on the planet of a race of city dwellers. Bombay is the future of urban civilization on the planet. God help us."

Suketu Mehta, *Maximum City: Bombay Lost & Found,* 2004

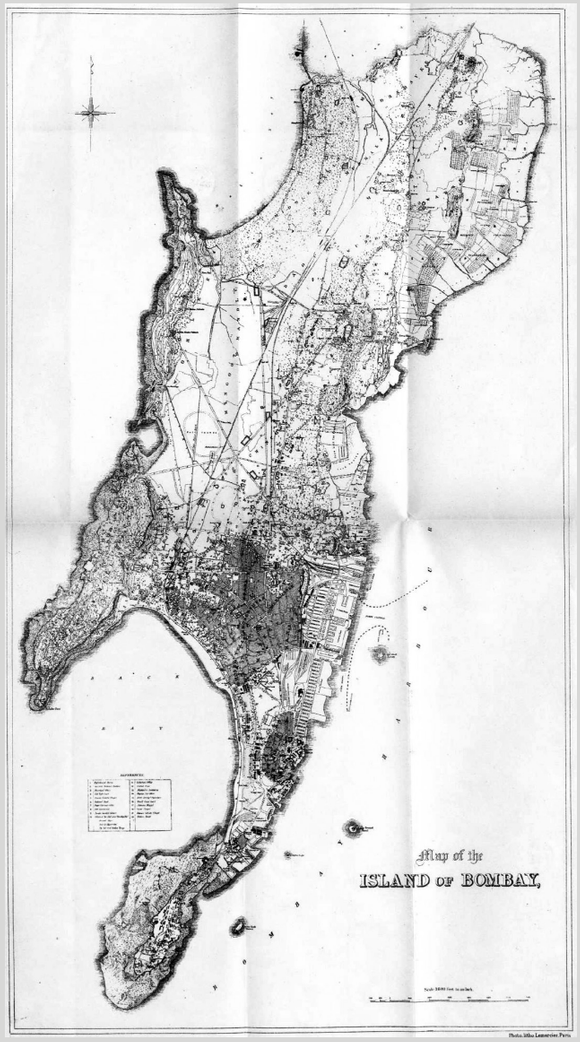
Mumbai is, by and large, a colonial construct. Over a period of three centuries, a collection of seven swampy islands was merged by the British to form a peninsula that measures about 603 square kilometres with perhaps one of the finest harbours in the world.[1] But apart from becoming India's financial capital, contributing nearly a third to the country's income tax revenues and more than six per cent of its total Gross Domestic Product (GDP),[2] Mumbai has always been, from its inception as a colonial town, a highly segregated city.[3]

The arrival of British colonialism resulted in a clear duality – a geography divided between the Victorian Gothic fortified "white town" – built in 1715 by the colonisers at the southern tip of the island city and the crowded and unsanitary "native towns" in the precincts north of the Esplanade that was home to a majority of the local inhabitants.[4] Profiting from its prime location on the western coast of India and bolstered by two global events – the outbreak of the American Civil War in 1861 that blocked the supply of raw cotton to industrialising England, and the opening of the Suez Canal in 1869 – Mumbai grew in importance as a port town and a major global supplier of cotton. Starting with the setting up of the first mill in 1854, the cotton textile industry grew from employing under fifteen thousand workers in 1875 to more than seventy-five thousand by the turn of the twentieth century.[5] At its peak nearing independence in 1947, the cotton textile industry employed a workforce of nearly a quarter of a million people who worked in approximately 80 mills spread across central Mumbai in precincts such as Girangaon, Parel and Kalbadevi.[6]

Over just four centuries, Mumbai has undergone tremendous physical, social and political transformations. From a small trading post in the early 17th century to a vibrant colonial mercantile and industrial town in the 18th and 19th centuries to a major economic powerhouse by the start of the 21st century, Mumbai's growth has, as others have pointed out, been "the most visible symbol of India's modernity."[7] Each period in the city's history has left behind its undeniable traces through its architecture and urban form, making the city today, in many ways, a collage of multiple, diverse and contrasting identities. Over the years, the dichotomy of the "dual-city" geography that once characterised the city has



2



3

Fig. 2 A rare map from 1764 by J. N. Bellin showing the peninsula of the island of Bombay as it was in the 1700s. At its southern tip can be seen the fort of Bombay. To its north lies the larger island of Salcet (Salsette), and across the bay to east lies the mainland of India.

Fig. 3 Map of the Island of Bombay prepared by James Douglas that shows clearly the segregated nature of the city with the colonial fort located along the harbour on the island's southern end and the dense, native settlements located further north across the esplanade.

today collapsed and coalesced to form what Rahul Mehrotra describes as a "landscape of pluralism" – an urban conglomeration of stark physical and visual contradictions where the notion of 'two worlds' is now "emblematic of representing multiple dualities that are broader than those of mere economic difference – the rich-poor divide."[8] Writing in the essay 'One Space Two Worlds' in 1991, Mehrotra further states:

> "The city is today like a bazaar, a kaleidoscope of snapshots and symbols overlapping to create an often incomprehensible mosaic. In fact, the bazaar, a chaotic marketplace of shops, stalls, and hawkers, can be seen as the metaphor for the physical state of the contemporary Indian city - an informal enterprise zone expressing energy, optimism, and a will to survive outside any formal system."[9]

This pluralistic landscape is also, as he claims, simply because Mumbai, unlike other cities such as New Delhi or Chandigarh, has never been a product of a single preconceived plan.[10] Instead, it has grown through planned and unplanned interventions, giving the city its diverse urban fabric and multiple identities. However, while the lack of an overarching masterplan has allowed the city to respond to changing contexts, the lack of holistic planning has also led to an increasingly incapable of accommodating its growing population.

BOMBAY/SLUMBAY?

Few cities in the world reveal greater disparities in socio-spatial inequalities than Mumbai. It is also a city that, keeping true to its title of the 'Maximum City', boasts of numbers that seldom fail to astonish. With urban growth exceeding the city's original limits, the Regional Plan of 1970 allocated a larger metropolitan region to include the municipalities of Thane and the newly planned city of Navi Mumbai. Today, this urban agglomeration known as the Mumbai Metropolitan Region or MMR covers an area of 6328 square kilometres and comprises nine municipal corporations, including those of Vasai-Virar, Kalyan-Dombivli and Panvel.[11] Currently the world's sixth largest urban agglomeration, the MMR accommodates over 23 million people and, according to a 2016 report, is expected to become the largest such urban area on the planet by 2050, with a projected population of more than 42 million inhabitants.[12] If this were to happen, the MMR would eventually house more people than the Greater Tokyo Area – currently the world's most populous metropolitan area – in just half its area.In such a context, alongside these humongous numbers, affordable housing presents Mumbai with its most pressing and critical challenges.

The first Development Plan of 1964 estimated the city's slum population to just under half a million. A few years later, the first Slum Census of 1976 counted the city's slum population as being in the neighbourhood of 2.8 million dwellers who lived in about 1680 slum pockets throughout the city.[13] By the 2011 census, that


1812
1912
Original Islands
1800s Reclamation
1900s Reclamation
1950s Reclamation

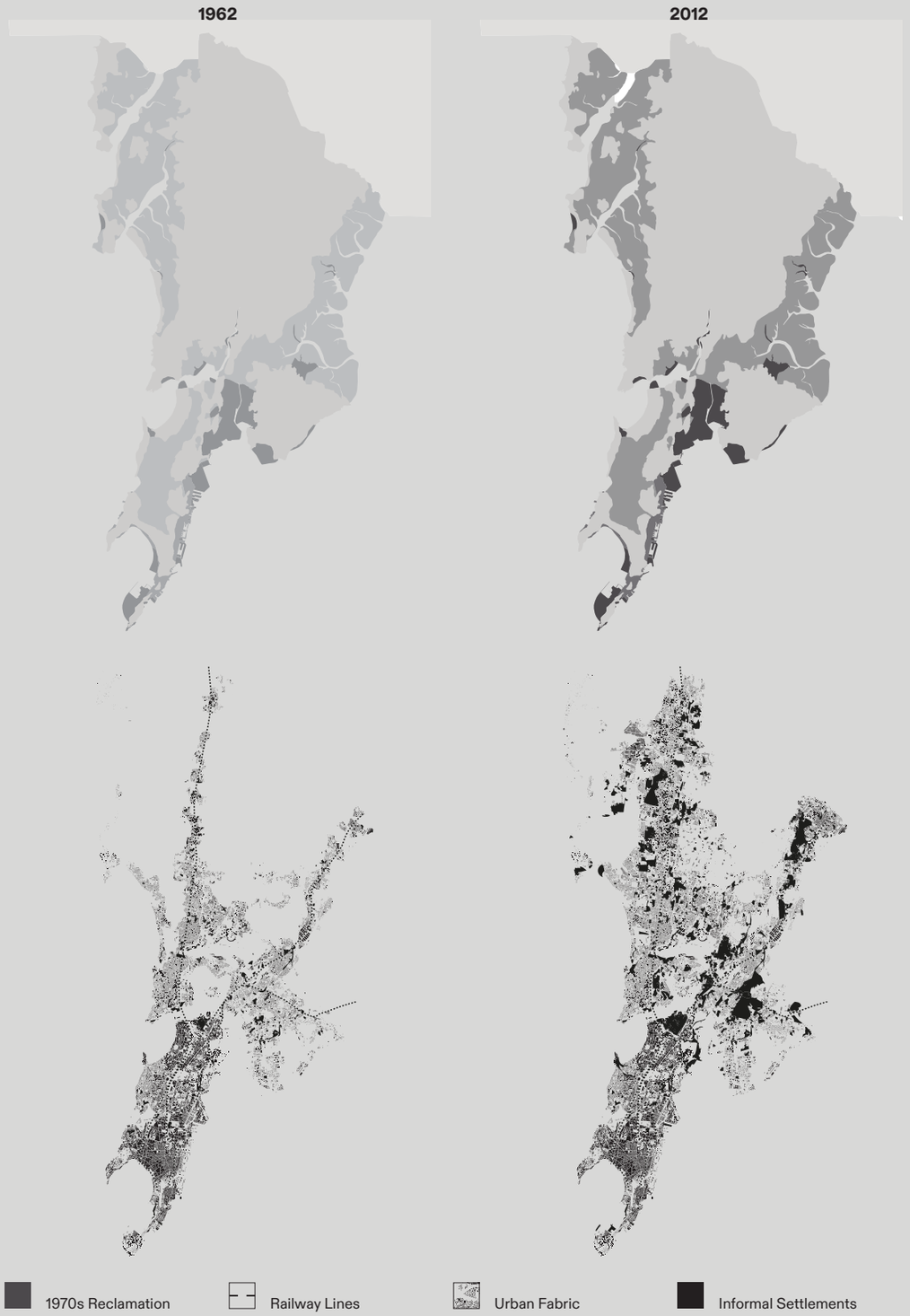

1962
2012
1970s Reclamation
Railway Lines
Urban Fabric
Informal Settlements

figure had nearly doubled, with an estimated slum population of about 5.2 million or roughly 42 per cent of the city's total population of 12.4 million people residing in 1959 slum pockets.[14] However, it must be noted that these figures are official censused numbers. Several researchers have pointed out that such official surveys exclude a substantial population, often for deliberate political and economic reasons. In the absence of an official census since 2011, most estimates now suggest Mumbai's current slum population to be in the region of ten million people or almost 60 per cent of its total 18 million-strong population.[15] To put these numbers into perspective, Mumbai's slum population – alone – exceeds the entire population of New York City.

Furthermore, one must also keep in mind that while these self-built settlements exhibit several acute problems of the housing crisis, such as lack of security of tenure, inadequate infrastructure and supply of essential services such as water and electricity that pose severe health and sanitation risks, especially for women and children, they are, as others have also pointed out, not the only measure of urban poverty or inequality.[16] In addition to the city's official slum population, recent studies also indicate that another half a million to even a million people reside under a category called 'pavement dwellers'.[17] These sections of the urban poor – perhaps its poorest – dwell on city sidewalks and other interstitial spaces along the city's railway tracks and water pipelines, among other undesirable crevices. Over and above this, another 1.5 million people are also said to live in "slum-like" conditions in old, dilapidated or inadequate buildings known as *chawls* and other forms of tenement housing.[18]

However, while facts and figures such as these paint a picture of Mumbai as a city entirely covered by slums, satellite imagery reveal a different picture. In 2011, Mumbai architect PK Das's study of slums highlighted that Greater Mumbai (not the MMR) is home to about 2500 slums spread across 2525 hectares.[19] This means that slums occupy only a meagre 8.75 per cent of the city's total land area, even though they house more than half of its population. Fifty per cent of these slums occupy privately owned land, 25 per cent occupy state-owned land, and the remaining 25 per cent occupy municipal corporation lands.[20] His 'Slum Map' of the same year, built on information available on open-source sites such as Google Maps and the 1991 Development Plan prepared by the Municipal Corporation of Greater Mumbai (MCGM), makes visually very clear that these so-called slums have grown in pockets throughout the city, unlike several other cities in the Global South, such as Buenos Aires and Caracas, where low-income and underserved communities occupy primarily unwanted land on the outskirts of the city. About 45 per cent of Mumbai's slum dwellers live in the city's western suburbs, and another 38 per cent reside in the city's historically neglected eastern suburbs (often near several polluting industries and dumping grounds). In comparison, only about 16 per cent can be found within the original island city limits in the south.[21] However, if one were to look not just at



5



6

Fig. 5,6 The majority of Mumbai's population live in slums or slum-like conditions – a number that exceeds the entire population of New York City.

absolute numbers but proportions of slum populations about the total population within each of these three divisions, we find that the eastern suburbs – by far – are home to the highest numbers of slum dwellers, with nearly 80 per cent of its population living in slums, compared to roughly 55 per cent in the western suburbs and 34 per cent in the island city.[22]

In an early paper from 1970, Desai and Pillai claimed that slums in Mumbai are of three types:

> (a) areas with single or multi-storeyed buildings, built long ago as per standards prevailing then, and which are today in a deteriorated condition; (b) the second type of slums consist of semi-permanent structures which are both of the authorised and unauthorised type. Some of these areas consist of semi-permanent structures built of corrugated iron sheets – they are commonly known as "patra chawls"; (c) the third type of slum is the hutment colony or the squatter colony called "Zopadpattis": these huts are, as anywhere else, built with an assortment of materials. Hutment colonies are not many in the city proper but the outlying areas of the city have a large number of them due to the open areas available there.[23]

A more recent survey conducted on behalf of a local organisation, YUVA (Youth for Unity and Voluntary Action), by Montgomery Consultants in 2001 highlights that of all slum pockets in the city, about 62 per cent can be classified as having *pucca* structures, 11 per cent can be said to be of poorer *kutcha* construction and the remaining 27 per cent with a hybrid mix of both types. The report also points out that the sizes of houses can vary considerably, with about 42 per cent of all slum dwellings having an area of less than 10 square metres and 38 per cent having an area between 15 to 20 square metres. Only about 9 per cent of all slum dwellings had an area of more than 20 square metres, often spread over two or more stories.[24]

LOW-RISE HIGH-DENSITIES

Beyond the sheer scale of the "slum problem" and lack of affordable – and diverse – formal (including rental) housing stock, what sets Mumbai apart from several other cities in the Global South, such as Nairobi, Addis Ababa and Caracas (all of which have higher proportions of slum dwellers) is its high population densities. The MMR currently accommodates more people than the entire nation of the Netherlands in only about one-seventh of the area. With a population that has grown almost four-fold in the last fifty years, from a little under six million inhabitants in the early 1970s to more than twenty million by the 2020s, and restricted by its physical geography as an urban area bound by water, the MMR averages more than 20,000 people per square kilometre – even higher density rates than those found in the metropolitan areas of New York City (11,000 people per square kilometre), São Paulo (8,000 per square kilometre), Hong Kong (6,800 people per square



7



8

Fig. 7,8 Despite Mumbai's reputation as a high-rise city, the fact is that the city's high densities are a result of high density per room. Much of the city is, in fact, low-rise.



9

10



Fig. 9 The city is dotted with socio-spatial contrasts, as seen here in the city's western suburbs.
Fig. 10 With nearly 100 billionaires, Mumbai trails only New York City and London in the world's list of cities with the most number of billionaires.

kilometre) and Shanghai (4,200 per square kilometre).[25] The paradox is that despite these astronomically high densities, Mumbai is, for the most part, a low-to-medium-rise city. Unlike New York City and Hong Kong, in India's financial capital, population densities are not directly reflected in the quantum of physical floor space or vertical construction but in high occupancy per room.

In a 2011 report titled 'Concept Plan for the MMR' prepared by Singapore-based Surbana International Consultants and the global consultancy firm Deloitte on behalf of a local corporate-backed NGO *Mumbai First* quantifies the living space per person in the MMR to be in the region of a mere 4-6 square metres per person. On the other hand, Singapore – an aspirational benchmark for the report's authors – provides nearly four to six times that space, with 25 square metres of living space per person.[26]

While this certainly helps explain the enormous densities found in slums such as Dharavi, which have been estimated to accommodate sometimes even more than 350,000 people per square kilometre[27] – undoubtedly some of the highest densities of people living per square kilometre anywhere in the world – facts and figures such as the ones we've been discussing so far, do little to explain why Mumbai – despite all its problems – remains the *Urbs Prima in Indis* (the First City of India). It is a city that remains India's biggest melting pot and absorber of distress migration, with almost half of its population coming from other parts of India.[28]

A CITY OF CONTRASTS

The contradiction is that alongside its colossal slum population, Mumbai is also India's financial capital and economic powerhouse boasting more billionaires than any other Indian city – or for that matter, any Asian city.[29] With the latest reports listing 92 billionaires in the city, Mumbai trails only London (97 billionaires) and New York City (119 billionaires) to come in third place in the report's top ten cities in the world with the highest number of billionaires.[30] With projections estimating that by 2030, Mumbai's GDP will exceed that of Hong Kong and Thailand combined, it is undeniable that Mumbai plays a central role in shaping the 'Asian Century'.[31] It is unsurprising, then, to realise that in 2024, Mumbai emerged as one of the world's top ten luxury real estate markets, with apartment prices in neighbourhoods such as Worli, Bandra and Colaba rivalling some of the highest rates found anywhere in the world.

But beyond housing for the rich, in recent decades, and particularly following the economic reforms of 1991, owning a house – not just for the urban poor but for most middle-income households – has increasingly become an unattainable dream. A 2013 report by the well-known real estate Knight Frank consulting firm declared Mumbai the country's most unaffordable housing market, with nearly a third of its under-construction properties exceeding the 10-million-rupee mark (approximately 120,000 US dollars).[32] Not only does this factor out almost 75 per cent of the city's population from becoming homeowners, but reports also list Mumbai as the sixth most expensive city – globally – to rent an apart-

ment.[33] Most shockingly, perhaps, is that in a city with an official housing shortfall of 1 million units, a strange phenomenon exists where rampant construction aimed at middle and higher-income groups has led to a growing vacant housing inventory currently estimated at 0.48 million homes.[34] Such numbers reveal not only a grotesque mismatch between supply and demand but also the failure of the market to play the role of the state.

Thus, despite India expected to maintain the title of being the "fastest-growing major economy in the world"[35] between 2023 and 2027 Mumbai's built form reveals a growing contradiction between social extremes that now characterise much of urban India. Many have even argued that the persistence of slums and extreme socio-spatial inequalities has been a deliberate policy and political act to restrict land and housing supply in the city to benefit the politician-builder nexus that has existed in the city since the establishment of the Bombay Improvement Trust in 1898. Others have correlated the proliferation of informality in the city as a natural result of the urbanisation process of Mumbai, where slums are deemed necessary to cater to the formal economy of the city.

Whichever way one might look at the problem, the fact remains that the presence of slums is inextricably tied to the failures of policies, planning and governance. The United Nations Human Settlements Programme (UNHSP) had this to say about the rise of informality worldwide:

> "In general, slums are the products of failed policies, bad governance, corruption, inappropriate regulations, dysfunctional land markets, unresponsive financial systems and a fundamental lack of political will."[36]

A brief overview of the state of housing in Mumbai attests to such claims, with the current trends suggesting that the conditions of the urban poor are getting worse over time. Much of these disparities in recent decades can be linked to the influx of foreign capital and the introduction of free-market ideologies following the liberalisation of the economy in the early 1990s. The New Economic Policy (NEP) introduced by Dr Manmohan Singh in Parliament on July 24th 1991, resulted in two significant changes: Firstly, the influx of foreign capital, coupled with the Information Technology (IT) boom of the 1990s, completely transformed the city's function from that of an industrial centre to a post-industrial service-based economy. Secondly, a combination of spiralling real estate prices and lack of political will and planning to invest in developing more growth centres and affordable housing stock have resulted in a city where, for the first time, the urban poor form the majority.

Furthermore, as opposed to the pre-reform era, where housing was still primarily seen as a social or welfare responsibility rather than an economic opportunity,[37] the policy context in the post-reform era has been much more complex and contradictory. Some have described Mumbai as the first city in India to have witnessed "economic, technological and social changes associated with the growth of capitalism".[38] In an attempt to position Mumbai as a 'global' and 'world-class city', large-scale slum demolition drives such as what came to be known as 'Operation Shanghai'[39] have demolished an estimated 90,000 homes and displaced nearly 350,000 slum dwellers in just three months between 2004 and 2005.[40]

As startling as these numbers seem, history informs us that they are not new. The Bombay Improvement Trust (BIT), instituted in 1898 with a mandate to "improve" the city and provide affordable "sanitary dwellings" to the city's working classes, in fact, had much the same impact. Reflecting on the colonial government's first ventures into slum demolition and resettlement, a bi-lingual local newspaper, *Indu Prakash*, noted in 1905 that while the BIT was "entitled to the credit of having raised an attractive residential quarter for the upper and middle classes in a place which was formerly a breeding ground for all kinds of diseases...the good done to these classes has entailed misery upon the poor, who have been driven away to nooks and corners or have been crammed up in existing houses, thus increasing overcrowding and disease."[41]

PARADIGMS IN CONFLICT?

Large-scale demolition and 'slum re-settlement' drives, such as those implemented by the BIT in the early 1990s or those such as 'Operation Shanghai' a century later, are perhaps the oldest and most universal of all state-led interventions regarding slums. However, alongside this paradigm still in practice in Mumbai today, the city has also been a testing ground for a slew of policy instruments that have built on improving existing slum settlements through 'slum improvement and upgrading' efforts, such as the Mumbai Slum Sanitation Program (SSP) that was co-sponsored by the World Bank and subsequent efforts promoted by the Central Government to create "slum-free" cities in India. However, what makes Mumbai an interesting site to study is that next to these, the city is, as Vinit Mukhija has claimed, home to a novel "third way" that, in contrast to more typical paradigms of slum clearance and slum upgrading, has also explored the innovative use of the private sector to build affordable housing with the much-debated and contested Slum Rehabilitation Scheme (SRS) implemented in various forms since the mid-1980s.[42] This mode contrasts with slum resettlement schemes and aims to achieve a "win-win" solution through in-situ 'slum redevelopment' that addresses the need for adequate housing for slum dwellers while also creating new housing stock for private profit.

However, all three paradigms discussed so far deal with existing settlements. Beyond these three distinct paradigms, which are essential "curative" in nature, the city has as well a long history of "preventive" strategies that have aimed to pre-empt housing demand by creating new housing stock on greenfield sites through the building of (complete) 'social housing' and (incremental) progressive development houses of which 'self-help and sites-and-services' have been a significant approach.

What can we learn from these paradigms? Stranded between dwindling public investment in housing and sporadic attempts to encourage bottom-up initiatives on the one hand and new market forces that contest the notion of housing as a fundamental human right on the other, Mumbai represents a field of study that holds multiple lessons for housing policy and design discourse, valuable not just for India, but globally. By tracing the past and present state of housing interventions in the city, this section explores the micro-histories of these different paradigms and asks: how should one read and periodise Mumbai's housing and policy timeline? How has the physical form of these policies evolved over the years, and what models of housing type have they generated? And how can such a study of the built environment serve as a barometer to assess the successes and failures of past and present policy interventions? It is precisely these questions that this chapter and the following five chapters intend to answer.

AIMS & OBJECTIVES

This section has three core aims. Firstly, this introductory chapter sets the context – geographical, political and economic – of the state of housing in Mumbai today, particularly concerning its low-income dwellers and slum populations. Secondly, drawing on existing literature and reflecting on the works and writings of several city-based and international scholars and activists, it problematises the general timeline and categories by which the attitudes and approaches towards delivering low-income housing and informality in the city have typically been described and understood. By providing an overview of past significant approaches towards informal urbanisation adopted by various governments, this "state of the art" aims to offer a new reading of these paradigmatic shifts that, in opposition to delineating categories of policy interventions into neat, often chronological periods, or phases, will instead be structured around five dominant 'modes' that recognises the complex overlapping histories of these interventions to present a more complete and comprehensive history. And thirdly, this section and its various chapters will narrate a critical-historical perspective on the evolution of these modes (involving all three major powers or sectors – the public, private and people – and various combinations thereof) with a specific emphasis given to the physical form of affordable housing stock they generate, defined here in this dissertation as 'models'. Structured this way, each chapter within this section aims to understand the changing physical *form* of housing in Mumbai by analysing the *formation* and *transformation* of slum and housing policies in the city. An atlas of housing types that provides a comparative study of the various modes and models bookends the section.

This chapter continues as follows: first, it will outline the broad theoretical and conceptual framework within which this dissertation is situated. As described above, it will examine existing literature on Mumbai's housing policy timeline and offer an alternate reading of this history based on five overlapping modes based on dominant paradigmatic shifts in strategy rather than specific stand-alone policies. To clarify this conceptual framework, it will briefly define each mode and what they mean in the context of this dissertation. Further, it will describe this section's methodology, outline the sources used, and explain the criteria for selecting case studies that feature in the drawn housing atlas found at the end of the section. Finally, it will state both the limits and limitations of this section and end with a brief outline of the chapters to follow.

THEORETICAL & CONCEPTUAL FRAMEWORK

Mumbai has long been at the forefront of experimentation in mass housing. Over more than a hundred years, 'housing' in the city has emerged as an object of policy interventions and resulted in a broad spectrum of approaches that, starting with the establishment of the BIT in 1898, have ranged from brutal top-down slum clearance and resettlement schemes to grassroots-led bottom-up schemes that have helped shape Mumbai's spatial form and civil rights.
Typically, existing literature on this history, particularly its post-colonial period, has been categorised into three neat categories of "controller", "provider", and "facilitator" paradigms as suggested in an official policy document prepared by the Mumbai Metropolitan Road and Development Authority (MMRDA) in 1995.[43] However, various scholars, activists, and researchers have proposed alternate periodisation, offering differing readings that have examined and critiqued the role of the government, particularly concerning its ever-shifting attitude towards the 'slum' and the challenge of housing the city's vast low-income populations.

Amita Bhide, for example, builds on the categories defined by the MMRDA and suggests an alternate timeline concerning slum policies across three phases: first, a period of "negation" through the 1950s and 1960s where slums were seen as "dens of crime" and where the state's approach consisted primarily of large-scale demolitions coupled with programmes to build social housing that failed to match the demand needed. Second, a phase of "tolerance" in the 1970s that moved away from demolition drives and towards "environment improvement" by providing essential services and amenities to existing settlements. Finally, a phase of "acceptance" from the 1980s that built on international discourse and championed large-scale slum upgrading programmes at both the national and city levels.[44]

These categories by Bhide share much in common with those offered by Christian Werthmann and Jessica Bridger, who, in their 2016 book *Metropolis Nonformal,* propose that global approaches towards housing and informality have consisted of five (not necessarily chronological) stages: "denial", "eradication", "tolerance", "improvement" and "anticipation".[45]

Inspired by these stages or paradigms, I offered a similar categorisation in a 2018 paper co-authored with Kritika Sha. In *Profit versus People: The Struggle for Inclusion in Mumbai*, we proposed a reading of Mumbai's housing policy landscape starting from Independence in 1947 across three broad categories: first, a period

defined as “Intolerance & Demolition” that was marked by the formalisation of the Slum Clearance Act of 1956. Second, a period of “Acknowledgement & Improvement” dominated by programmes such as the Slum Improvement Programme (SIP) of 1971 and the Slum Upgrading Programme (SUP) of 1985. And the third, which we defined as “Acceptance & Redevelopment” prompted by the World Bank and the IMF’s push for “enabling” strategies, emphasised a greater role for the private sector and the reduction of the role of the state.[46]

However, all the papers discussed so far have examined the housing policy landscape in Mumbai in the years following Independence in 1947. To fully understand the evolution of approaches in Mumbai, one needs to trace the origins of planned interventions to the era under colonial rule, during which the question of slums and low-cost housing was first addressed.

In his book 2012 book *Tower and Slabs*, Florian Urban outlines Mumbai’s shifting slum and housing discourse into three neat phases:

> “The history of mass housing in Mumbai goes back to the British colonial era and can be roughly divided into three phases. In the late nineteenth century, the city grew from a small trading post to an industrial hub and required the construction of cheap dwellings, which were provided by both private and public institutions. When India became independent, a state-driven housing policy was introduced, which with some modifications lingered on until the 1990s. During that period, public institutions built numerous mass housing projects for the low-income groups that shared many characteristics with the tower block estates in Paris, Chicago, and Berlin. With state control waning after the 1970s, India officially abolished the quasi-socialist economy, with its reliance on import subsidies and state planning, in the 1990s and paved the way toward a neoliberal market economy. The policy change paralleled Mumbai’s development from a local industrial center to a global city and hub of India’s thriving IT industry.”[47]

Seeing through the perspective of housing type and changing roles of the state, he articulates each of these phases with labels. The first is “Colonial precedents: The Chawl and the Apartment Block”. The second is “From Independence to Neoliberalism: Housing in a Mixed Economy”. And the last, “1993–present: The State as Facilitator of Housing.”[48]

Although elaborate in his perspective on housing types and urban forms, Urban’s categories remain too broad, not unlike those offered earlier by the MMRDA and Bhide. A more nuanced slicing of Mumbai’s longer housing timeline is presented by Mumbai-based architect and educator Hussain Indorewala. His 2018 paper, *Housing & Dishousing Mumbai: A Historical Outline of Slum Discourse and Policy*, draws on a longer history that begins with

the establishment of the BIT following the outbreak of the bubonic plague of 1896. He claims that attitudes and approaches to the housing question – or more specifically to the slum question – in Mumbai have oscillated between opposing principles of socialism and capitalism:

> “Urban development in Mumbai has presented a choice between two concerns, the first being the city’s social policy, that required directing public investment towards the improvement of infrastructure and sanitation, and provision of adequate housing for most of its inhabitants; the second being the vision of its business and political class of developing a leading commercial and industrial center, or what Gordon calls its Urbs Prima in Indis policy.”[49]

He further argues that the long history of housing and slum policy discourse in Mumbai has reflected its aspirations towards achieving ‘world class’ status by emulating other global cities. His paper is structured across five distinct phases, starting with “The Glasgow Phase: Improvement Schemes and Suburbanization, 1898-1933”. Here, he outlines the key objectives and strategies of the colonial government’s first interventions in the city, leading up to the dissolution of the BIT in 1933 following its failure to house the city’s poorest sections of society adequately.

Following a brief gap, the second phase is labelled “The Paris Phase: Slum Clearance and Public Housing, 1950s and 1960s”. This period is marked by the city’s surveys of slums and the first large-scale demolition drives, such as the one that occurred in 1958, following the implementation of the national Slum Clearance Act of 1956.

Following this, Indorewala labels the third phase “The New York Phase: Slum Improvement and Upgradation, 1970s and 1980s”, reflecting this period’s switch towards programmes such as the Slum Improvement Programme (SIP) of 1970 and later the Bombay Urban Development Project (BUDP) of 1985 that consisted of two central schemes: the Slum Upgradation Programme (SUP) and the Low-Income Group Shelter Programme (LISP). Fourthly, following the World Bank’s directive to “enable” the private sector to enter the affordable housing market more substantially, Indorewala terms the next phase inspired by rising Asian economies, namely “The Singapore Phase: Enabling Markets, the 1990s.”

Lastly, inspired by the then Prime Minister Dr Manmohan Singh’s desire to model Mumbai’s future on Shanghai, the last phase according to Indorewala is “The Shanghai Phase: Mumbai’s Makeover, 2000s”.

In these last two phases, the focus remains on recycling urban land and slums through more intensive slum clearance, resettlement and redevelopment strategies made possible with the Slum Rehabilitation Scheme (SRS) and changes in the city’s Development Control Regulations (DCRs) that incentivise the involvement of the private sector.[50]

With five phases reflecting Mumbai's larger aspirations throughout this roughly 125-period, Indorewala's periodisation is more expansive and accommodating than those presented by the MMRDA or Bhide. However, I argue that any neat periodisation, as suggested by the MMRDA, Urban, Bhide, or even Indorewala, risks over-simplifying a far richer and more complex history. As Amita Bhide herself claims in her paper:

> "A review of policy would thus give the impression of 'evolution' from negation to acceptance. In reality, displacements have continued, but the expression is largely muted through a whole range of institutional factors."[51]

How do we give expression to these muted factors? For this dissertation, a more comprehensive slicing of Mumbai's housing policy evolution can be found in an important contribution by scholars Greg O'Hare and Dina Abbott. In their 1998 paper, *A Review of Slum Housing Policies*, O'Hare and Abbott categorise Mumbai's approaches recognising their overlapping histories, right from the establishment of the BIT in 1898 to the implementation of the SRS in 1995.[52]

Following an introduction that gives a brief overview of the state of housing and slums in Mumbai, including outlining geographic and demographic trends, their paper is structured along seven phases: "Slum clearance and redevelopment (1896–late 1970s); "Slum improvement and upgrading (1976–present)"; "Sites and services provision (1983–)"; "Prime Minister grant programme (1985–93)"; "Repairs and rehabilitation of dilapidated buildings (1971–)"; "Privatised slum redevelopment (1991–)"; and "Community action (1980s–present)." Traversing between specific housing programmes (such as the "Prime Minister grant programme") and more general strategies (such as "community action"), O'Hare and Abbott touch upon many of the dominant acts, actors, and approaches now familiar to us, with their key contribution being that they recognise that policies and programmes cannot be slotted into neat periods, but are often overlapping with long histories that carry new names for old paradigms.

MODES & MODELS

Section 2 adopted Patrick Wakely's three categories of "conventional strategies", "non-conventional strategies", and "return to conventional strategies" to provide a brief overview of the evolution of housing paradigms for low-income urban dwellers using a global lens. Spread across three chapters, the section starts with nineteenth-century public sector interventions in the industrialising cities of Europe and America and travels all the way to developing countries such as Ethiopia and Brazil. In doing so, the section positioned Wakely's categories in conversation with the Indian context to highlight both contrasts and continuities in approaches to the housing question. But while this framework proved sufficient to narrate a general history of housing in India, I contend that Mumbai's history and its various experiments on housing demand a far more nuanced approach, and this is precisely the gap in research that this section intends to fill. Building on the state of the art described in the previous sub-section on this section's theoretical and conceptual framework, I offer an alternate reading of Mumbai's housing and policy timeline across five dominant and overlapping formal modes of affordable housing production and intervention. These modes, rather than specific policies, I argue, narrate a far more complete and comprehensive history of Mumbai's changing housing and policy landscape. Thus, rather than look at housing approaches through the lens of "conventional" and "non-conventional" strategies, this section unpacks both "curative" and "preventive" approaches to form five modes. The modes are as follows:

'Social Housing' is a preventive measure that comprises formal interventions, typically on greenfield sites, where the state encourages (or builds itself) new and complete dwellings for low-income households on a home-ownership or rental basis, generally at heavily subsidised rates.

'Self-Help & Sites-and-Services' is also a preventive measure, again, typically built on greenfield sites on the outskirts of cities where adopting a self-help approach aims to find a middle-ground between the provision of plots for incremental growth (the "sites") with essential services and utilities (the "services"). In the context of this dissertation, this mode can include simple examples of plotted development, core houses, and various forms of incremental housing.

'Slum Improvement and Upgradation' is an example of a curative policy which first and foremost recognises existing slum settlements (with or without granting them tenure) and aims to improve their environmental conditions through various interventions that could be in the form of essential services (sewage lines, drainage, water and electricity) or even infrastructural improvement and the provision of basic amenities (footpaths, lighting, community centres and toilets).

'Slum Redevelopment' is again a curative policy, but specific in the sense that it does not entail the removal of slums and their relocation on empty plots elsewhere, typically in the faraway urban fringes of the city. Instead, it is a mode that recognises the importance of rehabilitating slum dwellers in-situ so as to maintain, as much as possible, their access to work and livelihoods. However, typically, and especially in the case of Mumbai, this results in a trade-off where a portion of the land is sacrificed for other forms of development to cross-subsidise the building of low-income tenements.

And lastly, **'Slum Resettlement'** is the third curative mode that, unlike the previous one, involves demolishing and relocating slum dwellers to alternate sites, often far from their original locations. The mode can take the form of completed dwellings (such as in walk-up apartments or high-rises) or simple plots on which the beneficiaries are expected to build their own dwellings over time.

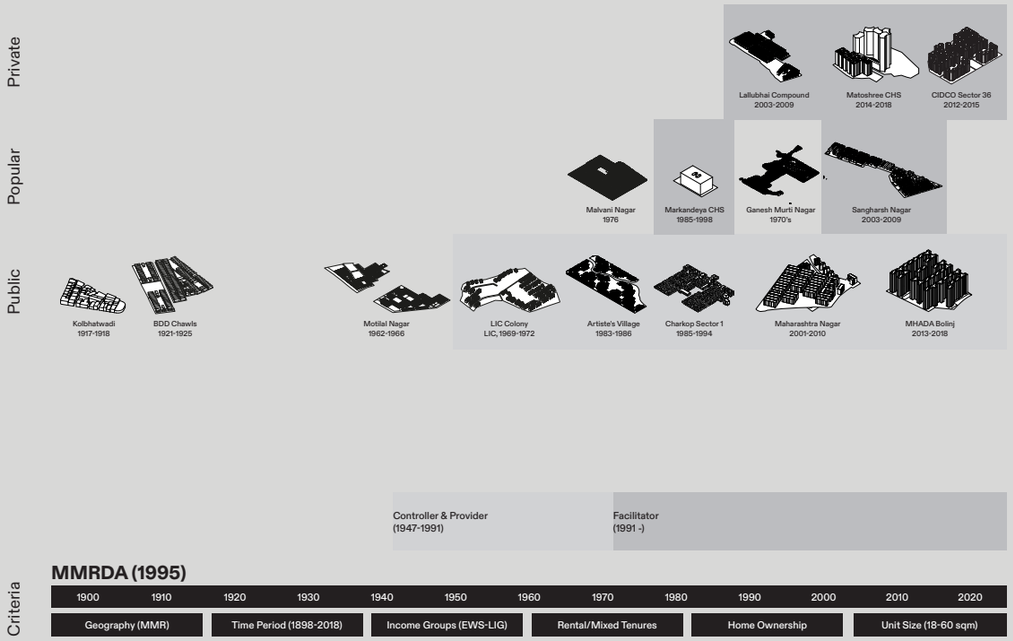


Fig. 11 Timeline based on MMRDA's influential 1995 paper that categorised housing policy shifts in the city into two neat paradigms.

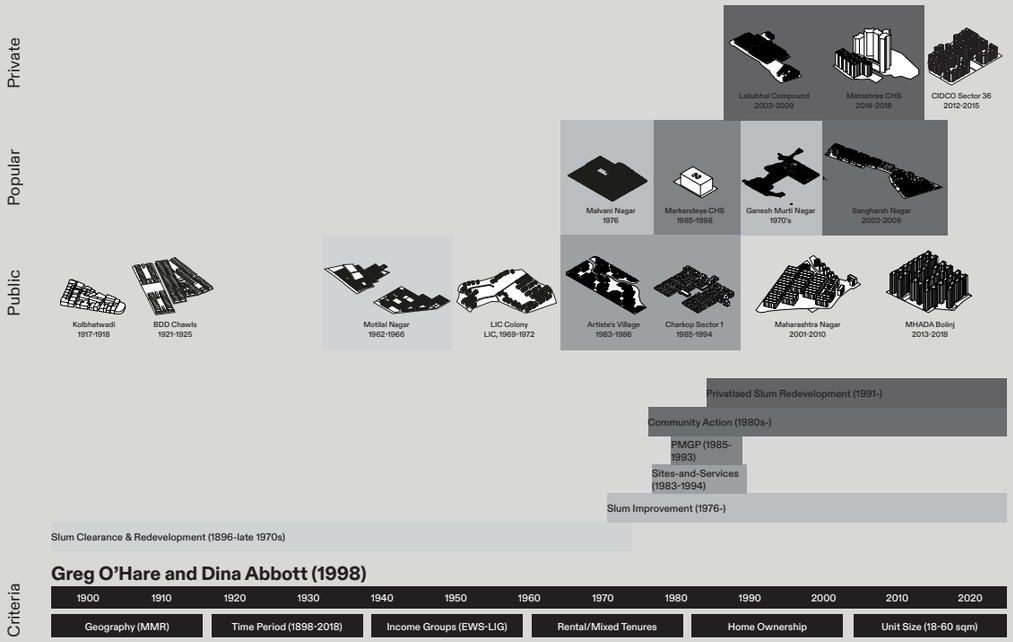


Fig. 12 Timeline prepared based on the 1998 paper by O'Hare and Abbott that unlike most, looked at policy shifts as overlapping paradigms.

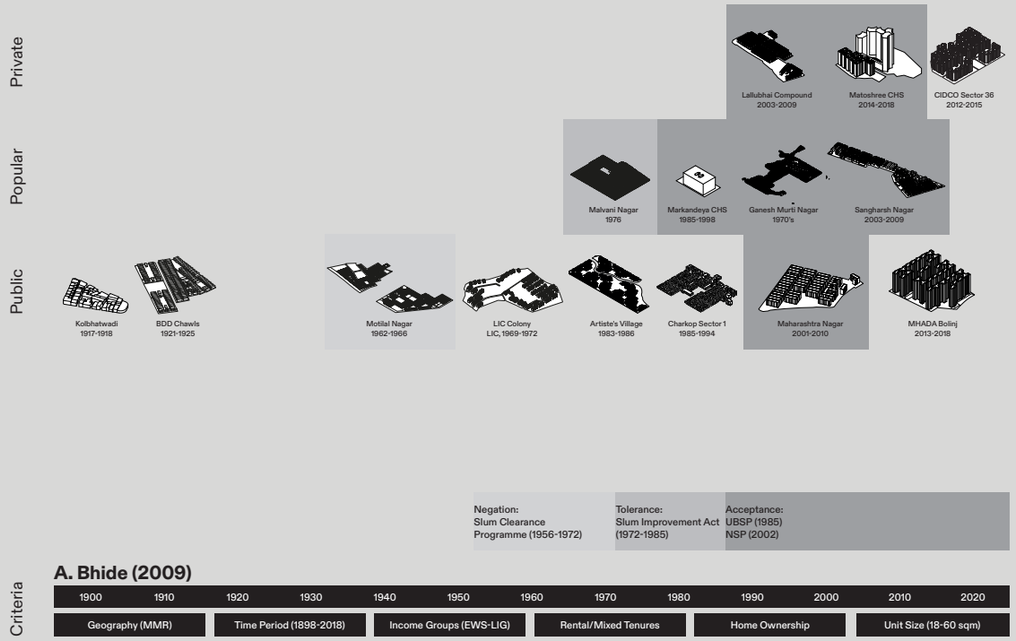


Fig. 13 Timeline prepared based on Amita Bhide's paper from 2009 that echoes many of the same categories developed by Christian Werthmann.

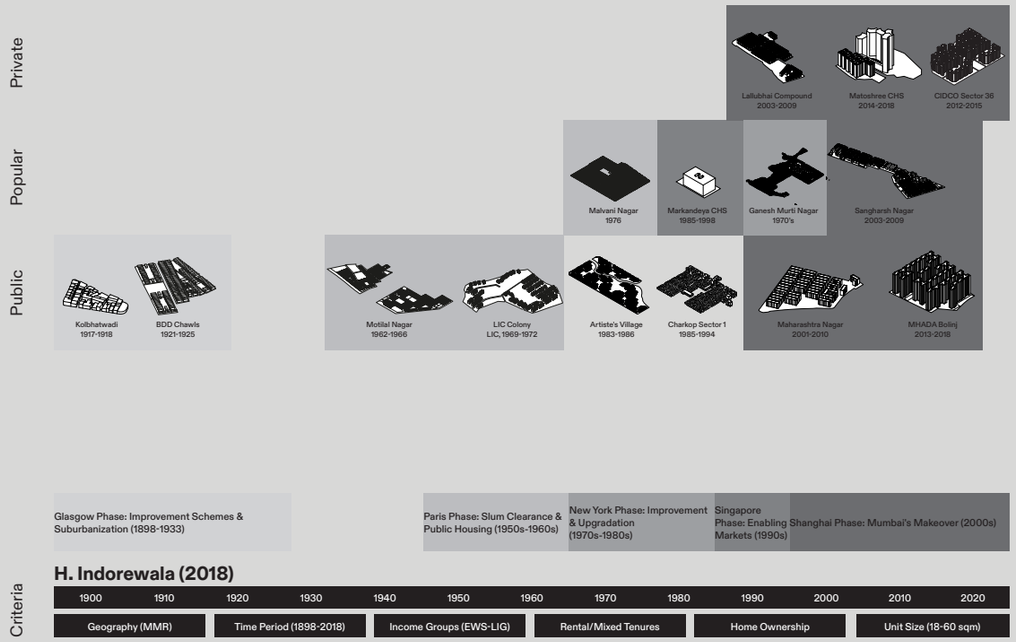


Fig. 14 Timeline prepared based on Hussain Indorewala's paper from 2018 that looked at policy discourse in Mumbai across 5 chronological periods.

METHODOLOGY

This section recognises that a topic like housing necessitates the need for multi-disciplinary perspectives that could contribute to discourse by widening the project's analytical scope, borrowing from policy studies, development studies, social sciences and, of course, architecture and urban planning. This multi-disciplinary approach informs both the theoretical framework and the research methodology of the dissertation. As a critical-historical survey of past and present approaches to intervening in the affordable housing sector, this particular section is primarily built on secondary sources. In this regard, particular research and educational organisations, such as the Urban Design Research Institute (UDRI) and the KRVIA in Mumbai, need to be mentioned. Libraries and online databases of both institutes have helped me gather material and data such as maps, reports, publications, GIS information, etc. Other sources for material outside of the repository and library of TU Delft include the Maharashtra State Archives (MSA), the Charles Correa Foundation (CCF), the Aga Khan Trust for Culture (AKTC) and open-access databases of various other organisations and educational institutes.

Reviewing the micro-histories of these five dominant modes in Mumbai's housing policy and landscape reveals many models. Each of these modes, both built and unbuilt, serves to help us understand shifting policies and political will. However, a study of house types and forms also tells a story of the city's changing attitudes towards dwelling more broadly. Throughout the core chapters of this section, archival drawings and photographs are used as much as possible. When unavailable, recent photography or illustrations are used to describe projects. However, Section 3.7 extracts five models from each mode, producing an atlas that compares different modes and the models they produce. In this atlas, the lens is specifically on physical form across four scales, the public to the private, and accompanied by key data such as location, density, number of dwellings, sizes of homes, etc. The complete framework and metrics undertaken to analyse various housing typologies will be discussed further in Chapter 3.7.

LIMITS & LIMITATIONS

As mentioned earlier in **Chapter 1.6**, this dissertation focuses on the correlation between housing policies, physical form and people's patterns of inhabitation from a particular site: the Mumbai Metropolitan Region (MMR). However, in this section, it is primarily the correlation between housing policies (modes) and physical form (models) that will be the object of study. It also acknowledges that while these modes do not encompass all approaches adopted by the state to address the housing question in the city, they do, however, represent the most dominant paradigms in practice since the entry of public sector intervention in affordable housing in the city. Within these modes, various other direct and indirect actions by the state profoundly affect the production and improvement of housing and warrant a mention.

The first is that this section recognises that the physical form of any city is far more than the individual decisions of any one actor or agency. As Sameep Padora and Shreyank Khemalapure's 2022 book, *De-Coding Mumbai,* has clearly shown, changing building rules and regulations, known in Mumbai as Development Control Regulations (DCRs), have played a fundamental role in the spatial production of housing in the city.

Similarly, beyond the DCRs, the built form of Mumbai's housing landscape has been powerfully shaped by two Acts in particular: the first is the Rent Control Act of 1947, which (until a revision in 1999) led to the freezing of rents at 1940s levels and eventually to a massive de-incentivisation for creating new housing stock for rental purposes. The second is the much-debated Urban Land Ceiling Act (ULCA) of 1976, which was viewed by many as a significant obstacle for the land and housing market in Mumbai that further worsened the housing crisis. Although the Government of Maharashtra repealed the Act in 2007, both policies have had a tremendous impact in restricting the housing supply in the city.

Thirdly, the production of individual mass housing schemes cannot be dislocated from larger narratives and visions for the city. Many of the programmes and policies mentioned in this section are intrinsically linked to larger state-led Development Plans (DPs) and Master plans (such as the various Regional Plans for the MMR).

As vital as any of these laws, rules, and urban missions have been, this study refrains from examining the nuances of these broader visions and policy documents in detail. Throughout, the scope of this study remains limited to reviewing paradigmatic shifts in housing policy with a focus on the spatial production and form of housing, including examining the actors and agencies that help shape it. Thus, it is essential to reiterate that although this section is framed as a dialogue between policies and their relationship or translation to built form, the focus remains within the realm of an architecture thesis. The historical evolution of the physical form of housing is seen as a marker of policy shifts and political will. It is strictly from this architectural perspective that, I hope, this research helps fill a gap in current discourse and complements the work of many others from diverse but related fields and disciplines studying affordable housing. In that sense, this section – and the dissertation – hopes to build a bridge towards a multi-disciplinary framework with a special focus on architecture, the spatial form of housing, and the lessons one can draw from it.

OUTLINE OF CHAPTERS

Following this introductory chapter, five chapters, one for each of the five modes identified for this research, will form the major component of this section. It will then end with a chapter designed as a housing atlas that comprises of a drawn analysis of 25 selected cases discussed within this section that will be followed by four short chapters that draw inferences across four metrics: 'Urban Form', 'Plot Density', 'Footprint & Circulation' and 'Dwelling Types'.

In terms of format and order, the chapters in this section are not arranged in any specific chronological order. Instead, as already claimed earlier, to narrate a more comprehensive story, these chapters are placed in a sequence consisting of two broad strategies: "preventive" or "proactive" strategies that build adequate housing stock, typically on greenfield sites, and "curative" or "reactive" strategies that involve interventions in an existing low-income neighbourhood or slums. A division is made within the first paradigm between providing complete, often subsidised housing and providing serviced plots and/or core and incremental houses, which build on the self-help approach and encourage user participation and investment towards building adequate dwellings over time.

Chapter 3.2 will narrate a brief evolution of 'Social Housing' in the city, starting with the establishment of the BIT at the end of the nineteenth century and trace its evolution with the formation of the Bombay Development Department (BDD) in the early 1920s, and finally the establishment of state housing boards such as the Maharashtra Housing and Area Development Authority (MHADA) and the City and Industrial Development Corporation of Maharashtra (CIDCO) in the post-independence era.

Chapter 3.3 will thereafter describe the shift in housing and land policies in Mumbai where, after recognising the limitations of a purely subsidy-driven approach, supplemented its conventional approach towards housing by adopting 'Self-Help & Sites-and-Services' as a distinct mode to tackle the task of building adequate numbers of housing with minimal resources. The following three chapters then describe the histories under the umbrella of "curative" or "reactive" strategies.

Chapter 3.4 focuses on 'Slum Improvement & Upgradation', which enforced since the establishment of the BIT, involves only minor demolition and displacement and instead provides and improves basic infrastructure and amenities in informal settlements through programmes such as the SIP and SUP, popular in the 1970s and 1980s.

Chapter 3.5, thereafter, delves deep into the origin and evolution of what is perhaps Mumbai's most contested and hotly debated mode of intervention: 'Slum Redevelopment'. Tracing its early beginnings in the 1980s with various committees and programmes, most notably the Prime Ministers Grant Project (PMGP) of 1985, this chapter traces its development up and until the Slum Rehabilitation Scheme (SRS), active in the city since 1995.

Chapter 3.6 then looks into what is quite clearly the most destructive of all modes active today: 'Slum Resettlement'. As one of the oldest modes with a history dating back more than 125 years, this chapter looks at various attempts to clear slums and resettle slum dwellers in minimal dwellings often located far away in the city's outskirts or other undesirable areas.

Chapter 3.7 will finally close this section with a housing atlas that documents a total of 25 built cases of affordable housing production and intervention in Mumbai through newly-made drawings and recent photographs. With five cases from each of the five modes discussed between Chapter 3.2 and 3.6, this concluding chapter can also be read independently and is designed to serve as an educational tool for architecture students and practitioners eager to understand the spatial form of Mumbai's housing landscape told through four metrics: the 'urban form', 'plot density', 'footprint & circulation', and 'dwelling types'. This atlas culminates in four comparative matrices where all 25 case studies are analysed through these metrics.

To conclude, each chapter within this section traces the city's past, present and future, as told through a study of shifting policies, paradigms and physical form. When read together, they aim to give one a glimpse into the life of a city and how its physical fabric came into being. However, these chapters can also be read independently and in any order. This is both intentional and unavoidable as the story of housing in Mumbai, I contend, cannot be understood in neat categories of phases, periods or eras. Instead, much like a palimpsest, Mumbai and its histories of housing its masses must be read and understood as the accumulation of various gestures, interests and interventions – planned and unplanned – that have shaped the bulk of this city's form as we see it today. As a result, this story might sometimes sound meandering, overlapping and even repetitive. Much like walking around Mumbai and its diverse neighbourhoods, we might encounter the same actors, agencies, and architects in different chapters. This, again, is a deliberate strategy that aims to avoid the gaps in current discourse, which, in providing neat categories or timelines, frequently fail to paint a more complete picture.

To this aim, this section and its various chapters do not only focus on state-led interventions and schemes but follow John Turner categorisations of the three main sectors or "powers" to touch upon built and unbuilt projects that have involved a wide range of actors and agencies from international and municipal authorities (hereby referred to as the "public sector") to commercial developers and trusts (the "private sector") as well as individual and community groups and non-government organisations (the "people sector"). The history of housing in Mumbai is a history of collaborations and contestations between these three powers. Understanding them is the first step towards understanding housing in this city.

■

SOCIAL HOUSING



Fig. 1 The low-rise BDD chawls in Worli are one of the most visible social housing projects undertaken by the colonial government. Built between 1921-25 and spread over 21 hectares, the 121 blocks house approximately 9600 families in identical 16 square metre units that have been expanded by residents over time. In the distance rise the towers that threaten to overtake the city, including the BDD chawls.

"The re-housing of the poorer classes is one of the most important and attractive provisions of the Bill. These people deserve our sympathy and assistance. We desire to place them in better houses, so that not only will it let the sun into their houses, but into their hearts and into their very existence and thus terminate the sad state of things amongst them which at present cannot but be one of unhappiness combined with toil."

Lord Sandhurst, *Proceedings of the Council of the Governor of Bombay*, 1899

In 1896, the burgeoning city of Mumbai was the centre of a devasting plague epidemic. Between 1897 and 1899 alone, the bubonic plague claimed nearly 50,000 lives and displaced a population ten times that number (half a million residents) who fled the city.[1] The high toll prompted some scholars to argue that the plague in Bombay represented the "most dramatic and destructive manifestation of municipal failure in the nineteenth century."[2]

As a port city built on commerce and trade, the bubonic plague crippled the city's commercial and industrial activities and stimulated the colonial government's entry into city planning and the construction of public housing. With poor sanitary infrastructure, overcrowding and inhuman living conditions blamed for the rapid spread of disease, the Bombay Improvement Trust (BIT; sometimes also referred to as the Bombay City Improvement Trust or BCIT in short) was established in 1898 with the passing of the Bombay Act to "improve" the city with its mandate to "create new streets, open up overcrowded spaces, reclaim from the sea new land for the future expansion of the city."[3]

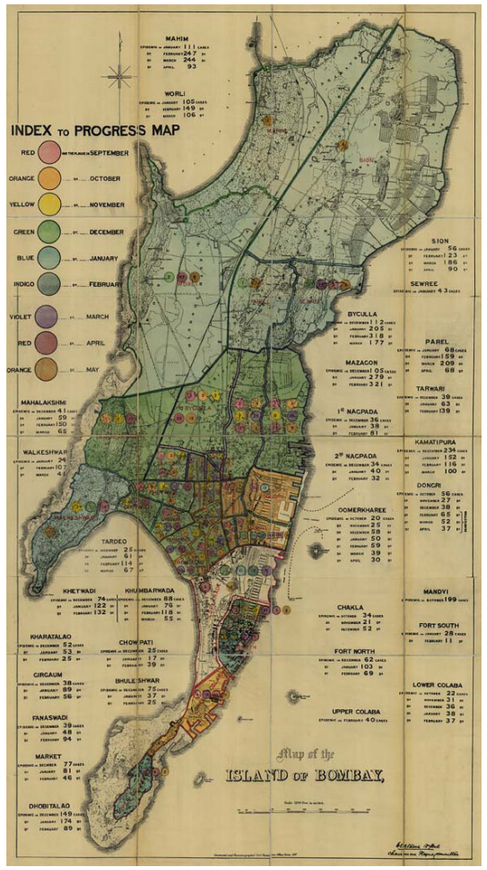
Central to this agenda was its obligation to construct sanitary dwellings for the city's vital working classes, most of whom were migrant mill workers. This included the construction of both new housing stock on greenfield sites (including sites reclaimed from the sea and expanding the city towards its northern peripheries through so-called "street schemes") which came to be known as "indirect attacks" on the housing problem, and "direct attacks" on brownfield sites in the "native" city through various modes of slum clearance, improvement and resettlement.[4] This chapter limits itself to a study of the former mode.

Modelled on contemporary English and Scottish town-planning institutions, particularly the Glasgow Improvement Trust, which had similarly been affected by public health crises in the second half of the nineteenth century, the BIT was created as a parallel organisation to the Bombay Municipal Corporation (BMC) and included on its board representatives of the BMC as well as the city's industrial and commercial elite. These included members of the Bombay Chamber of Commerce and the Millowners Association, who harboured a keen interest in the city's commercial development.[5] Thus, from its very origin, the BIT was both a municipal response to a public health crisis and an attempt to maintain – and grow – the city's commercial competitiveness that some claim made the Corporation "a close borough of landlords and capitalists."[6]

EARLY EXPERIMENTS: THE BOMBAY IMPROVEMENT TRUST

In its early years, the BIT was entrusted with the daunting task of housing 50,000 people over ten years.[7] While the Trust was quick to implement a series of direct attacks on blighted areas that resulted in slum resettlement schemes like the ones at Agripada and Chandanwadi (please see Chapter 3.6), the beginnings of social housing as greenfield development in Mumbai were modest. In fact, despite its mandate to build sanitary dwellings for the working classes, the BIT returned to its laissez-faire policy and restricted itself to "constructing buildings that satisfy commercial criteria so that they may be models for the private sector to follow."[8] This attempt to reduce their mandated responsibility is confirmed by the first Chairman of the Trust, who in 1901 argued:

> "We should make every effort to encourage the provision of suitable quarters for the poor by private enterprise, because not only will





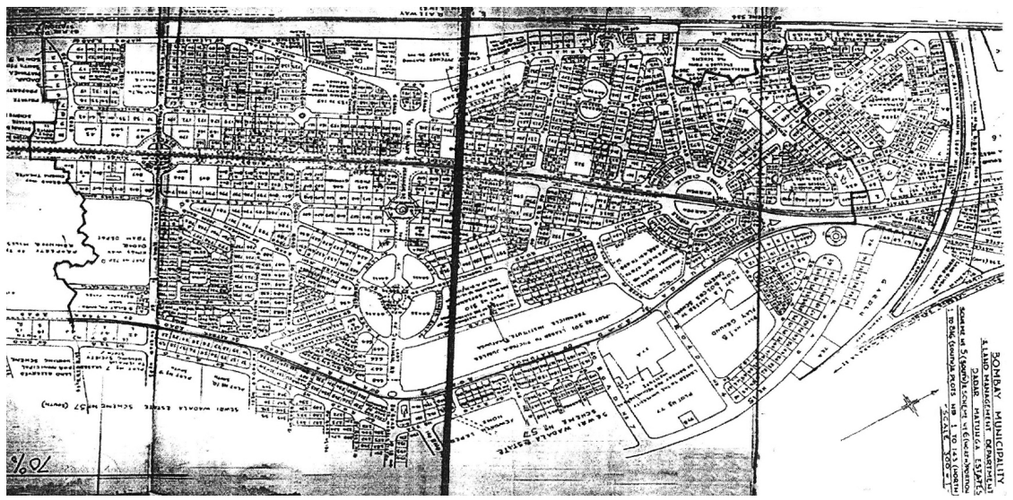


Fig. 2 (top left) Map produced in 1897 showing cases of the epidemic in different districts.

Fig. 3 (top-right) Map extracted by the BIT in the Annual Report of 1932-1933 showing its various interventions.

Fig. 4 Plan of the BIT Dadar-Matunga Scheme V showing a total of 816 newly-planned plots

such private agency be in a better position than we are to find the tenants for the houses constructed, but will also probably make such enterprise a financial success, and therefore, to a large extent relieve the Board from sinking capital in unremunerative operations."[9]

Recognising the limited success of the BIT in alleviating the housing problem, in 1909, under the chairmanship of the energetic J.P. Orr, came a significant shift in the approach. In addition to the direct attacks in the native quarters, a growing emphasis was placed on indirect attacks by making new plots of land available to build new housing estates. In other words, as Nikhil Rao has claimed in his book *House, but No Garden*, "suburbanisation was now reframed as indirect attack on the city's housing problem."[10]

A small but early example of this was a series of "workingmen's cottages" that were built as part of the BIT's most elaborate street scheme: the Dadar-Matunga Scheme V. Located near King's Circle in Matunga and featured in the BIT's annual report of 1915-1916, are drawings and photographs of a small cluster of cottages built as part of the BIT's attempt to construct mixed-income suburbs as part of their street schemes.

The design of the cottages was elementary. Simple load-bearing brick walls enclosed small one-room dwellings, each roughly 10 by 12 feet (3 by 3.5 metres) and laid in rows next to one another. Each dwelling was accessed by a 6-foot (2 metres) veranda. As one-room dwellings, the limited space was designed to function as both living and sleeping areas. In line with the layout of *wadis* of the era, a small *mori* (washing area) was provided at the rear end, with openable windows on both shorter facades. Clay tiles on a pitched roof complete these modest dwellings that were arranged in clusters of parallel blocks. Records show that at least two of these clusters were built by the BIT in the first two decades of the new century.

Despite the construction of these new sanitary dwellings alongside the more ambitious slum clearance and resettlement schemes in other parts of the native city (elaborated further in Section 3.6), many have pointed out that the BIT's attempts at building housing stock further worsened the state of housing in the city, not just resulting in a total net reduction of homes due to large-scale slum clearance schemes but also, in turn, increasing congestion in some areas.

Orr himself admitted the failures of the BIT's endeavours in a public lecture given in 1917, stating that low-cost tenements "were not erected soon enough and on a sufficiently big scale to ensure any approach to an equipoise between dishousing and re-housing, at the rate at which demolition of insanitary properties was carried on in the early years of the Trust's career."[11]

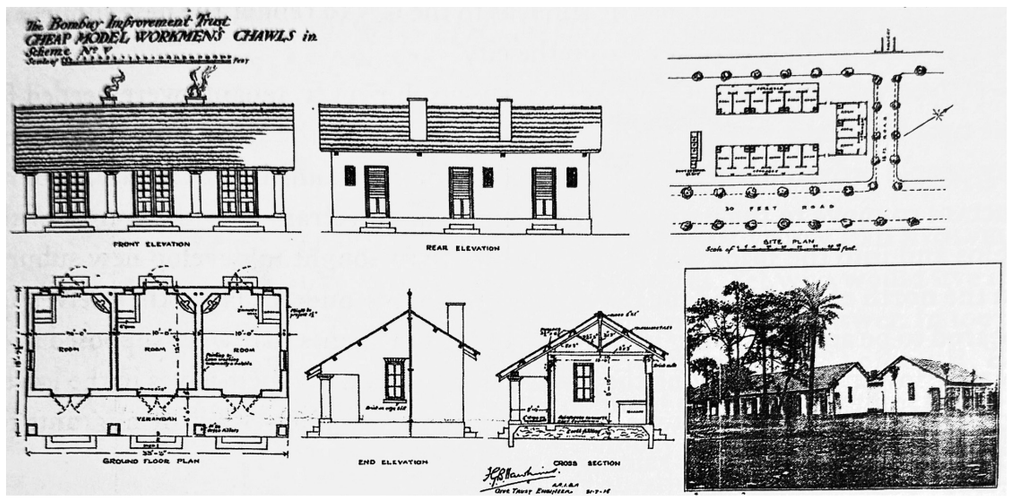


Fig. 5 Extract from the BIT Annual Administration Report of 1915-1916 showing drawings and a photograph of "Workmens Chawls" as part of Scheme V.

By around 1919, nearly 0.9 million of Bombay's 1.2-million-strong population continued to live in inadequate single-room tenements, with an overall shortage of 64,000 dwelling units. Despite a range of housing interventions, the BIT had failed to adequately meet the city's housing needs, having demolished 24,428 tenements while constructing only 21,387 dwellings in the first two decades of its existence.[12]

Recognising the housing crisis, Lloyd George, the Governor of Bombay between 1918 and 1923, envisioned an ambitious plan to build 50,000 dwellings for low and middle-income families on greenfield sites that further expanded the city northwards.[13] To execute this plan, he established another branch of the municipal corporation called the Bombay Development Department (BDD).[14] Between 1921 and 1925, the BDD embarked on a large-scale project that resulted in the building of 207 chawls in four neighbourhoods close to the city's mills and port area: Worli, NM Joshi Marg, Naigaum and Sewri. Of these four, the most extensive development still stands in Worli, with 121 chawl buildings housing 16,500 dwelling units, each modest single-room dwelling of roughly 16.5 square metres.

THE DEVELOPMENT OF THE CHAWL

As housing form, the scheme of the BIT and the BDD built on the existing chawl type in the city, which had emerged since the early nineteenth century to become the dominant housing type for low-wage workers and middle-class families in the city. Privately-built chawls were also the reference for various chawls built by the BIT in the first decade of the twentieth century. But while considerable research has been done on the development of chawls in the city, there is still no clear consensus on the origins of this type or, for that matter, the term itself.

Rupali Gupte, an architect and academic based in Mumbai, claims that the chawl type has two possible sites of origin: the first potential source of reference could be housing for soldiers in military barracks, where, typically, a row of rooms under a single roof were generally accessed by a common corridor on one end. The second is the *wada*, an agrarian house-type common in Maharashtra, which is usually comprised of a series of rooms strung around a courtyard and again accessed by an open wrap-around veranda or corridor. Gupte also claims that the term 'chawl' itself has at least two meanings: while it can mean a common street in front of one's home, it might also have another source of reference: *chaal,* which implies a sieve and could refer to the warehouses in Maharashtra – also known as *chaals* – that are characterised by walls made of porous trellises that look like sieves.[15]

In terms of typology, chawls can be simple ground-storied dwellings, called 'baithi chawls', but are typically characterised as two to four-storied buildings with single and two-room dwelling units that generally measure 10 by 12 feet (3×3.5 metres) in area and house up to 10-15 people in a single room, often in shifts. These modest dwelling units are typically strung next to one another on a single floor with shared toilets and staircases and accessed by a gallery, usually placed on one facade. The high efficiency of this layout has often invited criticism, with some describing the chawl as "warehousing large numbers of labouring classes in as cheap a manner as possible."[16] In fact, by some accounts, chawls accounted for 75 per cent of the total formal housing stock in Greater Mumbai till as late as 1989.[17] However, despite the severe economic and spatial conditions in which most of these housing projects were constructed, the chawl typology has also emerged as a unique site to study the city's social and cultural development.

In his foreword to Neera Adarkar's must-read book *The Chawls of Mumbai,* Charles Correa had this to say about the city's iconic worker's housing:

> "Perhaps because of the hot-humid climate of Mumbai, these access corridors are almost never double-loaded. Instead, they usually take the form of an extended veranda, along the external face of the building, so that breezes can reach the tenements they serve. And so gradually over the years, as people get to know and adjust to each other, this impersonal access corridor develops into a very important social space – and within this rigid configuration, a great variety of worlds comes into being."[18]

It is also essential to remember that as a housing type, the chawls are by no means a homogenous entity. As Neera Adarkar and Sameep Padora's extensive research and books have shown, chawls share many characteristics in layout and form but can also vary considerably depending on their origin, location, size, and, perhaps most importantly, the communities that inhabit them. Thus, while some chawls in the city were far more pragmatic

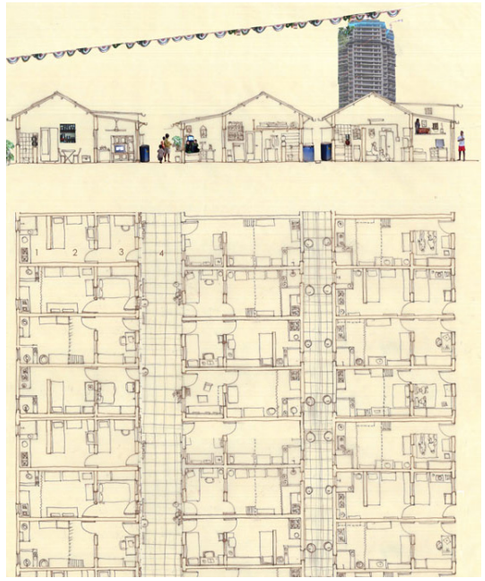


Fig. 6 Collage by Rupali Gupte showing plans and a schematic section of a "baithi chawl" in Mahalaxmi. Due to their low densities, several of these chawls have been redeveloped over the years.

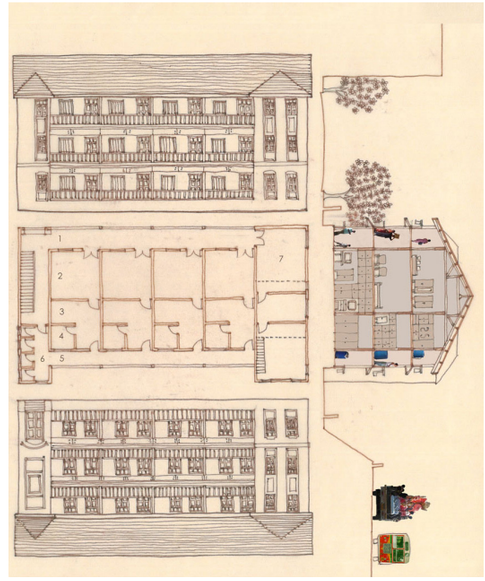


Fig. 7 A vast majority of chawls are simple low-rise structures, between two-to-three stories tall. Pradhan Chawl is an example of this type, but with two veranda's on either facade.

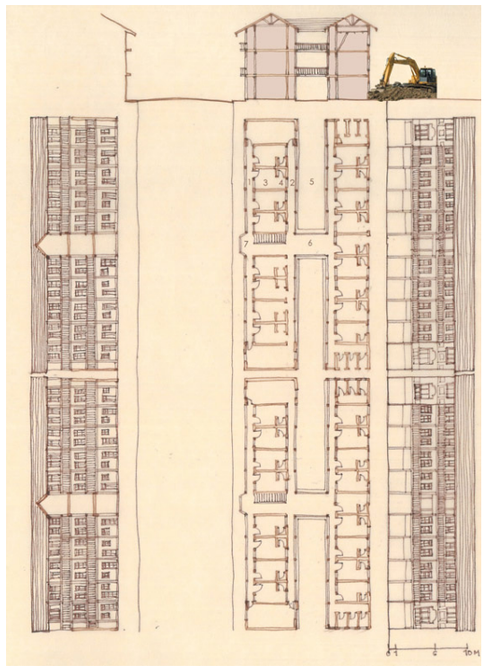


Fig. 8 Poonawala chawls in Parel have a distinctive H-shaped floorplan with two slabs of housing connected via a small bridge. A single staircase serves each cluster, and the shared services are located in the block on the rear.

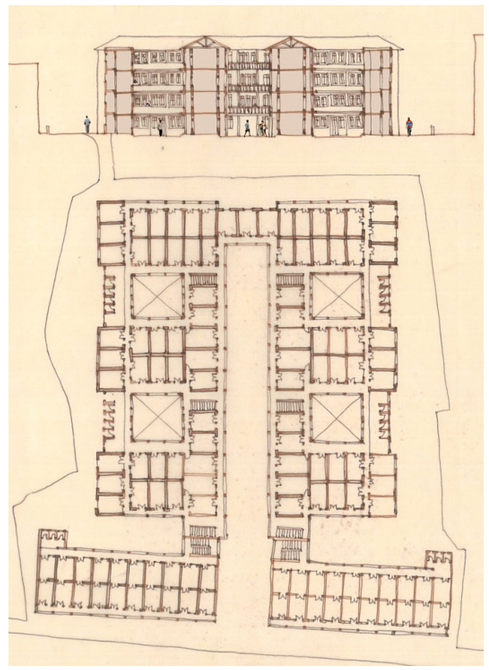


Fig. 9 The Haji Kasam chawls, now demolished, represented a unique typology where a single structure accomodated a range of dwellings, punctuated with courtyards for light and ventilation. Like most chawls, galleries were the defining architectural feature.

responses to housing needs as well as space and budget constraints that resulted in simple slabs of dwellings providing shelter but little in terms of social and recreational spaces, others, such as in the case of Bhatia Chawl in Bhuleshwar were built around a social heart in the form of a central courtyard. In this four-storied structure built by a private trust in the 1930s for Kutchi migrants, dwelling units are arranged in two parallel blocks, with the block on the side facing the street containing shops on the ground floor. For the rest, all dwelling units are roughly 31 square metres and comprise two rooms, initially accommodating the kitchen and *mori* at the entrance and a multipurpose living and sleeping area towards the rear that faces the street. Unlike the cases discussed so far, the courtyard in Bhatia Chawl is shielded from the busy street and accessed by a narrow pathway that leads one to the courtyard between the two blocks that has on one end a toilet block and on the other a stairwell that connects to the open gallery that wraps around the central courtyard. Although modest in size, this chawl remains noteworthy for the vitality of life visible in the gallery spaces, which, beyond its primary function as an access corridor, also doubles up as an additional veranda for residents and, therefore, both a domestic and social space. These verandas and the semi-private spaces they created could also be seen in the more expansive and elaborate Haji Kasam Chawls in Parel, which have now made way for a 23-storied cluster redevelopment scheme of towers for the original residents and newer higher-income groups.

Chawls also differed immensely in terms of programme. Take, for example, the **Poonawala Chawls** in Lower Parel. Like many other chawls built by private trusts and enterprises in the early twentieth century, the Poonawala Chawls represent the archetypical chawl type with rows of small dwelling units strung along external galleries and served by shared bathrooms and toilets. However, what makes these chawls unique is their distinctive H-shaped cluster that contains two bars of housing blocks. The bar facing the street is wider and consists of two galleries on either side of the dwelling units connecting with the rear bar via a bridge. Each floor contains 19 dwelling units, each slightly more than 14 square metres in size and served by a single staircase. Toilets and bathrooms are located on the side walls of the rear bar. On the ground level, shops and commercial units of various kinds make the Poonawala Chawls a mix of residential and commercial use that share many characteristics found in *wadis* and *mohallas* in the old inner-city areas of the city but contrast sharply with the BIT chawls built by the colonial government at the same time that lacked spaces for income generation.

This aspect of combining housing with commercial and workspaces can be seen even more clearly in Swadesh Market Chawl in the highly dense inner-city district of Kalbadevi. Here, as opposed to Poonawala Chawls in Parel, is a hybrid mix of residential and commercial spaces that was developed between 1909 and the early 1950s into an enormous 15,000 square metre mixed-use megastructure with a wholesale textile market on the ground and first floors and rows of two-storied dwellings on the top. This configuration combines a range of dwelling types and sizes, from basic one-room dwellings of 15 square metres to larger 28 and 40-square-metre dwellings with lofts and ample outdoor spaces on the podium level.

Another key factor in the difference between chawls is patronage, of which one can broadly identify three types: the first is simple, self-built single-family houses that can be expanded into multi-story tenement buildings. These are often referred to as 'baithi chawls' and can still be found in parts of the old heart of Mumbai and, in more significant numbers, in the faraway urban fringes of Vasai and Virar. The second are those built by private organisations, typically mill owners for their workers or charitable trusts that create housing (generally on a rental basis) for low-wage workers and families from a certain community. The last type is those built by public authorities (such as the BIT/BDD), generally as part of a larger master plan or housing scheme, and follow certain municipal bye-laws and urban design guidelines.

BDD: THE NEXT STEP

The **BDD chawls** in Worli are a well-known example of the third type. While the layout of a typical BDD block adopts and adapts many features found in privately built chawls, there are also stark differences. The most obvious is the scale of the project and its straightforward urban design. Spread across 23 hectares and separated by the four-lane GM Bhosale Marg that cuts the site down the middle, the BDD chawls in Worli remain perhaps the most visible example of the colonial government's intervention in the field of social housing in the city. A key marker of

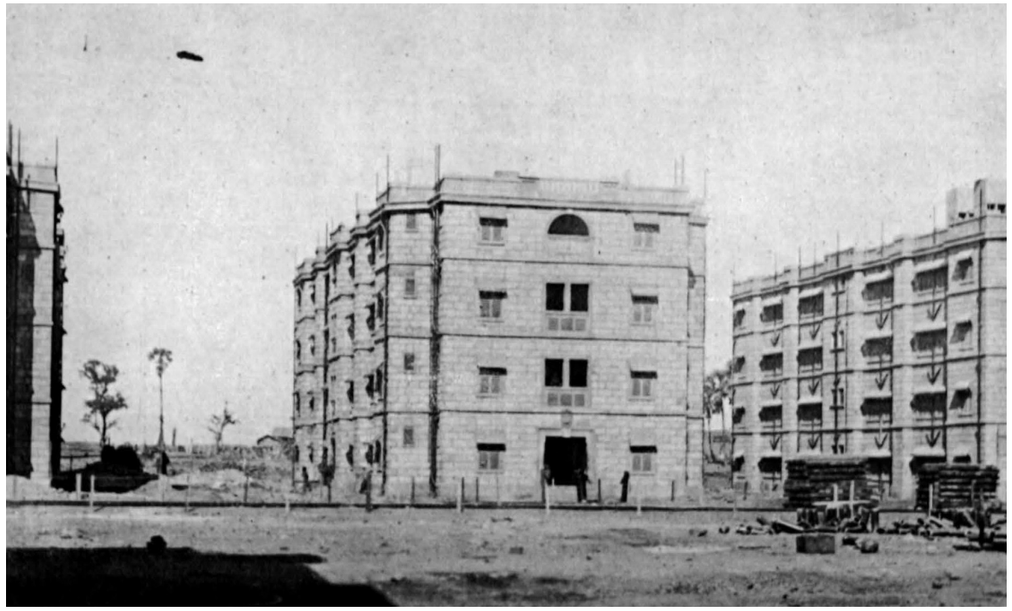


Fig. 10 Photograph of the BDD chawls in Worli extracted from the 1924 Report of the Bombay Development Department.

the scheme's urban design is the 63.5-degree rule officially enshrined by the BIT in 1912 as a bye-law. Essentially, this rule dictated that the distance between two housing blocks (or any two structures) had to be such that the angle formed between the roof of one structure and the base or plinth of the other should be no more than 63 ½ degrees to ensure adequate light and ventilations even to the lower floors.

This single rule is the driving force of the design, which, like the BDD's other chawls in Naigaum and Sewri from the same period, is also composed of parallel rows of chawl buildings that are rubber-stamped across the site for maximum efficiency. Each building or block (of which there are a total of 121) is four stories tall, and each floor contains twenty identical 16.5 square metre dwelling units, each with its own *mori*. A single centrally located staircase leads one up to higher floors, opposite of which is a shared space of roughly 16.5 square metres. On one end, and as was typical with chawls of that time, the toilets and wash areas are located – six on each floor, three each for men and women.

However, unlike the BIT's earlier attempts at building chawls (such as those built in Chandanwadi and Agripada), the chawls built by the BDD have one significant difference. To increase efficiency, the plans of the blocks built by the BDD miss a crucial architectural element: the generous veranda that augmented the limited space of the private dwellings in the design of the BIT chawls built until then. In the case of the BDD chawls, the facades are punctured by simple openings that give the original design a rather unremarkable character that some even likened to resembling prisons.[19] Yet, at the same time, it should also be noted that the scheme provides ample open spaces, with a sizeable 1.5-hectare *maidan* (the largest of a total of six *maidans* in the scheme) forming the heart of the project. Another point worth mentioning is the project's use of precast RCC (reinforced cement concrete) blocks, a technological breakthrough for the early 1920s that aimed to reduce costs and construction time. Over the years, and despite poor maintenance, this robust structure has enabled people to expand their dwellings horizontally with cantilevering and projecting extensions that amplify their otherwise modest dwellings.[20]

Despite these grand efforts, the BDD came under fire for failing to meet the city's affordable housing demand. Following critiques of its "misadventures"[21], planning processes and the construction of new tenement housing were increasingly handed over to the Bombay Municipal Corporation (BMC),

with the BIT being dissolved and absorbed into the Corporation by 1933. Barring a few sporadic attempts, such as the Social Housing Panel of 1946 that ambitiously sought to improve the living conditions for over a million of the city's inhabitants with a wide array of housing options that included designs for single-person dwellings, night shelters for the homeless and larger 23 square metre dwellings for small families, it was clear that by the early 1940s, the colonial government's interventions in Mumbai's housing market were on the wane.

HOUSING AS A PUBLIC GOOD

When India gained impendence in 1947, housing under Nehru's administration was seen mainly as a social or welfare responsibility rather than an economic opportunity.[22] This resulted in state control and the government's direct involvement in providing and constructing housing. With the establishment of India's first Five Year Plan, which began in 1951, the government focused on institutional building and housing for its employees, refugees, and economically weaker sections of society (EWS). Organisations such as the Ministry for Works & Housing (now Ministry for Housing & Urban Affairs, MoHUA), the National Building Organisation (NBO), and the Town & Country Planning Organisations (TCPO) were all set up during this period, and the government spent up to seven percent of its total budget on housing in the early post-independence years.[23] With "*Roti, kapda aur makaan*" (Food, clothing and shelter) as its adopted slogan, this period witnessed the central government's introduction of several housing schemes, such as the Integrated Subsidised Housing Scheme for Industrial Workers and EWS (1952) and the Low-Income Group Housing Scheme (1954). In this highly centralised welfare state of the 1950s and 1960s, the primary actor in housing production remained the state, focusing on providing finished social housing at heavily subsidised rates.[24]

Under such patronage, India and Mumbai, as its financial capital, were at the forefront of experimentation in mass housing design. The first two decades following independence resulted in several public-sector financed and designed social housing projects across the city, such as in the case of the Bombay Port Trust Colony (BPT; now Mumbai Port Trust). Here, we find a continuation of the rational walk-up chawl type first developed during the BIT era as the preferred solution. Today, MPT Colony suffers from neglect and disrepair.

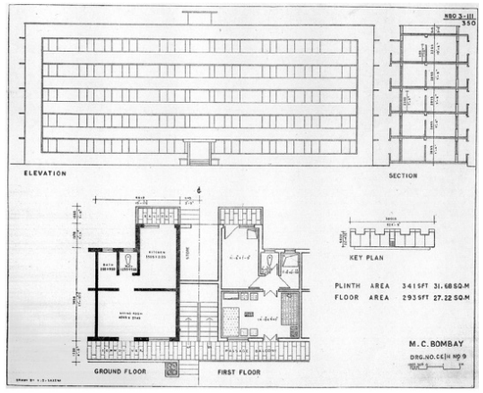


Fig. 11 Designs for low-cost housing produced by the Municipal Corporation of Bombay in 1968. Building on the layout found in most privately-built chawls in the city, as well as those found in the BDD schemes of the 1920s, here too we find the importance of the gallery as the primary element for access and circulation. However, departing from the typical schemes found throughout much of the early twentieth century, here we find a more luxurious layout of apartments, each with their private bathroom, toilet and kitchen. Notice as well that each floor plate consists of only 8 units strung along one corridor – another significant departure from previous schemes.

A similar example, also suffering from a lack of maintenance, and from the same period is the Khar Railway Chawls. Still standing even today, here, too, we find the use of reinforced concrete frames and brick partition walls employed to build a chawl for railway employees. The scheme consists of seven identical chawl blocks, arranged as parallel bars, each three stories tall and containing eight small dwellings of 16 square metres. Like in the case of privately built chawls, a gallery on one façade dominates its urban form. The upper floors are accessed by a central staircase with shared bathrooms and toilets located in the centre of each floorplate.

However, not all early mass housing projects in this period were derivatives of the tenement chawl-type built by the BIT and private organisations. A notable example of one of these early experiments is Sindhi Colony in central Mumbai. It is a planned colony designed and built to house refugees fleeing the northwest provinces of Sindh, now in Pakistan. Within these small plots, families were provided basic starter houses – modest row houses with one and two bedrooms arranged in a grid layout with narrow streets. Over the years, like in the case of several such low-rise housing schemes, houses have grown, sometimes doubling and even tripling the living areas.

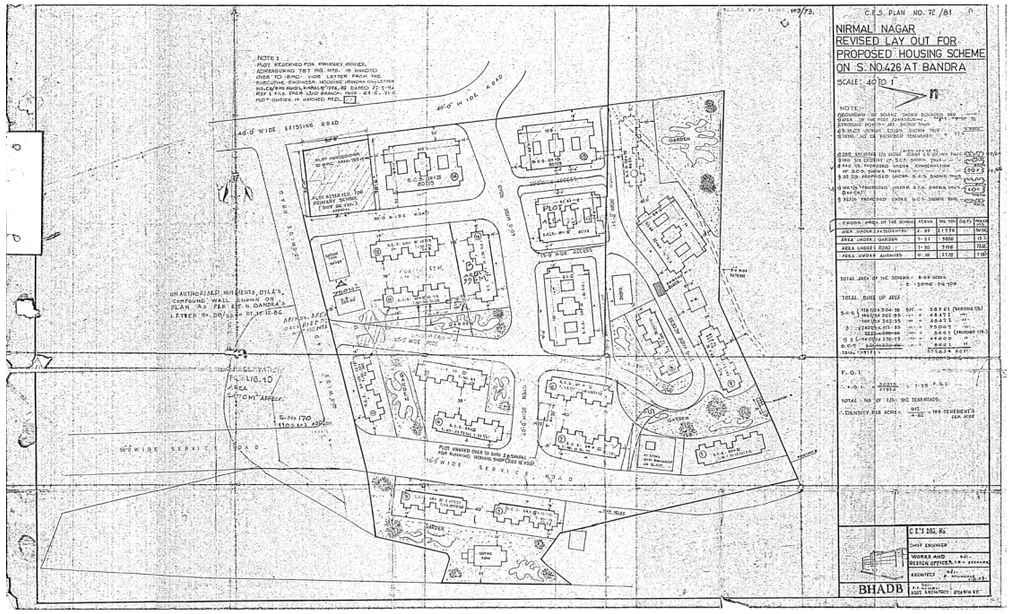


Fig. 12 By the 1970s, the state housing board abandoned for the most part the chawl typology, and adopted the apartment building as the preferred typology. Seen here is an example of a typical mass housing project from the 1970s. In this case, a scheme with five-storied apartment blocks for Bandra from 1973.

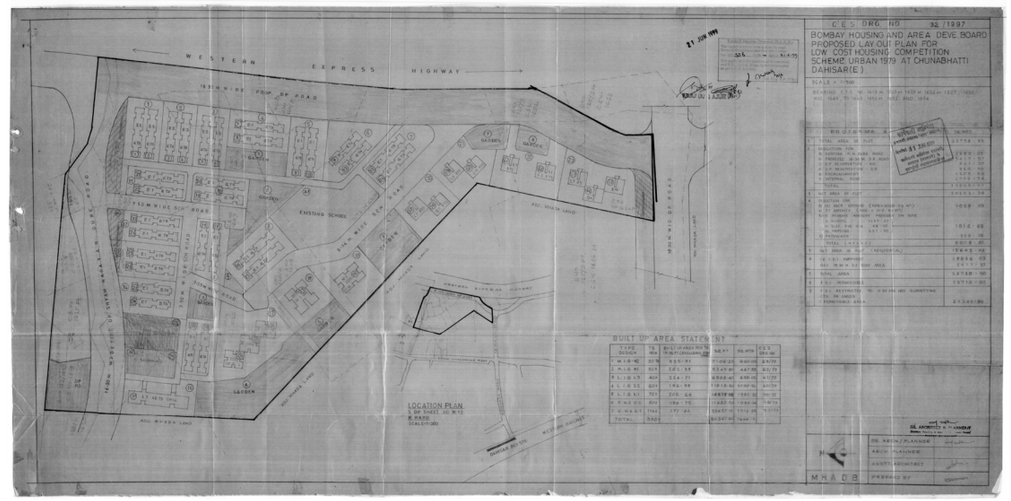


Fig. 13 Even by the 1990s, the modus operandi of Mumbai's state housing board, MHADA, had remained largely unchanged. Keeping in line with their policy to create schemes with a mix of the three basic income groups (EWS, LIG and MIG, as also seen in the drawing above), we see a rubber-stamping of three basic apartment types. However, it must be noted that the mix is always at the scale of the plot and never the building.

The Mumbai-based architect Charles Correa, active between 1958 and 2015, is also credited with designing and building several important housing projects for low and middle-income groups in the city, several of which, like Sindhi Colony, have grown and changed over time.

An early example of his venture into middle-class housing, sadly unbuilt, was meant for the eastern suburb of Chembur. Designed to house mainly middle-class families, Correa developed an intriguing scheme for Punjab Enclave, similar to his previous experiments with low-cost housing in Ahmedabad, consisting of a generous split-level section comprising two bays. The narrower bay was meant for staircases and service spaces, and the wider bay was for the main living spaces and bedrooms, along with a central void covered by a skylight. In the centre of the overall composition, Correa designed a sizeable green heart – an early attempt at planning a township for middle-income families that would be further articulated in his design for his largest housing scheme in Mumbai, the **LIC Colony** built between 1969 and 1972 in the northern suburb of Borivali.

Built for the Life Insurance Corporation of India – a state-owned insurance group and investment company – the LIC Colony employs the Radburn principle, previously used in Correa's design for low-income housing in PREVI in Lima. Even half a century after its completion, a clear division of vehicular access on cul-de-sac roads and a spine of pedestrian-only green spaces remain remarkable for a city dominated by stereotypical rubber stamping of apartment blocks and towers.

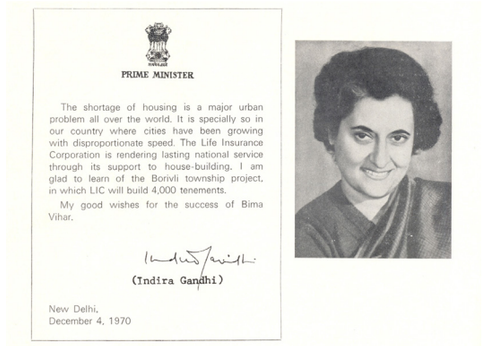
At the scale of the individual building block, each type is based on a six-metre-wide structural module, with the more conventional apartment type rising straight up to five floors. However, a more inventive stepped section type defines this colony the best. Containing four apartments on the lower three floors (ranging between 39 and 91 square metres in size) and two apartments on the higher two floors (ranging between 41 and 59 square metres in size), this stacked configuration accommodates apartment sizes of various types and sizes that are accessed by a centrally located staircase located in a smaller bay in between the two six-metre blocks. As a result of this stepped section, each building caters to different needs and income groups while also providing each apartment with generous open-to-sky terraces.

The LIC Colony also remains a valuable case study for its mix of rental and home-ownership units, with the contrast between the two worth studying. On the one hand, the rental housing blocks meant for employees of the LIC have mainly remained in their original condition – largely without any permanent forms of appropriation – which allows us to witness Correa's original designs, including the scheme's wonderfully detailed window openings inspired by the vernacular architecture of Mumbai and its chawls. On the other hand, the section designed to function as privately-owned co-operative housing societies has changed dramatically over time. Over the years, each of these buildings has been colonised by different users, each of whom has adopted different colour schemes, replaced window frames, and extended them. But, perhaps the most notable change in these buildings has been their various ways of enclosing the open-to-sky terraces to enlarge the living spaces of the otherwise modestly-sized apartments.[25]

MHADA'S MASS HOUSING SCHEMES

However, not all public housing schemes built in Mumbai during that period were as generous in funding, conception, and execution. In his book *Tower and Slabs,* Florian Urban also examines Mumbai housing blocks built in the early post-independence years. The state housing board, MHADA (Maharashtra Housing and Area Development Authority), is a key protagonist in this development. First established at the Maharashtra Housing Board (MHB) in 1948, MHADA came into its present formulation during the Emergency in 1977 following the Maharashtra Housing and Area Development Act of 1976.[26] With funding coming from state and national sources, including the Central Public Works Department (PWD), projects produced by the MHB/MHADA can be found all over the city with an obligation to provide housing to three broad income groups: the Economically Weaker Sections of society (EWS), Lower-Income Groups (LIG), and the Middle-Income Groups (MIG). In fact, until 1986, nearly 75 percent of all MHB/MHADA projects were built for the EWS and LIG categories.[27]

A typical example of MHADA's approach to affordable housing for the MIG stood until a few years ago in the eastern suburb of Chembur. Sahakar Nagar, as it was initially known, started construction soon after MHADA came into being in 1976 and occupied a large green site on which simple three-sto-


PRIME MINISTER

The shortage of housing is a major urban problem all over the world. It is specially so in our country where cities have been growing with disproportionate speed. The Life Insurance Corporation is rendering lasting national service through its support to house-building. I am glad to learn of the Borivli township project, in which LIC will build 4,000 tenements.

My good wishes for the success of Bima Vihar.

(Indira Gandhi)

New Delhi,
December 4, 1970

Fig. 14 Extract from a broacher of LIC Colony in 1970 containing a note from the then Prime Minister, Mrs Indira Gandhi.

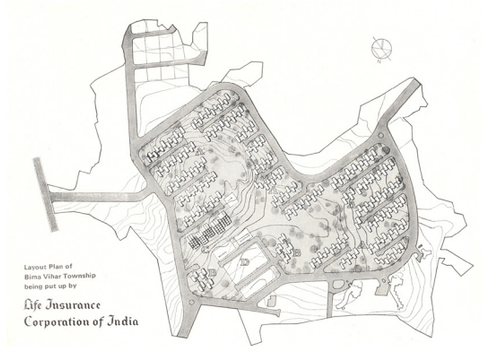


Fig. 15 The masterplan for LIC Colony shows clearly the use of the Radburn Principle – a recurring feature in Correa's designs for large townships.

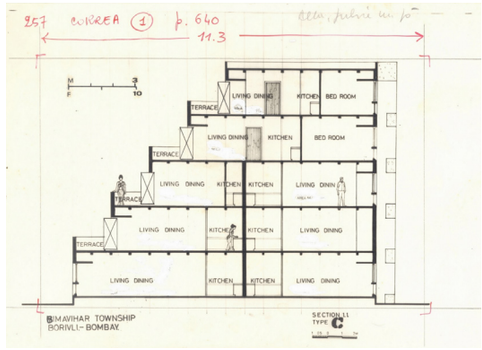


Fig. 16 A schematic section of Type C. The floorplates get smaller with every floor, resulting in a wide range of dwelling types and sizes – each with their own open-to-sky terrace.

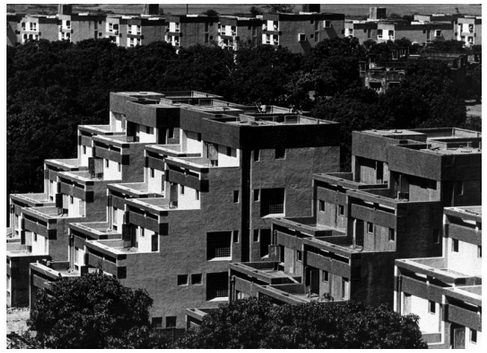


Fig. 17 Photograph of LIC Colony around 1972, just after completion.

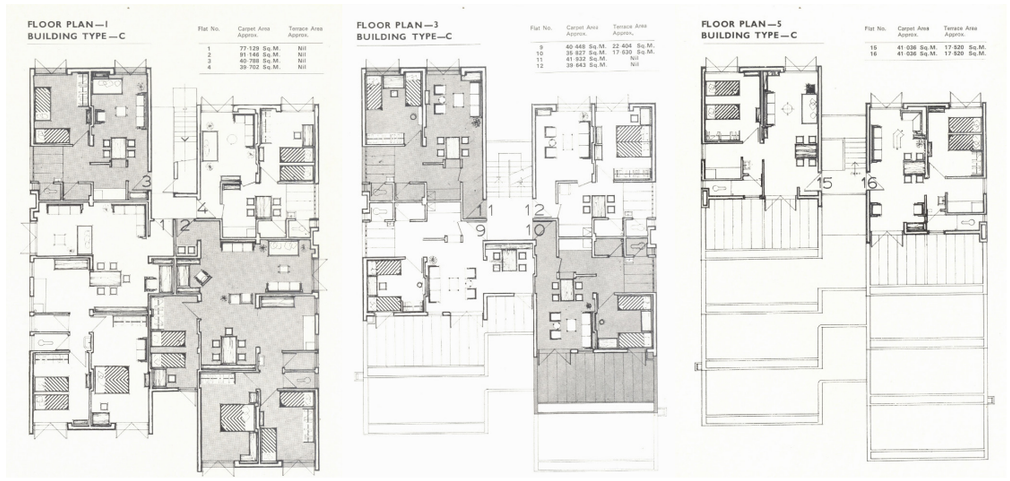


Fig. 18 Plans of the ground, third and fifth floors of Type C. The first three floors contain four apartments per floor The highest two contain only two apartments per floor.

ried apartment buildings were placed surrounded by ample open space. Each building was identical and comprised of two identical adjoining blocks – each block containing a central staircase that served two apartments per floor, each roughly 50 square metres in size and designed as a one-bedroom-hall-kitchen unit (commonly known in Mumbai as a 1BHK).

A similar layout of LIG and MIG building blocks can also be found elsewhere in the city's northern suburbs, such as DN Nagar in Andheri West and Sahyadri Nagar further north in Kandivali. In both cases, modestly detailed dwelling blocks between four and five stories tall are rubber-stamped across large plots with generous open spaces, relatively uncommon in a dense city like Mumbai.

On closer inspection, however, differences in type and dwelling sizes can be discerned. The scheme at DN Nagar recalls elements of the chawl with an open gallery on one side serving a total of 8 identical dwelling units – each a self-contained unit of 40 square metres with a private bathroom and kitchen – on every floor.

The scheme in Kandivali, on the other hand, is more complex. Here, three types, each designed to accommodate a specific class of government-employed daily wage construction workers, has resulted in a scheme where T-shaped and X-shaped blocks are the primary figures of the composition. The sizes of the dwelling units, all benefitting from light and ventilation from two sides, range between 24 and 40 square metres.[28]

While the projects developed by MHB/MHADA through much of the early post-independence decades were designed as rental housing (often for government-employed persons and their families), limited housing stock and a growing population eventually led to a trend of illegal sale and passing of rental agreements, leading to gentrification where higher-income groups often occupied schemes meant for lower-income families.

In a study conducted in 1989, it was found that of the nearly 75,000 dwelling units built by MHB/MHADA between 1952 and the late 1980s, about 40 percent or 30,000 dwellings were, in fact, occupied by higher-income groups rather than their intended beneficiaries. Naturally, as a result of a perpetual housing shortage and high demand for low-cost housing, poorer families often sold their apartments and moved into slums and other forms of informal housing, further exacerbating the housing crisis.[29]

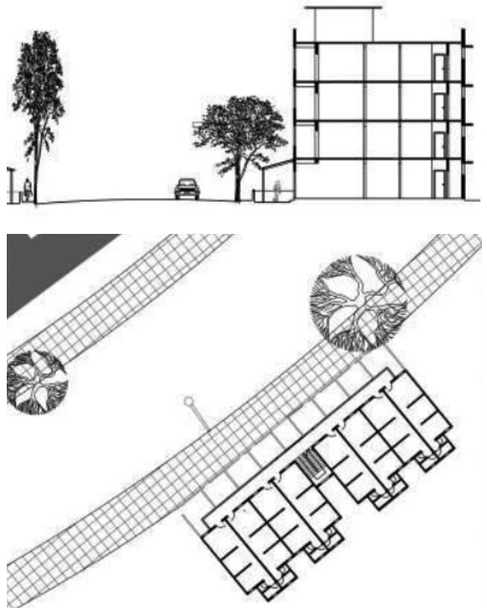


Fig. 19 Plans and sections of DN Nagar in the northern suburb of Andheri show the transition from the chawl type to the stand-alone apartment block. Here, the common corridor (gallery) still resembles a chawl, but rather than simple one-room dwellings with shared services, the scheme provided self-contained one bedroom apartments, each 40 sqm in size.

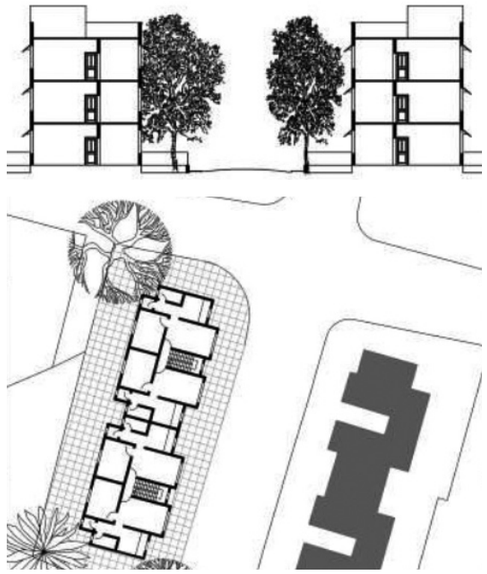


Fig. 20 Sahakar Nagar, built in the 1970s is an early example of what became a standard for MHADA: simple walk-up apartment buildings rubber-stamped on large estates in the northern and eastern suburbs.

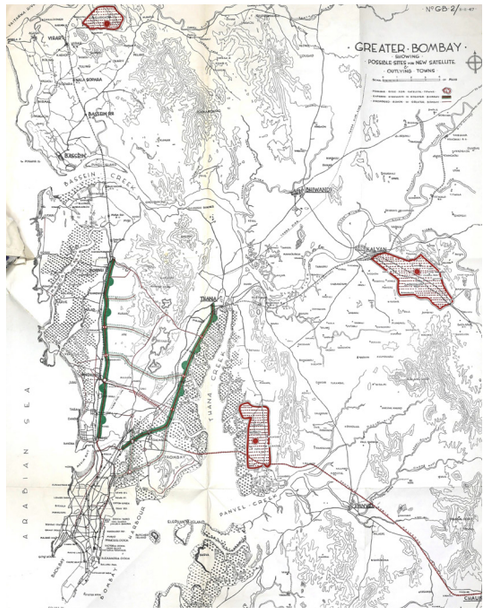


Fig. 21 The 1948 Modak-Mayer plan was the first large-scale planning proposal post independence. It recognised the need for satellite towns in Greater Bombay.

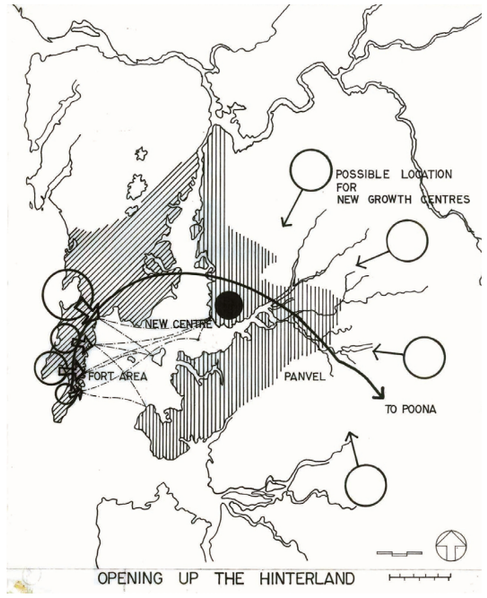


Fig. 22 The plan for New Bombay by Correa, Mehta and Patel was based on the idea of creating a "Twin City" across the harbour rather than just satellite towns.

NEW BOMBAY: THE TWIN CITY

By the 1950s, Mumbai had transformed tremendously, and so had its boundaries. With the establishment of a Greater Bombay region already in place, several studies and recommendations (such as the Modak-Mayer Plan of 1947) recognised the need to re-orient the city and de-congest the over-crowded and heavily burdened southern core. Moreover, by the 1960s, Mumbai's population had already grown to 4.5 million, and it was expected to double to 9 million over the next twenty years.[30] Yet, despite knowing these alarming statistics and ignoring earlier recommendations, the municipality published their Development Plan in 1964, which offered no change in strategy to deal with these growing numbers. On the contrary, it proposed even further extensions to the north with the development of a new business district in the northern suburbs of Bandra and Kurla while at the same time encouraging further densification in the already congested southern core.

Reacting sharply to this Plan, two young architects, Charles Correa and Pravina Mehta, and a civil engineer, Shirish Patel, proposed developing a Twin City across the harbour called 'New Bombay' (now Navi Mumbai). Their vision, diametrically opposite to the one proposed by the government, was to convert Bombay's mono-centric pattern into a vibrant poly-centric one, similar to the model of the Randstad in the Netherlands or the San Francisco Bay Area in the USA where through the creation of new job centres and serviced land (structured along public transport lines) could absorb some of the distress migration heading towards Mumbai. Their proposal, however, hinged on the relocation of the State Government to the new city of Navi Mumbai. They believed this would reduce the burden on the old city's southern core (which housed an enormous number of government buildings) and act as a catalyst for growth in the new city.

In the years following 1964, the New Bombay proposal slowly came to be seen as a realistic solution to Bombay's chaotic growth. Finally, in 1970, the Government of Maharashtra accepted its fundamental principles, acquired 22,000 hectares for development and set up the CIDCO (the City and Industrial Development Corporation) to design and develop the new city across the harbour with Charles Correa as its Chief Architect and Shirish Patel as its Chief Planner. Among its many responsibilities, CIDCO was also tasked with building housing projects for four broad income groups: the Economically Weaker Sections of society (EWS), Lower-Income Groups (LIG), Middle-Income Groups (MIG) and the High-Income Group (HIG). From its very inception,



Fig. 23 CIDCO Housing in Sector 1 in Vashi as seen in 2021.

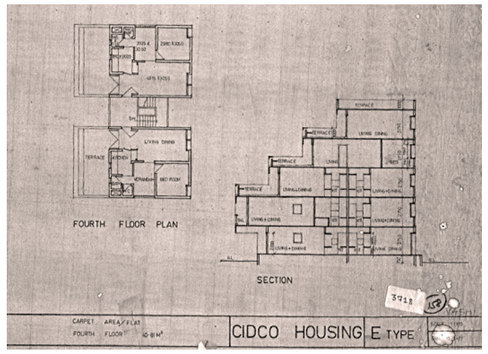


Fig. 24 Drawings of CIDCO Housing, with a stepped section that Correa also employed at the LIC Colony in Borivali.



Fig. 25 Photograph of HUDCO housing by Hema Sankalia in Sanpada, Navi Mumbai.

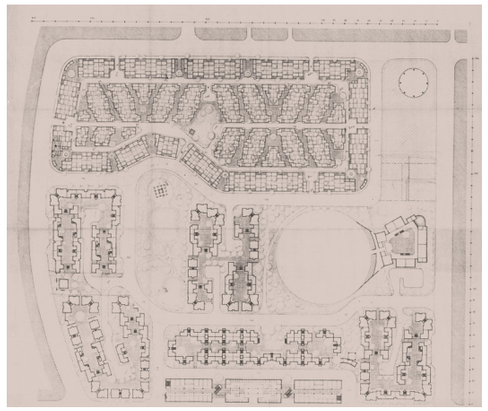


Fig. 26 Masterplan of Hema Sankalia's scheme for HUDCO housing in Sanpada. Note the distinct housing types, each designed for a different income group.



Fig. 27 Raj Rewal's cascading terraces and low-rise patterns of dwelling in his project for CIDCO in Belapur provide over 1000 units, across a wide range of income groups.



Fig. 28 Catalogue of housing types for various income groups in Raj Rewal's project for CIDCO in Belapur.

the new city's urban form was to be based on a low-to-mid-rise, medium-density typology that led to several eminent Indian architects such as Charles Correa, Kamu Iyer, Hema Sankalia, Raj Rewal, and Uttam Jain developing "model housing" projects that, in turn, introduced an "alternate modernism"[31] that was shaped on a notion of "regionalism".[32]

One of the earliest schemes for affordable housing in the new city can be found in Vashi's Sector 1, designed again by Charles Correa for CIDCO. In this colony, simply named CIDCO Colony, we find striking similarities with the stepped section type Correa was developing for the LIC Colony in Borivali. Constructed between 1970-1975, the scheme also rises five floors, with the basic building consisting of two six-metre-wide modules accessed by a centrally located staircase. Again, the first three floors contain four apartments (varying between 37 and 63 square metres), and the upper two floors contain two apartments (roughly 40 square metres) on each level. The design provides each family with a small open-to-sky space to grow plants and sleep out at night on the terraces. However, the project in Vashi has one significant difference. In some cases, the ground floor is also designed to function as a commercial space. Currently, 12 such buildings still exist, of which three are mixed-use with shops and retail facilities on the ground floor.

Other notable housing projects built in the same period in the new city can be found nearby. In Sanpada, for example, one of India's first female architects, Hema Sankalia, built for the Housing and Urban Development Corporation (HUDCO) and CIDCO, a complex of multiple house types and sizes to cater for a wide range of income groups. Another project worth mentioning is Uttam Jain's housing for low and middle-income families in Sector 7 in Panvel, where three-story walk-up apartments create a series of narrow streets and courtyards. Although regrettably unbuilt, similar experiments on producing low-rise, medium-density schemes can also be found in the archives of Kriti Architects and PK Das. In both cases, we see variations on the low-rise, medium-density paradigm, with clusters of courtyard houses creating a neighbourhood of streets and squares.

However, the most inventive project undertaken by CIDCO of this scale was designed and built between 1988 and 1993 by the New Delhi-based architect Raj Rewal in Belapur. The brief called for designing and constructing a 1000-unit affordable housing project on a challenging hillside site close to the city's Central Business District. Drawing inspiration from India's rich reservoir of traditional and vernacular architecture (a recurring feature in Rewal's work), **CIDCO Colony in Sector 36** avoids the typical repetition of large monolithic blocks characteristic of most examples of mass housing. Instead, Rewal has created here a complex containing a multitude of units and blocks varying in size and configuration (each catering to different income levels and requirements) that form a part of a larger cohesive ensemble, which he likes to describe as a "string of stories woven into the fabric of one major composition".[33]

To cater to the complex brief, Rewal develops a series of basic unit types or "molecules" that vary in size from around 20 square metres to 100 square metres. Understanding the value of open-to-sky space, the project is structured around a sequence of public and community spaces that makes use of the sites contours to create streets and squares at many levels.

Another key aspect of the project is the design of seven different types of neighbourhoods – each pertaining to different income groups – that make up the masterplan. This also includes a clear separation between pedestrian-friendly collective spaces on the interior and vehicular traffic on the peripheries. However, despite the projects' careful planning a lack of public transportation, jobs and other amenities , along with other administrative reasons have left the project isolated with portions of the site abandoned and some even destined for demolition.

Unfortunately, this criticsm is also true for Navi Mumbai. Even by the 1990s, only a fraction of the concepts of the twin city project had been implemented. While the project aimed to solve many of Mumbai's growing problems it did not meet its expectations for three main reasons: Firstly, due to high costs and differences between CIDCO and the city's Municipality, the new city grew completely isolated from the old, and the planned connections across the harbour were never built. Secondly, even while the new city was being built, the government was simultaneously allowing for urbanisation in the Vasai-Virar region in north Bombay, which went against the very idea of New Bombay. And thirdly, and perhaps most importantly, the government, which was supposed to relocate its offices to New Bombay, never moved out of South Bombay. Thus, the new

city was denied the catalyst that could have spurred its growth. The failure of the government to understand and implement the very essence of the New Bombay project resulted in further exploitation of the island city and exposed the myopic attitude of the government towards planning in the city and the supply of serviced land for affordable housing. As Charles Correa once stated, “Cities do not change because of ideas – but because of political will.”[13] And for New Bombay’s case, political will was precisely what was missing.

SOCIAL HOUSING IN THE NEOLIBERAL ERA

In the aftermath of the 1991 economic reforms set in motion by Dr Manmohan Sigh and Prime Minister Narasimha Rao, property values soared in the city and influenced by the recommendations of the World Bank 1993 report *Housing: Enabling Markets to Work* that advised governments to refrain from any direct role in housing provision and instead enable housing provision through policies of decentralisation, privatisation, deregulation and demand-driven development, the Government of Maharashtra (GoM) grew interested in treating housing production as a market issue and suggested greater privatisation of housing production. This shift from the role of the state as a ‘provider’ towards that of a ‘facilitator’ of housing production is laid out in the 1995 MMRDA report ‘Regional Plan for the Mumbai Metropolitan Region 1996-2011’:

> "The emphasis in public policy in the shelter sector has changed from Government as controller to Government as provider to Government as facilitator over the last 4 or 5 decades. The approaches in which Government has acted as provider, e.g., subsidized rental housing or where strong interventions in the market have been adopted, e.g. urban land ceiling, have proved to be outstanding failures. Government’s role as a facilitator, therefore, needs to be strengthened which is also in tune with the emerging national economic policy."[34]

While the report marked a clear departure from the efforts made in previous decades, aligning more squarely with the economic reforms introduced in 1991, it also recognised the importance of acquiring land for affordable housing stock as well as allocating substantially greater budgets for this purpose, as evident in this statement:

> "The facilitator role in the last decade has particularly emphasized housing finance and many specialized housing finance institutions have been established with National Housing Bank acting as the apex refinance agency. This has also provided a specialized saving avenue for households to link their savings with concessional housing finance. However, the critical input to housing activity viz. land and infrastructure has been overlooked. Availability of housing finance in the absence of adequate supply of accessible and serviced land may yield counter-productive results in the form of excessive rise in real estate prices."[35]

It is also noteworthy to mention that while the report made clear the urgency to facilitate public-private partnerships, it also argued for the state to play the role of a “selective provider” for its lowest-income groups:

> "In the overall context of facilitator role, public housing agencies will have to play a selective provider role for the lowest 30% of households. However, in the recent past, it is found that both MHADA and CIDCO have been favouring schemes based on advance contribution essentially catering to the middle and higher income groups. In the context of revision of Regional Plan, therefore, increasing the supply of urban serviced land for housing purposes, particularly for the poor, will be of critical importance."[36]

These policy changes were primarily concerned with producing new affordable housing stock on greenfield sites, a vast majority of which would be built outside the limits of the Greater Mumbai region. Typical examples of recently built large-scale public housing on greenfield sites can be found in faraway fringes of the MMR, such as in Nalasopara in the district of Vasai-Virar. A case in point is the newly-built MHADA colony in Bolinj. Across three independent plots and built across three phases, the scheme is a collection of 23-story tower blocks that accommodate nearly 9400 affordable housing units. Despite its large scale, the project is simple and consists of three basic building types. The LIG units occupy the most significant share of the overall site and are formed by clusters shaped by T-shaped and R-shaped tower blocks. The T-shaped block is the most efficient and houses six LIG units on each floor. Each unit measures roughly 30 square metres in area, and its layout is typical of a MHADA 1BHK (bedroom-hall-kitchen) unit, complete with a private bathroom and toilet. The R-shaped tower block, arranged in the cluster between adjoining T-shaped blocks, is less efficient, with four dwelling units per floor. Here again, the layout is similar, with each unit consisting of three rooms: a living/dining area that leads to a kitchen and bathroom core in the middle and ending with a private bedroom at the rear. Across the street in the north is a plot with a similarly tall but cross-shaped type that houses the larger 60-square-metre MIG units.

Comparable large-scale housing projects aimed at the LIG and MIG categories can also be found elsewhere in the MMR, such as in Kharghar in Navi Mumbai. In **CIDCO Colony Sector 36**, we see another large-scale project developed as a public-private partnership (PPP) scheme by CIDCO. Consisting of two distinct parts, separated by a four-lane road, are tower blocks for different income groups. On the east side is a 7.5-hectare site with two variations of T-shaped tower blocks as the central figure. All towers rise to the same height (15 floors) and are similar in layout, housing on each level six apartments served by two centrally located staircases and two elevators. The primary difference between the two types is in the sizes of the flats. The type facing the road is larger in footprint and, with 60 square metre apartments, is aimed at the MIG. On the other hand, the typology at the rear has a slightly smaller footprint and comprises 30 square metre apartments meant for the EWS. Barring a different type for the corner condition, these T-shaped tower blocks are arranged in strips to create undulating clusters with courtyards as common spaces on the ground level. On the west side of the road is a 6-hectare site earmarked for generously laid-out 2 and 3 BHK MIG units that range between 98 square metres and 145 square metres, complete with an ample central green open space, community clubhouse and swimming pool.

Further instances of the state’s official stance on the need to encourage public-private partnerships can be found as early as in the MMRDA’s (modified) Regional Plan of 1996, which had this to say about creating a “hassle-free atmosphere for investors”:

> "Public Housing has been one of the major concerns of policy planning. It has been realised that there is a need to incentivise in-

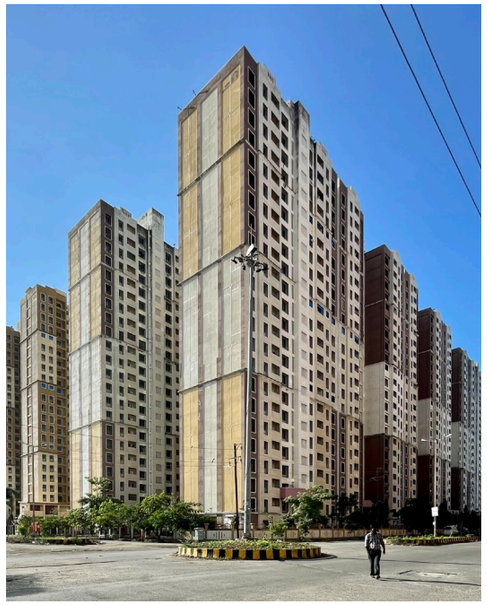


Fig. 29 Recent projects by MHADA, such as the one in Bolinj in Nalasopara picture here, are all variants of the high rise model rubber-stamped in clusters formed by T and H-shaped buildings.



Fig. 30 CIDCO’s recent projects, such as the one pictured here in Sector 36 of Kharghar share much in common with MHADA’s models for mass housing and are changing the skyline of the new city.

vestment by private sector in development of housing. With this in mind, Government of India announced its policy to permit 100 direct foreign investments for development of integrated towns."[37]

NEW WALLED TOWNS

The introduction of neoliberal reforms in the built environment is amply visible in the proliferation of a new typology of dwelling already popular abroad called 'gated communities'. This emerging phenomenon was one of the more bizarre products of what Rahul Mehrotra terms "impatient capital" and grew out of the desire to create mini worlds for the rich that were completely insulated from the growing urban poor populations. Often referred to as 'Privatopias', they became symbols of a 'New India' where the emphasis had shifted towards responding to the aspirations of a new middle class that had emerged after the liberalisation and globalisation of the economy.[38]

Often borne out of Public-Private Partnerships (PPPs), gated communities are residential complexes with heavy security and privately owned and managed amenities. Within the high walls of these townships, a resident would have access to many of the facilities and amenities that the city could not provide. These could include shopping malls, grocery stores, health and fitness centres, and, in the case of some larger townships, even golf courses, jogging parks, movie theatres and office spaces.

The redevelopment of Mumbai's cotton mills in the 1990s is a prime example of the negative impacts of impatient capital and globalisation in a developing city like Mumbai. With real estate becoming the largest source of finance for political parties, there was a sudden desire to free up or recycle urban land that could be sold in the open market. This trend was most squarely felt in the redevelopment of the cotton mill lands in the heart of the city. Once the very "engines for growth", the 600 acres (240 hectares) comprising the textile mills had become obsolete by the early 1990s, mainly for two reasons. Firstly, their inadequacy in upgrading their machinery made them incompetent against other foreign markets in a newly globalised world. Secondly, the mill owners realised they could reap far higher profits by selling their lands instead of producing textiles in a highly competitive global market.

In 1991, the Government of Maharashtra (GOM) accepted the requests presented by the mill owners and introduced amendments to the existing policy that allowed them to sell up to 15 per cent of their land. The same policy also stipulated that in the event of the complete closure of any mill, the owners would be required to surrender a third of the land to the Municipal Corporation of Greater Mumbai (MCGM) for public open spaces and amenities and an additional one-third of the total land to MHADA for the building of affordable public housing. The owners could then sell or develop the remaining one-third of the land using state-offered development incentives such as Tradable Development Rights (TDR) in proportion to the area surrendered for public housing.

In an attempt to find a solution that balanced the demands of the mill workers, their owners, the city authorities and the interests of private developers eager to cash in on a vast section of land in the heart of the city, the government in the following years, formed two committees: the Charles Correa Committee in 1996, and the committee under the Minister of Textiles in 2000. Both these committees were to assist the state in drawing up a balanced integrated plan to redevelop the entire mill lands. At around the same time, the mill workers themselves organised a committee called the *Girni Kamgar Sangharsh*



Fig. 31 Map produced by the Charles Correa Committee in 1996 showing the ownership patterns of the mill lands in the heart of Mumbai. Of the 58 mills, 25 belong with the NTC, 1 with the MSTC and the rest are private.

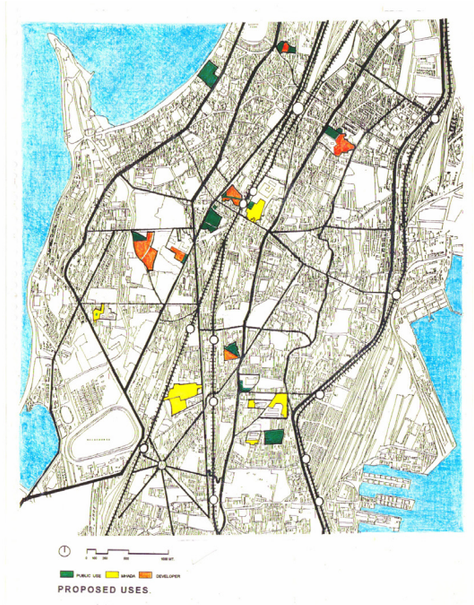


Fig. 32 The Correa Committee proposed a one-third formula to divide the total area of the mill lands in equal proportions for private development, affordable housing and open spaces.

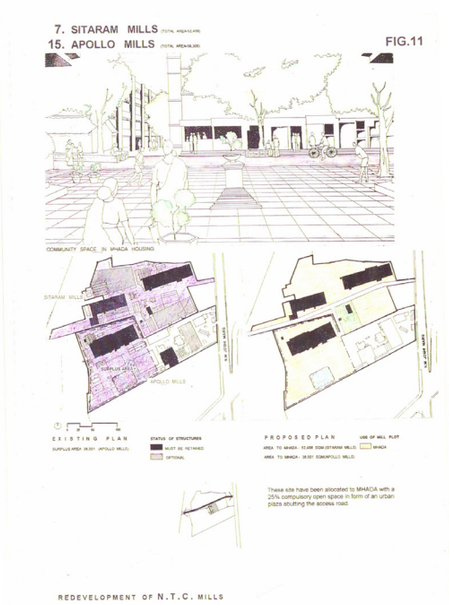


Fig. 33 A sketch proposal by the Correa Committee for one of the mills, in this case, the Sitaram and Apollo Mills under the control of the NTC. The coloured schems show the division of land for various uses, including land for MHADA.

Samiti (GKSS), which agreed in most part with the Charles Correa Committee in creating an integrated approach rather than a piece-meal one that the mill owners preferred. Since their emphasis was also on building housing and jobs for the thousands of mill workers who had lost their livelihoods due to the closure of several mills, they proposed that at least 50 per cent of the land be allocated for an industry that would employ the former mill workers. They also suggested that the land allocated for 'public housing' should instead be used to house the former mill workers to ensure they are not excluded from the city.

However, despite the many recommendations made by the two committees, the government decided in 2001 to make further "amendments" to the policy they had prepared back in 1991.[39] The new modifications made the *existing* open area the basis for calculating the amount of land that had to be handed over to the city for public space and housing – as opposed to the entire site area as stipulated in the original policy of 1991. This, of course, drastically reduced the amount of land that could be put to public use. Thus, instead of creating much-needed open public space and affordable housing, the mills were pulled down, the mill workers were displaced, and in their place were erected cramped medium and high-rise tenement buildings, high-end office towers, luxury apartments and malls. This ensured skyrocketing profits for not only the mill owners and the private developers but also for the myopic – and corrupt – government.

Recycling the mill lands not only helped expose the blatant politician-builder nexus running the city but also marked a starting point for the real estate boom in the city. Backed by global flows of capital, frenzied construction and redevelopment consisted primarily of importing Western models of development that were built to maximise profits and to make India look "more efficient and competent"[40] in the international market.

Several of these new developments can be seen across neighbourhoods like Lower Parel, Dadar, Sion and Worli. These vary from stand-alone tower blocks built by MHADA (such as in the case of the 19-storied Ruby Mills in Dadar, consisting of 70 units, each of 21 square metres) to larger walled complexes containing a mix of LIG and MIG units (such as in the case of Swadeshi Mills Compound in Kurla that comprises of identical 18-storied T-shaped tower blocks for both mill workers and transit accommodations).

CONCLUSION

The successes and failures of Mumbai's state-led interventions to produce affordable housing for all its citizens are a matter of much debate. According to a 2014 report, MHB/MHADA has built close to 200,000 dwelling units in the city over a nearly 50-year period between 1947 and the early 1990s.[41] Although even a back-of-the-hand calculation would reveal that this means that social housing projects built only in that period house more than a million residents (roughly one-tenth of the city at that time), they pale in comparison to the nearly five-to-six million who continue to reside in slums. This becomes even more alarming when you review the current scenario. Despite its obligation, MHADA – and the state at large – in recent decades following economic reforms has failed to provide housing that meets the demands of Mumbai's lower and middle-income groups in quantitative and qualitative terms. In 2012, MHADA's annual lottery scheme offered a mere 2593 apartments.[42] In 2019, it fared even worse, putting up only 217 houses for purchase.[43] In 2018, it was a bit better, with 1384 houses.[44] More recently, in 2021, it offered 8205 units spread across far-flung areas like Mira Road and Virar.[45]

Notwithstanding these improvements, numbers such as these hardly make any difference in a city the size of Mumbai when one considers the scale of demand accumulating over the years. Consider this: the annual housing shortage in the MMR during the five years between 1991 and 1996 was estimated to be in the region of 85,000 units. Between 2016 and 2021, this was estimated to be roughly 100,000 units annually. With the current supply (including PPP projects) in the region of approximately 40,000 units, this translates to a deficit of approximately 45,000-60,000 units per year.

Beyond the fact that the supply is so low, there are also grave concerns about the costs of these homes, their quality of construction, and perhaps most importantly, their locations. Scan through the 'projects' page on MHADA's website, and one will come across standardised and repetitive tower blocks – I-type, H-type, L-type, R-type and T-type – built in far-flung corners of the city and devoid of those essential ingredients that generate habitat. Compare, for instance, MHADA's scheme for Swadeshi Mill Compound in Kurla with its scheme for Morarji Mill in the northern suburb of Kandivali. Both are identical in terms of building layout, with T-shaped tower blocks accommodating six apartments per floor. The only difference is the heights and cluster arrangements that fit their specific sites. Similar repetitions of standard types can also be found in the urban fringes of the MMR. The 3356-unit MHADA complex at Shirdhon in Kalyan, with primarily 30 square metre dwellings for the EWS category, is nearly identical in layout and form to its 2032-unit project in Khoni. Once again, the only difference between the two is how they are clustered on their respective sites.

Moreover, Mumbai's housing board also has to deal with a growing maintenance and repair problem. With limited rents charged to beneficiaries, which have remained nominal over the years, Mumbai's social housing estates (which include hundreds of chawls such as the four sites of the BDD chawls) face enormous challenges. It is unsurprising, therefore, to find that in recent years, several old mass housing projects have made way for redevelopment through various schemes aimed at incentivising public-private partnerships (aided through loosening of building bye-laws and increasing FSIs) that have further accelerated processes of gentrification and extreme densification.[46]

Can a cookie-cutter approach to housing Mumbai's masses ever reach the scale of demand needed? And can this mode ever respond to the specific live-work realities of the people of live in them? Perhaps one of the biggest flaws of the state's policies regarding the production and availability of affordable housing has been its reluctance to experiment with more varied forms of tenure, particularly rental housing for Mumbai's significant migrant (often majority-male) population. Despite, Mumbai's draconic 1947 Rent Control Act being repealed in 1999, there has been a massive de-incentivisation of the rental housing construction. In such a context, the state remains the only major player in the rental housing market. Even this received a further blow when the 'Rental Housing Scheme', which had been an initiative of the MMRDA, was dissolved in 2014 and replaced by the 'Affordable Housing Scheme' (currently, the 'Housing for All' scheme) that is based on providing fixed dwelling units on a home-ownership basis.[47]

The brief history of social housing in Mumbai attests to the limitations of conventional housing strategies focussed primarily on providing complete subsidised houses on a home-ownership basis. From the establishment of the BIT in 1898 and the development of various social housing schemes

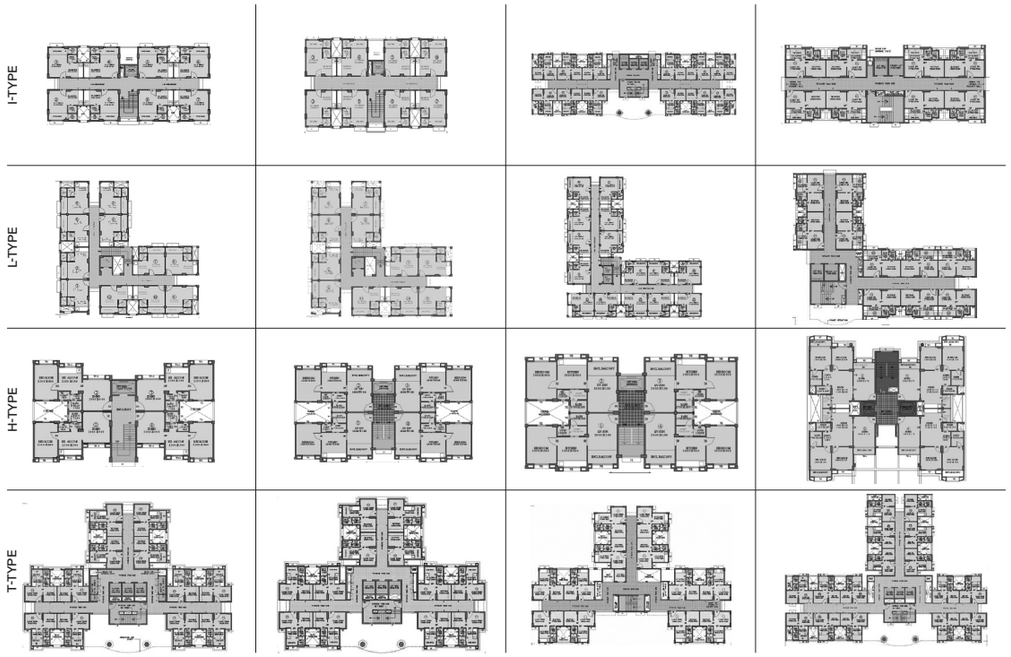


Fig. 34 A collage of floor plans extracted from MHADA's website shows clearly the preferenc for recurring types adopted by the agency for various sites across the city.



Fig. 35 Not surprisingly, MHADA's recent developments are vertical extrusions of their plans, generally rising 18 24 floors on average.

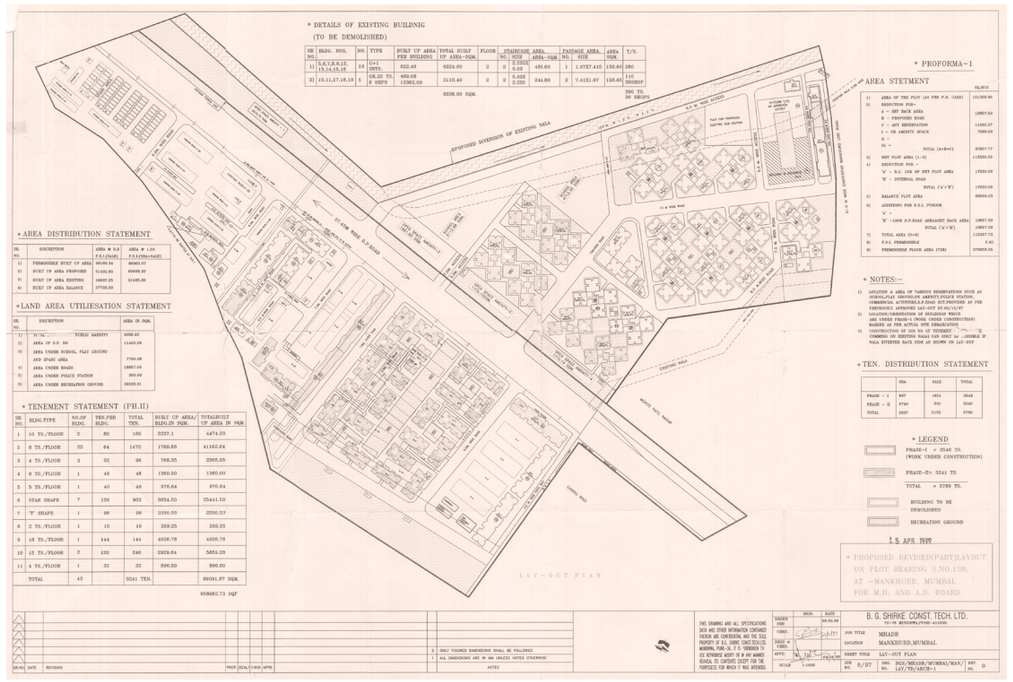
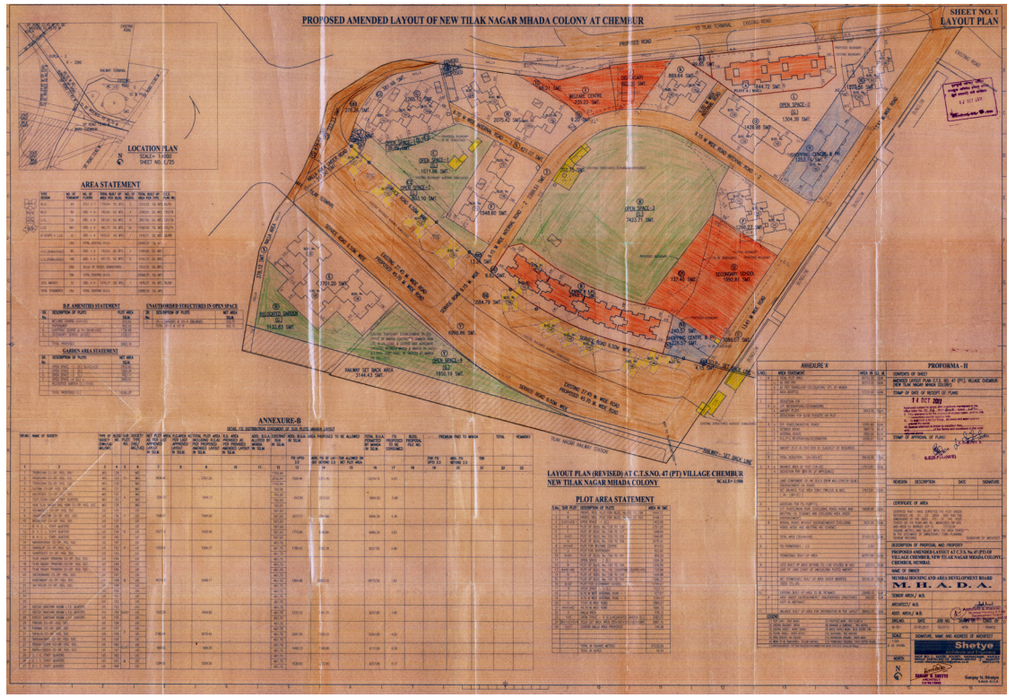


Fig. 36 (top) An example of a typical MHADA masterplan.
Fig. 37 (below) Another masterplan from MHADA from 2011. Notice the repitition of certain types to maximise efficiency.



by subsequent agencies like the BDD, and in the post-independence years by MHB, MHADA and CIDCO, a purely subsidy-driven approach that aims to provide complete dwellings to middle and lower-income groups has failed for at least three reasons.

First, despite the political will, limited financial resources across the past century have historically been unable to meet the targets set by the state itself. Secondly, as well-intentioned as many of these schemes may have been, access to serviced land has meant that several mass housing schemes were unsuitably located far away from economic and social opportunities and were often sold (sometimes illegally) to higher-income groups instead of their targeted demographics. Thirdly, despite innovations, including architectural experimentation and the use of new construction technologies, the fact of the matter has been that the speed of construction has historically been unable to keep up with demand, and often fails to match the dwelling cultures and practices of the people who inhabit them. Perhaps even more importantly, despite advancements in developing building types for housing the masses, most schemes – particularly more recent vertical developments – have been unable to respond to the dwelling cultures of their intended demographics. In light of these realities, the state, especially in the period commencing in the 1970s and 1980s, moved away from a purely subsidy-driven approach to producing affordable housing on a home-ownership basis and began experimenting with new modes of tackling the challenge of housing the masses.

■

SELF-HELP & SITES-AND-SERVICES



Fig. 1 View of a courtyard within a typical cluster of Charles Correa's incremental housing scheme at Belapur. In the centre can be seen one of the original houses (with some modifications), but on the right can be seen a larger three-storied dwelling that has replaced the original house while keeping access and open spaces intact.

"Inevitably, one turns away from the knowledge, resources and capacities of the tens of millions of people who are already the most active city builders. At present, the sum of their efforts is the major influence on how cities develop. But government's failure to support and help co-ordinate such efforts represents an enormous and unnecessary loss both to themselves and to these citizens'. The key issue is therefore the question of recognition of the slum-dweller's capabilities and rights and their placing as an integral part of the development process."

Hardoy and Satterthwaite, *Building the Future City*, 1992

Dharavi, commonly known as "Asia's largest slum"[1], is home to an estimated eight hundred thousand people. Some even claim that over a million people live in this largely self-built "city within a city". At approximately 216 hectares (535 acres), Dharavi is an incredibly dense, complex and dynamic locality that accommodates the equivalent of nearly half the population of all of Manhattan in barely two-thirds the size of New York City's Central Park. Nestled in what was once the marshy wastelands in the northern fringes of the original island of Bombay, Dharavi emerged as a neighbourhood originally home to the *Koli* fishing community who lived off Mahim Creek for centuries. Today, it sits in the very heart of India's financial capital. Just across the creek to the north lies the city's new business district – the concrete, steel and glass enclaves of Bandra Kurla Complex – that, in sharp contrast to Dharavi's predominantly low-rise self-built houses, are home to some of Mumbai's – and India's – most expensive real estate.

As a setting, Dharavi is no stranger to the world of popular culture or cinema. Its cheek-by-jowl habitat, bustling with people and activities along labyrinth-like streets lined with open drains, has, over the years, found its way into the narratives of dozens of films and novels, in the process, constructing mythic images of Dharavi as both a site of extreme poverty, but also of hope and entrepreneurship.[2] A news reporter in an article in *Forbes* magazine in 2011 had this to say about Mumbai's largest self-built settlement:

> "Mumbai's Dharavi slum is the most entrepreneurial place I've ever been. In one dark room – open to the street – there are two men recycling boxes by turning them inside out and re-stapling them. Across the dusty street, six women work together sorting great bins of plastic products for recycling. A few doorways down two men are maniacally sewing brassieres, just like on Manhattan's Lower East Side in 1905. A little way off craftspeople are painting and firing intricately designed ceramics."[3]

Facts and figures about Dharavi seldom fail to impress. Although largely a self-built settlement, Dharavi's built form reveals a highly productive mixed-use neighbourhood. Spread across its estimated 55,000 dwelling units are a constellation of 15,000 single-room factories and 5000 small businesses that, according to many sources, bring in an annual turnover that ranges from 250 million US dollars (on the conservative end) to even up to a billion US dollars.[4]

A 2010 study titled 'ReDharavi' co-authored by the Mumbai-based Non-Governmental Organisation (NGO), Society for the Promotion of Area Resource Centres (SPARC) and a local architecture institute, the Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies (KRVIA), prefer to call Dharavi a "city of enterprise":

> The atmosphere in Dharavi, even on a holiday, is like being on a treadmill. Everyone is busy – few people hang about. The streets are lined with hawkers selling everything from safety pins to fruits and suitcases. Behind them are a fascinating array of shops: Satkar Jewellers, Ration Shop, Bhupendra Steel, Husain Hotel, Swastik Electric & Hardware, Shreenath Jewellers and Mumbai Polyclinic – that is a typical collection on 90 Feet Road. Hindu, Muslim, south, north, food, jewellery, hardware, health care, all down one street![5]



Fig. 2 Dharavi, a self-built settlement, is described by some as a "city of enterprise". It's 216 hectares consist of several distinct neighbourhoods, such as Kumbharwada (as seen here) where pottery-making has long been a profitable industry for residents, especially women.

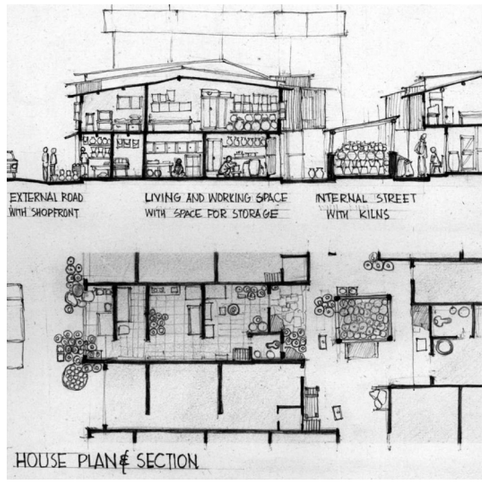


Fig. 3 Kumbharwada is characterised by long and narrow houses of various sizes that combine living and working, converting homes into what Marta Chen terms, "productive assets".

The study outlines, in nine short chapters, the key industries and occupations one can find in Dharavi: leather, textile and tailoring, food making, pottery, recycling, surgical thread, kite factories, gold and jewellery, and printing. Over the years, each of these different industries and income-generating activities has produced a settlement that resists being defined by any singular land-use or typological classification. Dharavi, as the authors of 'ReDharavi' claim, is a "gold mine".[6]

Yet, at the same time, popular culture portrayal of self-built settlements and communities such as Dharavi – focusing primarily on their material, aesthetic and physical conditions has also invited – in fact, ignited – heavy criticism, such as in the case of the Danny Boyle-directed, Oscar-winning *Slumdog Millionaire.* Soon after it bagged eight Academy Awards in 2009, including the award for Best Picture, many objected to the film's portrayal of poverty and life in urban India. "I am not a slumdog. I am the future of India," said one poster. "Don't call me a dog" stated another.[7] A leading Indian newspaper, *The Hindustan Times*, even went so far as to call it "an assault on Indian self-esteem".[8] Similar debates have raged within civil society and academia. Mitu Sengupta argued that "the film's reductive view of slum spaces will more probably reinforce negative attitudes towards slum-dwellers, lending credibility to the sorts of policies that have historically dispossessed them of power and dignity."[9]

Ananya Roy's paper 'Slumdog Cities', also criticised the film for its "apocalyptic portrayal of the 'slum' as poverty pornography" and delved into an examination of the term 'slum' and proposed instead the lens of "subaltern urbanism" to provoke us to instead imagine the "slum as a terrain of habitation, livelihood, self-organization and politics" that are characterised by "zones of exception" and "grey spaces".[10] Characteristics such as these are not unique to Dharavi but can also be found across the more than 2500 self-built settlements in Mumbai.

SELF-HELP HOUSING IN MUMBAI

Although the state has rarely recognised self-help as a formal mode of housing production, a historical overview does indicate that it has often been tolerated alongside other modes of formal housing production. Looking at the numbers, it is undeniable that self-built settlements such as Dharavi do not represent the minority but, in fact, the dominant mode by which affordable and viable housing has been made accessible for most of Mumbai's lower-income groups.

City-based architect and activist PK Das has long advocated for recognising people's efforts to build their own housing as a valid and legitimate mode of housing production. Writing in 2005, he argues that people have the "ability to positively contribute to housing development" and that "governments do not recognise these people as city builders" and the "key issue is therefore the question of recognition of the slum-dwellers capabilities and rights and their placing as an integral part of the development process."[11]

Other scholars also share such sentiments. Building on the epigraph that opened this chapter, Hardoy and Satterthwaite point out:

> "Despite limited resources and adverse conditions, low-income individuals, households, and communities have been responsible for a high proportion of new housing units and for a large proportion of investments in the housing stock and in housing-related infrastructure and services. The scale and nature of their investments is rarely recorded and is not reflected in official statistics. But in most cities or at least in the poorer areas of cities, the annual investment made by low-income households who are de facto owners of their homes is many times the average investment per household made by city and municipal authorities. This is especially so if a realistic monetary value is given to the labour time they put into improving or extending and reconstructing their homes."[12]



Fig. 4 Self-built houses in the northern suburbs of Mumbai. The external staircases allow for a second family to live above the ground floor dwelling.

However, it is crucial to keep in mind that the 'slum' – the most iconic symbol of 'self-help' housing or 'auto-construction' – is not a homogenous category but varies greatly not just according to material conditions, dwelling sizes or density but also forms of tenure, occupation, house types, access to essential services and amenities, as well as levels of production and employment.

Such differences and variations, both in terms of built form but also the often overlooked social and economic dimensions, are evident in a 2010 study by CRIT (Collective Research Initiatives Trust) – a group of Mumbai-based architects and urbanists engaged in education, research, advocacy, and direct intervention in the urban realm. Building on their research into housing types in Mumbai published in 2007 (further discussed in chapter 3.7), their study into typologies of slum settlements in Mumbai remains one of the few research projects that attempts to illustrate through drawings and photographs the wide spectrum of slum settlement types that exists in the city. The abstract at the very start of the report states:

> "In compiling/foregrounding typological differences the paper argues that various slum settlements have distinct typologies and hence cannot be seen under one rubric. Any attempt to generalise slums would lead to grossly problematic interventions."[13]

Thus, rather than attempt to build a complete catalogue, this study's authors chose to document nine settlements across the city that highlighted differences rather than similarities between various slum pockets in Mumbai. Alongside the more well-known examples of Kumbharwada in Dharavi, with its highly productive pottery industry (run primarily by migrants from neighbouring Gujarat) that operates out of long and narrow houses of various sizes that combine living and working, we find in **Shiv Krupa Society** in Govandi a self-built settlement of a far more residential character. Unlike in Kumbharwada, each house in Shiv Krupa Society is roughly the same size (about 15 square metres) and typically two to three stories tall, built of brick walls and steel sections. Sitting on government land and with improvements made as part of the World Bank-sponsored Slum Sanitation Programme (SSP), almost every house in this settlement has its own private toilet connected to the city's main sewer line. Other



Fig. 5 Behrampada in Bandra East is an example of self-help housing that achieves very high densities, with houses built of steel frames even touching six floors.

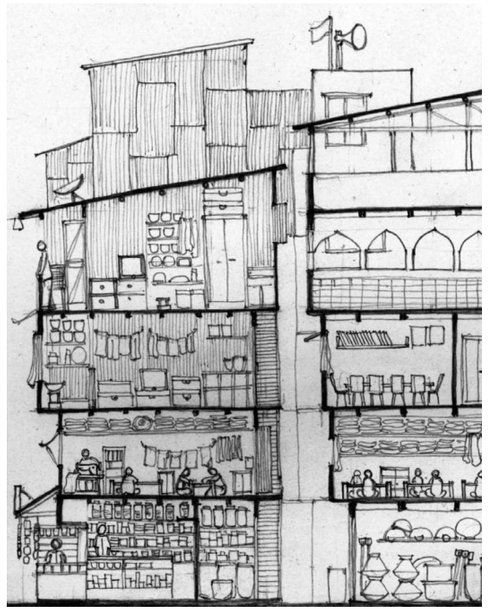


Fig. 6 Sketch section prepared by Mumbai-based group, CRIT, showing the multiplicity of income generating activities within Behrampada's self-built houses.

cases, such as Behrampada in Bandra, home to a predominantly Muslim community, have a far more contentious history concerning land ownership. Sitting on prime land but without the security of tenure to encourage house consolidation and facilitate improvements, the houses here are characterised by poorly constructed self-built dwellings four to six stories tall and made of steel frame sections, light plywood partitions and tin roofs.

Similar studies that have attempted to document the diversity of self-built housing in Mumbai have also been carried out by several local and international architecture and planning schools as well as by local research and housing advocacy practices like the Dharavi-based practice Urbz (user-generated cities) and sPare – the research wing of Mumbai-based architect Sameep Padora (further elaborated in Chapter 3.7). While these studies provide only a tiny snapshot of the diversity of housing types and forms within Mumbai's slums, they all highlight one essential characteristic of Mumbai's housing landscape: that self-built settlements are not just sites for poor or substandard living conditions but also sites for intensive mixed-use development.

Speaking again from Dharavi, Rahul Srivastava and Matias Echanove of Urbz have coined a term for this particular typology:

> "The enmeshing of spatial, social and economic principles in Dharavi is powerfully symbolised by one ubiquitous house type – a structure and a mode of organisation that we call the 'tool-house'. Simply put, the tool-house is a space that is used both for living and for income-generation. And this device is fundamental to the logic that sustains homegrown settlements."[14]

With nearly 65 per cent of Mumbai's workforce employed in the informal sector – much of which takes place in self-built settlements like Dharavi – self-built settlements are, in fact, vibrant communities full of housing, commerce and employment and, in the process, also substantial contributors to the city's GDP.[15]

In such a context, housing activists and planners argue for policies that complement self-building practices rather than hinder them. Rahul Srivastava and Matias Echanove of Urbz, for example, prefer to use the term 'homegrown neighbourhoods' over more common (and often reductive) terms like 'slums' or 'informal settlements', and recognise self-help housing as a "viable model of urbanization."[16] Based on this thesis, their practice builds on the ideas of self-help housing promoted by British architect and housing activist John Turner and intervene in "homegrown neighbourhoods" to "support the efforts of its residents and local builders".[17] By recognising that such neighbourhoods are primarily "built by local builders in response to the residents' needs", they argue that people and the habitats they produce should not be seen as "consumers" but as "intelligent agents and producers of form." For housing activists and researchers like Srivastava and Echanove, the way forward, therefore, lies in recognizing and understanding the "dynamics of homegrown neighbourhoods" and that "architects and planners must work together with local actors, rather than impose their design and plans."[18] Writing in an article for *Architectural Review* in 2021, the duo from Urbz write:

> "In our years of collaboration with local builders in Mumbai, we have witnessed that their work expresses a contextualised intelligence and a resourcefulness born out of adversity."[19]



Fig. 7 Models from the 2016 Urbz exhibition 'The Design Comes as We Build' showcasing designs and models by local contractors and artisans in Dharavi.

WORKING WITH SELF-HELP

By the 1970s, it was becoming increasingly clear that the energy of the nation-building era was on its wane. With Nehru's passing in 1964 and the arrival of new forms of politics in the 1970s (especially with the Emergency declared by Nehru's daughter, Indira Gandhi, between 1975 and 77), there was a turn towards more decentralised forms of governance and planning. Within this emerging context, the central government was slowly devolving its responsibilities to state governments, with several sectors such as housing and urban development increasingly seen less as a national issue and more as a regional problem to be dealt with by individual states. Despite nearly three decades of good intentions at producing adequate quantities of affordable housing stock and attempts at reducing costs through innovations in building technologies, cities across India, particularly its large metropolises such as Mumbai, registered steady increases in the proportions of self-built settlements.

By the early 1980s, self-help strategies had not only proved to be the only mechanism by which large quantities of affordable housing stock could be produced but began to be seen as solutions in themselves. Thus, alongside the complete demolition of slums, housing policies in this era moved towards improving the quality of infrastructure within existing informal settlements alongside a new model where the state's involvement was limited to the provision of serviced sites on which beneficiaries could build their housing. Apart from a few conventional avant-garde mass housing schemes in the city that focussed on providing newly 'completed' homes, such as the building of CIDCO Colony in Navi Mumbai in the late 1980s and early 1990s (see again Chapter 3.2), government subsidies were now mainly targeted towards the provision of essential services and infrastructure with the hope that this would encourage investments in housing by the residents themselves.

These "non-conventional"[20] strategies, influenced in part by global trends of that time and aided in part by the World Bank, recognised the limitations of the state as being the primary and most competent provider of affordable housing. They also recognised, formally as policies for the first time, the importance of participatory planning in design in India. Manifesting as 'aided self-help', which included modes such as 'sites-and-services' and other forms of 'incremental housing', this era was marked by a turn towards understanding housing less as a product and more as a process. Implemented first in Chennai (see again Chapter 2.3), this new mode of housing production was adopted in several major Indian cities and led to innovative mass hous-

ing schemes such as Doshi's low-cost housing at Aranya in Indore that stand out as alternatives to conventional capital-intensive mass housing.

THE BOMBAY URBAN DEVELOPMENT PROJECT (BUDP)

Sites-and-services as a formal mode of producing affordable housing stock was introduced in Mumbai as a result of the World Bank's Bombay Urban Development Project (BUDP). Building on its initial involvement in urban development in India that first began in the early 1970s and aimed to "raise the level of services provided to the population, and to strengthen urban planning and service delivery institutions, particularly those of local government"[21], a more substantial programme centred around Mumbai's affordable housing problem was first mooted in 1975 following a visit by the Bank's President Robert McNamara who advocated for a renewed shelter policy. Following this, in 1977, the Bombay Metropolitan Regional Development Authority (BMRDA) carried out a study that noted the government's incapacity to adequately fill the annual demand for affordable housing stock. In 1977, it stood at 60,000 houses compared to its annual supply of just 20,000 units. Recognising their limitations, the 1977 report prepared by the BMRDA implemented a housing policy that centred its attention on "providing serviced plots so that the inhabitants could build houses according to their economic capacity."[22] The report further advocated that "public housing programs in BMR should aim at increasing the effective supply of land by promoting new job centres, transferring tenure or granting ownership to people whenever possible."[23]

Thus, starting in the mid to late 1970s, there was a marked turn away from providing completed houses to providing serviced land that could encourage self-help housing that could grow incrementally over time by people themselves. The BUDP, prepared between 1982 and 1983, was based on this new way of thinking and recognised the inflated housing need, which by 1983 stood between 945,000 units and 1.2 million units – of which between 50-60 per cent of all households were estimated to be living in "environmentally unacceptable or illegal shelter".[24] Furthermore, it estimated that this need would, in all likelihood, grow to 2.4 million homes by 1990. Forming a part of the Government of Maharashtra's (GoM) Affordable Low-Income Shelter (ALIS) Program, the project built on the Bank's three principles of 'affordability', 'cost recovery', and 'replicability', and had five broad objectives that involved (a) the need to increase the public supply of affordable land, infrastructure and shelter, particularly for low-income families; (b) to improve the financial capacity of local government authorities to deliver and maintain the schemes implemented under the BUDP; (c) to strengthen the institutional capacity of local government authorities to plan and execute BUDP projects; (d) to improve cost recovery as well as to invest in better land-use planning, including the revising design standards and building regulations; and finally (e), to encourage cost recovery and replicability through the involvement of private investment in land servicing and shelter construction that could cross-subsidise the costs of building affordable dwellings for low-income families.[25]

The objectives of the BUDP were to be achieved through two main components targeted at improving physical conditions for Mumbai's low-income populations: the Land Infrastructure Servicing Program (LISP), which aimed to provide 85,000 serviced sites for residential, commercial and industrial use and the Slum Upgrading Program (SUP), which focussed on creating "legal, environmentally-acceptable neighbourhoods" through the "provision of infrastructure improvements, long-term, leasehold tenure, and loans for home improvement" for a targeted population of half a million beneficiaries (100,000 households), or about 12 per cent of all the self-built settlements across Mumbai based on the 1981 census.[26] Alongside these physical components, the BUDP also had a managerial component that aimed to improve civil works of roads and drains under a programme called the Local Government Finance Administration and Services (LOGFAS). Another, called the Technical Assistance Training and Equipment (TATE) programme, was directed at improving the efficiency of agencies involved in executing the BUDP project.

First sanctioned in 1985 with a total budget of 138 million US dollars (at the time of appraisal), the BUDP was to run for roughly five years until December 1990.[27] However, due to delays and because only 37 per cent of the credit amount had been disbursed by the original end date (September 1990), the project was granted a three-year extension and an additional influx of 35 million US dollars. Eventually, the revised project closed in September 1994 with a final disbursement amount of 124.89 million US dollars. The credit amounts were redistributed

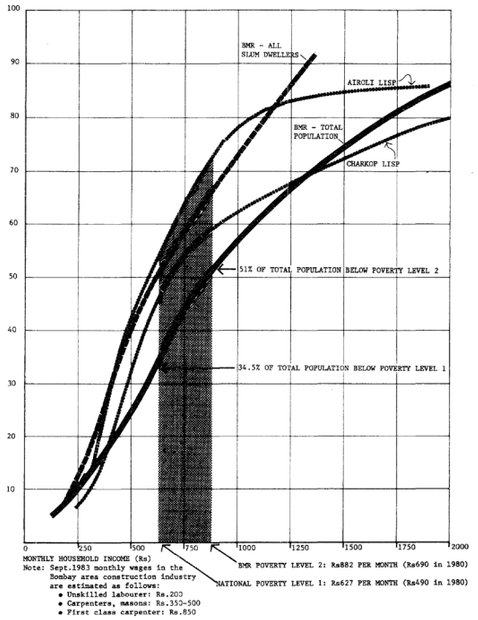


Fig. 8 (top-left) Graph from the 1985 'Staff Appraisal Report' that charts household incomes, illustrating the target populations of the two-major LISP schemes against the numbers of the BMR.

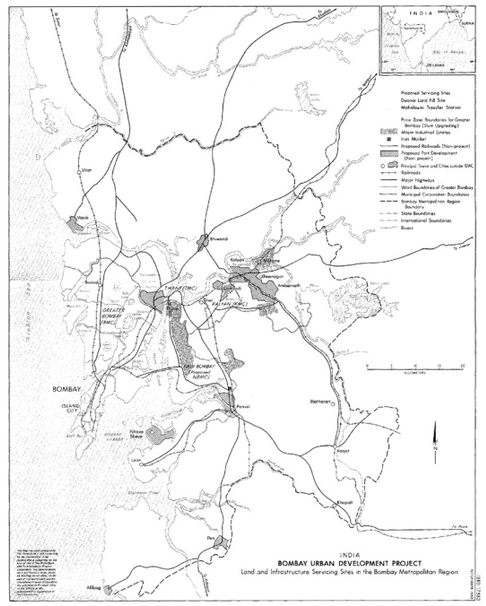
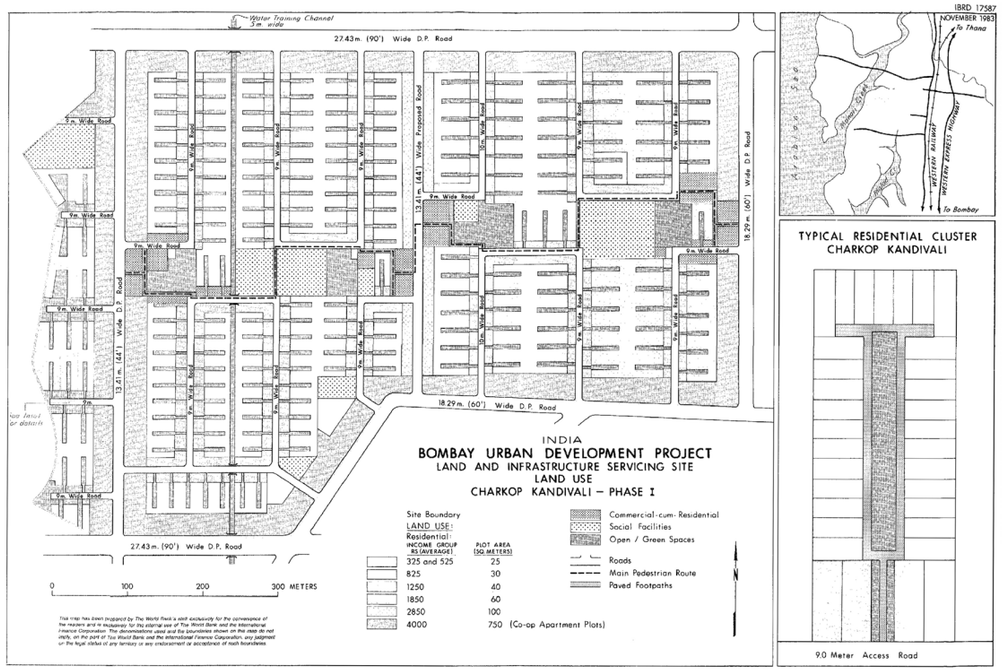


Fig. 9 (top-right) Map from same report showing the locations the 13 LISP sites: 6 within the BMC, 3 in Navi Mumbai, 2 in the municipality of Thane, and another 2 in the municipality of Kalyan.

Fig. 10 Land use plan of Phase 1 of Charkop that shows the diversity of plot layouts (and their sizes) for various income groups. A plan of a typical cluster designed for low-income groups can be seen in the bottom right.



within the four components, with a greater emphasis given to the objectives of the LISP and LOGFAS and a considerable reduction to the targets and funding of the SUP that was thereafter cut by 35 million US dollars.[28]

Of the total outlay of the project, a vast majority (about 70 per cent of the total disbursements) was reserved for the LISP component that focussed on developing predominantly small serviced plots between 25 and 40 square metres with access to public utilities and community facilities. Out of these, the GoM was obliged to ensure that nearly 55 per cent of the serviced plots were sold to households living at or below the Bombay poverty line with monthly payments that were at most 15 per cent of their monthly household income.[29] In addition to these managerial goals, the LISP under the BUDP also came with its standards for plot sizes, layouts and construction. For instance, all households under this programme were to be within 0.5 kilometres of a bus connection and within 55 metres of a road capable of carrying service vehicles such as fire and garbage trucks.[30] Further standards were also set for essential services and utilities, such as the supply of water, sewage and drainage connections, as well as for street lighting and garbage collection.

CHARKOP'S CLUSTERS

The most well-known sites-and-services scheme to come out of the BUDP can be found in **Charkop**, in the northwest suburb of Kandivali. Planned and coordinated by Vidyadhar Phatak, an urban planner working for the BMRDA, along with the assistance of Alain Bertoud, an economist and planner working at the World Bank, Charkop is the largest sites-and-services scheme implemented in Mumbai and one of 13 sites developed by the BUDP between 1985 and 1994.[31] Spread across approximately 180 hectares and accommodating over twenty thousand plots, it is vastly different and more pragmatic than Doshi's award-winning project in Indore. At its most fundamental, Charkop is characterised by a repetitive cluster that measures roughly 53 metres by 22 metres and contains between 33 to 35 small plots. To meet the strict financial and managerial requirements set by the Bank, these typical clusters contain a mix of two plot sizes, with the larger 40 square meter plots (meant for low-income groups or LIG) lining 9-metre-wide streets and the smaller plots of 25 square meters (meant for the so-called economically weaker sections of society, or EWS) that are accessed through an entrance that leads to an inner, more private T-shaped courtyard. Each dwelling unit is arranged in a highly efficient manner in a row house typology with blind walls on all sides except one that faces either the 9-metre-wide street or the courtyard in the middle.

Another critical characteristic of this cluster layout is that they are self-contained and closed off with walls, except for the entrance towards the outer street, which is deliberately kept small to discourage cars from entering. As such, each cluster is imagined as a cooperative housing society and contains a society office that encourages notions of community and identity. These clusters are repeated efficiently and are framed by a clear hierarchical street grid where the 9-metre-wide streets open onto 14-metre-wide roads that link to 27-metre-wide roads that carry through traffic, including buses. Along the 14-metre-wide roads are bigger plots that range from 60 to 100 square metres in size for middle-income groups. Along the 27-metre-wide roads are located the largest plots, which measure about 750 square metres and are meant for standalone walk-up apartment buildings to be built by cooperatives that can house 10-15 higher-income households.



Fig. 11 Charkop is characterised by narrow plots that have grown, in most cases, to two-to-three storied dwellings where each house has its own identity.



Fig. 12 Land use plan prepared by MHADA in 1996 that shows Part 3 of Charkop. The plan clearly illustrates the efficiency and replicability of the typical cluster that can be adjusted to suit any site constraints.



Fig. 13 Land use plan of Part 4 of Charkop showing a variation of the typical cluster while still maintaining the general principle of larger plots on primary roads, and smaller plots for low-income groups on the interior.

This range of plot sizes and income groups is crucial for two reasons: Firstly, on a managerial level, it enables the project to achieve affordability through cross-subsidization, where the larger plots aimed at higher-income groups help cover the cost of providing serviced plots to the lower-income groups. Secondly, the range of dwelling options also ensures that Charkop has a mix of income groups that have helped it develop into a dense and vibrant neighbourhood full of residences of various types and sizes – from privately owned homes and rental units to substantially larger apartment buildings for higher income groups along the scheme's main peripheral roads that also contain shops and small kiosks. At the overall masterplan, open spaces and *maidans* dot the scheme. Still, the efficient groupings of standardised clusters result in a relatively high density of over 100 dwellings per hectare (when built) while at the same time also providing for a very diverse section of society to access housing options that cater to many needs and income levels.[32]

As a sites-and-services scheme, home extension loans were also provided to the project's beneficiaries to encourage self-construction. Thus, while the original design intended to give each plot with only a plinth along with essential services such as electricity, water supply and sewage connections, in reality, in Charkop, each allottee of the project opted for building a basic single-storied dwelling of brick walls and corrugated metal roofing by making use of the 20-year loans provided by the scheme. Over the years, these houses have expanded considerably, with a majority of dwellings now two stories tall, with a few even three stories tall – most of which are appropriated by a variety of materials and finishes, lending identity and diversity to the whole scheme and avoiding the monotony that plagues most conventional housing schemes.

Similar layouts arranged around clusters can also be found in other parts of northern and western Mumbai, such as **Gorai** and **Versova**. In Versova, we see an almost indistinguishable cluster layout implemented with minor tweaks to respond to local constraints. Spread over nearly 30 hectares and providing roughly 3365 mixed-income plots, when this was built in the late 1980s, Versova was a leafy

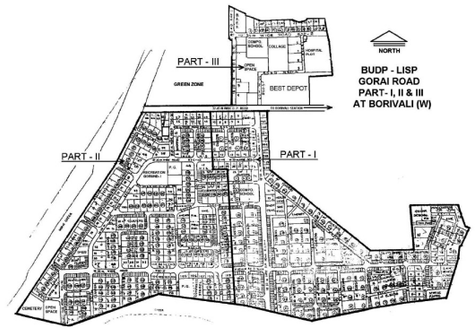


Fig. 14 Site plan prepared by MHADA for the World-Bank sponsored LISP scheme in Gorai. As in the case of Charkop there is a diversity of plot types for various income groups.



Fig. 15 A clear organisation of roads, streets and open spaces characterise the scheme in Gorai and make it distinctly different from much of its surroundings.



Fig. 16 Like in Charkop, in Koparkhairane one can see a concentration of mid-sized apartment blocks bordering the square-shaped clusters with plots for lower-income.

and relatively quiet suburb in northwest Mumbai. Today, it has transformed tremendously, and the sites-and-services typology has enabled mixed-use development where small shops and kiosks contain a broad mix of commercial and small-scale industries that thrive alongside housing for lower and middle-income groups.

Yet, it is essential to remember that not all sites-and-services schemes built under the BUDP were identical. For example, for the Gorai location spread over three sectors and covering an area of over 100 hectares, the cluster layout contains a similar mix of unit types and sizes as the ones found in Charkop and Versova, with the 40 square metre dwelling plots lined along the 9-metre-wide streets and the smaller 25 square metre units on the interior. However, the T-shaped internal courtyards in Gorai contain two distinct types for the EWS: the basic 20 sqm plots and a slightly larger version where the plots are 30 sqm in size.

Built on predominantly reclaimed marshy land that in the early 1990s was still very much a faraway outskirt of the city and surrounded by garbage dumping grounds and polluted creeks, the site, when seen today, presents an ordered grid of hierarchical streets and orthogonal plots containing a mix of income groups and dwelling types. Like the other LISP schemes, nearly 70 per cent of the plots are provided for the EWS and LIGs, with the MIG accounting for about 5 per cent and the remaining 25 per cent earmarked for the larger society plots.[33]

SITES-AND-SERVICES IN NAVI MUMBAI

More variations on the row house typology structured around open courtyards can also be found in other locations implemented under the BUDP such as in Thane and across the harbour in Kalyan and Navi Mumbai. In **Koparkhairane**, for example, we find again the pattern of square-shaped courtyards forming the heart of a typical cluster with not one but several access points. However, with an open drain arranged along the courtyard's perimeter, the project in Koparkhairane, in contrast to the scheme in Charkop, fails to generate the same sense of community and identity. As the eminent urban planner and one of the authors of the New Bombay plan, Shirish Patel points out:

> "The success of the Charkop scheme is in large part due to this apparently trivial design detail: blocking off each society from the next with a wall closing each arm of the T, each society is enclosed and has its own sense of identity. There is a single point of entry. Each is a community in which there is a clear sense of ownership of the enclosed common space they all share. A society of residents formed in an apartment block standing in the middle of a plot does not have nearly as strong a sense of common ownership of the open but disjointed compound spaces that surround its building."[34]

North of Koparkhairane, in the node of **Airoli** – a major commercial and residential hub – we find another variation of the sites-and-services scheme implemented by the BUDP. The Staff Appraisal Report of 1985 shows an isometric drawing of a proposed sector within Airoli. The scheme caters to a mix of four broad income groups or income brackets: Rs. 250-850 INR for the Economically Weaker Sections of Society (EWS); Rs. 850-1250 for Low-Income Groups (LIG); Rs. 1250-1800 for Middle-Income Groups (MIG); and Rs. 1800 for High-Income Groups (HIG).[35]

Like in the case of the schemes under the LISP built on the mainland of Mumbai, there was a pre-determined catalogue of dwelling types and sizes for each of these income groups: plots that measured between 21 to 28 square metres for the EWS, 40 square metres for the LIG, 60 square metres for the MIG, and 100 square metres for the HIG. The overall proportion, however, keeping true to the BUDP objectives of providing housing for the lower-income populations, heavily favouring the EWS category.

Out of the total 623 plots illustrated in this scheme for Airoli, nearly 80 per cent of the plots (492 plots) cater to the EWS; barely 1.5 per cent (8 plots) for the LIG; 7 per cent (46 plots) for the MIG and a bit more than 11 per cent (70 plots) for the HIG. In addition to these four income groups, plots of various sizes were also provided for four other categories: cooperative housing societies, commercial facilities, social facilities and industrial facilities.[36]

Another sketch in the report illustrates the three plot sizes and types designed for the EWS category: Plot Type A-1 is the most basic of these types and was aimed at income groups that earned a monthly household income between Rs. 250-350. The total plot size of this type measures roughly 3 metres by 7 metres but consists only of a raised plinth (of about 4.25 meters by 3 metres) and a wet core that comprises a water closet (WC) at the rear end of the plan. Plot Type A-2 is slightly wider and was planned for households with a monthly income of Rs. 350-

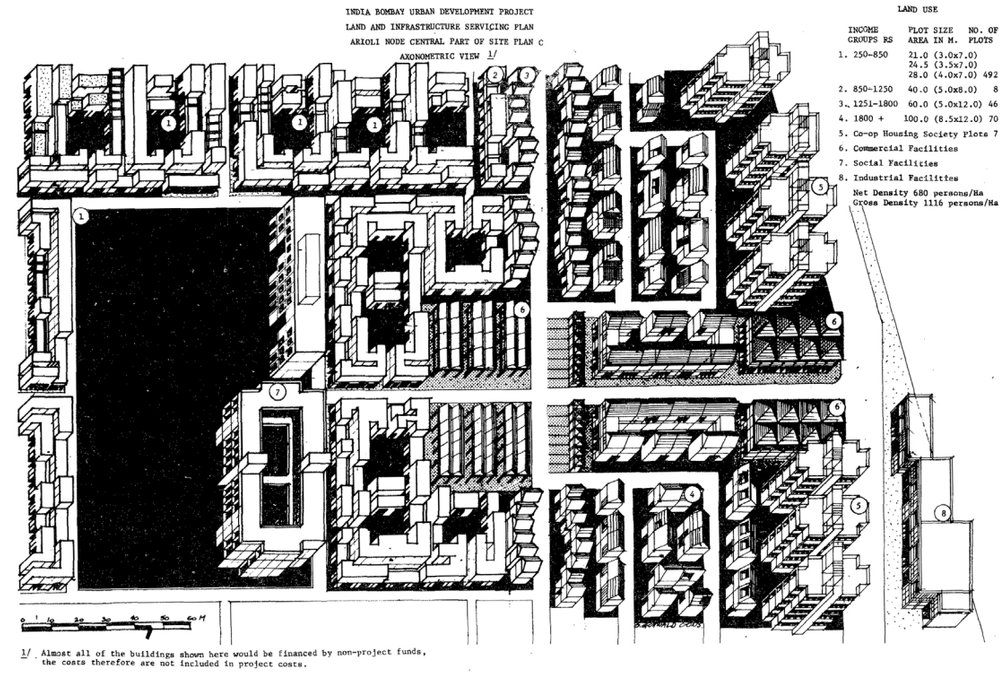


Fig. 17 Airoli's node contains a mix of income groups, including plots for social, industrial and commercial facilities.

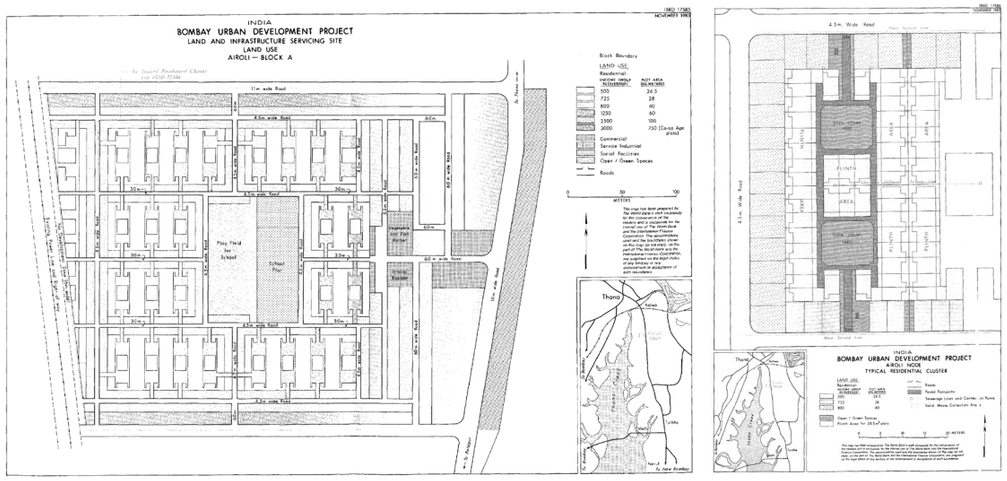


Fig. 18 Land use plan for a node in Airoli (left) with a typical residential cluster (right) where larger plots form the border and smaller plots dot the interior, arranged around open courts.

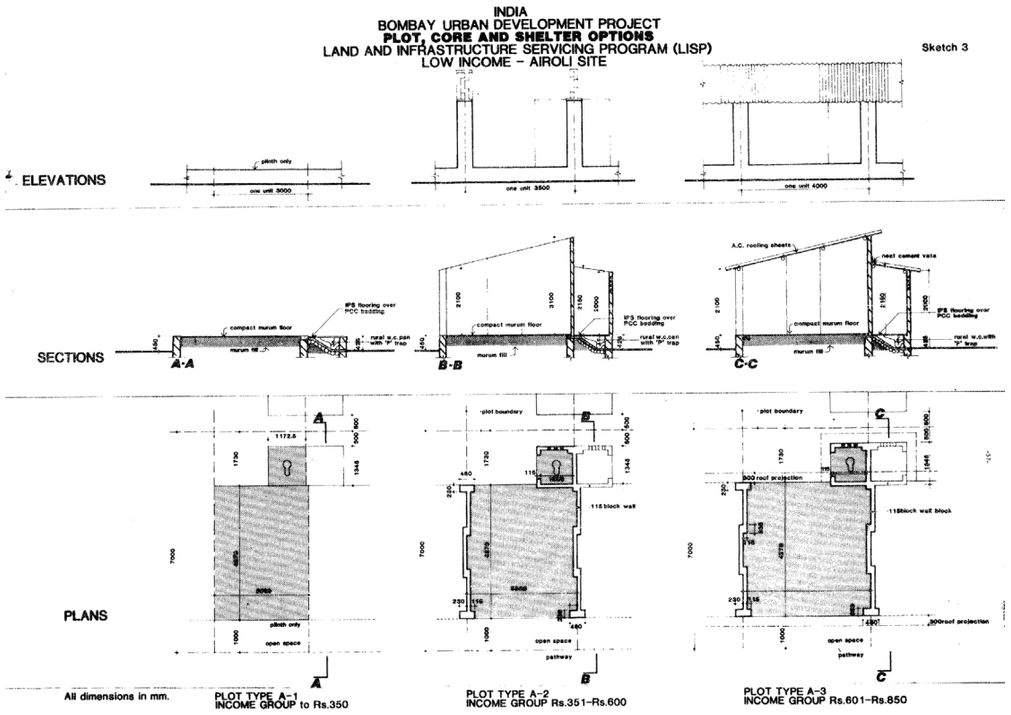


Fig. 19 Drawings from the World Bank report showing the three main plot, core and shelter options for low-income groups at Airoli.



Fig. 20 A recent photograph of the central open court at Airoli shows the changes over time, with basic one-storied dwellings growing to more substantial two-and-three storied townhouses. In several cases, houses also accommodate income-generating activities on the ground floors, leading to a mixed-use neighbourhood.

600. Measuring 7 metres by 3.5 metres overall, this type also came with a raised plinth (4,25 metres by 3.5 meters wide) and a wet core with a WC at the rear end of the plan. However, unlike its more basic version, this type was also delivered with brick walls but without a roof. The third and largest type for this category, Type A-3, was designed to cater to an income group where households earned anywhere between Rs. 600-850 per month.[37] With the widest footprint of the three types, the total plot size of Type A-3 measures about 7 metres by 4 metres and is provided as a 'complete' dwelling unit comprising of a raised plinth, wet core, brick walls and a corrugated metal roof.

Just as in the case of Charkop, in Airoli, one can register a high degree of growth and change and an improvement in the quality of life for its inhabitants. Alongside a broad mix of income groups and house types that, over the years, have only increased as a result of the high degree of incrementality and malleability embedded within the design of the schemes (and aided as well by the home extension loans provided by the LISP), projects such as Charkop, Gorai, Koparkhairane and Airoli reaffirm the importance of not only participatory planning processes in house construction but also of the crucial role design plays in developing mixed-use mixed-income neighbourhoods that can help create a sense of identity and community.

SMALLER EXPERIMENTS

A pioneer of incremental housing in the Indian context was the Mumbai-based Indian architect Charles Correa (1930-2015).[38] Like his contemporaries like Doshi, Correa was interested in affordable housing issues and people's role in building or co-creating their living environments. Starting with his early experiments in Ahmedabad, Correa would contribute to the famous PREVI experimental housing project in Lima, Peru. Here, Correa further fine-tuned the narrow-terraced house typology inspired by Christopher Alexander's and Serge Chermayeff's studies for the ideal American suburban home as published in their 1963 book *Community and Privacy,*[39] but responded to the competition mandate to develop designs for affordable dwellings in low-rise, high-density configurations that would allow for incremental growth.[40]

Although the PREVI project was not built entirely as planned, about thirteen units based on Correa's updated designs were built on a portion of the site that was planned by Peter Land and included schemes by local and international architects. Despite this reduced footprint, the collective space created between the units by means of its pattern of clustering became an essential element in Correa's work that followed. One of these is the design for Squatter Housing in Mumbai, which was designed for a number of sites in the city between 1973 and 1976 for a local NGO, the National Society for Clean Cities (NSCC). It is the simplest of all his designs and a precursor to several later commissions where, rather than the narrow house typology, we find a clear attempt to create various hierarchies of collective space through strategies for clustering units around courtyards of various configurations.

In this project, simple square one-room units, each of only 9 square meters, are connected in groups of four under one pyramidal roof. Each unit has a walled 9 square meters courtyard that serves as an outdoor living space, mediating between the private and collective spaces. The courtyard walls that encircle these outdoor spaces make it possible to connect the groupings of four units in larger clusters, creating fractal patterns, an element further developed into very complex structures in later projects.

Further iterations of the design show more complexity, including two-storied dwellings with unit and cluster plans that clearly demarcate the wet zones of each dwelling, clubbing them together to

achieve efficiency while, at the same time, allowing each dwelling to expand both horizontally and vertically over time. As compared to the more regular, urban rows of the PREVI project, this method of clustering is more reminiscent of the layout found in Indian villages with their shared open spaces and mark a fundamental shift in the work and thinking of Correa now more centred on designing simple dwellings that can grow and change over time.[41]

However, while the designs for Squatter Housing remained unbuilt, as did several other schemes from the same period, such as the courtyard-based HUDCO Housing project in Jodhpur (1986), Correa realised his principles for low-cost housing to the fullest in what is perhaps his most well-known plan for affordable housing: the 600-dwelling **Incremental Housing** project located at Belapur in Navi Mumbai (also known locally as the Artiste's Village; see again Chapter 2.3).

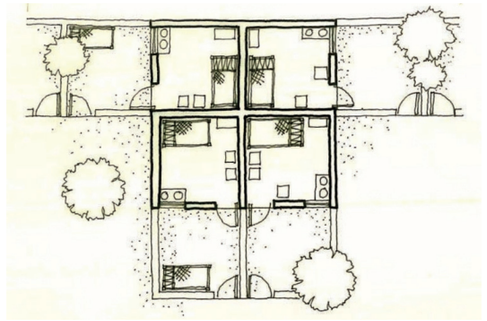


Fig. 21 A typical cluster consists of four identical units, each 3 × 3 metres of built space, with an equal amount of open-to-sky space.

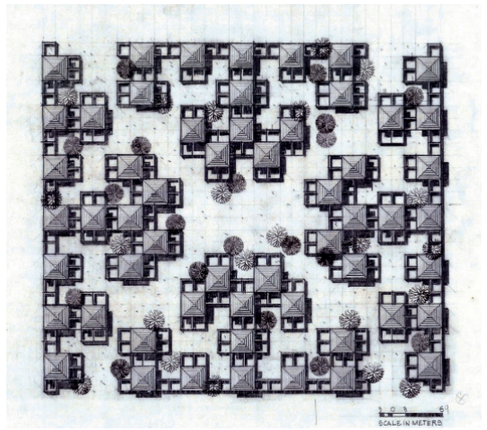


Fig. 22 Clusters of four units are arranged in a pattern of increasing hierarchies of open spaces.

Closer in spirit to the thinking of housing activists like Charles Abrams and John Turner than to those of Le Corbusier, Correa in Belapur argues for a more pluralistic approach to housing, one that could involve many different participants and many delivery systems. Designed and built between 1983 and 1986, the Belapur project critiques the self-help and sites-and-services appraoch that combines all the themes explored in his earlier works and is a built manifestation of his ideas on low-cost housing articulated in his seminal 1985 book *The New Landscape: Urbanisation in the Third World.*

Although far smaller in scale compared to the World Bank-sponsored sites-and-services projects in Charkop and Airoli, the Belapur project is characterised by a broader range of options for housing sizes and types that, at the smallest scale, is characterised by five dwelling types ranging from single-room huts measuring just 17 square meters to

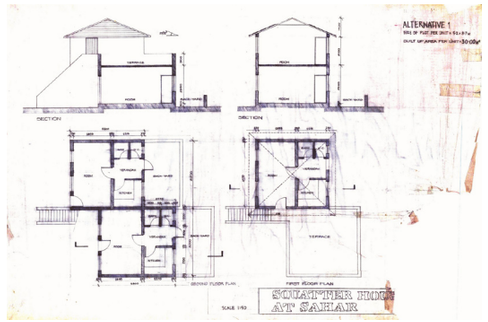


Fig. 23 An alternated option consisted of simple square-shaped two-storied units with backyards and terraces.

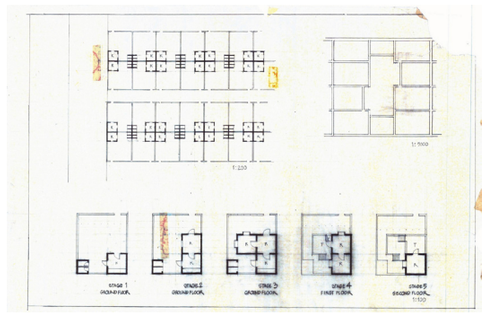


Fig. 24 Another option shows a basic core that can grow to a three-room dwelling by "Stage 5".

two-storey townhouses up to 75 square metres – all simple brick and tiled roof constructions that local masons and contractors could easily build with minimal expertise and supervision. Seven of these dwellings come together in the following scale to form a cluster grouped around a courtyard that measures 8 by 8 meters. Roughly four of these clusters are then mirrored, rotated and repeated to create the following scale, which creates a cluster that measures 48 by 48 metres and contains approximately 24 dwellings. Through this clustering system, Correa creates complex fractal patterns at the scale of the urban layout that, at the largest scale, forms a neighbourhood for 600 families on a roughly six-hectare site, complete with providing schools, open spaces and other amenities.[42]

A remarkable aspect of the project is that despite catering to a wide range of income groups (from low-income to middle and upper-income families), Correa introduced his concept of 'equity plots' within this project. Thus, even though the house sizes varied considerably (roughly a ratio of 1:5), in Belapur, the plot size differential is much smaller, with the smallest plot measuring 37 square meters and the largest about 78 square meters (a ratio of 1:2). This ensures that even the poorest families are given the possibility to expand their homes over time as their needs and income capabilities expand. Moreover, rather than segregate different income groups in zones or distinct sectors across the site as in the case of both Charkop and Airoli, Correa's cluster formations produce a seamless mix of house types and income groups – a vastly more equitable approach than the segregated income-based colonies typical of most public housing schemes, including the sites-and-services models of the BUDP in Mumbai and the early experiments to provide low-cost housing in Chandigarh.

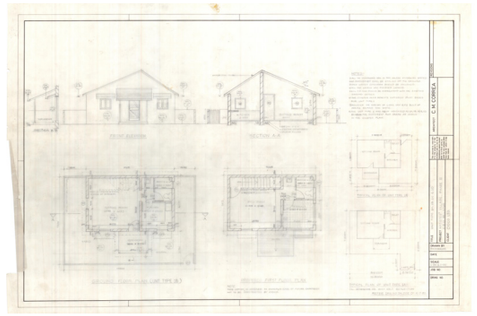


Fig. 25 Working drawing showing the plans and sections of Unit Types 1A, 1B, 1C and 1D. Each house sits in its own plot with open space that allows for further expansions over time.

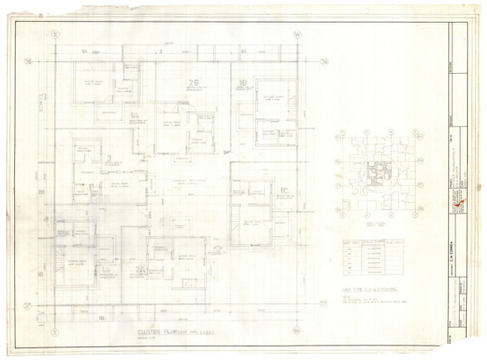


Fig. 26 Working drawing showing the layout of a cluster that contains 7 dwellings composed of 3 distinct types.

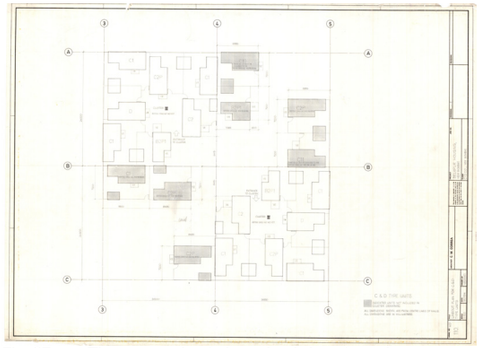


Fig. 27 The next scale of clustering brings four clusters together in a square grid that measures roughly 48 x 48 metres and approximately 24 dwellings.

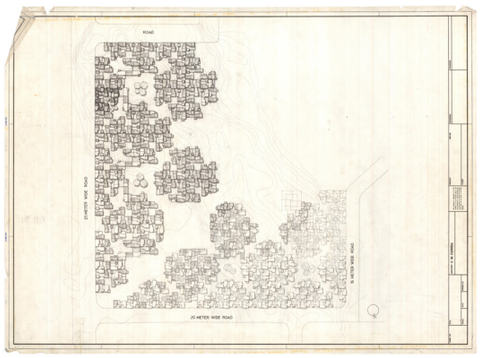


Fig. 28 At the largest scale, fractals of square-shaped clusters create hierarchies of open-to-sky spaces.

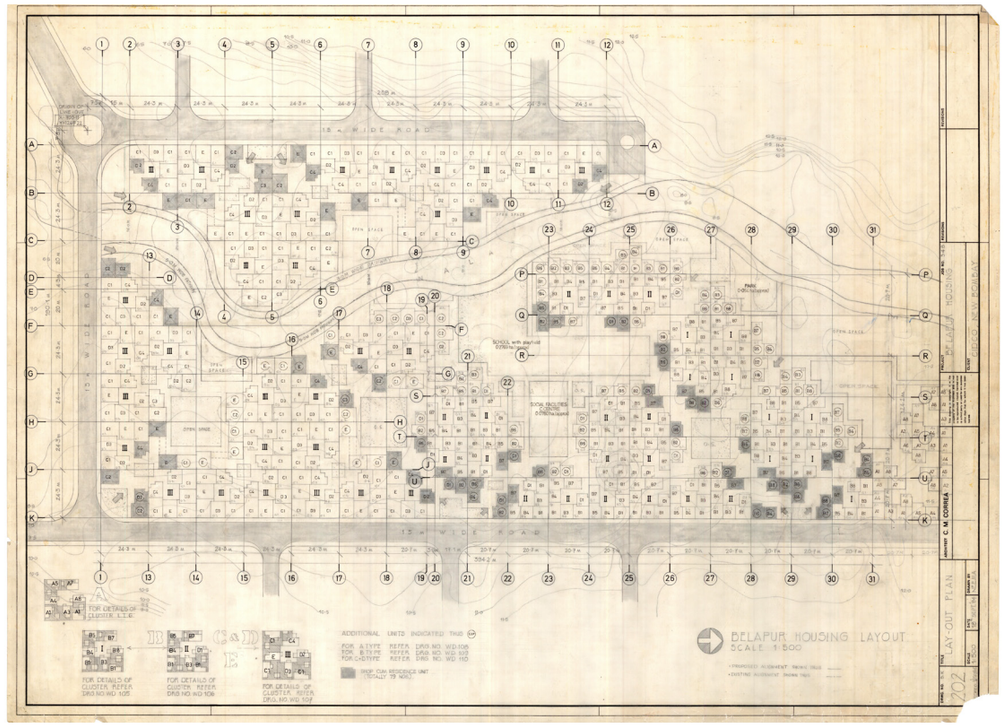


Fig. 29 Master plan for Belapur including key plans for the main clusters. Notice the seamless shift in the grid at 20-G where the 24.3 × 24.3 grid (with larger plots) moves to the 20.7 × 20.7-metre grid (with smaller plots).

A valuable archival source to further understand this project can be found in a brochure prepared by CIDCO in 1985. Titled *Own Your House Scheme '85*, the brochure outlines the overall features of the project, from its masterplan to the designs of the individual units themselves, illustrating not just their sizes and costs but also specifying their materials and finishes. Interestingly, alongside provisions for "additions and alterations", the project also encouraged future residents to "choose your neighbour" and "choose your own door design", which further facilitated a sense of community, ownership as well as choice in shaping their own dwelling environments.[43]

CONCLUSION

Under the BUDP's LISP scheme for sites-and-services, nearly one hundred thousand low-to-middle income households were provided with serviced plots and core houses that have grown and changed over time to become fully-functioning neighbourhoods complete with spaces for income generation and social amenities. Financially, the LISP also met its goals of providing low-income housing while ensuring full cost recovery by deploying loans and cross-subsidisation. However, while the LISP remains one of the very few programmes to have successfully met its targets, it is essential to keep in mind that the programme did suffer from delays (for a variety of reasons linked to both internal and external factors) and took a total of nine years as opposed to five years as first stipulated at the appraisal in 1985.[44]

Nevertheless, schemes such as the BUDP and experiments like the one in Belapur remain noteworthy for several reasons. First, unlike typical state-led "conventional" housing programmes that focus on delivering the maximum number of homes at the cheapest costs that tend to result in over-determinism and poorer standards of housing, sites-and-services schemes in Mumbai have managed to avoid the usual binary opposition of profit versus people.[45] Thus, while the designs of the schemes, both at the scale of the masterplan and the individual dwelling unit, are designed for maximum efficiency, the

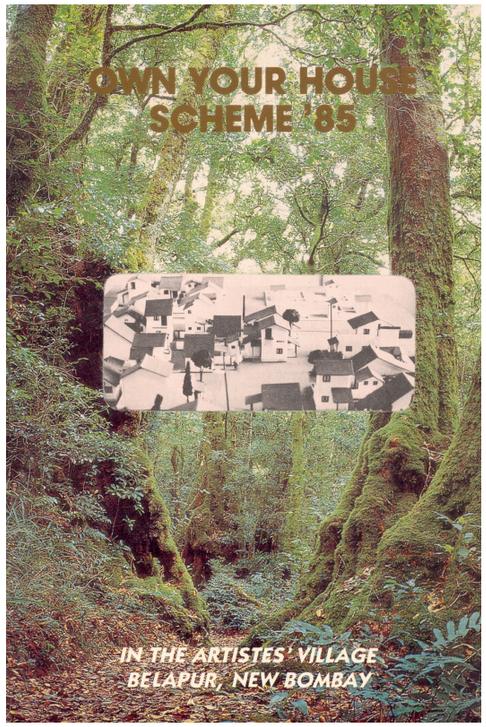


Fig. 30 Cover of the brochure prepared by CIDCO that outlines Correa's plan for housing in Belapur.

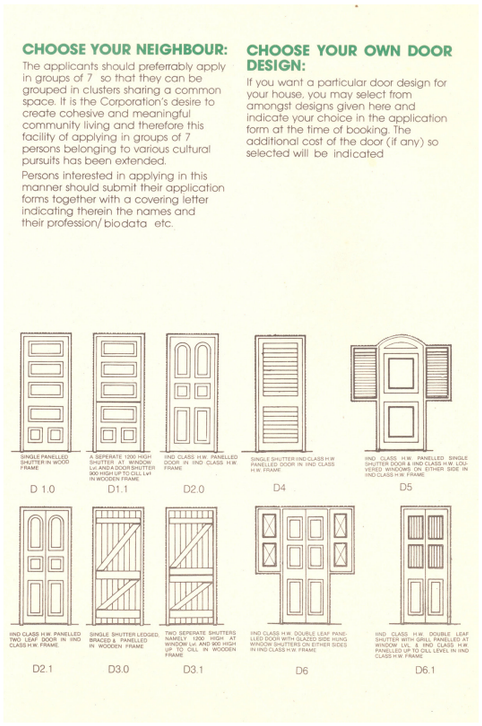


Fig. 31 Extract from the brochure 'Own Your House Scheme '85' that describes the options available for potential customers, including choosing one's own neighbour as well as choice for doors.

malleability at the scale of the dwelling units' has helped impart a sense of identity and diversity typically missing in most mass housing schemes.[46] As argued elsewhere, the sites-and-services mode in Mumbai presents us with cases that balance what Jan Bredenoord & others term "efficiency versus resilience."[47]

The various cases discussed in this chapter also attest to the importance of design decision-making across scales, from the dwelling to the cluster and further to the layout of streets and open spaces at the scale of the overall master plan. Looking at their physical form and performance over time, the various cases described in this chapter demonstrate the degrees of incremental growth and change one can discern in self-help and sites-and-services schemes, describing both similarities and differences in the process.

Common to all cases under the aided self-help or sites-and-services approach is the need to plan the unbuilt spaces – the urban design – including infrastructural provision such as roads, services, and utilities from the very beginning of the project. Even though these approaches do not work on brownfield sites or where squatter settlements already exist, but rather on open, greenfield sites that are typically located at the peripheries of large urban centres, in Mumbai, as these cases demonstrate, show that over 20 to 30 years, these once far-away locations can be fully integrated and absorbed within the social and economic network of the city.

Moreover, due to their managerial models that stipulate a mix of income groups, dwelling types and sizes, each scheme has led to a rich fabric of mixed-use, mixed-income neighbourhoods that break entirely away from the cookie-cutter approach of conventional mass housing schemes.

However, on closer inspection, the cases also illustrate essential differences that help point to design factors that affect development over time. A critical factor – and perhaps the most crucial – is the project's proximity to job centres and modes of public transport that determines the degree of social and economic activity on the site. For example,



Fig. 32 Sites-and-services in Airoli. Along the edges of a typical cluster are lined larger plots.



Fig. 33 A typical street in Airoli with row houses approached via small *otla's* at the front of the house.



Fig. 34 Photograph of a cluster taken in the late 1980s soon after the project was built.



Fig. 35 Photograph from 2022 showing the same cluster showing that the open spaces remain intact.

although the schemes produced under the BUDP are all prescribed to achieve a similar density as the one explored in Belapur (roughly 100 dwellings per hectare), there is a discernible difference between the two. The crucial difference is that Belapur, located away from a major node of public transport and income generation, has developed as a quiet residential neighbourhood over the last forty years. In contrast, in the cases of the BUDP's schemes – which are of similar age – their strict planning norms that necessitated proximity to transport lines have led to a higher concentration of growth and change and introduce shops, commercial establishments and other income-generating activities.

The second factor concerns the sizes of the sites themselves. Bigger plot sizes, as in Correa's scheme at Belapur, range between 37 and 78 square metres for both low and middle-income groups. These are considerably larger than the sizes one can find in the schemes at Charkop, Airoli, and Versova, where the typical cluster designed for incremental growth varies between 25 and 40 square metres for low and middle-income groups. This generosity in plot sizes creates possibilities for cheaper incremental growth through horizontal expansion that is rooted in the idea that each house is, in fact, a free-standing house that sits on its own plot. This arrangement of clusters has enabled, over time, each family to expand and colonise their own home in myriad ways that lead to a visually rich and diverse built fabric that varies from modestly-sized two-floor houses to more substantial town houses and walk-up apartment blocks.

On the other hand, in the BUDP schemes, the limitations of open space and small plot sizes have meant that inhabitants have expanded their homes vertically, leading to narrow and tall townhouses emerging as the dominant house type.

Thus, what becomes clear from all these cases is that the evaluation of sites and services schemes, or aided self-help housing in general, needs to take into account not just matters of land tenure and finance but also several design factors that play a crucial role in determining the success or failures of such schemes. However, the common feature in all these projects is that with the architecture programmed to be morphed by people over time, it is not the architecture, but rather the unbuilt – in other words, urban design – that prevails and generates community.

■

SLUM IMPROVEMENT & UPGRADATION



Fig. 1 Photograph from 1897 showing flushing engines disinfecting houses where cases of the deadly Bubonic plague had been detected.

"The wonder is not that the death rate is exceedingly high, the infant mortality terrible and plague so prevalent, but that so many human beings manage to exist at all, and that the ravages of disease and pestilence are not far greater. In many quarters the houses are jammed so closely together that free circulation of air is prevented, the sun can barely get lower down than the roofs and the atmosphere is thick with foul odours. There are no proper roads, only narrow tortuous lanes and passages and horrible gullies and the older houses have generally been built without any regard to light and air."

G Owen Dunn, Chairman of the Bombay Improvement Trust, 1905

By the end of the nineteenth century, Mumbai's shift from a trading centre to a thriving industrial port city had been confirmed. Over just two decades, the city became home to nearly a hundred new spinning and weaving mills, growing from 42 in 1880 to 136 by 1990.[1] Alongside the growth of the cotton and weaving industries also came the setting up of several new industries that would change the face of the city. But as Mumbai grew into a major manufacturing centre, so did its population. In 1872, the city's population stood at about 644,405 people. By 1891, it had ballooned to 821,764 people – an increase of nearly 20 per cent.[2] Most of this population growth was due to waves of poor peasants who came from the drought-ridden districts of rural Maharashtra to work in the city's new textile mills and docks. Settling mainly in native precincts north of the Esplanade in areas such as Girangaon, Naigaum, Sewri, Worli and Parel, it soon became apparent that with the exception of Ward A in south Mumbai (which housed the majority of the city's institutions, businesses and employment centres), much of the growth in other wards, particularly Ward B, C and E was unplanned, overcrowded and lacking even the most basic of city services such as water supply, drainage and sanitation.

On a visit to Mumbai in 1896, the famed American author Mark Twain remarked:

> "Everywhere on the ground lay sleeping natives – hundreds and hundreds. They lay stretched at full length and tightly wrapped in blankets, heads and all. Their attitude and rigidity counterfeited death."[3]

These unsanitary living conditions eventually led to the outbreak and spread of the bubonic plague that was first detected in September 1896 in the crowded Mandvi locality of Ward B. Triggered by the high mortality rate that resulted in a fast decline in the city's population and productivity, the plague attracted much attention from both the colonial government as well as the general public to the abysmal living conditions in the native quarters north of the Esplanade that were perceived to be the primary cause for the spread of the epidemic in the city.[4] Jolted into taking serious action to counteract and improve the living conditions for the working class – a vast majority of whom lived in dense one-room dwellings – the plague quickly led to the formulation of the Bombay City Improvement Trust (BIT) that was established on 9 November 1898 under the City of Bombay Improvement Act (Bombay Act IV of 1898).

In the coming decades, to bring "order" to the city and create a "healthier city"[5], the BIT undertook a wide array of improvement schemes that modelled itself on the Glasgow Improvement Trust, adopting many of its ideologies and modes of intervention. As a tool for governance and planning, the BIT developed a three-pronged strategy for Mumbai's housing woes. Firstly, it implemented a series of "street schemes" that involved restructuring dense inner-city areas and creating new streets for better light, ventilation, and connections between different parts of the city. Secondly, and often due to the "street schemes", it undertook "improvement schemes" that involved razing unsanitary tenements and resettling displaced people to newer housing blocks built on modern, sanitary lines. And thirdly, it extended the concept of "street schemes" to encourage the suburbanisation of the city through "town planning schemes" that necessitated land reclamation and land acquisition to create new suburbs that could help absorb some of the growing city's population.[6]

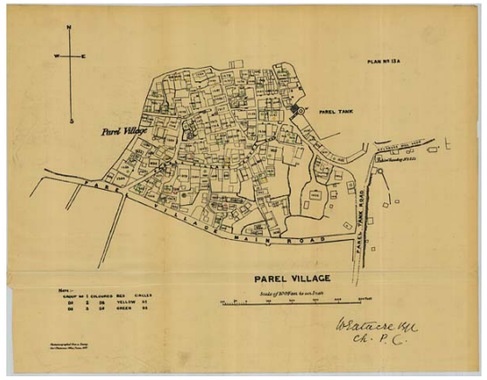


Fig. 2 Map from 1897 showing the layout of Parel Village and indicating (with colour) houses where cases of the bubonic plague had been detected. Several such surveys were conducted by the Colonial Bombay government in the immediate aftermath of the outbreak of the plague that triggered the formation of the BIT in 1898.

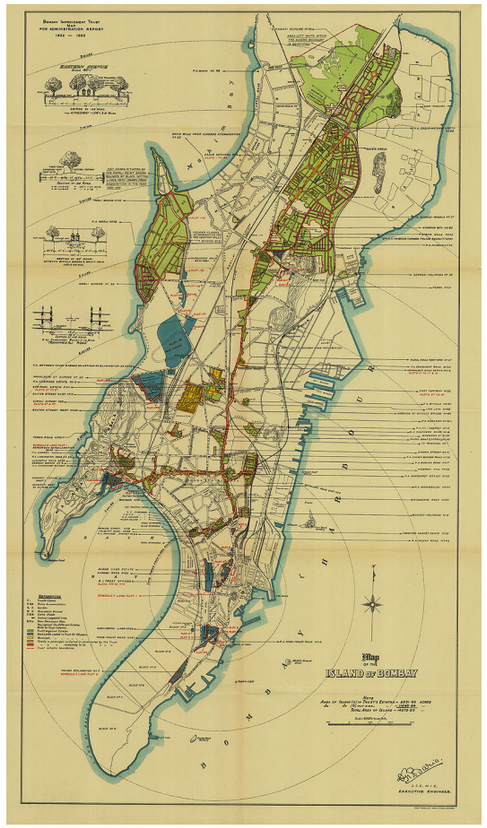


Fig. 3 Map from 1933 showing in green various schemes – both street and improvement schemes – implemented by the BIT.

While the first two modes come under what came to be known as "direct attacks" on the existing built fabric, the last mode came to be known as a form of "indirect attack".[7] This chapter delves into the evolution of "direct attacks", particularly the first mode of improving the living conditions within existing settlements through largely infrastructural improvements such as widening streets, creating new avenues, improving sanitary facilities and providing amenities. By charting the development of this approach from its early beginnings with the establishment of the BIT in 1898 to more contemporary schemes such as the World Bank's Slum Sanitation Program (SSP) implemented nearly a hundred years later, this chapter registers the shift from neighbourhood-level planning to the provision of prototypical solutions such as the building of toilet blocks in slum areas.

STREET SCHEMES: THE BOMBAY CITY IMPROVEMENT TRUST (BIT)

Backed by financial support from the government and the Bombay Municipal Corporation (BMC) and vested with land from both entities, the BIT came into power with legislation that ensured swift action, speedy approvals and defined time limits for executing schemes. Starting in 1899, the BIT embarked on a series of 'direct attacks" on the city's unsanitary precincts that dramatically altered the physical fabric of Mumbai's dense inner-city precincts.[8]

The first of these schemes was the Nagpada Improvement Scheme (Scheme 1), implemented in 1899, which aimed to restructure an area home to about 11,000 people by de-congesting the precinct by introducing new wide roads and rebuilding housing tenements on a site nearby in Agripada (further elaborated in Chapter 3.6). Completed in just three and a half years, the Nagpada scheme set the template for the Trust's future actions for restructuring dense, unsanitary precincts by introducing new roads and arteries and schemes that resettled existing populations in new, sanitary housing.

Soon after, the BIT implemented one of its largest street schemes between 1901 and 1905, the Princess Street Scheme (Scheme No. 2). Extending from Queen's Road to Carnac Bridge, the Princess Street Scheme (named after the Princess of Wales, who presided over its opening along with the Prince of Wales on 10 November 1905) comprised of building a large new east-west thoroughfare that would not only help funnel fresh sea breezes into the formerly dense and unsanitary precinct but would also help create a new urban image along these broad new avenues through the building of new structures as per new regulations.

The Princess Street Scheme would go on to serve as a model for future development. Originally planned to be only forty feet wide, the new east-west thoroughfare was subsequently constructed to be 80 feet wide on the government's recommendations. Building heights were strictly restricted along this new road based on the street width and the distance between two buildings. A 1928 report of the BIT states the following about the scheme:

> "The layout of the Princess Street Estate and building rules relating thereto were sanctioned by the Board in 1905. The material part of the rule relating to the height of the main building was as follows: The height of the main building shall not exceed the distance of the front or nearest external wall of such building from the opposite side of the street or 65 feet whichever is less."[9]

Adjacent to Princess Street is located the remnants of another improvement scheme, the Kolbhatwadi Improvement Scheme (Scheme No. 54). This scheme is centred around the restructuring of a roughly one-and-a-half-hectare trapezoidal block bound by four streets: Princess Street on the north, Kalbadevi Road on the east, Girgaum Road (now Jaganath Shankar Seth Road) on the west and Jambul Wadi on the south. Consisting of a mix of privately built chawls, brick and tiled roof commercial and dwelling buildings of various sizes and compositions, the block also accommodates a theatre, Edward Cinema, on its eastern edge.

Drawings found in the Maharashtra State Archives show clearly the strategy to restructure and improve the living conditions of this block. In the drawing of the existing settlement, the survey prepared by the BIT enumerates all built structures and the many narrow streets and alleyways that service them. In the proposed plan, one can trace the improvements made by restructuring streets, buildings and open spaces. Apart from a few structures that are left standing, most of the buildings were torn down and re-arranged to create more adequate setbacks and openings between buildings for light and air. Two key interventions remain visible even today: a row of T-shaped buildings facing

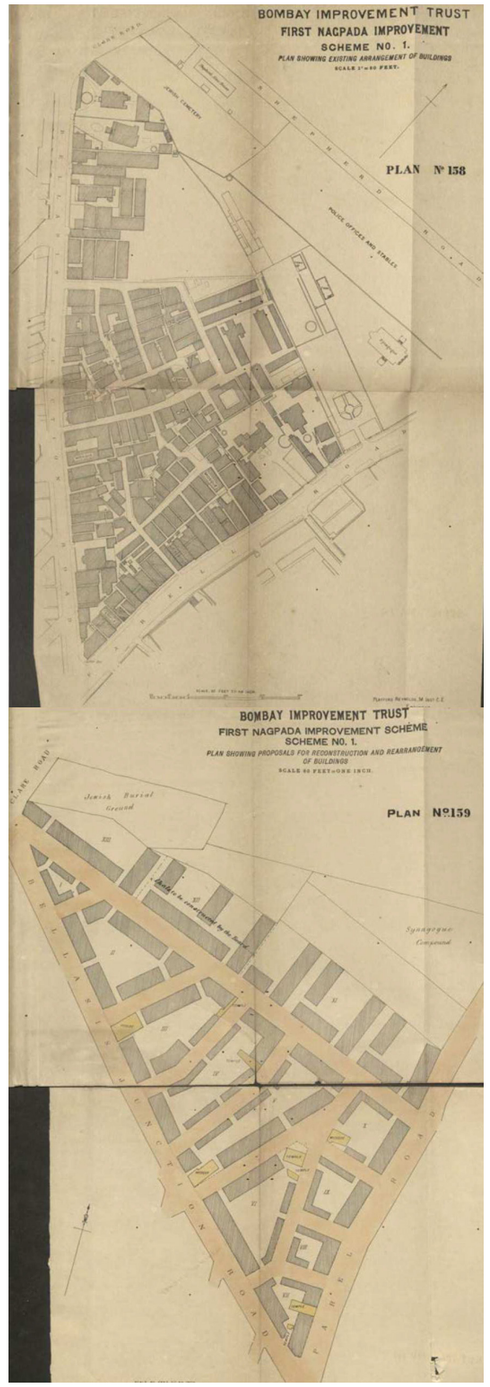


Fig. 4 Maps from 1899 showing the layout for the First Nagpada Improvement Scheme, where orderly blocks around courtyards replace overcrowded houses.

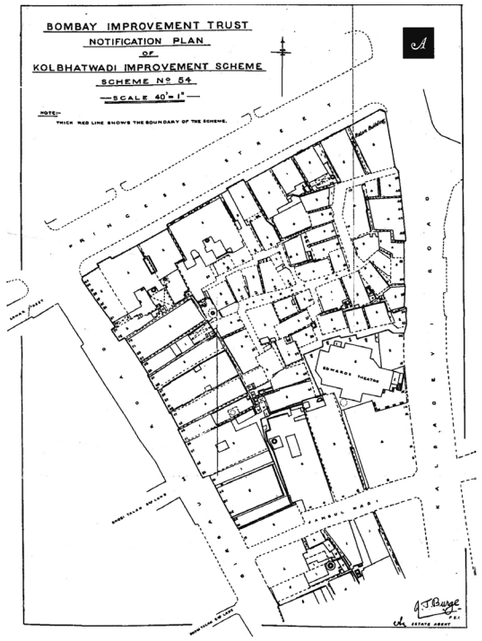


Fig. 5 Map prepared by the BIT showing the original layout of structures before the implementation of the Kolbhatwadi Improvement Scheme.

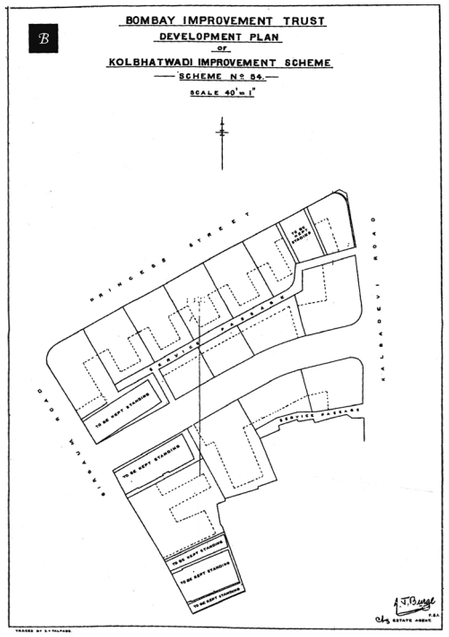


Fig. 6 Map prepared by the BIT showing the re-arrangement of streets and buildings after the implementation of the Kolbhatwadi Street Scheme.

Princess Street on the north and a "service passage" connecting a strip of buildings to a new east-west street (now known as Bomanji Master Lane).

Similar forms of intervention, including the building of new structures that helped visually build a clear urban image for the city, can also be seen in other street schemes, such as the Sandhurst Road Scheme (Scheme No. 3; 1909), which was designed to "clear out considerable portions of the overbuilt and unsanitary areas in Kumbarwada, Umarkhadi, Mahomedkhan Pakadi, Old Nagpada and Nawroji Hill" to "give clear passage to the air from Back Bay to the Elphinstone Bridge."[10] Comparable exercises that used the language of sanitisation to justify slum clearance and restructuring of existing settlements are also evident in schemes such as the Mandvi-Koliwada Improvement Scheme (Scheme No. 20; 1910) that tackled the area "where the Plague was first detected and where it has persistently remained ever since."[11] With an area of approximately 3 hectares initially earmarked for demolition and improvement, the scheme by 1906 was implemented on a reduced scale following disagreements with residents and landlords but entailed widening streets and constructing new buildings on sanitary principles.

FROM IMPROVEMENT SCHEMES TO TOWN PLANNING SCHEMES

From the BIT's very inception in 1898, its mandate of "making new streets, opening out crowded localities, reclaiming lands from the sea to provide room for the expansion of the city, and the construction of sanitary dwellings for the poor"[12] was not welcomed by all. Over the course of its operational years, that the work of the BIT remained highly contested, facing criticism and challenges in executing its aims and objectives. One of the primary reasons for this – and a recurring issue that will be reiterated throughout this chapter – was Mumbai's complex land and ownership patterns, which complicated neighbourhood transformations because of the piecemeal arrangement of private, government and municipal lands. Thus, as the BIT envisaged clearing vast tracts of land to create new throughways and major roads for better light, ventilation and physical connections, the ground realities of slum clearance and improvement works proved far more complex and expensive than initially planned.

Other hurdles also came from administrative disputes between the three powers in the city at the time: the BIT, the colonial Bombay Government

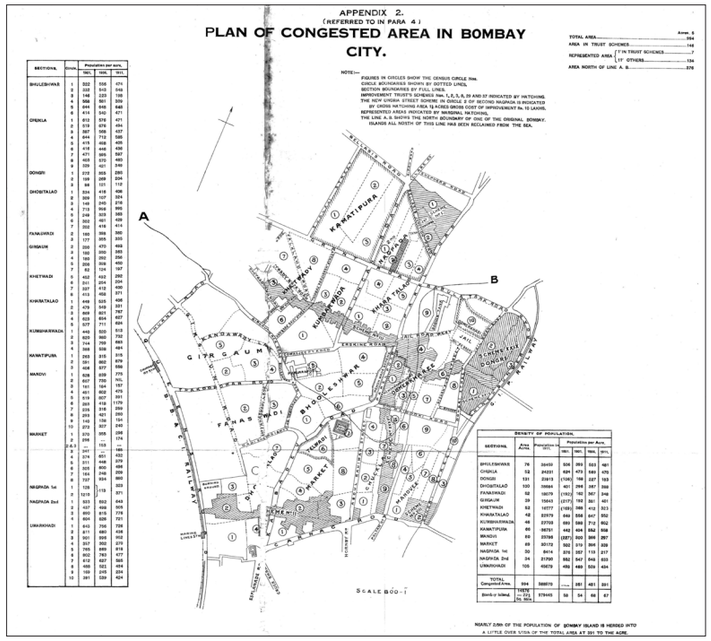


Fig. 7 Map prepared by the BIT showing congested areas with slum-like conditions in inner city areas such as Nagpada and Kumbarwada.

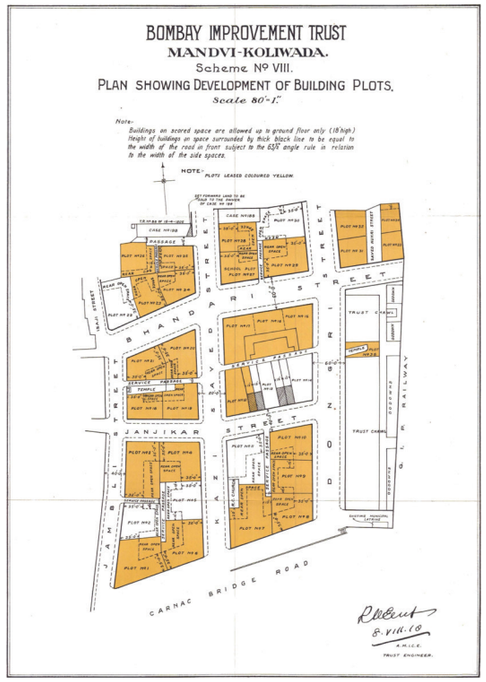


Fig. 8 Map of the Mandvi-Kolwada scheme showing buildings subject to height and setback restrictions.

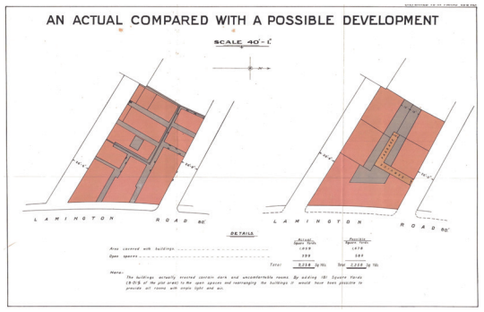


Fig. 9 Map prepared by the BIT showing the re-arrangement of streets and buildings after the implementation of the Lamington Road Scheme.

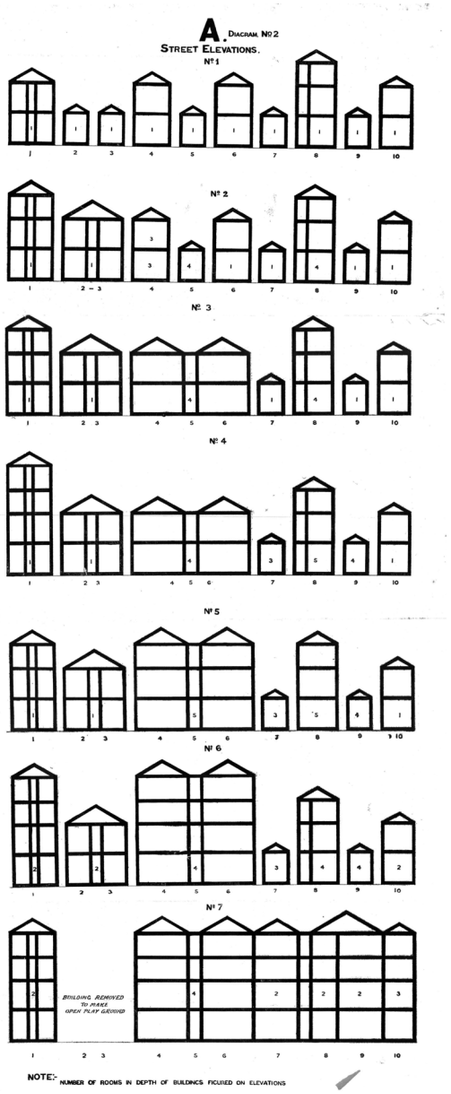


Fig. 10 Diagrams prepared around 1915 showing the various stages of development post the introduction of the BIT's bye-laws.

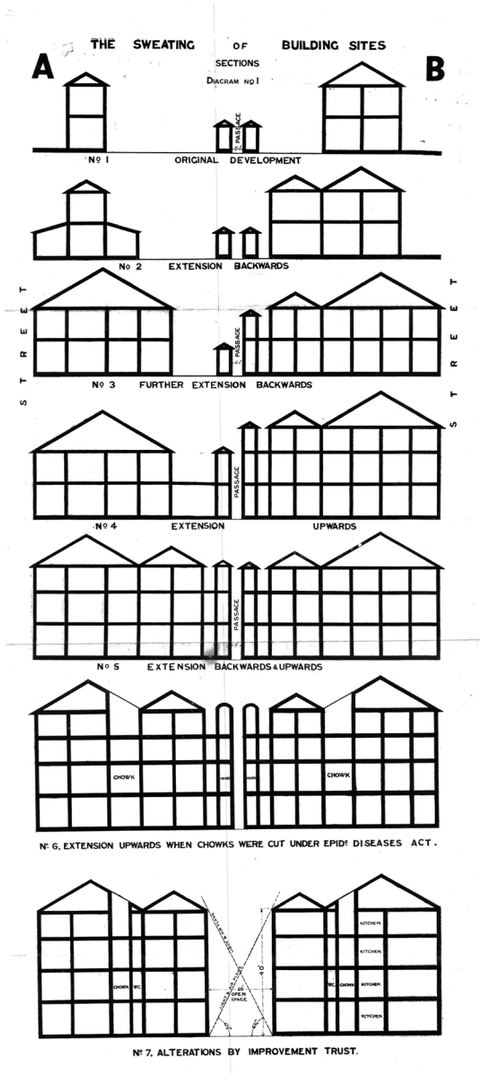


Fig. 11 Diagrams describing the various stages of development and the impact of BIT's 63.5 degree rule.

and the BMC, each of whom had vested interests, different areas of jurisdiction, influence and budgets for various kinds of improvement and developmental works. But perhaps the most valid criticisms came from assessing the physical performance of the BIT, which, by the end of its first decade of operations, had mainly proved incapable of effectively reducing overcrowding and improving health in Mumbai's dense inner-city areas. In a report from 1905, the *Bombay Gazette* claimed that the Trust's schemes seemed to have done little to prevent periodic outbreaks of the plague, reduce the death toll, or, for that matter, result in any improvement to the spread of other diseases such as malaria and smallpox.[13]

Critics of the BIT also rightfully claimed that several of its flagship improvement schemes, such as the Princess Street Scheme and Sandhurst Road Scheme, were built mainly to facilitate the interests of the elite at the cost of the poor working class as they necessitated the clearance of slum-like areas that were not matched equally by the construction of new, modern chawls that could resettle displaced residents (see Section 3.6 for further elaboration of resettlement schemes undertaken by the BIT). As several scholars have pointed out, rather than improve the living conditions for the poorest sections of society – a vast majority of whom were low-paid daily wage workers – the operations of the BIT inadvertently further exacerbated the housing crisis in early twentieth-century Mumbai by dis-housing and forcing the labour class to find housing accommodation even worse than before.[14]

Moreover, the enforcement of the Epidemic Diseases Act resulted in the demolition of several rooms from the middle of insanitary dwellings to build *chowks* (narrow passages) for improved light and air reality that eventually led to higher rents across the city as a result of reduced housing stock. This drawback is even noted by Orr, who, in a lecture, stated:

> "Unfortunately, the dishousing it involved combined with dishousing under the Trust's operations led not as some had hoped to a movement of population to the comparatively open areas on the outskirts of the City proper, but to the overcrowding of the houses in the very slums the Municipal Commissioner was seeking to improve and just outside the areas the Trust were clearing of slums."[15]

By the 1910s, the limitations and failures of the BIT's slum clearance and "improvement schemes" prompted a greater investment in executing city-extension schemes and the government, reincarnating its efforts as the Bombay Development Directorate (BDD) from the 1920s. This, too, would not remain in operation for very long (see again Chapter 3.2). By 1933, due to municipal reforms and the so-called "misadventures"[16] of the BDD, the BIT was finally dissolved and absorbed into the BMC, with the Corporation now broadly heading the planning works of the growing city.

POST-INDEPENDENCE INTERVENTIONS: DENIAL & DEMOLITION

It is important to note that the first major waves of urbanisation in a newly Independent India coincided with the country's drive towards modernity. Thus, as Mumbai grew in importance as a booming industrial and port city, its ever-increasing migrant population rapidly took shelter in the city's growing informal settlements, challenging local authorities and housing boards to effectively and adequately house the city's burgeoning population. Mirroring what happened in many other cities across the globe at the time, Mumbai's authorities in these early years following independence from British rule were quick to label slums as "illegal" squatter colonies and embarked on ambitious schemes to build affordable housing, particularly for low-income government employees.

However, as well-intentioned as many of these schemes were, the net result of many of these projects, as in the case of the performance of the BIT during the preceding colonial era, led to a total net loss of housing units that only further exacerbated the housing shortage.[17] Nevertheless, this 'provider' paradigm, along with slum clearance, remained the dominant mode in Mumbai's development in this period for two simple yet practical reasons. First of all, many of these early mass housing schemes and slum clearance drives were driven by the motivation to project the image of Mumbai as a modern metropolis where newly built modern housing replaced the poor, substandard living conditions of slums. The second reason, unsurprisingly, had to do with recycling prime real estate that could be used for purposes other than squatter colonies or low-income housing.

To facilitate the ease of clearing existing slum dwellers, the BMC Act of 1954 was amended with



Fig. 12 Since income generation is the primary need, many squatters can be found located close to modes of public transport.

section 354A, which made clearance and forced evictions legally possible. This attitude of the government was soon formalised as the Slum Areas (Improvement and Clearance) Act of 1956, which granted a competent authority to declare an area to be deemed a 'slum' if it met the following requirements:

> "(a) are in any respect unfit for human habitation; or (b) are by reason of dilapidation, overcrowding, faulty arrangement and design of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light or sanitation facilities, or any combination of these factors, are detrimental to safety, health or morals, it may, by notification in the Official Gazette, declare such area to be a slum area."[18]

The Act further declares in Section 10, sub-section 4 the following:

> "When a slum clearance order has become operative, the owners of buildings to which the order applies shall demolish the buildings before the expiration of six weeks from the date on which the buildings are required by the order to be vacated or before the expiration of such longer period as in the circumstances of the case the competent authority may deem reasonable."[19]

However, while the act gave the state the power to declare an area a slum based on its surveys and the right to demolish and evict existing slum dwellers, it did not, in these early post-independence years, clarify any concrete resettlement or rehabilitation packages for the evicted populations with only a few projects resettling evicted slum dwellers in alternate accommodation on the outskirts of the city. Thus, rather than solving the "problem", early slum clearance measures – much like the earlier attempts by the BIT to clear slum areas – often only resulted in moving the problem elsewhere. Sundar Burra, for example, has pointed out that in the absence of any laws or policies that ensured the adequate rehabilitation of existing slum dwellers, slum demolition drives typically failed to achieve their core aims, as people would often rebuild their homes and settlements in the same area or move to a locality close by rather than lose access to their sources of employment.[20]

Moreover, it was also found that local authorities, as well as housing boards, could not monitor all their lands and keep them free from encroachment. In fact, as Amita Bhide and others have also claimed, there also exists a larger systematic problem of lack of transparency and accountability that enables government officials to collude with slum dwellers, which allows for encroachments to take place in exchange for bribes and other forms of harassment.[21]

Thus, by the end of the 1960s, there was a general feeling – not just in Mumbai but worldwide – that the modernist project to build adequate numbers of affordable dwellings for the masses often fell short of their own targets and further aggravated the housing shortage. In such a context with increasing feelings of disillusionment amongst people and civil society on the capacity of local authorities and housing boards to address housing shortages, a new form of thinking and intervening began to emerge by the start of the 1970s. In line with international trends at the time that built on ideas of "self-help" that were championed by housing experts and activists such as Charles Abrams and John Turner, and partly because of a lack of funds, the policy focus in Mumbai moved towards improving environmental conditions within existing slum settlements. Thus, rather than treat slums as illegal squatter colonies as it did in the 1950s and 1960s, the official approach towards slums by the 1970s began to view self-built settlements as "housing solutions" that triggered changes in legislation and policies that aimed to improve existing settlements through the provision of basic infrastructure, civic amenities and in some cases, the security of tenure.[22]

ACKNOWLEDGEMENT & IMPROVEMENT: THE SLUM IMPROVEMENT PROGRAM (SIP)

To address Mumbai's growing housing shortage and to improve the living standards within dense inner-city areas and slums, the Government of Maharashtra introduced the Slum Improvement Program (SIP) of 1971. The fundamental tenets of this programme, introduced in 1971 and revised in 1973, "formally supplemented its informal practice of tolerating slums"[23] with an approach that provided and improved basic infrastructure (water supply, toilets, drainage and street lighting) and amenities in informal settlements. The Slum Areas Act of 1971, under which this programme was formulated, stated the following:

> "The improvement works may consist of all or any of the following: (a) laying of water mains, sewers and stormwater drains; (b) provision of urinals, latrines, community baths, and water taps; (c) widening, realigning or paving of existing roads, lanes and pathways and constructing new roads, lanes and pathways; (d) providing street lighting; (e) cutting, filling, levelling and landscaping the area; (f) partial development of the area with a view to providing land for unremunerative purposes such as parks, playgrounds, welfare and community centres, schools, dispensaries, hospitals, police stations, fire stations and other amenities run on a non-profit basis: (g) demolition of obstructive or dilapidated buildings or portions of buildings."[24]

However, in the absence of an official census of the city's slums at the start of the programme, it proved difficult for authorities to execute the objectives of the SIP. Nevertheless, it is important to note that while the SIP moved away from the de-facto policy of slum clearance and building of public housing and recognised, formally for the first time, the capacity of the self-help approach, the scheme did not grant tenure security to slum dwellers. Partly to address this issue but also for other reasons for restructuring the city, in 1976, at the height of the national Emergency declared by the Indira Gandhi Congress Party, the authorities in Mumbai conducted a massive survey of the 1680 slum settlements in the city and provided "legitimate status" to nearly 2.8 million slum residents.[25] Each of these residents were photographed in front of their homes, and these "photopasses" acted as a legal document that, for the first time, provided slum dwellers certain security and rights in the event of an eviction. In exchange for these "photopasses", eligible residents were required to pay a small sum of money as rent to the government for the land they used while improvement works of various kinds continued to be carried out by various government agencies – albeit with many difficulties.

INCREMENTAL IMPROVEMENTS

Nestled right in the heart of Mumbai's financial district in Cuffe Parade lies a large self-built settlement by the name of **Ganesh Murthy Nagar.** Occupying low-lying marshland along an unfinished section of Back Bay, the settlement is home to a mix of communities differentiated by occupation, religion and caste. On the edge of the settlement that abuts Captain Prakash Pethe Marg on its south-eastern edge is located a thriving *dhobi ghat* – an open-air laundry industry that caters to the financial district's many five-star hotels and restaurants. Teeming with shops and other commercial establishments along the public edges, the self-built colony has, over the years, been provided with various forms of services and basic amenities granted by the SIP. Public toilets and water facilities can be found at four locations near the edges of the settlement. Deeper inside, once low-lying pathways flooded with monsoon waters are now paved stone pathways with drains lined by houses of various types and sizes, from small one-room *kutcha* dwellings to more expansive two-and-three-room *pucca* houses.



Fig. 13 Ganesh Murthy Nagar's houses with their terraces used for drying clothes contrasts sharply with the tower blocks of the World Trade Centre in the background.



Fig. 14 Over the years, and under the provisions of the SIP, various improvements have been made to Ganesh Murthy Nagar.



Fig. 15 A typical street in the interior of Ganesh Murthy Nagar where the dense fabric of houses make it difficult to introduce infrastructure.

Although, over the years, the provisions made available by the SIP have helped improve the standard of living within this self-built settlement, the environmental conditions visible here are by no means ideal. Electricity cables hang dangerously above the narrow pathways, many in the dark, even at noon. The ratio of toilet seats and bathrooms to residents is also dismally low, causing daily problems, especially for women, children and the elderly. Thus, even though a majority of residents of this colony now possess certain rights and protection against eviction and can operate businesses and income-generating activities from their own homes, the settlement remains underserviced in terms of essential services and infrastructure.

However, despite these shortcomings, it is essential to note that Ganesh Murthy Nagar still enjoys relative generosity compared to most slum pockets in the city. On 17th May 1976, Janata Colony, a large self-built settlement in the eastern suburb of Mankhurd with an estimated population of 70,000 people, was demolished, brutally evicting and resettling most dwellers (but not all) at a new site named Cheetah Camp further east (this case is further elaborated in Section 3.6). Thus, although the SIP represents a watershed moment in Mumbai's housing policy landscape, it failed to meet its objectives for several reasons and was disbanded in 1991. Despite the 1976 census of slum dwellings, where an estimated 2.8 million dwellers were issued "photo passes" that granted some form of security of tenure, ground realities of executing slum improvement schemes proved to be a far more complex challenge than the authorities had anticipated. Complex land tenures across Mumbai slum lands – many of them controlled by slum lords – proved one big reason.

Another primary reason was simply the lack of adequate funds to execute the aims and objectives of the programme. A BMC report from the early 1990s by the then Deputy Municipal Commissioner KG Pai highlighted that the SIP would have required funds of at least 150 crore rupees a year – whereas the SIP had been earmarked with a budget that was a fifth of this amount for the entire duration of the Sixth Year Plan. But perhaps the final nail in the coffin for the SIP came with the introduction of the New Economic Policy (NEP) of India, which increasingly began to see housing provision as a sector that needed private sector partnership, and with land being seen as an economic opportunity rather than a site for social and welfare responsibility.

WORLD BANK SLUM UPGRADATION PROGRAM (SUP)

Around the same period that the SIP was still in progress, the World Bank had been adjusting its policies regarding informality through a series of Slum Upgrading Programs (SUP) around the world that helped provide slum dwellers with the security of tenure through the provision of legal titles, and the implementation of better infrastructure often with the help of local government and planning authorities. In Mumbai, as part of the 138 million US dollar Bombay Urban Development Project (BUDP; described earlier in greater detail in Chapter 3.3), this translated into the Slum Upgrading Program (SUP) of 1985.[26]

This programme, as opposed to the SIP that came before it, focussed on creating "legal, environmentally-acceptable neighbourhoods" for a targeted population of half a million beneficiaries (i.e. about 100,000 households), or about 12 per cent of all the self-built settlements across Mumbai based on the 1981 census.[27] As it had proved challenging to demarcate individual plots within existing settlements and provide individual titles, the SUP centred its ambitions around the "provision of infrastructure improvements, long-term, leasehold tenure, and loans for home improvement"[28] through the provision of a 30-year renewable leasehold tenure for co-operatives of slum dwellers. Through this provision, unlike any other policies in Mumbai's history until then, the authors of the SUP hoped to provide slum dwellers with the incentives to invest in their own housing, as they would be free of the threat of eviction or relocation.

However, contrary to their expectations, the SUP failed to take off and instead received a slow response for slum upgrading. Even though the programme was extended by four years, the targets of the SUP were reduced to 60,000 households, compared to the original target of 100,000 households. When the programme eventually closed in 1994, only 22,204 households had benefited from the World Bank sponsored SUP. There are several reasons for this. One reason is simply that the absence of accurate mappings and surveys and the dense physical makeup of Mumbai's slums with complex tenure and land ownership patterns made it difficult for the state to introduce even basic infrastructure such as sewage or electricity.

Another reason, claimed by the World Bank in a 1997 report, is that the programme lacked "a strong constituency for in-situ slum upgrading on a cost-recovery basis."[29] It was also claimed that the SUP which was built on providing long-term leasehold tenures failed to appeal to slum communities as many of them – despite not possessing clear property titles – already considered that they already owned their houses. But perhaps, in reality, the primary reason for this might have been the fact that around the same time of the SUP's implementation, the government had begun experimenting with alternatives through the 1985 Prime Minister's Grant Project (PMGP) that included both slum upgrading as well as a new mode of housing provision: slum redevelopment (explored further in Chapter 3.5) that increased the influence of private real estate developers eager to cash in on Mumbai's booming property market. Thus, by the mid-1980s, the attention moved away from making in-situ improvements in existing slums to wholescale redevelopment that could generate vast amounts of private profit.

WORLD BANK SLUM SANITATION PROGRAM (SSP)

With the closing of the World Bank-sponsored BUDP, Mumbai entered a new phase where the government began to see itself less as a 'provider' – even as a provider of basic infrastructure and services – and more as a 'facilitator' of housing provision. In the years following the NEP, slum improvement and upgrading took a backseat to new modes of housing provision, with the private sector now at the helm. In this new era, Mumbai's slum dwellers had essentially two options. One was to continue to exist in their self-built settlements with the hope that local political parties and planning authorities would implement basic infrastructure and services over time. The other was to opt for wholesale redevelopment by a private developer under the then-newly launched Slum Rehabilitation Scheme (SRS). Although not as popular as the SRS, a push for in-situ improvement and upgradation came in 1995 with the introduction of the Slum Sanitation Program (SSP), which formed a part of the World Bank-financed Mumbai Sewage Disposal Project (MSDP) and implemented by the BMC.[30]

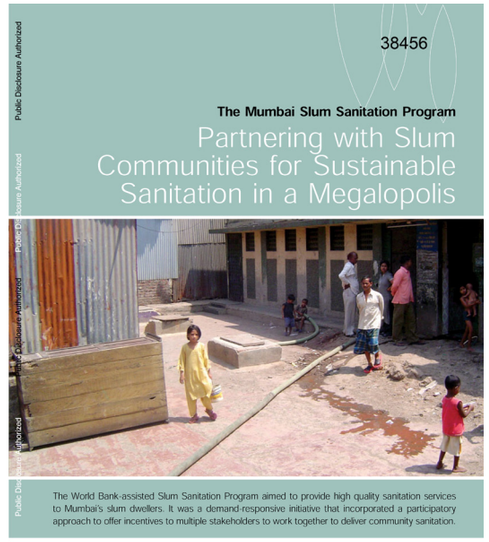


Fig. 16 Cover of the World bank-sponsored Mumbai Slum Sanitation Program (SSP) that was formulated as a more flexible and participatory model where community sanitation could be implemented across slum pockets in the city by involving multiple stakeholders.



Fig. 17 A Community Toilet Block (CTB) built in Shivaji Nagar in Mumbai's M-East Ward. A typical block such as this serves as many as 10 to 15 thousand people.



Fig. 18 One of five CTBs built to serve an estimated population of 60.000 people in Prem Nagar, Goregaon.

Designed as a "demand-responsive participatory approach to providing quality sanitation services",[31] the SSP built on the lessons learned from previous schemes and programs, such as the SIP in the 1970s and the PMGP and SUP in the 1980s, and was formulated as a more flexible and participatory model where community sanitation could be implemented across slum pockets in the city by involving multiple stakeholders including the BMC as the primary public authority and shifting the responsibility of maintenance and daily operations to local community-based organisations (CBOs).[32]

Aimed at improving the environmental conditions in Greater Mumbai, particularly life for Mumbai's slum dwellers, the nearly 300 million US dollar SSP had an ambitious target of improving the quality of sanitation for one million slum dwellers in the city – that is, a fifth of the city's total slum population. However, over its nearly 10-year period starting in 1996 and ending in 2005, the SSP had less success than planned. According to a 2006 report commissioned by the World Bank, the SSP had been responsible for building 330 community toilet blocks (CTBs), affecting nearly 400,000 slum inhabitants.[33]

These CTBs, although not following a strict template, were all built to standards set by the World Bank and local authorities, which resulted in a general typology being replicated in the city. In **Prem Nagar**, in the northern suburb of Goregaon West, we find examples of typical toilet blocks built under the SSP. Along the settlement's north edge, we can see five such CTBs, each consisting of a ground-storey rectangular structure built of load-bearing walls, asbestos or concrete roofing, and, in most cases, twenty toilet stalls divided equally into separate sections for men and women. Although seemingly simple and cost-effective to design, construct and implement across the city, the problem with this approach was twofold. The first concerns the poor design, location, management and upkeep of such facilities. In a 2016 study conducted by city authorities of the CTBs built under the SSP, 58 per cent had no electricity, while 78 per cent had no



Fig. 19 An alternate appraoch to the SSP. Rather than build CTBs, in Safiya Begum Chawl, we find funds directed towards the building of individual toilets on streets and common areas next to existing homes.



Fig. 20 A photograph of the interior of a private toilet built in Safiya Begum Chawl.

access to water in addition to other inadequacies such as lack of privacy and supply of sanitation facilities such as sanitary napkins for women.[34] The second problem is that of adequate supply. Despite its ambitious objectives and funding, the total number of community toilets built under the SSP totalled 26,379 seats, resulting in a ratio of roughly one toilet seat for 190 people – nearly four times the government-accepted World Health Organization (WHO) norms of one toilet seat per 50 people.[35]

Despite these obvious deficiencies, the building of CTBs remained an approach favoured by both the BMC and participating CBOs. There are several reasons for this. First, rather than improve sanitation inside difficult to access existing homes, CTBs offer the possibility to cater to a broad user group without too many complicated administrative procedures. Moreover, as public projects, CTBs make for good images in any grant application and receive widespread visibility. Lastly, as in the case of any infrastructure project, vast sums of money can be made by a broad group of technical experts.

An exception to this replication of standard toilet blocks built under the SSP can be found in **Safiya Begum Chawls** in the northern suburbs of Mumbai. Here, and mainly because of the proactive thinking of a municipal officer, Seema Redkar, who, while working in the Solid Waste Department of the BMC, found a loophole in the SSP's guidelines that allowed for the building of individual toilets rather than CTBs.

After approaching several slum communities, residents of Safiya Begum Chawl adopted her model and used funds to build individual toilets at different times. Even in the case of dwellings that offered no space for building individual toilets within them, Seema Redkar and her team found ways to build toilets on streets and common areas just outside homes while still maintaining privacy and private access. Despite its small scale and low-key form of intervention, the project remains noteworthy for its efforts to find alternatives to the standard CTB and rethink existing design standards that respond better to needs and requirements of people living in slums.

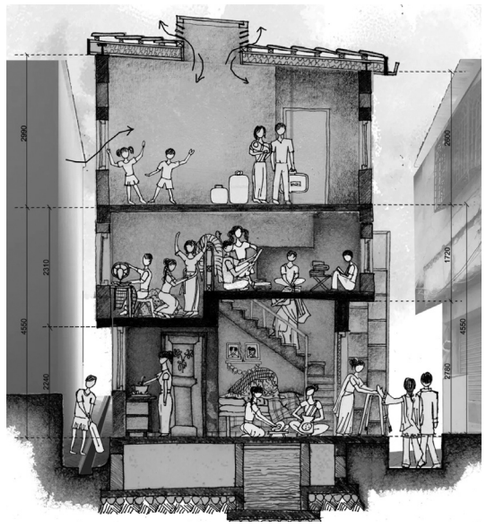


Fig. 21 Drawing by sP+a in collaboration with Urbz for a house in Dharavi that builds on existing local construction sytems and skills.

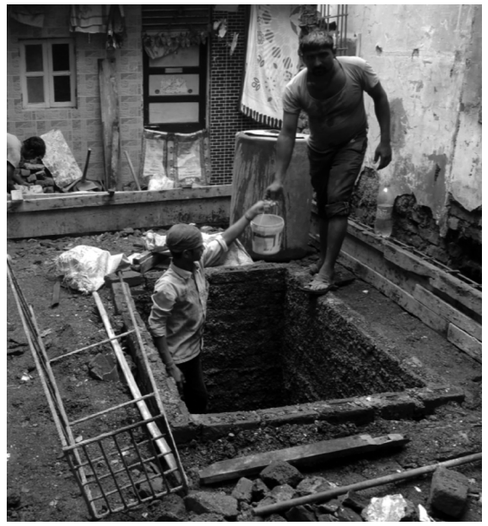


Fig. 22 Construction photo of 'A House We Built', prepared by sP+a and Urbz.

BOTTOM-UP IMPROVEMENTS

Alongside the operation of city-wide improvement schemes and development works funded by national and international agencies such as the World Bank and other NGOs, Mumbai is also a noteworthy site for grassroots movements that have done pioneering work to improve the living environments of slum dwellers across the city. Co-founded and led by Rahul Srivastava, Matias Echanove and Geeta Mehta, Urbz (User-Generated Cities) is an organisation based in Dharavi since 2008 that orchestrates a diverse group of policymakers, economists, anthropologists, architects and urban planners to advocate for a bottom-up approach to be incorporated into the city's Development Plans.

Examples of their approach that have contributed to the improvement of informal settlements in Mumbai through the initiation of learning exchanges and the provision of technical and managerial assistance in small-scale slum upgrading can be seen in self-initiated projects such as 'A House we Built', 'Homegrown Cities', 'Homegrown Streets' and 'The Design Comes As We Build'. In all these projects, the team at Urbz advocates making small-scale improvement interventions that harness local knowledge and expertise in designing and building solutions based on needs and requirements. In an essay on the blog *Urbanista*, Srivastava and Echanove write:

> "Our contention is that only by working within the existing fabric and with local actors, can urbanists, architects, engineers and policy makers contribute meaningfully to ongoing user-lead improvement in homegrown neighbourhoods."[36]

But perhaps the most visible example of community-led in-situ improvement and upgrading can be credited to Mumbai Environmental Social Network (MESN) – a local not-for-profit organisation invested in addressing the living conditions of the urban poor in the city through the creation of public spaces. In **Lotus Colony Garden**, a 1300 square-meter plot sandwiched between the Shivaji Nagar and Natvar Parekh Compound in Mumbai's M-East Ward, we find MSEN's first venture into upgrading public infrastructure for the roughly 200,000 residents of Lotus Colony. Using a grant made available by UN-Habitat, MESN initiated the work in Lotus Colony by first investing in building trust within the community through a cleaning campaign that cleared the open, unused land in the heart of the colony. Through this initiative, MESN organised nearly 2500 households to come together to ensure the proper disposal of waste and collection through what it termed Advanced Locality Management (ALM). Such activities helped build a sense of community and belonging but also proved helpful in overcoming the many hurdles during the project's execution. Under the leadership of Trupti Amritwar Vaitla, an Architect and CEO of the MESN, the participatory design process at Lotus Colony resulted in a public garden in the middle of a dense settlement that provided much-needed open space for the nearly 200,000 residents of Lotus Colony and its adjoining settlements. Over the years since its completion in 2014, the garden has become a focal point for the residents of Lotus Colony and the larger Shivaji Nagar area, providing a space for rest and recreation in an otherwise dense locality.

A second project was subsequently executed in 2016 in Gautam Nagar Resettlement Colony, just south of Lotus Colony. Here, on a tight plot next to a dreary eight-storied slum resettlement scheme that is home to 5500 people, the team at MESN were encouraged by UN-Habitat to take part in their 'block-by-block' programme that aims to facilitate participatory design processes using the Microsoft game *Minecraft*. Using this interactive game that requires little understanding of computers, a group of 40 residents were encouraged to collaborate on developing design ideas for amenities and recreational facilities within their settlement. The resulting designs, presented to local government officials, leaders and organisations, finally made their way into the final design of a small community garden with recreation and play facilities, especially for children. Beyond the physical presence of much-needed open space, the project at Gautam Nagar remains noteworthy for building a sense of community and empowering residents – particularly women and children – to plan and build their own neighbourhoods.

CONCLUSION

By working with the existing fabric, in-situ slum improvement and upgrading are, by far, the least disruptive of all curative policies. However, the history of this approach in Mumbai has also made clear very real and challenging hurdles. Apart from the clear need to recognise such settlements with legal property titles, this strategy also necessitates more accurate surveys and mappings, without which it becomes difficult to plan interventions or assess the physical performance of previous schemes. Take, for instance, the opening statement in the 1985 state government-appointed 'Report of the Study Group on Upgradation of Dharavi' led by architect and planner Charles Correa:

> "Surprisingly, there is a total lack of physical surveys showing features like roads, structures, contours etc. Similarly, precise information about the number of hutments as well as the population of Dharavi is not available. We see this as a reflection of the limitations of the concerned public authorities who, owing to their preoccupations with normal functions, have been unable to pay adequate attention towards the development of this area."[37]

Even today, in the absence of such data, and despite a hundred years of various slum improvement and upgrading schemes, no single slum that has been a recipient of slum improvement and upgradation has been de-notified from its original classification. And the surveys that do exist reveal alarming numbers. In 2001, the BMC conducted a large-scale survey that showed that across Mumbai's 1959 slum pockets that accommodated more than 6 million residents (or about 54 per cent of the city's then total population), as many as 3.8 million people (or 62 per cent of the total slum population) depended exclusively on public toilets. This is a fact that is even more alarming when one realises that nearly 10 per cent of all slums in the city lack any public toilet facilities, leaving a population of roughly half a million residents – a population as large as the size of The Hague – no option but to defecate in the open.[38]

Thus, despite a century of slum improvement measures that began with the onset of the deadly 1896 bubonic plague, facts such as these undoubtedly cast doubts over the efficacy of slum improvement and upgrading strategies as being a magic bullet that could, by itself, solve Mumbai's "slum problem". Well-intentioned as they may have been, Mumbai's experiments with in-situ improvement schemes have also demonstrated that solutions to housing problems can seldom be universal. Many experts and researchers – especially those associated with or who hold affinities to World Bank policies – have argued that granting tenure security is the fundamental switch that must be introduced to all slums without the so-called "cut-off" dates currently set as 1st January 2000. This, they believe, is the single most crucial factor that can capitalise on the self-building capacities of people and lead to more significant investments in housing that can, over time, lead to better, more sanitary living conditions. Others, however, argue against providing individual property titles, instead making a case for



Fig. 23 Although widely accepted by housing scholars and activists alike to be the most humane form of intervention, the dense fabric of Mumbai's self-built settlements make carrying out in-situ improvement and upgradation complex.

cooperative ownership of land and other forms of shared and collective property titling.

But beyond the issue of property titling and legal instruments aimed at improving inadequate housing, an overview of slum improvement and upgradation strategies in Mumbai also highlights the shift away from precinct and neighbourhood-level interventions, as in the case of the BIT, to more small-scale interventions, such as building community toilets and amenities under programmes like the SIP and SSP. Policies or programmes in Mumbai have rarely been able to affect change both at the scale of the neighbourhood and at the scale of basic services or amenities.

A rare exception to this, sadly unrealised, can be found in the recommendations prepared by the so-called Correa Committee for Dharavi. In the same report mentioned earlier, this study group recognised the critical issues of Dharavi as the "inadequacy of infrastructure" and the "unsatisfactory conditions of shelter". Rather than propose wholescale resettlement or redevelopment, the report instead recommended in-situ upgradation at two scales, namely the "Area level", which concerned addressing the deficiency of infrastructural services to be introduced by public agencies with large investments, and the "Block level" that was to be handled by cooperative societies of about 100-150 members provided with aids such as land tenure and finance. The study's authors believed that this would "favour community-centred, 'bottom-up' approach of in-situ upgradation of shelter that will ensure greater community participation in the process of upgradation."[39]

Unfortunately, none of the report's recommendations were ever implemented, exposing the conflict between the idealism of policy-making and the ground realities of Mumbai's highly profitable and contested real estate dynamics.

Thus, this history of slum improvement and upgradation also highlights the necessity to recognise the context in which these policies and programmes were introduced. While there is little doubt that the Bubonic plague of 1896 triggered swift action from the colonial government to improve the living conditions within Mumbai's dense inner-city areas, it must not be forgotten that one of the Trusts' primary objectives was also to develop and position the image of Mumbai as a "centre imperial political and commercial power."[40] A hundred years later, Mumbai's authorities are still preoccupied with ambitions of building "slum-free" and "world-class" cities. Hussain Indorewala, a housing scholar and activist in Mumbai, describes these opposing forces as follows:

> "Urban development in Mumbai has presented a choice between two concerns, the first being the city's social policy, that required directing public investment towards the improvement of infrastructure and sanitation, and provision of adequate housing for most of its inhabitants; the second being the vision of its business and political class of developing a leading commercial and industrial center, or what Gordon calls its *Urbs Prima in Indis* policy."[41]

As the following two chapters will further illustrate, this conflict between treating housing as a social responsibility and as an economic opportunity has only heightened in recent decades. Starting in the mid-1980s, state housing policies have been dominated by Hernando de Soto's model of "liquid capital," which discourages in-situ neighbourhood-level upgradation in favour of treating land as "urban assets"[42] – a paradigm that reimagined housing in Mumbai as an aggregation of vertically stacked units de-linked from networks of dwelling and working as in the case of existing slums.

■

SLUM REDEVELOPMENT

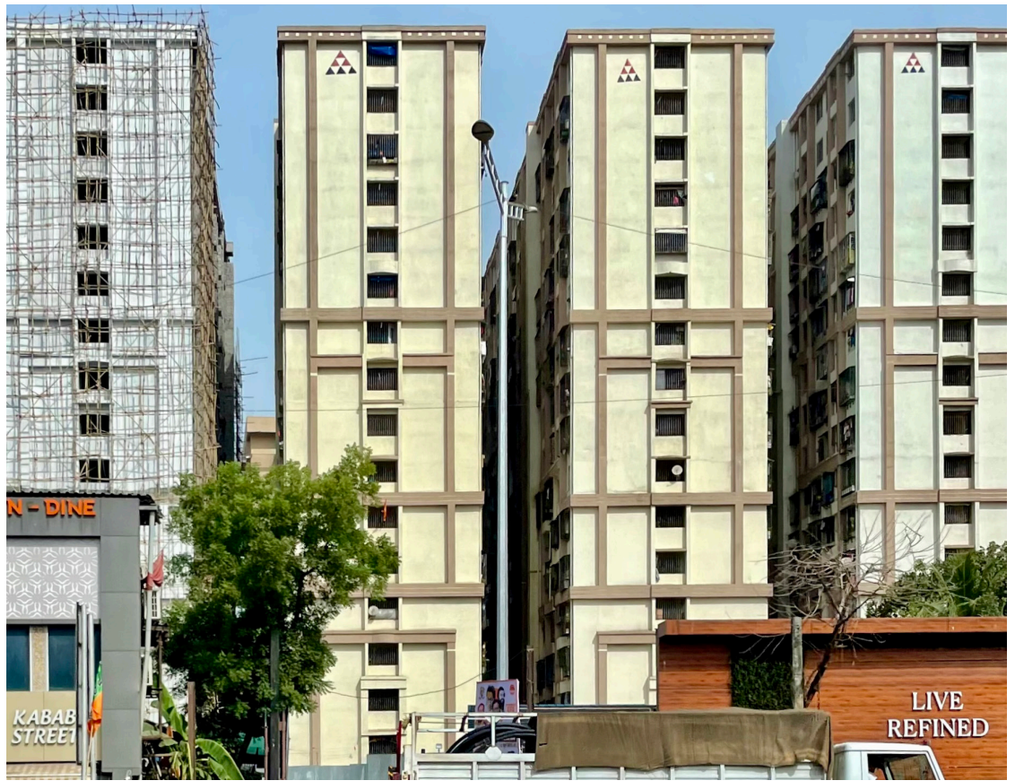


Fig. 1 Since the establishment of the Slum Rehabilitation Authority (SRA) in 1995, Mumbai's housing landscape has been dominated by the building of high-rise slabs that use private-sector investment to cross-subsidise housing for existing slum dwellers.

"Cities are emerging as hyperactive sites of 'creative destruction', to dismantle the old and give birth to the new, wreaking havoc on the city space and lives of the urban poor. Through innumerable urban redevelopment projects, cities are getting transformed, pushing out the poor from the domain of public space, taking the entire urban praxis to an extremely critical level."

Swapna Banerjee-Guha, *Homeless in Neoliberal Cities: The View from Mumbai*, 2010

In his influential book, *The Housing Question,* from 1872, the German philosopher, Friedrich Engels singles out capitalist modes of production as the main cause for housing struggles in 19th century England.[1] Framed this way, for Engels, housing is largely an economic-political problem. Nearly a century and a half later, and building on the theories of French sociologist Henri Lefebvre from the 1960s, David Harvey proclaimed:

> "The right to the city is not simply the right to what already exists in the city but the right to make the city into something radically different. When I look at history I see that cities have been managed by capital more than by people. So in this struggle for the right to the city there is going to be a struggle against capital."[2]

In their recently published book, *In Defense of Housing*, sociologist David Madden and urban planner Peter Marcuse pick up on the problems of capitalism to argue that housing today is largely imagined "as an instrument for profit making — a conflict between housing as home and as real estate."[3] – a paradigm undoubtedly encouraged by international agencies such as the World Bank and the International Monetary Fund (IMF) that since the early 1990s have championed a greater role for the private sector and the reduction of the role of the state.[4] In contrast to the state as a 'provider' or 'supporter' that prevailed throughout most of the 20th century, housing in an increasingly global neoliberal era has emphasised a house's 'exchange value' over its 'use value', stimulating in the process the participation of market forces and home ownership and what Asher Ghertner terms the "proprietary of property".[5] In short, a paradigm where housing is now largely seen as a site for private profit and not a public good.

But while Madden and Marcuse's opinions originate from the context of capitalist societies in the West (specifically London and New York City), this reduction of housing to a commodity at the hands of the private sector can also be found across the large urban centres of the Global South. In India, in particular, following nearly two decades of large-scale aided self-help and slum improvement and upgrading strategies, economic liberalisation starting in the early 1990s saw the production of housing supply increasingly handed over to the private sector, with the state acting merely as a 'facilitator' in the process.[6] This chapter outlines a particular mode of public-private partnerships in Mumbai – in-situ slum redevelopment – and traces its evolution from its early beginnings in the mid-1980s to the present era, where it has become the dominant mode of formal affordable housing production in the city.

THE STATE AS ENABLER

In 1991, in tune with international trends and on the brink of bankruptcy due to inadequate budgets and excessive reliance on imports coupled with ineffective government control that stifled economic growth, a new form of political economy began to emerge and with it, a new form of architectural patronage. The architects of a 'New India', Narasimha Rao (then India's Prime Minister) and Dr Manmohan Singh (then India's Finance Minister and Prime Minister between 2004 and 2014), ushered India into a new era that would be characterised by decreased state control and an increased role of the market. Building on the loosening of government control and attempts at economic liberalisation first initiated by the governments of Indira Gandhi and later Rajiv Gandhi, the New Economic Policy (NEP) introduced in 1991 laid the blueprint for a new era that, in stark contrast to the closed socialist econ-

omy of the Nehruvian era switched gears in favour of a more capitalist and dynamic open economy that opened up India's previously sealed markets. In his landmark speech given to parliament on July 24th, 1991, Dr Manmohan Singh stated:

> "After four decades of planning for industrialisation, we have now reached a stage of development where we should welcome, rather than fear, foreign investment."[7]

He further added:

> "Over-centralisation and excessive bureaucratisation of economic processes have proved to be counterproductive. We need to expand the scope and the area for the operation of market forces."[8]

A key outcome of these reforms has been the dramatic influx of foreign direct investments (FDI) that have paved the way for foreign investors to invest in several sectors across India, such as infrastructure, information technology and pharmaceuticals, as well as in formerly state-owned enterprises such as telecommunications and aviation. In the year 1990, FDIs in India stood at a mere US$ 165 million.[9] In the years following India's new economic reforms, these investments rose sharply, from US$ 2.4 billion in the year 2000 to around US$ 35 billion by 2010. By 2015, partly due to the government's 'Make in India' initiative launched in 2014, India overtook China and the United States as the world's most attractive destination for foreign investment.[10] As of 2023, FDIs totalled nearly US$ 71 billion – an astounding increase of approximately 50.000 per cent over three decades.[11]

But while this meteoric influx of capital has confirmed India's position as a major global economic player, it has also meant an entire makeover of the urban landscape with no universal benefits. As the historian and environmentalist Ramachandran Guha has pointed out, economic liberalisation starting in the 1990s – and particularly since the early 2000s – has meant that cities across India like "Mumbai, Bangalore, Hyderabad and many others, became more interested in wooing real estate and builders."[12]

Facts support such claims. Between 2017 and 2022, nearly ten per cent of all FDI inflow into the country targeted the construction and real estate industries, amounting to an influx of about US$ 26 billion that accounted for more than 80 per cent of all investments in real estate during those five years.[13] As a result of these changing trends, the country, as Rahul Mehrotra states, was being "plagued by an impatient capital" where "capitalism was shaping our cities."[14]

In a recent article, Mehrotra further elaborates on this new phenomenon:

> "The contemporary urban condition in India symbolises the two simultaneous transitions at play on the political landscape – moving out of socialism and into capitalism, or from state-controlled imaginations of the city to a free-market production of the built environment. In the occurrence of transitions, which are often at play for decades in India, the built environment is naturally a muddle and the fallout from each condition finds expression in the physical form of the Indian city. Ruptures in the fabric and startlingly bizarre adjacencies characterise the city which evolves with these narratives colliding in urban space."[15]



Fig. 2 Urban development post economic reforms have led to fragmented socio-spatial dynamics across the city.



Fig. 3 Shopping malls and skyscrapers compete for prime real estate far into the suburbs of Mumbai.

Such radical shifts towards a more market-oriented economy greatly impacted housing production – particularly the building of affordable housing in India's rapidly growing Tier 1 and Tier 2 cities. Building on the 1987 draft of the first National Housing Policy (NHP) that had already suggested a more facilitative role for the government as opposed to a direct one, the economic reforms of 1991 resulted in a slew of policy shifts that aimed at incentivising the private sector to build affordable housing stock – including for its lowest income groups – by reducing housing to a game of numbers whose rules were dictated solely by quantitative forces: floor space indexes (FSIs), standard house types, fixed unit sizes all tweaked to attract public-private partnerships and enable cross-subsidisation that demanded relaxations of building codes and town planning norms to attract private investment and ensure higher profits.

Nowhere has this lack of the state's political and moral responsibility to build housing for its lowest-earning citizens played out more audaciously than in India's financial capital, Mumbai. Despite state-led efforts through the 1970s and 1980s that included slum improvement schemes and sites-and-services projects, Mumbai's growth since the reforms of 1991 has been particularly Janus-faced with widening inequalities and informality proliferating alongside steep economic progress. Over a 20-year period, Mumbai's total slum population rose more than four-fold from 1 million inhabitants as recorded in the 1971 census to 4.5 million in the 1991 census.[16] With skyrocketing figures like these, various state governments through the 1980s and 1990s set up a series of study committees that proposed a new mode by which the city's "slum problem" could be tackled: 'in-situ slum redevelopment'. This mode, as opposed to earlier, more conventional modes of slum clearance and upgrading, uses cross-subsidisation as the primary mechanism through which existing slum dwellers can be redeveloped – rehoused on the same site – at a higher density in medium to high-rise tenements in exchange for a portion of that land and higher construction rights for new property (commercial or higher income housing) that can be sold at market rates. In order to understand the history of these developments and the birth of what is now known as the 'Mumbai Model', one needs to rewind to the decade before the introduction of the 1991 New Economic Policy.

THE MAKING OF THE 'MUMBAI MODEL'

In 1980, the Congress party-led government in Maharashtra set up two consecutive committees to look into the feasibility of redeveloping slums as a viable alternative to slum upgrading and improvement. This resulted in the Moghe Committee and the Awale Committee. With both committee's going against the idea of de-congestion, they proposed further densification of sites by granting additional Floor Space Index (FSI) ranging from 50 to 99 per cent as incentives for private developers to rehabilitate slum dwellers on existing sites, alongside the construction of additional market housing.

Both committees faced criticism, particularly regarding their proposals for significant increases in density and the apparent privatization of affordable housing. In response to this backlash, the government of Maharashtra established a third committee, the Kerkar Committee, in 1981 to assess the need for increased Floor Space Index (FSI). After evaluating the situation, the Kerkar Committee recommended abandoning the increase in FSI. Instead, it suggested redeveloping slums at the existing FSI and relocating slum dwellers to alternative sites. While the government was generally receptive to the Kerkar Committee's recommendations to discard the policies of the Moghe and Awale Committees, the concept of redeveloping slums with higher FSI as an incentive for the private sector was not completely abandoned and would be revisited later.

In a telling and direct official document, the report outlining the Regional Plan for the Mumbai Metropolitan Region had this to say:

> The approaches in which Government has acted as provider, example, subsidized rental housing or where strong interventions in the market have been adopted, example, urban land ceiling, have proved to be outstanding failures. Government's role as a facilitator, therefore, needs to be strengthened which is also in tune with the emerging national economic policy.[17]

As Mumbai's slum pockets continued to grow, various political parties resorted to electoral politics, promising, in the process, populist schemes to tackle Mumbai's most urgent urban issue and appease half of the city's population. In the aftermath of the failure of the Slum Improvement Programme (SIP), and alongside the 1985 World Bank-sponsored Slum

Upgrading Programme (SUP), the Government of Maharashtra introduced in the same year a version of in-situ redevelopment through a programme called the Prime Minister's Grant Project (PMGP) sponsored by the then Prime Minister of India, Mr Rajiv Gandhi. Financed through a billion rupees (100 crores) grant from the central government, this mission aimed to improve Mumbai's housing woes, of which "slum reconstruction" or redevelopment through the mechanism of a partial "cross-subsidy" was a major component. Rather than re-settle existing slum dwellers on alternative, often far-located sites, this approach was based on on-site or 'in-situ' rehabilitation in medium-rise apartment blocks.

At that time, the official population count in Dharavi stood at nearly 300,000 people. Known even then as "Asia's largest slum", Dharavi was a natural choice for implementing the Prime Minister's grant, not least because a vast number of its residents included Muslims and Tamils (from the southern Indian state of Tamil Nadu) who, as minorities, had typically voted for the Congress Party. Eager to implement the project through the Congress Party-led state government, the central government in New Delhi appointed a committee under the leadership of architect and planner Charles Correa to draft a new policy for improving Dharavi. Among the many recommendations presented by the Correa Committee in 1985, the key advice was to recognise Dharavi as a settlement with established communities (and useful economic activities) whose residents were eager to participate in making improvements to their dwelling environments.

The report centred around a bottom-up approach to planning, explicitly stating that "these positive aspects need to be harnessed in the upgrading strategy"[18] and proposed interventions at two scales: the "Area level" that would include improvements of essential infrastructural services (stormwater drainage, sewage, electricity, etc.), and the "Block level" that would consist of providing tenurial rights to co-operatives of slum dwellers (comprising of about 100-200 families) who could then make improvements to their dwellings with the help of bridging loans and other financial instruments.

Unfortunately, the recommendations of the Correa Committee were never implemented. Instead, local authorities favoured the PMGP's mechanism of using land as a resource to redevelop slums with the help of the private sector that through cross-subsidisation could build affordable housing stock.[19]



Fig. 4 PMGP Colony in Dharavi has C-shaped clusters of 8-storied buildings where each house is an identical unit of 225 square feet.

Between its inception in 1985 and the 1990s, several PMGP colonies were built across Mumbai following several modifications to the original grant programme. Right from its beginnings, the state, knowing that the existing FSI would be insufficient to house all existing slum dwellers, granted an extra 20 per cent over and above the maximum normal limit. However, despite the financial assistance from the central government, the PMGP, as formulated in 1985, provided a subsidy of only 10 per cent towards the cost of reconstruction. In addition, it provided a 20 per cent interest-free housing loan but expected slum dwellers to contribute towards the cost of their own dwellings. While this did receive some support from the residents of Dharavi, the programme failed to take off with immediate success as it soon highlighted a general issue of unaffordability as most residents were still unable to cover the costs of their dwellings. By 1990, the PMGP subsidy had increased to 30 per cent.

A well-known case of the PMGP can be found in Dharavi. The scheme, still known today as **PMGP Colony**, is characterised by a cluster of eight-storied mid-rise courtyard blocks that contain houses for two income groups: the 'Economically Weaker Sections' of society (EWS) and the Low-Income Groups (LIG). The dwelling units for the EWS measure 225 square feet (roughly 20.9 square metres) and form the majority of the units in this colony. For practical reasons and to maximise efficiency, each of the C-shaped courtyard blocks are, in fact, composed of L-shaped floorplates that each contain 11 dwelling units that are mirrored and repeated to maximise space and minimise costs. These units – all identical in size and shape – are accessed by a doubly-loaded corridor serviced by a centrally-located elevator and service core. Each unit is a self-contained studio with a private bathroom, toilet, and kitchen, but



Fig. 5 Unlike today's high-rise tower blocks, schemes from the 1980s are characterised by walk-up apartments.

the living space and sleeping areas are designed as one. Linear blocks containing units for the LIG complete the three-hectare size and accommodate roughly 1960 units at a plot density that measures a bit more than 650 dwellings per hectare.

But while the PMGP was noteworthy for its two-pronged approach (which also came to be known as the "cafeteria approach")[20] to dealing with existing slum pockets, and even though both approaches were designed to function on a cost-recovery basis, the scheme proved to be financially unsustainable as it relied on a one-time grant from the central government. Thus, by the end of the PMGP's first phase, the funds had been sufficient only to redevelop roughly 3800 units. Tackling the issue at large demanded more structural reforms. Keeping in line with the emerging trend following Dr Manmohan's reforms of 1991 that favoured privatisation, the then Sharad Pawar-led Congress party-led state government introduced changes in the Development Control Regulations (DCR), which resulted in several schemes to come into play: DCR 33(7) for 'cessed' buildings; DCR 33(9) for 'cluster redevelopment' and DCR 33(10) for 'slum rehabilitation'. This resulted in the Slum Redevelopment Scheme (SRD) of 1991, which cross-subsidized housing for slum dwellers by increasing the permissible FSI by 150 per cent as an incentive for private developers. With FSI in Mumbai being restricted to 1.33 within the island city limits and 1.0 in the suburbs, the SRD effectively increased the FSI for slum redevelopment projects to a maximum of 2.5.[21] However, three conditions had to be met. The first was that this scheme only applied to those slums that were classified as 'notified slums' based on the 1981 census. The second is that slum dwellers would have to agree to be rehoused in 180 square feet (16.72 square metres) units – irrespective of the size or configuration of their existing homes. Thirdly, existing slum dwellers would need to pay 25,000 rupees (approximately a fifth of the cost of their homes), and profits for developers were to be capped at 15 per cent.[22]

Even though these restrictions and demands deemed the SRD a "non-starter" by several experts and activists, it did introduce what Vinit Mukhija terms an innovative "third way" to solving Mumbai's persistent housing crisis that leveraged private sector interest in solving or cross-subsidizing public housing. However, as creative as this was, the main criticism from the private sector on this scheme was a proposal of a profit cap that, by 1992, was limited to 25 per cent of the total investment.[23] Predictably, this scheme was scrapped and a more liberal and attractive scheme for the private sector known as the Slum Rehabilitation Scheme (SRS) was introduced a few years later in 1995 by the BJP-Shiv Sena coalition state government, who, had promised to provide "free houses" to roughly 40 lakh (4 million) slum dwellers in their election manifesto. Prepared, in part, by a former bureaucrat, Mr Dinesh Afzalpurkar, whose committee – the Afzalpurkar Committee – recommended the SRS and estimated that 'in-situ rehabilitation' should be feasible for close to 80 per cent of the slum settlements. The Afzalpurkar study report further stated:

> "The slums and hutment dwellers of unauthorised structures form an integral part of this vibrant metropolis. All of them undoubtedly have a share in the growth, status and prosperity of this great city. They have had and continue to have a share in building up and maintaining the commercial, industrial and economic importance of Brihanmumbai. A large percentage of them belong to the scheduled castes and scheduled tribes. We cannot be oblivious of the fact that slum-dwellers have not willingly chosen their shanty structures and unhygienic environment but have been driven to this option due to compelling circumstances as they were thrown out of the formal housing sector, the latter being unaffordable and much beyond their income levels. It is imperative to enhance their standard of living and for which an authorized dwelling unit is a first step in the right direction. This, in turn, will bring about a marked improvement in their hygiene and health as well as raise the level of public hygiene which has fallen to very low ebb. For lifting them from

their present levels, cross-subsidisation of the cost of their dwelling units and allotting them free of charge, though not supported by housing philosophy, had become a necessity and a cure in the given situation. The slum-dwellers deserve this preferential – probably unequal treatment to bring them into the mainstream of social, cultural and economic fabric of this pulsating City. The study group has relied heavily on this philosophy."[24]

The Government of Maharashtra accepted the recommendations made by the Afzalpurkar Committee in the State Legislative Assembly and amended the Maharashtra Slum Area (Improvement, Clearance and Redevelopment) Act, 1971. A Slum Rehabilitation Authority (SRA) was then constituted to implement this plan, according to the government notification dated 16 December 1995, to function effective from 25 December 1995 to serve as the planning authority for all "slum areas" within the jurisdiction of the Municipal Corporation of Greater Mumbai (MCGM). The website of the SRA opens with this statement:

> "The Government of Maharashtra has launched a comprehensive slum rehabilitation scheme by introducing an innovative concept of using land as a resource and allowing incentive floor space index (FSI) in the form of tenements for sale in the open market, for cross-subsidization of the slum rehabilitation tenements which are to be provided free to the slum-dwellers."[25]

Like the previous 1991 SRD scheme, the SRS capped the FSI at 2.5 but allowed the Transfer of Development Rights (TDR) to other alternative sites in the city.[26] It also raised the minimum area for each unit to 225 square feet (20.0 square metres) as opposed to the 180 square feet (16.72 square metres) units of the SRD. The cross-subsidy model of the SRS also proposed that for every 1 square metre of the "rehab component", the developer would, in exchange, get an allowance to build an additional 1 square metre of "sale component" in the suburbs of Mumbai and 0.75 square metres in the Island City. Moreover, by having no restrictions on the profits to be made, this scheme soon gained popularity not only among the private sector but also with slum dwellers, who initially hoped to receive more secure and valuable housing in exchange for the land occupied by their current dwellings. Although several city-based NGOs, such as the Save Bombay Committee (SBC) and the Bombay Environmental Action Group (BEAG), at first protested against the scheme, arguing against its increased intensity of development and the use of the private sector to build affordable housing, several NGOs eventually lent their support to the SRS as it provided slum dwellers with something they had been fighting for a long time: security of tenure. After all, one of the critical strengths of the SRS at the time was that it recognised slums that existed before 1995 and gave them the option of redevelopment – and legal titles – only if approved by 70 per cent of residents.[27]

VERTICAL SLUMS

A typical example of the SRS is **Ambedkar Nagar** in Mumbai's former mill district, Lower Parel. What was once a low-rise slum is now a composition of four identical and closely packed blocks, each rising 15 floors high. The buildings take the form of rectangular slabs, simple extrusions on a tight plot that results in shorter blank facades facing the main road and longer facades with windows facing each other. With barely six metres between these longer facades and rising almost 50 metres high, the sky seems to nearly disappear above you as you walk on the sliver-like streets between them on the ground. For most of the day, these streets receive little to no daylight. Within such tight constraints, the windows that dot these facades are more useful for storing and drying clothes than for their intended use of providing light, ventilation and views.

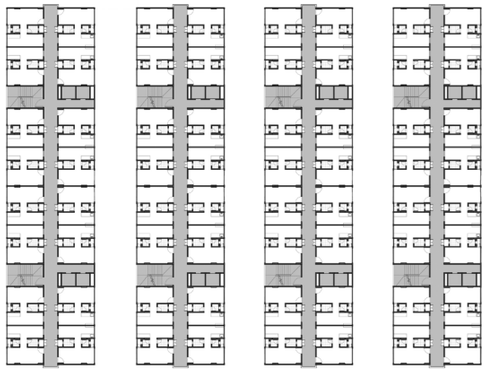


Fig. 6 Plans of Ambedkar Nagar. Each floor, except for the first two levels is identical and consists of 16 units – each exactly 31.40 square metres in size – and accessed by a centrally located corridor served by two stair and elevator cores.



Fig. 7 Closely packed tenement buildings, 15 floors high and barely 6 metres apart from each other.

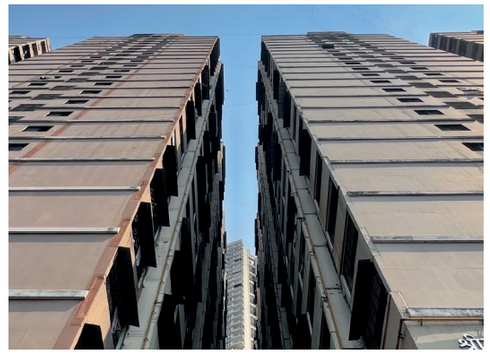


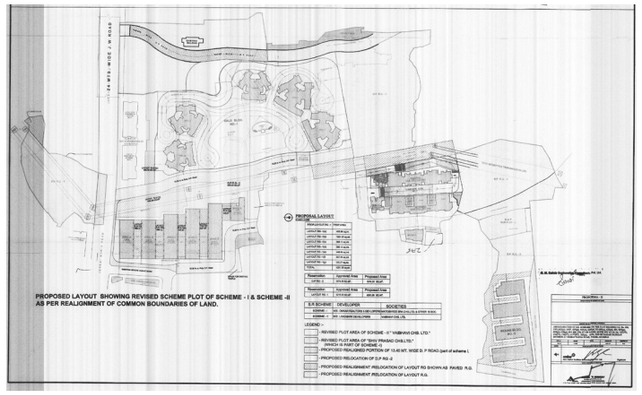
Fig. 8 Sliver-like spaces between the tenement buildings create canyons of shaded streets.

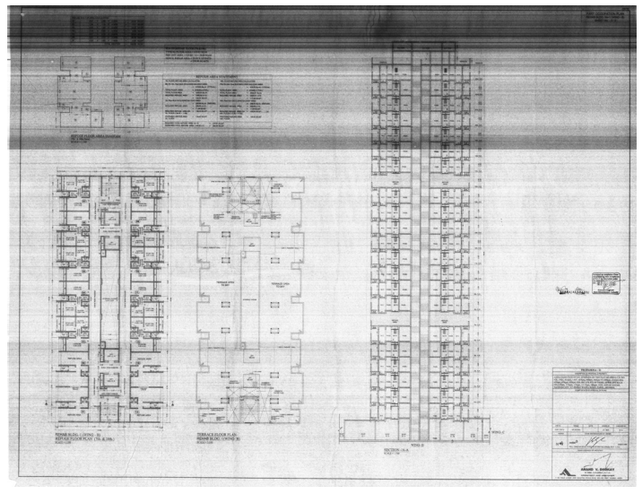
Each of the four blocks is around 60 metres long and 16 metres wide. Each block is offset from its parallel neighbour by 6 metres (5 metres when considering the buildings' cantilevering profile from levels 3-15). The first two levels consist of higher floor slabs and contain mezzanines for shops and a small society office that ranges between 15 and 30 square metres. The remaining 13 floors are dedicated to providing identical 31.40 square metres 'units' as housing. Arranged with a double-loaded corridor roughly 2 metres wide in the middle, each floor plate contains 16 units and two elevator and stairway cores. With more than 800 units in the scheme, Ambedkar Nagar is home to almost 4000 people. While it is by no means the largest SRS project in the city, thanks to its prime location, it is one of the most iconic slum rehabilitation schemes built in the city.

Contrasting Ambedkar Nagar is a tall glass tower that is the by-product of the SRS. Developed by Omkar Realtors and Developers, who also took on the construction of the "rehab units", this office tower is built and sold as the "free-sale" component as part of this cross-subsidization approach. As a visual landscape, it is confused and chaotic. As a physical landscape, it sets up hard boundaries – walls and access routes that segregate the two populations from one another, reinforcing the binaries between the two through design. This strange phenomenon where "two completely different worlds cohabit the same urban space"[28] has become even more visible as a result of slum rehabilitation schemes that were adopted in the post-liberalized era.

Not too far away is an almost identical project. **Matoshree Co-operative Housing Society**, developed as well by Omkar Realtors and Developers and built between 2010 and 2019, is a collection of five high-rise slabs (Wings A, B, C, D and E) and one tower block (Wing F) built in exchange for a portion of land that now houses a high-end residential gated community of six 54-storied towers called Crescent Bay (built in collaboration with L&T Realty). Because of the slight contours on the site, the first three wings of the "rehab" component rise to a total of 24 floors (including a ground floor with a 4-metre-high ceiling height), whereas the last three wings rise to 23 floors. Maximising the area and FSI available at the site, the various wings of the project have different lengths to maintain minimum setbacks as stipulated by the DCRs: 3 metres on the eastern edge, between 4 to 7.5 metres on the northern edge, and an average of between 4 to 5 metres on the western edge. Because of their higher heights, the space between each wing in the case of Matoshree CHS is roughly 9 metres wide. On one corner of the site, a small space is left for a community space and temple.

Although strikingly similar to Ambedkar Nagar, a closer inspection of the plans and built form does reveal variations. While in Ambedkar Nagar, the buildings are accessed by an entryway on their longer façades, in Matoshree CHS, one enters the building through the shorter ends. Another difference is the width of the floorplates in Ambedkar Nagar, which is 16 metres wide and thinner than Matoshree CHS by 4 metres. This has enabled a more generous allocation of circulation spaces in the latter, with two galleries for circulation rather than one. Except for the ground floor, which accommodates a number of commercial and amenity spaces (each roughly 31 square metres in size), the upper floors in Wings A and B are served by two staircases and elevator cores separated by a long "internal chowk" and me-





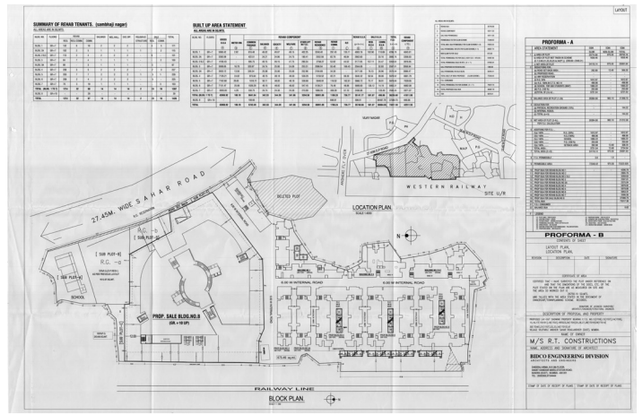


Fig. 9 Masterplan showing both the "rehab" component as well as the "sale" tripod-shaped tower blocks.
Fig. 10 Drawings showing the Refuge Floor and Terrace Plan of a typical wing of the rehab building.
Fig. 11 Layout plan of Sambhaji Nagar showing the proposed sale building on the left and the U-shaped rehab buildings on the right.



Fig. 12 Matoshree CHS's rehab buildings rise between 23-24 floors separated by roughly 9 metres on their longer facades.



Fig. 13 Another typical SRA project built along the Western Express Highway.

ter rooms. On either side of these circulation cores are the two equally sized two-metre-wide galleries that connect the various residential units. Both Wings A and B contain 14 residential units on each floor, and each unit, similar to the plans of Ambedkar Nagar, consists of three bays: a central bay comprising the toilet and bathroom separated by a narrow passageway and two bays on either side, one of which contains the living room and the other the kitchen and bedroom.

The three longer wings (Wing C, D and E) have similar layouts but contain three cores, two meter rooms and two internal chowks that bring in some light and ventilation during the afternoons. Their longer lengths allow for 16-18 residential units, but for the rest, remain identical in terms of layout and size. In total, the rehab component of the project comprises 1871 residential units, 120 commercial units, 21 units meant for society offices, 21 for welfare centres and another 21 units as *balwadis.* In addition to these, the project also makes space for 7 amenity and religious structures.

However, it is essential to remember that although these two projects, and versions thereof (such as the Delta Monte SRA scheme in the northern suburbs of Malad East), have become the symbol of Mumbai's SRS, not all projects built by the SRA are high-rise slabs. Sameep Padora's 2017 book on housing types in Mumbai documents a lesser-known but equally ubiquitous form of the SRS. Built across four phases starting in 2002 and ending in 2008 and financed by RT Constructions, **Sambhaji Nagar SRA** is an ensemble of 8-storey structures, with a U-shaped cluster being the most dominant type. Each cluster comprises 30 dwelling units measuring 28 square metres and containing a private bedroom and attached bathroom and kitchen. Strung along a double-loaded corridor, these units are accessed by four access shafts roughly 40 metres from each other. 12 of the 30 units face an open courtyard in the middle, with generous light and ventilation not typical of most SRS schemes. The remaining 18 units, however, do not benefit from this generosity due to the tightly packed layout where adjoining building blocks are placed as close as five metres between each other.

But while the project differs considerably from the high-rise slabs of Matoshree Cooperative Housing Society and Ambedkar Nagar, it still fails to create spaces for individual expression and identity. It also misses the opportunity to develop a sense of community on the lower levels where, despite a central courtyard within each cluster, ground-floor units are accessed only by the central corridor and lack any articulation on the facades that would allow for different uses and expressions. As Padora's documentation again illustrates, the rigidity of a repetitive façade and little variations in apartment sizes on the interior create a housing complex that lacks the vitality of the self-built settlements they replace.

REDEVELOPING ASIA'S LARGEST SLUM

The objectives and implications of the SRS have been most squarely felt in the proposed redevelopment of Dharavi, which is undoubtedly one of the most well-documented slums in the world. Measuring 525 hectares, Dharavi is often referred to – or

misunderstood – as “Asia’s largest slum”, with conservative surveys estimating a population of more than 800,000 residents. Others claim that nearly a million people reside in this largely self-built settlement. Once nothing more than a fishing village located at the city’s periphery, it has proliferated over the last one hundred years to accommodate its ever-increasing population. Today, Dharavi is a vibrant “urban village” that sits very much at the heart of Mumbai. In fact, what appears from above to be a homogeneous sea of poverty is at ground level an assemblage of incredibly diverse communities, differentiated by religion, occupation and wealth. With small-scale industries such as pottery making, leather tanning, garment manufacturing and recycling intrinsically knitted within its residential fabric, Dharavi is believed to produce goods worth over a billion US dollars yearly.[29] This makes Dharavi not only a vibrant community full of housing, commerce and employment but also a substantial contributor to the city’s GDP.

Therefore, it is unsurprising that Dharavi, with its prime location in the heart of Mumbai’s financial capital and serviced by exceptionally well-connected public transport, has also been subject to waves of urban renewal schemes. Take, for instance, the Dharavi Redevelopment Project (DRP) initiated by the Government of Maharashtra in 2004 and drawn up by the Indian-American architect-planner Mukesh Mehta. Using primarily DCR 33(10), the objectives of the DRP were to use the already existing city-wide SRS to redevelop the settlement of Dharavi with private sector investment. It suggested dividing the 525 hectares of Dharavi into five sectors, inviting tenders from local and foreign private investors to provide “free” housing and infrastructure to eligible slum dwellers.[30] Developers were required to pay a premium to the Government and, in return, get an additional FSI of 4 as an incentive, on which they could build more commercial and other structures and sell in the open market. In this way, it was sold as a “win-win” situation for all the parties concerned. The Government would earn substantial revenues, the developer would make windfall profits, and the residents of Dharavi – the master planners claimed – would have more living space and better amenities than before. It should also be noted that the projects proposed by the developer were claimed to be based on participatory processes with the residents of Dharavi.

From its inception, the DRP received much attention and criticism. Due to the scale of the project, including high costs (with the GoM estimating a budget of nearly 2.1 billion USD at 2004 rates) and complex negotiations with existing slum dwellers, the DRP received no bids from private developers for any of the five sectors of Dharavi. The main factors contributing to this lack of interest were harsh eligibility conditions for the developers, concerns over protests from the inhabitants and height restrictions for new buildings. This resulted in the government restructuring the master plan, where one sector was to be developed by the state’s housing board, MHADA, hoping this would jumpstart the area’s development and attract other investors. The remaining four sectors were to be further subdivided into 12 smaller sectors and developed with public-private partnerships under the SRS.[31]

When the scheme became public in 2004, many of Dharavi’s inhabitants and academics argued against the DRP, particularly its failure to consider existing livelihoods and socio-economic networks. These sources of income demand a certain built form and cannot be carried out in the 30 to 50-storied-high tenements the DRP suggests. Even a cursory glance at the blueprint of the scheme would expose the real motives that drive such a proposal, which, put bluntly, aims to cash in on the valuable land in which Dharavi resides under the disguise of making Mumbai a “world-class city”. If it had been allowed to go through in its proposed form, the DRP would have had a disastrous impact.

Nearly twenty years later, in 2023, came another push to redevelop Dharavi under a Special Purpose Vehicle (SPV) that formulated the redevelopment process as the Dharavi Redevelopment Project Pvt Ltd (DRPPL). After an open tender process, the Adani Group, led by billionaire Gautam Adani, secured the winning bid with a proposed investment of 5069 crore rupees (614 million USD). To execute the plan, the Adani Group has since roped in Mumbai-based Hafeez Contractor as the local architect on the project, who will be working with the UK-Dutch engineering and planning consultancy Buro Happold and US-based design firm Sasaki.

Dharavi’s proposed redevelopment is even more extensive and expensive today than the 2004 project. The GoM estimates that the total overhaul will run up to 23000 crore rupees (roughly 3 billion USD) and take about seven years to complete. However, unlike the former DRP, which would have provided eligible slum dwellers with 225 square feet of living

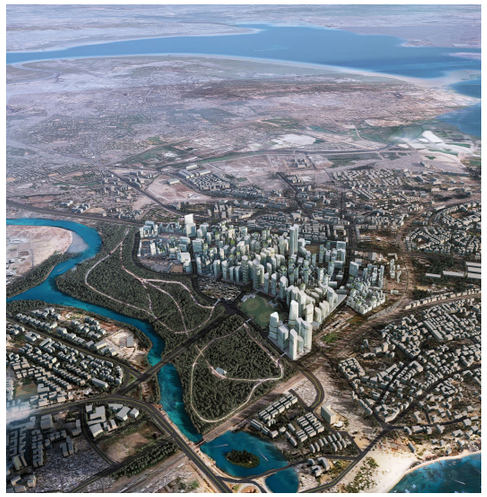


Fig. 14 Conceptualised with "sustainable design principles" in mind, Adrian Smith and Gordon Gill's overhaul for Dharavi envisions a collection of high-rise high-density commercial and residential blocks that would completely replace Dharavi's low-rise mixed-use dwellings.



Fig. 15 Renders show glass-clad high-rise towers that would position Dharavi as Mumbai's new economic zone, complete with cultural and social spaces. However, the scheme provides no plans to rehabilitate existing industrial and economic activities, and leaves many questions unanswered concerning the true objectives of such an urban renewal process.



Fig. 16 Norman Foster's design for Dharavi's redevelopment is a much more nuanced scheme as compared to the scheme of Smith & Gill and builds on existing street and settlement patterns, combining rehab buildings with taller blocks for sale.



Fig. 17 The proposal by Norman Foster consists of four dwelling types, two of which combine residential units with industrial and commercial spaces in a vertical composition of single and double-height spaces.

space, the new proposal has committed to provide anyone who can prove their eligibility (defined now as 1st January 2000) with 350 square feet of living space. The remaining residents who do not fit this eligibility criteria will be resettled in a rental housing alternative site in the city and later be allowed to buy those properties on a hire-purchase basis. In addition, as further enticement and compensation, eligible commercial units will also receive a tax refund on their State Goods and Services Tax for five years from the date of the Occupation Certificate (OC) issuance. However, the project remains ambitious and complex, with many doubts and questions concerning the particulars of its planning and execution remaining unanswered.

Reflecting on past schemes, it is also doubtful that the existing urban fabric and its numerous socio-economic components will be given due consideration going forward. Nor does the current plan delve into the details of required participatory measures from the slum residents and other grassroots organisations and their expected role in the redevelopment process. As a result, as of writing this dissertation, the future of the DRP is in limbo, with many Dharavi residents and leaders losing patience with the efforts undertaken until now.[32] On the other hand, several sections of Dharavi's population and many local activists and NGOs prefer to thwart any attempts to redevelop the settlement, preferring more nuanced and in-situ improvements in infrastructure and social amenities. The need to protect Dharavi from real estate exploitation has also led some to nominate Dharavi as a worthy contender for UNESCO World Heritage status.[33] For Jeb Brugmann, who, in his own words, put forth this "audacious proposal" in an essay in the 2009 edition of the *Mumbai Reader,* declared that Dharavi "is no longer a slum".[34] Instead, Brugmann argues that:

> "Dharavi's 80 or so village-like neighbourhoods have self-organised their artisan, trading, labour, and social traditions into production, distribution, retail, and service networks."[35]

Despite over a century of plans and proposals that date back to 1919 and until the present era, which includes visionary proposals and high-profile schemes by internationally renowned architects like Norman Foster among many others, none have successfully garnered the necessary support and backing to be fully realised. The introductory chapter of *ReDharavi* highlights the fundamental flaw in many of these proposals:

> "Current redevelopment proposals seem to view Dharavi as a green field on which fresh structures and thoroughfares are still to come up – ignoring the deeply-rooted habitat that already exists."[36]

It goes on to add:

> "The truth is that the drive to redevelop Dharavi is propelled by the very large profits that developers and the State Government have their eyes on."[37]

DEEP DEMOCRACY

Despite the arrival of the neoliberal turn in Mumbai, the widely believed image of the enduring poverty and helplessness of Mumbai's slums is false. Since the 1970s and especially in recent decades, India's democratic set-up has allowed new modes of practice and production to emerge that challenge conventional approaches promoted by both the public and private sectors. Reacting to state-led policies on forced evictions and redevelopment, grassroots movements, often in collaboration with local architects, activists and NGOs, have been actively leveraging civil rights to resist, negotiate and participate in housing and city-making projects. Among the many such organisations is the Society for the Promotion of Area Resource Centres (SPARC), formed in 1984, which, along with the National Slum Dwellers Federation (NSDF), founded in the late 1970s by Ramon Magsaysay Award-winner Jockin Arputham have often collaborated to fight for the urban poor and their role to play in the development of their neighbourhoods. Many such organisations' work revolves around capacity-building programmes and initiatives to "formalise" settlements through small-scale upgrading works and resettlement projects. They have, at times, also been instrumental in improving the physical and social infrastructure of existing slums through participation in urban renewal projects.

The most well-known example of community-led redevelopment is the **Markendeya Co-operative Housing Society** (MCHS), built between 1987 and 1998 in Dharavi. In *Squatters as Developers,* Vinit Mukhija traces the emergence of the SRS in Mumbai but focuses his attention on the development of Markandeya as an example of "institutional pluralism"[38] that merges the bottom-up efforts of the local NGO SPARC, the residents of Rajendra Prasad Nagar, and planning authorities that included the PMGP, the MCGM, and, starting in 1991, both the SRD and the SRA.

The design for MCHS began as part of a larger "People's Plan" prepared by SPARC as a reaction to the PMGP and recommendations by the Correa Committee. Based on their 1986-87 survey that challenged the government's estimates of Dharavi's housing structures and families, SPARC argued that the government's plan would, in fact, result in a relocation drive that would be more than three times greater than anticipated. Their vision differed on three critical issues in contrast to the PMGP. The first departure point for SPARC was to limit the role of the private sector and argue for a managerial strategy where the decision-making would be mainly under the control of the project beneficiaries and not the private developer. The "People's Plan" argued that "private investment may result in the displacement of residents to make projects more profitable." Instead, SPARC demanded that the national housing finance agency, the Housing and Urban Development Corporation (HUDCO), provide easy-access loans to reduce the financial burden on slum dwellers and bring costs down. Secondly, the plan demanded that businesses and people not be resettled but accommodated within Dharavi. And thirdly, the SPARC-led plan advocated a slum redevelopment project where costs could be significantly reduced by limiting the heights of structures to a maximum of three floors (as opposed to the five stories suggested by the PMGP). The plan argued that "multi-storied buildings are not suitable for the average Dharavi dwellers who are fisherman, vegetable vendors and tannery workers, who can't carry his or her working equipment to upper floors...such multi-storied flats are middle-class concepts."[39]

With these principles as starting points and over several community meetings, SPARC and the architects Sharad Mahajan and Neeta Bhatt of the Pune-based architectural firm Purbi Architects worked with MCHS to develop an architectural alternative to the government's vision for redevelopment. The resulting design built on previous efforts by SPARC to resettle slum and pavement dwellers where rooms with higher ceilings of 14 feet (4.3 metres) enabled the provision of a six-feet (1.8 metre) high loft that circumvented the rules set by the PMGP and expanded the footprint of each dwelling unit from 180 square feet (16.72 square meters) to 280 square feet (26 square metres) – a 64 per cent increase of floor area. However, despite best efforts over its 11-year conception, various hurdles

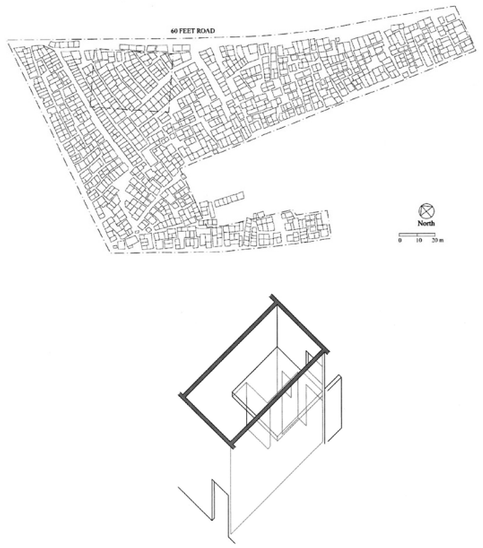


Fig. 18 Drawings showing the location of the proposed Markandeya CHS in Rajendra Prasad Nagar in Dharavi. Below is an axonometric drawing of a typical unit with a high ceiling and mezzanine floor for additional space.



Fig. 19 Hoarding at the site of the proposed Markandeya CHS. The design underwent multiple revisions over the course of its nearly 13-year development, from conception to construction.

that ranged from financial difficulties, building approvals and rising costs, the design of MCHS had to undergo several revisions. The most dramatic of these was the need to provide additional units to offset increasing costs and react to changing policies, such as the introduction of the SRD in 1991 and the SRS in 1995, which allowed for a higher consumption of FSI on the site. Thus, while the original SPARC plan presented in 1988 proposed a three-floor high housing block around a small courtyard, the eventual design resulted in a five-storied housing block where the first three floors were composed of 14-foot-high units that were topped by two floors of more conventionally designed 10-foot-high units designed to be sold in the open market. Secondly, despite SPARC's desire to reduce costs and limit gentrification by providing common external toilets, the project, as built, finally provided nearly half of all units with attached toilets and bathrooms after negotiations between the developer and residents of MCHS to incorporate them within their homes.

Even though MCHS was completed more than 25 years ago, it stands out even today in Mumbai's housing landscape as an intelligent response to a complex problem. Its façade along the 60-feet road that cuts across Dharavi's south-western pocket reveals its unusually high ceilings with double rows of window openings on the lower three floors (including the ground floor that contains a range of shops and commercial units) and more conventional dwellings on the upper two levels. Two access points on this façade draw people into the scheme, leading to a double-loaded corridor serving the 18-foot by 10-foot units with tall ceiling heights and double rows of openings. Common toilets catering to about half of the units are placed in the centre of the composition and adjacent to the inner lightwells. While the project seen today does show signs of wear and tear, it remains noteworthy not just for its radical managerial strategy that limited the role of the private sector and enabled a bottom-up and people-centric plan to emerge but also for its innovation in typological form that adapted the high-ceiling and loft design executed by SPARC elsewhere in Mumbai now in a mid-rise building block that circumvented rules to provide residents with an additional 100 square feet (9.28 square metres).

In 1995, while MCHS was still being built, another cooperative of slum dwellers in Dharavi approached SPARC, requesting their assistance in redeveloping their slum. By 1996, SPARC agreed

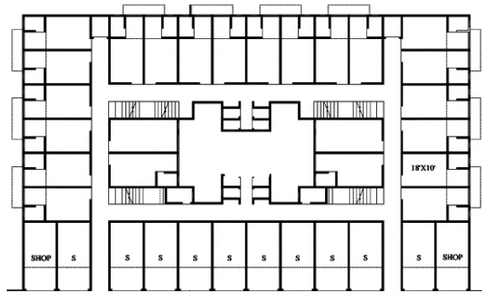


Fig. 20 The plan of Markandeya CHS takes the form of a simple rectangular block with shops facing the main road on one side which also contains two entrances that lead to the residential units, each measuring exactly 180 square feet on the interior.



Fig. 21 The original plan for Markandeya CHS consisted of a modest three-storied dwelling block, without any units marked for "sale".

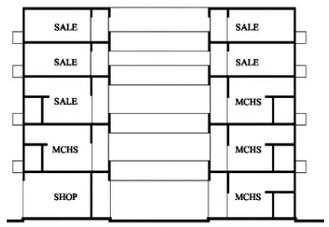


Fig. 22 The final design of Markandeya CHS involved the construction of both "rehab" and "sale" units, roughly of equal built-up areas, resulting in a dwelling block containing a total 180 units.



Fig. 23 View of Markandeya CHS along the 60-feet road. On the ground floor are commercial units of various kinds. Above them can be seen the high-ceiling floors containing "rehab" units with double-rows of windows.

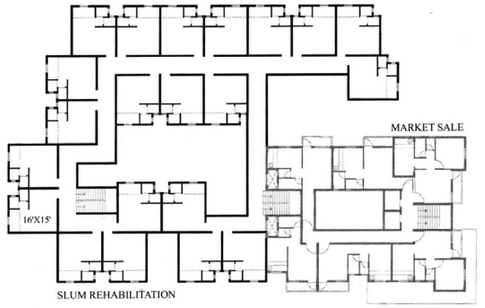


Fig. 24 Rajiv Indra SRA CHS is a development of Markandeya CHS. However, unlike its predecessor which combined "rehab" and "sale" units in one block, here we find two separate mid-rise tower blocks accessed by central gallery.

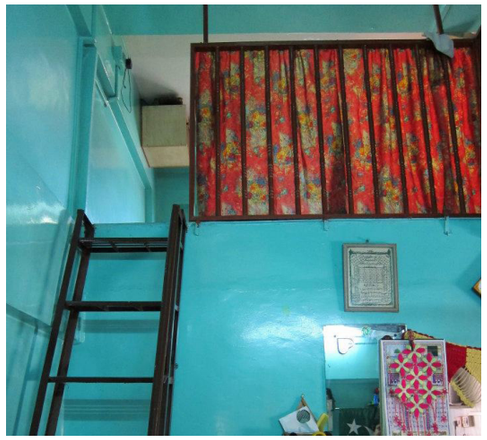


Fig. 25 An interior of a typical dwelling inside Rajiv Indira SRA CHS showing the high ceiling heights and mezzanine floor that provides an addition 9.3 square metres of living space.



Fig. 26 Balconies protrude beyond the facade to provide each dwelling unit with additional space for storage, living as well as drying of clothes.

to take on the project not just as a bridge between the residents and the SRA but as the project's developers. Commissioned by SPARC and designed by Suchita Chogle of the architectural firm of Pansare, Chogle and Associates, **Rajiv Indira SRA Co-operative Housing Society** (RICHS) follows in the footsteps of MCHS, particularly its architectural features such as the 14-foot-high units with lofts. However, unlike the MCHS, where only half of the residents opted for attached toilets and bathrooms, in RICHS, all units are self-contained and consist of a roughly 240 square foot living space, along with an attached toilet, bathroom, kitchen, and a 100 square foot loft to be used either for storage or sleeping. Another difference is that whereas in the MCHS, all units are arranged in a neat rectangle with the top two floors dedicated to open market dwellings of more conventional ceiling heights, in RICHS, the clustering of units is looser to fit the site. Moreover, rather than top the scheme with the so-called "free-sale" units, in RICHS, these units are arranged in a separate wing with their own apartment size variations that range from two to three-bedroom dwelling units.

Beyond singular housing projects, the work and involvement of organisations such as SPARC and NDSF extend into the realm of large-scale urban planning as well. One of the positives of the publication of the original DRP of 2004 was the wave of resistance that followed, which challenged the government's plan of wholescale redevelopment with several petitions and alternative solutions to the proposed development. SPARC, for example, teamed up with a local architecture school, the Kamala Raheja Vidyanidhi Institute for Environmental Studies (KRVIA), in 2010 to study, document and provide an alternative design strategy to the DRP. Summarised in their book *ReDharavi*, their recommendations starkly contrast with the top-down model of the Mukesh Mehta-led DRP and invested heavily in mapping and learning about the many communities that make up Dharavi. This involved mapping not only the many existing housing typologies but also their occupation, levels of infrastructure, and, of course, the needs and aspirations of inhabitants. Thus, rather than viewing the possible future of the settlement as a completely new greenfield development, they propose a process of redevelopment "that is not thrust upon the residents from outside, but one that is rooted in a local and participatory environment."[40]

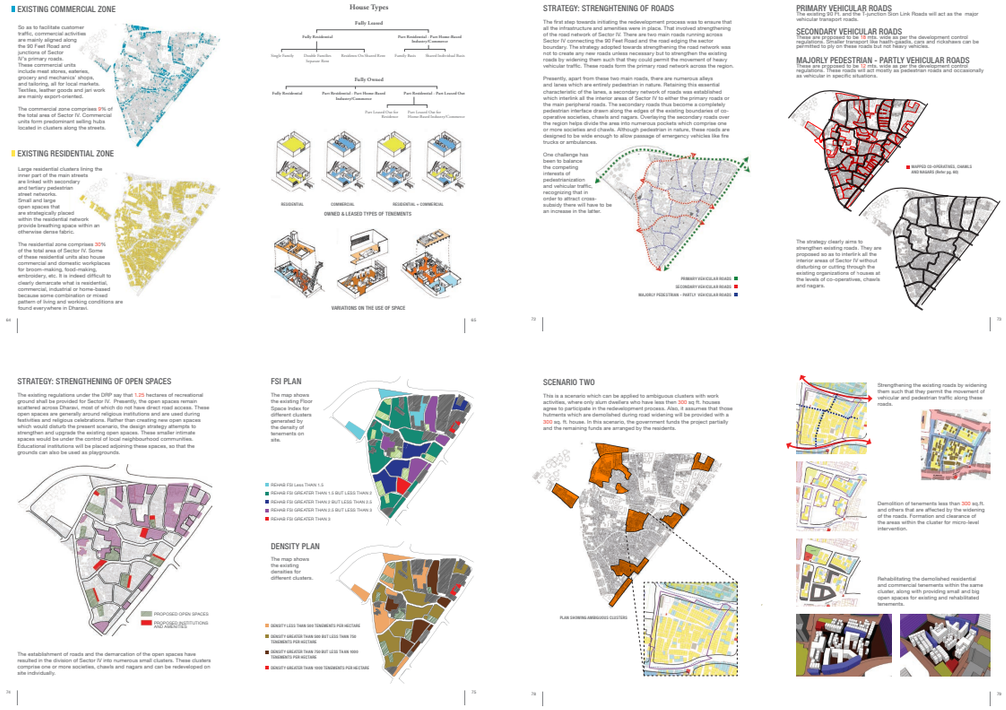


Fig. 27 The 2010 proposal by SPARC & KRVIA builds on an understanding of local conditions, and proposes design strategies that provide a bottom-up approach to re-developing clusters within Sector 4 of Dharavi based on strengthening existing streets and open spaces.

FUTURE TRAJECTORIES

Ever since the Moghe Committee and the Awale Committees looked into the possibility of redeveloping slums as a viable alternative to slum upgrading and improvement, 'slum redevelopment' as a mode of policy intervention in the city has undergone many revisions and corrections, including relaxations in terms of FSI, granting of TDR and other concessions – or deregulations – concerning building rules and standards. Today, alongside the redevelopment of Dharavi – perhaps the largest slum redevelopment scheme in the world – several other large-scale and noteworthy redevelopment schemes are currently underway or await construction. Chief among these is the redevelopment of the iconic BDD chawls – spread over some 37 hectares across four sites in the city: 121 chawl buildings in Worli, 32 on NM Joshi Marg, 42 in Naigaon and 12 in Sewri. Next to Dharavi's redevelopment, the redevelopment of the BDD chawls are undeniably the most coveted and contested of all redevelopment schemes. Formulated under the DCR 33(9)(B) meant for 'cluster redevelopment', these are not examples of 'slum redevelopment', but the renewal of old, "dilapidated" projects built by the colonial British government in the 1920s. The most visible and prime example is the case of the redevelopment of the BDD chawls in Worli. Following an open tender process in 2018, Tata Projects Limited, in a consortium with Capicit'eInfraprojects Ltd and CITIC Group, secured the 11,744-crore rupee (1.4 billion USD) winning bid. Notwithstanding the scale of the project, which demands approximately 10,000 families to be rehabilitated, their proposal demonstrates a lack-lustre cookie-cutter approach that has become the default solution for many such cluster redevelopment schemes. The Tata-led project aims to demolish and redevelop all 121 existing BDD blocks in 87 "rehab" buildings across 10 clusters. Each cluster, composed of mainly 'I' and 'T' shaped building blocks, will rise to approximately 24 floors containing more-or-less identical 500 square foot (46.45 square metres) dwelling units, along with three floors of basement parking, a primary and secondary school and a 'clubhouse' of four floors as amenities. In exchange, and to offset the project's cost, the developers will be allowed to build ten "sale buildings" that will each rise to 74 floors in addition to three floors for basement parking and a commercial tower that will rise to 30 floors. These, too, lack any attempt at creating community and follow a tried and tested formula of apartment layouts that, in this particular case, result in cross-shaped tower blocks.

Variations of this approach of rubber-stamping tower blocks have also been mooted at two other sites of the BDD chawls with nearly identical layouts, namely at Naigaon, designed by Sandeep Shikre, where cross-shaped tower blocks with eight apartments per floor, again of roughly 24 floors, dominate the rehab component and NM Joshi Marg designed by Laxman Tithe, where again we find the deployment of the cross-shaped tower block as the primary design response.

However, alongside these high-profile cases, it must be remembered that slum redevelopment, as a mode, extends beyond the scope of the SRS or, in fact, even the provisions provided by the DCRs. In places like Nalasopara, on the northern fringes of the Mumbai Metropolitan Region (MMR), we can observe a different kind of private sector-led redevelopment of low-income neighbourhoods. Over the last twenty to thirty years, once agricultural lands have transformed into residential areas for low-income migrants with a specific type of low-rise one-room tenements known as 'baithi chawls'. These chawls, with their narrow footprints, are typically arranged in rectangular layouts where a central access passageway serves rows of one-room dwellings, each roughly between 15 to 20 square meters in size. With the city's footprint rapidly extending to these once-faraway outskirts, private contractors and small developers have, in recent years, redeveloped clusters of these narrow *baithi chawls* into four-and-five-storied walk-up apartment blocks. Because they are built on the existing footprint of their former chawls, these buildings are closely packed together, sometimes leaving as little as one or two metres of open space between them, giving them the local nickname "handshake chawls". Take the neighbourhood of **Rehmat Nagar** as an example. Here, we can find a number of these newly built handshake chawls. A typical one consists of a centrally located staircase that serves 12 units on each floor, each roughly 18-20 square metres in size (the corner units extend to the edge of the façade and are slightly larger, about 23 square metres in area). Each of these units is accessed by a gallery situated on one façade reminiscent of the layout of typical chawls found in the heart of Mumbai, which were built over a century ago. However, while the original chawls of Mumbai contained spaces for shared toilets and bathrooms, these newly redeveloped chawls are self-contained units with private toilets and kitchens. But like their predecessors, these are also often one-room units where the living spaces double as sleeping areas at night. In many ways, recent developments such as these in Mumbai's northern and eastern peripheries echo modes and forms of building and dwelling that once dominated housing in the island city.

CONCLUSION

Today, TDR and FSI have become the primary instruments for planning and producing housing. Recent research at New Delhi's Centre for Policy Research (CPR) also makes clear the unfortunate reality that a mode like 'in-situ slum redevelopment', once limited to the financial capital of Mumbai, is now rapidly and inexplicably being exported to the rest of the country through the 'Housing for All' mission.[41] Ignorant of the vital tripartite relationship that exists between housing, jobs and public transport and utterly unresponsive to the domestic, social, economic and cultural practices of people, these high-rise, high-density models, which Mehrotra refers to as "absolute solutions"[42] have become the default typology for affordable housing, not just in Mumbai but across India's large urban centres.

However, the question of whether or not such an enabling approach, as evident in the implementation of the SRS in Mumbai, could indeed address the housing deficit and if it could address the everyday needs of the poorest sections of society is a matter of much debate. On one hand, some have hailed the government's current approach as more "participatory, facilitative and inclusive, with more room for the market."[43] On the other hand, housing activists, academics and vast sections of civil society have criticised schemes such as the SRS as nothing more than just a "land grab" reflecting the "steady, if not linear, erosion of the entitlement of the urban poor."[44] Scathing attacks have also come from city architects and planners like PK Das, who, in a seminar in 2005, had this to say about Mumbai's much debated and contested slum rehabilitation scheme:

"The Shiv Sena–BJP Government in Maharashtra came into power in March 1995. One of the promises given in the `Wachan Nama' or Charter of Commitments of the Shiv Sena–BJP alliance in Maharashtra was the promise of providing free houses to 40 lakh slum-dwellers in Greater Mumbai. This was the greatest bluff ever perpetrated on the city's poor. While a small section of the slum-dwellers, mostly the slum-lords, (a) large number of elected representatives and the highly opportunistic self-styled leaders were excited by the offer, the majority realized from the very beginning that this was merely a political gimmick. In many interviews and discussions both in the press and otherwise, Mr. Bal Thackeray, founder and leader of the Shiv Sena who was also the architect of this scheme of free houses to the slum-dwellers, could not elaborate or how this target would be achieved, nor did he have any definite program to do so. After coming to power, the program was pursued by the Government for implementation. But if failed miserably and as expected, led to serious violations of land and housing rights, including the abuse of human rights. The slum-dwellers have been subject to greater abuse and threat of displacement. This policy is being proudly continued by the present government led by the Congress and Nationalist Congress coalition. This government has further introduced a host of new concessions to facilitate and appease the developers and reinforce the earlier governments' oppressive plans and programmes. These do not benefit the slum-dwellers."[45]

Amita Bhide, a sociologist and professor at the Mumbai-based Tata Institute for Social Sciences (TISS), goes as far as to label the as a form of "structural violence" that "began as a scheme, but over time, has emerged as a regime of socio-spatial control that perpetuates dependence on speculative markets and creates new forms of exclusion."[46] Leaders of local grassroots organisations like SPARC and NDSF have levelled similar criticisms. Jockin Arputham, for example, is blunt about the true objectives of the SRS, stating that this "policy is about giving cakes and carrots to builders and developers. It's not in the interest of improvement of slum dwellers." Condemnations have also come from within government circles. An internally commissioned government report on the SRS dismissed it as "nothing but a fraud, designed to enrich Mumbai's powerful construction lobby by robbing both public assets and the urban poor."[47]

Several of these issues arise due to failures in policy-making. The most critical of these has been the insistence on cut-off dates for eligibility. The SRD, implemented in 1991, set the cut-off date for eligibility as those mentioned in the 1981 census. The SRS that came into effect in 1995 set the cut-off date as 1st December 1995. Subsequently, in 2009, the cut-off date was revised to 1st January 2000. Despite these extensions, these cut-off dates have typically excluded up to 40 per cent of all slum households from benefitting from the scheme, resulting in the SRS serving only a specific section of the slum population in Mumbai.

The second failure has been that the policy fails to recognise that most structures within self-built settlements across the city accommodate a substantial presence of rental units whose tenants do not qualify for the SRS.

Thirdly, although the SRS provides a near-equal ratio of square metres for the "rehab component" and "free-sale component" as part of its cross-subsidy model, the reality is that most slum redevelopment schemes do not share equal footprints (ground coverage) on their sites. In most cases, the relaxations of building rules and standards result in the "rehab component" consuming 30-35 per cent of the original sites, with the rest earmarked for the "free-sale component" to claim the more significant portion of the sites for commercial gain. This not only results in the destruction of livelihoods for slum dwellers whose networks of commerce and employment are broken in these new 'vertical slums' and a further densification of the plot but also startling adjacencies where the inequalities between the rich and the poor become more visible.

Finally, scholars and activists like Amita Bhide, for example, have claimed that moving from self-built houses to vertical apartments works only for a quarter of residents. In a recent interview, Bhide claims:

> "A vast section of vulnerable people whose livelihoods do not conform with living in buildings. Many do not have earnings, leading hand to mouth existence, to match the responsibilities like paying for waste management, electricity, water charges...these buildings are not designed for people whose livelihoods involve recycling goods or selling items which require storage, activities which are not allowed in a residential building."[48]

Despite these apparent problems, the SRS has become the dominant mode by which the state chooses to intervene in low-income neighbourhoods in Mumbai. In a talk given at the 2007 Urban Age conference organised by the London School of Economics (LSE) and sponsored by the Deutsche Bank, S.S. Kshatriya, then Principal Secretary of the Housing Department of the Government of Maharashtra, announced his clear promotion for the SRS with these opening remarks:

> "We'll plan for making cities without slums. That does not mean bulldozers will be there... we have moved far...a long way from that, and our policy is that we are going to provide in-situ housing for slum dwellers wherever they are residing, except for where the land is required for a vital public project, like an airport, road or railway line."[49]

Since establishing the SRA in 1995, the private sector has built nearly 160.000 such units over a 19-year period until 2014, with another almost 90.000 units planned for construction. Compared to this, the state government's housing board, MHADA, mandated to build affordable housing in the city, had built a mere 20.000 units over the same period, and the SRA cell of the MMRDA had built another 26,000 units.[50] Such figures clearly indicate the state's intentions and the private sector's exaggerated influence in formal housing production. More recent studies by Sameep Padora and Shreyank Khemalapure in their 2023 book *(de)Coding Mumbai* indicate that the SRA has more than 1500 projects executed or currently under construction or approved for construction in the city. They further argue that if a scheme like the SRS were allowed to redevelop all of Mumbai's slums, even a back-of-the-envelope calculation exposes a doomsday scenario that would squeeze Mumbai's slum population, who currently occupy 9 per cent of the total land area of the city into a mere 3.15 per cent.[51] If allowed to be executed, such densities would not only have a disastrous impact on the lives of millions of slum dwellers but also severely damage the city's economy, which relies heavily on the economic activities within slums.

The history of slum redevelopment in Mumbai, starting with the three and four-storied walk-up apartments promoted by the PMGP in the mid-1980s to the thirty-storied slabs of today, makes clear that under the guise of making Mumbai a "slum-free" city, the SRS in its present formulation draws a clear link between Hernando de Soto's theories of converting "dead capital" into "liquid capital"[52] through a mode that invites private sector participation to "unlock" the development potential of urban land as a method to cross-subsidize "free housing" for slum dwellers with full ownership titles.[53] Building on Ananya Roy's critique of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) that similarly sought to "transform slum land into urban assets", [54] the SRS marks a clear move towards what Asher Ghertner terms the "proprietary of property"[55] – a paradigm where housing is primarily seen as a site for private profit and not a public good. ■

SLUM RESETTLEMENT & REHABILITATION



Fig. 1 Lallubhai Compound in Mumbai's disadvantaged M-East Ward is perhaps the city's most well-known and criticised slum resettlement schemes

"It is hard to avoid some population displacement in any city where the government seeks to improve the provision of infrastructure and services for their populations and enterprises. In crowded central city areas, almost any improvement in provision for water, sanitation, drainage, roads, railways, ports, airports and facilities for businesses needs land on which people currently have their homes. Within an increasingly competitive global economy, a successful city needs to attract new enterprises, and this also requires redevelopment and changes in land use. It is difficult within any successful city to obtain well-located sites for those who are displaced."

Sheela Patel, Celine d'Cruz and Sundar Burra, *Beyond evictions in a global city: people-managed resettlement in Mumbai*, 2002

Scanning new large-scale development schemes across Eastern and sub-Saharan Africa, Vanessa Watson, in her paper 'African Urban Fantasies', illustrates several cases, such as the Kigali Conceptual Master Plan in Rwanda and the Nairobi 2030 Master Strategy, where local and national governments have modelled their urban futures on images that come from the so-called "world-class cities" of Dubai, Shanghai and Singapore. Registering the shift from "static land use zoning plans"[1] of yesteryears to today's more speculative and fashionable renderings, Watson highlights the power of architectural form – what Rahul Mehrotra terms the "tyranny of images"[2] – and the role that local and international architectural firms, planning agencies and property development firms play in determining and curating the emerging urban landscapes throughout the continent. Terming such projects and proposals as "urban fantasies"[3], Watson is dismissive of such attempts to create "world-class" or "future cities". Despite Africa's impressive recent economic progress, the fact remains that the making and re-making of cities in the pursuit of "modernisation" – and particularly in contexts where democratic processes are weak – often end up dispossessing low-income people of their settlements and livelihoods. In the same paper, Watson writes:

> Africa's larger cities seem to be entering a new era of change, driven by the continent's own economic growth and emerging middle class as well as an international property development and finance sector in search of new markets. The urban visions and plans that this confluence of interests has produced stand in dramatic contrast to the lived reality of most urbanites, and while their impacts are likely to be complex and contradictory, what seems most likely is that the majority of urban populations will find themselves further disadvantaged and marginalized. It is access to land by the urban poor (as well as those on the urban periphery and beyond) that is most directly threatened by all these processes, and access to land in turn determines access to urban services, to livelihoods and to citizenship.[4]

Of course, such processes of "accumulation by dispossession"[5] or "development induced displacement"[6] are by no means new or, for that matter, unique to Africa. More than ten years before Shanghai and Singapore served as a model for the redevelopment of Kigali in Rwanda, Mumbai, India's economic powerhouse, sought similar inspiration. In 2003, a Mumbai-based "elite NGO"[7] (non-governmental organisation), then known as *Bombay First*, commissioned the global management consultancy firm McKinsey to draft a blueprint for the transformation of Mumbai into a "world-class city".[8] Recognising that Mumbai occupied a lowly 163rd place (out of 218 cites worldwide) on the *Forbes* quality of life survey, and backed by some of the city's most influential industrialists and aided by the active participation of several government agencies, their report titled *Vision Mumbai: Transforming Mumbai into a World-Class City* came to represent a turning point in city-making in India, and perhaps, the country's first prominent example of policy-making borne out of public-private partnerships (PPPs). [9]

However, unlike the "fantasy plans"[10] of Africa, the McKinsey report on Mumbai contained absolutely no architectural or urban visualisations. Instead, the transformation of Mumbai, in particular, its large informal settlements or "slums", was based on statistical and financial projections outlined through eight propositions that ranged from upgrading infra-

structure to redeveloping slums with private sector participation over a span of ten years. Proposing an investment of 40 billion US dollars (one-fourth of which will come from public sources), one of the key aims of the report was to tackle Mumbai's affordable housing shortage through the creation of 800,000 low-income houses through a revised SRS scheme that would, in contrast to the current scheme, move away from its promise of providing "free housing" to a "limited user charge model" which would require slum dwellers to also contribute partially towards the cost of their homes.[11] This, the authors of the report believed, would "reduce the incentive for new slum dwellers to squat." They also recommended that new houses be subject to standard user charges concerning property and water taxes and that no new slums beyond the then-official cut-off date of 1 January 1995 be considered for redevelopment or resettlement. Throughout the report, the language and ambition are that of dramatic transformations to strengthen Mumbai's competitiveness in an increasingly globalising market. In three separate instances, the report's authors reiterate what seems to be their main argument: "What is really needed is for Mumbai to undergo a change in mindset: from thinking incrementally, it must begin to think of making step jumps." These "jumps" they refer to are inspired by the transformation of Shanghai – and the mythic images of "renaissance-like improvements" that were carried out during the tenure of Mayor Zhu Rongji between 1987 and 1991.[12]

Speaking against such radical transformations, Mehrotra is critical of what came to be known as "Shanghaization", stating that "(what) politicians forget when they use these metaphors is that these are landscapes of autocracy, they're not landscapes of democracy."[13] Rather than dwell on wholescale transformations, Mehrotra urges policy-makers and spatial practitioners to understand the city as "an elastic urban condition, not a grand vision, but a 'grand adjustment'".[14]

Yet, this is precisely what does not happen. Soon after *Vision Mumbai* was published, in April 2004, the Government of Maharashtra published its own Task Force report that was primarily framed on the recommendations of the McKinsey study. But, the most significant boost to this "Shanghaization" model was to come a few months later, in October 2004, when the architect of India's economic reforms and then Prime Minister, Dr Manmohan Singh, delivered a speech in Mumbai on the eve of state elections:


THE WALL STREET JOURNAL.

Latest World Business U.S. Politics Economy Tech **Markets & Finance** Opinion Arts Lifestyle

PROPERTY REPORT

Mumbai's Slums Make Way for Luxury Residential Towers

When slums are taken over for development, many dwellers don't find a new home

By Shefali Anand Follow *and Gabriele Parussini* Follow

Updated Jan. 24, 2017 8:10 am ET

Share Resize 6

Hasratuli Sheikh, above, lacks documents for her Dhobi Ghat home and may be unable to benefit from slum rehabilitation in Mumbai. PHOTO: SUBHASH SHARMA

Fig. 2 Extract from *The Wall Street Journal* that published an article on Mumbai's mode for re-inventing itself as a "world class city" through large-scale slum clearance and resettlement schemes.

> When we talk of a resurgent Asia, people think of the great changes that have come about in Shanghai. I share this aspiration to transform Mumbai in the next five years in such a manner that people would forget about Shanghai and Mumbai will become a talking point...I have a dream that we can do it. I believe we can become number one through modernization, expansion, and development and make Mumbai the number one city in our country.[15]

OPERATION SHANGHAI

Following the 2004 elections, the state government under the leadership of Vilasrao Deshmukh earmarked nearly 6.5 billion US dollars to transform Mumbai into a "world-class city" like Shanghai. An additional 2 billion US dollars was to come from the central government. Among its many objectives, a vital component of this new plan included demolishing, redeveloping and resettling "encroached" lands. Over four months, from November 2004 to March 2005, the government of Maharashtra initiated what came to be known in local and national media as 'Operation Shanghai'[16].

In a brutal display of top-down exclusionary planning, bulldozers demolished an estimated 90,000 homes, home to nearly 450,000 slum dwellers across 44 sites that occupied almost 300 acres (or 120 hectares) of land.[17] This "Shanghaization" of Mumbai drew varied responses. Largely well-received by property developers and the private sector that recognised its implied economic opportunities, the report and its connection to the 2004-2005 demolitions did, however, face considerable criticism from the media and certain sections of civil society.

When asked what he thought of Vision Mumbai and the city's aspirations to become the next Shanghai, the Mumbai-based architect and planner Charles Correa bluntly replied: "That's not a vision; that's a hallucination."[18] Fierce criticism also came from the city's many NGOs and housing activists and led to fuelling housing rights movements across the city, most notably resulting in the formation of the coalition now called the *Ghar Bachao Ghar Banao Andolan* (Movement to Save and Build Homes) that formed a part of the National Alliance of People's Movements (NAPM).[19] Movements such as these are only the most recent in a long history where similar housing activist groups were established after previous waves of demolitions that various governments had carried out under the pretext of "public interest" works and "development". *Nivara Hakk*, for example, was formed more than four decades ago in 1981, when a number of influential members of civil society, including the well-known actor Shabana Azmi, the filmmaker Anand Patwardhan and the architect PK Das, among others, rallied together to fight for the rights of slum dwellers who faced evictions from prime lands in South Mumbai. Another NGO, the Society for the Promotion of Area Resource Centres (SPARC), was set up soon after in 1984 to fight for the rights of pavement dwellers who faced constant threats of eviction and to educate and enable them to participate in the planning and development of their own neighbourhoods.

Over the years, alongside the formation of several city-based NGOs and CBOs, successive and brutal waves of demolitions have also raised questions such as: who is the "public"? In whose interest are "public interest" works carried out? And, can development be justified by displacement? Take, for instance, the contrasting growth trends in two Mumbai wards. According to the 2011 census, the slum population in Ward A of Colaba in south Mumbai registered a net decrease of 63 per cent – a significant proportion of whom have, over decades, been systematically relocated to areas with lower land values, such as M-east Ward[20], Mumbai's most disadvantaged precinct where nearly 85 per cent of its residents are slum dwellers.[21] Thus, while gleaming glass towers mushroom in the south and central Mumbai, large sections of the city's urban poor are being simultaneously displaced from their self-built settlements in these areas and being forcibly removed or relocated to high-density tenement buildings in faraway fringes of the city, making planning in Mumbai – under the disguise of development – increasing exclusionary.

Facts support such claims. As various housing experts have pointed out, the slum resettlement packages of the current era not only typically result in a net loss of homes (with one report indicating that up to 15-20 per cent of households get evicted without resettlement on the criteria of "eligibility"), but they also demolish the vital networks that exist between housing and people's livelihoods.[22] However, it must be kept in mind that while reports such as *Vision Mumbai* or demolition drives like 'Operation Shanghai' suggest that the speed and scale of slum clearance and resettlement schemes have magnified in the current era of increased economic liberalisation, a longer view of history reminds us that as a mode, these are by no means solely a by-product of India's recent economic reforms, and therefore, by no means new. More than two decades before 'Operation Mumbai', the former Chief Minister of Maharashtra, A.R. Antulay, initiated in 1981 a massive slum demolition drive named 'Operation Eviction' that displaced and deported slum dwellers to



Fig. 3 Strating in the 1970s and gaining particular momentum in the 1980s, several NGOs challenged and resisted slum clearance drives. Pictured here is one such protest by Nivara Hakk that through successful activism was able to secure affected slum dwellers with alternate accomodation following demolition of their homes.

faraway outskirts of the city in packed buses and trucks. Similar evictions also took place in the early post-independence years despite the rhetoric of that time suggesting that housing was both a social and a welfare responsibility. Thus, the story of growth, development and housing the poor in this city has, from its very beginnings over a century ago, been a story of both housing and dis-housing the urban poor.[23] To understand these developments, we can once again look at the city's changing built form that serves as a barometer for these shifts in policies, production and patronage.

FORCED TO FLEE: AN OLD PARADIGM

In the aftermath of the 1896 Bubonic Plague, the Bombay Improvement Trust (BIT), set up in 1898 under the Bombay Act IV of the same year, embarked on a series of ambitious and large-scale improvement schemes that broadly consisted of two strategies: the so-called "indirect attacks" and "direct attacks".[24]

While "indirect attacks" concerned primarily land acquisition and expansion of the city to new suburbs that could absorb some of the population of the growing city through "street schemes" and "town planning schemes" (elaborated earlier in Section 3.2 and also known as "city-extension schemes"), the "direct attacks" comprised of "clearance powers" to restructure dense inner-city areas for better light, ventilation and access as well so-called "improvement schemes" to resettle the displaced populations in new housing built along modern "sanitary" lines.[25]

The first example of this approach to building new housing estates for displaced populations remains intact in **Agripada**, central Mumbai. Starting construction in 1899, barely a year after the formation of the BIT, the project is a result of the Nagpada Improvement Scheme that cleared an area of 6 hectares, which, as per some accounts, included the worst slum area in the city at the end of the 19th century.[26] Built as rental housing for low-income daily wage and mill workers displaced by the slum clearance drive following the plague, the project consists of four ground plus two-storied blocks that draw inspiration from the local 'chawl' type, particularly, the 'bar chawls' developed by the city's many mill owners, trusts and private enterprises.

Built of load-bearing brick and lime masonry, timber frames and clay roof tiles, three of the four blocks in Agripada are identical, with floor plates measuring slightly over 50 metres long and 14 metres wide and containing 75 tightly packed single-room units measuring precisely 12 feet by 10 feet (about 11 square metres). In addition, each unit is also provided with a metre-and-a-half-wide veranda that contains bathing and wash areas. On the ground level, each block is accessed from an entrance placed on the shorter end that leads to an internal shared corridor that measures a little under one-and-a-half metres wide. Open on its two short ends to bring in light and ventilation, these corridors also provide access to the latrines that are placed on one end of the blocks, separated from the dwelling units by an air space. A centrally located wooden staircase provides access to the units on the upper two floors. The fourth block, facing the main east-west street (known today as the Meghraj Sethi Marg), is slightly shorter and contains 69 rooms, but for the rest, it is identical in layout and arrangement to the other blocks.

Although the chawls at Agripada resemble several other chawls at the scale of the individual block, they did introduce innovation in urban design. While most chawls built at the time primarily occupied tight plots and lacked clear planning standards, the BIT built the blocks in Agripada to align with the planning norms set by the Port Trust that recommended densities of no more than 500 persons per acre (about 1250 persons per hectare). As a result, the blocks were arranged around a large courtyard that allowed for a generous quantity of open space for social and cultural activities. However, the low-density norms prescribed by the Port Trust would later also invite criticism from G. Owen Dunn, who served as the Chairman of the Trust between 1904 and 1909, for being too inefficient in terms of density and economy. In a lecture, Dunn further states: "The exceedingly large open space was provided in pursuance of the Port Trust standard of a density of 500 persons per acre, but it appears on the face of it to be an unnecessary waste of valuable land, especially where space is limited. The standard is no doubt sufficiently generous in the case of an extensive district comprising roads and open spaces and buildings of different classes and uses, but to apply it as a sanitary test to one particular site alone is, I venture to think, an extravagant mistake, the infinitely more correct test being density per room; and even here the standards laid down by English sanitarians are capable of considerable modification in view of the very different conditions that obtain."[27]



Fig. 4 Map of the Island of Bombay dated 1912 showing in colour the various activities of the BIT: blue indicating areas vested in the trust; yellow for 'reclamation schemes'; brown for schemes proposed or in progress; and crimson for "improvement schemes". The resettlement scheme of Agripada with its four chawl structures can be seen highlighted in blue south of Byculla and located in West Agripada.

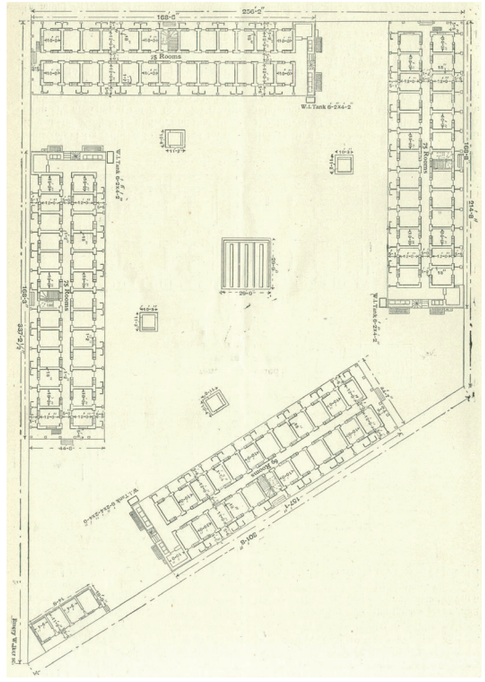


Fig. 5 Plan of the resettlement scheme in Agripada that started construction in 1899 as a result of the First Nagpada Improvement Scheme. The project is simple and consists of nearly identical chawl blocks. However, it followed the Port Trust's planning norms that did not allow for densities greater than 500 person per acre. As a result, unlike other chawls in the city, the scheme at Agripada is characterised by a large central courtyard.



Fig. 6 More than 125 years after it was built, the scheme at Agripada still stands is full of residential units on its two upper levels, and mixed units on its ground floor.



Fig. 7 Spread across a quadrangle, the scheme at Agripada is generous in terms of its access to light and open space.

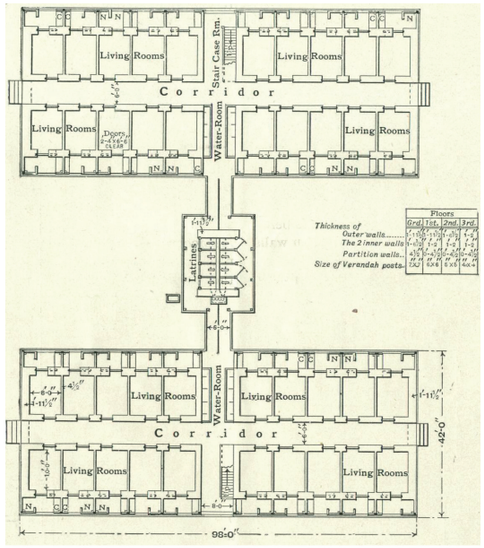


Fig. 8 Plan of the Agripada Scheme B with its distinctive H-shaped block. The most distinctive feature of its design is the shared toilet and bathroom core.



Fig. 9 A recent photograph of Agripada Scheme B showing the central toilet and bathroom core flanked by two linear wings on either side.

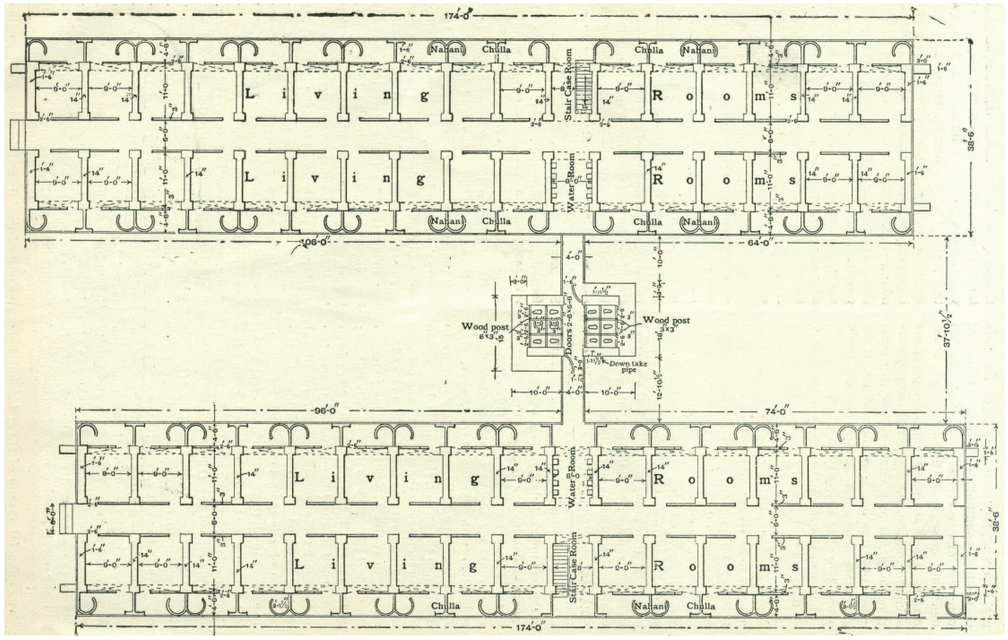


Fig. 10 A further development of the H-shaped block can be seen in the scheme for 672 dwelling units at Chandanvadi (developed as part of the Princess Street Scheme) where a longer length of the chawl resulted in a wider central corridor to bring in more light and ventilation.

Soon after the building of these first four blocks of chawls at Agripada, the BIT built another nine blocks just north of the original site in what came to be known as **Agripada Scheme B**. Built over three phases starting in 1899 and ending in 1911, the design and layout of this project to house mainly displaced people from a previous demolition drive mark several revisions and improvements that the planners and administrators of the BIT made to improve the efficiency of the chawl typology. The first was to develop a more efficient H-shaped tenement block as opposed to the linear slab of the first scheme. A key feature of this project was that it now accommodated a central toilet and bathroom core on every floor designed to be shared between the two wings of the H-shaped block and accessed by a shared corridor. The project is also noteworthy as it represents the shift in the use of materials and technology for mass housing where, rather than the load-bearing structures of the first chawls, we find in this project the use of ferro-cement technology in the third phase that was built after 1910. But perhaps most importantly, even though the BIT's landmark 63 ½ degree light and air rule was formally incorporated as a bye-law only in 1912, this second scheme in Agripada is already a built example of the rule that stipulates that the distance between any two structures must be such that the angle formed between the roof of one building and the base or plinth of the other should be no more than 63 ½ degrees to ensure adequate light and ventilation even to the lower floors. When completed in 1911, the nine identical H-shaped blocks at Agripada accommodated nearly 6000 mostly low-wage workers at a density of over 3000 people per hectare. Similar blocks of chawls were built across the city's southern portions in areas such as Chandanvadi and Lamington Road.

Another early improvement scheme was the **Mandvi-Koliwada Improvement Scheme** which tackled the area where the Plague was first detected. While the original scheme earmarked an area of 36,000 square yards (approximately 3 hectares) for demolition and improvement, by 1906, it was implemented on a reduced scale following disagreements with residents and landlords but entailed, like in other schemes, the widening of streets and constructing new buildings on sanitary principles. And just like in the two Agripada schemes, this scheme too resulted in a net loss of dwelling units as a portion of the original residents were rehoused in new chawls.[28]

Barely five years into the BIT's existence, the limitations of the BIT resettlement schemes had begun to surface. In 1903, the city's Health Officer noted the following:

> "The Improvement Trust in order to open up the city have demolished many houses and have not as yet provided for the displaced population. This increases overcrowding in the remaining houses and the area on which the new houses are to be erected will be much less than before the demolition owing to the making of new streets."[29]

As the Trust was granted "clearance powers" to demolish unsanitary precincts but was not legally obliged to rehouse the people displaced by its operations, by the end of the first decade of the BIT's existence, this dishousing of the urban poor had begun to raise severe objectives and criticisms from a broad group of parties is estimated to have displaced nearly 64,000 people, of whom only a per cent were offered resettlement housing.[30] The remaining 80 per cent were forced to "rush into already overcrowded localities and thereby make them even more unhealthy,"[31] which further deepened the housing crisis and continued to pose dangers to public health and sanitation.

After a decade of interventions, by 1909, the Trust had barely spent a fifth of its original budget and evicted over 50,000 people from unsanitary one-room tenement dwellings but had built only 2844 rooms in newly-built chawl buildings.[32] Nevertheless, it continued its approach of wholesale acquisition and demolition. By 1920, its report card looked slightly healthier, but still, the Trust's slum clearance and house-building activities revealed that while it had constructed 21,387 dwellings, it had also demolished 24,428 units.[33] Moreover, despite building private chawls, by this time, the city lacked nearly 64,000 units.[34]

As a result of these failures, most of the working class had little choice but to fend for themselves in worse living conditions than their former homes. Some studies even point out that due to the BIT's slum clearance schemes, which did not proportionately add to the housing stock through resettlement schemes and through large-scale town planning schemes, rents in areas like Girangaon and Parel rose four to five times over a span of only a few years.[35]

Writing in 1918, J.P. Orr reflects further on the inadequacies of the BIT's early interventions in housing:

> "In the earlier years of the Trust, too much stress was perhaps laid on the Trust's functions as a slum destroying agency with possibly too optimistic an estimate of the people's readiness to take up land in the Trust's new estates and to build sanitary houses there for the accommodation of people dishoused by the Trust's operations."[36]

Moreover, even when people did settle in the BIT's new chawls, many were not poor daily wage workers but, in fact, middle-class clerks and employees. Echoing the figures of the Census of 1931, the Chairman of the Trust himself admitted that "so far as mere housing is concerned, there will be more of the middle class accommodated on the Trust estates at present than of the poorer classes".[37]

POST-COLONIAL EXPERIMENTS

Jump-cutting about four decades, one can find a vastly different approach to slum clearance and resettlement in the northern suburbs of Goregaon West, where neat rows of single-story dwellings in **Motilal Nagar** mark the newly independent government's approach in the 1960s to clearing and resettling slum pockets from higher-land value districts in South Mumbai. Inaugurated in 1961 by then Prime Minister Jawahar Lal Nehru, Motilal Nagar (named, in fact, after Nehru's father, Motilal Nehru – a prominent lawyer and former president of the Indian National Congress) comprises approximately 3800 ground-storey dwellings, each measuring about 3.5 by 10 metres and built of local bricks topped by sloping two-pitched corrugated roofs. Each dwelling, arranged as row houses with shared walls for economic efficiency, consists of a central living area in the front, accessed through a threshold and a back area containing the service areas, namely the kitchen, bathroom, and toilet. These rows of houses are repeated along a network of primary and secondary streets that spread over two disjointed sectors: Motilal Nagar 1 measures 31 hectares and borders the Goregaon Bus Depot south of the main east-west artery of MG Road, and Motilal Nagar 2 and 3 that falls just north of MG Road measures about 20 hectares.

Noticeable in both these sectors is a clear masterplan that, alongside the orthogonal layout of streets, provides basic amenities such as community buildings, schools and shops on the intersections of various roads, and *maidans* (open grounds) for leisure and recreation. Seen today, Motilal Nagar, despite its origins as a top-down resettlement colony, resembles a vibrant community that, because of user adaptations and changes allowed over its nearly six-decade history, has grown to become a diverse mixed-use, mixed-income settlement full of dwelling types of various sizes and configurations: from two-to-three storied residential townhouses to complex live-work units that combine shops and other kinds of commercial activities on lower levels with living spaces on higher floors.

However, not all resettlement colonies built in the first few decades following independence benefitted from the generous masterplan found in Goregaon. Fifteen years after Nehru inaugurated Motilal Nagar, waves of demolition drives became more frequent and intense in the 1970s during the tenure of Indira Gandhi – Nehru's daughter and Prime Minister between 1966 and 1977 and again from 1980 until her assassination in 1984.



Fig. 11 Plan of Motilal Nagar 1. Spread across 31 hectares, the scheme is characterised by an orderly grid of arterial roads and inner streets, punctuated by pockets of open spaces of various sizes, including 3 large maidans as well as zones schools and hospitals.

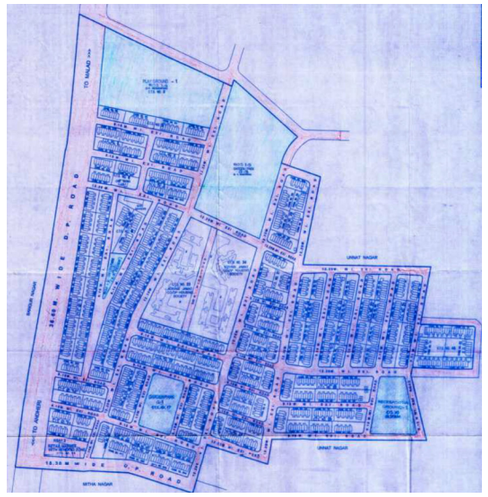


Fig. 12 The plan for Motilal Nagar 2 & 3 varies slightly from Motilal Nagar 1 as it needed to accomodate a more irregular pacel of land as well as other existing plots in its centre. However, here too we can find a rational plan of row houses strung along streets with open spaces and amenity spaces located at the intersections of streets.

These demolitions increased in intensity, particularly during the Emergency declared by Indira Gandhi between 1975 and 1977. During this period, which lasted a total of 21 months, slum clearance drives and ad-hoc resettlement schemes became the dominant mode of dealing with Mumbai's informal settlements despite the so-called protection that the first slum census of 1976 intended to provide to nearly 2.8 million slum dwellers.

EVICTIONS UNDER THE EMERGENCY

The most brutal of these demolitions took place on 17 May 1976 when the Brihanmumbai Municipal Corporation (BMC), armed with nearly 12000 policemen, demolished hutments in **Janata Colony** (People's Colony) located in the eastern suburb of Trombay near the Bhabha Atomic Research Centre (BARC). The demolition of Janata Colony – home to nearly 72,000 people – was alarming for at least two reasons. First of all, it was not technically a 'slum'. Ironically, the largely self-built settlement came into being in the 1950s as a slum resettlement colony under the tenure of Morarji Desai, who, as



Fig. 13 A recent photograph of an original house in Motilal Nagar. Over the course of the last 60 years, a vast majority of these modest starter houses have transformed into more substantial two and three-storied townhouses. Often, lower floors get transformed into small-scale commercial units or workshops.



Fig. 14 A typical street in Motilal Nagar. As opposed to most slum resettlement schemes, we find here a hybrid mix of top-down planning and bottom-up self-construction. In several cases, houses have grown vertically supported by external stairs that connect upper floors (often rented out separately) with direct street access.

the then-first Chief Minister of the erstwhile Bombay State, evicted vast pockets of slums spread across South Mumbai (particularly along stretches of Marine Drive, Worli and Tulsi Wadi) and resettling them in what came to be known as Janata Colony. Secondly, even though the 1976 slum census granted some protection during the Emergency, these rights were suspended, with the authorities citing the need to expand the BARC campus as a "public interest" project. Regarding planning and design, the layout of Janata Colony differed significantly from the well-planned rows of dwellings in the case of Motilal Nagar. Before its demolition, the settlement comprised small parcels of land owned by the BMC that – at most – measured about 15 by 20 feet (approximately four by six meters). On these small sites, people built their own homes while paying rents that, in the mid-1970s, ranged from 3 to 6 rupees per month, with the BMC only undertaking minor improvements such as building community toilets, paved roads and street lighting. Despite resistance, the violent demolition of Janata Colony gave birth to a new resettlement colony, Cheetah Camp, located further east in a low-lying and disadvantaged area bought by BARC from the BMC. Today, well over 12,000 households of various communities reside in this camp, many of whom were forcibly relocated from their homes in Janata Colony.

Another example of a slum resettlement colony formed during the Emergency can be found close to the original site of Janata Colony in **Shivaji Nagar**. Covering nearly 66 hectares and surrounded by the Deonar dumping ground, Shivaji Nagar is characterised by its distinct grid of streets and small plot footprints. Slum dwellers evicted under the 1971 Slum Act were each allotted either 10 feet by 15 feet plots (14 sqm) or 10 feet by 12 feet (11 sqm) plots. These plots, or "pitches", were allotted on long-term leaseholds and today house nearly 200,000 people in a diverse mix of migrant communities from rural Maharashtra, but also from far away states like Uttar Pradesh and West Bengal. Significantly, it is home to a predominantly Muslim population when compared to the demographic of the rest of Mumbai.

A similar layout of planned grids with minimal infrastructure can also be found in Mumbai's western suburb of Malad in Malvani. Planned around the same time as M-Ward's Shivaji Nagar, **New Collector Colony** – a planned resettlement scheme within Malwani was also born in the aftermath of forced evictions during the Emergency. Once a marshland with a few scattered fishing villages situated west of Malad Creek, New Collector Colony lies on a grid spread across about 30 hectares and accommodates roughly 60,000 people.



Fig. 15 Satellite image showing the grid of Shivaji Nagar.



Fig. 16 The edge of Shivaji Nagar is lined with commercial units and workshops.



Fig. 17 A typical street in Shivaji Nagar. The ground floor is mainly commercial with residences on upper floors.

Like in the case of Shivaji Nagar, here, too, slum dwellers were provided with small plots on a long-term lease, each roughly ten by fifteen feet in size (approximately 14 square metres), along with services such as water connections and community toilets. Around the colony is a diverse assembly of urban villages such as Rathodi and Kharodi Villages, slums such as Azmi Nagar, BMC Colony and Squatters Colony, as well as government-built affordable housing projects such as MHADA Colony – a mix of low-rise row houses for lower-income groups and mid-rise apartment blocks for middle-income groups.

In a 2014 study by the 'Design Cell' of a local architecture school, the Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies (KRVIA), in collaboration with a non-for-profit organisation, the Youth for Unity and Voluntary Action (YUVA), this colony has been documented as part of a broader study on Malvani to prepare a "local area development plan"[38] as an alternative to existing planning approaches. The surveys conducted by the team point out that nearly 80 per cent of the population owns their homes in this settlement, with a majority of the houses having, over time, achieved "pucca" status and providing nearly 5 square metres of living space per resident.

A 'densities map' within a section on 'socio-spatial conditions' also reveals that the densities achieved with this approach of providing plots with minimum services (a variation of the sites-and-services approach elaborated earlier in Section 3.3) are at 402 dwellings per hectare, nearly as high as the densities achieved in conventional mid-rise apartment blocks in MHADA Colony (with average densities of ranging between 250 and roughly 500 dwellings per hectare).

Like in the case of Shivaji Nagar, the dominant house type here is the 'shop-house' with the ground floor levels – especially along the main roads defining each grid – lined with commercial activities of various kinds and the upper levels used primarily for living. Again, like in the case of Shivaji Nagar, land use plans also indicate community toilets located at the centre of each grid in New Collector Colony. The only significant difference between the two in terms of physical planning is the presence of a large open space, roughly the size of two grids, in the heart of the colony that contains a municipal hospital, a public park and some small community spaces including a temple and a society office.



Fig. 18 Landuse plan for New Collector Compound.



Fig. 19 A typical street in New Collector Compound.

RUBBER-STAMPING RESETTLEMENT

However, not all interventions have benefitted from a low-rise, high-density approach where people have been allowed to build their own dwellings over time. More contemporary examples of slum clearance and resettlement – especially the kind that became commonplace after the introduction of the Slum Rehabilitation Scheme (SRS) in the early 1990s and enshrined in the city's DCR rule of Section 33(10) clause 3.11 (PAP rehabilitation) can be found across Mumbai's poorest ward: M-East Ward. In fact, the story of the development of this area of Mumbai is the story of resettlement itself. With its dumping grounds and polluting industries, the M-East ward has historically had some of the lowest land values in Mumbai and was primarily planned as a "low human activity ward".[39] Today, it is home to about 800,000 people – roughly the population of Amsterdam – 72 per cent of whom live in the 256 government-recognized slums and a sizable number in the 13 slum resettlement colonies that house thousands of former slum dwellers evicted from other parts of the city.[40] According to a Mumbai Human Development Report published by the

Ministry of Housing and Urban Poverty Alleviation in 2009, this Ward has the highest illiteracy rate in the city as well as the highest infant mortality rate (which at 66 per 1000 births is even higher than the average of 50 found in rural Maharashtra).[41] When viewed on Google Earth, we see in M-East Ward a standard typology of vertical and parallel slabs between five and eight stories tall packed next to one another at plot densities averaging between 900 and 1100 units per hectare[42] – about double the maximum densities prescribed in India's National Building Codes (NBC) for low-income neighbourhoods, and without the minimum provision of amenities required as per Town and Country Planning Organisation (TCPO) requirements.

An early example of this typology is **Maharashtra Nagar**, which covers an area of approximately four hectares and is built on the eastern fringes of Mankhurd. The complex is a rigid layout of 34 identical building blocks, each eight stories tall, with stilt parking on the ground floor and a doubly loaded corridor on the higher floors. Each level, accessed by two stairwells and elevator blocks, accommodates 16 dwelling units of 225 square feet each (20.9 square metres). With barely 4.5 metres between each such block, the scheme has a density of approximately 950 dwellings per hectare. When visited today, the scheme has been occupied, but without planned open spaces for social and recreational activities, it fails to create a sense of community. Poor maintenance and waste disposal (reinforced, no doubt, by a lack of feeling of ownership and community) have resulted in most open spaces being underutilised and misused.

Similarly, and not too far away, we find a mammoth complex of 90 buildings in the resettlement colony of **Vashi Naka** in M-East Ward. Surrounded by garbage dumping grounds and polluting petroleum refineries and with limited opportunities for jobs and sources of livelihoods, Vashi Naka was built to house nearly 32,000 Project-Affected-Persons (PAPs) affected by four major infrastructure projects, namely, the Mumbai Urban Transport Project (MUTP), the Mumbai Urban Infrastructure Project (MUIP), the Mithi River Development Project (MRDP) and the Mahatma Gandhi Pathkranti Yojana (MGPY). Developed in partnership with five private developers, , the layout of the buildings and the design of their basic building blocks share many of the same features and characteristics as the one found in Maharashtra Nagar.

A typical block rises between six and seven floors with standardised 225 square-foot (20.9 square metres) self-contained dwelling units comprising a bedroom, kitchen, living area, bathroom and toilet. Some blocks contain parking spaces on the ground floor, whereas most are designed with residential and (some) commercial units on their ground levels. As is the case with all recent R&R schemes in M-East Ward, this project, too, is characterised by narrow passageways that separate the long rectangular blocks from each other. A typical passageway varies between 3 and 4.5 metres, severely limiting light and ventilation to lower units – all open only to one façade that overlooks these narrow passageways. As was the case with Maharashtra Nagar as well, these passageways have, over time, become dumping grounds for waste, highlighting not only the importance of planning circulation and access points when clustering buildings at such high densities but also the need for implementing – and maintaining – waste and garbage disposal facilities in large housing complexes.

Vashi Naka Resettlement Colony exposes the true intentions of current state policies concerning resettling and rehabilitating the city's urban poor. Built strictly according to the city's DCR Section 33(10) clause 3.11 (PAP rehabilitation), the neighbourhood severely lacks open spaces, play areas and health care facilities. And except for the primary arterial streets that accommodate some commercial and recreational facilities, the vast majority of vehicular streets and pedestrian alleyways across Vashi Naka are little more than breeding grounds for diseases and criminal activities. Within the tenement buildings, households ranging between 5-10 persons occupy the meagre dimly-lit and ill-ventilated 225 square-foot dwelling units. Within a few years of construction, the buildings began to show significant signs of disrepair and damage, prompting residents to complain to the authorities about the materials used and general maintenance, including the working of the elevators, which do not function as planned.

Other complaints concern the loss of livelihoods. For nearly 40 per cent of people interviewed in one survey, Vashi Naka is located more than 9 kilometres from their places of work. The colony is also not well situated in terms of social infrastructure. The nearest hospital is about three kilometres away, and there are no secondary schools near the resettlement colony.[43]



Fig. 20 Maharashtra Nagar in M-East Ward is a typical example of slum resettlement built in the early 2000s. Like other schemes in the same ward, it is composed of mid-rise seven-storied blocks arranged in neatly arranged parallel formations.



Fig. 21 Like several other R&R schemes, the narrow streets between linear blocks are devoid of any activity except for circulation. As a result of the form of the blocks themselves and their cluster formations, these streets often become undesirable, full of garbage and lacking any maintainance.



Fig. 22 Maharashtra Nagar in M-East Ward is a typical example of slum resettlement built in the early 2000s. Like other schemes in the same ward, it is composed of mid-rise seven-storied blocks arranged in neatly arranged parallel formations.

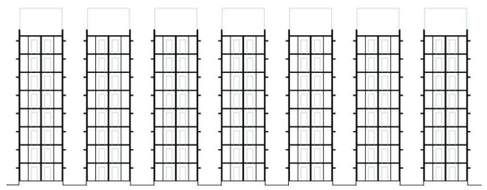


Fig. 23 Plan and section for a fragment of R&R blocks at Vashi Naka. Like Maharashtra Nagar, the rehab blocks are arranged in highly efficient and repetitive parallel formations without any consideration for light, ventilation or creating meaningful collective spaces.



Fig. 24 Satellite image of Lallubhai Compound shows very clearly the rubber-stamping of the scheme.



Fig. 25 A typical alleyway between two blocks at Lallubhai Compound.



Fig. 26 Satellite image of Mahul colony sandwiched between heavy industries and mangroves.



Fig. 27 A street inside the highly-criticised Mahul colony in M-East Ward.

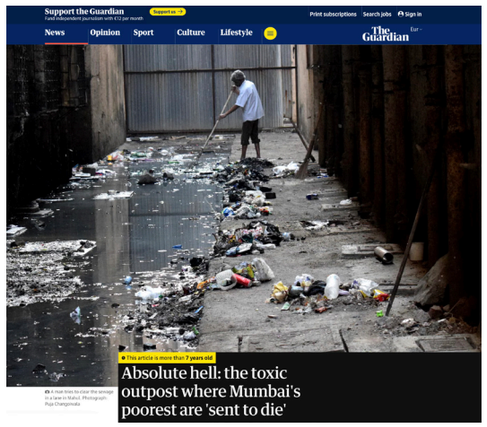


Fig. 28 Newspaper articles highlighting the flawed housing policies that enable resettlement colonies such as that in Mahul.



Fig. 29 Another article in *The Guardian* which attacks the slum resettlement projects in Mumbai deprived M-East Ward.

WAREHOUSING PEOPLE

Architect and housing activist PK Das, in a scathing letter to Congress President Sonia Gandhi in 2005, outlines the fundamental flaws of the city's approach to resettling slum dwellers in high-rise, high-density projects, such as **Lallubhai Compound** in Mankhurd:

> "Mindless architecture of this Mass Housing promoted by the MMRDA and built over large tracks of land at Mankhurd for the slum-dwellers being displaced due to various projects promotes an extremely oppressive living environment thus slumming our city further."[44]

His letter to Mrs Gandhi includes a plea for her to decline to attend the planned opening of the project. It also highlights the scheme's many deficiencies, which, according to him, violate the Urban Development Plans and Implementation (UDPFI) guidelines defined by the Ministry of Urban Affairs and Employment, arguing that "rehabilitation projects for slum-dwellers as the Mankhurd project has about four times the density than specified in the UDPFI standards." He further outlines the scheme's lack of attention to the provision of social infrastructure and amenities:

> "Setting-up these schemes in any part of the city without including the various amenities and open spaces promotes a big imbalance of social infrastructure and amenities in the area leading to further deterioration of living conditions in the various parts of the city. As a result of such rehab projects as the one in Mankhurd, the slum dwellers will live forever without having open spaces, without adequate health care and without their children having access to schools. Such short-sighted and oppressive housing models as developed by MMRDA at Mankhurd and other parts (including by part developers) contributes to the underdevelopment of our people and the city."[45]

Arguments such as these have also been confirmed in the 2008 survey conducted by Amita Bhide and Neela Dabir of the Mumbai-based Tata Institute of Social Sciences (TISS) that examined the quality of life in 205 evicted communities of various rehabilitation and resettlement (R&R) schemes and revealed startling deficiencies and asymmetries in terms of adequate planning and infrastructure. Of the total displaced populations that included the 9000 people evicted due to the Mithi River Clean-Up Project, 20,000 as a result of the World Bank-funded MUTP, as well the nearly 30,000 who were displaced under the MUIP, about 51 per cent of the people surveyed stated that they had inadequate access to clean water supply. About a third said that their new resettlement colonies were more than 15 kilometres away from their original dwellings (and sources of livelihoods), which further strained their income-generating activities. And over a quarter stated that, as a result, they spent more time commuting.

Similar surveys and post-occupancy studies have been prepared by other organisations, such as the 2014 report 'Forced to the Fringes: Disasters of 'Resettlement' prepared by the Housing and Land Rights Network (HLRN - Delhi) in collaboration with Youth for Unity and Voluntary Action (YUVA - Mumbai). This report, focusing on the adequacy of housing built in the Vashi Naka resettlement colony, including the provision of essential services and impacts on livelihood, had this to say about the planned resettlement:

> "The findings of the study categorically demonstrate that the resettlement and rehabilitation (R&R) process in Mumbai has violated multiple human rights of the affected populations. The entire process is fraught with inadequacies and even what is promised in policies and project documents is not being implemented. The R&R sites have failed to pass the test of 'adequate housing,' including habitability. The entire R&R process in Mumbai has ignored the vital link between housing and livelihood and other human rights. The survey also reveals that the process that was followed for the demolition of homes and evictions is not in congruence with the UN Basic Principles and Guidelines on Development-based Evictions and Displacement. Furthermore, the relocation process and living conditions at Vashi Naka violate provisions in national and international laws and policies, including the Constitution of India."[46]

But perhaps the most alarming revelations made by such studies have been that people registered higher rates of illnesses since moving into their new resettlement colonies.[47] This aspect of health-re-

lated concerns has been most squarely felt in the resettlement colony of **Mahul Township**. Following the demolition of around a thousand houses by the BMC along the Tansa water pipeline, families were offered accommodation about 15 kilometres away in Mahul – an area characterised by heavy and polluting industries such as the refineries of Hindustan Petroleum and Bharat Petroleum and fertiliser plants of Tata Power and Rashtriya Chemical. Close proximity to these polluting industries has led to a spike in respiratory, heart and skin diseases – including a staggering 87 deaths – amongst the residents of Mahul Township, prompting the National Green Tribunal in 2015 to pass a judgement that the township was unfit for human habitation.[48]

Similarly, about two years before the COVID-19 pandemic highlighted the apparent link between housing and health, newspaper articles had hit out at such housing models in Mumbai. "Designed for Death" read one such headline.[49] They all referred to a study co-conducted by the non-profit organisation Doctors for You (DFU) and the Indian Institute of Technology (IIT) Bombay. The reports revealed an alarming surge of tuberculosis cases in residents who had moved into three resettlement colonies built through public-private partnership (PPP) models: Lallubhai Compound, Natwar Parekh Compound and the Prime Ministers Grant Project (PMGP) Colony, all in M-East Ward. Their final diagnosis: bad design resulting from bad policies. The authors of the study report:

> "The adverse outcomes for Lallubhai Compound and Natwar Parekh Compound could be attributed to the provisions in the special SRA DCRs related to natural light and ventilation of buildings."[50]

PARTICIPATORY MODELS

Alongside brutal top-down measures to displace people and communities, Mumbai is also home to grassroots movements that actively use civil rights to resist top-down schemes and are doing pioneering work to improve the living conditions of informal settlements through self-organisation, self-help, and small-scale upgrading. But at the same time, we can also find several cases in Mumbai where grassroots movements working alongside national and even international agencies have helped plan, organise, and execute large-scale resettlement schemes. One of the many ways this is done is through empowering women as the main drivers of development within slum settlements. This has proved to be a particularly successful strategy in the work of *Mahila Milan.* Formed in the mid-1980s with assistance from SPARC, *Mahila Milan* is a women-led community-based organisation (CBO) that was born in 1984 to look into the needs and requirements of the urban poor, particularly women, and help them access essential services such as ration, bank accounts and education for themselves and their children. However, the organisation's real thrust came in 1985 when around 500 women successfully resisted the demolition of their pavement dwellings following a Supreme Court of India judgement that had permitted the BMC to undertake a comprehensive eviction of Mumbai's growing pavement dwellers. With fear and insecurity setting in in the aftermath of the court order, *Mahila Milan* worked with members of SPARC to survey the community of pavement dwellers in and around Byculla and produce a research document titled 'We, the Invisible' that highlighted the daily struggles of pavement dwellers in Mumbai and their need for adequate shelter. Following this initial survey, the women of *Mahila Milan* sought further help from SPARC to secure a more permanent solution to their housing problems.



Fig. 30 Shabana Azmi shows beatings taken by PK Das, for protesting the slum demolition drives in South Mumbai.



Fig. 31 Model exhibition prepared by SPARC in 1987 to show interested parties four possible models for development.

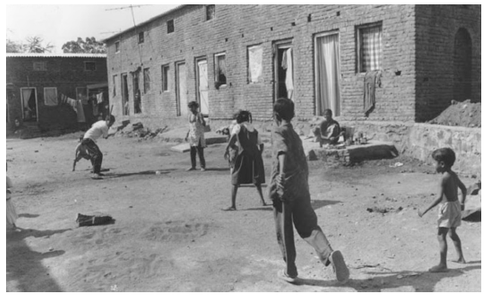


Fig. 32 Adarsh Nagar CHS, soon after completion in 1992.



Fig. 33 Adarsh Nagar, photographed in 2015. Over the years, the dwellings have transformed, often adding an extra floor.

The first step towards a more concrete solution came when *Mahila Milan* and SPARC joined hands with the National Slum Dwellers Federation (NDSF) to form what has since come to be known as the 'Alliance'. Realising that in-situ upgrading would not work for pavement dwellers, the Alliance looked to resettle pavement dwellers in more humane dwellings and carried out weekly excursions to search for vacant land. After several excursions around the city, a breakthrough came in the form of a forced eviction that had relocated about 300 families from E Moses Road (many of them who had been documented in 'We, the Invisible') to Dindoshi Nagar, a resettlement colony in the northern suburbs of Goregaon East. Although the colony was situated at a distance greater than 30 kilometres from their original homes and places of work, the resettlement scheme was initially met with some enthusiasm as it offered alternate dwellings compared to no compensation, as had been the case for several other evictions.

However, the resettlement colony executed by the government was grossly inadequate. Lacking basic infrastructure such as water taps and electricity and located on a faraway outskirt rocky and un-serviced piece of land, the women of *Mahila Milan* worked with members of SPARC and NDSF to understand housing challenges, from aspects related to design and construction to costing and finance. Community meetings and discussions on housing layout, costs, materials, and facilities helped develop the design for **Adarsh Nagar Cooperative Housing Society**. At its most basic, Adarsh Nagar consists of a 'core house' of roughly 150 square feet (or 14 square metres – the same size allotted to the affected households evicted from E Moses Road). However, rather than thinking of just a single dwelling, the community discussions facilitated by the Alliance also looked into the clustering of homes and the location of small social amenities such as a multi-purpose community hall. Bringing together men, women and children and using rough cardboard models to exchange ideas and assist discussions, one of the many important outcomes of these meetings was the need to reduce costs by grouping all dwellings (except the last houses in a row of houses) along three shared walls. Each house was to be provided with a water tap, and to reduce further costs, five houses shared one toilet each. Further design innovations came from the pragmatic experiences of the women who had lived most of their lives in make-shift pavement dwellings. This led to a design where, for example, windows fixed with metal grilles would be placed higher than conventionally done to ensure privacy and adequate ventilation. This, in turn, also maximised the interior wall space available for storage and other kinds of furniture.

Each such design decision was compared with the standard layouts and material finishes offered by conventional housing schemes to assess their benefits and drawbacks. Over months of participatory design and planning, the scheme for resettling pavement dwellers at Dindoshi – organised around saving schemes initiated by Mahila Milan and SPARC where 53 households came together as one housing association – resulted in a model exhibition organised in 1987. In this public exhibition that was attended by associations of slum dwellers as well as people from the government and the media, the pavement dwellers built four model houses – to scale – using saris and *chattais* (straw mats) to help give all residents a sense of the area and layout of their chosen designs. In the end, the pavement dwellers voted for a design (known as the Water Street model) that, although at sixteen-thousand and five hundred rupees each (USD 1400 at



Fig. 34 Similar to Adarsh Nagar CHS, the 14-foot high units of Jal Kalyan CHS are arranged along an angle for privacy.



Fig. 35 A photograph of Jal Kalyan CHS soon after completion showing houses lacking municipal services.



Fig. 36 Poster of the Kanjurmarg project outside the office of SPARC where community meetings took place.

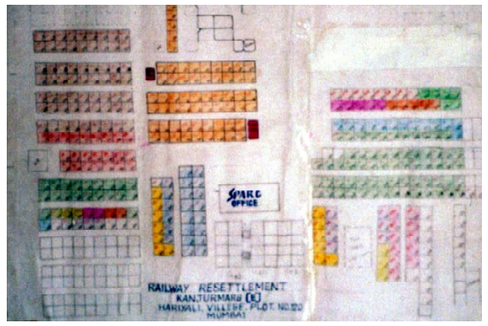


Fig. 37 The affected families were organized into groups each of whom can be identified by a color on this layout plan.

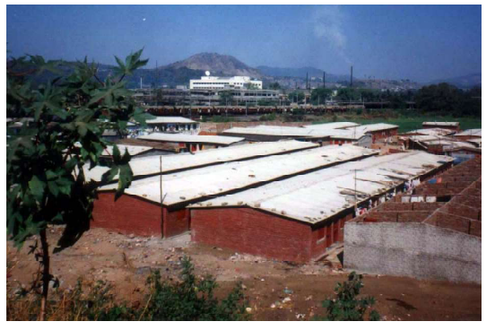


Fig. 38 Single-storied transit housing at Kanjurmarg photographed soon after completion around 1997.



Fig. 39 Transit houses in the foreground, and the permanent blocks under construction in the background.

the time), was the most expensive of all, proposed a ceiling height of 14 feet and included a mezzanine level of about 100 square feet (9.3 square metres) that maximised the minimum footprint available to them.

After securing loans from the Housing Development Finance Corporation (HDFC), the project started construction in 1991 by hiring a local contractor and masons. To help bring costs down, each family committed to contributing five days of labour each month. In addition, eight women earlier trained by the Alliance in construction work were also hired full-time as construction workers. In the months and years that followed, the residents of Adarsh Nagar faced numerous challenges, from financial problems caused by delays and rising construction costs to delays by the BMC in providing essential services such as water, sewage and electricity. Eventually, out of the 53 households, only 40 could build dwellings by 1992. Despite these obstacles, the Alliance's first project in Adarsh Nagar became a flagship project for illustrating an alternative to conventional resettlement schemes that, through participatory design and planning, could help achieve a more humane habitat over time. In fact, the 14-foot-high mezzanine type developed at Adarsh Nagar would go on to find further application in several other projects by the Alliance.

An opportunity to do so came in 1989 when the Railways needed to relocate the Bharat Nagar slum in Mankhurd, which was hindering the connectivity between the island city of Mumbai and Navi Mumbai across the harbour. The state's housing board, the Maharashtra Housing and Area Development Authority (MHADA), proposed relocating existing slum dwellers within an empty plot of land within Mankhurd in state-built walk-up apartments that would cost approximately 58,000 rupees per household. Out of the 900-odd households affected by this relocation, 150 declined the offer because of the high costs of the new flats. The Alliance helped these households find vacant land near the new site where the resettlement project was going to be built and suggested to MHADA that they be provided with land on which the residents would be able to build their own houses over time and financed by a combination of personal savings and low-interest loans made available by a housing finance company. As opposed to the grid-centric schemes of Shivaji Nagar and Malwani in Malad, this project that came to be known as the **Jal Kalyan Co-operative Housing Society** resulted in a low-rise grouping of dwellings, each 180 square-foot (16.7 square metre) in size and with a re-incarnation of the 14-foot-high ceilings that enabled the construction of a 100-square foot (9.3 square metre) loft that in total cost only 16,000 rupees – less than a third of the cost of the state-built walk-up apartment buildings. Alongside this innovation in house design that echoed the loft-type built earlier in Adarsh Nagar in Goregaon East, the project showed, yet again, the possibilities for a participatory planning process for resettlement projects that could avoid the typical walk-up type prominent at the time while also being women-centric and built on principles of participation and self-help.

Another project soon followed when, in 1997, the Indian Railways wanted to resettle 1980 families living along the railway tracks in Kanjurmarg in the north-eastern suburbs of Mumbai. Framed under the World Bank-sponsored Mumbai Urban Transport Project (MUTP-II), which entailed displacing nearly 25,000-30,000 households as a result of large-scale infrastructure works, the GoM, along with the World Bank and representatives of both SPARC and NDSF came together to form a task force to formulate a 'Resettlement & Rehabilitation' (R&R) policy. According to this policy, accepted in March 1997, displacements were to be minimised, and no engineering work could commence unless and until the Project-Affected-Persons (PAPs) had been adequately resettled in alternate accommodation. Moreover, beyond housing, the policy also demanded local authorities to maintain community networks in the new resettlement schemes and facilitate partnerships with community-based organisations (CBOs) that could help ensure access to social amenities and livelihoods.

Here again, as in the case of Jal Kalyan in Mankhurd, the Alliance worked with collectives of slum dwellers (including RDSF, the Railway Slum Dwellers Federation – a unit of the NDSF) who formed 27 housing cooperatives that, following the template set in the 1980s and early 1990s, consisted of women as leaders of the co-operatives to facilitate the resettlement process. Beyond this innovation in managerial strategy, the Kanjurmarg resettlement colony remains noteworthy for two other reasons concerning its physical planning. The first is that the slum dwellers were involved in selecting the site for relocation, which, unlike typical resettlement schemes, was found barely two kilometres away from their original sites. Secondly, with a to-



Fig. 40 Photograph of a typical dwelling unit in Sangharsh Nagar, soon after construction.



Fig. 41 A more recent photograph of Sangharsh Nagar showing the open courtyards between buildings.

tal of 1600 apartments to be built, the project set an example for a participatory design process for a project of this scale that, until then, had not been attempted in Mumbai. Initially, the scheme temporarily accommodated 900 households in one-room, 120 square-foot (11.1 square-metre) single-storied dwelling units. In subsequent phases, the 27 co-operatives of slum dwellers worked with local planning agencies, architects, contractors, and members of the Alliance to design the permanent apartment buildings with 225-square-foot (20.0-square-meter) units and the overall master plan, including its infrastructure, street layout, community facilities, and open spaces.

However, not all resettlement projects undertaken by the Alliance were as inclusive or participatory as their earlier schemes in Mankhurd and Kanjurmarg. A case in point is **Natvar Parekh Compound,** which came into being following an unexpected demolition in early 2001, where over two thousand slum hutments along the Harbour Railway line were demolished despite the provisions against such evictions framed by the MUTP. With the railway authorities claiming that they were clearing slums built after 1st January 1995 – then the cut-off date for eligibility for slum redevelopment and rehabilitation – it took nearly five days for the demolitions to stop. With the NDSF and SPARC putting pressure on the authorities to intervene, a site in Mankhurd was eventually identified, and the Alliance was responsible for managing the resettlement and rehabilitation process for over 60,000 people.

Like other resettlement projects of that period, each family was provided with a standard 225-square-foot self-contained unit in a seven-story building. However, despite SPARC's commendable approach to organising, facilitating, and executing a resettlement scheme of the magnitude and within the constraints of a project like the Natvar Parekh Compound, the scheme's physical plan leaves much to be desired. With rows of seven-storied blocks arranged in a dense layout that fails to create meaningful collective and community spaces, the project resembles many other recent resettlement schemes built in and around Mankhurd.

However, not all large-scale resettlement schemes resorted to the typical rubber-stamping we find across Mumbai, particularly in M-East Ward. **Sangharsh Nagar**, a large colony built in 2005 in Mumbai, is perhaps the most well-known large-scale slum resettlement scheme. Designed by the Mumbai-based architecture firm PK Das & Associates, Sangharsh Nagar, spread across an impressive 34 hectares, was planned to resettle more than 18,000 families that were brutally evicted from a self-built settlement in Sanjay Gandhi National Park during a slum demolition drive in 1995.

However, since the project comes under the SRA, PK Das and his colleagues had to work within strict requirements: 225 square feet of space at an overall density of more than 500 dwellings per hectare. Despite these stringent demands, Das's attempt has been to develop a neighbourhood that as opposed to most conventional SRA schemes consists of clusters of mid-rise buildings woven with much-needed social amenities and open spaces for recreation, community gathering, education and healthcare.

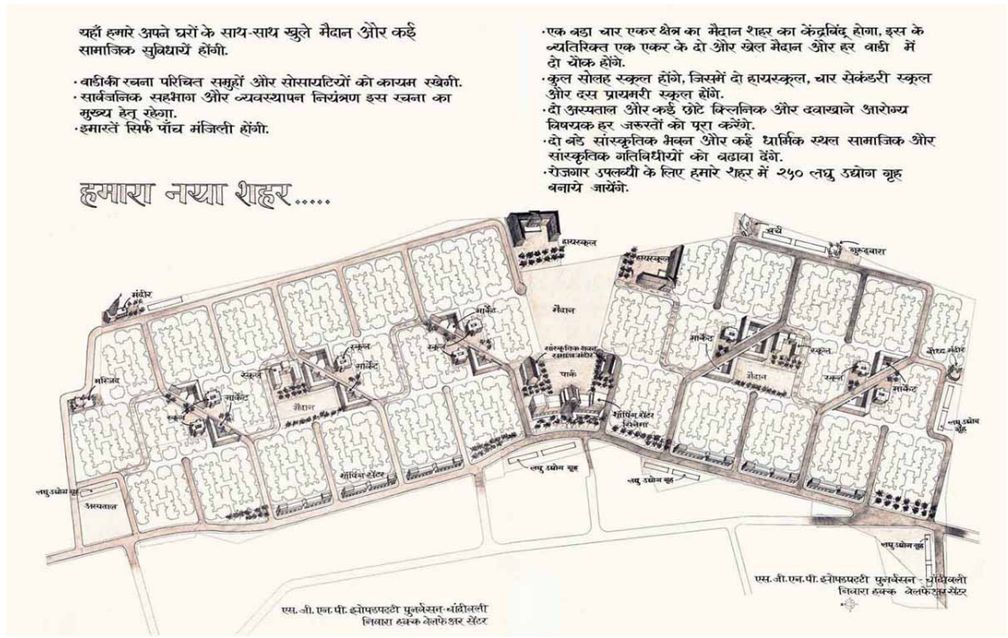


Fig. 42 Masterplan of Sangharsh Nagar titled "Our new city", highlighting amenities alongside housing.

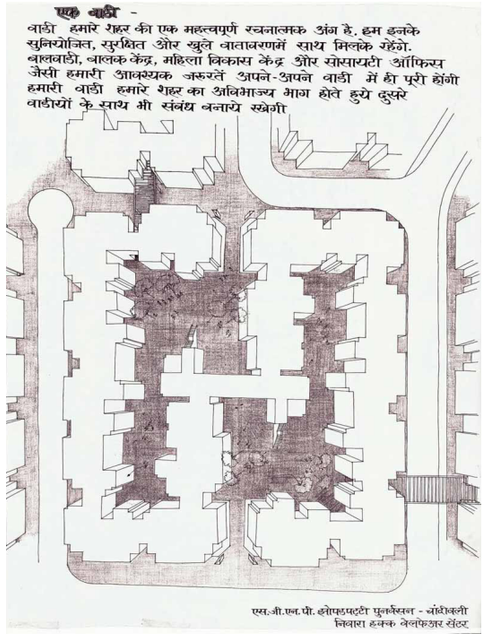


Fig. 43 Sketch of a typical cluster showing the two L-shaped courtyards formed between blocks of 8-storied dwellings. As opposed to typical slum resettlement schemes, in Sangharsh Nagar we find an attempt to create meaningful community spaces.

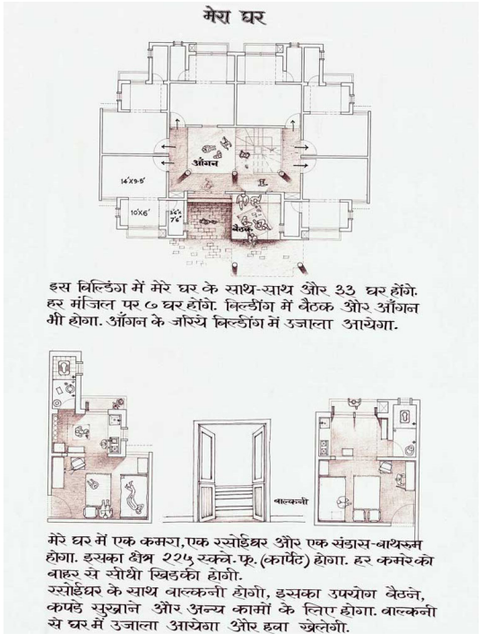


Fig. 44 Sketch plans of a typical cluster in Sangharsh Nagar, showing as well the two main unit types that make up a typical floor plan. By arranging dwelling units around an open court, each unit has light and ventilation from two sides.



New township raises the bar for slum rehab

Asia's largest slum re-housing project in Chandivli gets its first occupants

Madhurima Nandy
Mumbai, May 1

SAVITA RAO is looking forward to a good night's sleep after three decades of disturbed slumber. She has just moved into a spanking new studio apartment in Chandivli, 15 km south of her ramshackle tenement bordering Sanjay Gandhi National Park.

"Every night, we would sleep in fear that a leopard would pick up our children," said Rao, 45, who lived on the edge of the forest.

On Tuesday, Rao and other families were re-housed as part of a slum upgradation scheme. Some of them turned emotional, their eyes glistening with tears as they accepted keys to their flats in a 45-acre township that raises the bar for slum rehabilitation projects.

Instead of the unimaginative and shoddily constructed buildings that are the hallmark of slum rehabilitation projects, the Chandivli township has been designed from the bottom-up, with the socio-economic needs of low-income groups in mind (see 'The new design'). In the past, poor design has contributed to slum dwellers selling out and moving back to shanty towns.

If the township succeeds, it could become a model for other projects. The success of slum upgradation is critical for improving the deplorable living conditions of half the city's residents, and a prerequisite for Mumbai becoming a world-class finance hub.

The Chandivli slum re-housing project is also the largest in Asia. By the end of the year, twelve thousand families will move in: equivalent to one-fourth the population of the city's 'K' ward, consisting of Colaba, Cuffe Parade and Fort. In ten days, one third of them will have shifted.

The township is unique also because groups usually at loggerheads with one another have collaborated: the government, builder Sumer Corporation, independent architect P.K. Das and NGO Nivara Hakk Suraksha Samiti.

Nivara Hakk initiated the project eight years ago after environmental groups took legal action to get the slums removed on the grounds that they were encroaching on the park. The NGO has been closely involved with the project to ensure that the quality of construction is good and that the allocation of flats is fair and transparent, its activists said. Other slum re-housing projects have been ridden with corruption on these two fronts.

madhurima.nandy@hindustantimes.com

PHOTO: MANOJ PATIL/HT

The new design

- A township spread over 45 acres in Chandivli
- Very close to the up-market Hiranandani Gardens in Powai
- 12,000 housing units spread over 15 clusters, with 16 buildings in each cluster
- Four buildings in a sub-cluster, which open out into a courtyard to enable community bonding
- No dormitory-type corridors, but two flats on each side for good ventilation
- A small foyer in every building, in an effort to create more communal space
- Well lit and ventilated flats
- Nicely tiled bathrooms
- Drying balconies
- Central maidan
- Three parks

A NEW BEGINNING. Asha Giri Goswami in the balcony of her Chandivli flat.

UNLIKELY PARTNERS

Shabana Azmi
Member of Nivara Hakk Suraksha Samiti

This township is an example where an NGO has helped the government, slumdwellers and the developer to come together to build a township.

Vilasrao Deshmukh
Chief Minister, chairman of GMA

The township shouldn't become an improved slum. Workshops should be held to make sure that residents take appropriate care.

P.K.Das
Architect and member of Nivara Hakk Suraksha Samiti

We tried to design the township in a way that would preserve the communal life that people are used to in slums.

Rameesh Shah
Partner in Sumer Corporation, it's constructions firm

It's a very important project for me. I spent three-and-a-half years from morning to night on the site. It is a one-of-a-kind project in India.

'I'll never give this house up'

Madhurima Nandy
Mumbai, May 1

ASHA GIRI Goswami, 40, has never lived in a high-rise building. After 20 years of living precariously in a shanty town on the fringes of Sanjay Gandhi National Park, on Tuesday she finally entered her home.

"This township was a dream for all of us and we have seen it develop from scratch," she said. An added surprise was that she was allotted a top-floor flat. "I have never lived at such a height before," she said, smiling. "I hope the wind doesn't blow us away!"

Goswami and her husband came to Mumbai 20 years ago from West Bengal. Her husband worked as a plumber and she sold bangles and other costume jewellery that she made at home. Will she eventually sell the house? "Never!" she replied emphatically. "We have struggled for years along with Nivara Hakk to get our own place. We would never give it up."

Fig. 45 Newspaper article highlighting the key actors and design features for Sangharsh Nagar – at the time, Asia's largest slum resettlement scheme designed and built with community participation over a period of nearly 10 years.

At its most elemental, the project is based on the idea of a typical cluster (known locally as a *pada*). Each such cluster is designed with an inner court that serves as the heart of the community. Around it are seven and eight-storied buildings designed to house about 550 families, and include social amenities such as a small creche, a women's centre and other community facilities.

In general, the scheme is composed to four basic types of buildings. Each building is accessed through a *baithak* (an informal meeting place), with a central court. Around this core are five to seven housing units, each similar in layout and comprising of a single room that doubles up as both the bedroom and living space, a kitchen, balcony and toilet.

The scheme is hierarchial. At the larger scale, three such clusters form a *wadi* (sector). At this bigger scale can be found more public amenities and social spaces such as shops and markets. However, despite these intelligent ideas, the project was unfortunately not fully completed according to the architect's original plans. While it was designed to accomodate some 18,362 families, 14 schools, two medical centres, 180 *balwadis* (nursery schools), 180 welfare centres, 800 shops, two community halls and four religious institutions in addition to several playgrounds and a large, 1.6-ha *maidan* (public open space), today only about half the scheme has been realised. Despite this, the project remains noteworthy because of its size and unconventional approach towards rehabilitating such communities by planning and building at the scale of an entire neighbourhood including open spaces and social and cultural amenities – a fact that is strikingly apparent when one sees next to it the typical rubber-stamped tenements built under the SRA.[51]

CONCLUSION

Ananya Roy cites the case of the McKinsey-authored *Vision Mumbai* report as a precursor to a game-changing national urban policy that came into effect the same year as when the mass demolitions took place in Mumbai. The Jawaharlal Nehru National Urban Renewal Mission (JNNURM), inaugurated by Dr Singh in December 2005 and named in honour of India's first Prime Minister, was conceived as the country's first nationwide urban policy. Its central project was to carry out city-wide modernisation that included the creation of "Slum-free cities"[52] by channelling public expenditure and leveraging public-private partnerships for resettling and redeveloping slums.

As Roy points out, in terms of urban planning, the introduction of JNNURM signalled a fundamental shift in how the national government now viewed urbanisation and the role of the private sector.[53] For a country that had for very long "lived in its villages"[54], the mission confirmed "the discovery of the urban question"[55] as central to its economic growth. However, as evident in previous modes elaborated in Chapters 3.4 and 3.5, missions like 'Slum-free India', 'world-class cities', and the latest obsession – 'smart cities' – are all examples of post-economic reforms state-designed policy interventions meant to attract private investment but disguised as development.

Reviewing such research, it becomes increasingly clear that in the neoliberal urban age, the city and the urban poor have emerged as objects of policy interventions at the municipal and national levels. Thus, looking ahead, the project to deliver 'affordable housing' cannot be dislocated from larger narratives of making and remaking cities. As both Roy and Watson's work has shown, the production of housing today is not just a derivative of global capitalism but is, in fact, also a driver of global capitalism. Here again, one can learn from the experiences of local communities and NGO leaders like Sheela Patel, who raises the question of the cost of transforming Mumbai into a "world-class city." Citing examples from England, Patel asks:

> "The British media has highlighted the fact that eviction of travellers from Dale farm in Essex England is expected to reach £18 million. We need some similar analysis here of the cost of repeated demolitions. The net story of demolitions is that of a mindset of not giving people an abode even as the state spends disproportionate sums for its dislocation. The slum people are not going to go away. The state should not be allowed to abdicate its duty."[56]

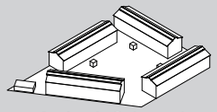
Others, such as Amita Bhide, are far more vocal in their criticisms of the state-market actor nexus:

> "The nature of these interventions is such that they embed direct and indirect violence/s by state–market agents and also enhance the everyday violence and insecurity in the lives of the inhabitants. There is thus a mix of coercion and co-option through which the tenuous claims of slum-dwellers to space in the city are being marginalised and the spaces themselves colonised."[57]

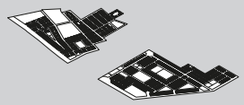
As Mumbai propels forward in the pursuit of economic growth, resettlement schemes in the city – without the benefit of participation and holistic town planning – have almost without exception failed to better the living conditions of the people and communities affected. Starting in the late nineteenth century with the well-intentioned schemes of the BIT that inadvertently further exacerbated the housing crisis and right up to the resettlement schemes implemented even today under the SRS, it is the urban poor who have had to face the brunt of brutal evictions and demolitions to make way for the transformation of Mumbai into a 'world-class city'. As such, one can claim that the pattern of slum clearance and resettlement in Mumbai is indicative of the city's housing policies taking on an increasingly exclusionary character and, in the process, disconnecting housing from the very reason people migrate to cities: access to jobs and social amenities. ■

TIMELINE
SLUM RESETTLEMENT & REHABILITATION

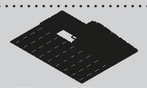
Slum Resettlement & Rehabilitation



Agripada Scheme 1
1899-1903



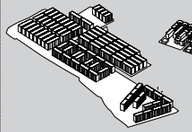
Motilal Nagar
1962-1966



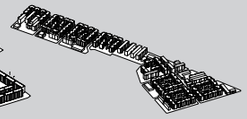
Malvani Nagar
1976



Maharashtra Nagar
2001-2010

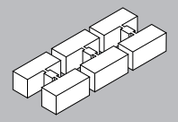


Lallubhai Compound
2000-2008

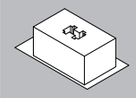


Sangharsh Nagar
2002-2008

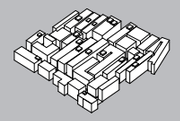
Slum Redevelopment



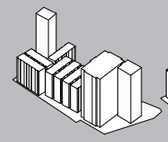
Agripada Scheme 2
1899-1911



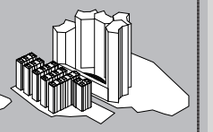
Markandeya CHS
1985-1998



Rehmat Nagar
2000s



Ambedkar Nagar SRA
2011-2014

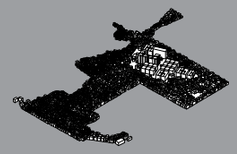


Matoshree CHS
2014-2018

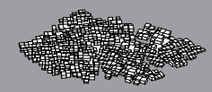
Slum Improvement & Upgradation



Kolbhatwadi
1917-1918



Ganesh Murti Nagar
1970's-2000s



Prem Nagar
2000-2014



Lotus Colony
2013-2014

Self-Help & Sites-and-Services

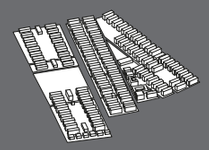


Artiste's Village, Belapur
1983-1986

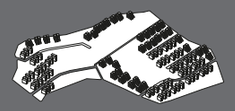


Charkop, Kandivali
1985-1994

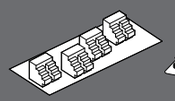
Social Housing



BDD Chawls
1921-1925



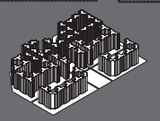
LIC Colony
1969-1972



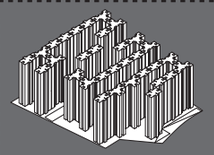
CIDCO Sector 1
1972-1975



CIDCO Sector 22
1988-1993



CIDCO Sector 36
2012-2015



MHADA Bolinj
2013-2018

Creation of the Bombay Improvement Trust (1898-1933) following the plague epidemic of 1896-1914

Establishment of the Town Planning Act of Bombay (1915-1957)

Introduction of the Bombay Rent Control Act (1947-2000)

Establishment of the 1976 Slum Improvement Programme

Launch of the Prime Minister's Grant Project (PMGP) in 1985

Creation of the Slum Rehabilitation Authority (SRA) in 1995

Initiation of the MMRDA Rental Housing Scheme in 2008

Launch of the national Pradhan Mantri Awas-Urban Yojana (PMAY-U) in 2015

Introduction of the Maharashtra Slum Areas Act in 1971

Passing of the 1977 Urban Land Ceiling and Regulation (ULCRA) Act

Introduction of the 1991 Development Control Regulations (DCR) and Slum Redevelopment Scheme (SRD)

Start of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005

Launch of the Rajiv Gandhi Awas Yojana (RAY) in 2011

Announcement of the Maharashtra State Housing Policy in 2025

Provider Paradigm
Supporter Paradigm
Enabler Paradigm

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020

MAPPING MUMBAI

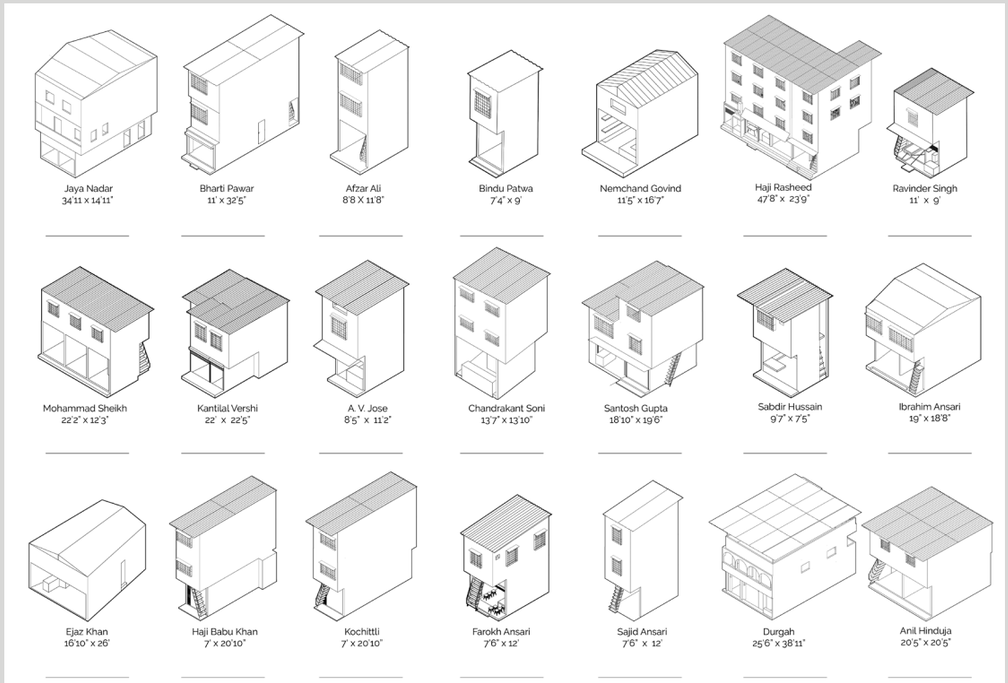


Fig. 1 A catalogue of 21 self-initiated proposals for "toolhouses" in Dharavi prepared by local contractors and artisans and curated by Urbz.

"The enmeshing of spatial, social and economic principles in Dharavi is powerfully symbolised by one ubiquitous house type – a structure and a mode of organisation that we call the 'tool-house'. Simply put, the toolhouse is a space that is used both for living and for income-generation. And this device is fundamental to the logic that sustains homegrown settlements."

Matias Echanove and Rahul Srivastava, *Homegrown Street,* 2020.

In 2018, a major exhibition titled *State of Housing: Aspirations, Imaginaries and Realities in India* catalogued the broad spectrum of housing in the country for the first time. Curated by the trio of Rahul Mehrotra, Ranjit Hoskote, and Kaiwan Mehta, the exhibition and the volume that accompanied the exhibition brought together drawn documentation of 80 cases – chronotopes[1] – to "analyse dynamic ongoing processes, specificities of place and period, the resonances of visible and invisible histories, cultural expressions for housing projects, policies and programmes to understand design practices, forms of production, role of actors involved, and the management and delivery of housing in the country."[2]

Covering a timeline that spans from the nation-building era after independence to the present, the exhibition volume *Housing in India: Mapping of Precedents and Prototypes* explores the evolving forms of housing within the context of significant historical, social, and political events. The documentation highlights the shift away from the principles and ideals of neighbourhood planning prevalent in the 1960s and 1970s, illustrating how housing has increasingly become a numbers game since the economic liberalisation of the 1990s. While the emphasis remains on documenting evolving housing types and typologies, the catalogue of chronotopes also attempts to grasp the broader ecology of housing. This understanding encompasses not just a single aspect of housing design but the entire ecosystem, including spatial characteristics, urban form, modes of production, and patronage.

Each chronotope is presented in a consistent format that includes archival photographs, a brief description, and scaled drawings, which are compared to the currently prescribed standard unit of 30 square meters as defined by the state. Through this approach, the authors aim to highlight the prevailing contradictions in the discussion of different types and typologies of housing produced by various actors, agencies, and architects. Each case study concludes with a matrix emphasising multiple dimensions, such as delivery models, income groups, construction techniques, etc.

Learning from its cross-comparative approach, this volume has inspired the creation of an atlas of housing types for Mumbai, which forms the core of this section's concluding chapter. As a research method, this builds on a long tradition of conducting case studies into the development of housing design. The term "types," originating from the Greek verb *typos*, has historically embraced many meanings, including symbols and reliefs. Beginning in the mid-nineteenth century, French architectural theorist Antoine Chrysostome Quatremère de Quincy (1755–1849) expanded the understanding of "type" in architecture. In his 1788 publication, *Encyclopédie méthodique Architecture*, he defined type as follows:

> "The word type is also used synonymously with the word 'model', although there is between the two a difference that is easy enough to understand. The word 'type' presents less the image of a thing to copy or imitate completely, than the idea of an element which ought itself to serve as a rule for the model."[3]

Over the years, "type" has typically referred to a set of common characteristics that help to define and distinguish buildings according to a specific style, form, material or use. The process of classifying these buildings is known as "typology". However, instead of focusing on select cases, this chapter examines a broader survey of housing types in Mumbai and proceeds as follows: first, it briefly reviews

past efforts to catalogue and document Mumbai's rich history of affordable housing. Next, it presents the study in the format of an atlas that draws inspiration from similar studies conducted at the Department of Architecture at TU Delft and other publications that have served as valuable references for this research. Finally, it outlays the core subject of this chapter – the catalogue of Mumbai's housing models – which are ordered chronologically according to the five dominant modes discussed earlier. A comparative study examining four metrics – 'Urban Form,' 'Plot Density,' 'Footprint & Circulation,' and 'Dwelling Types' – concludes this chapter, utilising quantitative data to draw parallel and contrasting lines of evolution across Mumbai's 125-year history of interventions in low-income neighbourhoods.

MUMBAI'S TYPES & TYPOLOGIES

Mumbai's housing landscape – particularly its ever-shifting attitudes and policies towards the 'slum' and the building of 'affordable housing' – has been the subject of abundant research. A quick search with the keywords 'Mumbai housing' on the digital academic library JSTOR presents some 2035 results.[4] Similarly, WorldCat highlights 3818 relevant books and articles.[5] However, only recently has the physical fabric of its housing landscape been the focus of scholarly research.

One of the earliest studies that cut a cross-section across Mumbai's housing landscape through the lens of architectural form can be found in a 2007 report prepared by the city-based research organisation CRIT (Collective Research Initiatives Trust). Funded by the Urban Age Programme of the London School of Economics (LSE), *Housing Typologies in Mumbai* was conducted by six city-based architects and researchers who took on the task of drawing and documenting Mumbai's diverse housing form. Rather than follow the conventional approach of studying one-off or unique projects designed by a well-known architect or agency, the report focused on cataloguing the city's generic, ordinary house 'types':

> "The housing condition of today's Mumbai can be discussed through its various kinds of housing types, which form a bulk of the city's lived spaces."[6]

The report's preface further added:

> "The focus of this study is on documenting and describing the various house types found in Mumbai with discussions regarding their respective cultural contexts, evolution of form, policies under which they took shape, delivery systems used to generate them, agencies involved, financial mechanisms, uses and occupations, tenure patterns, transformations, etc. It is neither a comprehensive history of housing in the city nor a study of housing conditions, but instead a study of house types."[7]

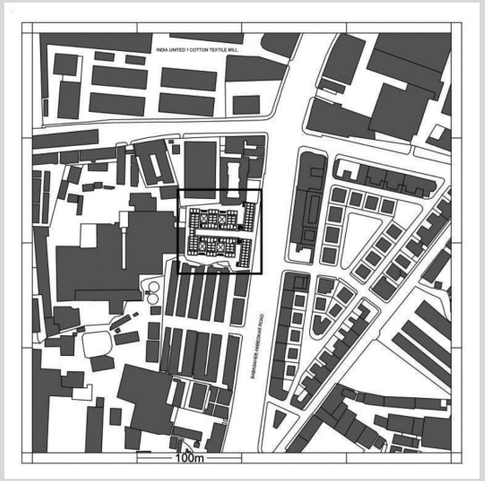


Fig. 2 Example of a case study in CRIT's catalogue *Housing Typologies in Mumbai* from 2007. Seen here is the urban plan of Haji Kasam Chawl in Parel.

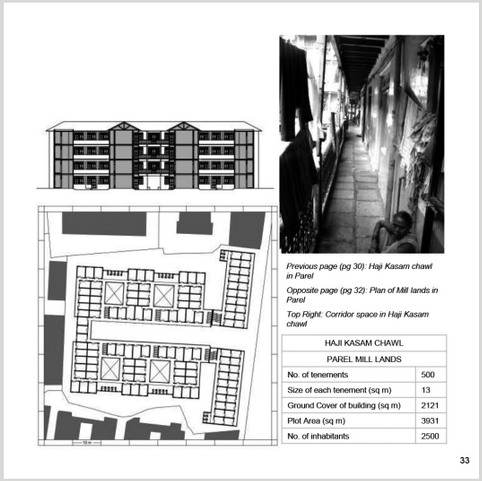


Fig. 3 Typical floor plan and section of Haji Kasam Chawl. All cases in CRIT's catalogue were documented in this unified format for ease of comparison.

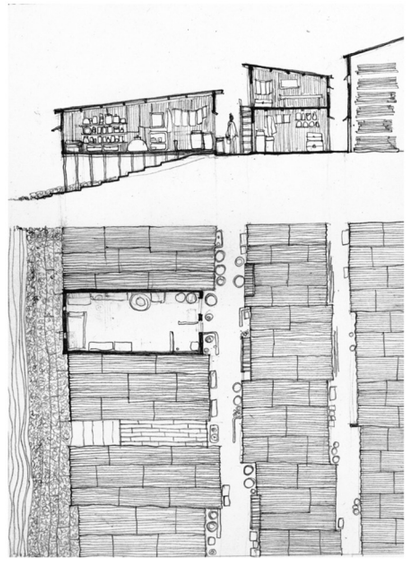


Fig. 4 An example of an informal settlement in CRIT's second catalogue on housing typologies. Seen here is a study of a settlement along the eastern seafront.

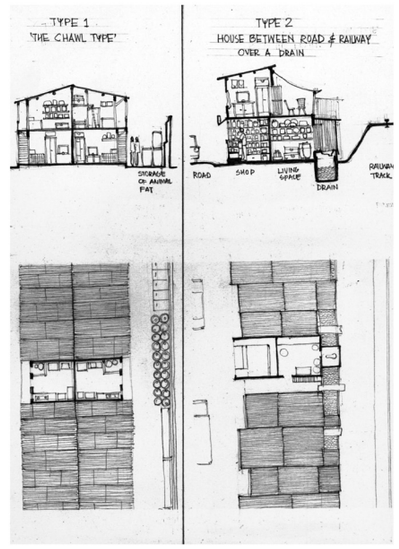


Fig. 5 A section through a medium-rise self-built settlement in Bandra East. The catalogue made evident the diversity of dwelling types and forms within Mumbai's slums.

Structured chronologically, the report traverses seven different landscapes in Mumbai, from its early days as a patchwork of agrarian fields and fishing villages to its development into a colonial and industrial hub and finally to its current status as an emerging 'global city.' Twenty-one house types are identified across these landscapes, presenting a broad spectrum of mainly formal and some informal interventions. These types range from "House in a Fishing Village" and "Chawls built by Government agencies" to "Public Sector Employee Housing" and more modern examples like "Townships in Suburban Areas."

Each house type is explored through drawings at two scales: the urban layout, which highlights the project within a fragment of a 16-hectare plot, and a detailed plan showing a typical floor and its immediate context. The documentation also includes contemporary photographs, schematic sections, and brief fact sheets that provide basic information, such as the number and size of dwellings and plot area. The narrative of each type's history and notes about its development, delivery systems, and current status are also provided.

In 2010, CRIT conducted a second study with students from the JJ School of Architecture in Mumbai, focusing on the city's most prevalent housing type: the 'slum.' This study, titled *Typologies and Beyond: Slum Settlement Studies in Mumbai*, was commissioned by the School of Planning and Architecture (SPA) in New Delhi, which serves as a National Resource Centre advising the Central Government on slum and affordable housing matters.

As mentioned earlier in Chapter 3.3, this second study by CRIT builds on their previous research on housing types in Mumbai and attempts to reveal through drawings and photographs the broad spectrum of slum settlement types in the city. With the larger aim of informing more nuanced policies and planning strategies, the authors of this paper chose to document nine settlements across the city that highlighted differences rather than similarities between various slum pockets in Mumbai. Using multiple sources that ranged from existing Development Plans, satellite imagery and fieldwork, the resulting study covers both well-known examples of slum settlements, such as those in Dharavi, with lesser-known cases, such as Darukhana – a self-built settlement built on stilts on the eastern waterfront of the Island City. Moreover, rather than reproduce

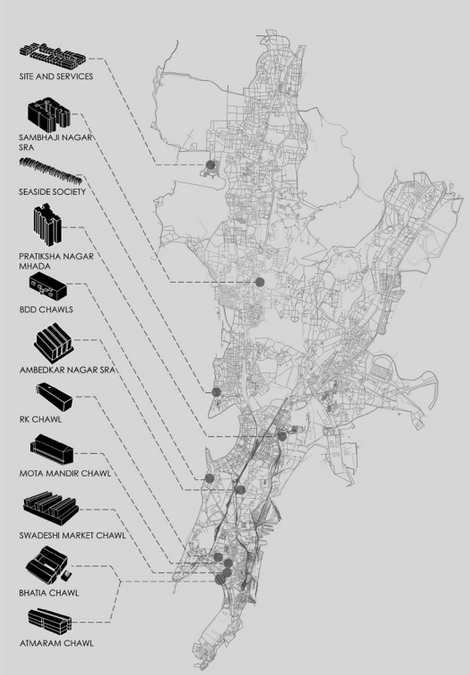


Fig. 6 Sameep Padora's 2016 book *In the Name of Housing* studied 11 affordable housing schemes in Mumbai across ten metrics.

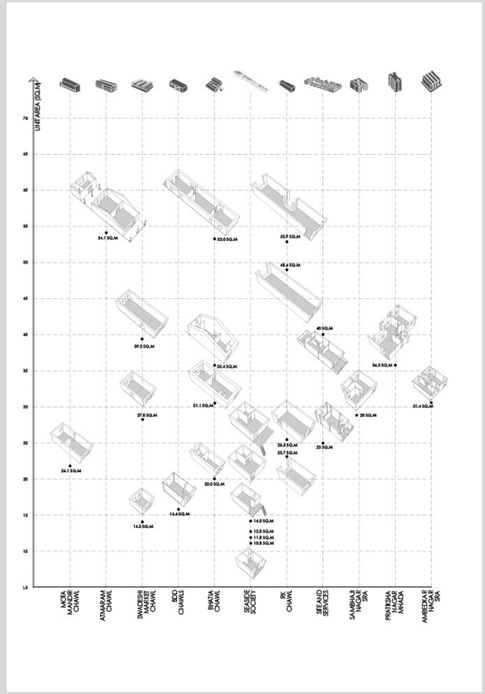


Fig. 7 Through detailed CAD drawings and models, Padora's book compares and contrasts projects across a number of lenses, such as unit areas, FSI, etc.

accurate digitally drawn (CAD) plans and sections, this study developed "built-form sketches" to describe each settlement through schematic plans and sections that, unlike the 2007 study on housing types, also capture human activities within the settlements, reflecting domestic, social, cultural, and economic practices. The paper concludes with a comparison of the various cases along three dimensions: the "Occupancy Dimension" (covering tenures and modes of occupation), the "Cultural Dimension" (addressing work and occupation characteristics), and the "Built-form Dimension" (focusing on house and open-space designs). An appendix provides data on settlement locations, area, number of dwellings, and levels of infrastructure.

Recent publications offer more comprehensive explorations of Mumbai's housing forms. In the 2012 book *The Chawls of Mumbai: Galleries of Life*, Neera Adarkar compiles insights from a diverse group of architects and academics to examine the origin and evolution of Mumbai's iconic housing type: the chawl. Once comprising over 16,000 structures and housing a significant portion of the city's working class, this book provides an in-depth analysis of this single housing type, exploring its past, present, and future through essays, stories, and illustrations.

One notable contribution comes from Rupali Gupte, a former CRIT member, who presents colourful collages showcasing the unique social life within Mumbai's iconic chawls. Using a mixed media approach that combines cut-out photographs with hand-drawn plans, sections, elevations, and perspectives, Gupte creates a visual narrative of the three main chawl types that she classifies as '*baithi* chawls', 'bar chawls' and 'courtyard chawls'. Each illustrated case is accompanied by brief captions and a legend detailing the various spaces within the chawl.

But perhaps the most comprehensive study of Mumbai's diverse housing types can be credited to two recent books produced by sPare – the research wing of the Mumbai-based architect and educator Sameep Padora. The first publication from 2016, titled *In the Name of Housing*, analyses in detail the forms and functions of a wide range of housing models to establish metrics by which students and practitioners can develop future housing ty-

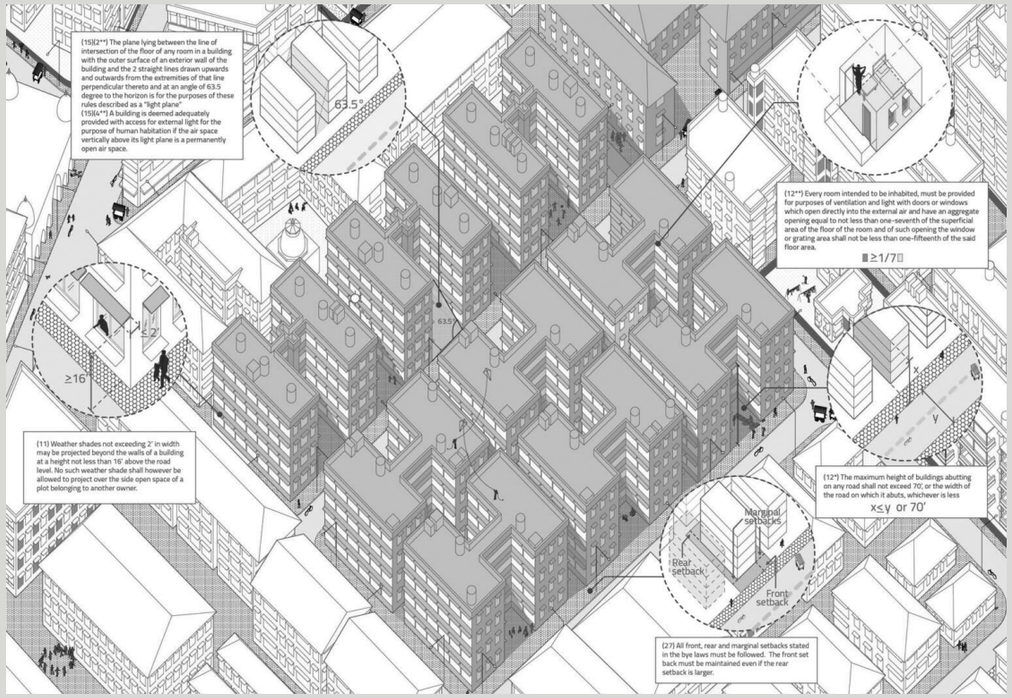


Fig. 8 Padora's second project on documenting housing looked at the built-form through the lens of changing building regulations. Seen here are the BIT chawls at Agripada.

pologies. The book looks into 11 projects representing dominant typologies deeply embedded within Mumbai's city fabric. These are categorised under five broad categories: 'Chawls' that include examples like Bhatia Chawl in Bhuleshwar (described in Chapter 3.2) and the megastructure Swadeshi Market in Kalbadevi, with its layered programming of textile markets and wide range of housing types; 'Pavement Dwellings' which looks at self-built settlements such as Seaside Society in Bandra; 'Sites and Services' that through the case of Charkop in northern Mumbai describes a model of hybrid intervention involving both top-down planning and bottom-up people's self-building capacities (see again Chapter 3.3); 'MHADA' which covers projects such as Pratiksha Nagar produced by the state's housing board; and 'Slum Rehabilitation Authority' which looks into public-private partnership projects like Ambedkar Nagar in Lower Parel (described earlier in Chapter 3.5).

Padora's book builds on previous research and catalogues, such as those produced by CRIT, but its standout feature is the meticulous documentation of 11 projects through analytical models that assess each project across ten metrics: 'Location', 'Building Form', 'Circulation', 'Programme', 'Tenure', 'Community', 'Floor Plans', 'Envelope', 'Unit Plans', and 'Analysis'. Data for these metrics were collected through fieldwork, which included interviews with residents and site observations, all layered over precisely drawn CAD drawings of various kinds. The book is structured chronologically, and the rich measured drawings and photographs combine quantitative and qualitative data to serve as a handbook that aids students and practitioners in easily comparing and contrasting various projects from the past and providing references for the future. At the end, a section titled 'Inferences' brings all 11 projects together in graphs to analyse their efficiencies and ratios across four lenses: 'Extended Domesticity', 'Social Space', 'Floor Space Index', and 'Built Up and Plot Area per Person'.

In 2023, a second, more detailed study of Mumbai's evolving housing and urban form was produced by sPare, co-authored by Sameep Padora and Shreyank Khemalapure. Titled *(de)Coding Mumbai*, the book traces the development of Mumbai's housing landscape through changing building codes—

particularly the Development Control Regulations (DCRs)—and Development Plans (DPs).

Featuring 18 case studies that span over a century of formal interventions in housing, the book illustrates the shifting modes of patronage and building regulations that have shaped housing and urban form in the city. It is organised into four chronological phases, with the first phase, 'Urban Explosion,' beginning with the outbreak of the bubonic plague in 1896 and concluding with the dissolution of the BIT in 1933. The second phase focuses on the introduction of the First Development Plan, which lasted from 1964 to 1991 and is titled "Urban Sprawl." This is followed by the third phase, dominated by the Second Development Plan, implemented between 1991 and 2014, titled "Urban Implosion." The fourth phase, "Urban Exaltation," concludes with reflections on the city's future. Each phase is accompanied by brief essays and documentation of key projects, all extensively photographed and represented in a clear and consistent graphic format using CAD drawings, diagrams, and concise descriptions.

A HOUSING ATLAS

As mentioned in the introduction, this chapter focuses on an atlas that documents and describes a total of 25 affordable housing models, with five models from each of the five modes explored earlier in this section. This format, which includes scaled CAD drawings for comparative research and accompanied by photographs, builds on the recent trend of producing atlases. This trend is evident in numerous publications, such as the *Atlas of the Functional City* (2014), *Atlas of Brutalist Architecture* (2018), *Brussels Housing: Atlas of Residential Building Types* (2023), and *Housing Atlas* (2023), among many others. However, the primary influence of this atlas stems from a methodological investigation into housing design that emphasises the importance of typological thinking in the design process.

Two critical publications stand out in this context. The first is the classic 1978 work by Roger Sherwood, titled *Modern Housing Prototypes*. In this volume, Sherwood examines housing design through the lens of "prototypes" that, as he states, "set the standards and patterns of much that was, and is, to follow."[8] In this work, Sherwood distinguishes between two categories: "unit types," which can be further divided based on the orientation and location of core elements as well as their response to climatic forces, and "building types," which can be composed of various variations depending on access systems, site and cultural conditions, and height.[9] In total, 32 case studies are richly illustrated with cut-away axonometric drawings, revealing the internal layouts of individual units, their organisation, and circulation systems. Brief descriptions, archival drawings, and photographs support each case study. Although the book primarily adopts a Western perspective, its systematic method of study and consistent format allow for meaningful comparisons across projects of different scales and types, making it a valuable reference for this chapter.

The second influential book for this research is Friederike Schneider's *Floor Plan Atlas*, first published in 1994 and subsequently expanded and edited into subsequent editions (now under the title *Floor Plan Manual Housing*) by Schneider and Oliver Heckmann. Like in the case of Sherwood's book, the focus is once again on exemplary projects that, through systematic representation and analysis, help serve as a valuable tool for cross-comparative research and as a tool to both track the development of housing design, as well as serve as a basis for design exploration. However, the distinction between the two books lies in Schneider's and Heckmann's encyclopaedic analysis of around 165 projects worldwide built since 1945.

True to its name, this manual covers an extensive range of housing types and scales, from apartment towers to terraced complexes and row houses. Every project featured in the book is drawn to the same scale (1:200) and is accompanied by brief descriptions, sections, location plans, photographs, and other visual aids. Figure-ground plans, a recent addition to the latest edition, are drawn to a scale of 1:500 and serve as schematic diagrams to further facilitate project comparisons.

However, despite their international acclaim, one could argue that the only limitation of both books is that they focus on well-known and innovative projects designed by famous architects. As a result, a limitation of both works is that their selection criteria lead to a less comprehensive atlas that fails to represent the bulk of housing in modern cities. In that respect, a book series that has recently filled this research gap has been the three volumes produced by the chair of Emanuel Christ and Christoph Gantenbein at the Department of Architecture at the Swiss Federal Institute of Technology (ETH) in Zurich. Starting with *Hong Kong Typology* in 2010 and subsequent comprehensive volumes that have

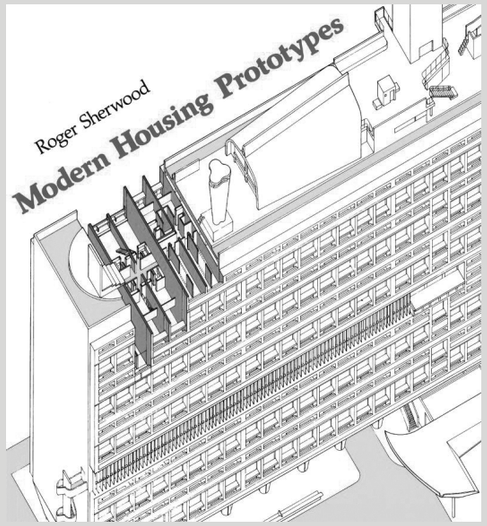


Fig. 9 Cover of Roger Sherwood's classic *Modern Housing Prototypes* from 1978 that documented 32 exemplary projects from the Western World with detailed cut away axonometric drawings and plans.

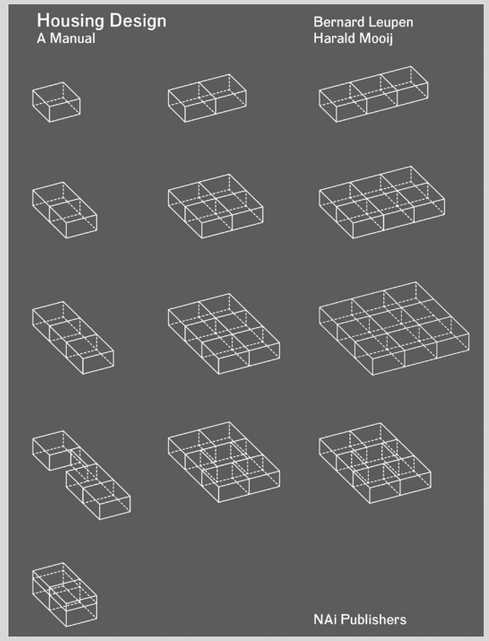


Fig. 10 Cover of *Housing Design: A Manual* which provides an encyclopedic examination housing projects from around the world.

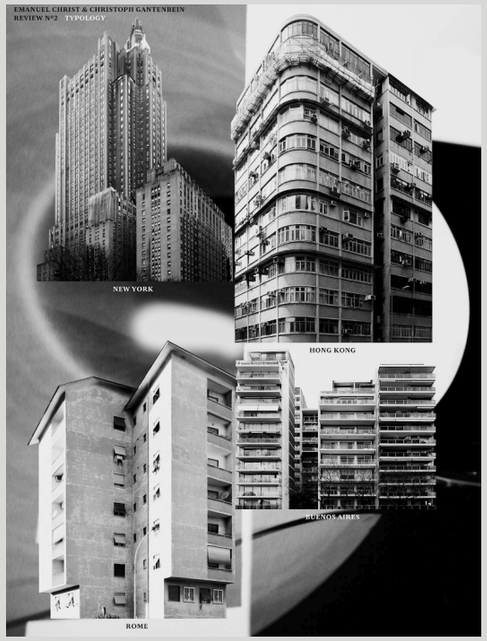


Fig. 11 Cover of Christ and Gantenbein's second volume on *Typology* that analysed cases in Hong Kong, Rome, New York City and Buenos Aires.



Fig. 12 Across three volume's, the *Typology* series documents over 340 cases from around the world, including both well-known examples and unknown projects.

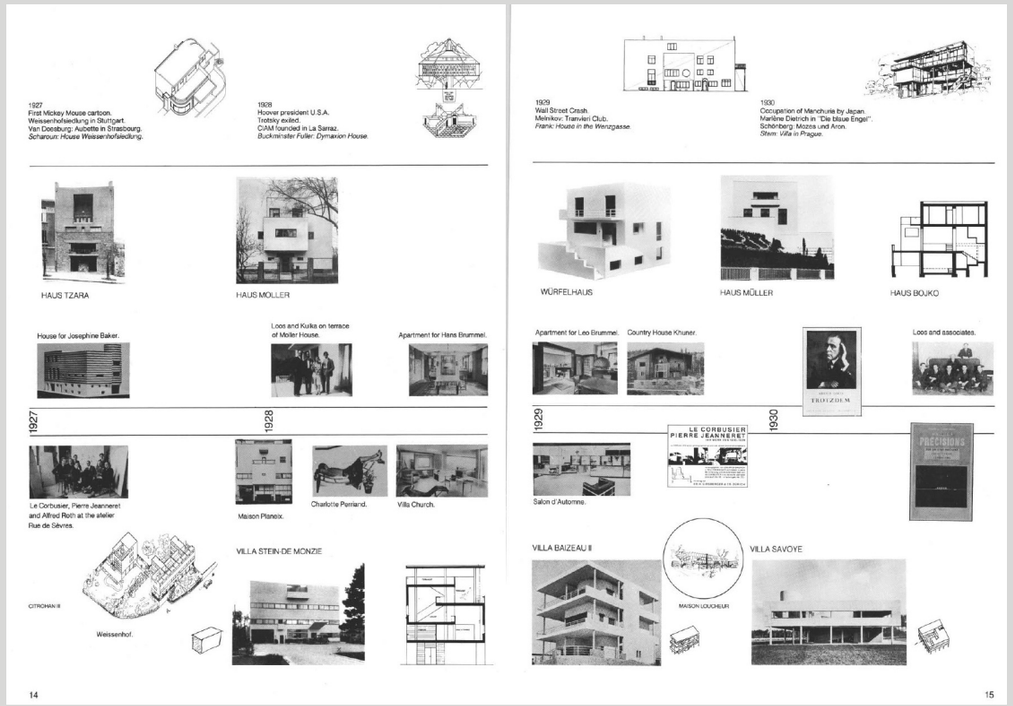


Fig. 13 Max Risselada in Delft popularised the plan analysis method of which building timelines as seen here was an important research tool.

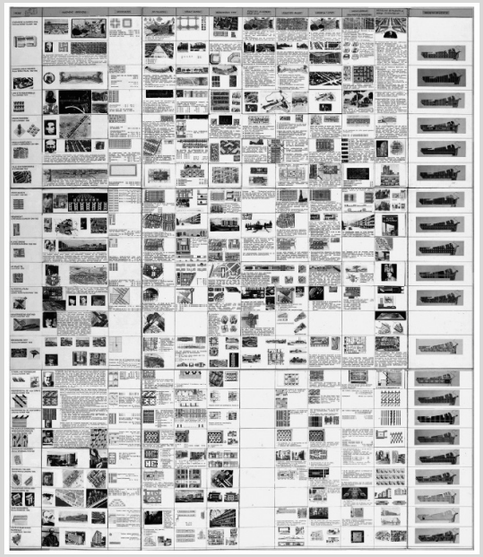


Fig. 14 Paul de Vroom's *Blue Suitcase* remains one of the most elaborate examples of the Delft Plan Analysis method.

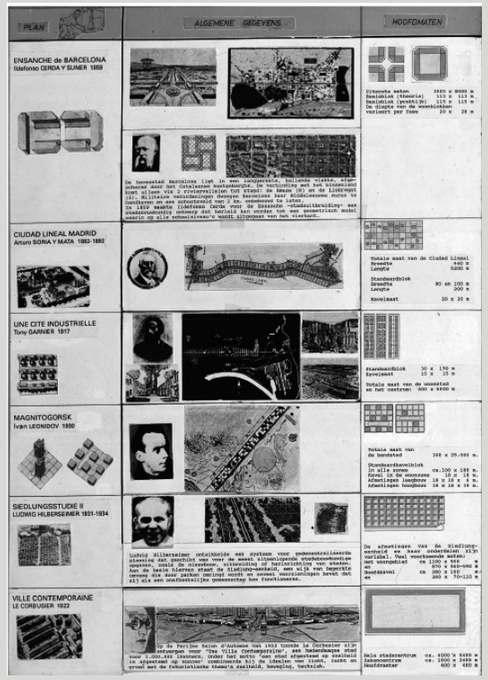


Fig. 15 Seen here is a small fragment of the 22 projects – both known and unknown – that were documented and analysed according to various categories.

surveyed "ubiquitous" and "anonymous" housing schemes next to prominent ones, the duo of Christ and Gantenbein conducted research in seven other cities, namely Rome, New York City, Buenos Aires, Paris, Delhi, Sao Paulo, and Athens. In total, the three volumes analyse some 340 buildings that help create an inventory of housing types and typologies of the 20th century that serve to provide a more complete and comprehensive state of urban housing today.

Following the tradition of the atlases we have been discussing so far, the three volumes produced by Christ and Gantenbein are similarly presented in a unified format complete with re-drawn floor plans, axonometric drawings, descriptions and contemporary photographs that help illustrate the development of housing form in each city. Writing in their 2012 volume, *Typology: Hong Kong, Rome, New York, Buenos Aires*, Christ and Gantenbein state:

> "Our goal is not to create an urban portrait, in other words we are not seeking a comprehensive portrayal of the city under examination. Rather, we search through the thicket of a city for the logic of its form, in other words for what is typical of its development – or simply the typological – we seek the underlying paradigms."[10]

THE DELFT METHOD: PLAN ANALYSIS

Alongside the examples of well-known scholarly works on housing design, the Department of Architecture at the Delft University of Technology (TU Delft) in The Netherlands also enjoys a rich tradition in recording, researching and re-imagining housing design. Starting with research into the Dutch housing context, from the 1970s and 1980s onwards, the Chair of Dwelling at the Department of Architecture (today known as the Section of Public Building and Housing Design) has done pioneering work in research into housing design with an increasingly global perspective. Fundamental and central to this exploration has been a method that, under the tutelage of various Delft professors like Bernard Leupen and Max Risselada, has come to be known as "plan analysis". As a methodical research and design tool, plan analysis's primary aim is to abstract projects by stripping away their subjectivity and looking at projects as independent, even non-historical cases or figures.[11] A clear description of this approach is found in the writings of Max Risselada, who, in his foreword to his student assistant Frits Palmboom's book *Doel en vermaak in het konstruktivisme,* states:

> "In the plan analyses the determining components of designs are analysed in comparison with each other. Which determining components and how these cohere within a design, which relationships are emphasised and why, depend on the themes that are studied in these designs. On the one hand these themes are considered by the designers of the plans and on the other hand imposed on the plans during the study, in order to facilitate comparisons. Once the plan has been 'deconstructed' thus into components, the analysis and interpretation of plans and related texts are used as the basis for structuring the material anew in a new work piece (text – drawing – model). Although this method of working displays an affinity with the design process in its structure and use of resources, the two are not identical. However, comparing existing plans and confronting these with one's own design open designing and its instruments for discussion, allowing the design experience to be objectified."[12]

Over the years, several publications produced at the Department of Architecture at TU Delft have built on this method, most notably in the work of Risselada himself with his 1987 publication *Raumplan versus Plan Libre* that compared and contrasted the work of two significant figures of twentieth-century architecture: Adolf Loos and Le Corbusier. Other research into the work of members of Team X, such as Jaap Bakema, Aldo van Eyck and Alison and Peter Smithson, have all employed the Delft plan analysis method to deconstruct modern architecture, particularly its approach to mass housing design.

Another notable publication from Delft is *Housing Design: A Manual*, co-authored by Bernard Leupen and Harald Mooij. First published in 2008, this book serves as a handbook to assist students and practitioners with all aspects of housing design. It covers everything from the organisation of interior layouts to systems of circulation and access, extending to the scale of building blocks or clusters, as well as the arrangement and formation of large urban ensembles. But perhaps the three leading publications that have triggered and influenced the structure and format of this chapter, and which I have had the privilege to contribute to over the past

ten years in various forms, first as a student and research assistant, and thereafter as a lecturer and researcher are *DASH 12/13: Global Housing: Affordable Dwellings for Growing Cities* (2015), *Living Ideals: Designs for Living by Charles Correa* (2018) and *Dutch Dwellings: The Architecture of Housing* (2023).

In all three publications, great emphasis is placed on typological development, where, once again, the plan analysis method is amply visible. In the issue on 'Global Housing', Dick van Gameren and myself focus our attention on prominent examples of affordable housing built in the period of post-independence India. Covering India's rich tradition of mass housing design, the essay tracks the evolution of housing types from the early experiments of public housing in Chandigarh right up to the community-led slum rehabilitation projects of today. The essay closes with a graphical timeline of plans that, following the plan analysis method, are all drawn and documented in the same format and at the same scale. Significantly inspired as well by Charles Jenck's method of grouping as seen in his classic 'Evolutionary Tree to the Year 2000' diagram of 1971, the timeline highlights three typological shifts in housing design: starting with the 'linear structures' of the early nation-building years, to a focus on 'incrementality' in the 1970s and 1980s, to strategies of 'clustering and stacking' in the current era.

In addition to these essays on affordable housing from around the world, the 'Global Housing' issue concludes in typical DASH-style with a 'Plan Documentation' section. Here, precisely re-drawn CAD drawings containing plans, sections and elevations illustrate the various scales of each project – from the urban ensemble to the individual unit. Supported by contemporary photographs and a brief description of each case (including essential facts and figures), the cases cover a broad geographical and typological terrain spanning both the Global North and South. Here, I was tasked to research, describe and re-draw the plans of two projects already mentioned earlier in this dissertation: Raj Rewal's CIDCO Housing, built in Navi Mumbai in the early 1990s and PK Das's Sangharsh Nagar from the early 2000s.

Similarly, the exhibition and catalogue on Charles Correa's housing designs, a joint effort by Dick van Gameren and myself, was once again built as a timeline employing the plan analysis method. In this case, Correa's extensive and consistent oeuvre of housing projects served as the perfect subject to map the evolution of housing types and typologies over a period that parallels India's growth as an independent nation. Building on the DASH essay of 2015, a key feature of both the exhibition and its catalogue was a graphical timeline that combined the plan analysis method with Jencks-like blobs to highlight four themes in Correa's work: the 'climate section' that dominated his design thinking from the very start and until the end, the attempts at creating 'community space' that found their way into large-scale township projects of the 1960s and 1970s, the need to incorporate 'incrementality' in projects for low-cost housing in the 1970s and 1980s, and methods of 'clustering' around various hierarchies of courtyards, that spanned his entire career, especially towards the latter half.

The third influential publication that played a role in shaping this chapter is Dick van Gameren's *Dutch Dwellings*. As a research assistant and image editor of the book, I was made aware of the long trajectory of housing development in a context far removed from that of Mumbai, but that, nevertheless, inspired this dissertation's emphasis on combining theoretical essays, photo documentation and catalogue of drawings that again through a uniform format and drawing style present a multidimensional catalogue of housing typologies.

GLOBAL HOUSING STUDIO

Working on various research projects and publications over the past 10 years has significantly shaped this dissertation's research methods and aims. However, here I must also acknowledge the educational program of the Global Housing Study Centre, where I have served as a design tutor since 2017 as an essential influence.

Over the past eight years, several semester-long and year-long studios have mapped and documented housing types and typologies in various metropolitan centres of the Global South, including Mumbai (2017-2020), Dhaka (2021-2022), Buenos Aires (2023), and Sylhet (2023-2025). In all these design studios, typological analyses of well-known and lesser-known housing projects have utilised the Delft plan analysis method at various stages and in multiple ways to understand the built fabric of housing in each city.

In particular, the 10-week-long semester studio titled 'Mixing Mumbai', co-taught by Dick van Gameren and myself during the spring of 2020 at

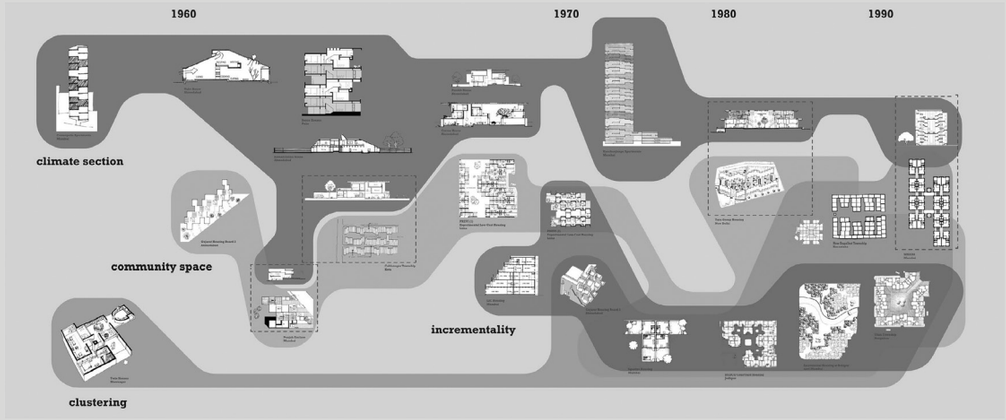


Fig. 16 The approach of carrying out plan analysis to understand shifts and patterns in housing design is seen here in the recent exhibition and catalogue produced on the work of Charles Correa.

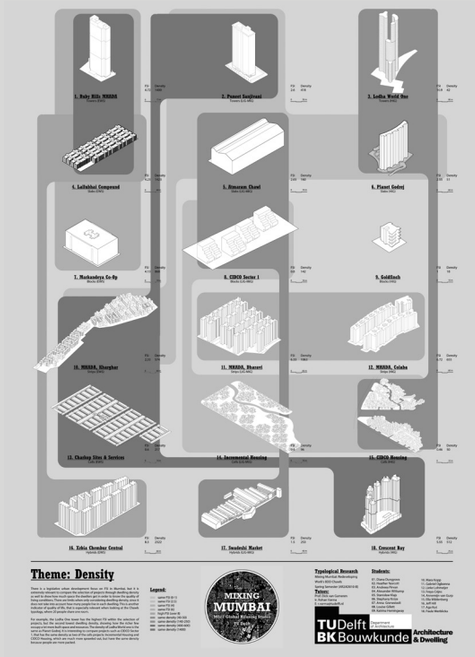


Fig. 17 The plan analysis method of carrying out cross comparative research was also employed in the 2020 design studio Mixing Mumbai. Here, 18 projects covering three broad income groups and six urban types are analysed together in a consistent and coherent manner. Seen here is an example of the theme 'density' which clubbed projects together as per their plot FSIs.

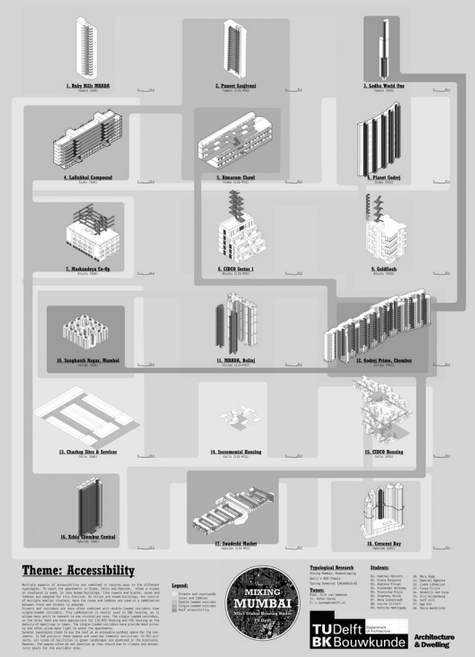


Fig. 18 Another example of the cross-comparitive approached enabled by the plan analysis method. In this case, all 18 projects are compared according to their access system – streets and courtyards, cores, corridors, etc.

the peak of the COVID-19 pandemic, has fundamentally shaped the lenses, format, and structure of the atlas of housing types and typologies that follows in the subsequent pages. Due to travel restrictions, fieldwork was impossible, making the plan analysis method an invaluable research and design tool for the 18 enrolled students. We began by classifying housing types based on urban form rather than dwelling organisation. A matrix was developed across three income groups—low (LIG), middle (MIG), and high-income groups (HIG)—resulting in the identification of six housing types: 'Slabs', 'Blocks', 'Cells', 'Strips', 'Towers', and 'Hybrids'.[13]

The resulting matrix presented a multifaceted collection of 18 housing types and typologies, all re-drawn by the students at a consistent scale and format, enabling easy comparisons and deductions. In addition to two-dimensional plans, each case was documented and explained through exploded axonometrics, revealing the internal layouts of buildings and dwellings and outlining each case's circulation and access systems. Adhering to the plan analysis method, all 18 projects were compiled on a single poster. Building on previous experiments, such as those conducted in DASH in 2015 and the Correa catalogue in 2018, we analysed these projects using Jencks-like blob diagrams to map five key lenses: 'Density', 'Diversity', 'Accessibility', 'Connectivity' and 'Materiality'.

METHODS & MATERIALS

In addition to the many publications on housing design we have been discussing so far, this atlas on Mumbai's housing types and typologies has employed the following three methods:

First, the research examined substantial volumes of secondary literature on the subject, with a particular focus on the city's evolving forms of housing. This included books, architecture journals, academic papers, and archival materials (such as maps, plans, and models) obtained from various sources, such as local libraries, research centres, and archives.

Second, several trips to Mumbai were made for fieldwork between 2017 and 2022. This involved multiple visits to various housing schemes across the city, and the fieldwork utilised different methods of documentation and analysis, including photography, sketching, and unstructured interviews.

Third, the study involved re-drawing 25 projects using various sources, including archival maps, drawings, satellite imagery, and books. Using CAD software, mainly AutoCAD and Rhino3D, each project was re-drawn in a unified format and style, including two-dimensional and three-dimensional representations. These drawings were then refined using Adobe Illustrator to create black-and-white illustrations at various scales, ranging from the neighbourhood (public scale) to the dwelling (private scale).

SELECTION CRITERIA

As indicated earlier, rather than documenting exemplary or one-off innovative projects, this atlas attempts to cast a wide net on the trajectory of housing design in the city through the lens of the five modes identified previously in this section. After several efforts to build a comprehensive atlas that would encompass the full range of housing types and typologies prevalent in the city, it was decided to limit each mode to exactly five cases (or models).

Together, these 25 models represent a wide array of schemes, both unique and standard examples, that, when strung together, provide a glimpse into the shifting forms of production and patronage in the city. As a catalogue of both the dominant and desirable schemes built across the city over 125 years, this atlas aims to serve as an additional resource and complement existing material related to the housing forms of a city in transition. Targeting both academics and students, it seeks to highlight the significance of typology as both a means to understand shifting forms of dwelling and an instrument that holds the potential to offer solutions to the ongoing housing crisis.

LIMITS & LIMITATIONS

Although Mumbai is one of the most studied cities in the Global South, relatively little research has been carried out on its housing landscape, particularly regarding its housing types and typologies. Only recently, with Sameep Padora's investigations into housing design commencing in 2016, has this research gap begun to be addressed. When this research project was launched in the Spring of 2017, Padora and Khemalapure had yet to start work on sPare's second volume of housing research – *(de) Coding Mumbai* – which was published only in 2023. It is in recognition of this research gap that this exercise was initiated. However, the study faced several challenges in creating this atlas.

Firstly, accessing material, particularly legible plans, sections, and elevations of the selected 25 models, proved incredibly difficult. While well-known projects are well documented, the ordinary, ubiquitous projects are not.

Secondly, when the material was available, whether in official records or local school libraries, it was often incomplete or inaccurate. Consequently, re-drawing projects as two-dimensional and three-dimensional representations took considerable time and frequently required additional information from alternative sources, such as satellite imagery, photographs, and even measured drawings on-site.

Thirdly, at times, due to the lack of complete information, certain assumptions had to be made for the sake of consistency and comparison. For example, calculations of metrics such as plot density, unit sizes, and Floor Space Index (FSI) often varied depending on the source referenced. In each case, rather than relying on secondary sources, the CAD drawings and Rhino3D models served as the basis for these calculations.

Fourthly, it is entirely possible that projects were not direct translations of their blueprints. In every instance, the drawing documentation had to hypothesise the most realistic scenarios using various other sources.

Finally, despite every effort, several significant projects had to be excluded from the final selection. These include innovative projects such as the Nagari Nivara Co-operative Housing Society by Adarkar Associates from the early 1990s, alongside more recent cluster redevelopment projects in central Mumbai. Similarly, as the accompanying map highlighting the locations of the various projects will show, most of the selected models are situated within Greater Mumbai, with only a handful of cases from the wider MMR region making the final cut. This again relates to the scarcity of materials and sources for documenting these projects. In conclusion, the aim is for this atlas to serve as an additional or complementary reference source for students and practitioners alongside the comprehensive works of Sameep Padora, Neera Adarkar, and CRIT.

FORMAT

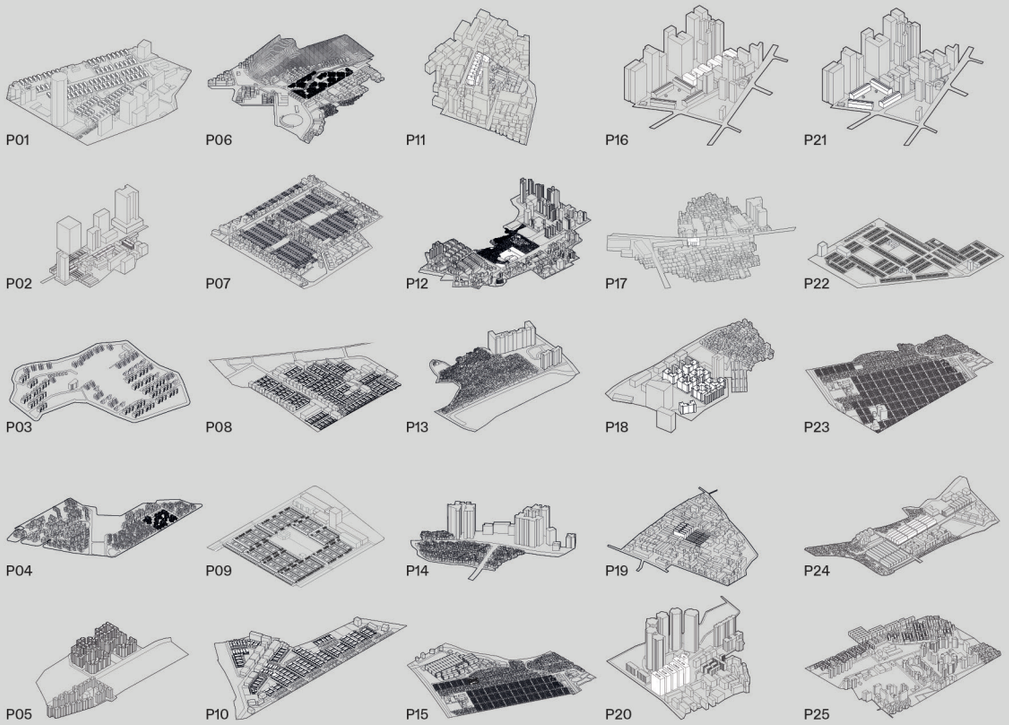
As indicated earlier, the 25 models borne out of the five modes of housing delivery and intervention are presented here in the format of an atlas. Each case – or model – covers two pages (a spread) and has a uniform format and consistent drawing style. On the top-left of the first page is basic information such as project number (PXX), name, location and mode. A short and basic project description can be found in the box below. To the right is always a plan of the MMR that highlights the location of each model, and below it, a characteristic black-and-white contemporary photograph of the project in question. On the second page are five drawings. In the top half of the page are four scaled drawings traversing four metrics – 'Urban Form', 'Plot Density', 'Footprint & Circulation', and 'Dwelling Types'. While the first two are axonometric drawings, the last two are illustrated as plans, supported with a graphical scale and north indicator. Below is a larger box illustrating each model with a zoomed-in axonometric drawing.

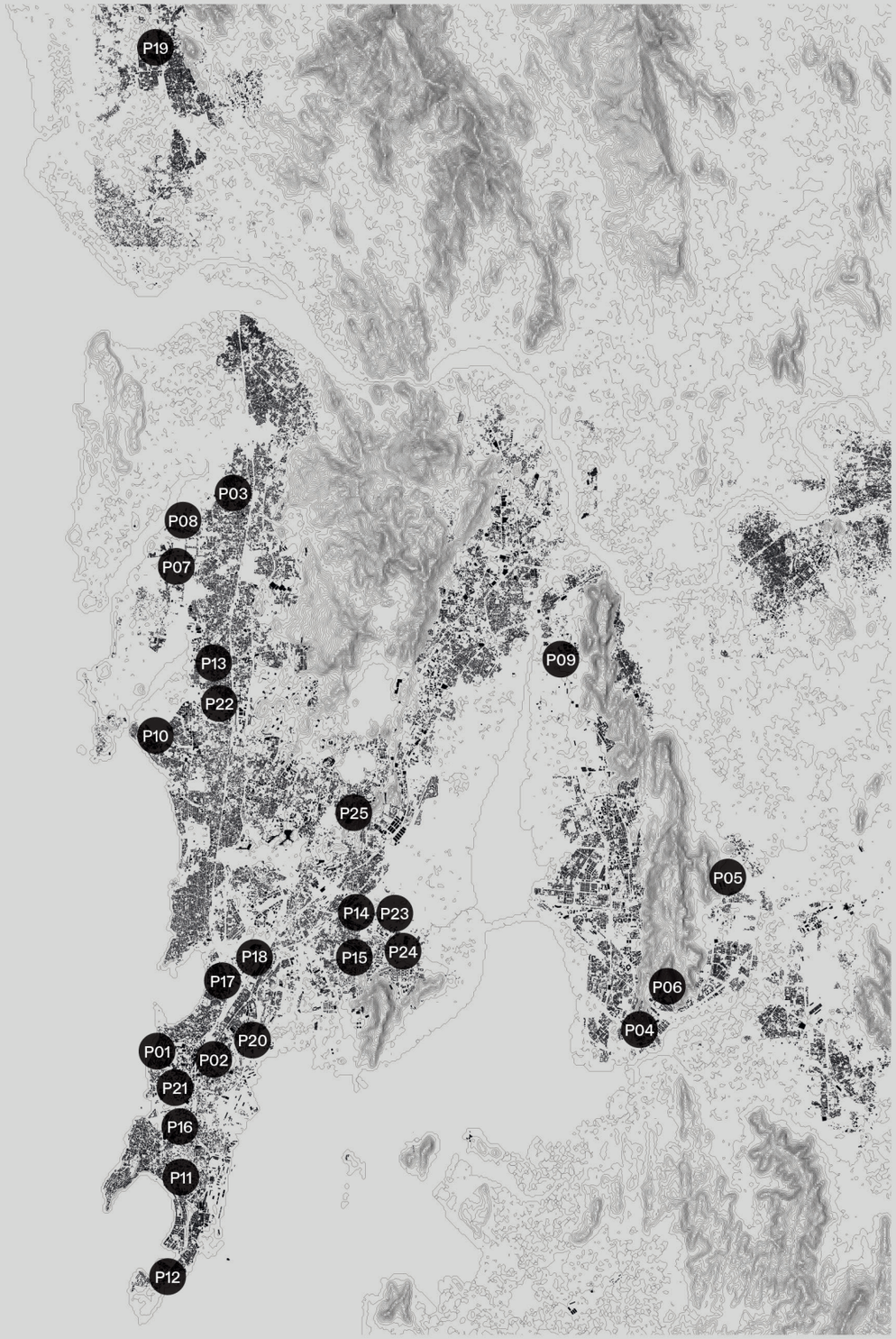
At the end of this catalogue, four spreads analyse all 25 models through the four metrics, but now in a cross-comparitive matrix informed by a similar analysis prepared for the 'Mixing Mumbai' studio of 2020. Supported by brief texts and layers for different metrics, these Charles Jencks-like blobs once again compare and contrast the various projects systematically to illustrate parallel and diverging lines of development.

To conclude, by placing the 25 projects according to the five modes discussed between Chapters 3.1 and 3.6, this catalogue of projects places housing development in dialogue with the dynamics of society and policy frameworks. It is this research project's central belief that disseminating this material during the time of global housing crises is of essential importance. Through this exercise, the hope is that the text describing the various modes is made more attractive for students and practitioners, who are encouraged to read this atlas in a variety of ways: as a repository of case studies for academic research, as a manual for housing design, or simply as a guidebook without a clear conclusion, beginning or order, but one that invites you to navigate the maze-like streets of Mumbai in search of better models for housing. At its core, the atlas builds upon Delft's plan analysis method and argues for a doctoral dissertation to extend its relevance beyond academia, and instead to serve, in the words of one of my advisors, as an "instrument for advocacy"[14] in Mumbai – and globally – where the challenges of housing the masses present problems without perfect solutions. It is with this preamble that I hope readers will engage with this atlas. ■

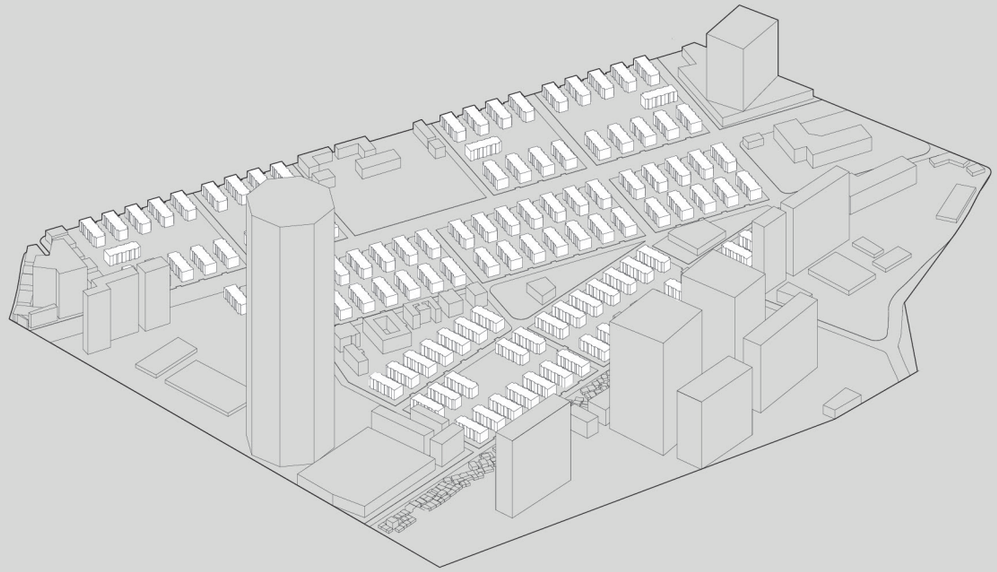
MUMBAI MATRIX

AN ATLAS OF HOUSING IN MUMBAI

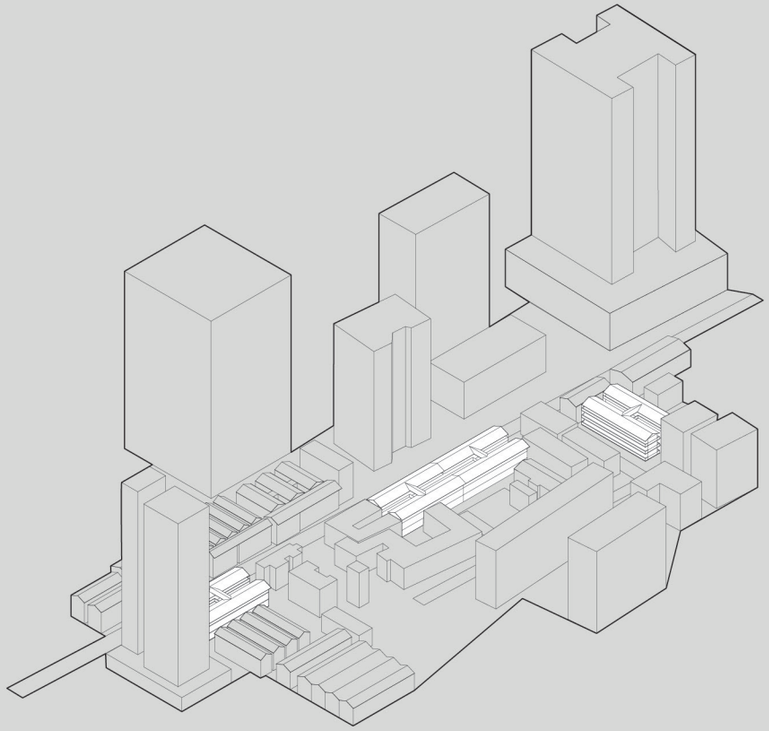




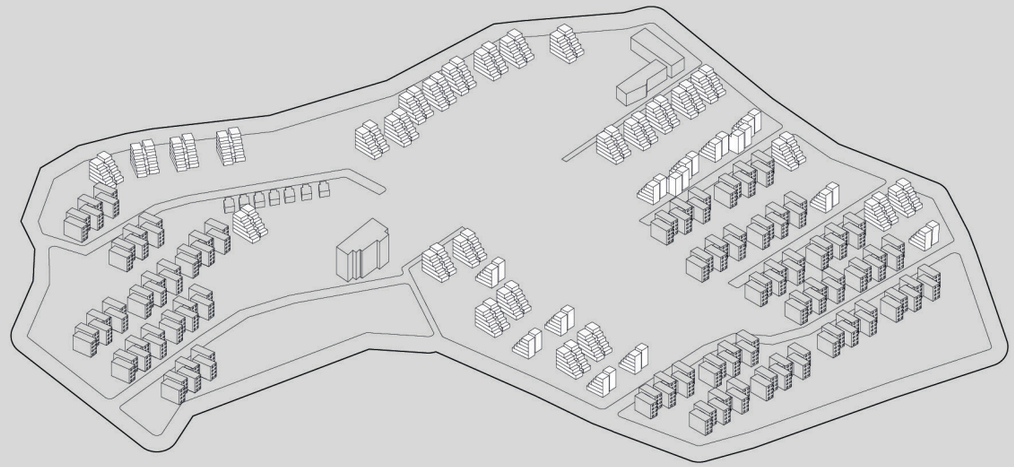
25 MODELS FOR HOUSING THE MASSES



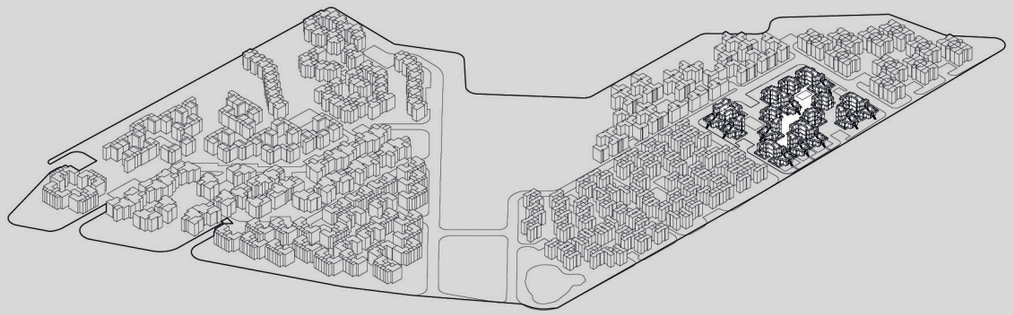
P02
POONAWALA CHAWLS



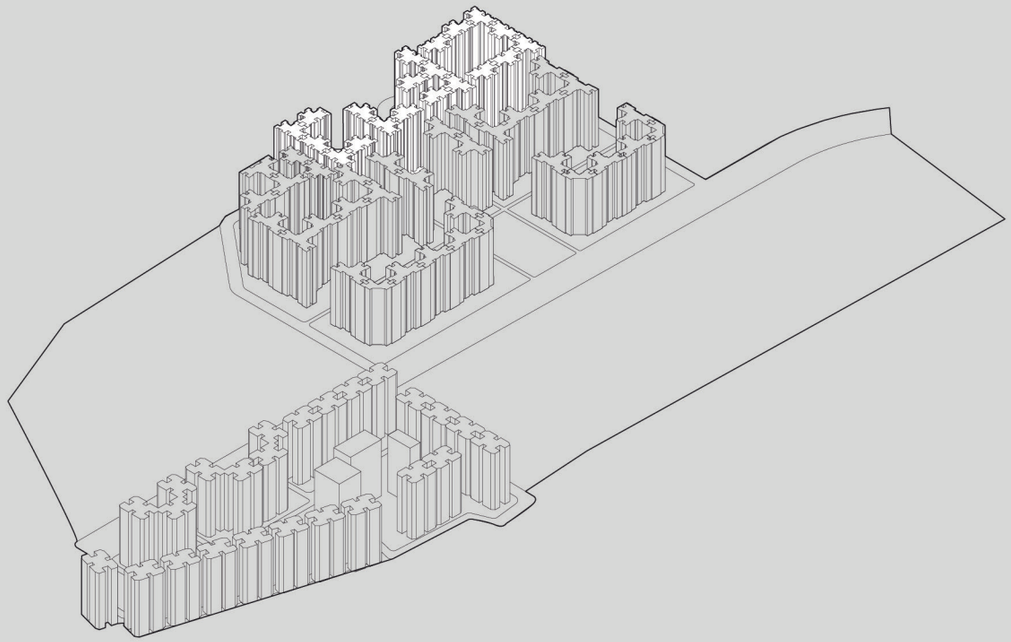
P03
LIC COLONY



P04
CIDCO SECTOR 22



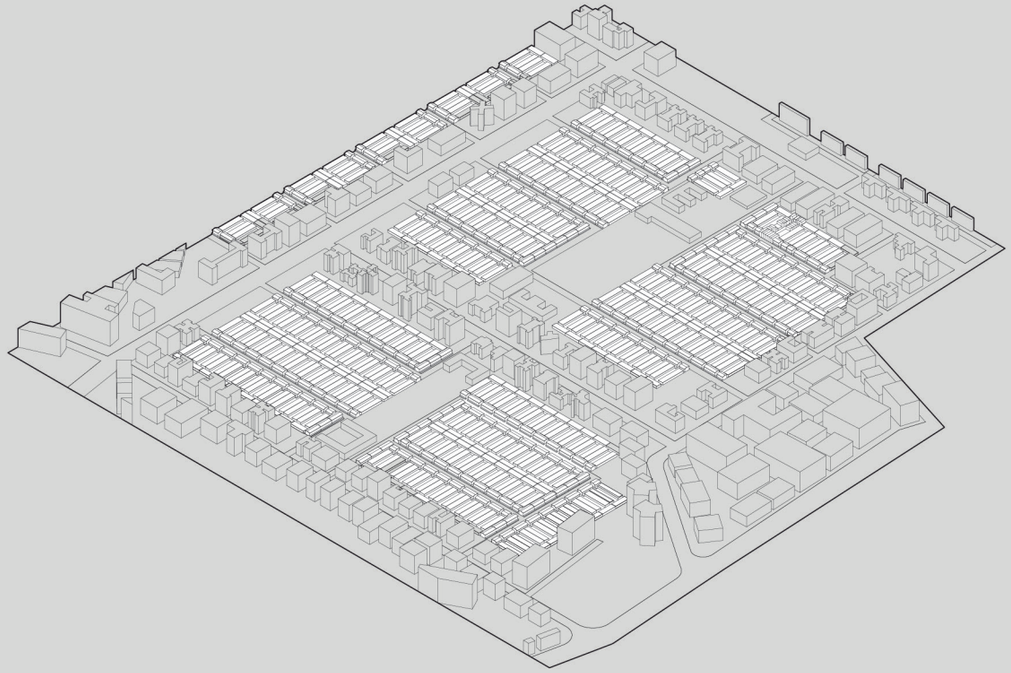
P05
CIDCO SECTOR 36



P06
ARTISTE'S VILLAGE



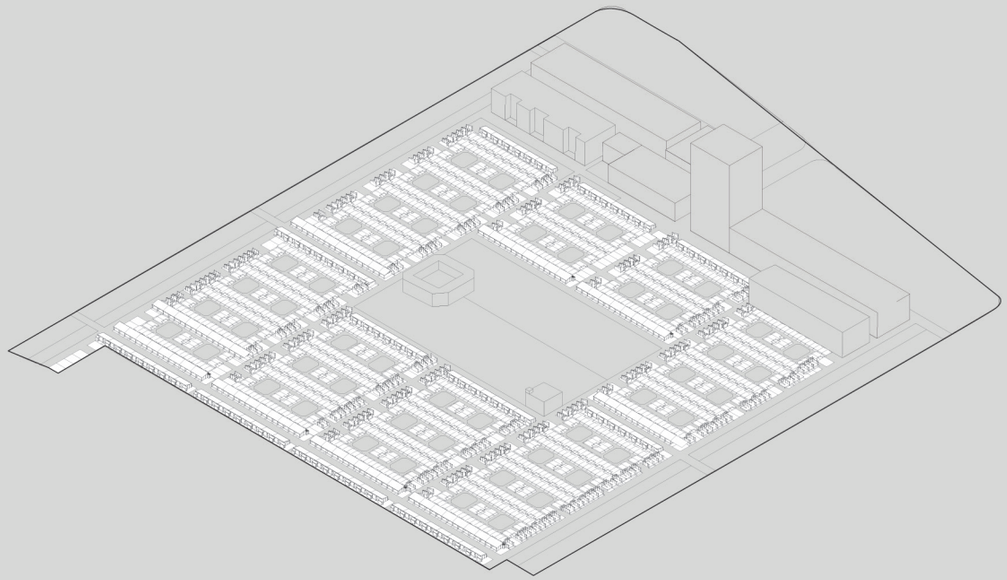
P07
CHARKOP SECTOR 1



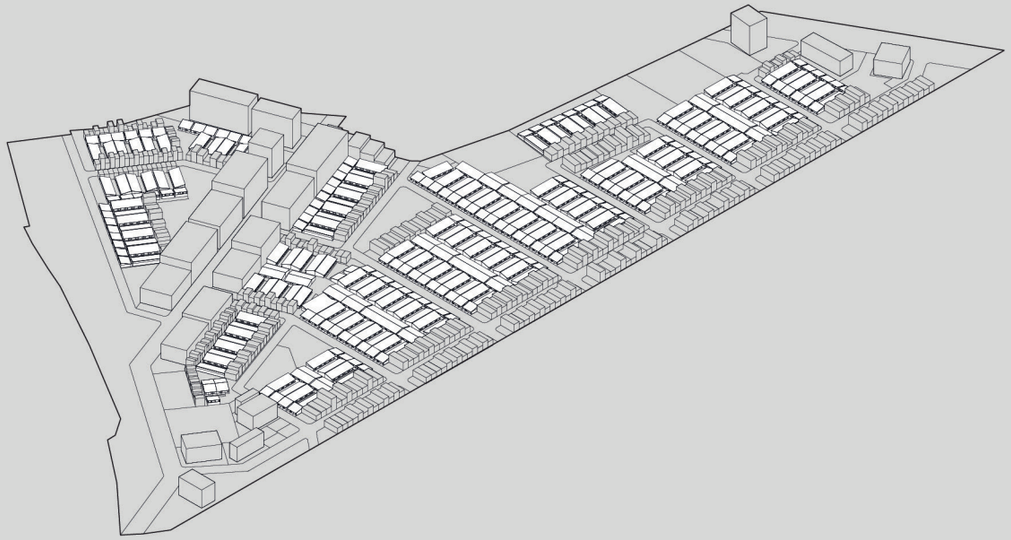
P08
GORAI SECTOR 1



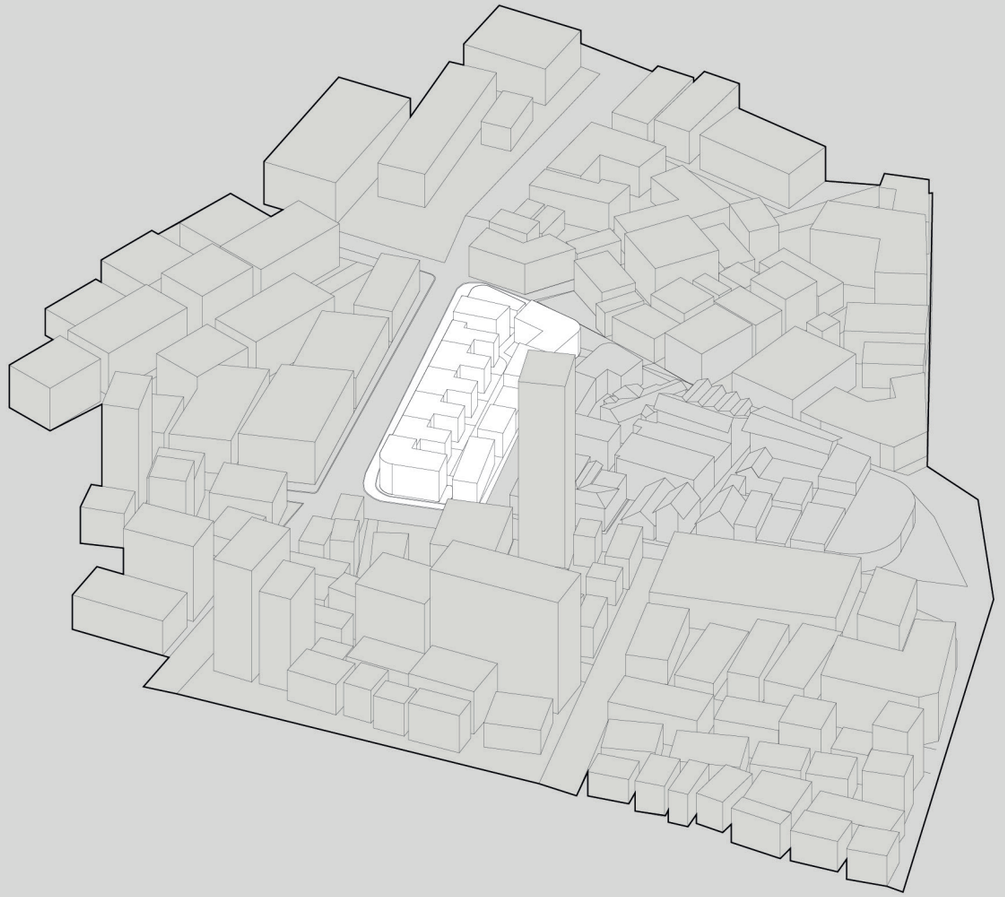
P09
AIROLI SECTOR 2



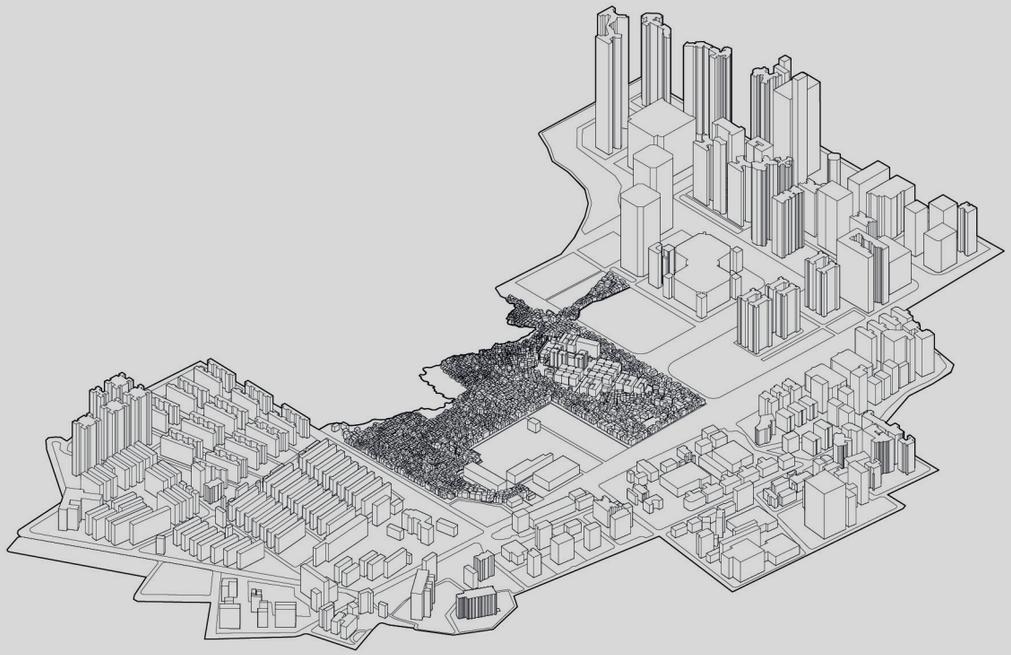
P10
VERSOVA



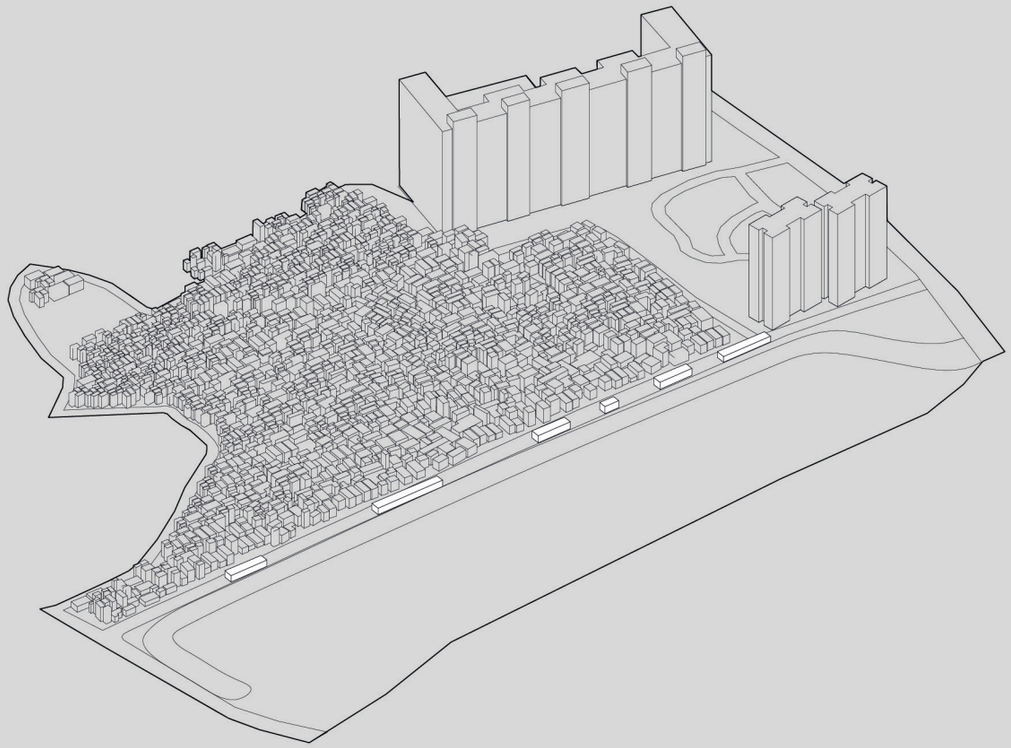
P11
KOLBHATWADI



P12
GANESH MURTI NAGAR



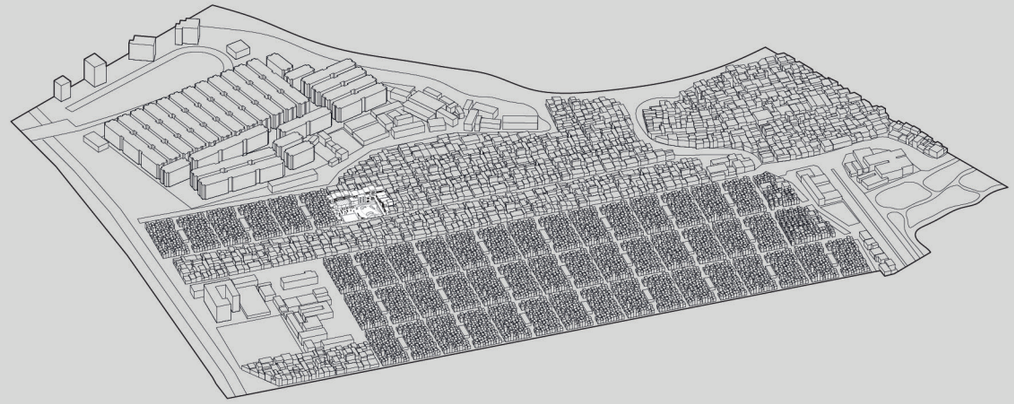
P13
PREM NAGAR



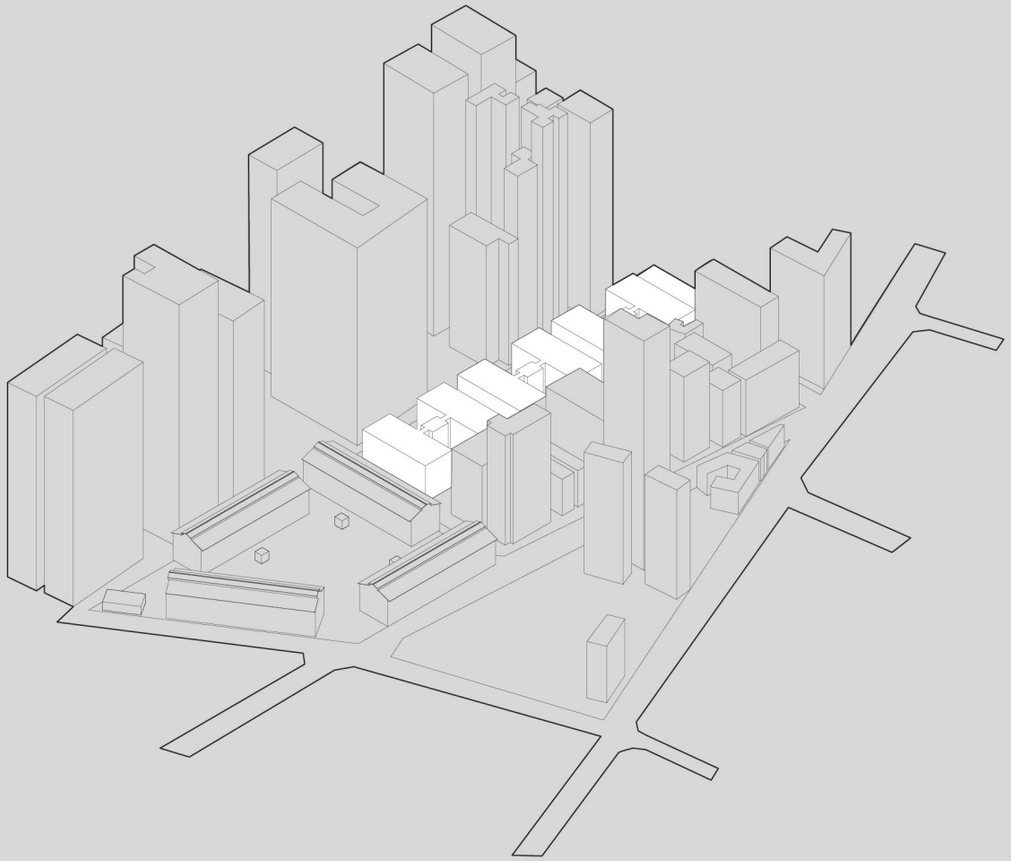
P14
SHIV KRUPA SOCIETY



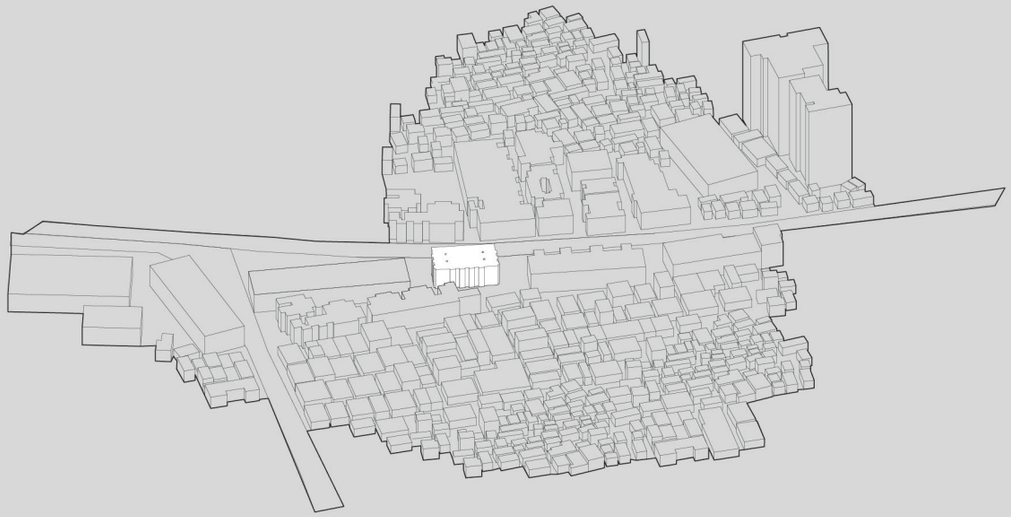
P15
LOTUS COLONY



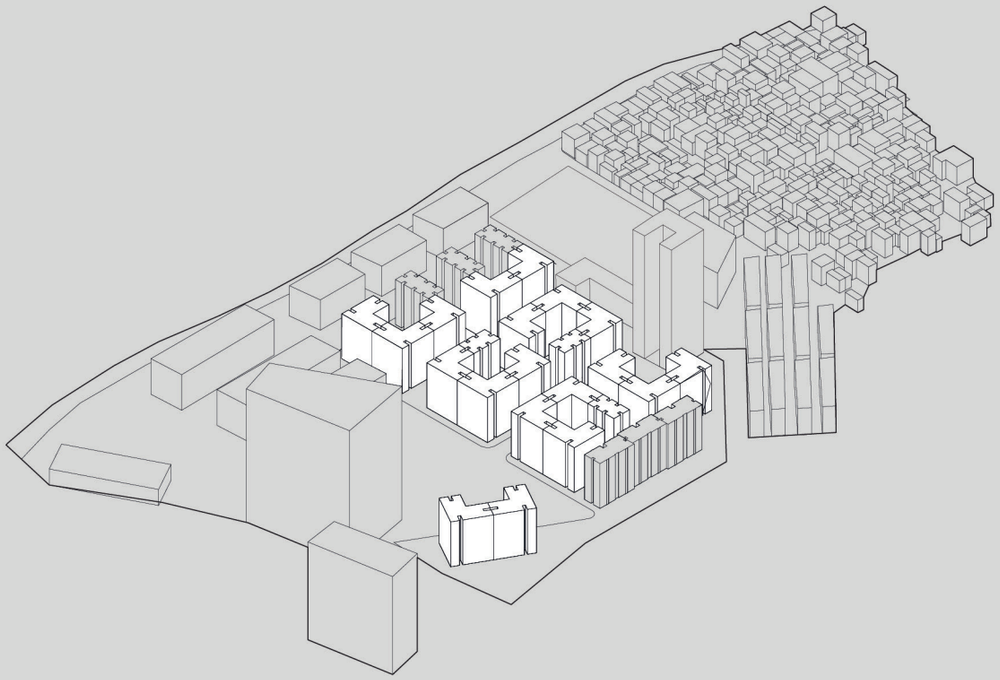
P16
AGRIPADA SCHEME 2



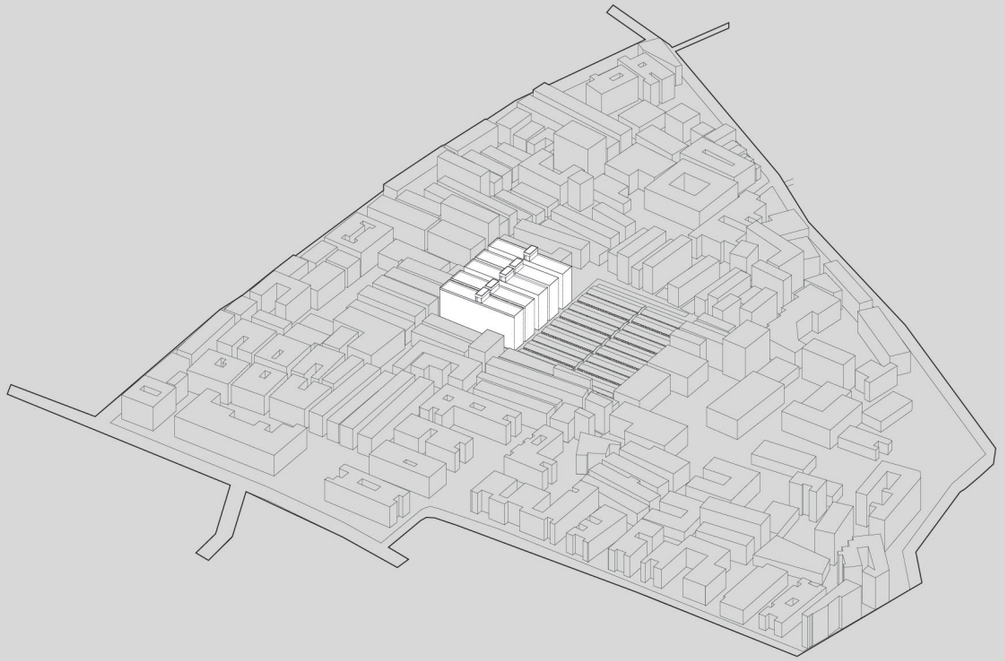
P17
MARKANDEYA CHS



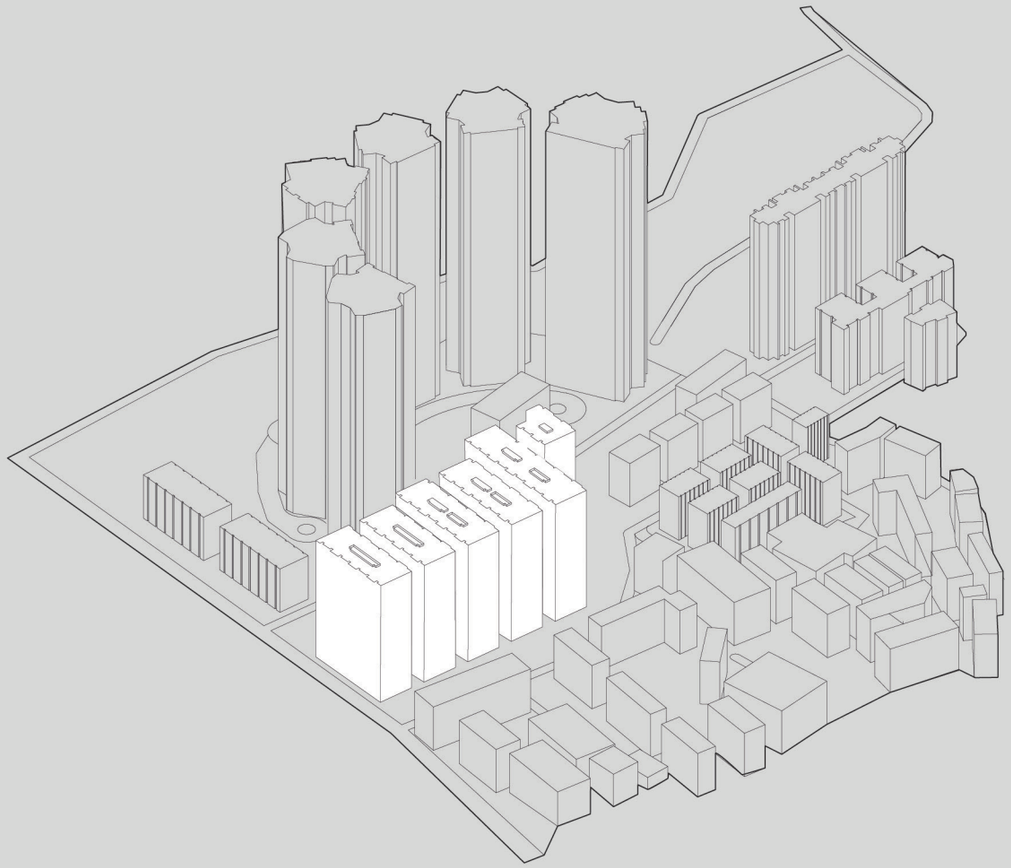
P18
PMGP COLONY



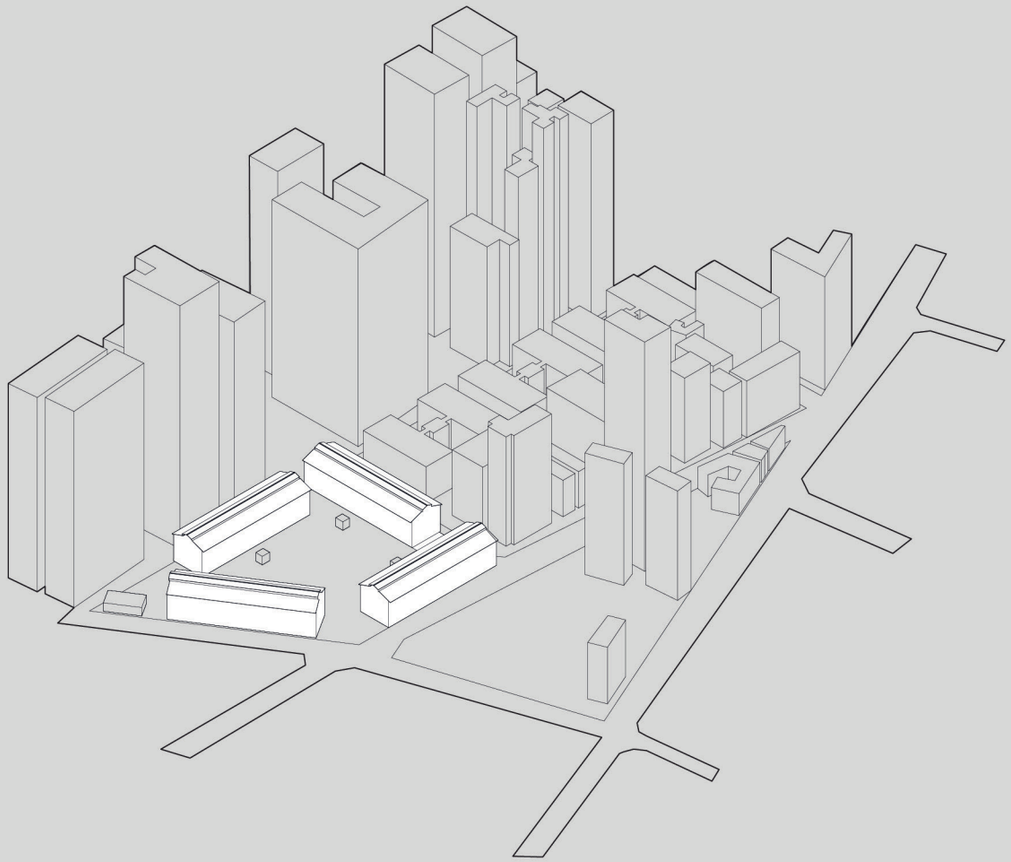
P19
REHMAT NAGAR



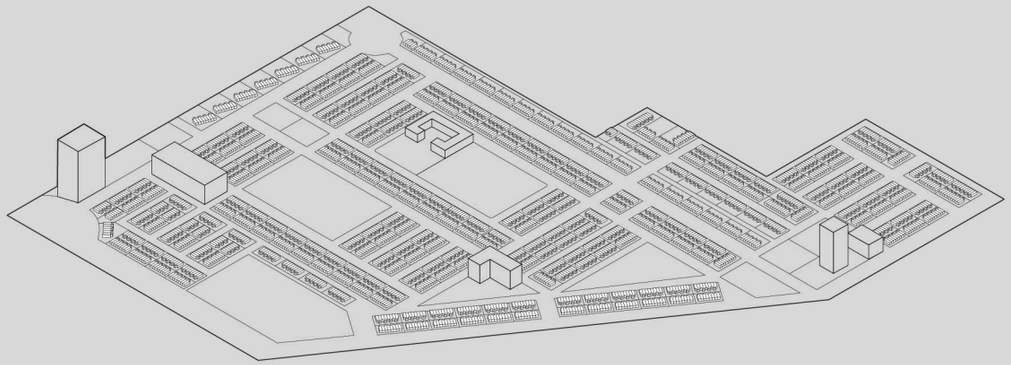
P20
MATOSHREE CHS



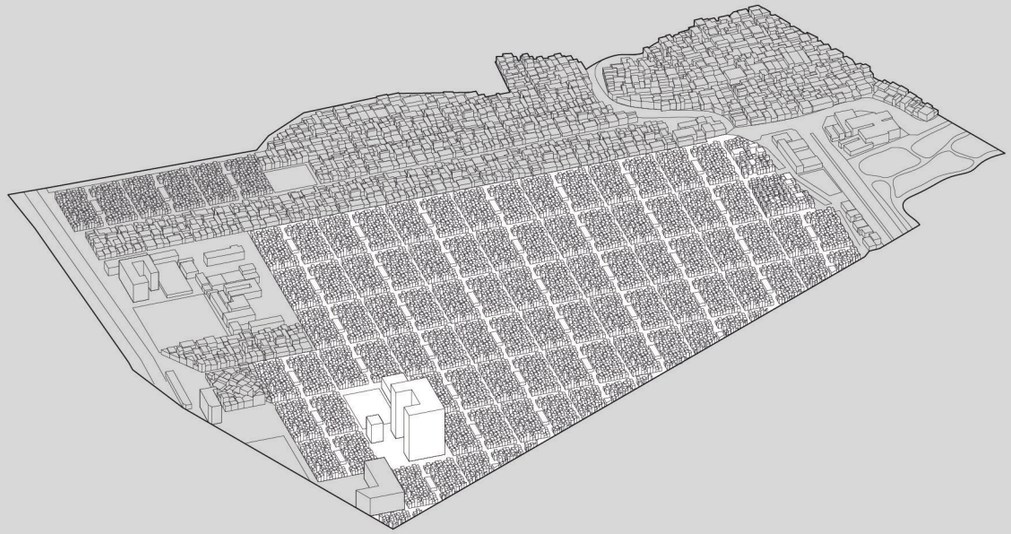
P21
AGRIPADA SCHEME 1



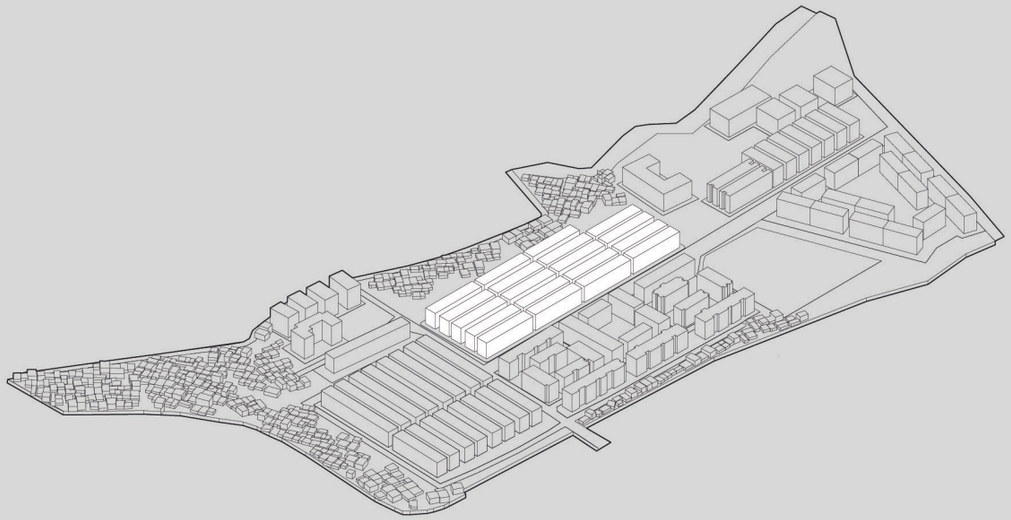
P22
MOTILAL NAGAR



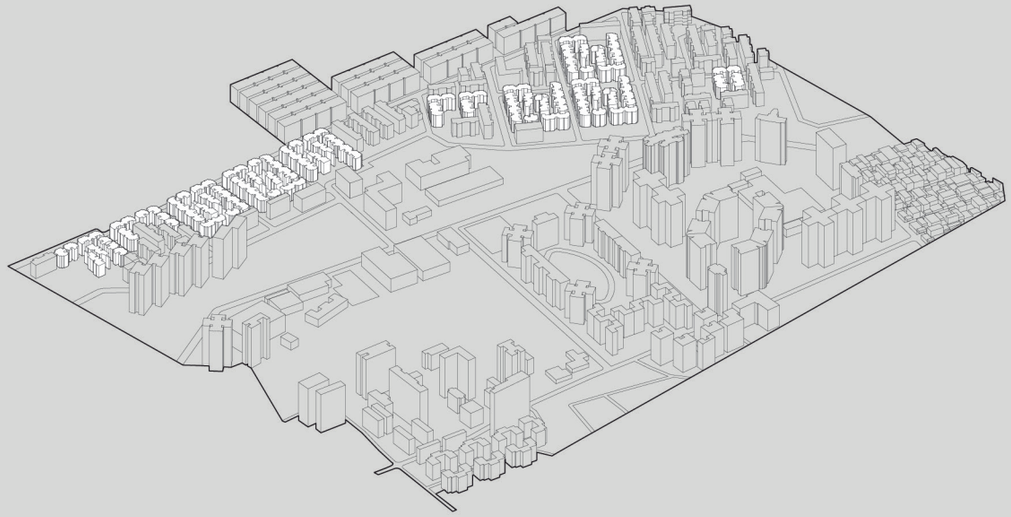
P23
SHIVAJI NAGAR



P24
LALLUBHAI COMPOUND



P25
SANGHARSH NAGAR



P01 BDD CHAWLS
WORLI

SOCIAL HOUSING

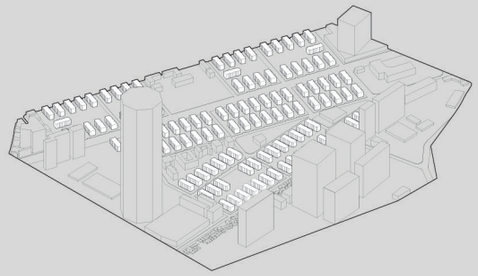
Construction	1923-1925
Type	Chawls
Programme	Residential
Client	BDD
Architect	Unknown
Tenure	Rental & Home Ownership
Plot Area	23 ha
Density	453 dw/ha
Dwellings	9600
Unit Sizes	16.5 sqm
FSI	1.50
GSI	0.35

The BDD chawls in Worli adopt and adapt many features found in privately-built chawls, but with some stark differences. The most obvious is the scale of the project and its clear urban design. Spread across 23 hectares, the BDD's chawls are composed of parallel rows of buildings, each four stories tall, and containing 20 identical units with shared bathrooms and toilets located at one end. These chawls are rubber-stamped across the site for maximum efficiency. However, it should also be noted that the scheme provides ample open spaces, with a total of six open grounds in the scheme) forming the heart of the project. Another point worth mentioning is the project's use of precast RCC (reinforced cement concrete) blocks, a technological breakthrough for that time in reducing costs and construction time. Over the years, and despite poor maintenance, the robust structure has enabled people to expand their dwellings horizontally with cantilevering and projecting extensions that augment their otherwise modest dwellings.

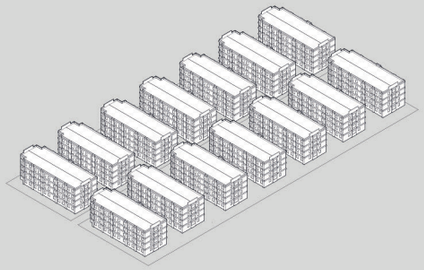


Location Plan

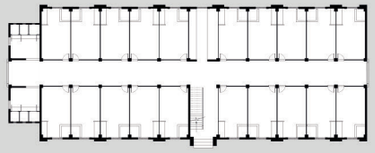




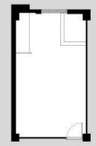
Urban Form



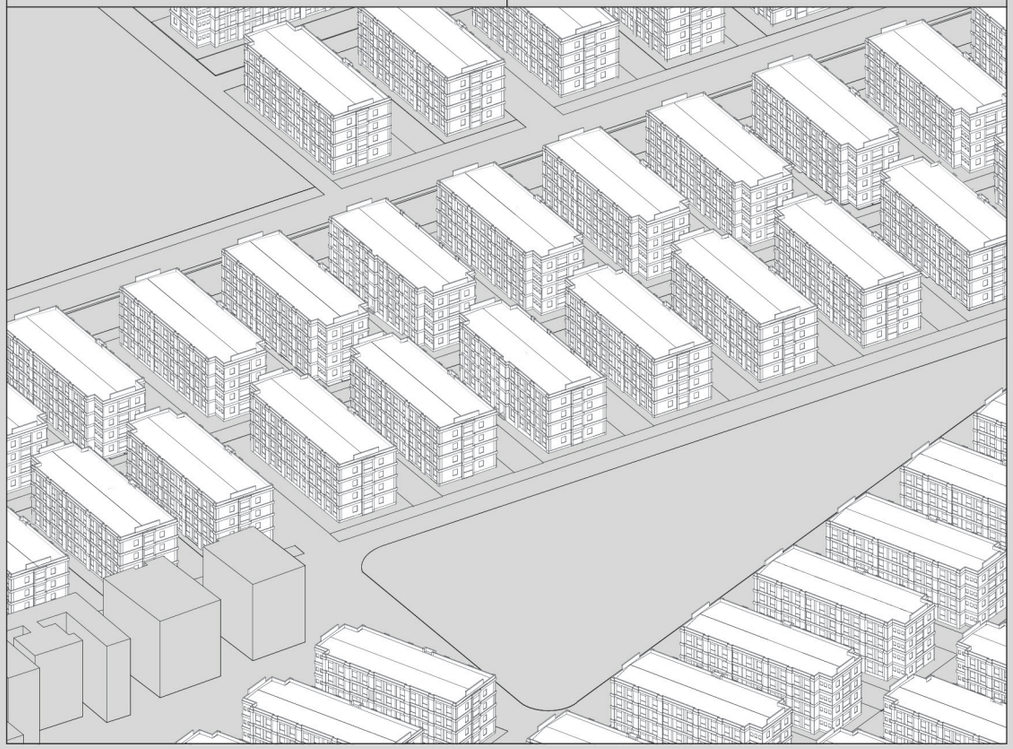
Plot Density



Footprint & Circulation



Dwelling Types



P02 POONAWALA CHAWLS
LOWER PAREL

SOCIAL HOUSING

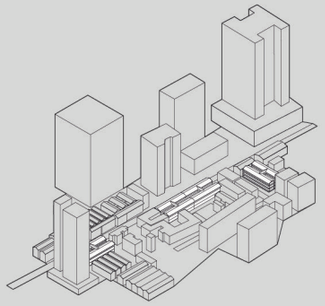
Construction	1929-1933
Type	Chawls
Programme	Residential & Commercial
Client	Poonawala Trust
Architect	Unknown
Tenure	Rental
Plot Area	0.26 ha
Density	657 dw/ha
Dwellings	171
Unit Sizes	14.25 sqm
FSI	1.45
GSI	0.48

Like many other chawls built in that period, the Poonawala Chawls represent the archetypical chawl type with rows of small units strung along external galleries and served by common bathrooms and toilets. However, what makes these chawls unique is their distinctive H-shaped cluster that contains two bars of housing blocks. The bar facing the street is wider and consists of two galleries on either side of the dwelling units that connect with the bar at the rear via a bridge. Each floor contains 19 dwellings units, each slightly more than 14 square metres in size and served by a single straircase. Toilets and bathrooms located on the side walls of the rear bar. On the ground level shops and commercial units of various kinds make the Poonawala Chawls a hybrid mix of residential and commercial use that stand as an antithesis to today's affordable housing projects where housing has been reduced to the mere production of residential floor space, ignoring the vital relationship between living and income generation.

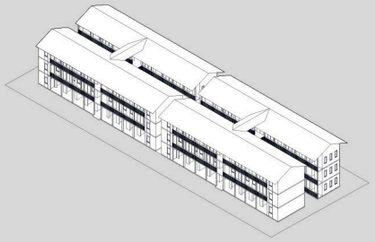


Location Plan

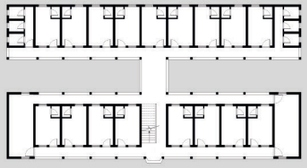




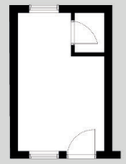
Urban Form



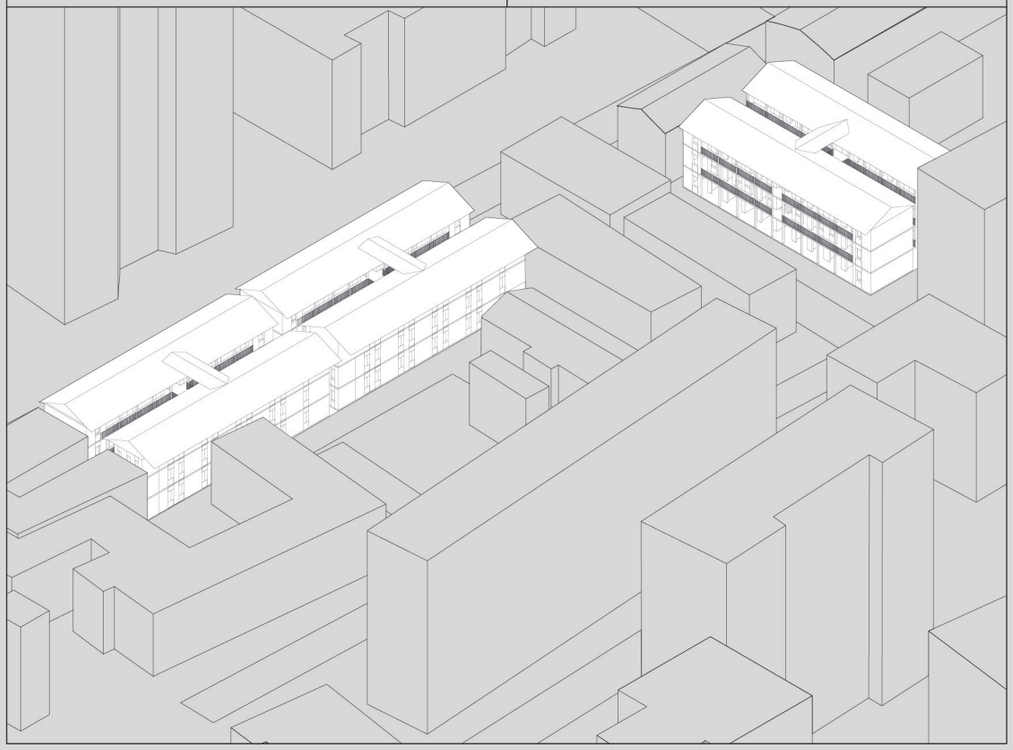
Plot Density



Footprint & Circulation



Dwelling Types



P03 LIC COLONY
BORIVALI

SOCIAL HOUSING

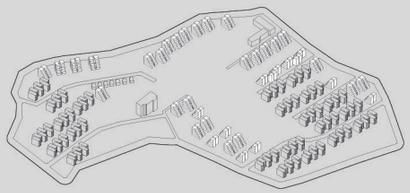
Construction	1969-1973
Type	Apartments
Programme	Residential
Client	Life Insurance Corporation
Architect	Charles Correa
Tenure	Rental & Home Ownership
Plot Area	21.80 ha
Density	53 dw/ha
Dwellings	1168
Unit Sizes	39.70 sqm-91.10 sqm
FSI	0.48
GSI	0.10

In the LIC Colony, Correa uses the Radburn principle to produce a township of cul-de-sac roads and a continuous network of car-free, green spaces with housing blocks of two distinct types. Each of these types are based on a structural module six metres wide with the more conventional apartment type rising five floors. However, a more inventive stepped section type defines this colony the best. Containing four apartments on the lower floors and two apartments on the higher floors, this stacked configuration accomodates apartment sizes of various types and sizes that are accessed by a central staircase located in a smaller bay in between the two six-metre blocks. As a result of this stepped section, each building caters to different needs and income groups while also providing each apartment with generous open-to-sky terraces that have over the years been appropriated by residents. The colony, interestingly, also comprises of a section of rental units still owned by the LIC that highlights the importance of tenure in determining form over time.

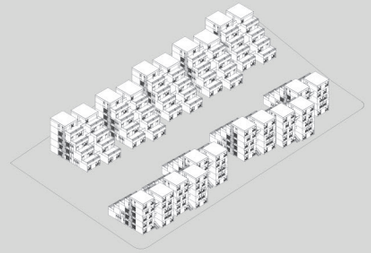


Location Plan





Urban Form



Plot Density



Footprint & Circulation



Dwelling Types

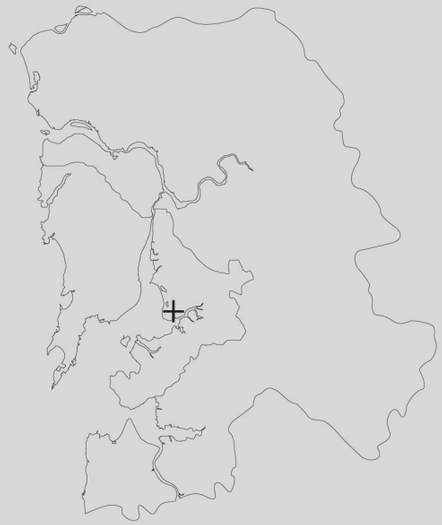


P04 CIDCO COLONY
SECTOR 22, BELAPUR

SOCIAL HOUSING

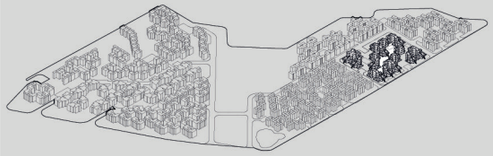
Construction	1988-1993
Type	Apartments
Programme	Residential
Client	CIDCO
Architect	Raj Rewal
Tenure	Rental & Home Ownership
Plot Area	7.70 ha
Density	136 dw/ha
Dwellings	1048
Unit Sizes	20 sqm - 100 sqm
FSI	0.25
GSI	0.30

The brief by CIDCO called for the design and construction of over a 1,000 units on a hill-side site close to the city's Central Business District. Drawing inspiration from India's rich reservoir of traditional and vernacular architecture, Raj Rewal's design contains a multitude of units and blocks varying in size and configuration that range from one-room apartments to three-room duplex town houses (each catering to different income levels and requirements). At the scale of the entire site, the blocks are arranged in ingenious ways to define seven different types of neighbourhoods. Careful planning also went into ensuring that these neighbourhoods would be pedestrian friendly on the interior with vehicular traffic limited to their peripheries. Moreover, clever usage of the contours of the site allowed for a variety of courtyards and narrow shaded streets at different levels that help provide ample space for interaction and recreation both within and between the neighbourhoods reminiscent of typical North Indian towns.

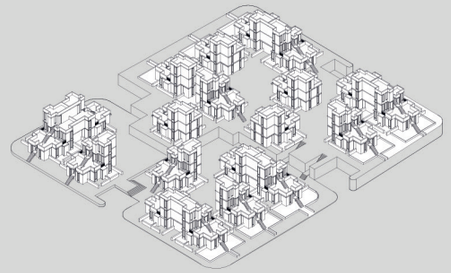


Location Plan

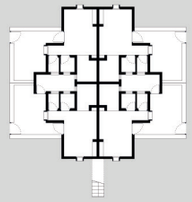




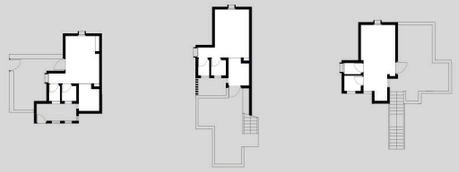
Urban Form



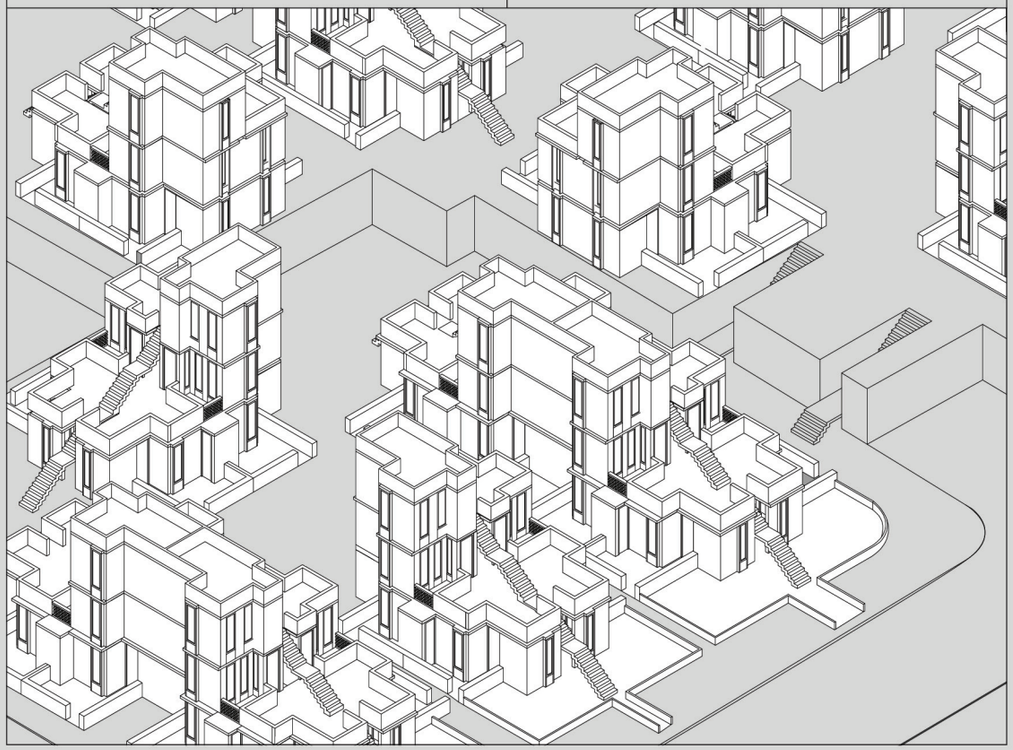
Plot Density



Footprint & Circulation



Dwelling Types

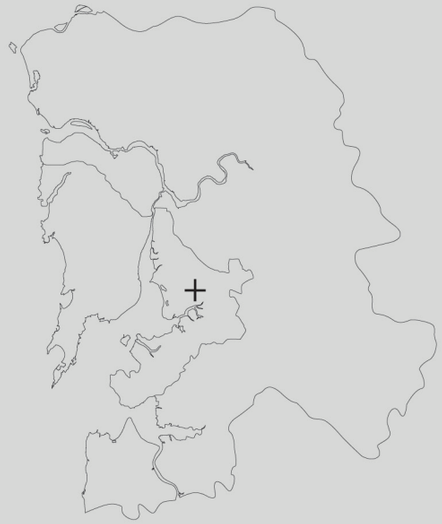


P05 CIDCO SECTOR 36
KHARGHAR

SOCIAL HOUSING

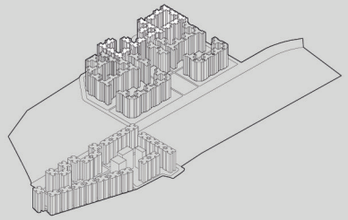
Construction	2012-2015
Type	Apartments
Programme	Residential
Client	CIDCO
Architect	Unknown
Tenure	Home Ownership
Plot Area	7.18 ha
Density	765 dw/ha
Dwellings	5490
Unit Sizes	35 sqm
FSI	2.50
GSI	0.30

CIDCO Colony Sector 36 consists of two distinct parts, separated by a four-lane road. On the east side is a 7.5-hectare site with two variations of T-shaped tower blocks as the central figure. All towers rise to the same height (15 floors) and are similar in layout, housing on each level six apartments served by two centrally located staircases and two elevators. The primary difference between the two types is in the sizes of the flats. The type facing the road is larger in footprint and, with 60 square metre apartments, is aimed at the middle-income groups (MIG). The typology at the rear has a slightly smaller footprint and comprises 30 square metre apartments meant for the economically weaker sections of society (EWS). Barring a different type for the corner condition, these T-shaped tower blocks are arranged in strips to create undulating clusters with courtyards as common spaces on the ground level.



Location Plan

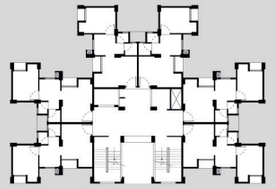




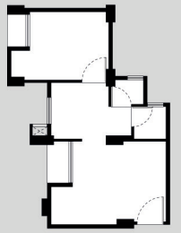
Urban Form



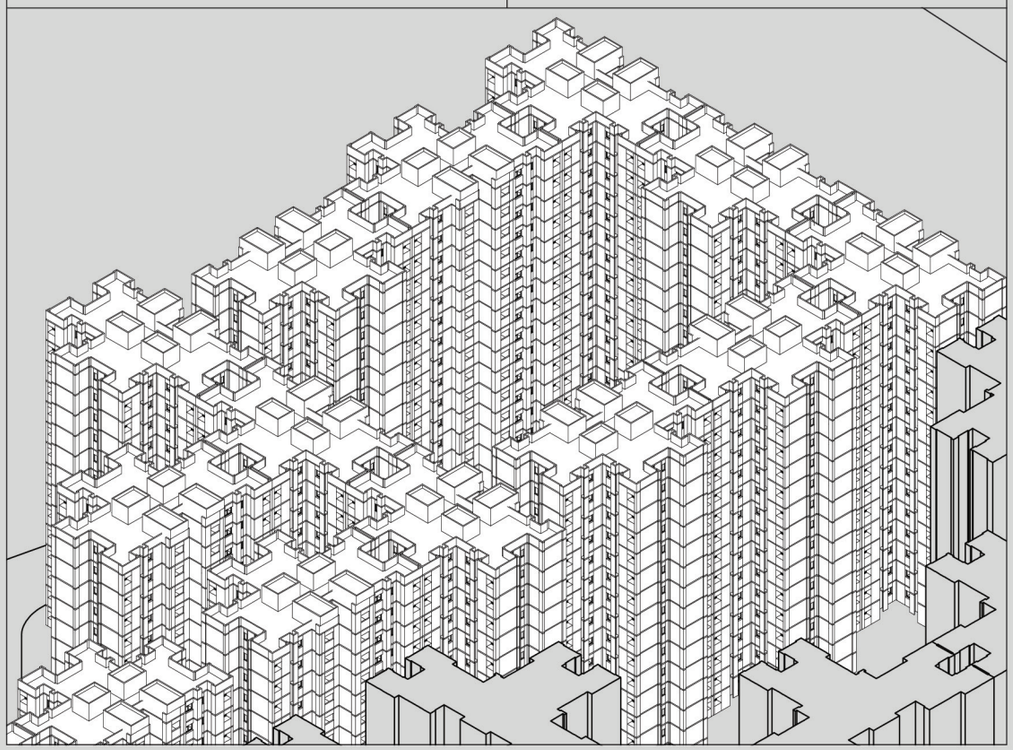
Plot Density



Footprint & Circulation



Dwelling Types



P06 ARTISTE'S VILLAGE
BELAPUR

SELF-HELP & SITES-AND-SERVICES

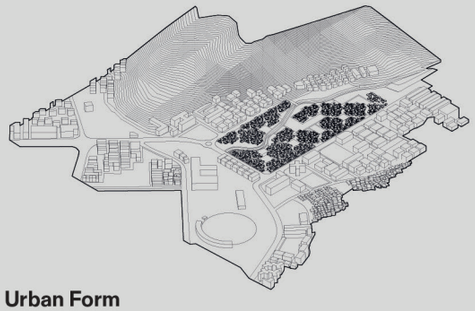
Construction	1983-1986
Type	Free-standing Houses
Programme	Residential
Client	CIDCO
Architect	Charles Correa
Tenure	Home Ownership
Plot Area	6.50 ha
Density	90 dw/ha
Dwellings	590
Unit Sizes	16.68 sqm-75.37 sqm
FSI	0.30
GSI	0.30

Correa's scheme for housing in Belapur is characterised by a broader range of options for housing sizes and types that range from single-room huts measuring just 17 square meters to two-storey townhouses up to 75 square metres – all simple brick and tiled roof constructions that local masons and contractors could easily build with minimal expertise and supervision. Seven of these dwellings come together in the following scale to form a cluster grouped around a courtyard that measures 8 by 8 meters. Roughly four of these clusters are then mirrored, rotated and repeated to create the following scale, which creates a cluster that measures 48 by 48 metres and contains approximately 24 dwellings. Through this clustering system, Correa creates complex fractal patterns at the scale of the urban layout that, at the largest scale, forms a neighbourhood for 600 families on a roughly six-hectare site, complete with providing schools, health clinics, open spaces and other amenities.

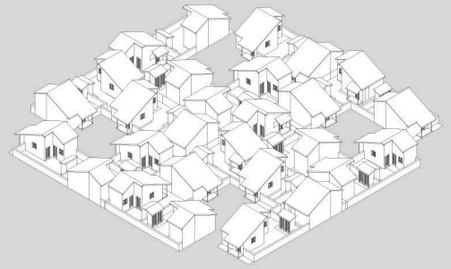


Location Plan

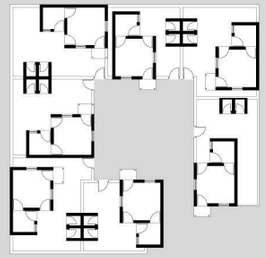




Urban Form



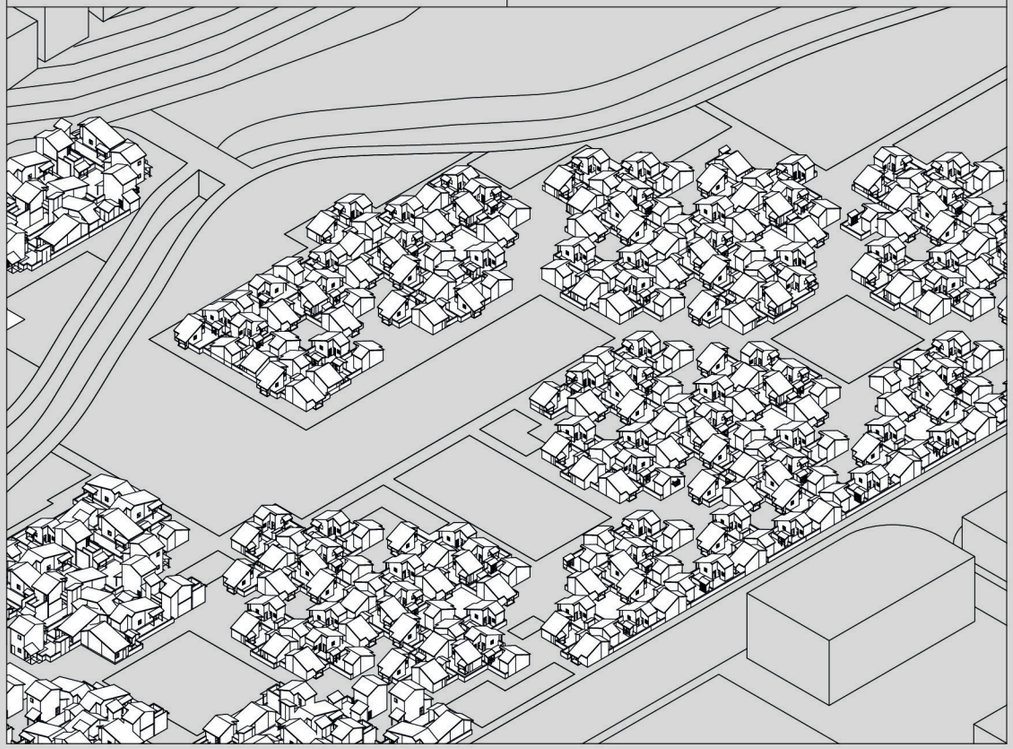
Plot Density



Footprint & Circulation



Dwelling Types

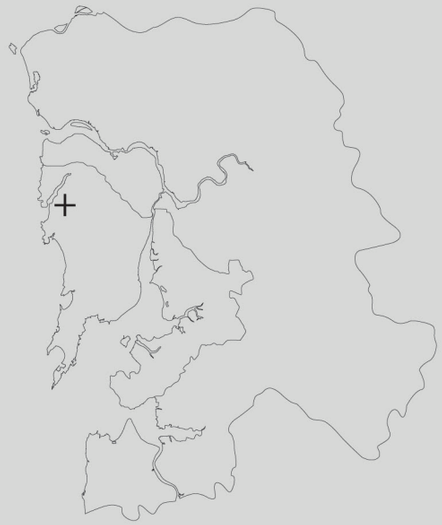


P07 CHARKOP SECTOR 1
KANDIVALI (WEST)

SELF-HELP & SITES-AND-SERVICES

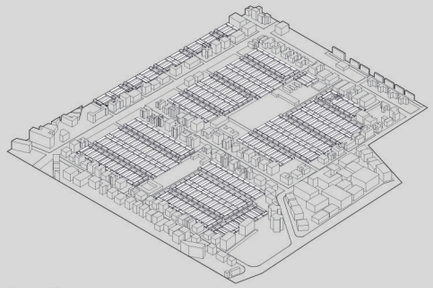
Construction	1985-1993
Type	Row Houses
Programme	Residential
Client	MHADA & World Bank
Architect	V. Phatak & A. Bertoud
Tenure	Home Ownership
Plot Area	53 ha
Density	125 dw/ha
Dwellings	6650
Unit Sizes	25 sqm-40 sqm
FSI	0.44
GSI	0.38

Charkop is the largest sites-and-services scheme implemented in Mumbai and one of 13 sites developed by the BUDP between 1985 and 1994. Spread across approximately 180 hectares and accommodating over twenty thousand plots, is characterised by a repetitive cluster that measures roughly 53 metres by 22 metres and contains between 33 to 35 small plots. To meet the strict financial and managerial requirements set by the Bank, these typical clusters contain a mix of two plot sizes, with the larger 40 square meter plots (meant for low-income groups or LIG) lining 9-metre-wide streets and the smaller plots of 25 square meters (meant for the so-called economically weaker sections of society, or EWS) that are accessed through an entrance that leads to an inner, more private T-shaped courtyard. Each dwelling unit is arranged in a highly efficient manner in a row house typology with blind walls on all sides except one that faces either the 9-metre-wide street or the courtyard in the middle.

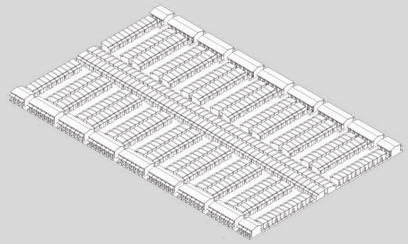


Location Plan

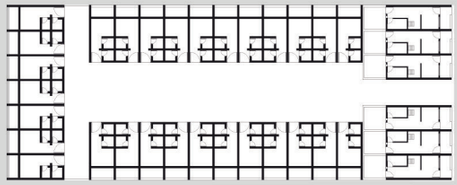




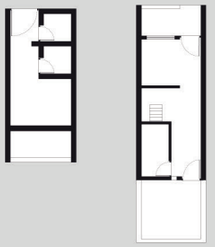
Urban Form



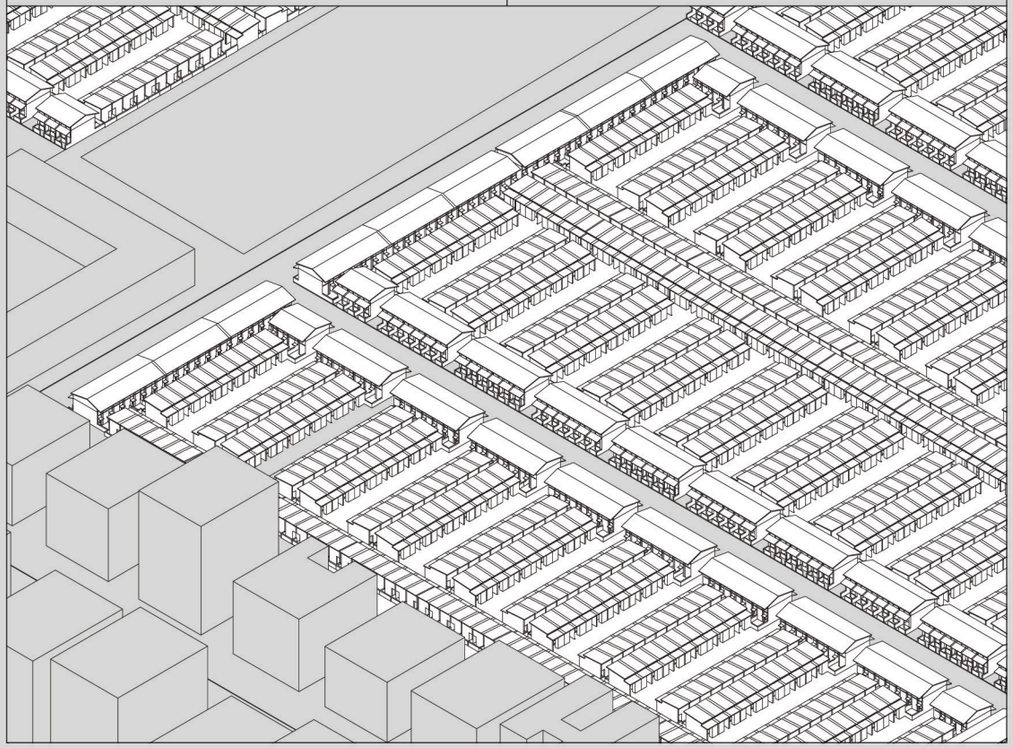
Plot Density



Footprint & Circulation



Dwelling Types



P08 GORAI SECTOR 1

BORIVALI (WEST)

SELF-HELP & SITES-AND-SERVICES

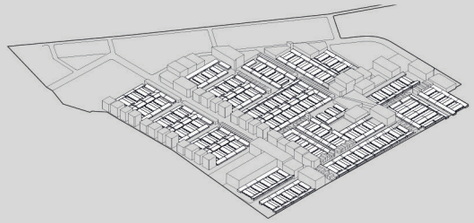
Construction	1985-1993
Type	Row Houses
Programme	Residential
Client	MHADA & World Bank
Architect	V. Phatak & A. Bertoud
Tenure	Home Ownership
Plot Area	37.80 ha
Density	70 dw/ha
Dwellings	2630
Unit Sizes	25 sqm-40sqm
FSI	0.20
GSI	0.35

It is essential to remember that not all sites-and-services schemes built under the BUDP were identical. For example, for the Gorai location spread over three sectors and covering an area of over 100 hectares, the cluster layout contains a similar mix of unit types and sizes as the ones found in Charkop and Versova, with the 40 square metre dwelling plots lined along the 9-metre-wide streets and the smaller 25 square metre units on the interior. However, the T-shaped internal courtyards in Gorai contain two distinct types for the EWS: the basic 25 sqm plots and a slightly larger version where the plots are 30 sqm in size. Like the other LISP schemes, nearly 70 per cent of the plots are provided for the EWS and LIGs, with the MIG accounting for about 5 per cent and the remaining 25 per cent earmarked for the larger society plots.

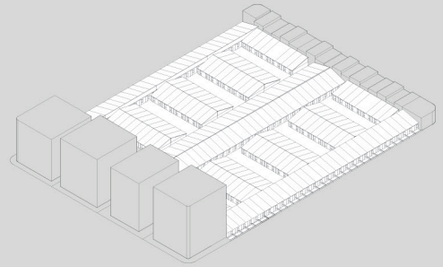


Location Plan





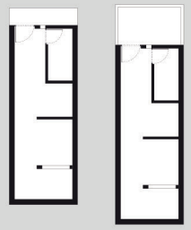
Urban Form



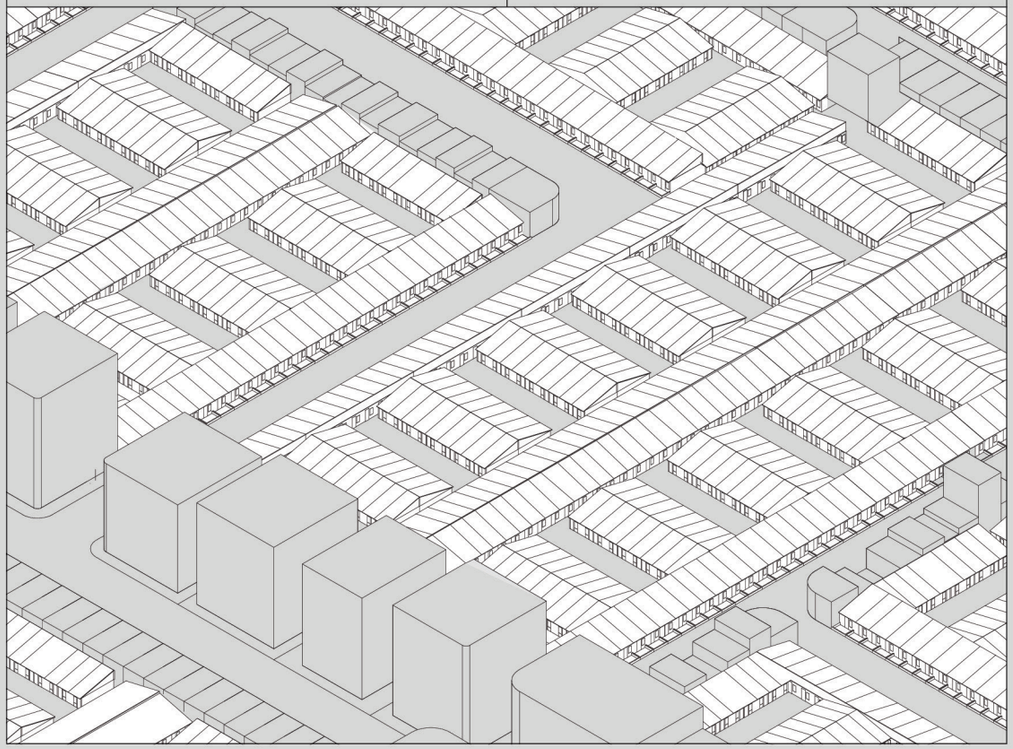
Plot Density



Footprint & Circulation



Dwelling Types



P09 AIROLI SECTOR 2
NAVI MUMBAI

SELF-HELP & SITES-AND-SERVICES

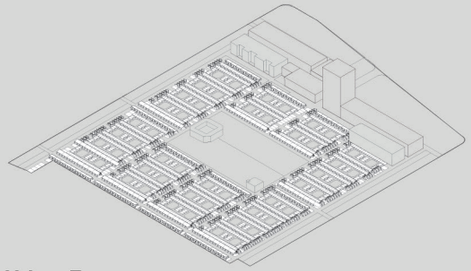
Construction	1985-1993
Type	Row Houses
Programme	Residential
Client	MHADA & World Bank
Architect	V. Phatak & A. Bertoud
Tenure	Home Ownership
Plot Area	14.50 ha
Density	125 dw/ha
Dwellings	623
Unit Sizes	21 sqm-100 sqm
FSI	0.28
GSI	0.35

Like in the case of the schemes under the LISP built on the mainland of Mumbai,in Airoli too we find a pre-determined catalogue of dwelling types and sizes that measured between 21 to 28 square metres for the EWS, 40 square metres for the LIG, 60 square metres for the MIG, and 100 square metres for the HIG. Within the EWS category we find three plot types and sizes: Plot Type A-1 is the most basic of these types and measures roughly 3 metres by 7 metres but consists only of a raised plinth and a wet core that comprises a water closet (WC) at the rear end of the plan. Plot Type A-2 is slightly wider and measures 7 metres by 3.5 metres overall that unlike its more basic version, was also delivered with brick walls but without a roof. The third and largest type for this category, Type A-3, was designed with the widest footprint of the three types at roughly 7 metres by 4 metres, and was provided as a 'complete' dwelling unit comprising of a raised plinth, wet core, brick walls and a corrugated metal roof.

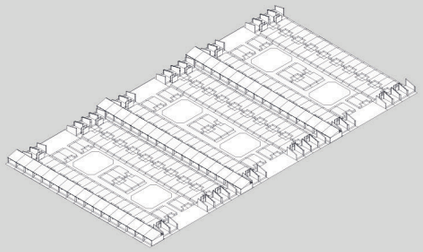


Location Plan

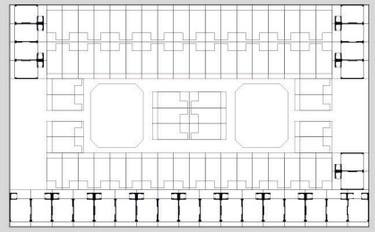




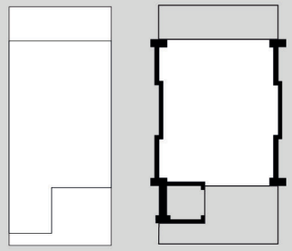
Urban Form



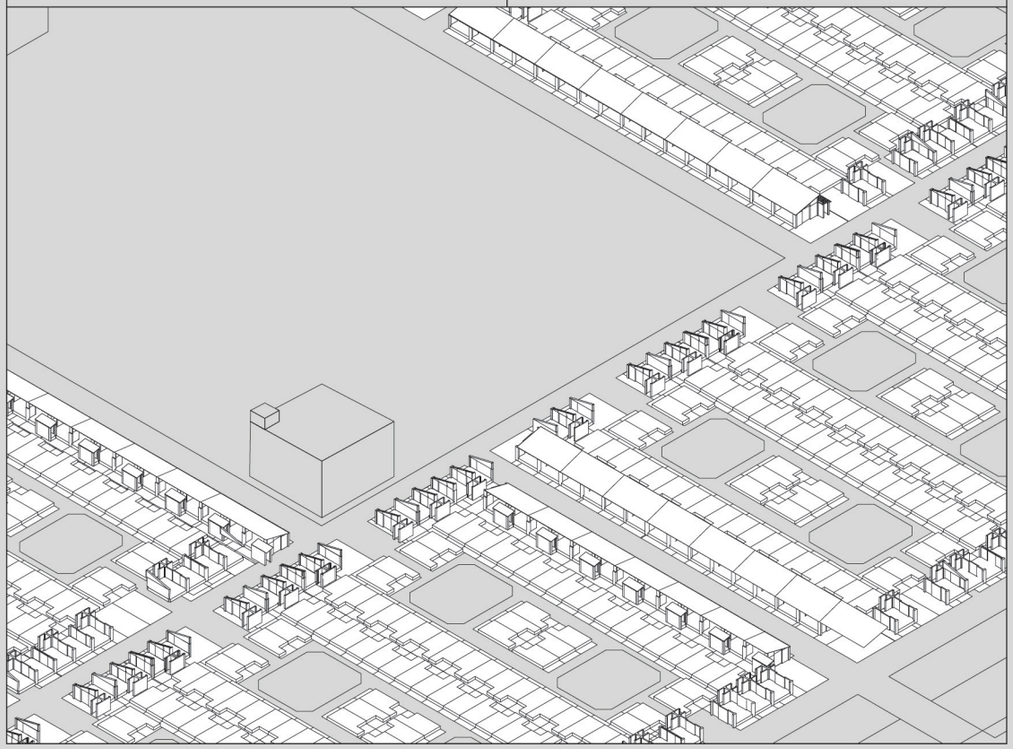
Plot Density



Footprint & Circulation



Dwelling Types



P10 VERSOVA
ANDHERI (WEST)

SELF-HELP & SITES-AND-SERVICES

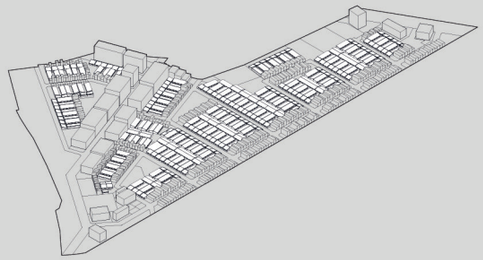
Construction	1985-1993
Type	Row Houses
Programme	Residential
Client	MHADA & World Bank
Architect	V. Phatak & A. Bertoud
Tenure	Home Ownership
Plot Area	29.80 ha
Density	113 dw/ha
Dwellings	3365
Unit Sizes	25 sqm-40 sqm
FSI	0.27
GSI	0.33

In Versova, we see an almost indistinguishable cluster layout as the ones seen in Charkop with 40 sqm units adjoining the primary streets and smaller 25 sqm units lined along a T-shaped interior courtyard. Overall, the scheme in Versova is spread over nearly 30 hectares and provides roughly 3365 mixed-income plots. When this was built in the late 1980s, Versova was a leafy and relatively quiet suburb in northwest Mumbai. Today, it has transformed tremendously, and the sites-and-services typology has enabled mixed-use development where small shops and kiosks contain a broad mix of commercial and small-scale industries that thrive alongside housing for lower and middle-income groups.

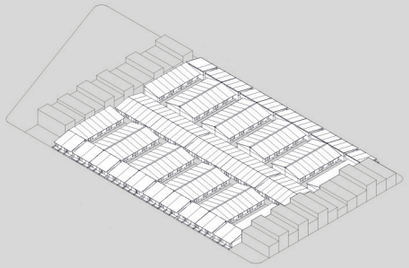


Location Plan

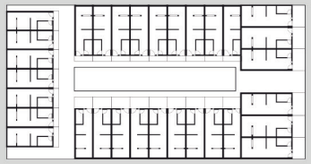




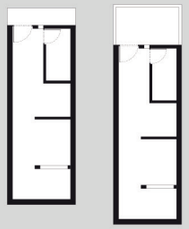
Urban Form



Plot Density



Footprint & Circulation



Dwelling Types

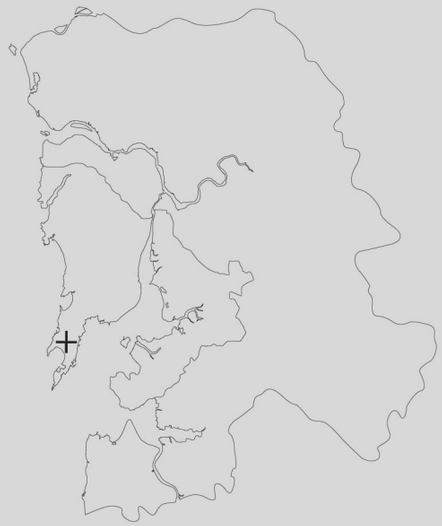


P11 KOLBHATWADI
KALBADEVI

SLUM IMPROVEMENT & UPGRADATION

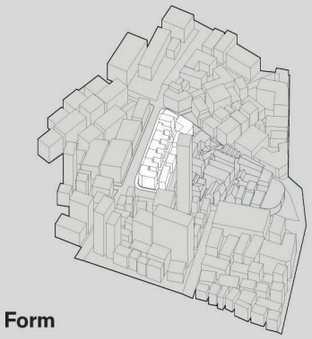
Construction	1917-1918
Type	Improvement Scheme
Programme	Residential & Commercial
Client	Bombay Improvement Trust
Architect	Bombay Improvement Trust
Tenure	Mixed
Plot Area	NA
Density	NA
Dwellings	NA
Unit Sizes	Varies
FSI	NA
GSI	NA

The Kolbhatwadi Improvement Scheme (Scheme No. 54) implemented by the Bombay Improvement Trust (BIT) around 1918 is centred around the restructuring of a roughly one-and-a-half-hectare trapezoidal block bound by four streets. Consisting of a mix of privately built chawls, brick and tiled roof commercial and dwelling buildings of various sizes and compositions, the block also accommodates a theatre, Edward Cinema, on its eastern edge. The strategy involved improving the living conditions of this block made by restructuring streets, buildings and open spaces. Apart from a few structures that are left standing, most of the buildings were torn down and re-arranged to create more adequate setbacks and openings between buildings for light and air. Two key interventions remain visible even today: a row of T-shaped buildings facing Princess Street on the north and a “service passage” connecting a strip of buildings to a new east-west street (now known as Bomanji Master Lane).

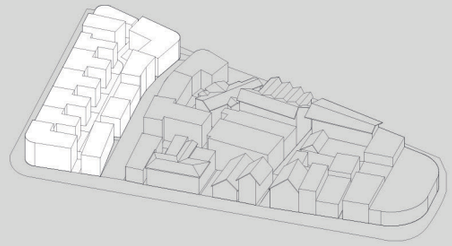


Location Plan

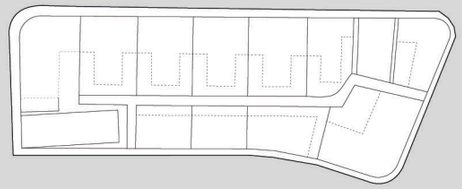




Urban Form



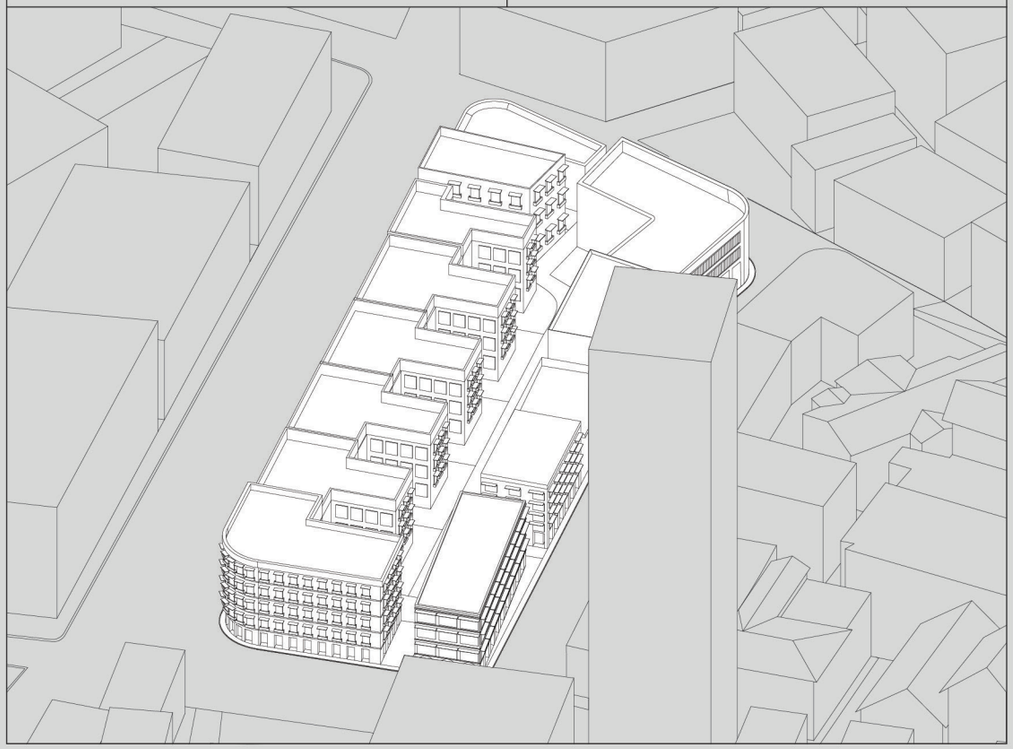
Plot Density



Footprint & Circulation



Dwelling Types



P12 GANESH MURTI NAGAR
COLABA

SLUM IMPROVEMENT & UPGRADATION

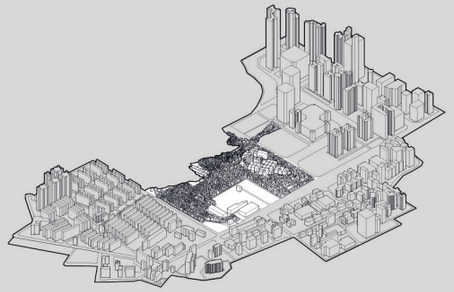
Construction	1971-till date
Type	Improvement Scheme
Programme	Mixed
Client	NA
Architect	Unknown
Tenure	Mixed
Plot Area	NA
Density	NA
Dwellings	NA
Unit Sizes	Varies
FSI	NA
GSI	NA

Nestled right in the heart of Mumbai's financial district in Cuffe Parade Ganesh Murthy Nagar occupies low-lying marshland along an unfinished section of Back Bay. Home to a mix of communities differentiated by religion and caste, the settlement is also home to different occupations. In one pocket lies a thriving dhobi ghat – an open-air laundry industry that caters to the financial district's many five-star hotels and restaurants. Teeming with shops and other commercial establishments along the public edges, the self-built colony has, over the years, been provided with various forms of services and basic amenities granted by the SIP. Public toilets and water facilities can be found at four locations near the edges of the settlement. Deeper inside, once low-lying pathways flooded with monsoon waters are now paved stone pathways with drains lined by houses of various types and sizes, from small one-room kutcha dwellings to more expansive two-and-three-room pucca structures that contain a mix of residential and workspaces.

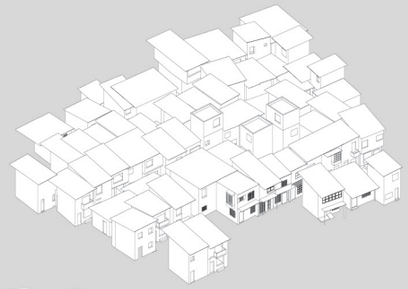


Location Plan





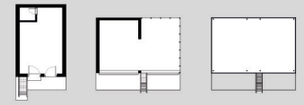
Urban Form



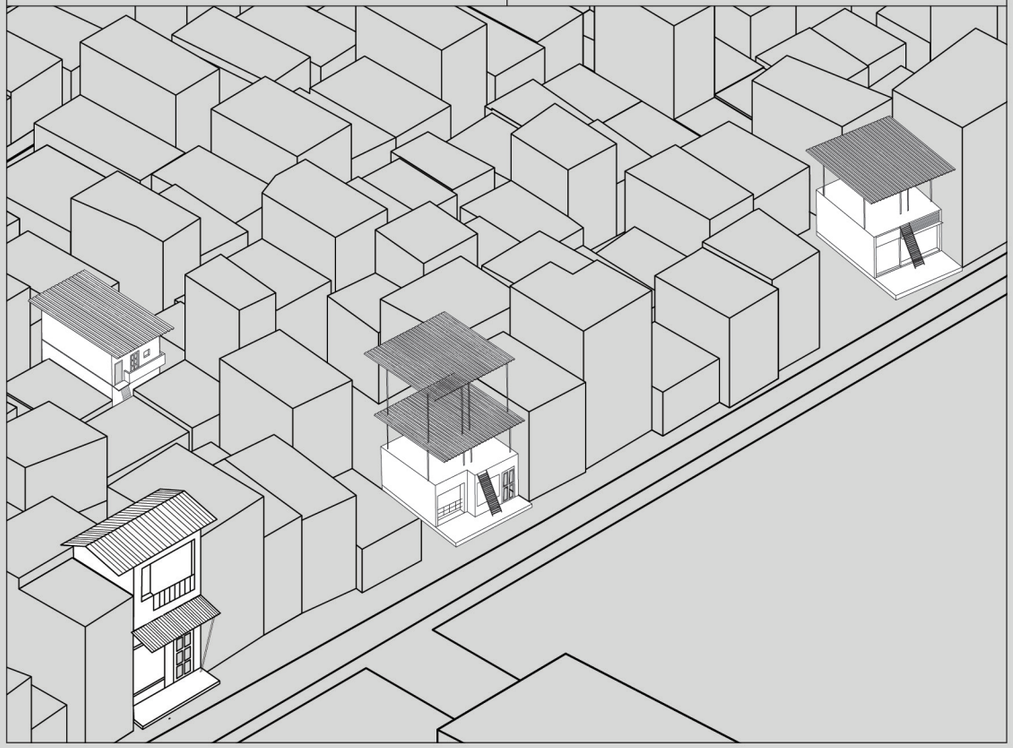
Plot Density



Footprint & Circulation



Dwelling Types

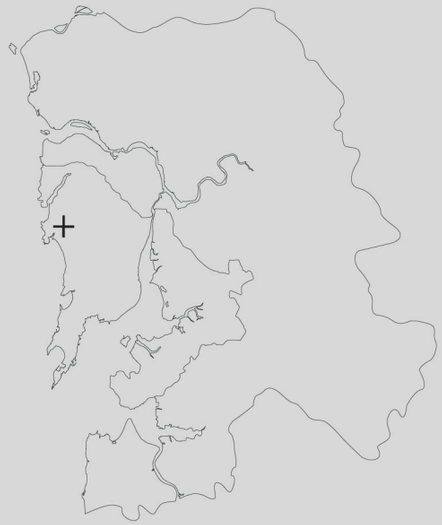


P13 PREM NAGAR
GOREGAON (WEST)

SLUM IMPROVEMENT & UPGRADATION

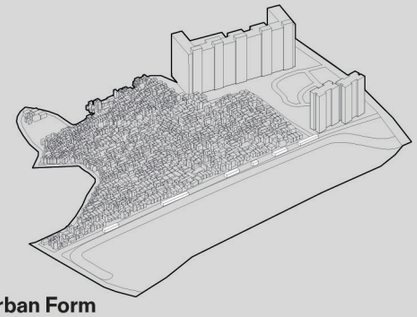
Construction	2000-2014
Type	Improvement Scheme
Programme	Public Toilets
Client	MCGM
Architect	Unknown
Tenure	NA
Plot Area	NA
Density	NA
Dwellings	NA
Unit Sizes	Varies
FSI	NA
GSI	NA

In Prem Nagar, in the northern suburb of Goregaon West, we find examples of typical toilet blocks built under the Slum Sanitation Program (SSP) of the World Bank – the nearly 300 million US dollar program that had an ambitious target of improving the quality of sanitation for one million slum dwellers in the city. Along the settlement's north edge, we can see five Community Toilet Blocks (CTBs), each consisting of a ground-storey rectangular structure built of load-bearing walls, asbestos or concrete roofing, and, in most cases, twenty toilet stalls divided equally into separate sections for men and women. Although seemingly simple and cost-effective to design, construct and implement across the city, the problem with this approach was twofold. The first concerns the poor design, location, management and upkeep of such facilities. And the second concerns that of adequate supply despite the programs generous funding.

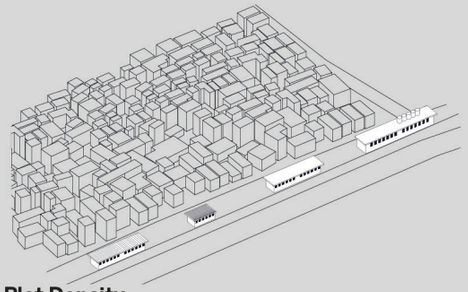


Location Plan

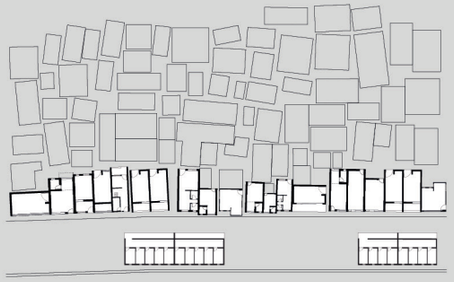




Urban Form



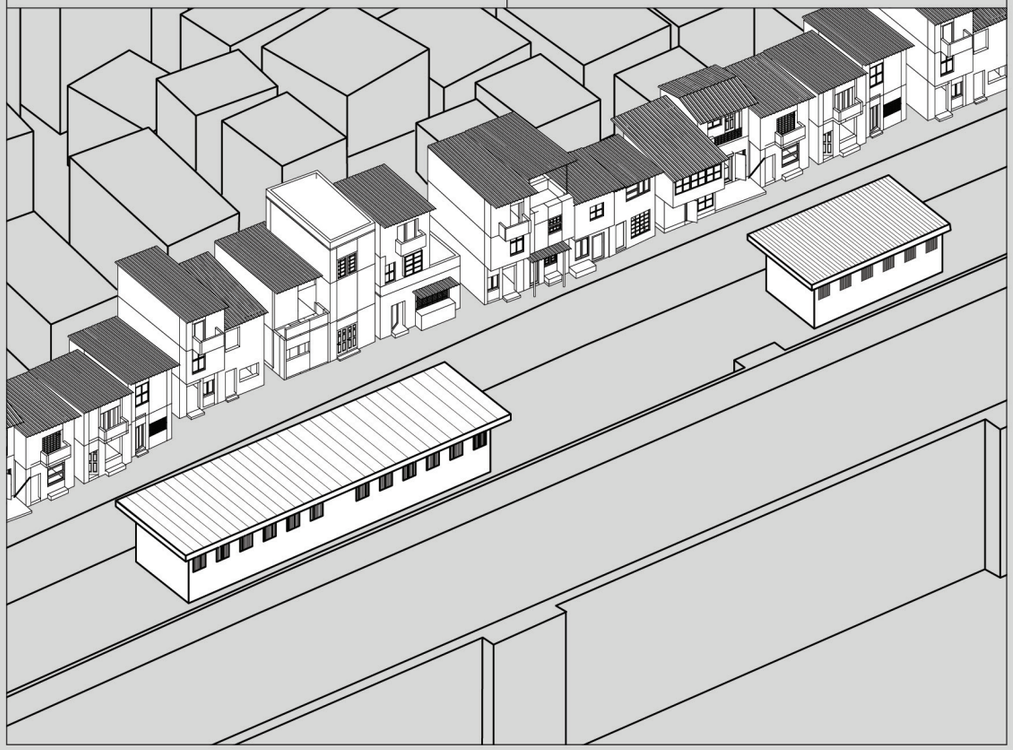
Plot Density



Footprint & Circulation



Dwelling Types



P14 SHIV KRUPA SOCIETY
GOVANDI

SLUM IMPROVEMENT & UPGRADATION

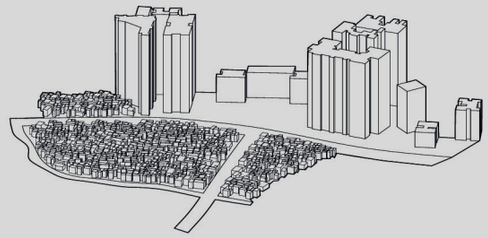
Construction	1997-99
Type	Improvement Scheme
Programme	Infrastructure
Client	MHADA
Architect	NA
Tenure	NA
Plot Area	NA
Density	NA
Dwellings	NA
Unit Sizes	Varies
FSI	NA
GSI	NA

Each house in Shiv Krupa Society – a self-built settlement that is nearly 60 years old – is roughly the same size (about 15 square metres) and typically two to three stories tall, built of brick walls and steel sections. Sitting on government land and with improvements made as part of the World Bank-sponsored Slum Sanitation Programme (SSP), almost every house in this settlement has its own private toilet connected to the city's main sewer line. However, since the guidelines of the programme only allowed for toilets to be constructed on the ground floor, over time, units that have been constructed on higher floors have had to either build their own toilets or use public toilets built by the municipal corporation.

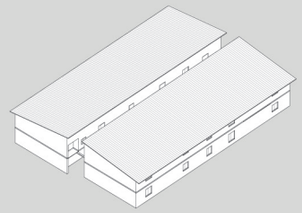


Location Plan





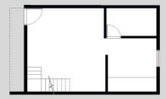
Urban Form



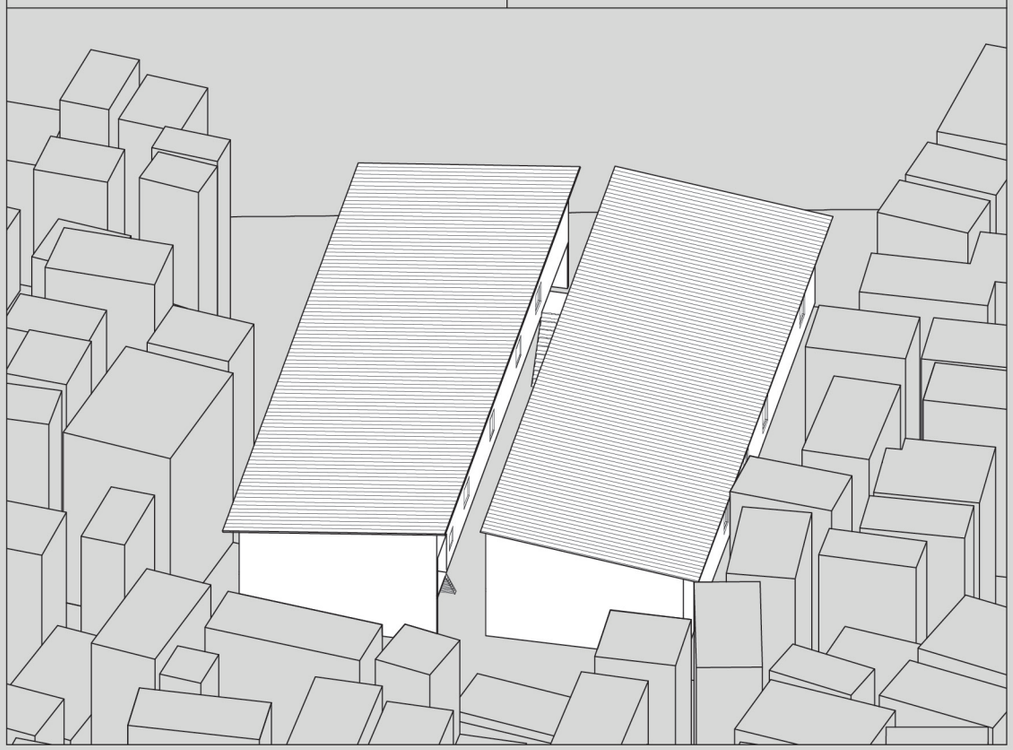
Plot Density



Footprint & Circulation



Dwelling Types



P15 LOTUS COLONY
GOVANDI

SLUM IMPROVEMENT & UPGRADATION

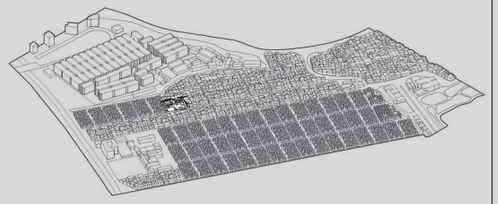
Construction	2013-2014
Type	Improvement Scheme
Programme	Public park & amenities
Client	MCGM
Architect	Trupti Amritwar Vaitla (MESN)
Tenure	NA
Plot Area	2.20 ha
Density	NA
Dwellings	NA
Unit Sizes	NA
FSI	NA
GSI	NA

The most visible example of community-led in-situ improvement and upgrading in Mumbai can be credited to Mumbai Environmental Social Network (MESN) – a local not-for-profit organisation invested in addressing the living conditions of the urban poor in the city through the creation of public spaces. In Lotus Colony Garden, a 1300 square-meter plot sandwiched between the Shivaji Nagar and Natvar Parekh Compound in Mumbai's M-East Ward, we find MSEN's first venture into upgrading public infrastructure for the roughly 200,000 residents of Lotus Colony. Under the leadership of Trupti Amritwar Vaitla, an Architect and CEO of the MESN, the participatory design process at Lotus Colony resulted in a public garden in the middle of a dense settlement that provided much-needed open space in the dense settlement. Over the years since its completion in 2014, the garden has become a focal point for the residents of Lotus Colony and the larger Shivaji Nagar area, providing a space for rest and recreation in an otherwise dense locality.

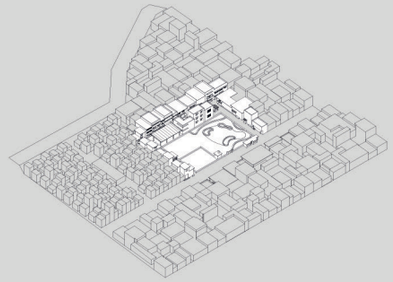


Location Plan

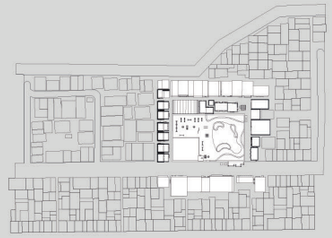




Urban Form



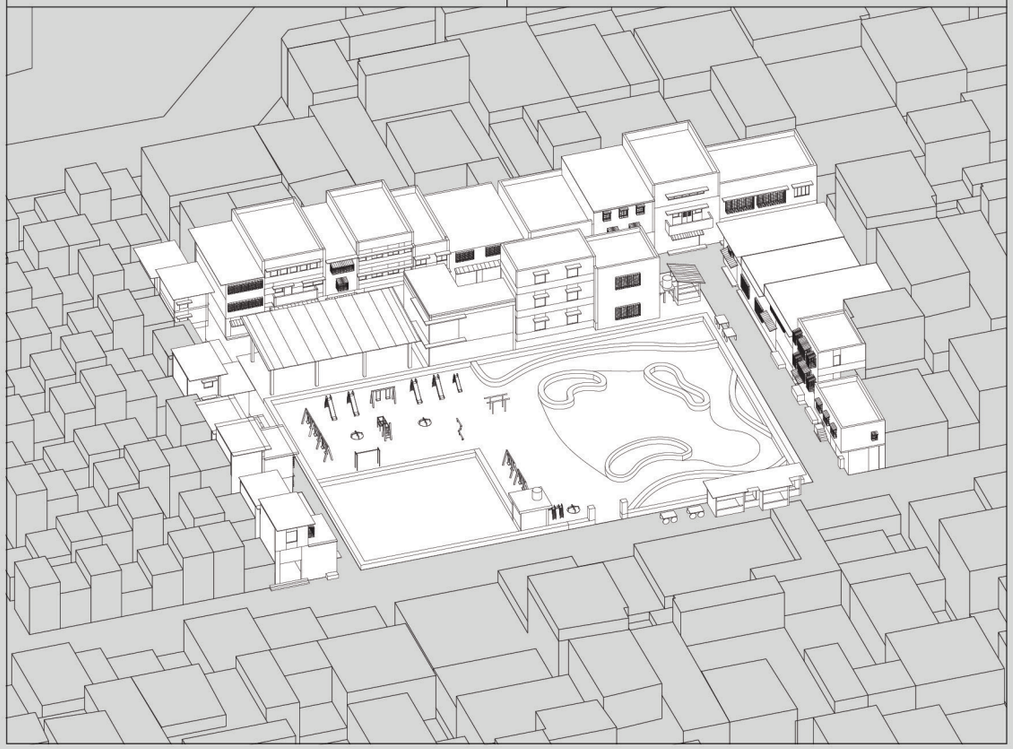
Plot Density



Footprint & Circulation



Dwelling Types

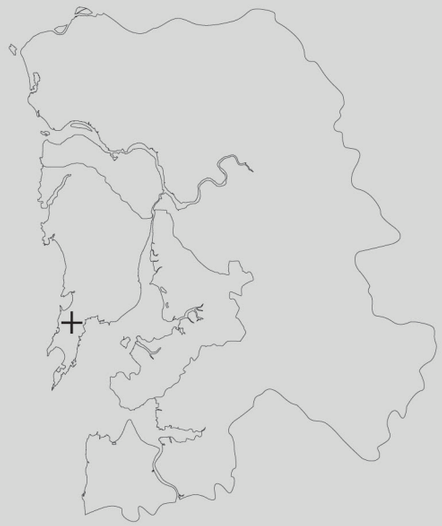


P16 AGRIPADA SCHEME 2
WORLI

SLUM REDEVELOPMENT

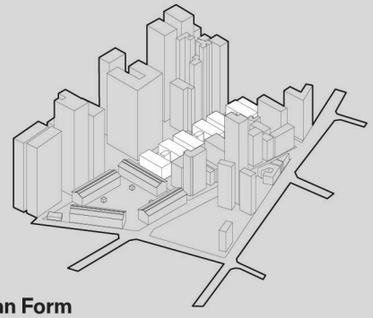
Construction	1899-1911
Type	Chawls
Programme	Residential
Client	Bombay Improvement Trust
Architect	Bombay Improvement Trust
Tenure	Rental & Home Ownership
Plot Area	0.50 ha
Density	960 dw/ha
Dwellings	480
Unit Sizes	17.25 sqm
FSI	2.00
GSI	0.40

Built over three phases starting in 1898 and ending in 1911, the distinctive H-shaped tenement blocks of this scheme accomodate a central toilet and bathroom core on every floor designed to be shared between the two wings of the block and accessed by a shared corridor. The project is also noteworthy as it represents the shift in the use of materials and technology for mass housing where, rather than the load-bearing structures of the first chawls, we find in this project the use of ferro-cement technology in the third phase that was built after 1910. But perhaps most importantly, even though the BIT's landmark 63 ½ degree light and air rule was formally incorporated as a bye-law only in 1912, this second scheme in Agripada is already a built example of the rule that stipulates that the distance between any two structures must be such that the angle formed between the roof of one building and the base or plinth of the other should be no more than 63 ½ degrees to ensure adequate light and ventilation even to the lower floors.

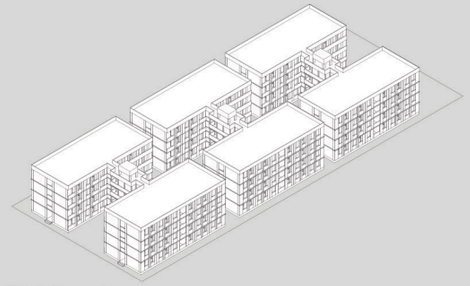


Location Plan

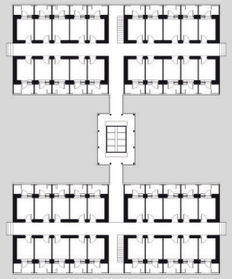




Urban Form



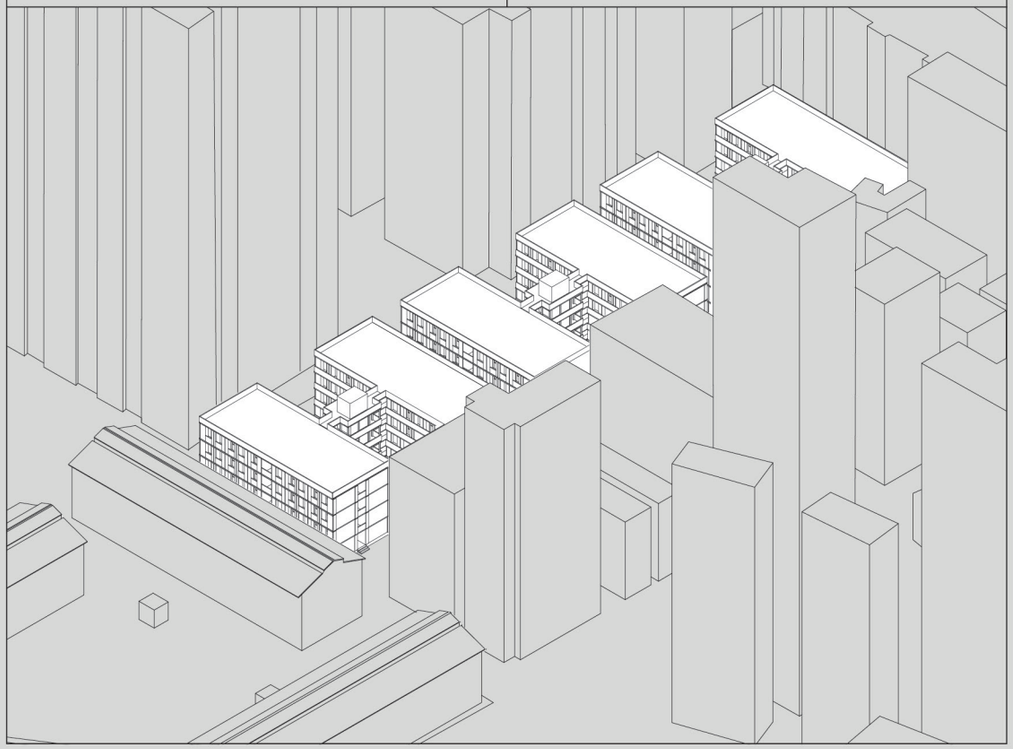
Plot Density



Footprint & Circulation



Dwelling Types



P17 MARKANDEYA CHS
DHARAVI

SLUM REDEVELOPMENT

Construction	1985-1998
Type	Apartments
Programme	Residential & Commercial
Client	MCHS/SPARC
Architect	Purbi Architects
Tenure	Home Ownership
Plot Area	0.13 ha
Density	868 dw/ha
Dwellings	116
Unit Sizes	16.72 sqm-26 sqm
FSI	4.13
GSI	0.80

The Pune-based architectural firm Purbi Architects worked with MCHS & SPARC to develop an architectural alternative to the government's vision for redevelopment in Dharavi. The resulting design built on previous efforts by SPARC to resettle slum and pavement dwellers where rooms with higher ceilings of 14 feet (4.3 metres) enabled the provision of a six-feet (1.8 metre) high loft that circumvented the rules set by the PMGP and expanded the footprint of each dwelling unit from 180 square feet (16.72 square meters) to 280 square feet (26 square metres) – a 64 per cent increase of floor area. The overall design consists of a five-storied housing block where the first three floors are composed of 14-foot-high units that are topped by two floors of more conventionally designed 10-foot-high units designed to be sold in the open market. Its façade along the 60-feet road that cuts across Dharavi's south-western pocket also contains a range of shops and commercial units on the ground level.

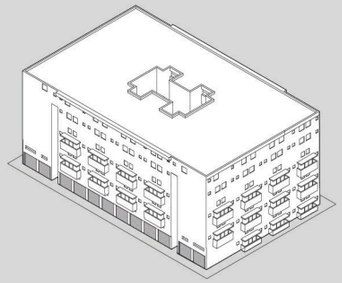


Location Plan

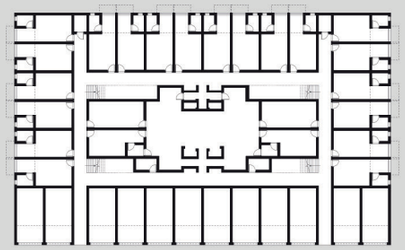




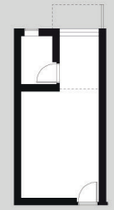
Urban Form



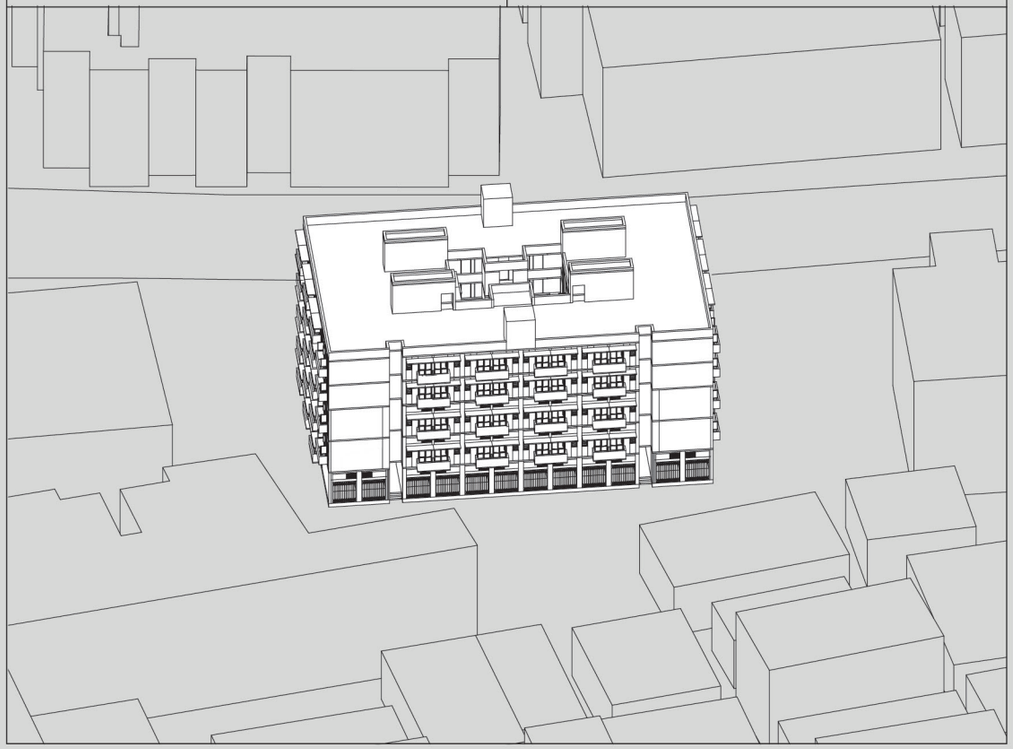
Plot Density



Footprint & Circulation



Dwelling Types



P18 PMGP COLONY
DHARAVI

SLUM REDEVELOPMENT

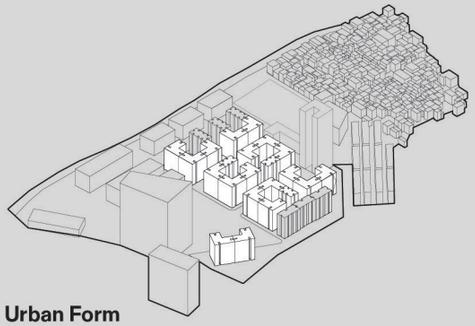
Construction	1988-1993
Type	Apartments
Programme	Residential
Client	MHADA
Architect	Unknown
Tenure	Home Ownership
Plot Area	3.00 ha
Density	654 dw/ha
Dwellings	1960
Unit Sizes	21 sqm
FSI	2.00
GSI	0.25

PMGP Colony is characterised by a cluster of eight-storied mid-rise courtyard blocks that contain houses for two income groups: the 'Economically Weaker Sections' of society (EWS) and the Low-Income Groups (LIG). The dwelling units for the EWS measure 225 square feet (roughly 21 square metres) and form the majority of the units in this colony. For practical reasons and to maximise efficiency, each of the C-shaped courtyard blocks are, in fact, composed of L-shaped floorplates that each contain 11 dwelling units that are mirrored and repeated to maximise space and minimise costs. These units – all identical in size and shape – are accessed by a doubly-loaded corridor serviced by a centrally-located elevator and service core. Each unit is a self-contained studio with a private bathroom, toilet, and kitchen, but the living space and sleeping areas are designed as one. Linear blocks containing units for the LIG complete the three-hectare size and accommodate roughly 1960 units at a plot density that measures a bit more than 650 dwellings per hectare.

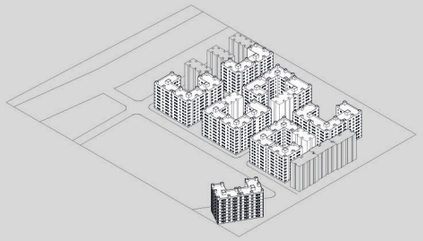


Location Plan

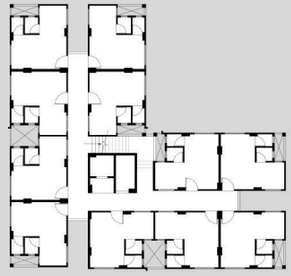




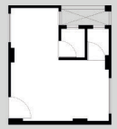
Urban Form



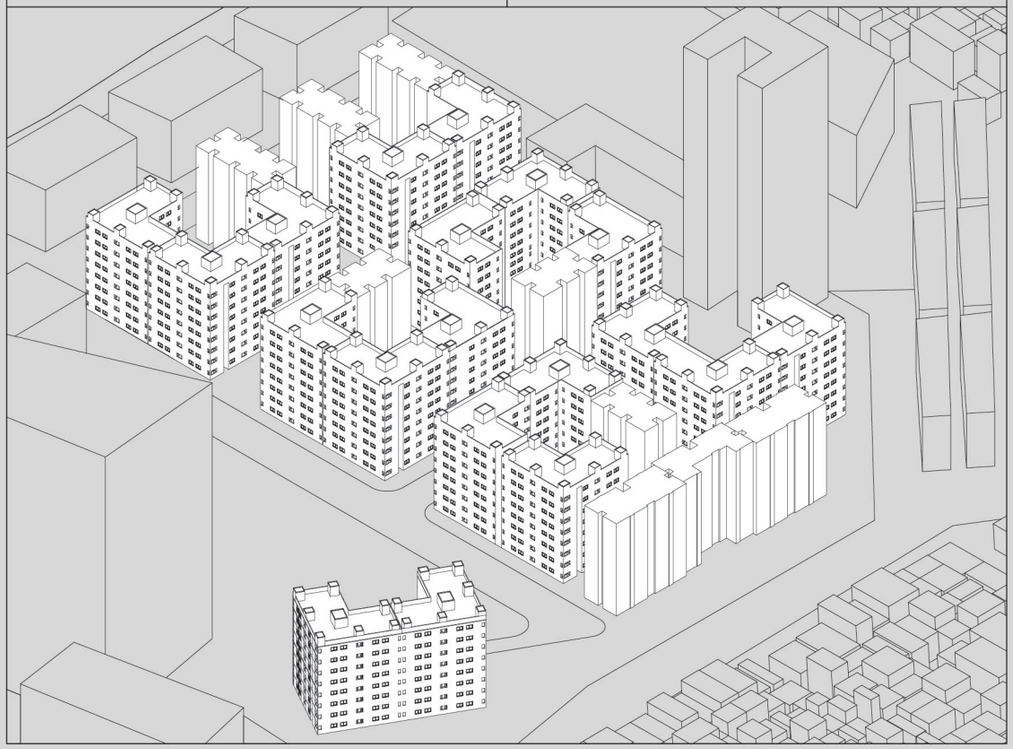
Plot Density



Footprint & Circulation



Dwelling Types

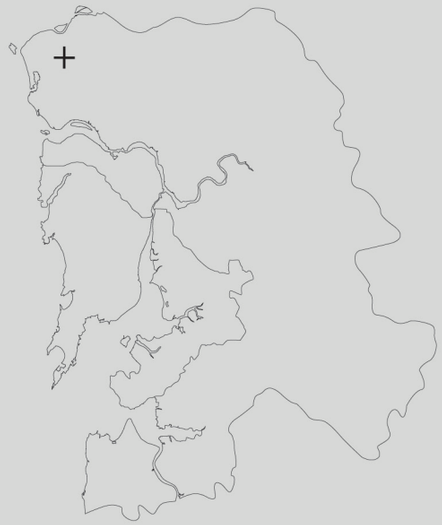


P19 REHMAT NAGAR
NALASOPARA

SLUM REDEVELOPMENT

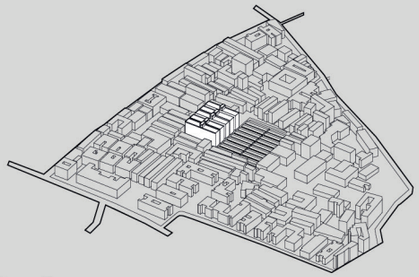
Construction	2000s-till now
Type	Chawls
Programme	Residential & Commercial
Client	Unknown
Architect	Unknown
Tenure	Mixed
Plot Area	0.25 ha
Density	1140 dw/ha
Dwellings	360
Unit Sizes	18 sqm-20 sqm
FSI	4.50
GSI	1.00

In the urban fringes of the MMR we can observe a different kind of private sector-led redevelopment of low-income neighbourhoods. Over the last thirty years, once agricultural lands have transformed into residential areas with a specific type of low-rise one-room tenements known as 'baithi chawls'. These chawls, with their narrow footprints, are typically arranged in rectangular layouts where a central access passageway serves rows of one-room dwellings, each roughly between 15 to 20 square meters in size. With the city's footprint rapidly extending to these once-faraway outskirts, private contractors have, in recent years, redeveloped clusters of these narrow baithi chawls into four-and-five-storied walk-up apartment blocks. In Rehmat Nagar, for example, a typical newly-built chawl consists of a centrally located staircase that serves 12 units on a floor, each roughly 18-20 square metres in size and accessed by a gallery situated on one façade reminiscent of the layout chawls found in the heart of Mumbai built over a century ago.

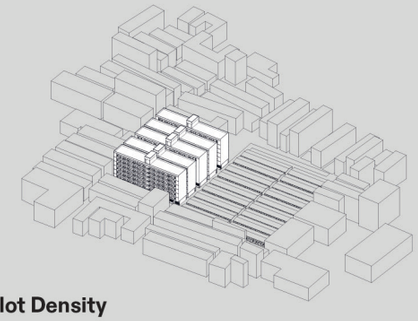


Location Plan

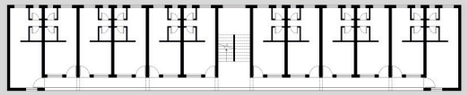




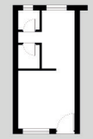
Urban Form



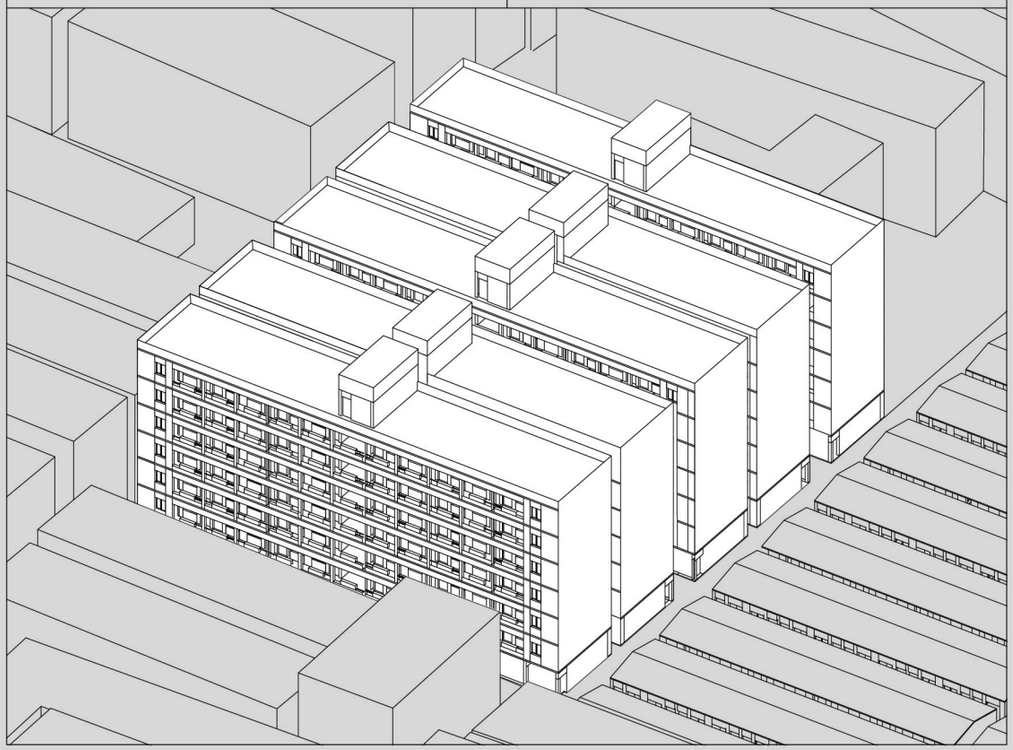
Plot Density



Footprint & Circulation



Dwelling Types

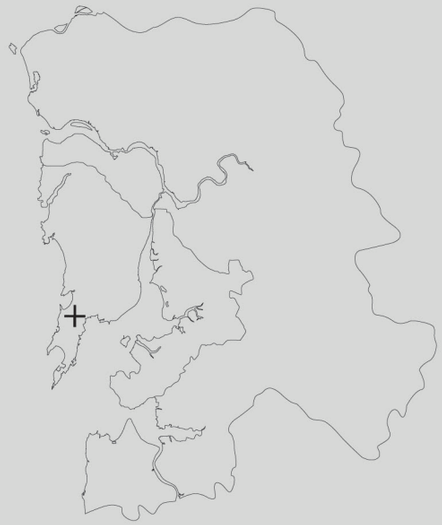


P20 MATOSHREE CHS
PAREL

SLUM REDEVELOPMENT

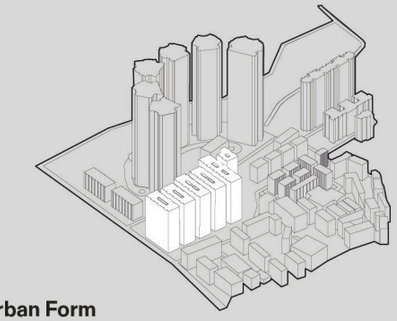
Construction	2014-2018
Type	Apartments
Programme	Residential & Commercial
Client	Omkar Realtors & Developers
Architect	Anand Dhokay
Tenure	Home Ownership
Plot Area	1.50 ha
Density	1187 dw/ha
Dwellings	1780
Unit Sizes	28 sqm
FSI	5.20
GSI	0.30

Matoshree CHS between 2010 and 2019, is a collection of five high-rise slabs (Wings A, B, C, D and E) and one tower block (Wing F) built in exchange for a portion of land that now houses a high-end residential gated community of six 54-storied towers called Crescent Bay. Because of the slight contours on the site, the first three wings of the "rehab" component rise to a total of 24 floors (including a ground floor with a 4-metre-high ceiling height), whereas the last three wings rise to 23 floors. Except for the ground floor, which accommodates a number of commercial and amenity spaces, the upper floors in Wings A and B are served by two staircases and elevator cores separated by a long "internal chowk". The three longer wings (Wing C, D and E) have similar layouts but contain three cores and two internal chowks. In total, the rehab component of the project comprises 1871 residential units, 120 commercial units, 21 units meant for society offices, 21 for welfare centres and another 21 units as balwadis.

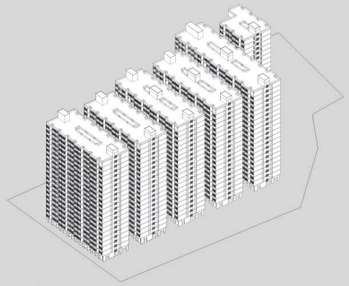


Location Plan

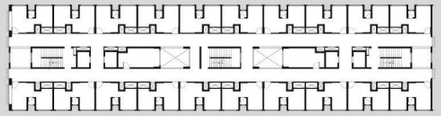




Urban Form



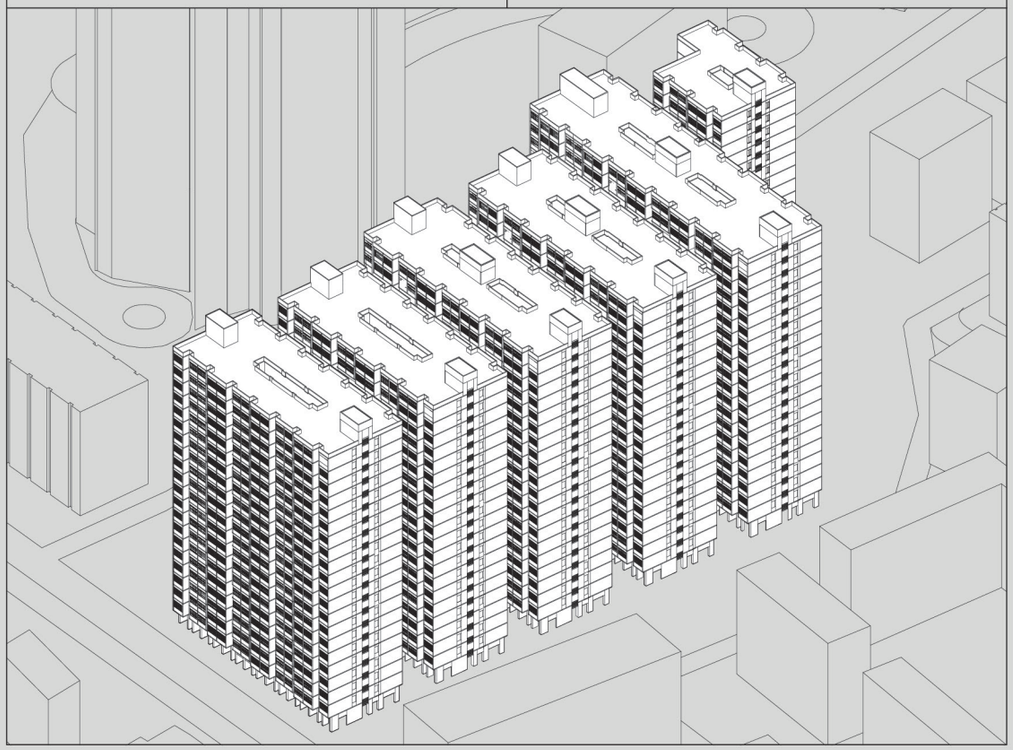
Plot Density



Footprint & Circulation



Dwelling Types



P21 AGRIPADA SCHEME 1

AGRIPADA

SLUM RESETTLEMENT

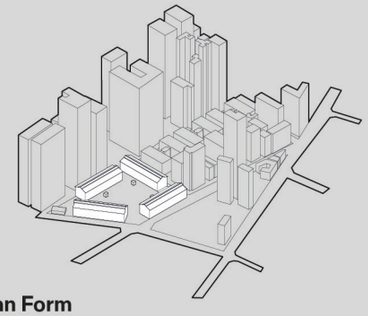
Construction	1899-1903
Type	Chawls
Programme	Residential
Client	Bombay Improvement Trust
Architect	Unknown
Tenure	Rental
Plot Area	0.70 ha
Density	420 dw/ha
Dwellings	294
Unit Sizes	16.25 sqm
FSI	1.15
GSI	0.38

Starting construction soon after the establishment of the BIT, the resettlement scheme in Agripada is a result of the First Nagpada Improvement Scheme. The project is simple and consists of nearly identical chawl blocks. However, it followed the Port Trust's planning norms that did not allow for densities greater than 500 person per acre. As a result, unlike other chawls in the city, the scheme at Agripada introduced urban design and is characterised by a large central courtyard around which four blocks of three-storied chawls are built. On the ground level, each block is accessed from an entrance placed on the shorter end that leads to an internal shared corridor that measures a little under one-and-a-half metres wide. Open on its two short ends to bring in light and ventilation, these corridors also provide access to the latrines that are placed on one end of the blocks, separated from the dwelling units by an air space. A centrally located wooden staircase provides access to the units on the upper two floors, that all measure roughly 16 sqm.

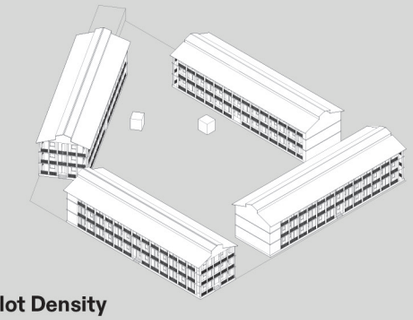


Location Plan

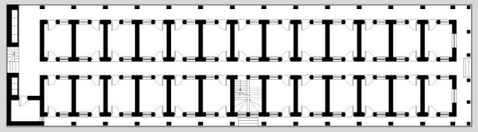




Urban Form



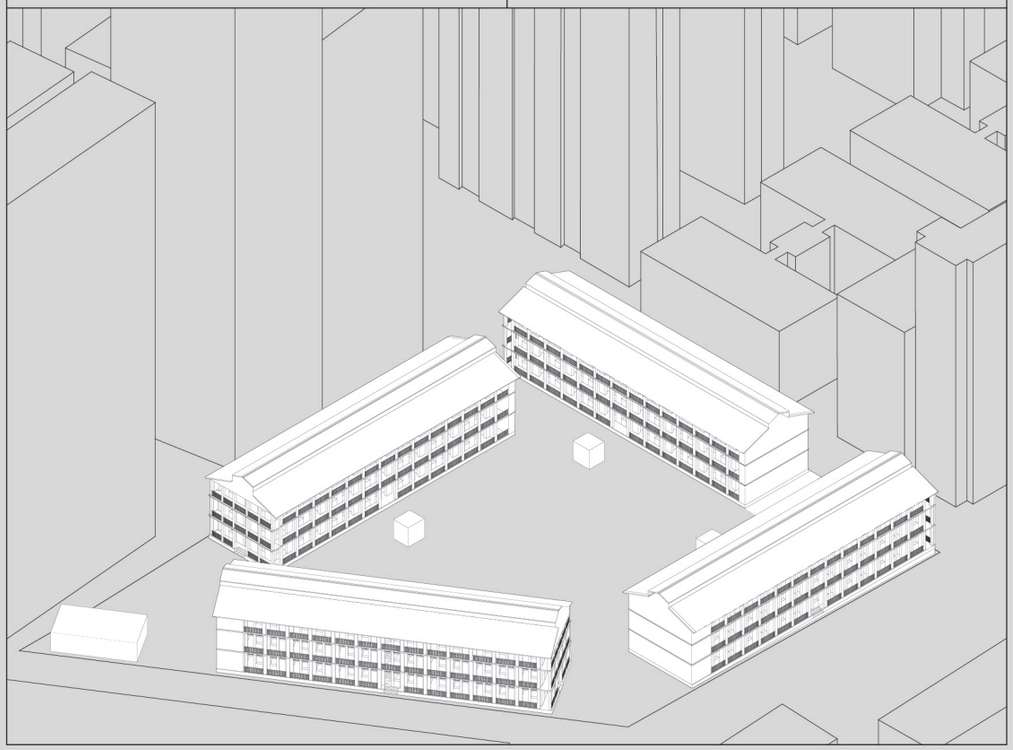
Plot Density



Footprint & Circulation



Dwelling Types

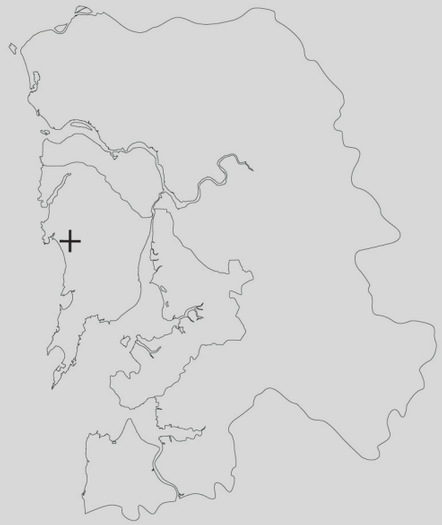


P22 MOTILAL NAGAR
GOREGAON

SLUM RESETTLEMENT

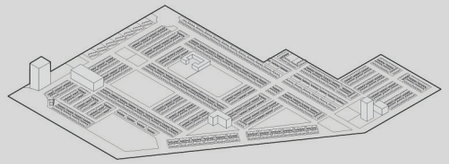
Construction	1962-1966
Type	Row Houses
Programme	Residential
Client	BMC
Architect	Unknown
Tenure	Home Ownership
Plot Area	25 ha
Density	77 dw/ha
Dwellings	1920
Unit Sizes	35 sqm
FSI	0.30
GSI	0.18

Neat rows of single-story dwellings in Motilal Nagar mark the newly independent government's approach in the 1960s to clearing and resettling slum pockets from higher-land value districts in South Mumbai. Inaugurated in 1961 by then Prime Minister Jawahar Lal Nehru, Motilal Nagar comprises approximately 3800 ground-storey dwellings, each measuring about 3.5 by 10 metres and built of local bricks topped by sloping two-pitched corrugated roofs. Each dwelling, arranged as row houses with shared walls for economic efficiency, consists of a central living area in the front, accessed through a threshold and a back area containing the service areas, namely the kitchen, bathroom, and toilet. These rows of houses are repeated along a network of primary and secondary streets that spread over two disjointed sectors: Motilal Nagar 1 measures 31 hectares and borders the Goregaon Bus Depot south of the main east-west artery of MG Road, and Motilal Nagar 2 and 3 that falls just north of MG Road measures about 20 hectares.



Location Plan

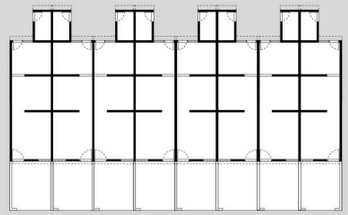




Urban Form



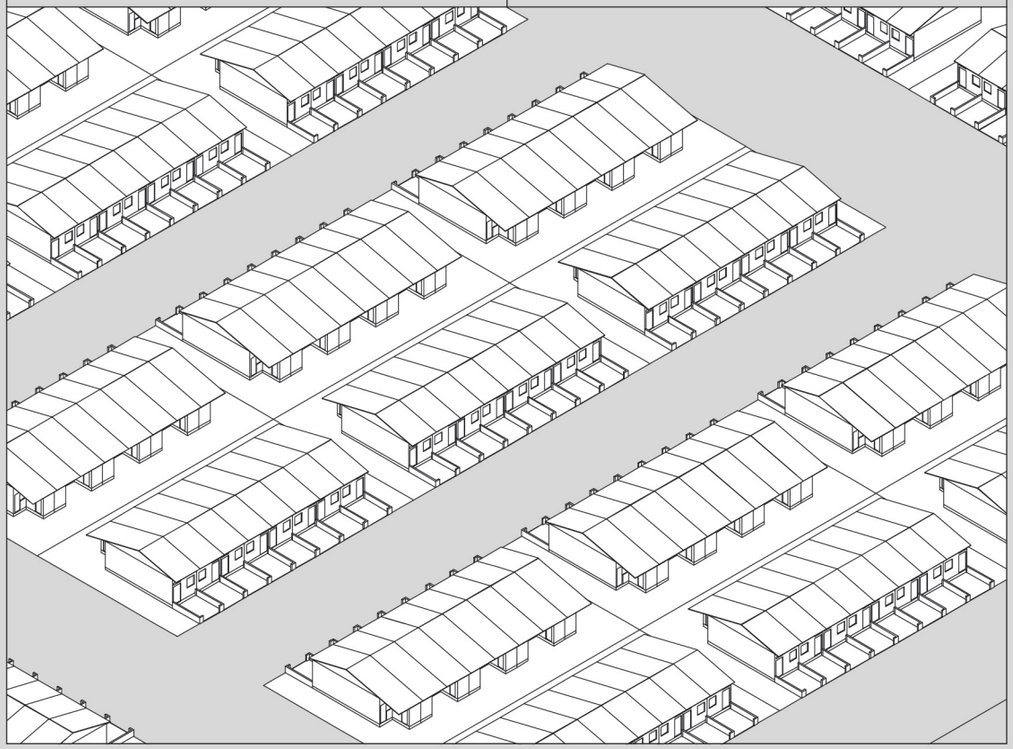
Plot Density



Footprint & Circulation



Dwelling Types



P23 SHIVAJI NAGAR
MANKHURD

SLUM RESETTLEMENT

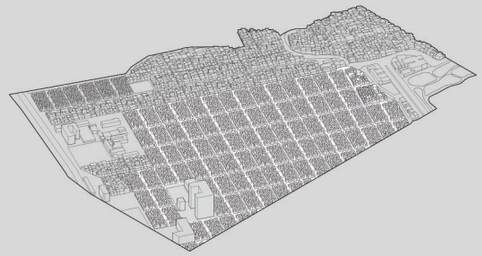
Construction	1975-till date
Type	Plots
Programme	Residential
Client	MCGM
Architect	Unknown
Tenure	Home Ownership
Plot Area	66 ha
Density	305 dw/ha
Dwellings	20,120
Unit Sizes	11 sqm-14 sqm
FSI	1.75
GSI	0.80

Covering nearly 66 hectares and surrounded by the Deonar dumping ground, Shivaji Nagar is characterised by its distinct grid of streets and small plot footprints. Slum dwellers evicted under the 1971 Slum Act were each allotted either 10 feet by 15 feet plots (14 sqm) or 10 feet by 12 feet (11 sqm) plots. These plots, or "pitches", were allotted on long-term leaseholds and today house nearly 200,000 people in a diverse mix of migrant communities from rural Maharashtra, but also from far away states like Uttar Pradesh and West Bengal. Over the years, simple brick and corrugated metal dwellings have been built on these plots that typically rise 14-feet (4.20 metres) high as per the guidelines defined for this settlement. In practice, however, several dwellings have been expanded vertically, at times also rising three stories tall and comprising of both residential and commercial spaces.

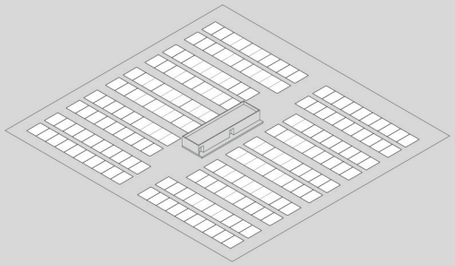


Location Plan

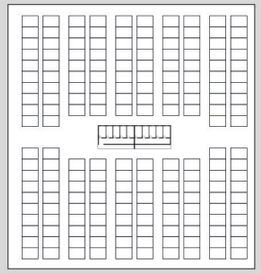




Urban Form



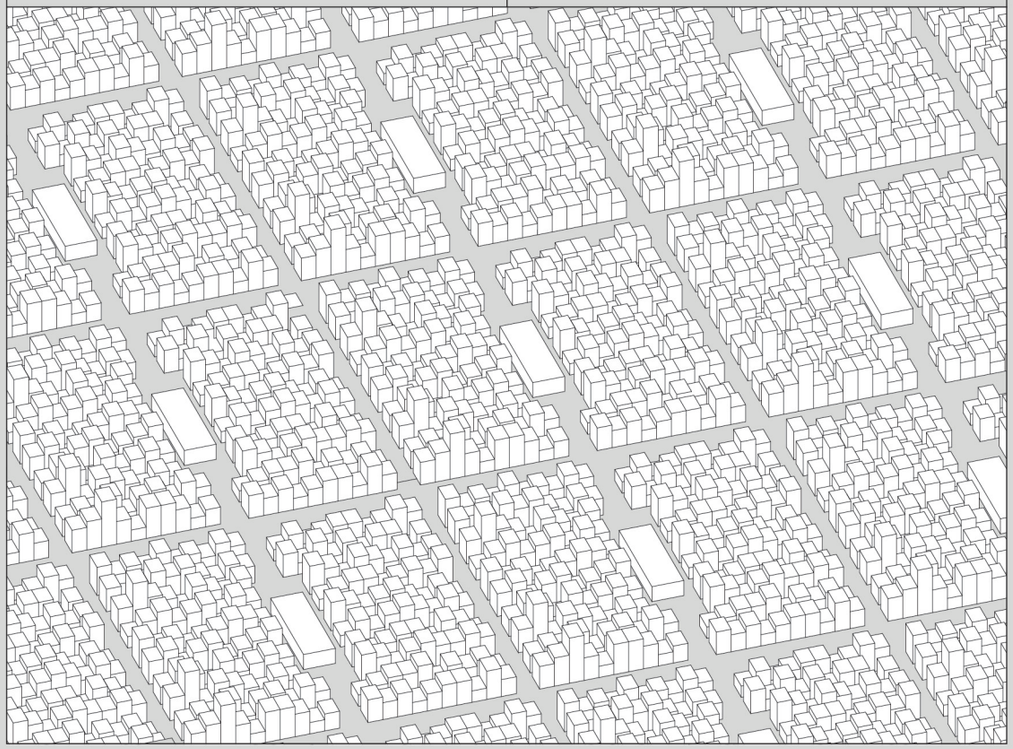
Plot Density



Footprint & Circulation



Dwelling Types



P24 LALLUBHAI COMPOUND MANKHURD

SLUM RESETTLEMENT

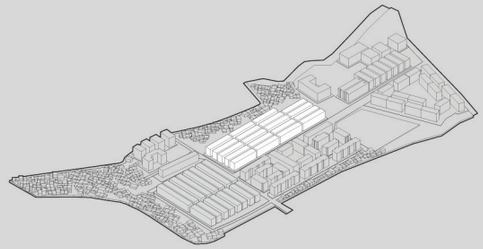
Construction	2000-2003
Type	Apartments
Programme	Residential
Client	MMRDA
Architect	Unknown
Tenure	Home Ownership
Plot Area	2.5 ha
Density	1094 dw/ha
Dwellings	2739
Unit Sizes	27.80 sqm
FSI	3.80
GSI	0.65

Lallubhai Compound is a slum resettlement colony that consists of a cluster of 65 seven-storey and five-storey buildings totalling more than 9,300 residential tenements. Each building follows a similar template of double-loaded corridors where 24 identical dwellings, each roughly 28 sqm in size are serviced by two stairwells. As is the case with other slum resettlement colonies in Mumbai's M-East Ward, in Lallubhai Compound we also find a very high density of dwellings where building blocks are at times separated by merely 3-metre wide passageways. This extreme configuration of buildings has resulted in an overall density that exceeds over a thousand dwellings per hectare.

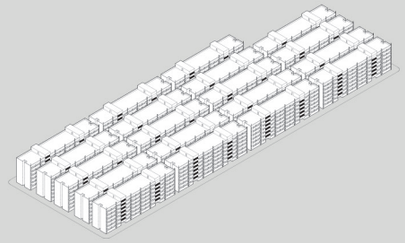


Location Plan

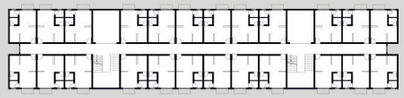




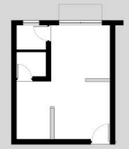
Urban Form



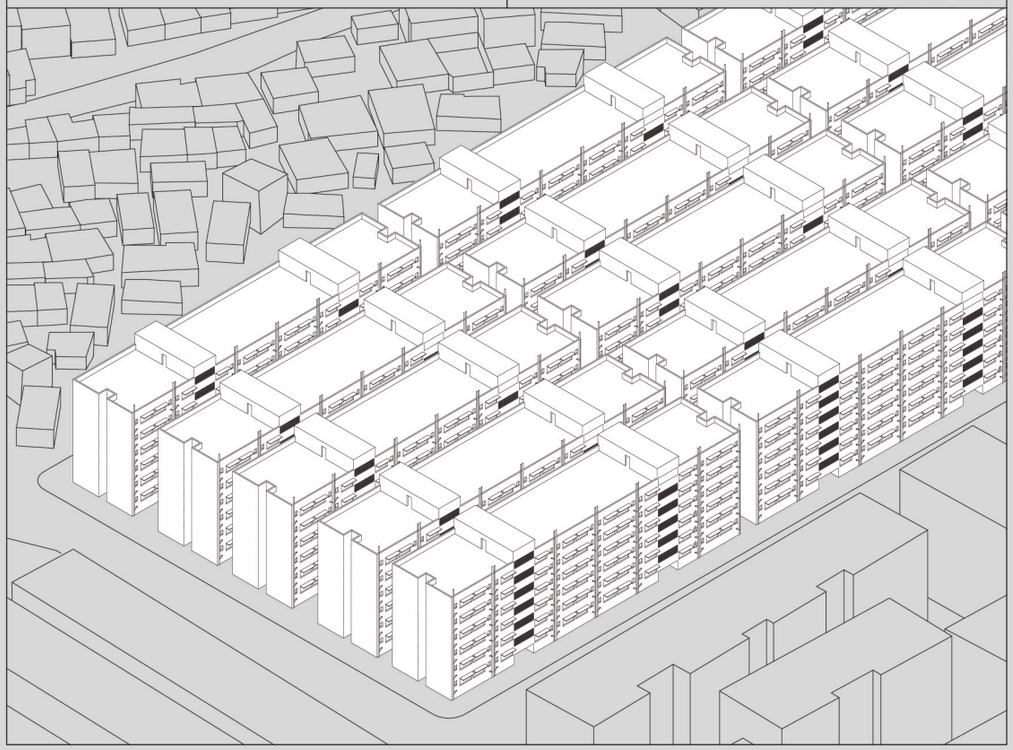
Plot Density



Footprint & Circulation



Dwelling Types



P25 SANGHARSH NAGAR
CHANDIVALI

SLUM RESETTLEMENT

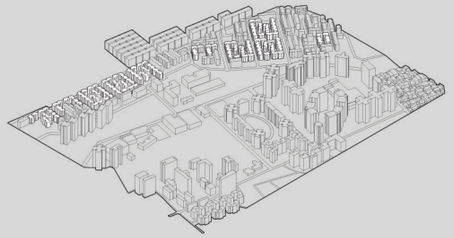
Construction	2002-2008
Type	Apartments
Programme	Residential
Client	Nivarra Hakk Suraksha Samiti
Architect	PK Das & Associates
Tenure	Home Ownership
Plot Area	34 ha
Density	574 dw/ha
Dwellings	18360
Unit Sizes	21 sqm
FSI	2.10
GSI	0.35

Designed by the Mumbai-based architecture firm PK Das & Associates, Sangharsh Nagar, spread across 34 hectares, was planned to accommodate more than 18,000 families that were forcibly evicted from their homes in a settlement in Sanjay Gandhi National Park as a part of the city's slum clearance scheme in 1995. However, being a slum rehabilitation project (SRA), the architects had to provide each family with the stipulated 225 square feet (21 sqm) of space at an overall density of more than 500 dwellings per hectare as per the norms set by the SRS. Rather than the typical rubber-stamping that characterises most such rehabilitation schemes, Sangharsh Nagar is characterized by clusters – pada's – of ground-plus seven-storey buildings that are intertwined with much-needed social infrastructure such as schools, hospitals, playgrounds and other community facilities. Within these clusters, a typical building consists of six dwellings per floor where three main types (all 21 sqm in size) are composed around a central circulation space.

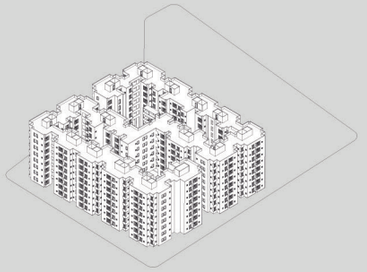


Location Plan

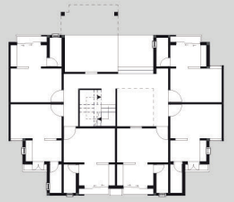




Urban Form



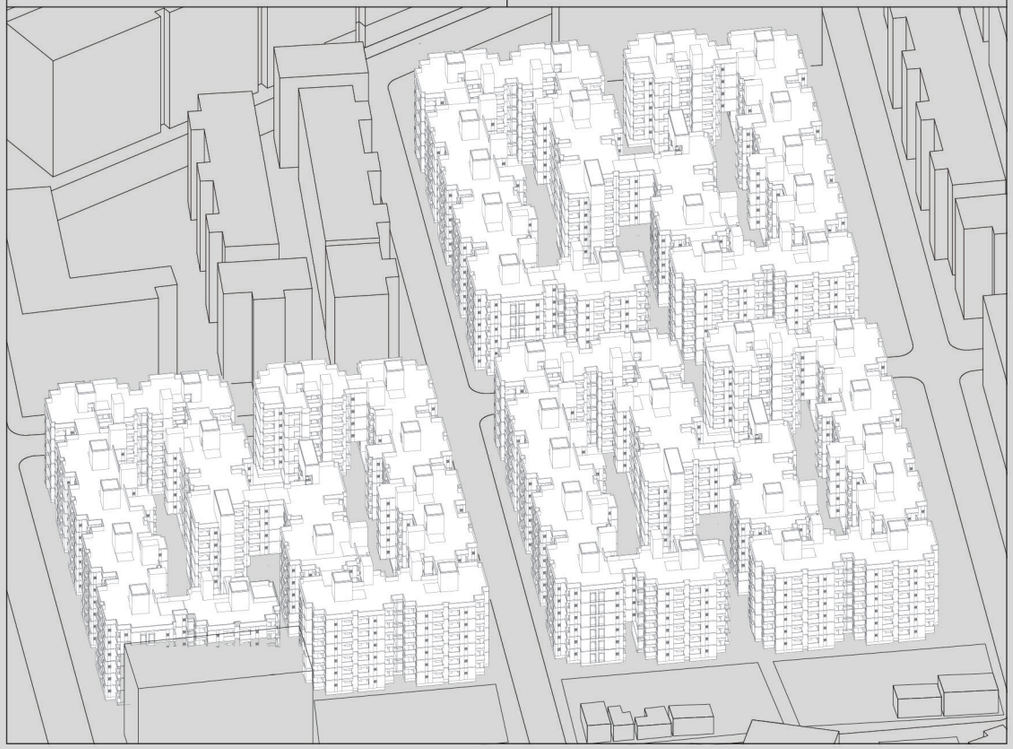
Plot Density



Footprint & Circulation



Dwelling Types



URBAN FORM

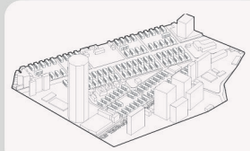
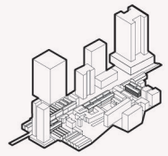
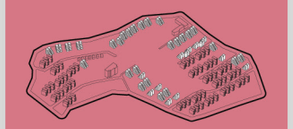
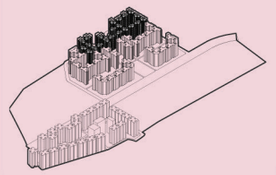
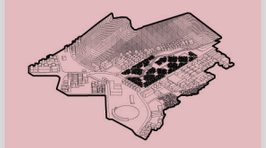
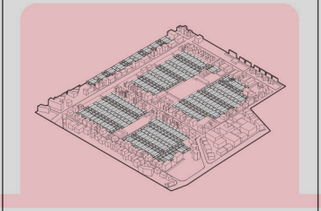
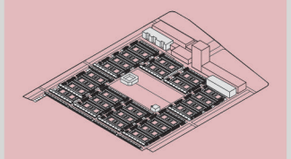
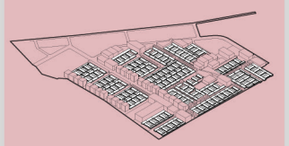
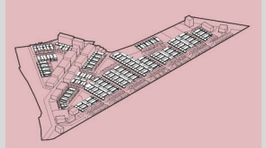
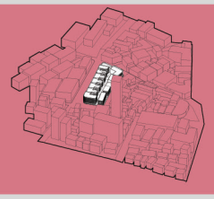
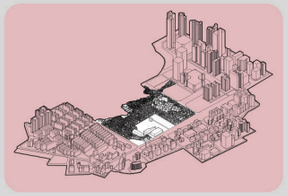
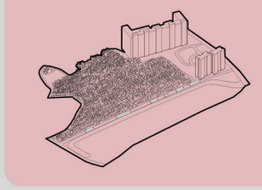
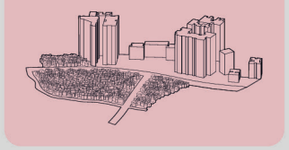
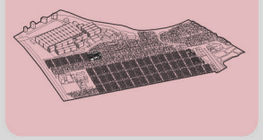
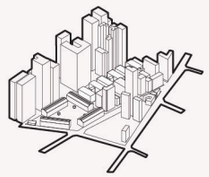
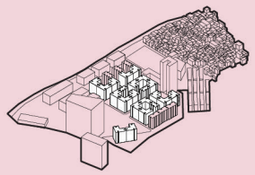
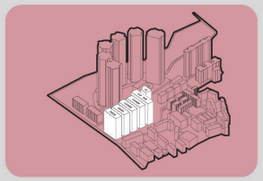
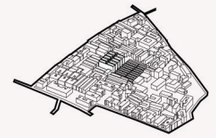
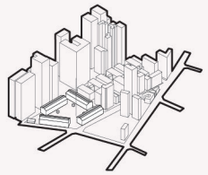
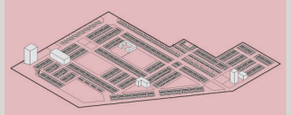
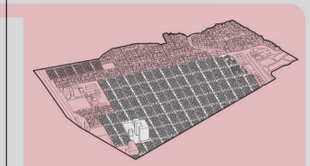
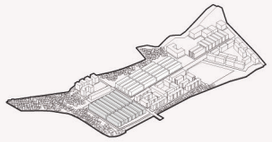
Examining urban form, the earliest projects initiated by the Bombay Improvement Trust (BIT) and later the Bombay Development Directorate (BDD) during the colonial period were mainly based on the chawl typology commonly found in the inner city areas of central Mumbai. These slab-like tenement buildings prioritized standardization and efficiency and continued to be adopted by the government after India gained independence.

By the late 1960s, however, the walk-up apartment block began to emerge in Mumbai, with Correa's LIC Colony in Borivali serving as a prime example of an innovative walk-up-typology that combined different sizes of dwellings within one building block. Although, Correa's scheme remained an outlier to the general trend, the urban form of walk-up apartment blocks remained prevalent throughout the 1970s and 1980s. Yet, by the 1990s, barring a few innovative projects like Raj Rewal's CIDCO Colony, the majority of social housing developments shifted to high-rise towers, as seen in CIDCO's project in Sector 36, Kharghar.

But it is also important to keep in mind that the 1980s witnessed the introduction of sites-and-services schemes, which offered a plot-based solution to housing issues. The Charkop project in the northern suburb of Kandivali stands out as a significant example where individual "cells" arranged in repetitive clusters of row-houses arranged around narrow courts defined this housing mode. Variations of this approach can be found in suburbs like Versova and Gorai. However, a more innovative interpretation of the sites-and-services model appears in Navi Mumbai's Belapur, where Charles Correa's cells are designed as stand-alone units that can expand in various directions, based on people's needs, capacities and requirements.
But while sites-and-services schemes typically resulted in low-rise, high-density patterns, the urban form associated with slum improvement and upgrading initiatives has been less uniform. In the early years of the BIT, improvement schemes included the construction of new "sanitary" dwellings in areas that had been cleared or enhanced, with structures like those along Princess Street in South Mumbai still standing today. By the 1970s, however, the introduction of the Slum Improvement Act limited interventions under this paradigm to infrastructural elements such as sewage systems and electricity, occasionally including as well the construction of public toilet facilities rather than new dwellings.

It is also important to keep in mind that contrary to popular belief, slum redevelopment schemes have evolved over the years and have taken on various forms, from the slab-like chawls at Agripada to strip-like configurations in Dharavi, to the high-rise slabs that have become the standard in contemporary slum redevelopment.

Similarly, the urban form of slum resettlement schemes have also transformed significantly. The initial projects created by the BIT featured slab-like chawls in locations such as Agripada and Chandanwadi. However, by the early 1960s, slum resettlement schemes often transitioned into plotted developments, granting individual plots to evicted slum dwellers for self-built homes over time. More recently, starting in the 1980s, there has been a resurgence of slab-like tenement buildings, albeit at much higher densities.

	URBAN FORM	SLABS	STRIPS	CELLS	TOWERS	HYBRIDS	
SOCIAL HOUSING		 BDD CHAWLS, WORLI	 POONAWALA CHAWLS, PAREL	 LIC COLONY, BORIVALI	 CIDCO COLONY, SECTOR 22	 CIDCO COLONY, SECTOR 36	SOCIAL HOUSING
SELF-HELP & SITES-AND-SERVICES		 ARTIST'S HOUSING, BELAPUR	 SITES-AND-SERVICES, CHARKOP	 SITES & SERVICES, AIROLI	 SITES & SERVICES, GORAI	 SITES & SERVICES, VERSOVA	SELF-HELP & SITES-AND-SERVICES
SLUM UPGRADATION		 BIT, KHOLBHATWADI	 GANESH MURTHY NAGAR, COLABA	 PREM NAGAR, GOREGAON	 SHIV KRUPA SOCIETY, GOVANDI	 LOTUS COLONY, GOVANDI	SLUM UPGRADATION
SLUM REDEVELOPMENT		 AGRIPADA SCHEME 2	 MHADA HOUSING, DHARAVI	 MARKANDEYA CHS, DHARAVI	 MATOSHREE SRA CHS, PAREL	 REHMAT NAGAR, NALASOPARA	SLUM REDEVELOPMENT
SLUM RESETTLEMENT		 AGRIPADA SCHEME 1	 MOTILAL NAGAR, GOREGAON	 SHIVAJI NAGAR, MANKHURD	 LALLUBHAI COMPOUND, MANKHURD	 SANGHARSH NAGAR, CHANDIVALI	SLUM RESETTLEMENT
	25 PROJECTS	SLABS	STRIPS	CELLS	TOWERS	HYBRIDS	

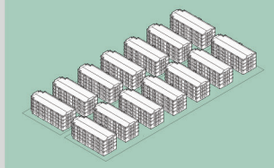
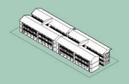
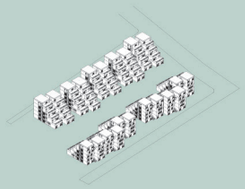
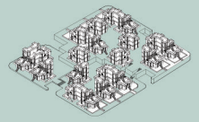
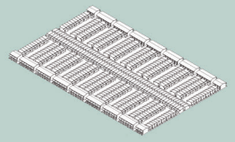
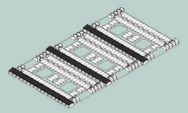
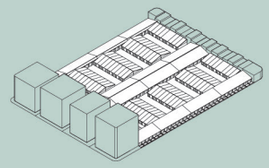
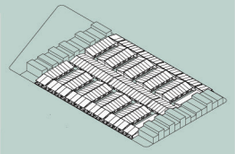
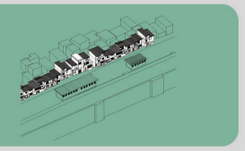
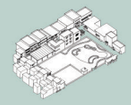
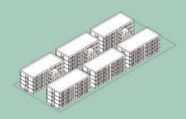
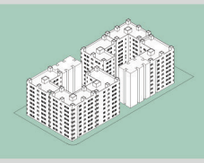
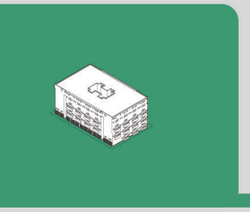
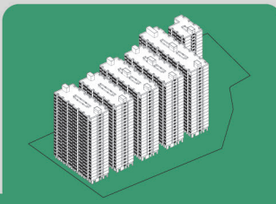
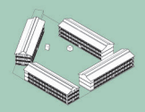
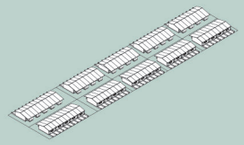
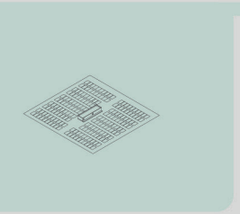
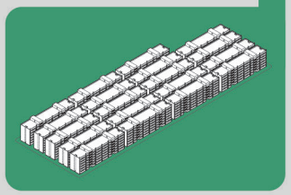
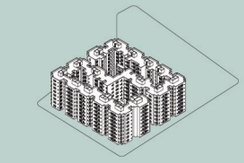
PLOT DENSITY

The general trend in urban development over the years has been a continuous increase in plot densities, moving away from the construction of cohesive neighborhoods and townships toward the creation of isolated pockets of intensive development. This shift is evident when comparing early social housing projects initiated by the Bombay Improvement Trust (BIT) and the Bombay Development Directorate (BDD) with more recent developments, such as those built by the Maharashtra Housing and Area Development Authority (MHADA) and the City and Industrial Development Corporation (CIDCO) in the northern edges of the Mumbai Metropolitan Region (MMR), specifically Bolinj and Kharghar. Since the introduction of neoliberal reforms in the 1990s, the innovative low-rise, low-density projects of the 1960s and 1970s, like the LIC Colony in Borivali, have been largely replaced by schemes averaging Floor Space Index (FSI) values between 3 and 4.

Similarly, Slum redevelopment schemes as well as slum resettlement schemes have a long history in Mumbai, predating the establishment of the Slum Rehabilitation Scheme (SRS). During the first half of the twentieth century, FSIs for these projects ranged from 1 to 2. However, after the economic reforms of the 1990s, most SRS projects have typically featured FSIs in the range of 3 to 4. Currently, there is significant debate about the possibility of increasing densities, with some advocating for FSIs of up to 10 in Mumbai.

However, not all modes produce such high densities. Sites-and-services schemes typically exhibit low-rise, low-density characteristics. In all documented cases, the initial planned densities were below 1. However, post-occupancy studies have shown that these densities can increase dramatically, sometimes nearly doubling over the years, indicating that this type of housing and urban form could also be classified as medium density.

Since slum improvement and upgrading schemes intervene in existing neighborhoods there is no standard for the densities of these self-built settlements and FSIs can vary from approximately 0.5 to as high as 4.

	PLOT DENSITY	FSI 0-1	FSI 1-2	FSI 2-3	FSI 3-4	FSI 4+	
SOCIAL HOUSING		 BDD CHAWLS, WORLI	 POONAWALA CHAWLS, PAREL	 LIC COLONY, BORIVALI	 CIDCO COLONY, SECTOR 22	 CIDCO COLONY, SECTOR 36	SOCIAL HOUSING
SELF-HELP & SITES-AND-SERVICES		 ARTIST'S HOUSING, BELAPUR	 SITES-AND-SERVICES, CHARKOP	 SITES & SERVICES, AIROLI	 SITES & SERVICES, GORAI	 SITES & SERVICES, VERSOVA	SELF-HELP & SITES-AND-SERVICES
SLUM UPGRADATION		 BIT, KHOLBHATWADI	 GANESH MURTHY NAGAR, COLABA	 PREM NAGAR, GOREGAON	 SHIV KRUPA SOCIETY, GOVANDI	 LOTUS COLONY, GOVANDI	SLUM UPGRADATION
SLUM REDEVELOPMENT		 AGRIPADA SCHEME 2	 MHADA HOUSING, DHARAVI	 MARKANDEYA CHS, DHARAVI	 MATOSHREE SRA CHS, PAREL	 REHMAT NAGAR, NALASOPARA	SLUM REDEVELOPMENT
SLUM RESETTLEMENT		 AGRIPADA SCHEME 1	 MOTILAL NAGAR, GOREGAON	 SHIVAJI NAGAR, MANKHURD	 LALLUBHAI COMPOUND, MANKHURD	 SANGHARSH NAGAR, CHANDIVALI	SLUM RESETTLEMENT
	25 PROJECTS	FSI 0-1	FSI 1-2	FSI 2-3	FSI 3-4	FSI 4+	

FOOTPRINT & CIRCULATION

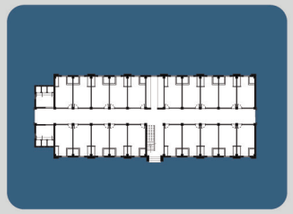
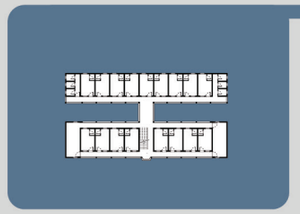
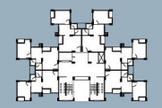
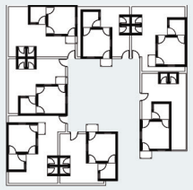
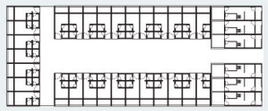
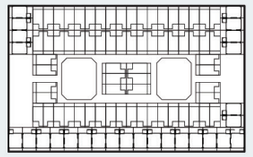
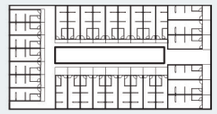
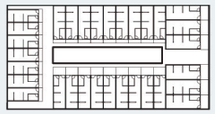
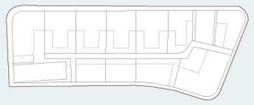
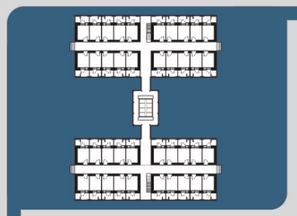
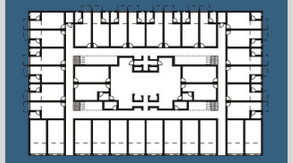
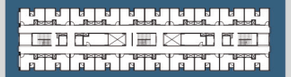
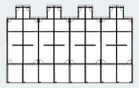
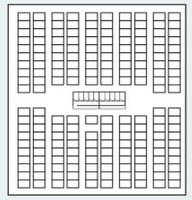
Circulation and access systems in early social housing projects, such as those developed by the Bombay Improvement Trust (BIT) and Bombay Development Department (BDD), were typically organized through galleries. These galleries could be double-loaded, like in the BDD chawls in Worli, or single-loaded, as seen in the Poonawala Chawls in Parel. However, starting in the 1960s, the rise of apartment-style living led to the replacement of gallery apartments with walk-up buildings that commonly featured four to apartments per floor. By the 1990s, higher densities and therefore high-rise buildings changed this system of access, with most contemporary developments incorporating centrally located elevator and staircase cores that, typically, provide access to four to eight apartments per floor.

Site-and-service schemes, on the other hand, as plot-based developments, usually have their entrances from streets or courtyards. This approach is evident in World Bank-sponsored projects in Mumbai and Navi Mumbai, where larger units offer direct street access while smaller units are connected to internal courtyards. In Charles Correa's scheme at Belapur, the access is interestingly not provided through streets, but a series of interlocking courtyards.

In slum improvement and upgrading initiatives, access typically follows the layout of the original settlements but is enhanced with better infrastructure. Despite the seemingly random arrangement of existing informal settlements, there is often a clear logic to the sizes and layouts of the streets. For instance, in Ganesh Murthy Nagar, the streets become narrower as one moves inward, directly influencing the size and type of houses found in the deeper areas of the settlement.

Slum redevelopment schemes and the arrangement of their dwellings and clusters have evolved over the years. In early chawl developments promoted by the BIT, double-loaded corridors were commonly used. This efficient access system was also adopted by state housing boards in the post-independence period and can be observed in the Maharashtra Housing and Area Development Authority (MHADA) Colony in Dharavi. Similarly, in Markandeya Cooperative Housing Society (CHS) in Dharavi, the access system remains primarily double-loaded arounded two small light cores. Double-loaded corridors can also be seen in schemes like Matoshree CHS in Parel, however, here the long length of the corridors are interspersed with light wells.

Access systems in slum resettlement schemes have also varied widely: some use corridor or gallery access, as in the case of the BIT chawls and Lallubhai Compound; others utilize streets, like those in Motilal Nagar and Shivaji Nagar; and some incorporate centrally-placed service and light cores, as seen in Sangharsh Nagar by PK Das in Chandivali.

	FOOTPRINT & CIRCULATION	STREETS & COURTYARDS	WALK-UP	ELEVATOR CORES	SINGLE-LOADED CORRIDOR	DOUBLE-LOADED CORRIDOR	
SOCIAL HOUSING		 BDD CHAWLS, WORLI	 POONAWALA CHAWLS, PAREL	 LIC COLONY, BORIVALI	 CIDCO COLONY, SECTOR 22	 CIDCO COLONY, SECTOR 36	SOCIAL HOUSING
SELF-HELP & SITES-AND-SERVICES		 ARTIST'S HOUSING, BELAPUR	 SITES-AND-SERVICES, CHARKOP	 SITES & SERVICES, AIROLI	 SITES & SERVICES, GORAI	 SITES & SERVICES, VERSOVA	SELF-HELP & SITES-AND-SERVICES
SLUM UPGRADATION		 BIT, KHOLBHATWADI	 GANESH MURTHY NAGAR, COLABA	 PREM NAGAR, GOREGAON	 SHIV KRUPA SOCIETY, GOVANDI	 LOTUS COLONY, GOVANDI	SLUM UPGRADATION
SLUM REDEVELOPMENT		 AGRIPADA SCHEME 2	 MHADA HOUSING, DHARAVI	 MARKANDEYA CHS, DHARAVI	 MATOSHREE SRA CHS, PAREL	 REHMAT NAGAR, NALASOPARA	SLUM REDEVELOPMENT
SLUM RESETTLEMENT		 AGRIPADA SCHEME 1	 MOTILAL NAGAR, GOREGAON	 SHIVAJI NAGAR, MANKHURD	 LALLUBHAI COMPOUND, MANKHURD	 SANGHARSH NAGAR, CHANDIVALI	SLUM RESETTLEMENT
	25 PROJECTS	STREETS & COURTYARDS	WALK-UP	ELEVATOR CORES	SINGLE-LOADED CORRIDOR	DOUBLE-LOADED CORRIDOR	

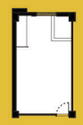
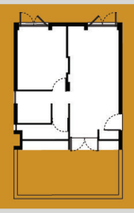
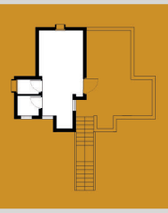
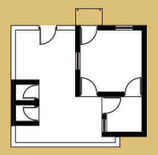
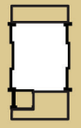
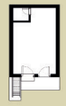
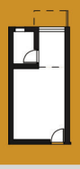
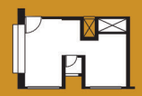
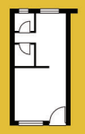
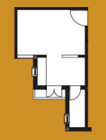
DWELLING TYPES

Social housing projects in the city have evolved significantly, starting with the chawl type in the early years of the Bombay Improvement Trust (BIT) and the Bombay Development Department (BDD). Following India's independence, and particularly from the 1960s onward, the preference for apartment-style living became dominant. But while social housing schemes in the 1970s and 1980s encouraged a variety of unit types and sizes, today's affordable social housing projects conform to strict definitions set by our policies, often resulting in units that are barely 30 square meters for the most economically disadvantaged groups.

Sites-and-services schemes are based on plot distribution on greenfield sites. There has been considerable variation in the sizes of these plots and their arrangement. For example, the World Bank's initiatives under the Bombay Urban Development Project (BUDP) in the late 1980s and 1990s suggested a mix of roughly 25 square meter and 40 square meter row-house plots. In contrast, Charles Correa's scheme in Belapur features a diverse range of stand-alone plots that vary from 18 square meters to substantial 75 square meters plots.

Slum improvement and upgradation schemes, on the other hand, are less easy to examine as rather than dwelling types, the focus of this mode is to intervene in densely populated neighbourhoods and self-built settlements. Unlike other housing modes, in settlements such as these, there is usually a high degree of variation in dwelling types and sizes. These can range from purely residential units—such as the dwellings found deep within Prem Nagar—to mixed-use configurations that accommodate both residential and commercial or industrial spaces, as seen in Ganesh Murthy Nagar in South Mumbai. Coming back to more "conventional" modes of housing intervention, slum redevelopment schemes have typically been characterized by standardized unit types. Over the years, however, these have expanded from basic 18 square meter units to 22.5 square meters in the MHADA Colony in Dharavi, and now to slightly larger units of 28 to 30 square meters in more recent developments. An exception is the Markandeya CHS in Dharavi, where the 18 square meter units are enhanced by a mezzanine loft that adds an additional 9 square meters to the interior space.

Slum resettlement schemes, in that sense, have provided more varieties types of housing over the years. The options have ranged from basic one-room dwellings, such as those in the BIT chawls in Agripada, to individual plots seen in areas like Motilal Nagar and Shivaji Nagar. However, in recent years, the mid and high-rise apartment type has become the norm for slum resettlement schemes, with most options being offered as self-contained one- and two-room dwellings.

	DWELLING TYPES	PLOTS	ROW HOUSES	FREE-STANDING HOUSES	CHAWLS	APARTMENTS	
SOCIAL HOUSING		 BDD CHAWLS, WORLI	 POONAWALA CHAWLS, PAREL	 LIC COLONY, BORIVALI	 CIDCO COLONY, SECTOR 22	 CIDCO COLONY, SECTOR 36	SOCIAL HOUSING
SELF-HELP & SITES-AND-SERVICES		 ARTIST'S HOUSING, BELAPUR	 SITES-AND-SERVICES, CHARKOP	 SITES & SERVICES, AIROLI	 SITES & SERVICES, GORAI	 SITES & SERVICES, VERSOVA	SELF-HELP & SITES-AND-SERVICES
SLUM UPGRADATION		 BIT, KHOLBHATWADI	 GANESH MURTHY NAGAR, COLABA	 PREM NAGAR, GOREGAON	 SHIV KRUPA SOCIETY, GOVANDI	 LOTUS COLONY, GOVANDI	SLUM UPGRADATION
SLUM REDEVELOPMENT		 AGRIPADA SCHEME 2	 MHADA HOUSING, DHARAVI	 MARKANDEYA CHS, DHARAVI	 MATOSHREE SRA CHS, PAREL	 REHMAT NAGAR, NALASOPARA	SLUM REDEVELOPMENT
SLUM RESETTLEMENT		 AGRIPADA SCHEME 1	 MOTILAL NAGAR, GOREGAON	 SHIVAJI NAGAR, MANKHURD	 LALLUBHAI COMPOUND, MANKHURD	 SANGHARSH NAGAR, CHANDIVALI	SLUM RESETTLEMENT
	25 PROJECTS	PLOTS	ROW HOUSES	FREE-STANDING HOUSES	CHAWLS	APARTMENTS	

4.1	DWELLING IN MUMBAI: A DAY IN THE LIFE OF FIVE PROJECTS	352
4.2	SOCIAL HOUSING: BDD CHAWLS	382
4.3	SELF-HELP & SITES-AND-SERVICES: CHARKOP SECTOR 1	394
4.4	SLUM IMPROVEMENT & UPGRADATION: LOTUS COLONY	408
4.5	SLUM REDEVELOPMENT: MATOSHREE SRA	422
4.6	SLUM RESETTLEMENT: LALLUBHAI COMPOUND	438

PATTERNS OF INHABITATION

A DAY IN THE LIFE OF FIVE PROJECTS

DWELLING IN MUMBAI

A DAY IN THE LIFE OF FIVE PROJECTS

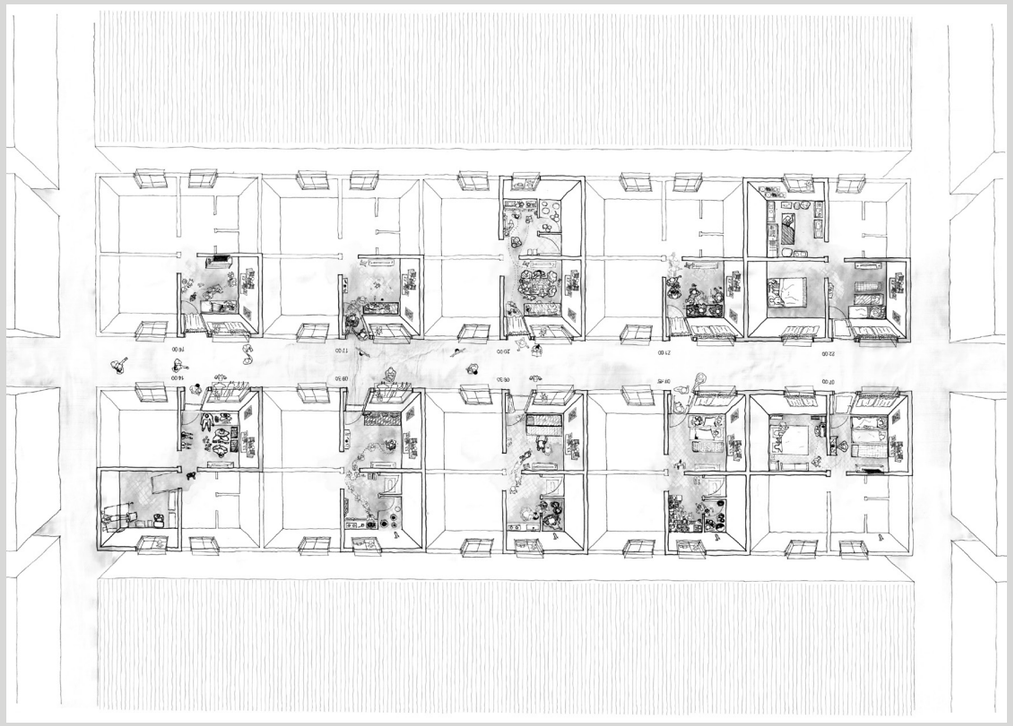


Fig. 1 Student work documenting dwelling practices in Nalasopara in the northern fringes of the Mumbai Metropolitan Region, 2018.

"Dwelling takes place as part of a greater whole, in an environment that defines the experience of dwelling at varying levels. While the dwelling – the place – effects a separation between inside and outside, dwelling – the phenomenon – takes place on both sides of this line of separation. How you get from home to work, where you do your shopping, where you go out and where you meet up with friends – all of this is part of dwelling in the larger sense. Dwelling is implicitly contained in a social context, in a human society."

Bernard Leupen and Harald Mooij, *Housing Design: A Manual,* 2020.

Can our cities survive? This is both the title of José Lluis Sert's seminal book from 1942 and a question worth asking today. However, unlike Sert's 250-page manifesto that advertised the urban planning principles of the Euro-American centric *Congrès Internationaux d'Architecture Moderne* (CIAM), today's urban manifestos, in contrast, must be written from the context of the so-called Global South. It is not in the industrialised West but in the rapidly transforming societies of Africa, South Asia and Latin America where the challenges of 'housing the greatest number"[1] now reside.

Yet, despite a century's worth of urban experiments, paradigms such as the Functional City approach, first discussed at *Congrès internationaux d'architecture moderne* (CIAM's) fourth congress in 1933 and thereafter, enshrined in Le Corbusier's *Charte d'Athènes* of 1943, seem to have found their twenty-first-century equivalents in geographies far beyond the borders of where the Modern Movement first took shape.

From Ethiopia's state-built condominium blocks to India's private-sector-led slum redevelopment and resettlement schemes, housing remains, even today, primarily thought of as an isolated function delinked from people's everyday needs and practices. Why is this the case? The Indian planner and urban theorist Gautam Bhan argues that one of the reasons is simply because "our planning systems still come from an outdated imagination of rational, modernist planning that seek full control of the city."[2]

Nowhere has this lack of the state's political and moral responsibility played out more audaciously than in India's financial capital, Mumbai. As the previous section has already described, over more than a hundred years, Mumbai's housing landscape has come to be dominated by free-market ideologies that have reduced housing in the city to a game of numbers, its rules dictated solely by quantitative forces: floor space indexes (FSIs), fixed unit sizes, prescriptive materials, and building regulations all tweaked to ensure higher densities and, therefore, higher profits. Take, again, the example of the slum resettlement colonies built through public-private partnership (PPP) models in Mumbai's neglected M East Ward. Bhan is again right when he says, "Our model has created cities without the capacity to support the people who live in them."[3]

Therefore, in answering the housing question, one must first ask: "What is housing?" This crucial first step would have to begin by reframing housing not just as a political-economic problem measured in metrics of material adequacy and numbers (unit sizes, densities, subsidies, etc.) but as a key instrument for human development. In other words, housing needs to be reimagined not just as a place of shelter but as a site for economic and social mobility. Without looking at housing as an urban project – as habitat – we are simply building real estate.

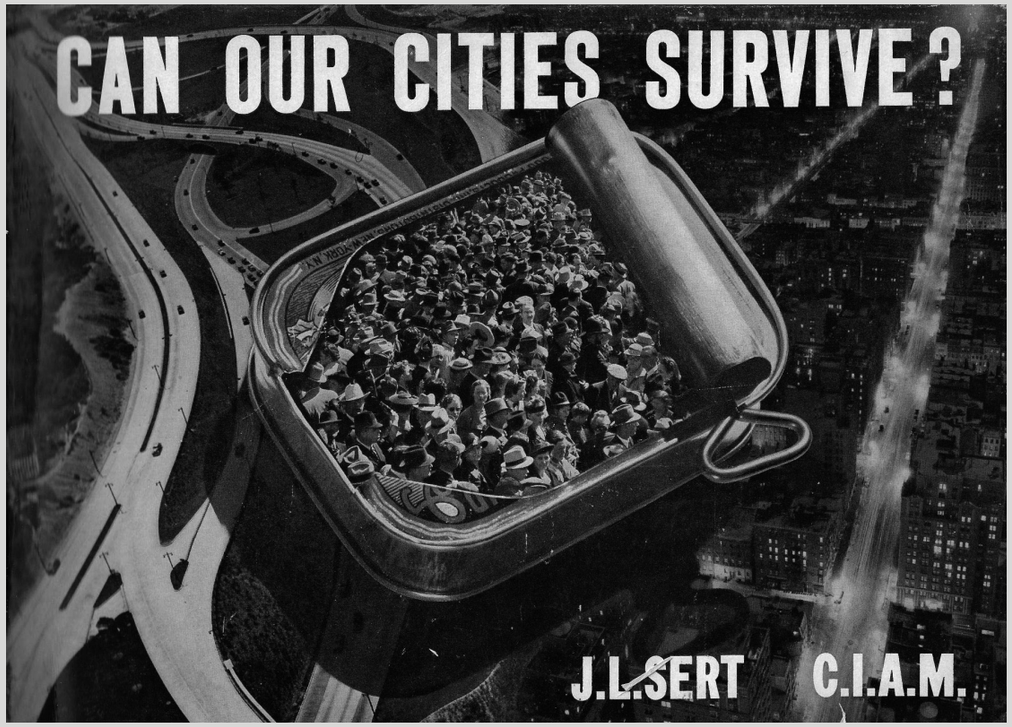
The production of this habitat involves far more than the mere production of units of a predefined size as currently prescribed by the state. People need access to social infrastructure (schools, health clinics, open spaces) and economic infrastructure (public transport, jobs). This is especially true for urban India, where nearly 80 per cent of the country's working force is employed in the informal sector and more than a third work from their homes.[4] And although the informal sector accounts for nearly half of India's GDP, home-based economies remain largely overlooked in housing policies and the projects that follow.[5] To once again borrow terminology from scholar and social worker Martha Chen, there is a need to understand housing as not just an economic asset but a "productive asset".[6]

This section's primary aim is to reconsider housing as a habitat and to utilise this conceptual rethinking as a means to analyse one project from each of the five modes elaborated on and discussed in the previous section through new metrics that focus on human activity –everyday practices – across a spectrum of scales: from the most public realm to the most private interior. To achieve this, this introductory chapter will first conduct a brief literature review to lay the groundwork for a clear theoretical framework that argues for a multi-scalar approach to housing. It will then elaborate on expanding housing design research beyond its conventional analysis of space and type through architectural ethnography and explain its key conceptual approach and methods. Lastly, this section will conclude with five visual chapters that delve deeply into five selected cases, illustrating the life captured within these settlements through axonometric drawings, photographs and key plans.

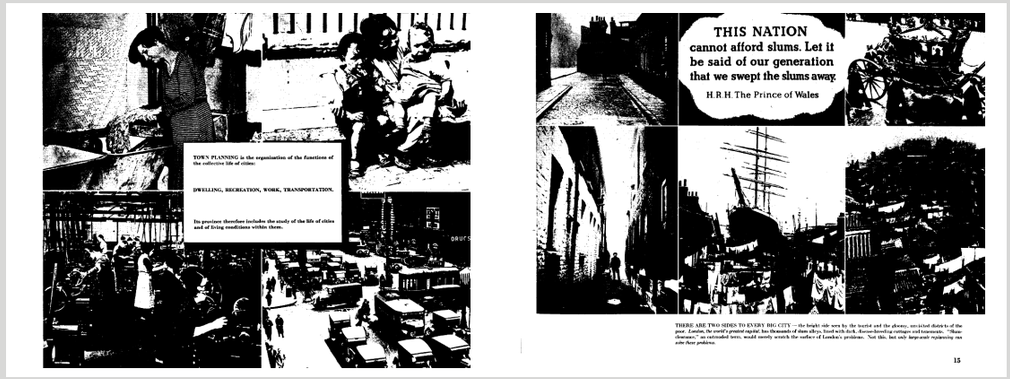
FROM 'HOUSING' TO 'HABITAT'

In an interview from 2018, the Indian architect Balkrishna Doshi, a protégé of Le Corbusier, offered sharp criticism of this modernism: "I don't like the idea of modernism. Modernism relates to function. There is already a theory that has specified everything...life is not like this!"[7] His fellow countryman, Charles Correa, who like Doshi was also often referred to as a "modernist", had also been critical of the Modern Movement, particularly its approach to public housing. In an essay from *The New Landscape*, Correa writes:

> "The enormous success of Henry Ford's assembly line and similar 20th-century miracles seduced architects into think-



2

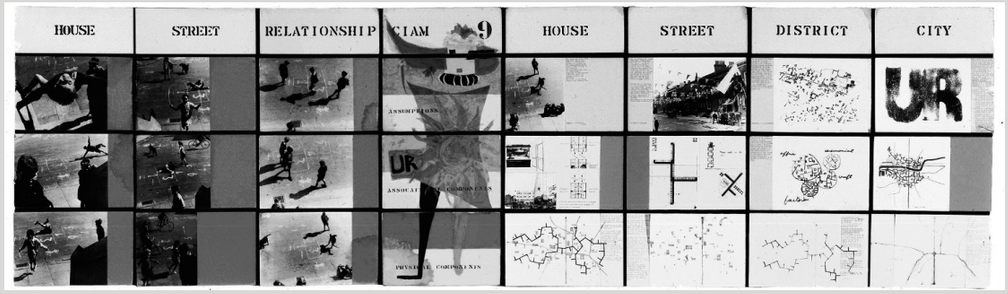


3

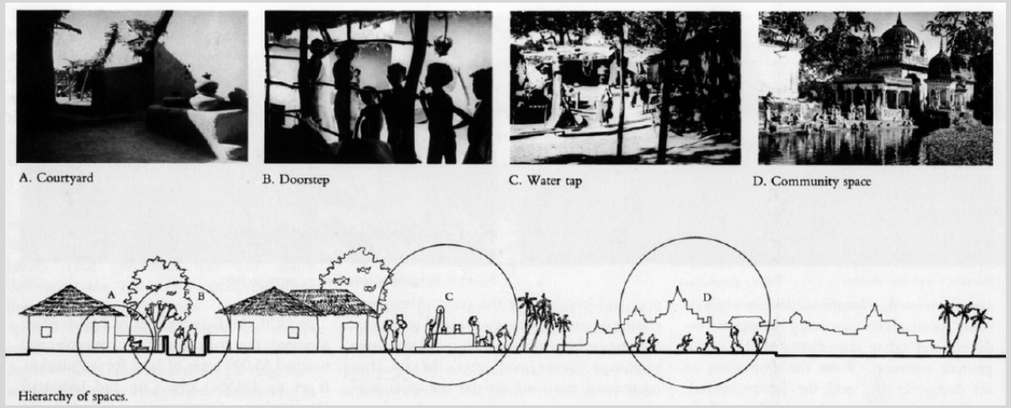
Fig. 2 Cover of José Lluis Sert's seminal book from 1942.
Fig. 3 Extract from the book that illustrates the four functions propagated by CIAM's 'Functional City' approach, and the primary object of its study: slums.



4



5



6

Fig. 4 *Mahieddine bidonville* Grid presented by CIAM-Alger at the 9th CIAM in Aix-en-Provence in 1953. The contribution remains noteworthy for its use of ethnographic methods to document people's dwelling practices in self-built settlements in North Africa.

Fig. 5 *Urban Re-identification Grid* presented by Alison & Peter Smithson at the 9th CIAM in Aix-en-Provence in 1953

Fig. 6 Although Charles Correa was never directly affiliated with CIAM, he maintained contact with several former CIAM and Team 10 members during the first two decades of his private practice. This connection suggests that his ideas on housing were likely influenced by the discussions on habitat from the 1950s and 1960s, as well as his experiences living in India. The diagram illustrating his influential "hierarchy of spaces" served as the foundation for many of his large-scale housing projects, particularly his plan for incremental housing in Belapur.

Fig. 7,8 (following page) Extracts from the 1976 document the *Habitat Bill of Rights*, co-authored by five reputed architects, some of them former CIAM and Team 10 members. The book contained observations and recommendations across four scales: the "dwelling," the "cluster," "pedestrian precinct," and "urban community."

ing that the analogue of the mass-produced car was appropriate in the field of housing. Even Le Corbusier – or especially Le Corbusier – fell for this analogy with his Citrohan housing. The principle involved was apparently this: first to create the ideal house and then clone it. Unfortunately, in practice it does not work. For without doubt:

Ideal House x 10,000 + Ideal Community"[8]

Both Doshi and Correa's critiques, perhaps surprising to some, are not new. From as far back as the late 19th century, Patrick Geddes attempted to broaden architecture and planning discourse as an ecological field. In the aftermath of the Second World War, it was in Europe amongst the CIAM circles that the first mention of 'habitat' as a field within architecture and planning grew in importance. Moving away from their ideas of the 'Functional City', the proponents of CIAM, and mainly their offspring organisation Team 10, looked to broaden the discourse on the architecture of housing by borrowing increasingly from other fields and disciplines, most notably biology, sociology and anthropology.[9] In1953, during the ninth congress of CIAM that dealt with the theme of 'Habitat', these so-called "younger members" of CIAM resisted, in fact, fiercely contested the doctrines of the Functional City, stating that "life falls through the net of the four functions"[10].

Several of these young European architects, including the Dutchmen Jacob Bakema and Aldo van Eyck, the English couple Alison and Peter Smithson and the Italian Giancarlo de Carlo, among others, would, in the following years, challenge the dogmatic Functional City model by a more ecological approach of varying "scales of association" that re-positioned the human being at the centre of the discourse on habitat.

This shift was first most explicitly visible in the work of Candilis-Josic-Woods, who, as members of the group ATBAT-Afrique in 1953, had won praise for building a "new language of architecture generated by patterns of inhabitation"[11] inspired by the *bidonvilles* of North Africa. A few years later, Van Eyck sought similar inspiration in the villages of Dogon in West Africa. Bernard Rudofsky made such thinking mainstream through his landmark 1964 exhibition and book *Architecture without Architects*. But this dissertation argues that perhaps the most fertile ground for experimentation of this kind can be found in the built work and writings of Doshi and Correa, who responded to the challenges of building "housing for the greatest number" as primarily as an urban design challenge of curating thresholds: from the private courtyard to the public commons.

CHARLES CORREA'S 'BILL OF RIGHTS FOR HOUSING IN THE THIRD WORLD'

This scalar approach to understanding housing was extensively discussed by Charles Correa, both through his built works and his writings. In his 1985 manifesto, *The New Landscape*, much of

Correa's concerns revolve mainly around questions of low-cost housing – both at the scale of the individual dwelling and the city. In various chapters of the book, Correa offers approaches to building affordable housing that contrast with the Functional City approach advocated by CIAM in the post-war years. Closer in spirit to the thinking of housing activists like Charles Abrams and John Turner than to those of Le Corbusier, Correa argues for a more pluralistic approach to housing, one that could involve many different participants and many delivery systems. But his central concern remained establishing the larger framework within which such development could take shape.

In an extract from one of its chapters titled 'Equity', Correa drew an analogy, as he often did, to make a point on housing:

> "If people are starving, it is not because they don't know how to cook, it is because they do not possess the ingredients."[12]

So, what, then, are the ingredients that make housing? For Correa, vernacular architecture – and, by extension, indigenous towns – would remain lifelong sources of inspiration, finding expression in all his projects. Over the years, he would theorise these learnings in the form of what he called a *Bill of Rights for housing in the Third World* that can be found in the chapter 'Equity'. A clear manifesto in its own right, the bill put forth the crucial importance of eight principles – ingredients – for housing. These were: 'Incrementality', 'Open-to-Sky Space', 'Equity', 'Disaggregation', 'Pluralism', 'Malleability', 'Participation', and 'Income Generation'. The architect's role, then, for Correa, was to bring together these ingredients in a clever site plan that addressed many scales, arguing that:

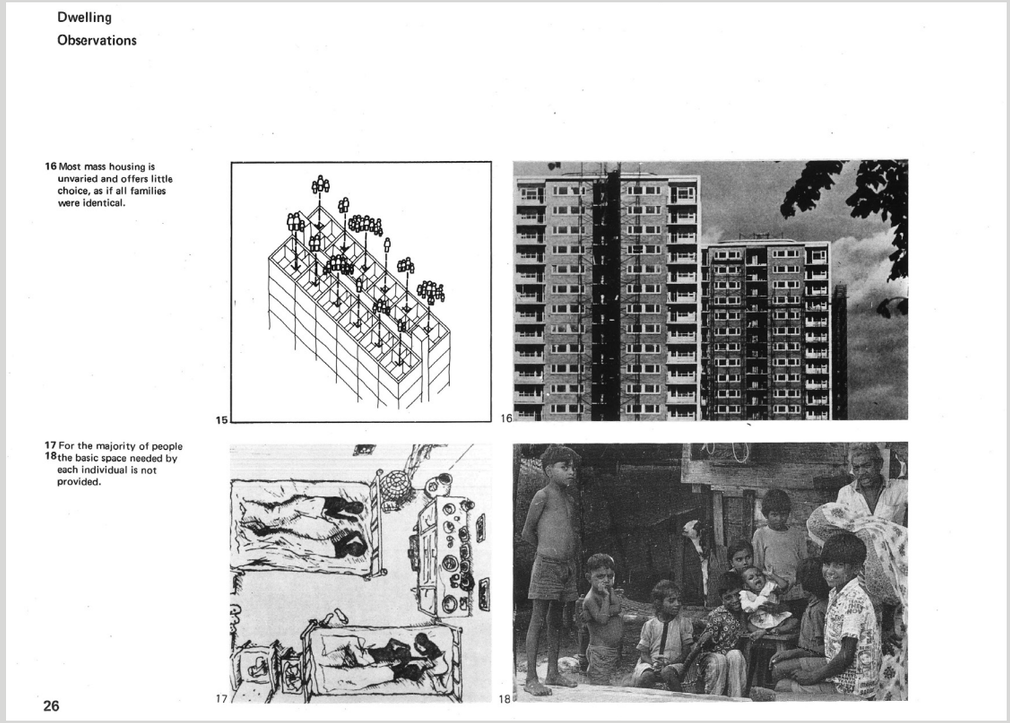
> "Urban living involves much more than just the use of a small room of say, 10 sqm. The room, the cell, is only one element in a whole system of spaces that people need."[13]

He would further add:

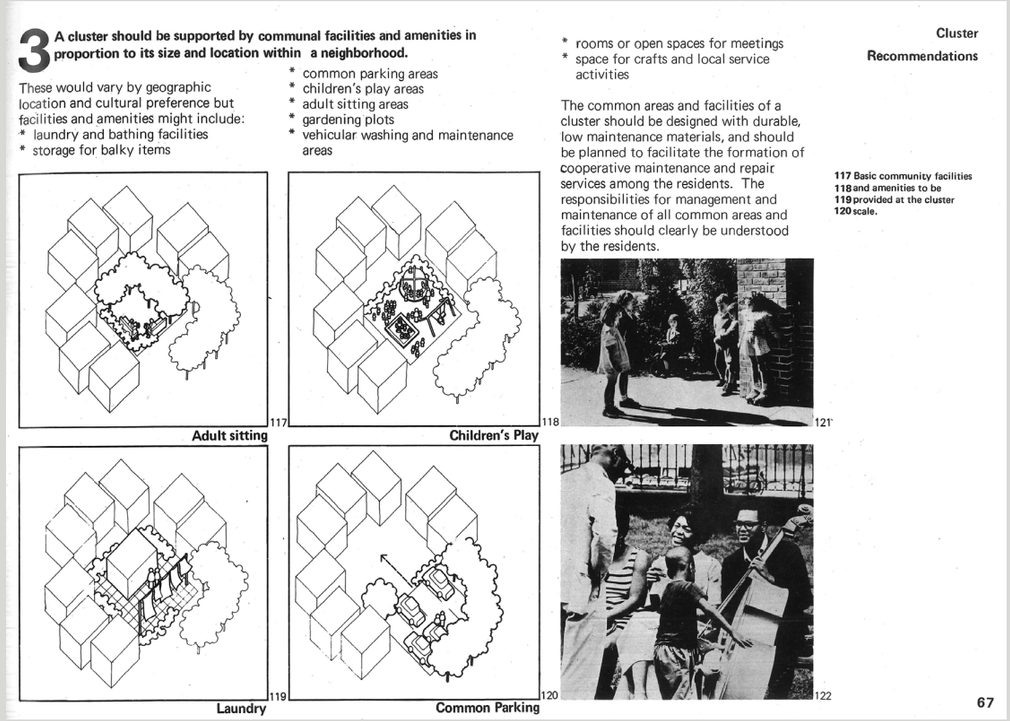
> "The system is usually hierarchical, starting with the private family zone and moving on to the doorstep (where you greet your neighbour), thence to the water tap or village well (the community meeting place), and finally to the great maidan (the principal focus of the city).[14]

THE 'HABITAT BILL OF RIGHTS': A SCALAR APPROACH

The most direct link between CIAM and Team 10 with India is Balkrishna Doshi. Having worked with Le Corbusier for close to 7 years between 1951 and 1957, Doshi's early works exhibit a strong modernist aesthetic, as evident in his first scheme for low-income housing built in Ahmedabad in 1958 for the Ahmedabad Textile Industry's Research Association (ATIRA). But by the end of the next decade, one can notice in Doshi's works a search for regionality better expressed in his designs for the Life Insurance Corpora-



7, 8



tion (LIC) Colony, also built in Ahmedabad in 1973.[15] Here, a ziggurat-like form allows for each family to colonise and extend their homes over time – a project that one could argue was equally inspired by Doshi's observations of life in India as well as the many exchanges he had with members of Team 10 on concepts such as "identity" and "growth and change".[16]

This cross-fertilisation of ideas became even more apparent after Doshi participated in the second Iran International Congress of Architects (IICA) held in Persepolis-Shiraz in 1974. Organised by young Iranian architects such as Nader Ardalan and Kamran Diba as a platform to discuss the role of architecture in building "appropriate habitat", the conference attracted a large number of international architects, including some former CIAM and current Team 10 members such as Sert, Bakema and Candilis.

However, while some have described the conference as a "forgotten episode,"[17] it remains an important event as it led to a landmark yet scarcely known manifesto titled the *Habitat Bill of Rights*. Co-authored by five of the conference's participants: Ardalan, Sert, Safdie, Candilis and Doshi and submitted as Iran's official contribution to Habitat I – the first-ever UN-Habitat conference that took place in Vancouver in 1976 – the *Habitat Bill of Rights* was designed as a "working document" that aimed to provide answers to this problem statement:

> "Codes dealing with dwellings far outnumber those that deal with the grouping of houses into a community...it is easier to define the minimum area of a bedroom, the fire rating of a wall, than it is to define those qualities which contribute to the well-being of man, his family and the community in which he lives."[18]

As opposed to Team 10's Doorn Manifesto of 1954 that reinterpreted Patrick Geddes's 'valley section' as four "fields" of urbanism: 'isolated buildings', 'villages', 'towns', and 'cities"[19], the *Habitat Bill of Rights* limited its study to the "dwelling and the immediate community in which it is located"[20]. In doing so, it put forth a clear thesis that decoded patterns of habitation at four interdependent scales: 'Dwelling', 'Cluster', 'Pedestrian Precinct', and 'Urban Community'.[21] This multi-scalar approach to understanding habitat resulted in a book where each scale commanded the attention of an entire chapter explained with text, photographs and simple diagrams. Differing in both scope and methodology from Sert's 1942 manifesto, the *Habitat Bill of Rights* looked at the problems of human habitat in both Western as well as non-Western contexts with an underlying belief that the architecture of the everyday could serve as a repository of solutions for even the most contemporary of urban problems.

ARCHITECTURE ETHNOGRAPHY: DRAWING FROM LIFE

Through the work and writings of Correa and Doshi, we can expand the realm of housing beyond the scale of the unit and instead think of housing as a network of spaces that need to accommodate a wide array of activities and practices. This section builds on this multi-scalar thinking and argues against current policies and practices that view the home as a unit. However, to think beyond purely quantitative metrics such as material adequacies, area requirements and income brackets as currently prescribed by policies such as the 'Housing for All' scheme, this section develops a new set of lenses that view housing not only as physical or material form but as a container for human life and practices of various kinds: domestic, social, cultural and economic.

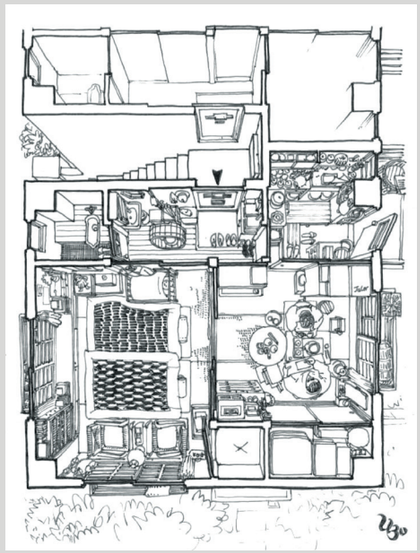
The trigger for employing such a qualitative method of research stems from the claims of several southern urban theorists, such as Ananya Roy, Gautam Bhan, Jennifer Robinson and AbdouMaliq Simone, who position anthropological and ethnographic research methods as an instrument for decolonising approaches into the study of housing and urban informality.[22] Such claims are part of a growing body of scholarship that emphasises architecture's social and cultural implications, not just its physical and material attributes. This approach, often described as 'architecture ethnography', combines methods of ethnography – a qualitative research technique typically utilised in anthropology and sociology – with the study of architectural spaces and structures.[23] Doing so opens new doors to understanding how people interact with, experience, and shape their environments. However, rather than replace conventional research tools and methods such as those described and employed in the previous section, architecture ethnography, this dissertation claims, helps expand architecture discourse, particularly discussions on housing.

In recent years, architectural ethnography has increasingly garnered attention as a method for conducting architectural and urban research. The emergence of research and design practices, such as those explored by Momoyo Kaijima and Yoshiharu Tsukamoto of the Tokyo-based architecture firm Atelier Bow Wow, has significantly popularised this method amongst architects and urban designers. Their approach to architectural ethnography is demonstrated in their books *Made in Tokyo* (2001) and *Graphic Anatomy* (2007, 2014) and in further explorations at their design studios at the Harvard Graduate School of Design (GSD) in 2016 and their exhibition at the Venice Biennale in 2018 for which they published their small but widely-praised book *Architecture Ethnography*.

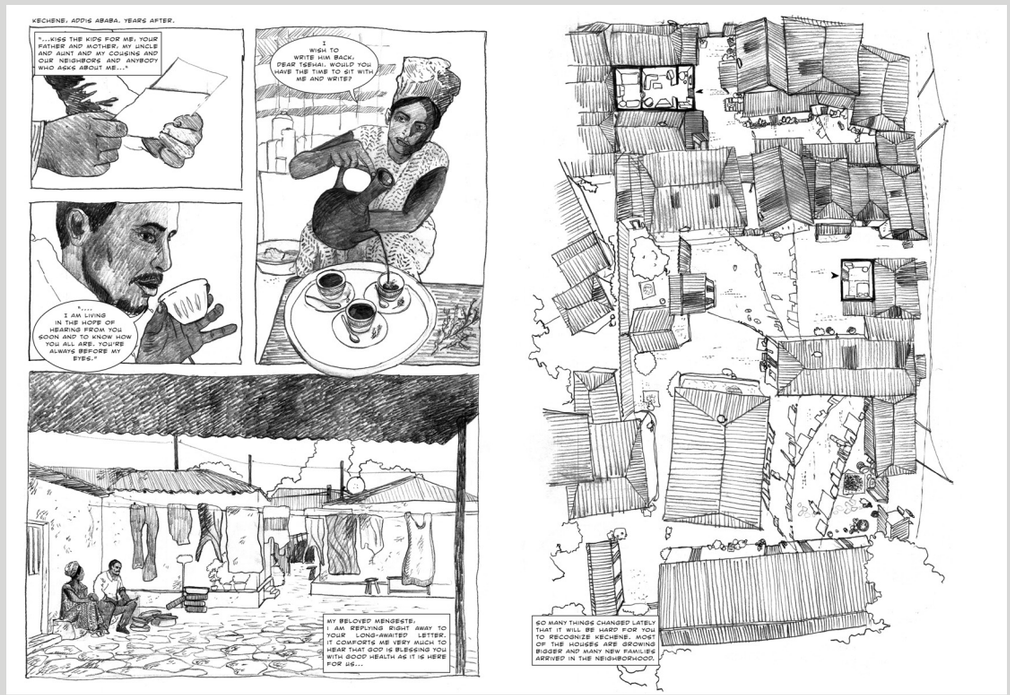
Another well-known research and design practice employing these methods is Drawing Architecture Studio, founded by the Beijing-based duo Li Han and Hu Yan. A widely published work of theirs is the brilliantly detailed architectural graphic novel *A Little Bit of Beijing*. Comprising three volumes that look at explore life within three districts of Beijing, we discover a freedom in drawing styles and techniques that include meticulously drawn plans, sections, and elevations alongside vibrant and intricate axonometric projections that visually narrate the stories of 10 cases (captured through interviews) in the format of a graphic novel. By blend-



9



10



11

Fig. 9 Cover of Atelier Bow-Wow's 2007 book *Graphic Anatomy* that was instrumental in re-introducing ethnographic surveys in architecture.
Fig. 10 A drawing by Nishiyama Uzo of an apartment in the Daikanyama Dojunkai housing complex in Tokyo. Nishiyama's family lived in this complex in 1942.
Fig. 11 Drawings from the graphic novel *Mengeste* by Antonio Paoletti, Casper Pasveer and Gavin Wallace as part of the 2020 Addis Ababa Global Housing studio at TU Delft.

ing drawing styles and modes of representation, they transcend conventional architectural devices to describe and illustrate the everyday realities of the places they document through patient observation.

Other inspiring works of this kind that have shaped the methods of this section include *Building Stories*, a 2012 graphic novel by the cartoonist Chris Ware. This work, which comprises 14 booklets of varying sizes and shapes, when read together, narrates the stories of individuals residing in a nondescript three-storey building in Chicago. Another significant reference, and one that has greatly influenced the approach to mapping during fieldwork for this dissertation, is the work of Dutch visual artist Jan Rothuizen. His choice of topographical journalism – or "soft cartography"[24] – has resulted in a series of annotated maps and sketches that illustrate the physical fabric of the places he visits and the social life within them. Rothuizen's most famous work, *The Soft Atlas of Amsterdam*, captures his observations of the city – encompassing both minor and significant moments – through simple hand-drawn sketches of various types (bird's eye perspectives, one-point perspectives, eye-level views, etc.) Over the years, Rothuizen's travels around the world have resulted in a collection of over 400 "soft" maps, which he describes as follows:

> "The maps are a partly drawn, partly written representation of what I see, think and feel and what others tell me during the walks I take. By combining drawings and descriptions, the maps are an image and a story at the same time."[25]

However, architecture ethnography as a research method is by no means new and can be traced back several decades. A prominent mid-twentieth-century example, again from Japan, is the work of Nishiyama Uzo.[26] With a keen interest in mapping housing development in his country, Uzo maintained an encyclopaedic collection of detailed sketches of buildings and housing schemes across Japan. Through various analytical drawings that include skilfully detailed black-and-white axonometrics, sectional perspectives, floor plans, sections, and elevations, Uzo meticulously studied the development of Japan's housing types and typologies. Great emphasis was also placed on understanding construction systems and details of traditional Japanese homes and newer houses and apartments. By documenting not only the formal aspects of skin, space, and structure but also furniture and people's appropriations, Uzo's drawings and photographs offer an incredibly illustrative glimpse into Japan's changing patterns of inhabitation over time.

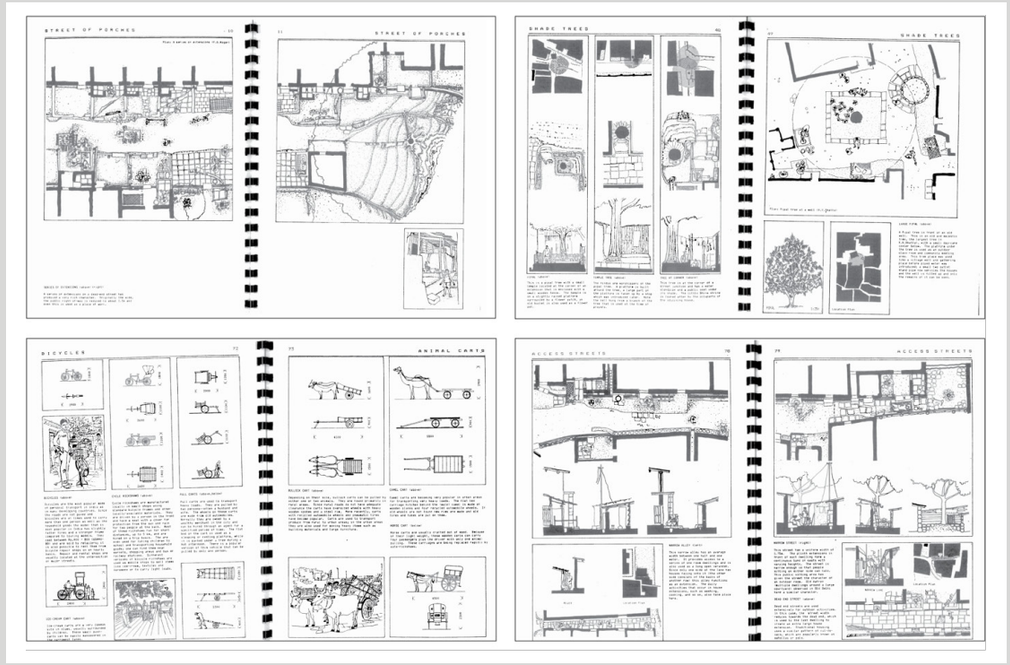
A similar and equally detailed study of housing forms and everyday practices can be found in Portugal in the work of Octávio Lixa Filgueiras from roughly the same period. In his Urban Surveys of the 1960s, conducted during his time as a teacher at the Porto School of Fine Arts, Filgueiras's humanist approach led him to establish a studio known as 'Analytical Architecture' (Arquitectura Analítica). Here, too, we find a thorough exploration of low-in-

come neighbourhoods that advocates for an approach based on site specificity and the legitimacy of people's everyday practices as equal to, if not more important than, the work of technocrats. In fact, this philosophy by Filgueiras is evident in his work and thought as early as in his thesis for his Architects Diploma in 1953. Titled *Urbanismo. Um tema rural* (Urbanism. A rural theme.), this thesis examines rural areas as a site of investigation that combined the methodological tools of the *avant-garde* of the time – the CIAM grid – with ethnographical surveys, promoting an approach that attempts to find the extraordinary in the ordinary.[27]

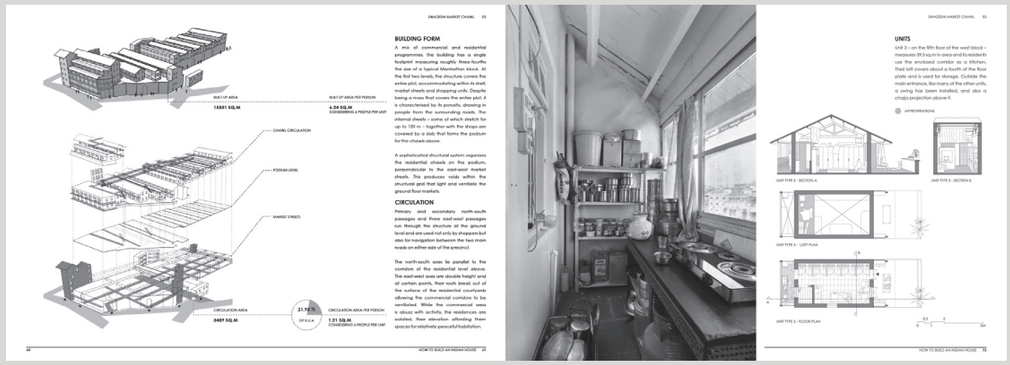
Moving closer home, the three volumes with the title *How the Other Half Builds,* produced by McGill University's Minimum Cost Housing Group (MCHG) in close collaboration with Doshi's Vastu Shilpa Foundation in Ahmedabad, show, like in the example of Nishiyama Uzo, the explicit deployment of such research methods not just as an academic exercise but as key drivers in the design process. In this particular case, the objects of study were four slums in Indore, a medium-sized city in central India. Site surveys included daily visits, measured drawings, observational notes, and photographic surveys that were thereafter redrafted and presented in a consistent format and graphic style for ease of readability and comparison.

The first volume, titled 'Space', aimed to study the physical performance of informal housing, focusing less on the physical makeup of the settlements (plots and circulation spaces) and more on the various activities in the public realm – the street. Recognising this scale as a site for work, commerce, and domestic use, the study conducted by Witold Rybczynski and Vikram Bhatt, among others, examined activities under seven categories: 'house extensions', 'workplaces', 'small shops', 'trees', 'public structures', 'vehicles', and 'access streets'.[28] The resulting documentation – systematically catalogued through black-and-white plans, sections, elevations, and sketches – and annotated with captions, brief descriptions, and, at times, dimensions, served as the basis from which a design for a large-scale sites-and-services scheme by Doshi in Indore would later emerge.

Even closer to home, in Mumbai, and as described earlier in Chapter 3.7, the Mumbai research collective CRIT and sPare – the research wing of the Mumbai-based architect Sameep Padora – have both employed similar methodologies to draw and document formal and informal settlements across the city. In particular, Padora's 2016 book *In the Name of Housing* is arguably the most detailed and richly illustrated text that records people's activities within eleven housing schemes in the city. Perhaps most interestingly, as a self-initiated research project, Padora's foray into architectural research with an ethnographic lens was prompted by the arrival of a commission for an affordable housing project on the outskirts of the Mumbai Metropolitan Region. Learning from the likes of Padora, Filgueiras and Uzo, this section aims to employ architectural ethnography as a method to draw lessons from the past and point directions for the future.



12



13

Fig. 12 Extracts from the 1984 research document *How the Other Half Builds*. Spread across seven chapters that document the dwelling culture within four informal settlements in Indore, the methods echo those adopted by Uzo and Filgueiras in the 1950s and 1960s.

Fig. 13 Extracts from Sameep Padora's book *In the Name of Housing*. Seen here are analytical drawings of Swadeshi Market in Kalbadevi.

MATERIALS & METHODS

Inspired by CIAM's grid used in the 1950s and 1960s, as well as by Correa and Doshi's multi-scalar approach to housing and the four interdependent scales they propose, this chapter offers the device of a new grid through which to analyse, compare and contrast projects produced by different modes. Like Octávio Lixa Filgueiras's renewed grid produced in 1953 that combined traditional ethnographic techniques with those of architectural analysis promoted by CIAM's grid, this section also deploys architectural ethnography as a research method to decode housing beyond its material and physical parameters. Like in the case of Uzo's surveys of Japanese housing and the site surveys by the MCHG, the emphasis remains on recording and representing people's domestic, social, cultural, and economic practices.

To this aim, and keeping in mind the limitations (that will be described later in this chapter), this section follows a case study approach to look into five projects with a combination of ethnographic techniques that include participant observation, photographic surveys, and spatial analysis of each case across four scales: the 'public' (illustrating the neighbourhood, open spaces, and landmarks), the 'semi-public' (streets, squares, internal pathways, and courtyards), the 'semi-private' (internal courtyards, clusters, and typical floors), and the 'private' (a private dwelling, plot, or apartment).

Each of these scales and their corresponding lenses of practices were documented through a combination of observational notes, sketches and photographic surveys. Once this data was collected in journals and on a smartphone enabled by GPS technology, the observations were overlaid onto precisely drawn CAD plans and axonometric drawings, after which they were exported to photo-editing software's to create colourful illustrations.

Here, it also becomes crucial to acknowledge the influence and impact of the educational programme of the Department of Architecture at TU Delft, where architectural ethnography, re-introduced into the curriculum by Nelson Mota, has been a dominant research method in several courses and design studios that I have co-taught alongside several colleagues between 2022 and 2025.

But perhaps, next to the many publications already mentioned earlier, this section would have been poorer had it not benefitted from following years of fieldwork and measured drawings conducted by students of the Kamla Raheja Vidyanidhi School of Architecture (KRVIA) in Mumbai. Throughout these field trips that typically focus on small and medium-sized towns and cities in India, great emphasis is given to mapping the social structures that reside within buildings and settlements. Two trips made as a young architecture student, one to Devgad in 2004 and another to Bikaner in 2005 especially come to mind. In recent years, the exhibition of the student fieldtrip led by Rohan Shivkumar and Shirish Joshi of the KRVIA to the ancient religious centre of Braj in Uttar Pradesh remains a standout example of the methods we have been discussing so far. Speaking about these mixed techniques, Joshi explains:

> "Schools of architecture in India today follow active programmes for documenting by simply measuring buildings by drawing them as plans, sections, etc. We wanted the students to explore other forms of drawings that retain spatial sensibilities. This could be done by collapsing the conventional Cartesian drawings and populating them with activities and layering them with seasons and a sense of time. The miniature paintings in India are examples of such drawings."[29]

He further adds:

> "The intent has been to create drawings that can be accessed by a larger audience that is not necessarily trained as architects. Apart from the usual exposure to the context and the people, for the students, the greatest learning is in how drawings can reach people and how drawing is also a performance."[30]

SELECTION CRITERIA

In Chapter 3.7, a total of 25 affordable housing models – one from each mode – are illustrated and documented. For this section, a further selection is made to conduct an in-depth survey of only five cases, with one from each mode. The focus is on selecting dominant cases or standards rather than exemplary, one-off innovations designed by well-known architects. This approach aims to facilitate a discussion with broader societal relevance.

For the mode of 'Social Housing,' the case chosen is the BDD Chawls in Worli (P01). This site is a prime example of the colonial government's intervention in housing from a hundred years ago and represents one of four such schemes implemented in the early 1920s.

For the mode of 'Self-help & Sites-and-Services,' we examine Sector 1 located in Charkop, Kandivali (P08). This case serves as a model of housing found in areas like Versova and Gorai as well. In the category of 'Slum Improvement & Upgradation,' the case selected is Lotus Colony and Shivaji Nagar (P15/23), which is gradually being transformed over time through small-scale, targeted interventions.

For 'Slum Redevelopment,' the case documented is Matoshree CHS in Parel (P20), and for 'Slum Resettlement,' we consider the Lallubhai Compound (P25).

In addition to focusing on these dominant examples, there is a conscious effort to cover the five basic housing types identified in this dissertation: 'Chawls' (BDD Chawls), 'Row Houses' (Charkop), 'Plots' (Shivaji Nagar), 'Apartments' (Matoshree CHS), and 'Walk-Up Apartments' (Lallubhai Compound). By encompassing such a range, this section hopes to generate observations and discussions that resonate widely throughout Mumbai.

LIMITS & LIMITATIONS

Ethnography is a qualitative research method that emphasises immersive observation, participation, and the study of cultures and communities in their natural settings. Although ethnographers typically spend extended periods conducting fieldwork that can include semi-structured interviews, focus group discussions, participant observation and even, at times, living with and participating with the communities they are researching, this dissertation had to accommodate several limitations.

The first was distance. With the site of study located in Mumbai and with this research project revolving around periods of teaching activities at TU Delft, the time available for fieldwork was scarce and scattered. As a result, and inspired by an elective course on architectural ethnography that I co-teach at TU Delft, the scope of this section was limited to recording "a day in the life" of a chosen case. Thus, each project was analysed over just one day (6 hours, roughly in equal periods of two hours in the morning, afternoon and evening).

The second hurdle was the COVID-19 pandemic that brought all fieldwork to a standstill between the Spring of 2020 and the Autumn 2021. This coincided precisely with the stage of the dissertation dedicated to fieldwork, forcing a re-evaluation of the aims and methods of this section. Keeping all this in mind, the scope of this study is limited to extracting and illustrating the temporal nature of activities across various scales of the project through three main methods: observations, photography and time-series analysis. Although semi-structured interviews were once an initial idea, they were finally abandoned in light of the limits and limitations of carrying out extensive fieldwork.

FORMAT

Following this introductory chapter, this section comprises five visual chapters, each concentrating on a prominent case from the modes described earlier in Section 3. Each chapter's layout and graphic style are consistent, starting with a recent Google Earth image of the site that highlights the study area. Subsequently, a figure-ground plan clearly illustrates the morphology of the site. Next, an axonometric projection presents a one-square-kilometre drawing of the site, helping to situate the project within its larger context.

In the following pages, detailed axonometric drawings depict "A Day in the Life of a Project," drawing from Correa and Doshi's theories to traverse the four scales mentioned earlier. Each scale is analysed through four lenses focusing on people's everyday practices: 'domestic,' 'social,' 'cultural,' and 'economic.' Thus, each project or case is examined using a matrix – a grid – comprising 16 elements or windows. A graphic symbol appears at the top of each page to indicate which scale and lens relate to the drawing in question. These drawings are further illustrated with photographs taken during fieldwork and accompanied by short captions and key plans that help position the reader within the settlement or fragment being considered. When read together, these five visual chapters facilitate comparisons, highlighting not only the material or physical aspects of the built environment and the policies that have shaped them but also the social and cultural forces at play, which must, in turn, shape the way we frame our policies and build our cities.

■

	EVOLUTION	2010	2012
BDD CHAWLS, WORLI			
CHARKOP SECTOR 1, KANDIVALI			
LOTUS COLONY, GOVANDI			
MATOSHREE CHS, PAREL			
LALLUBHAI COMPOUND, MANKHURD			
	EVOLUTION	2010	2012

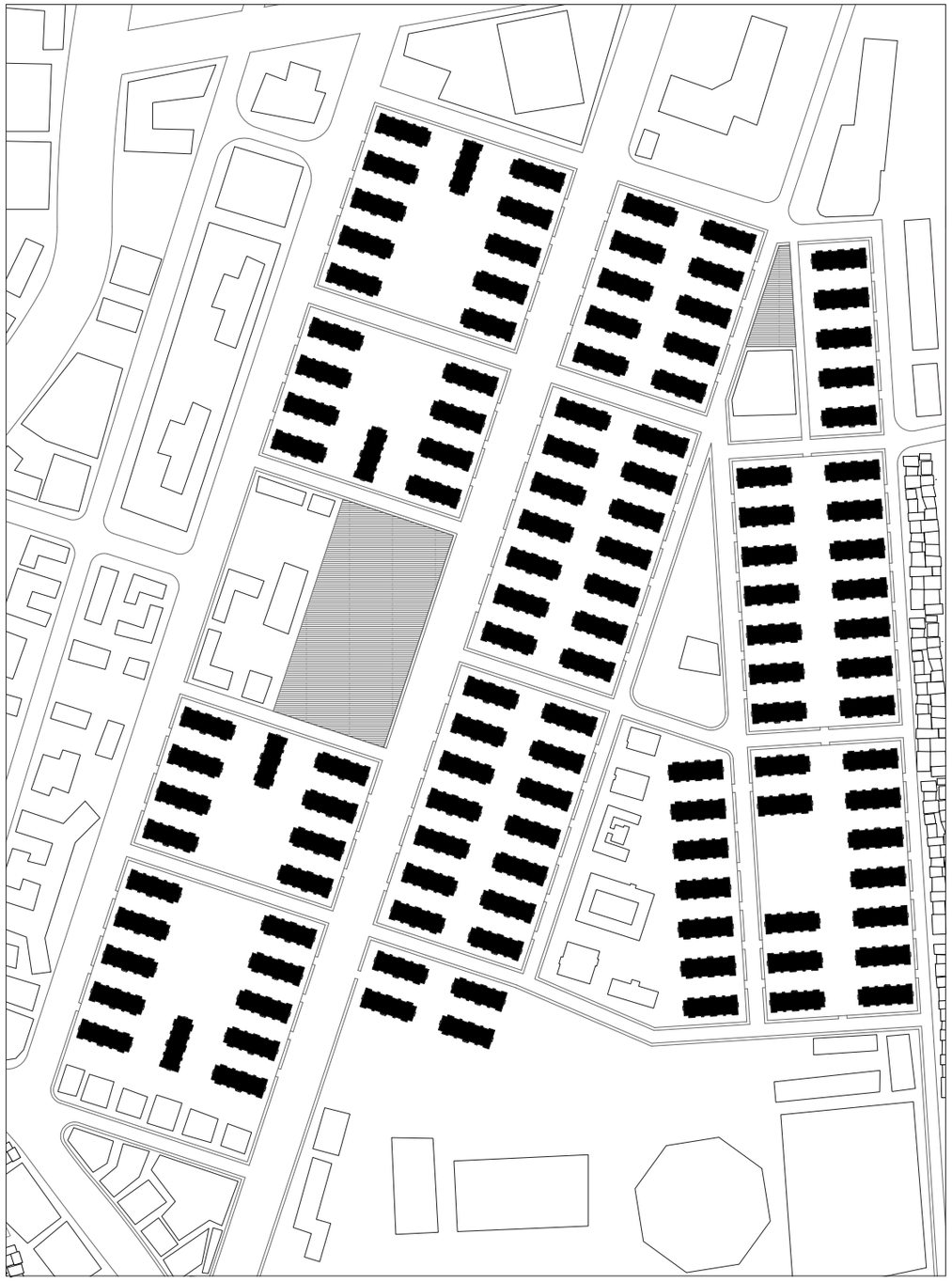
2014	2016	2018	
			BDD CHAWLS, WORLI
			CHARKOP SECTOR 1, KANDIVALI
			LOTUS COLONY, GOVANDI
			MATOSHREE CHS, PAREL
			LALLUBHAI COMPOUND, MANKHURD
2014	2016	2018	

SOCIAL HOUSING

BDD CHAWLS
WORLI
1921-1925

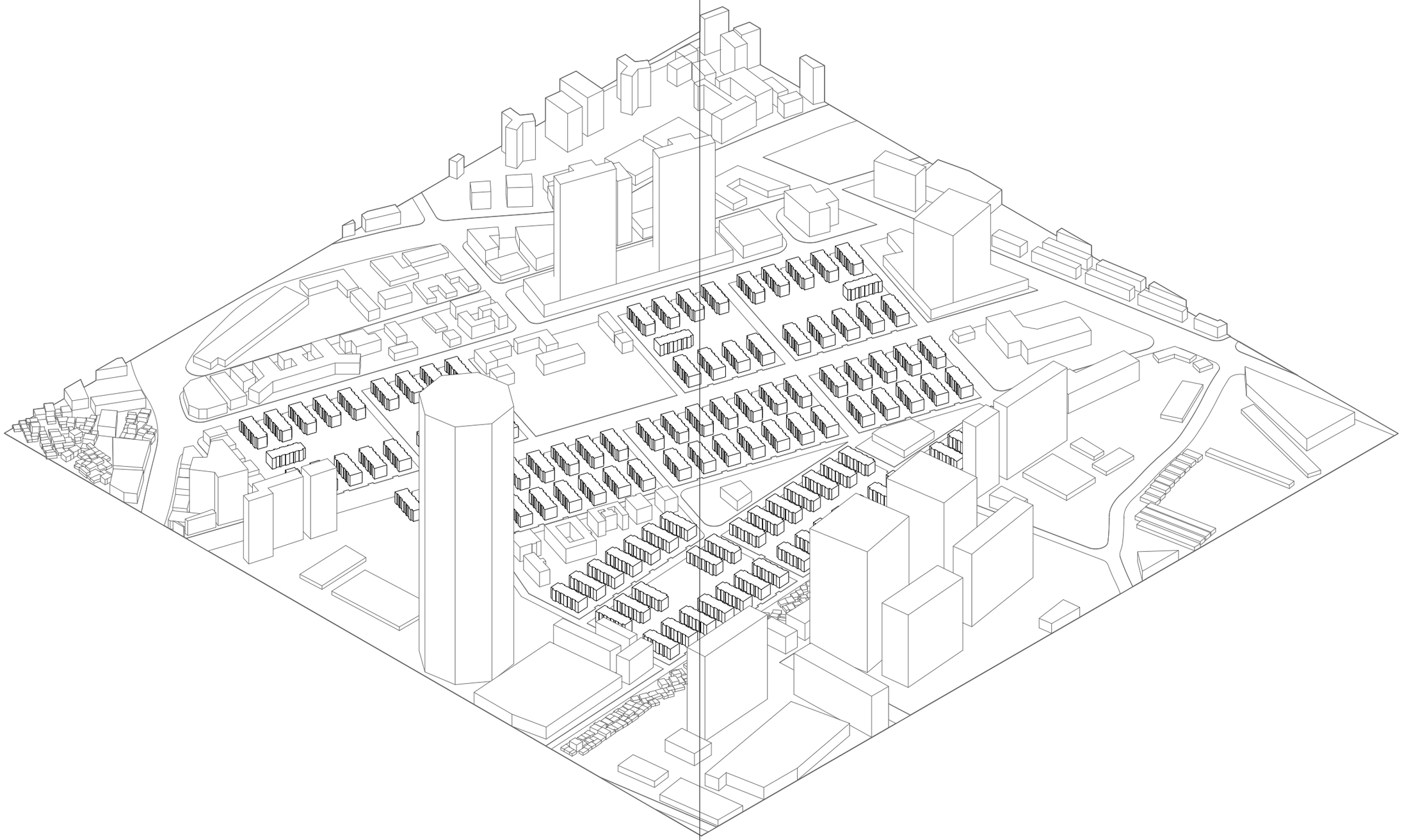


25m 50m 100m



NEIGHBOURHOOD

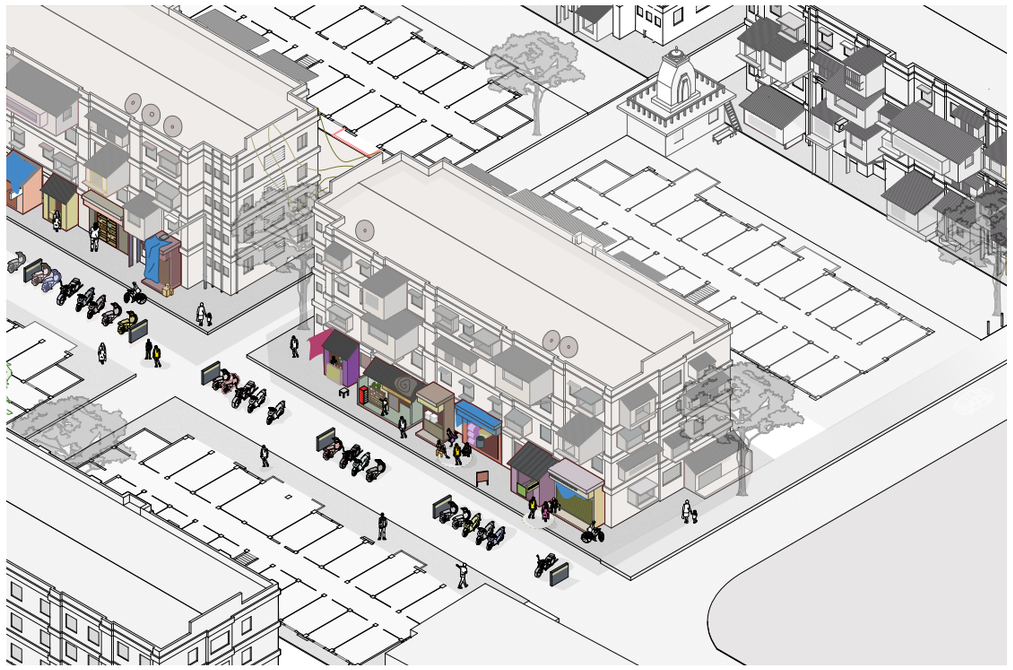
1 KM²



NEIGHBOURHOOD
OVERVIEW



PUBLIC
ECONOMIC

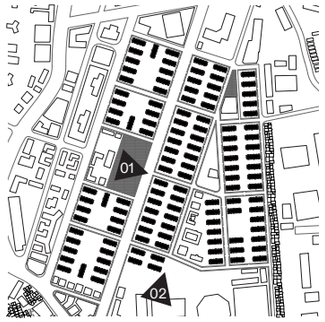




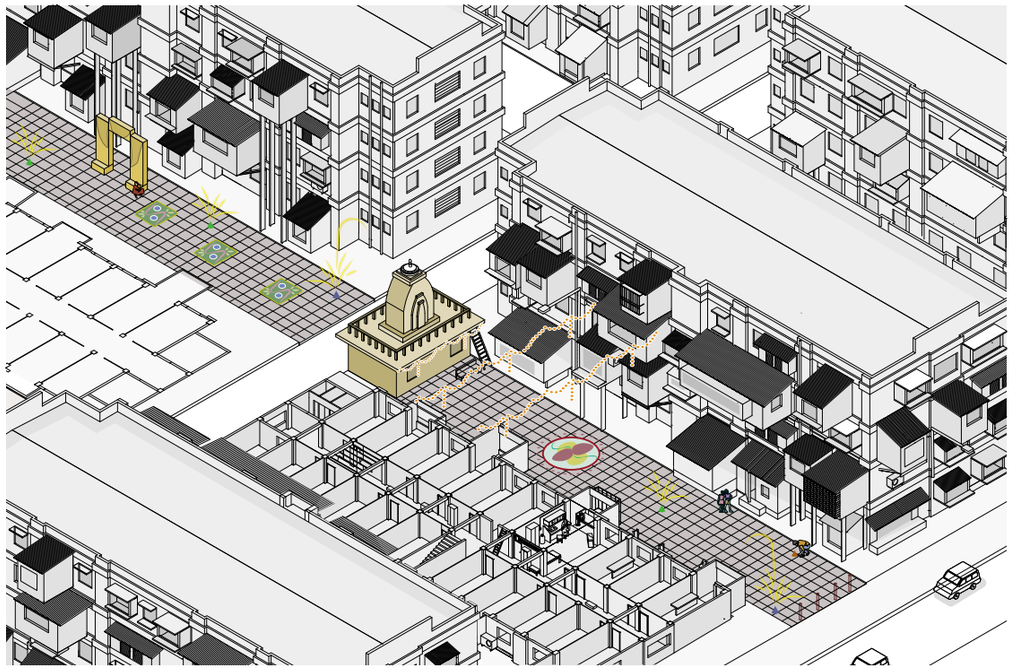
▲01 ▼02

01. The most visible transformation of the BDD chawls are the extensions made by people beyond the existing structure. In most cases, these are light-weight constructions made of steel provide additional spaces for living as well as income generation. This is particularly true for the ground floor along the more public streets that have over time transformed considerably from residential use to commercial use. Here, openings and extensions of various kinds house small shops, kiosks and in some cases, even workshops and garages.
02. This active commerical zone can even be observed along the secondary streets and make the area a vibrant zone of mixed use activity.





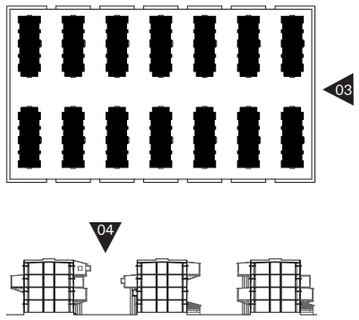
SEMI-PUBLIC
SOCIAL-CULTURAL



03. Although the layout of BDD chawls appears highly repetitive and lacking hierarchy, observations of life within and between the chawl blocks reveal a different reality. The scale of the courtyards created between the blocks following the 63.5 degree rule have indirectly allowed for multiple uses of space for social and cultural activities. In many cases, small permanent shrines have been erected, and in others, temporary and make shift constructions can be seen during important religious festivals.
04. The courtyards are also well used by children of various ages for playing games and sports like badminton, cricket and football. This is particularly observed on weekends and on most weekday afternoons and evenings.



▲03 ▼04





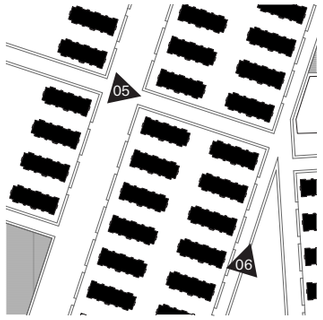
SEMI-PUBLIC
ECONOMIC





▲05 ▼06





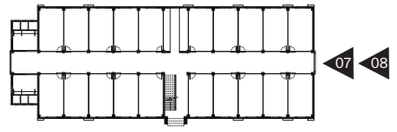
05. The hierarchy of streets and open spaces in the layout of the BDD chawls have also encouraged local markets to thrive. A prime example of this lies along SN Mohita Marg that connects the larger GM Bhosale Marg on the west with the triangular shaped Dr. Babasaheb Ambedkar Maidan on the east. Here we can find a bustling market open every day of the week with shops and street hawkers selling vegetables and local produce of various kinds.
06. The market also continues along the maidan on the north south Bhagoji Waghmare Marg.

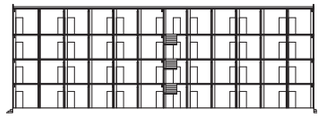
SEMI-PRIVATE
DOMESTIC





▲07 ▼08

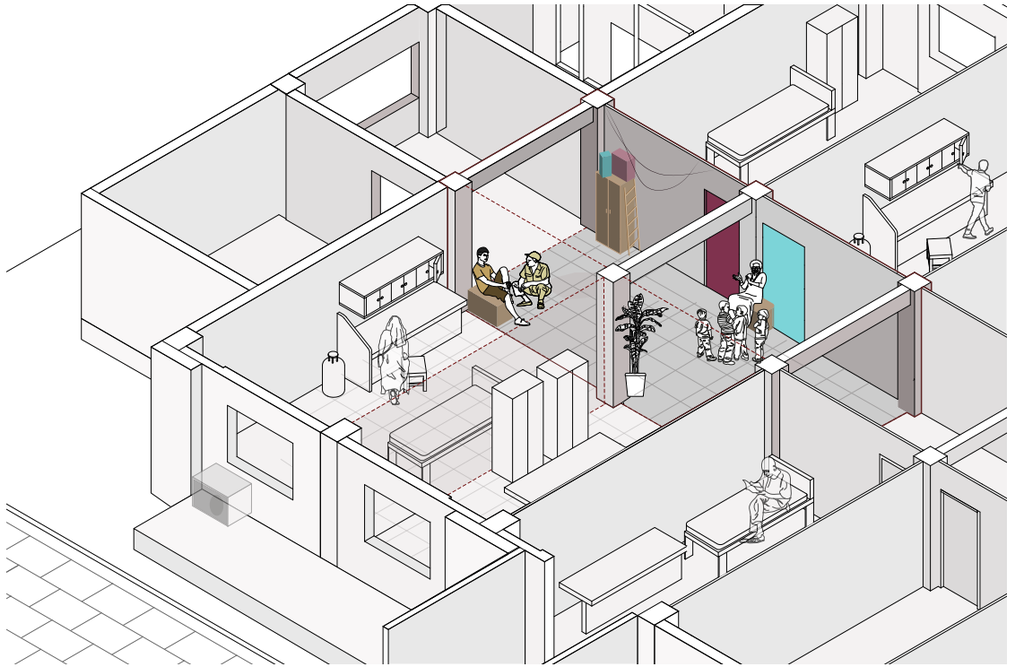






07. Inside the double-loaded corridors of BDD's identical blocks we find domestic practices spilling over into these semi-private spaces. The limited interior spaces of the units compel residents to use these corridors for storage as well as for drying clothes.
08. Another photograph of a corridor which is used for parking cycles, storing goods and drying clothes.

SEMI-PRIVATE
SOCIAL

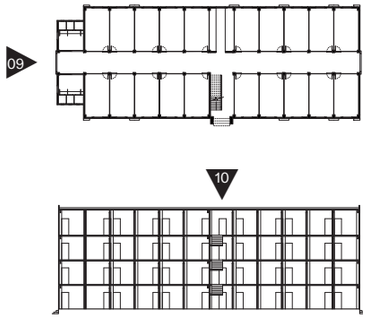




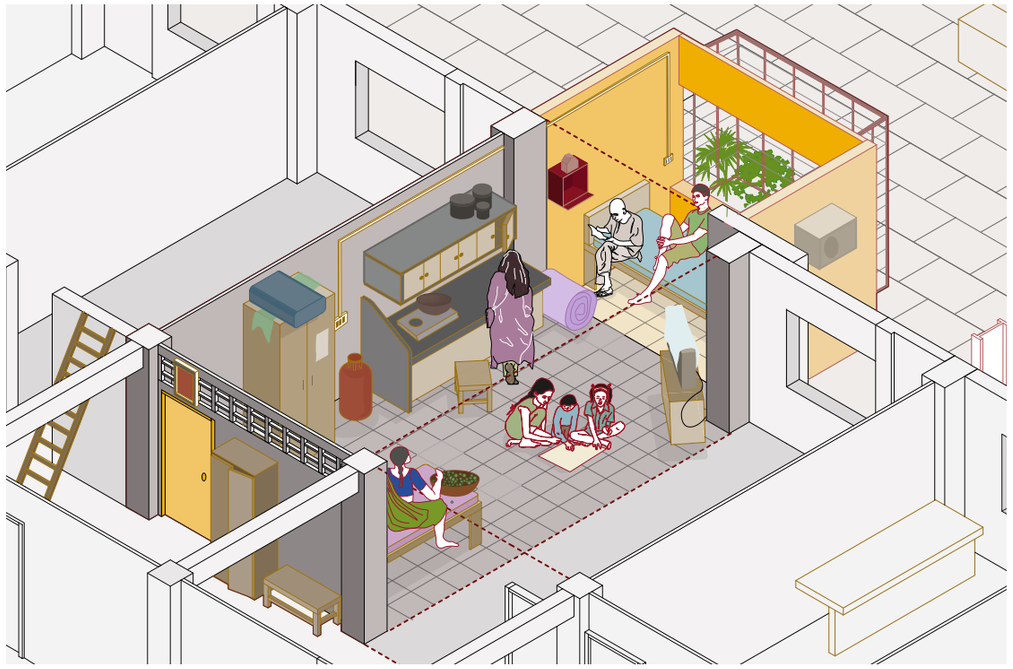
▲09 ▼10

09. The corridors of BDD are also social spaces, where families can be found meeting each other. This is especially found near the centre of each block where the staircases act as the heart of each floor.
10. Despite the narrow widths of these corridors, the space is also used by children for play.





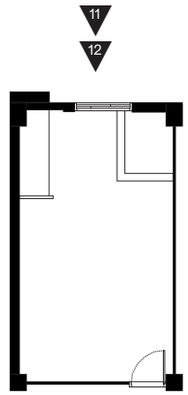
PRIVATE
DOMESTIC



11. Each dwelling unit in the BDD chawls at Worli measure a little over 16.5 square metres. Despite their small square footage, and rigid layout, each unit is vastly different from each other, reflecting the needs and preferences of its inhabitants. In most cases, residents have constructed extensions, augmenting their interior spaces by 3-9 square metres.
12. The ground floor units of many residences contain extensions from where shops or other forms of home-based economies exist. However, as one goes higher up, the use becomes primarily residential.



▲11 ▼12



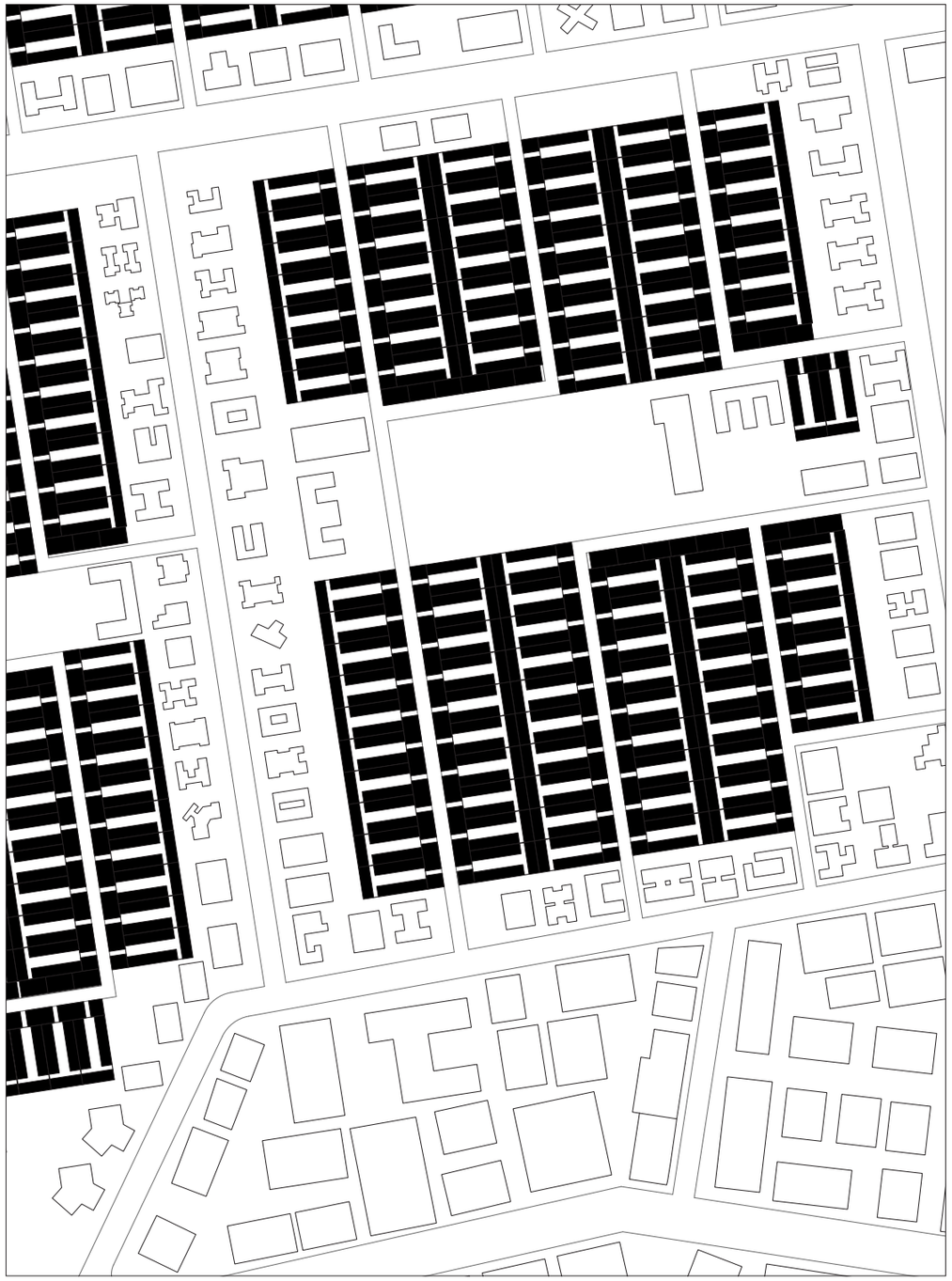


SELF-HELP & SITES-AND-SERVICES

CHARKOP SECTOR 1
KANDIVALI
1985-1994

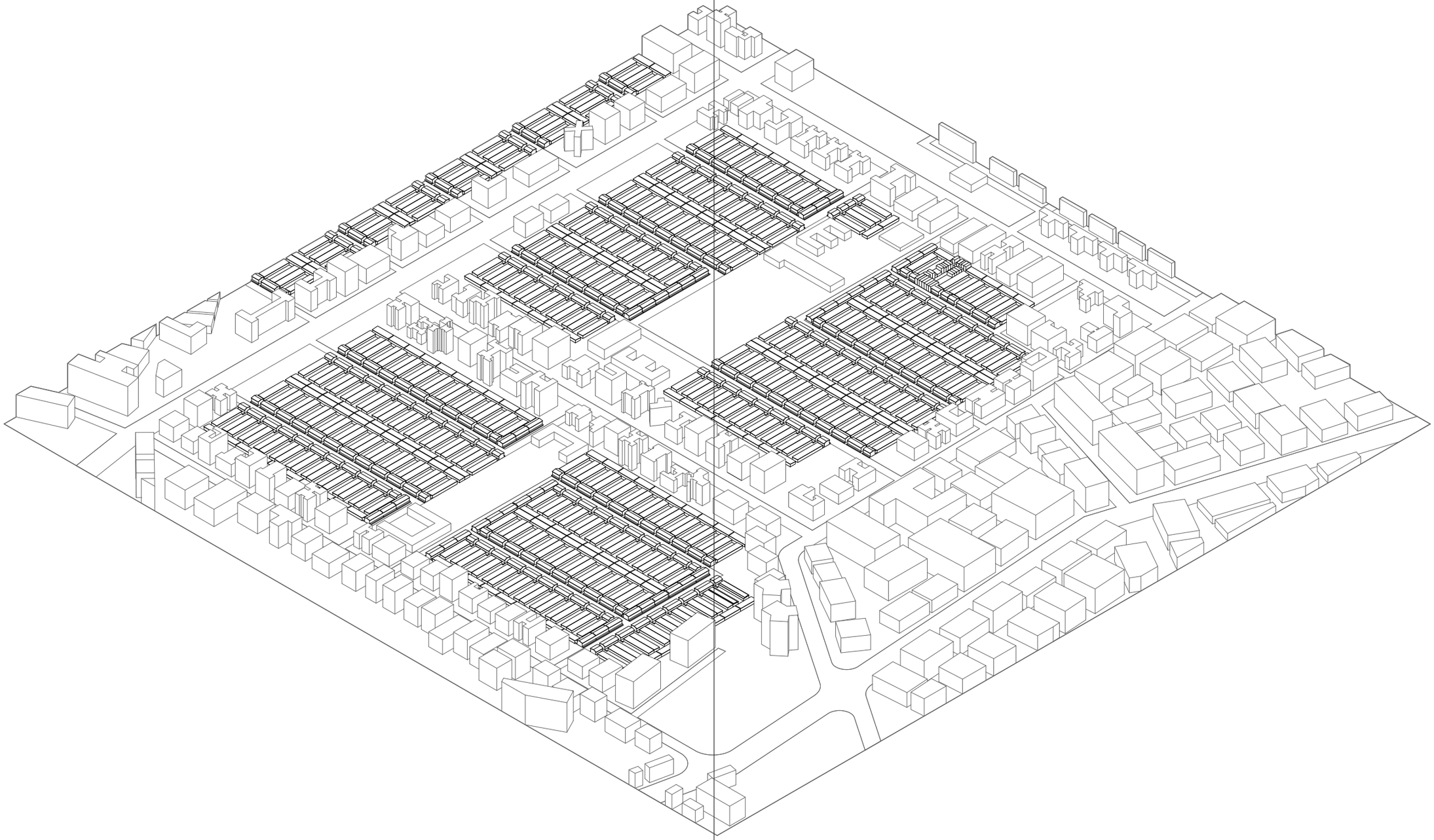


25m 50m 100m

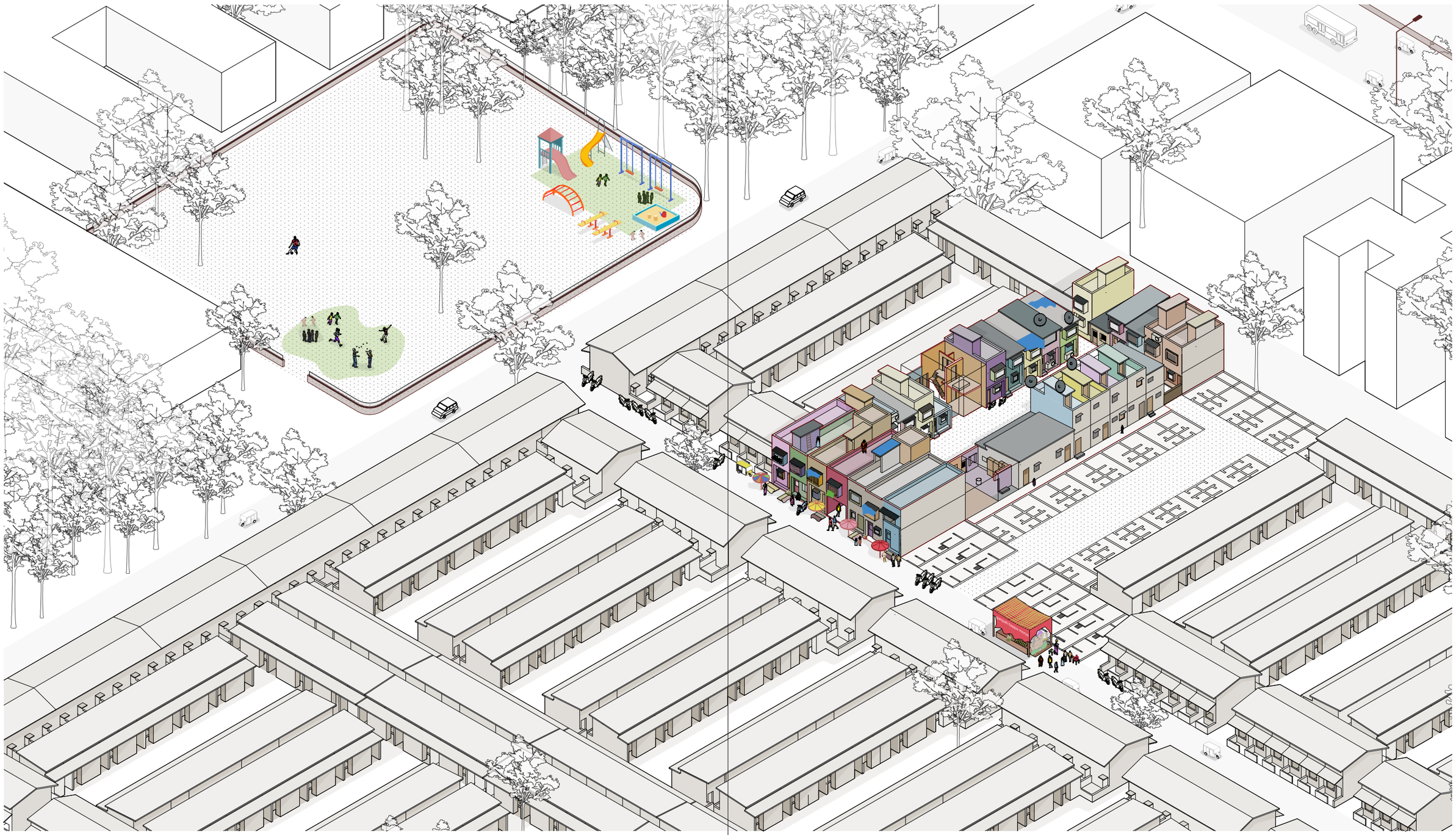


NEIGHBOURHOOD

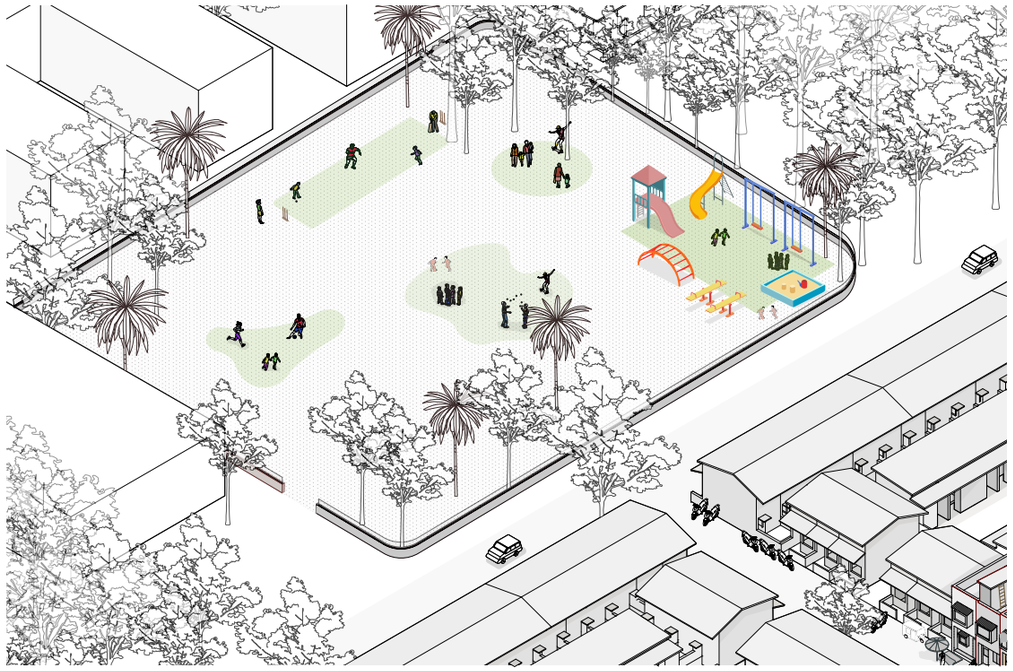
1 KM²



NEIGHBOURHOOD
OVERVIEW



PUBLIC
SOCIAL

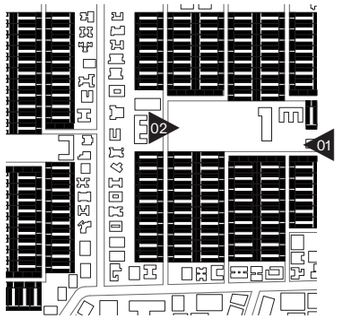




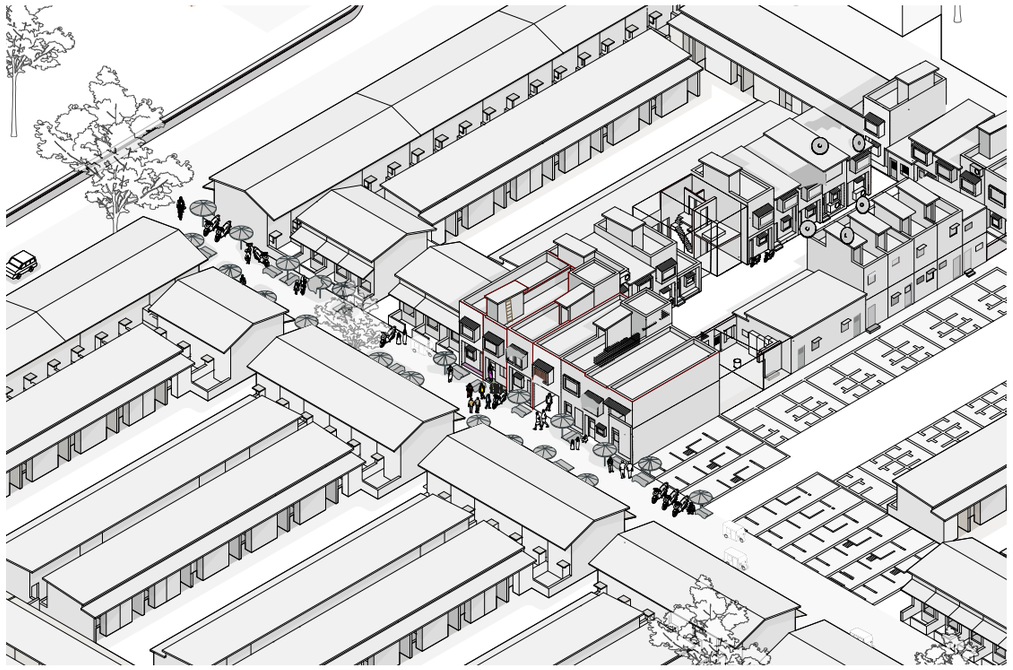
▲01 ▼02

01. A key feature of the masterplans of the World Bank's sites-and services schemes is the emphasis not just on housing, but also on social and economic use. Charkop is in that respect no exception. Within each sector, one can find small and large *maidans* that are used for playing and meeting. Often these open spaces are situated as part of a municipal school or community centre.
02. The larger grounds or *maidans* are used primarily for sports such as cricket and football. However, they also double-up as spaces for weddings and cultural festivals.





SEMI-PUBLIC
SOCIAL

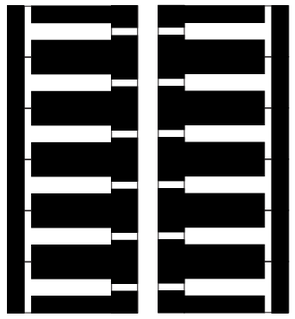


03. The masterplan of Charkop is characterised by hierarchies of street widths intended for different uses. Secondary streets that measure rough nine metres wide provide residents with a semi-public realm along which one can observe various kinds of social activities, particularly between the threshold of individual houses and the public street.
04. Children and adults both use the street as a social space that comes alive during the early evenings.



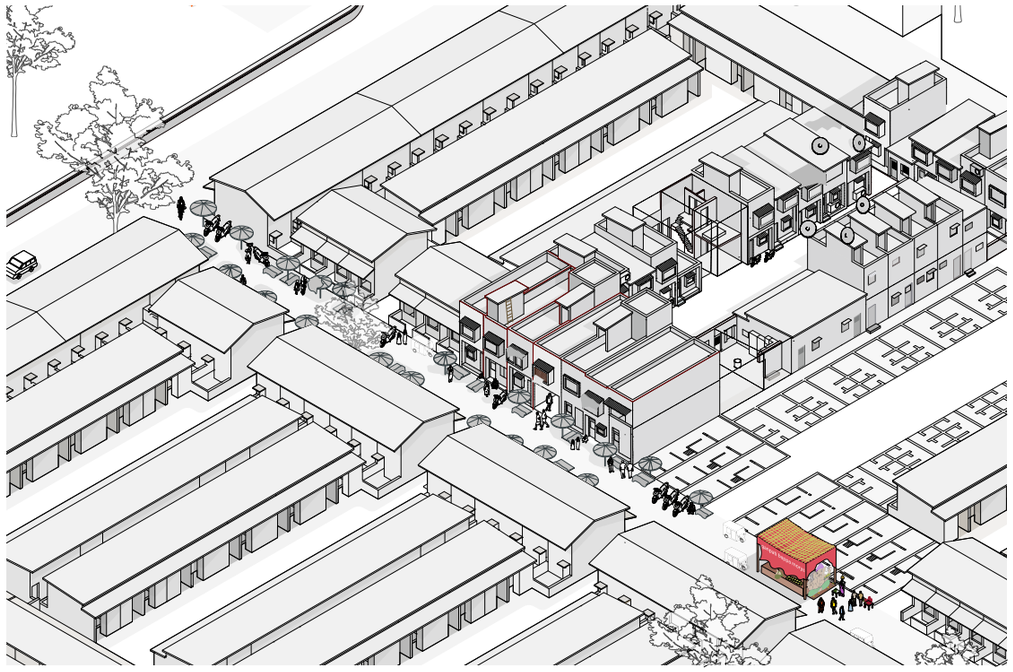
▲03 ▼04

03
04





SEMI-PUBLIC
CULTURAL

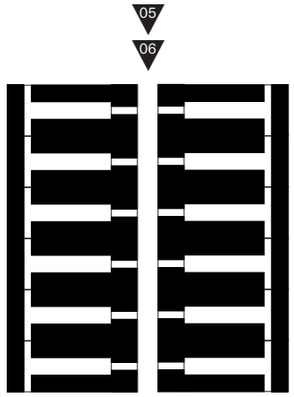




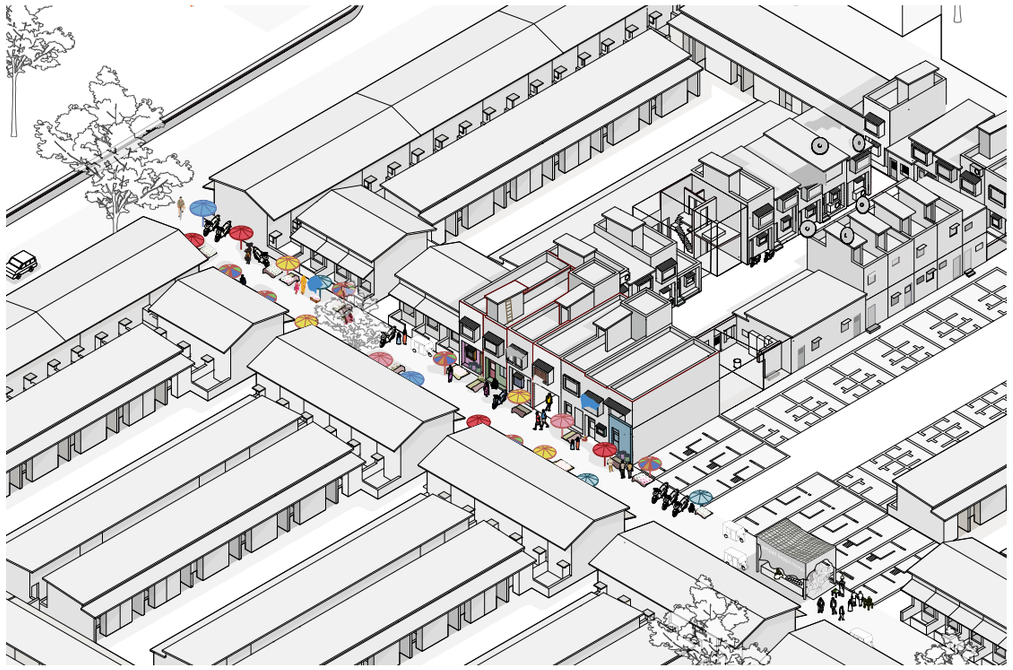
▲05 ▼06



05. The semi-public realm in Charkop is also well used as a cultural space. During festivals like Diwali, these streets come alive with temporary shrines and stages, becoming a vital part of the cultural life in Charkop.
06. Apart from providing residents with space for cultural activities, these streets also enable residents and the different communities that live within Charkop to express their own identities.



SEMI-PUBLIC
ECONOMIC

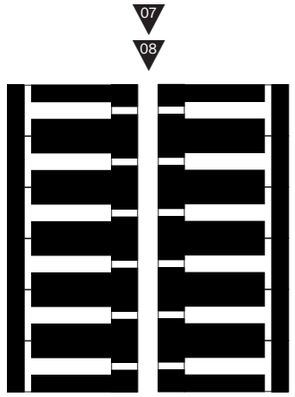


07. More than any other use, the streets in Charkop are zones for income generating activities that make the area a vibrant mixed use neighbourhood.
08. The small houses along the 9-metre wide streets in Charkop double-up as shops and kiosks on the ground floor.

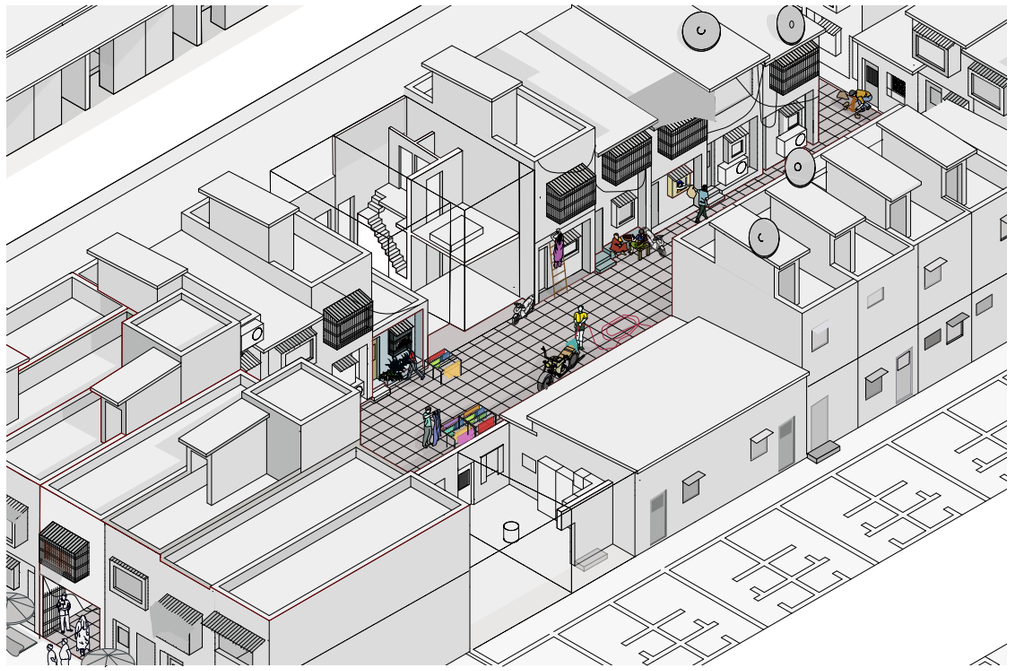


▲07 ▼08





SEMI-PRIVATE
DOMESTIC

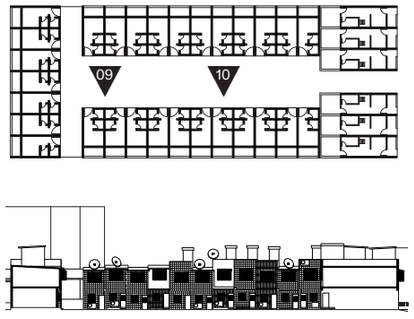




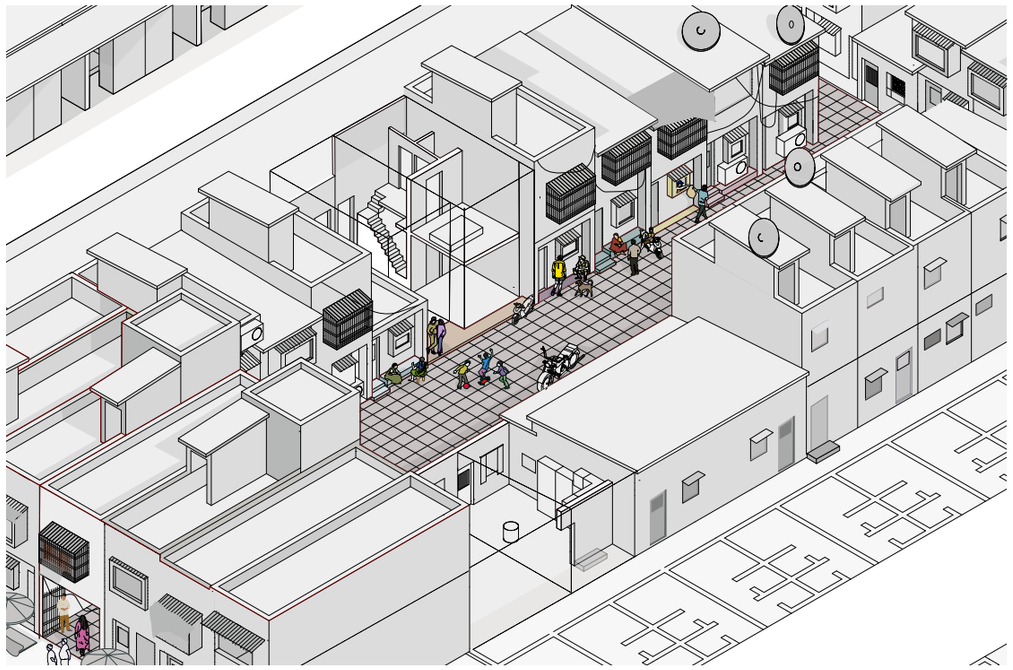
▲09 ▼10

09. The T-shaped courtyards of a typical cluster in Charkop contain many acitivities. At the most basic level, observations indicate that this space is used amply by residents for certain domestic activities, such as cleaning, drying of clothes, parking as well as storage.
10. Over the years, the houses have grown, and with them, each house has developed its own identity evident through its material choices and colours.





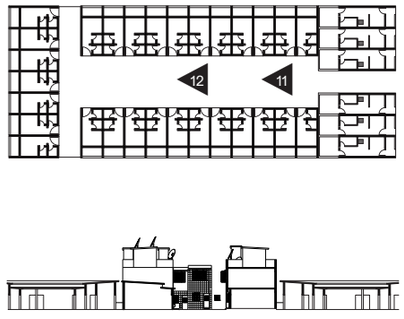
SEMI-PRIVATE
SOCIAL



11. The semi-private and intimate character of the T-shaped courtyards within each cluster have over time become a thriving space for residents to meet and socialise.
12. With only one entry and exit point, the T-shaped clusters make for very usable and safe play areas for young children.

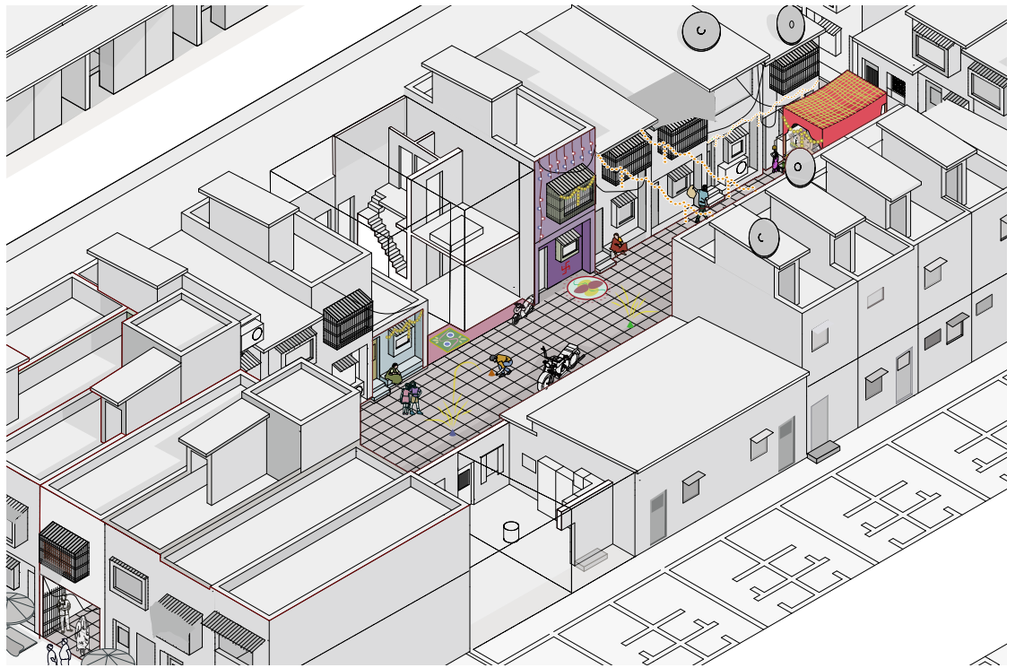


▲11 ▼12





SEMI-PRIVATE
CULTURAL

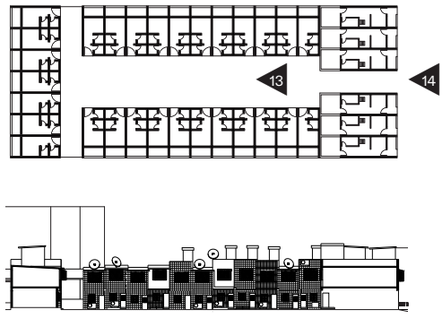




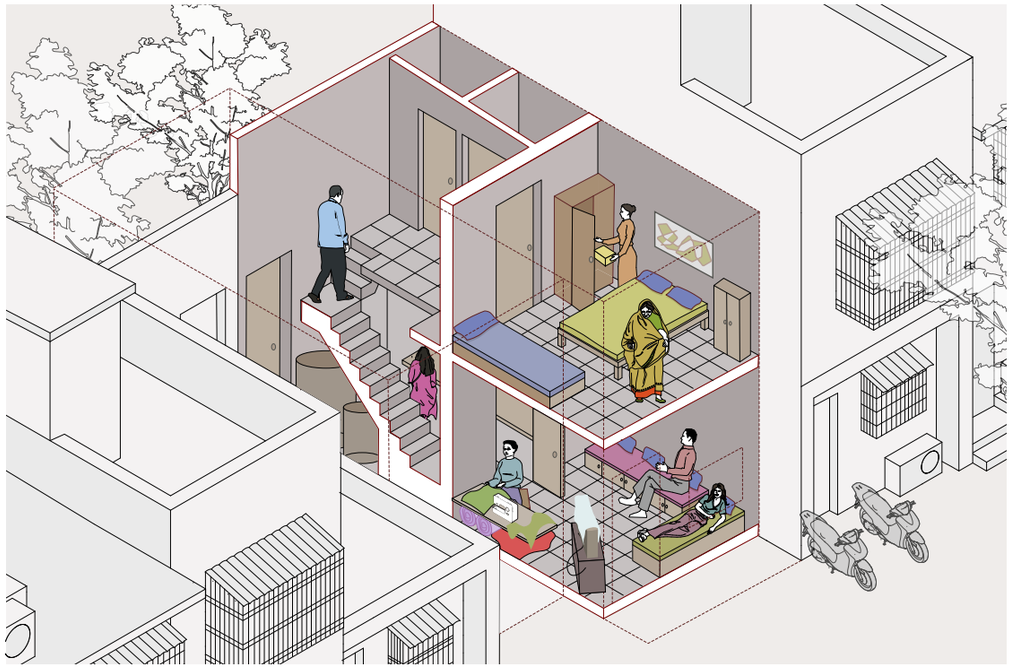
13. The courtyards have also proved to be very successful for hosting cultural activities and festivals. Throughout the year, these courtyards transform into colourful and vibrant community spaces. This particular photograph is a view of a typical cluster as seen from the 9-metre wide street.
14. Inside, each courtyard gets decorated differently. Some have elaborate stages built, and others opt for simpler arrangements showing each cluster's identity and character.

▲13 ▼14





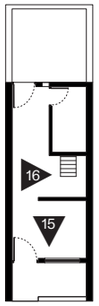
PRIVATE
DOMESTIC



15. Charkop's houses have undergone dramatic transformations. In most cases, dwellings are two floors high, with some even building a third floor. The interior layouts of these dwellings are all different, and reflect each households individual needs and requirements.
16. Due to the high efficiency of Charkop's clusters, dwellings are essentially only open on one end. The rear end of dwellings overlook a thin service zone, but this arrangement fails to provide adequate light and ventilation. The photograph shown here is a view of a window overlooking the rear end of a typical dwelling.



▲15 ▼16



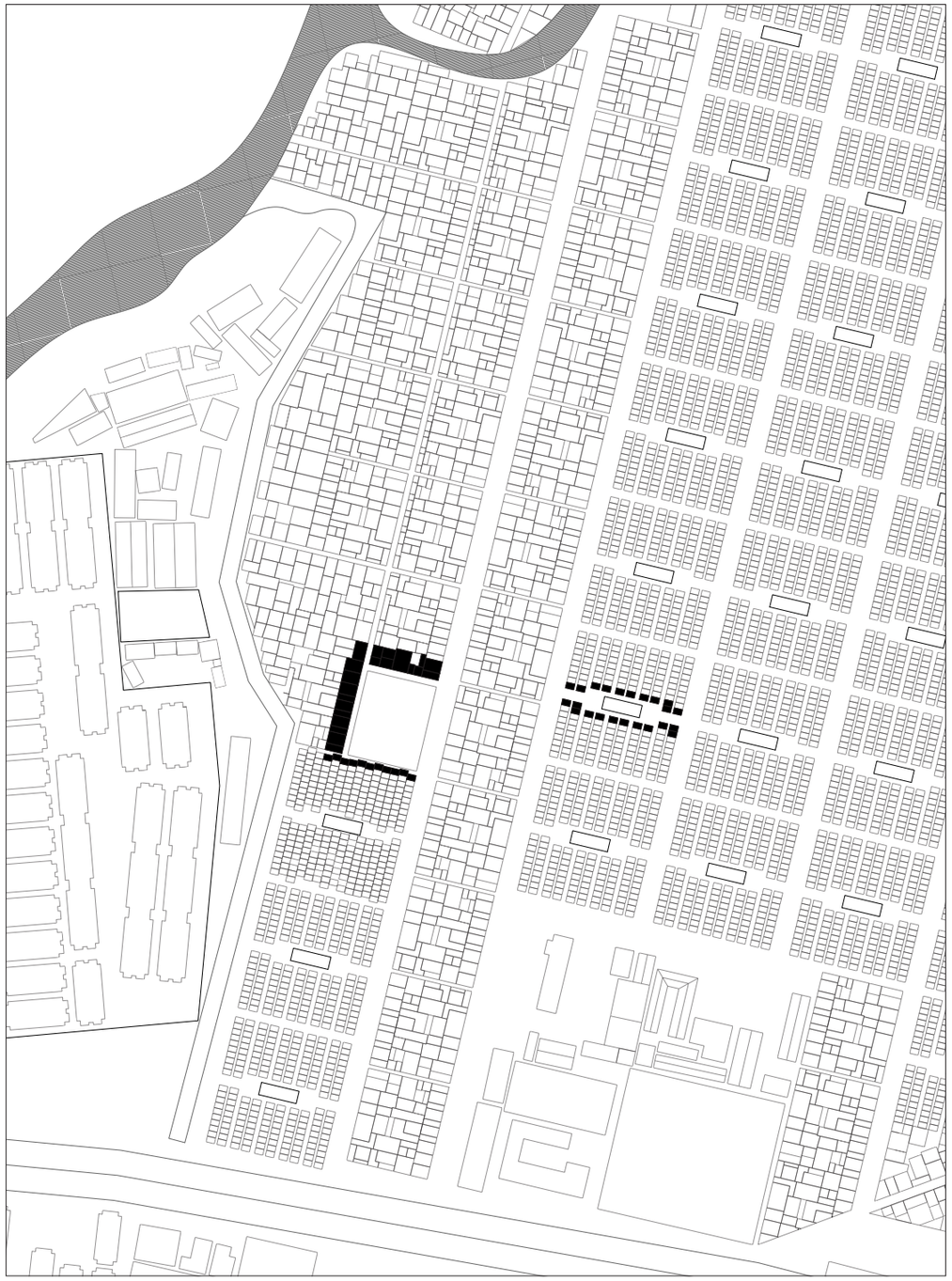


SLUM IMPROVEMENT & UPGRADATION

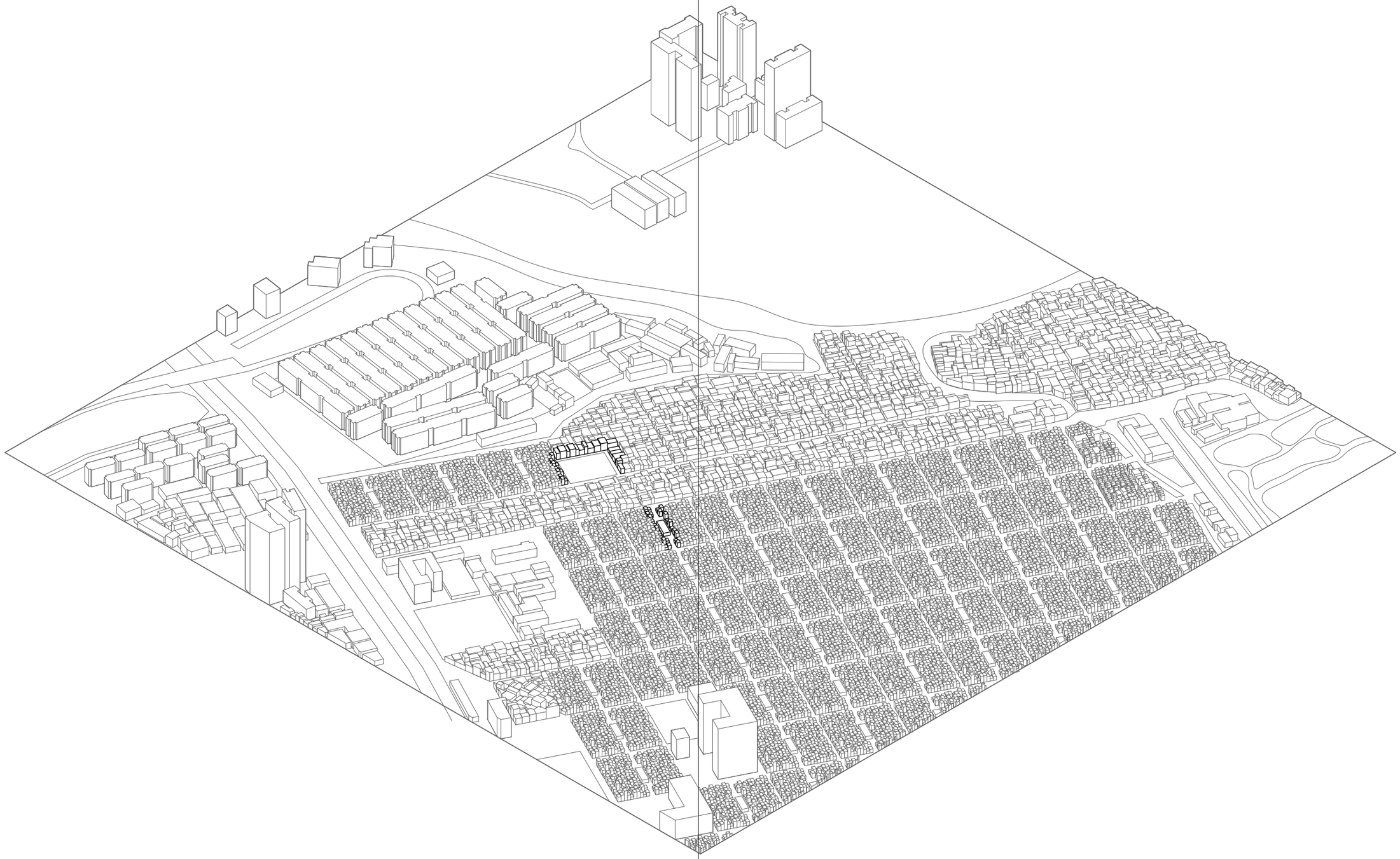
SHIVAJI NAGAR
GOVANDI
2013-2014



25m 50m 100m



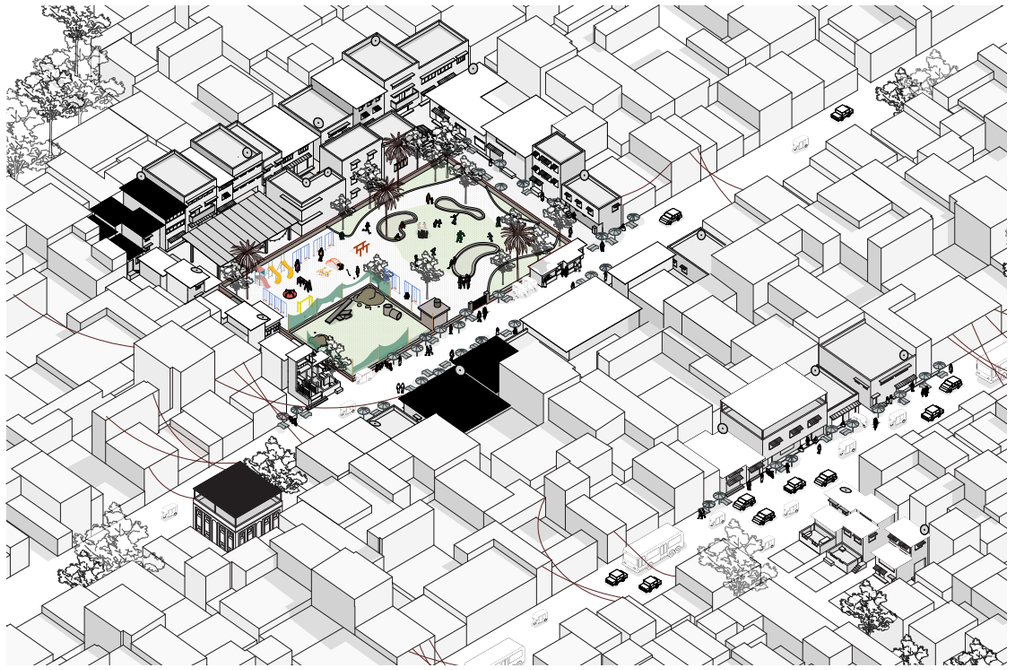
NEIGHBOURHOOD
1 KM²



NEIGHBOURHOOD
OVERVIEW



PUBLIC
SOCIAL

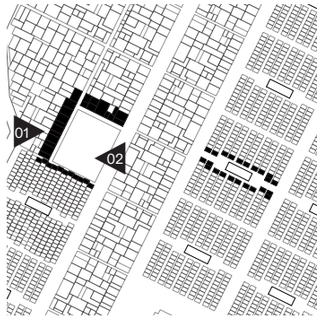




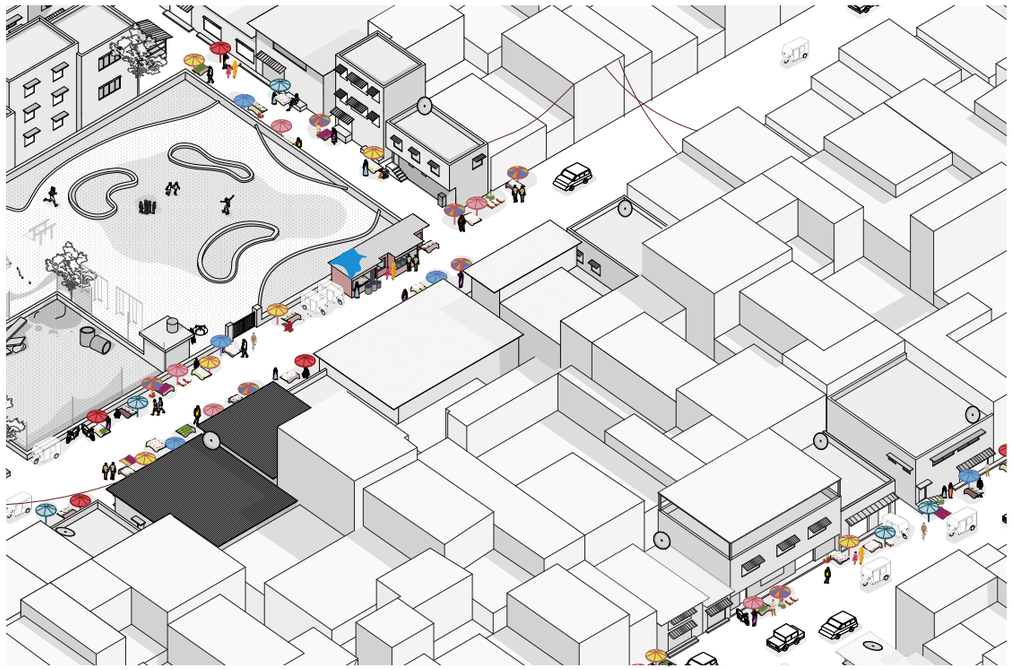
▲01 ▼02

01. Lotus Colony is a rare example of well-maintained park in a dense informal settlement in Mumbai. On its western edge is a large shed that is used for multiple activities – from play spaces for children to cultural festivals.
02. The park itself is well-equipped for play areas for children of various ages. Although empty during the hot afternoons, this space transforms into a vibrant social and recreational space in the evenings.





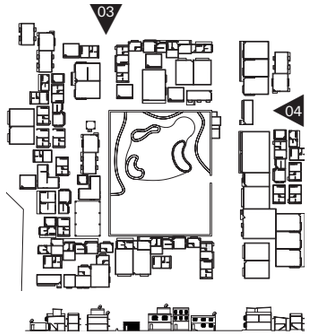
SEMI-PUBLIC
SOCIAL



03. Surrounding Lotus Colony is a network of streets of various hierarchies. The main north-south Abdul Hamid Marg is a vibrant street used for various social activities, with small intersections used for play and meeting.
04. Within the dense make-up of Lotus Colony and Shivaji Nagar can be found small pockets of open spaces used by children for play.

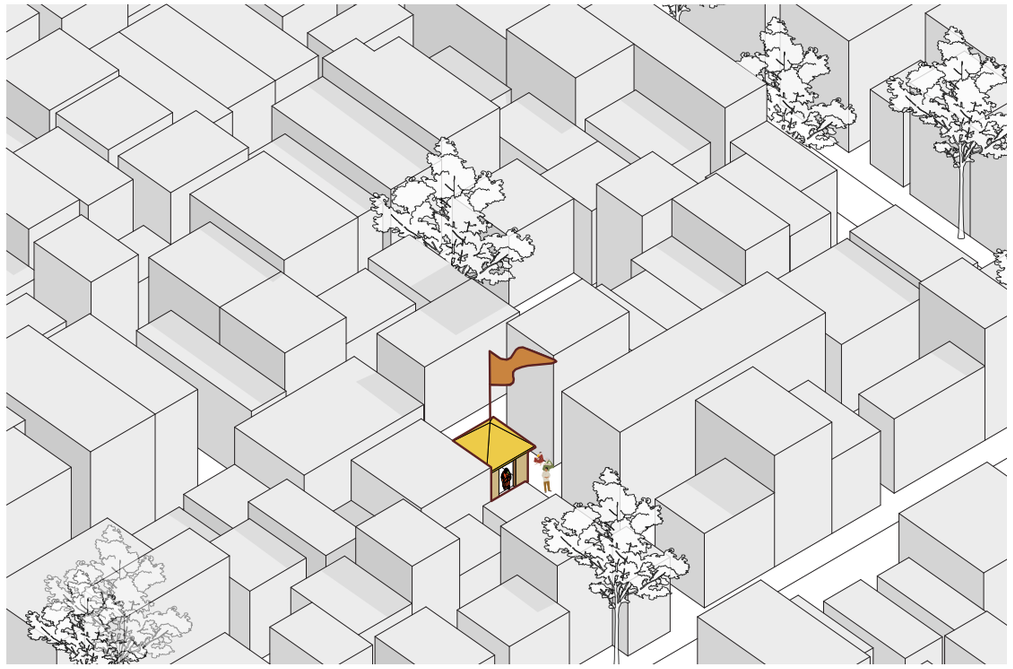


▲03 ▼04





SEMI-PUBLIC
CULTURAL

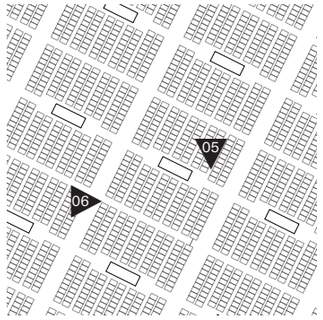




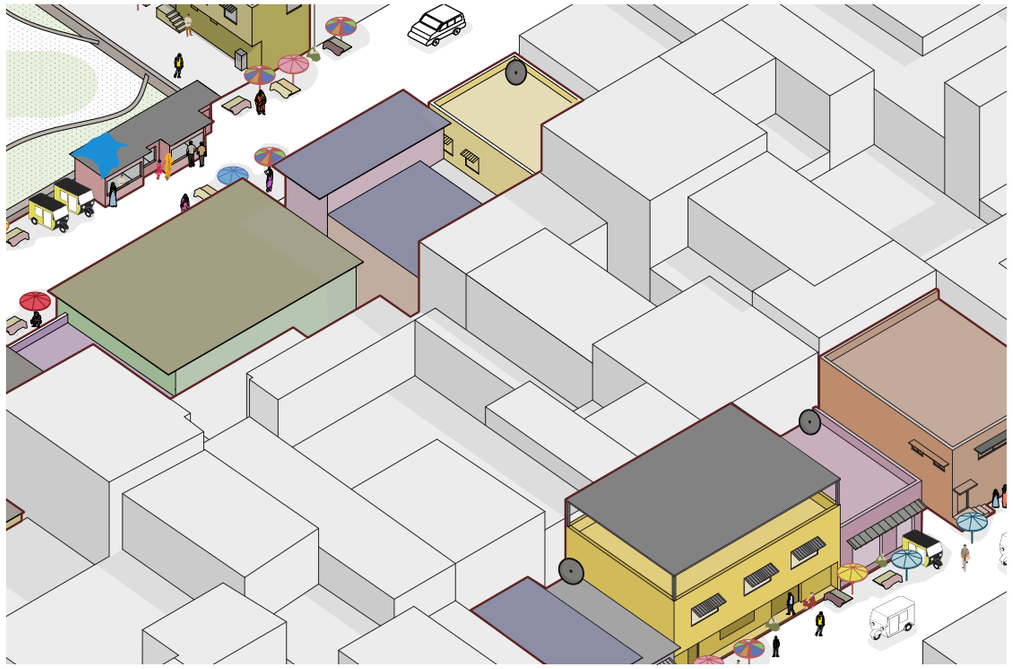
▲05 ▼06

05. Within the dense fabric of Shivaji Nagar, one can find small pockets of open spaces used for social and cultural use. Seen here is a small courtyard with a Hindu shrine.
06. In a few cases, small community buildings can be found along the edges of grids in Shivaji Nagar. Seen here is an example of one such amenity building, however it lies empty and is badly maintained.





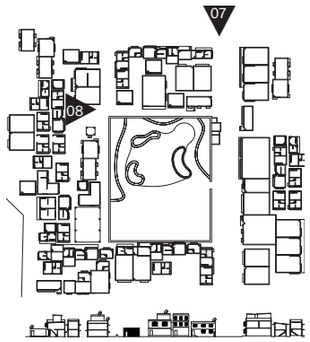
SEMI-PUBLIC
ECONOMIC



07. The north-south Abdul Hamid Marg is also a vibrant artery for commerce and home-based economies. Due to its generous width (roughly 6-7 metres wide), shops and workshops of various sizes can be found there.
08. The open space of Lotus Garden has also enabled shops to flourish along its edges. Seen here is a secondary street, roughly 3-4 metres wide that is lined with shops and other forms of income generation marking this fragment of the settlement a vibrant mixed-use zone.

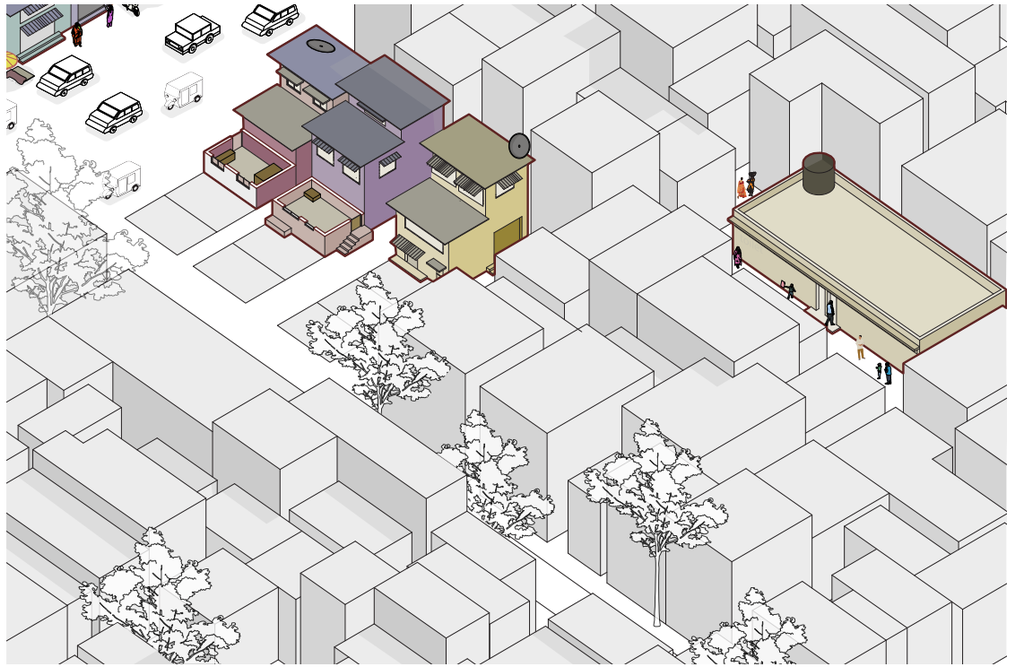


▲07 ▼08





SEMI-PRIVATE
DOMESTIC

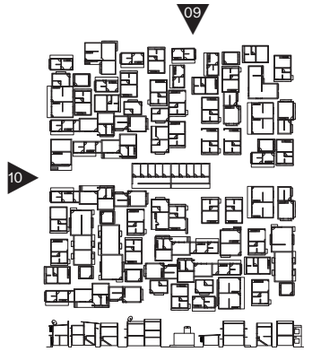




▲09 ▼10



09. The narrow streets within the grid of Shivaji Nagar are primarily residential in nature. Over the years, various improvement schemes have introduced drainage lines and paved streets. Often these streets (as seen here) meet individual houses via a small *otla* – a raised platform that is used for storage (including parking of cycles and scooters). These *otla's* and the facades of each house show the identity of each dwelling through materials, colours and the presence of domestic practices (such as the drying of clothes).
10. Since the narrow and small plots of Shivaji Nagar did not provide dwellings with their own bathrooms and toilets, people make use of the community toilets located within the heart of each grid.



SEMI-PRIVATE
SOCIAL

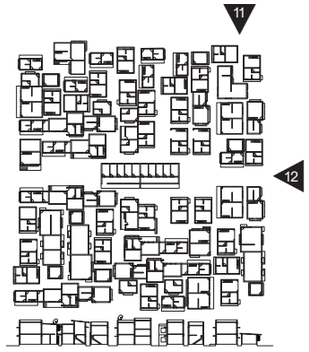


11. The narrow widths of the streets within Shivaji Nagar do not allow for much social life to take place, and therefore are primarily used only for circulation and access.
12. In the absense of adequate open space, community toilets have become places to meet and socialise.



▲11 ▼12





PRIVATE
DOMESTIC

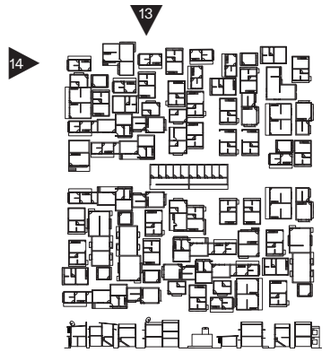




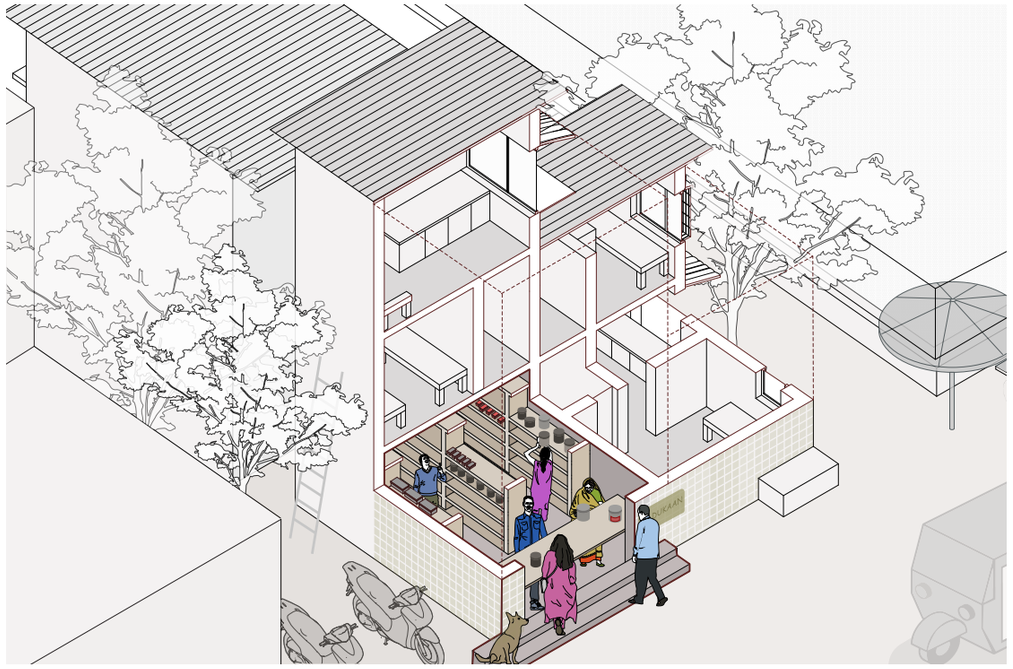
▲13 ▼14



13. As in the case of most self-built settlements, the thresholds between the private and public spheres are blurred. Domestic practices such as washing, drying and storage of goods and materials spill over onto semi-private areas such as entrances and staircases.
14. No interior layouts of dwellings in Shivaji Nagar are identical. Each house is a built manifestation of its users needs and requirements.



PRIVATE
ECONOMIC

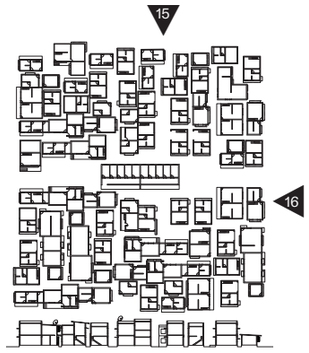


15. A recurring feature of self-built settlements in Mumbai are the presence of home-based income generating activities. Lotus Colony and Shivaji Nagar, are in that respect, no exceptions. Throughout the settlements wider streets and pathways can be found shops and kiosks of various configurations.
16. Shops and commercial establishments of various kinds are typically limited to the ground floor, with the residential spaces located at the back or on the top floors.



▲15 ▼16





SLUM REDEVELOPMENT

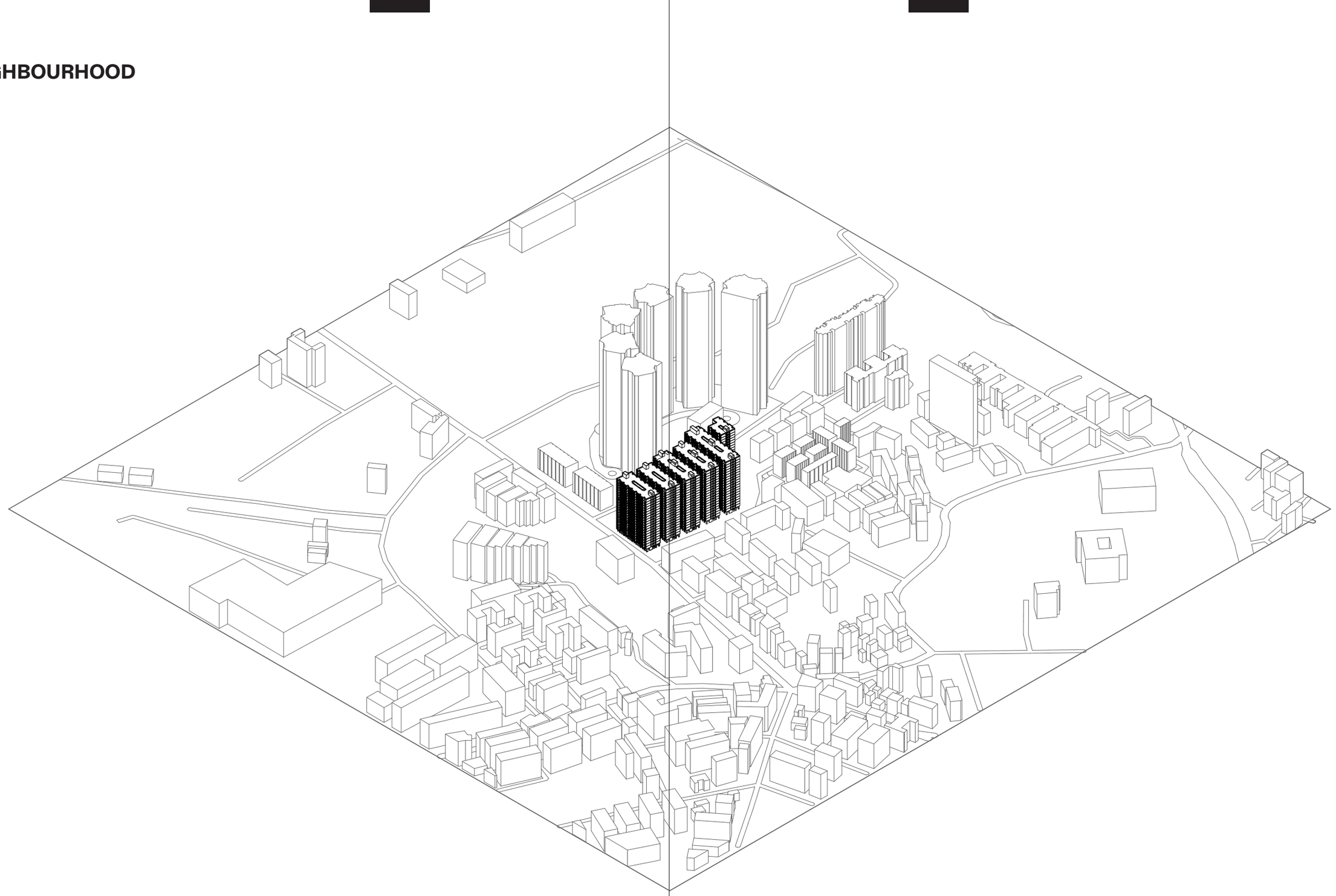
MATOSHREE CHS
PAREL
2014-2018



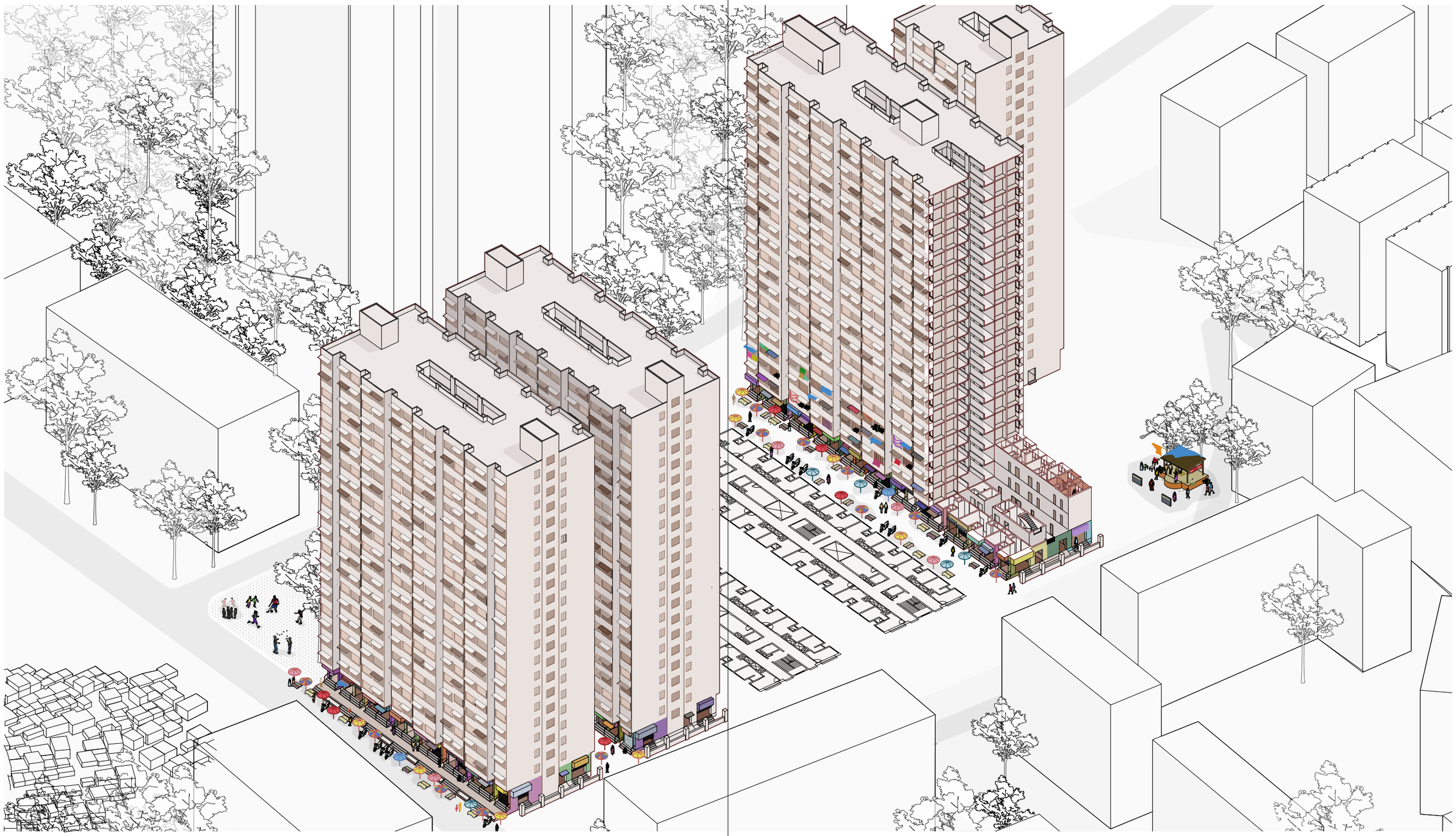
25m 50m 100m



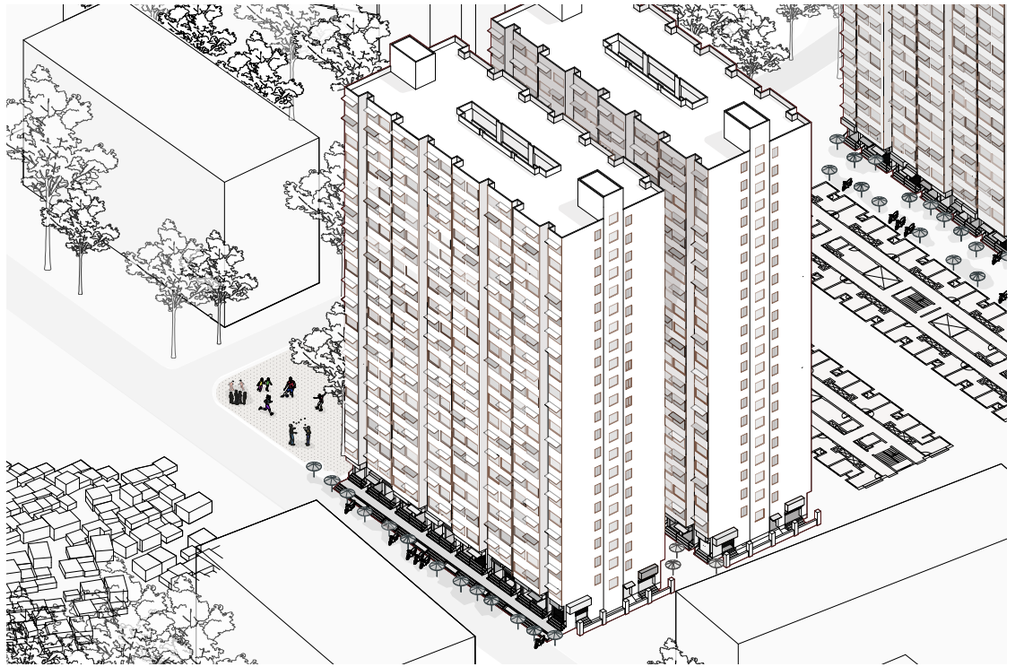
NEIGHBOURHOOD
1 KM²



NEIGHBOURHOOD
OVERVIEW



PUBLIC
SOCIAL

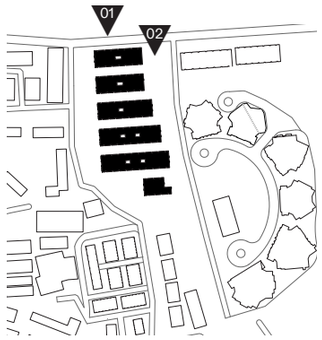




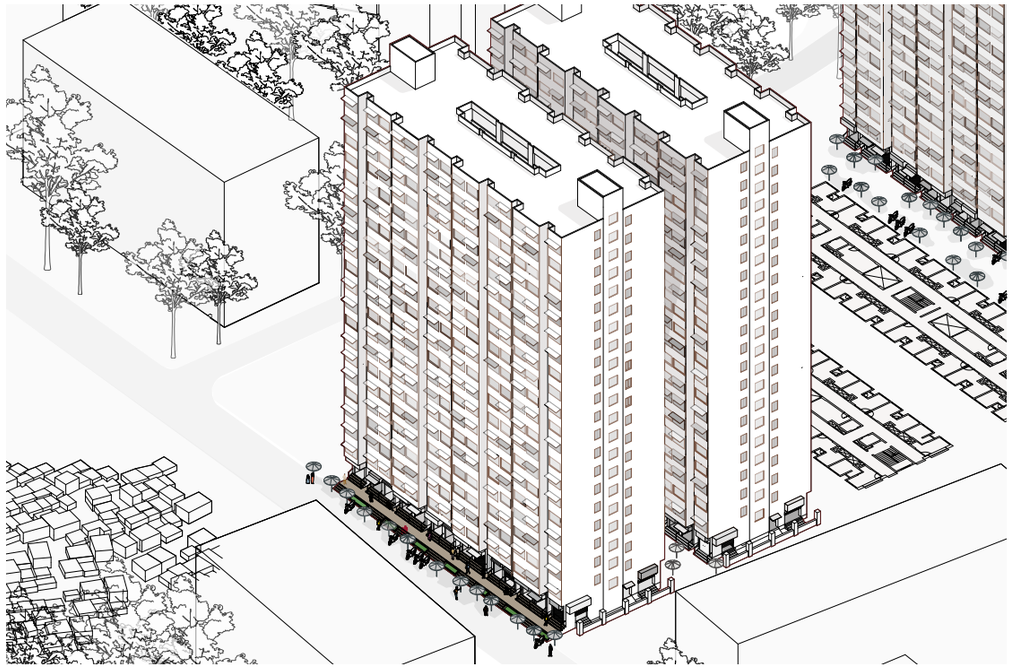
▲01 ▼02

01. The high-rise tower slabs of Matoshree CHS provide very limited space for social activities. Without specifically designed open areas, one can observe the plinth along the main road as being the only space where people meet to sit and socialise.
02. Despite the presence of small pockets of open areas, the design and layout of the scheme fail to create any meaningful social spaces, and end up being used as a make-shift car park area.





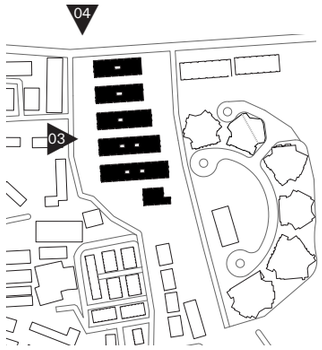
PUBLIC
CULTURAL





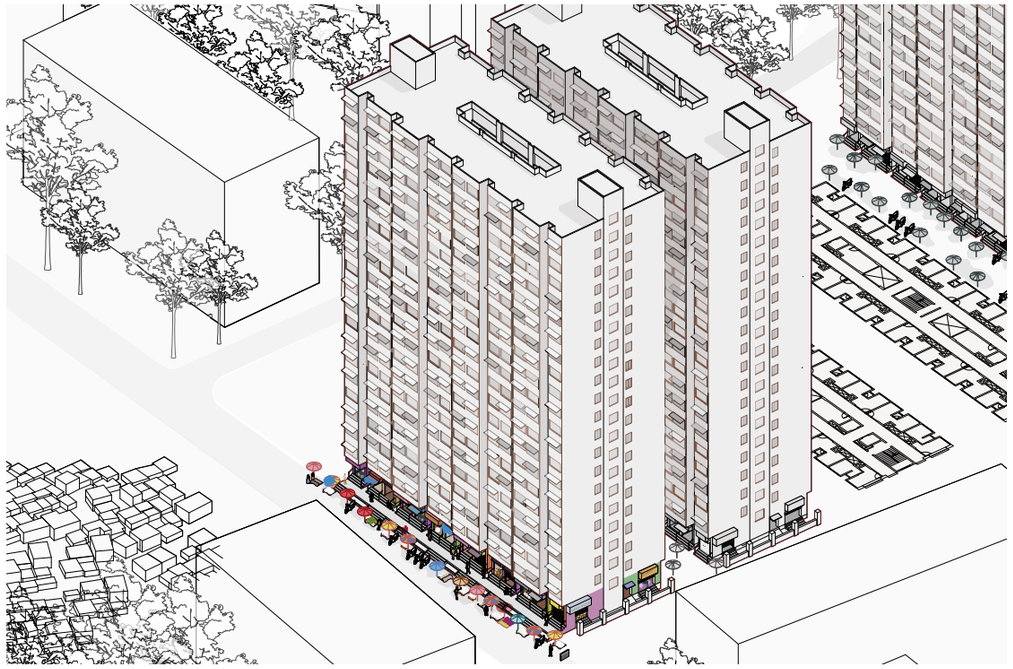
▲03 ▼04

03. The design of Matoshree CHS makes no provision for community spaces and any left-over spces are primarily used by children for play. Cultural practices such as celebrating festivals and other ceremonies are limited to small extensions on the ground floor.
04. A few cultural symbols such as flags and a small shrine are located on the corner of the scheme along the main road.





PUBLIC
ECONOMIC

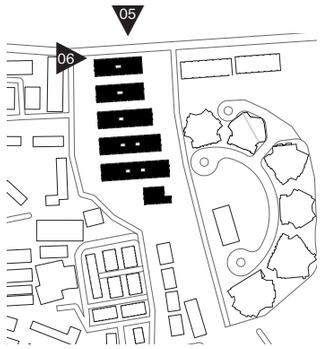




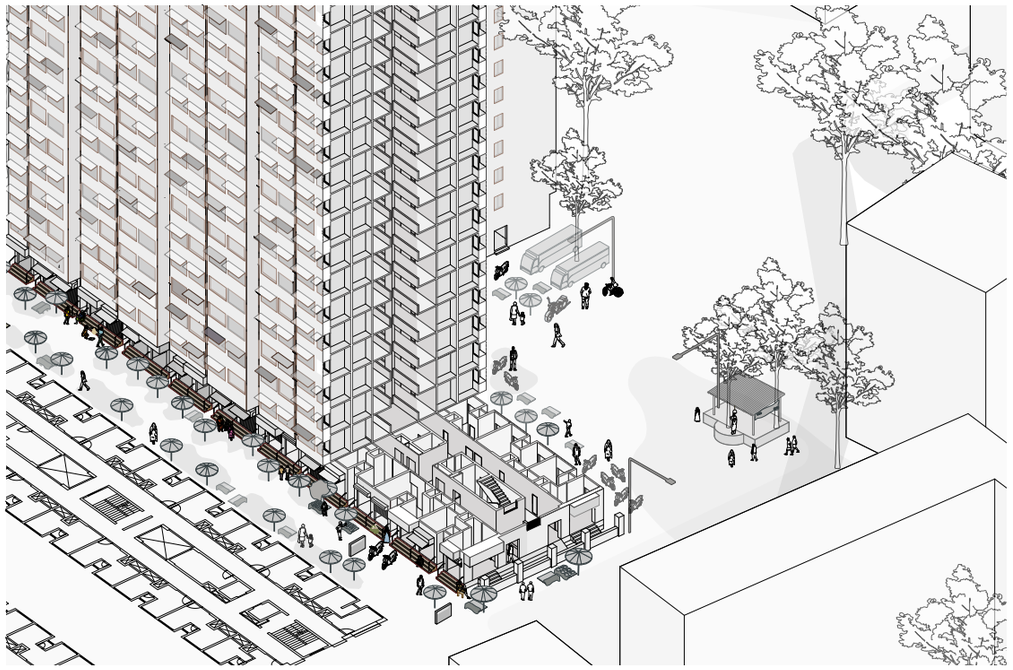
▲05 ▼06

05. Each tower block of Matoshree CHS has provisions for shops and commercial spaces on the ground floor. Because only one of the towers lies along a major thorough-way, this facade contains the most number of shops and make-shift kiosks.
06. Commercial spaces are also present on the shorter ends of the tower blocks. However, the maximum commercial activity can be observed on the longer facade.





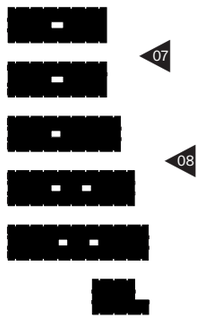
SEMI-PUBLIC
SOCIAL



07. Just like in the case of the public realm, here too there are limited opportunities for meeting and socialising. The rigid layout of the tower blocks designed entirely for efficiency fail to provide any meaningful spaces for interactions and social life for residents.
08. Another view of a typical access street in Matoshree CHS. The densely-packed layout and height of the towers creates canyons of sunless streets during certain moments of the day.



▲07 ▼08





SEMI-PUBLIC
CULTURAL

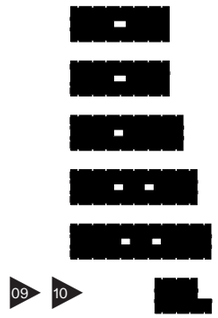




▲09 ▼10



09. In a corner of the plot is a small shrine and community centre used for religious and other cultural facilities.
10. A close-up view of the community centre.



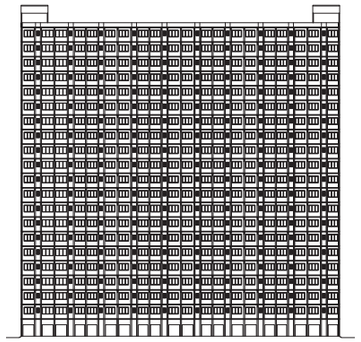
SEMI-PUBLIC
ECONOMIC



11. The ground floors of the tower blocks all accommodate shops and commercial spaces. Even in the streets between the blocks, we can observe commercial establishments of various kinds – small grocery stores to pharmacies and eateries.
12. Since these streets between the tower blocks are slightly further away from the main street that serves the complex, they receive lesser traffic. As a result, not all commercial spaces provided by the developer are fully functional, with several shutters remaining closed.



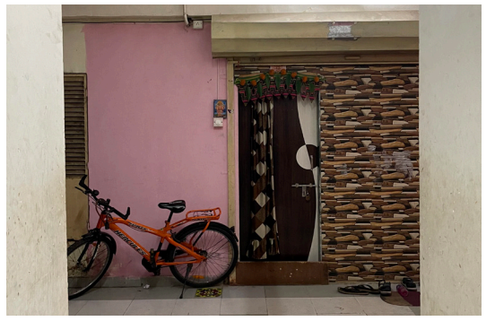
▲11 ▼12





SEMI-PRIVATE
DOMESTIC

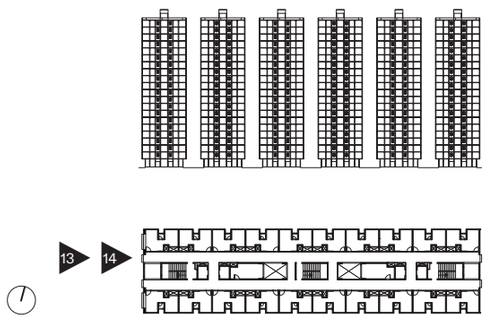




▲13 ▼14

13. Like in the case of the BDD chawls in Worli, here too we find double-loaded corridors which due to the very limited space of the dwellings themselves become places where domestic activities can be found to spill over.
14. In most cases, residents use the corridors to park cycles, store footwear and dry clothes.





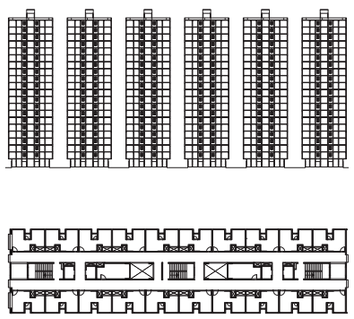
SEMI-PRIVATE
SOCIAL

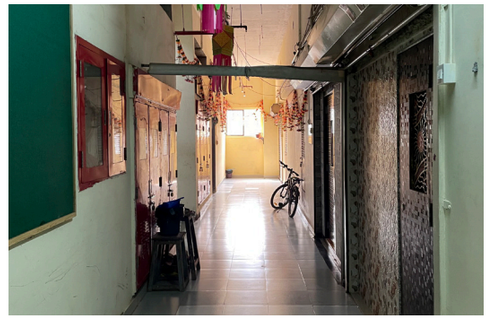


15. In a few cases, one can also observe the corridors to function as a social space.
16. Due to the length of the corridors and their rigid layout, the corridors in general lack life and are used primarily for circulation.



▲15 ▼16





SEMI-PRIVATE
CULTURAL

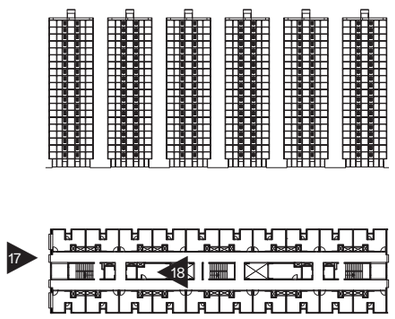




▲17 ▼18

17. Despite the monotony of units strung along long double-loaded corridors, residents have found ways to personalise their dwellings with cultural and religious symbols and decorations.
18. A few pockets of semi-private spaces have been converted into shrines and are used by several households.





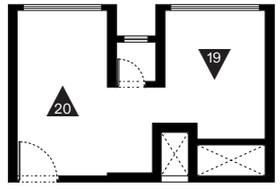
PRIVATE
DOMESTIC



19. Each dwelling unit in Matoshree CHS measures 29 square metres and consists of two rooms in addition to a bathroom toilet. In most cases, households vary between 4-6 persons, resulting in internal layouts reconfigured to maximise the limited space available. Thus, the living areas double-up as sleeping areas at night, and are at times also used for small home-based economies.
20. Because of the security of home-ownership provided by the SRS, people have carried out various kinds of small improvements in their homes such as extending windows (for storage, plants, drying of clothes, etc.) and changes to the layouts of their kitchens.



▲19 ▼20



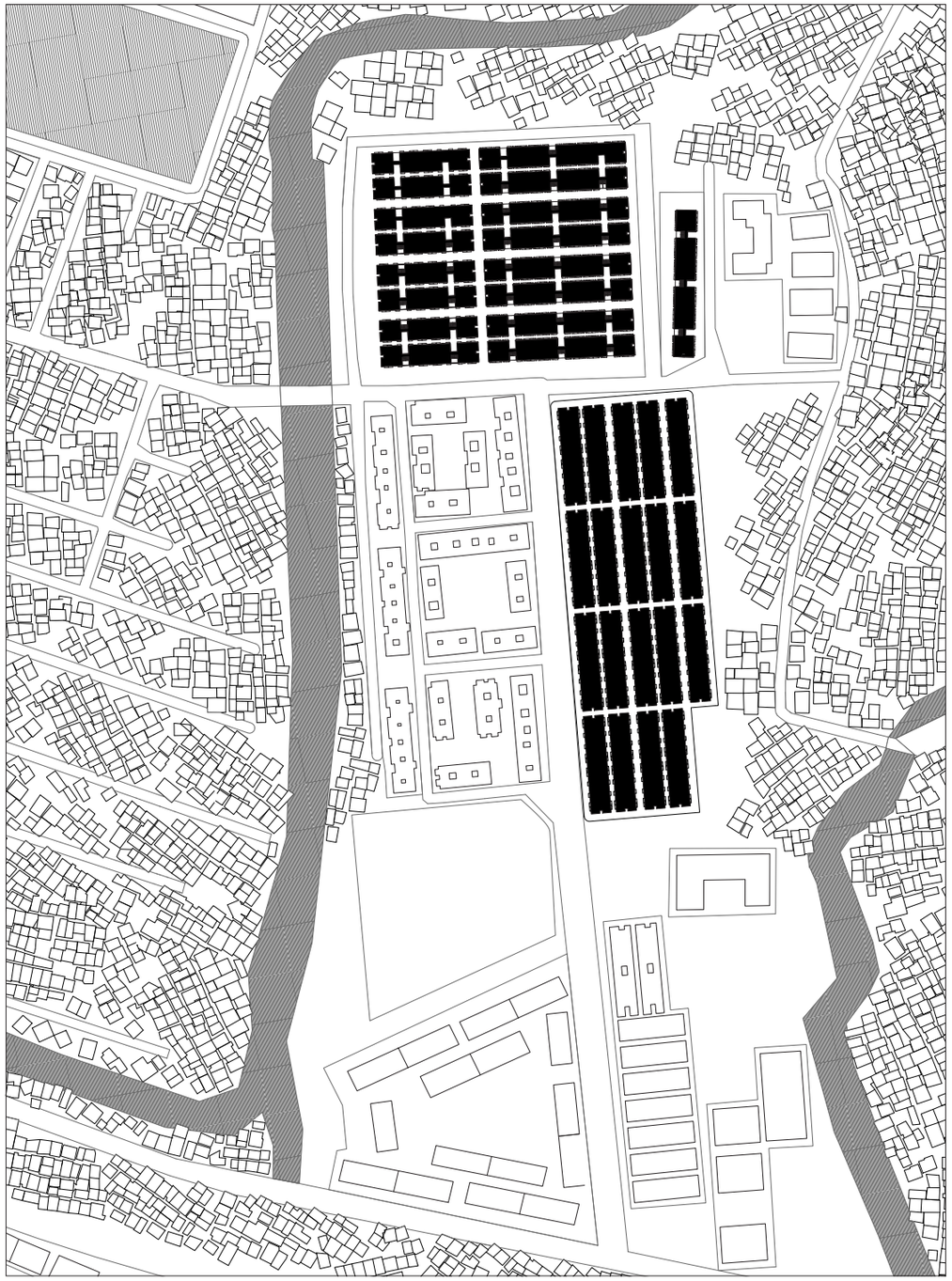


SLUM RESETTLEMENT

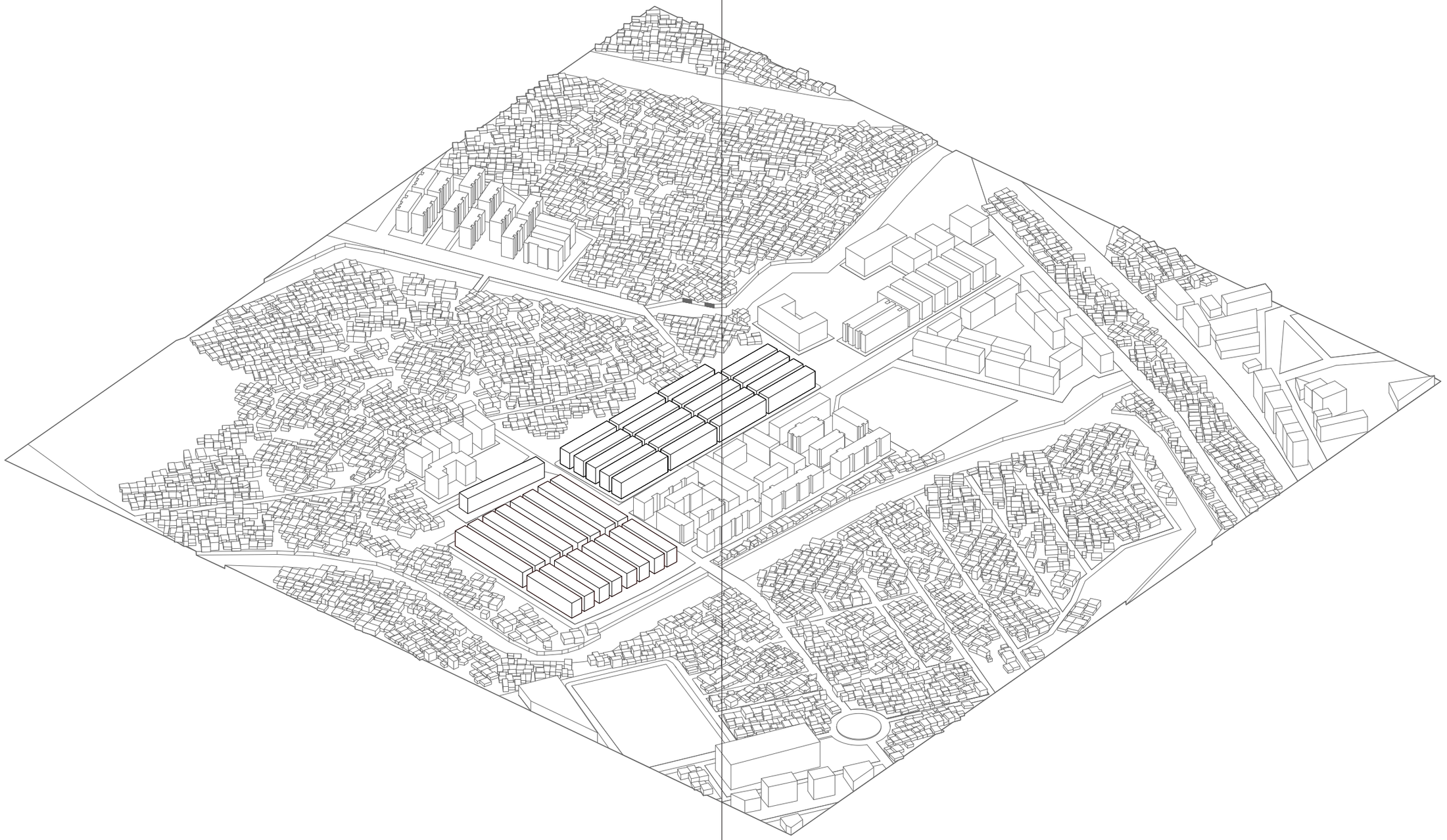
LALLUBHAI COMPOUND
MANKHURD
2000-2003



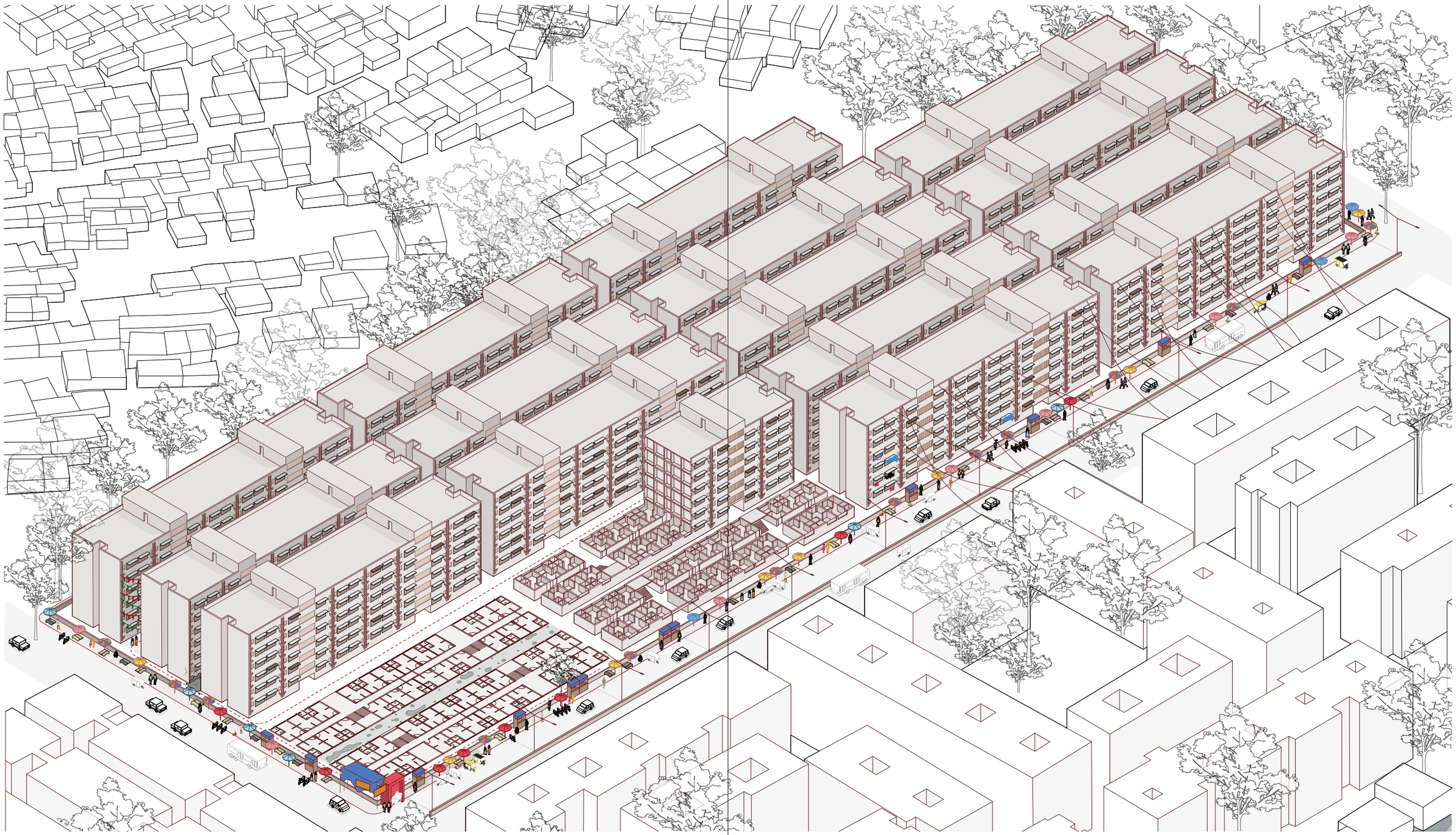
25m 50m 100m



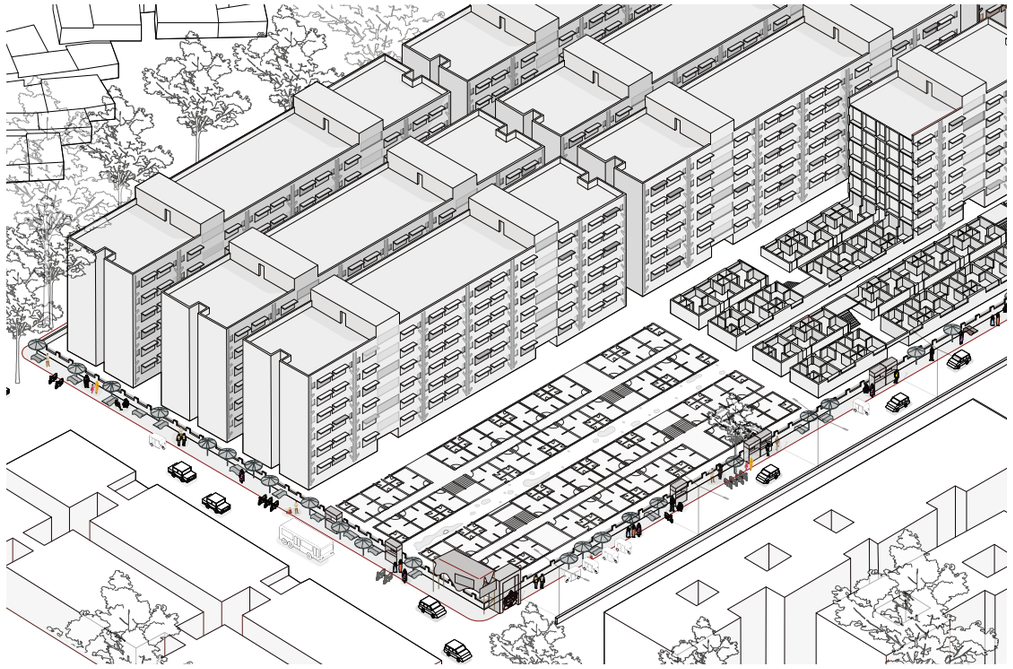
NEIGHBOURHOOD
1 KM²



NEIGHBOURHOOD
OVERVIEW



PUBLIC
SOCIAL

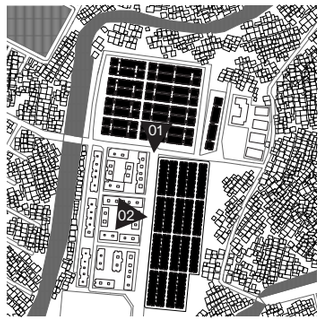




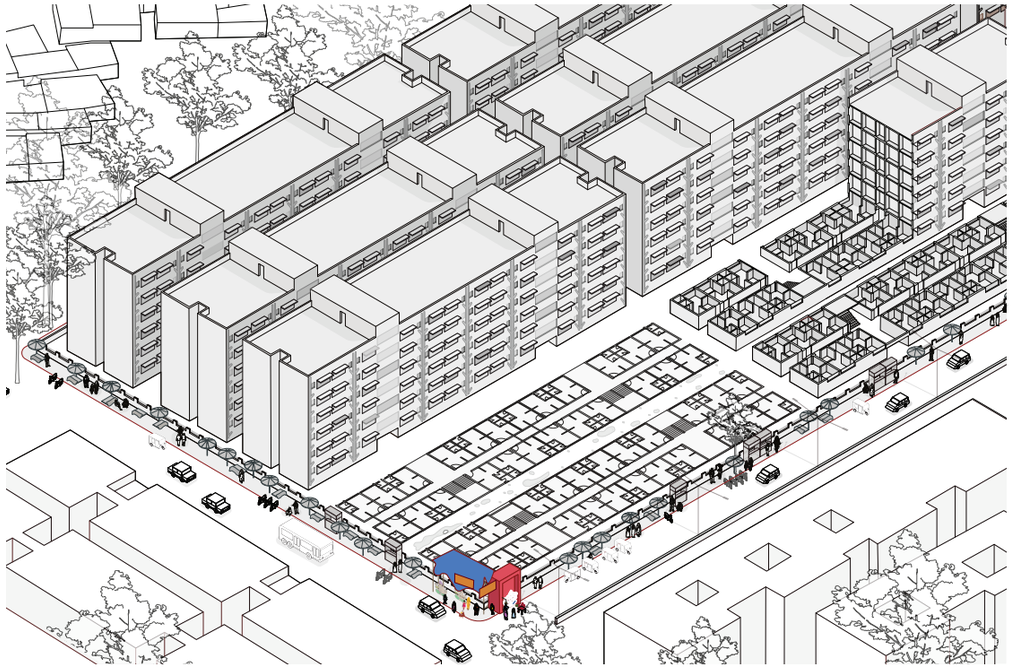
▲01 ▼02

01. The design of the project makes no attempt to create any collective or community spaces. As a result, the only social spaces one can observe in Lallubhai Compound are limited to the public streets that abut the project.
02. As seen here, places for meeting people are intertwined with parking and income generation, but are grossly inadequate for a project of this scale.





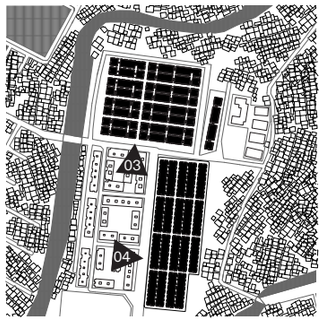
PUBLIC
CULTURAL



03. Despite no formal provisions for community spaces for festivals and cultural activities, people build temporary shrines and stages on public streets, particularly on intersections.
04. The entranceway's and gates into the project are also adopted by people who decorate it to celebrate various festivals and ceremonies, including weddings.

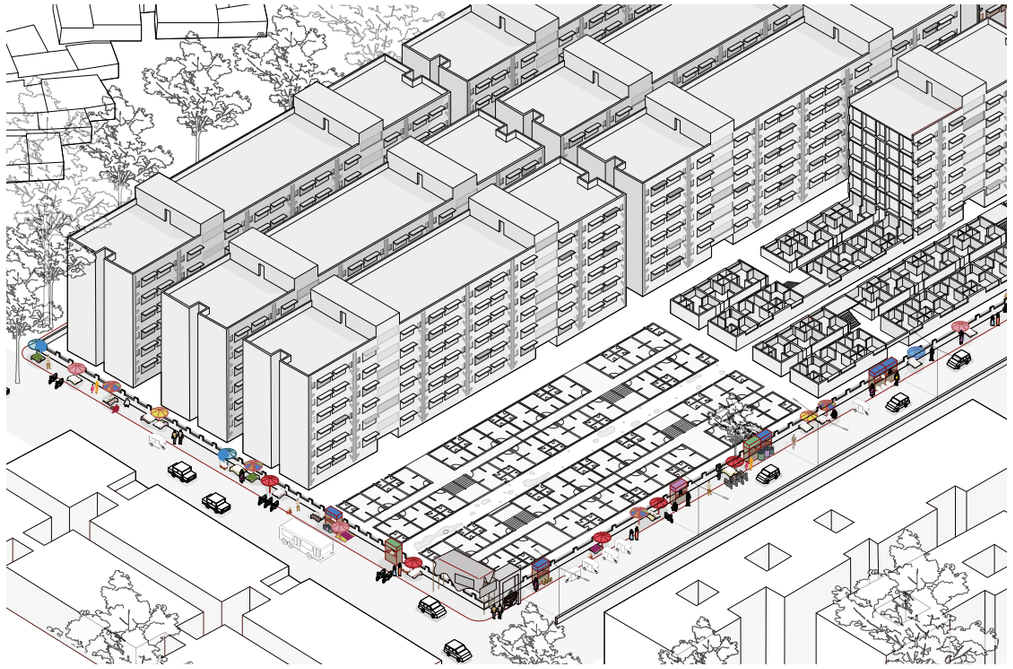


▲03 ▼04





PUBLIC
ECONOMIC

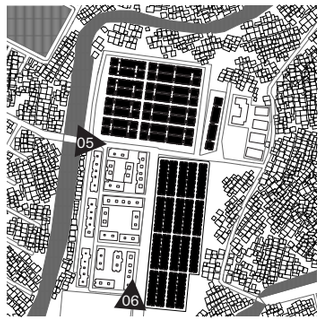




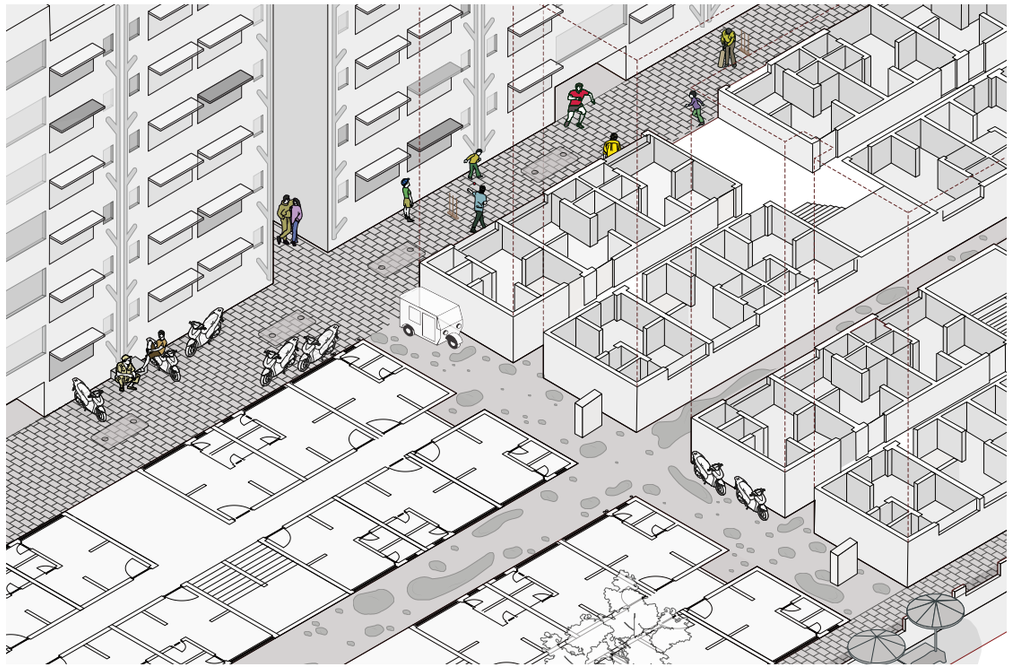
▲05 ▼06

05. The high-density rigid layout of Lallubhai Compound makes no formal provisions for income generation and home-based economies. In the absence of these, the only activity one can find of that nature can be observed along the two main streets that abut Lallubhai Compound: the north-south DP Road and the east-west Deonar Colony Road.
06. Informal practices, such as food stalls and kiosks dot the two main roads surrounding Lallubhai Compound.





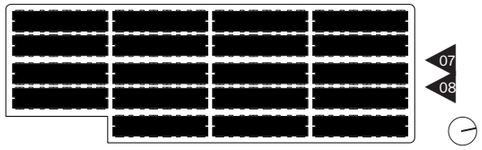
SEMI-PUBLIC
SOCIAL



07. The streets within Lallubhai Compound are of two widths: a 4.5 metre-wide street that provides access to housing blocks, and a narrower 3-metre wide alleyway that serves more as a backyard and service zone than a street for circulation. As a result of this, the quality of space between the two is drastic. The wider 4.5 metre-wide streets (as seen here) provide some spaces for play and social interaction
08. The narrower alleyways (pictured here) that run the length of the entire compound have over time become garbage dumping zones, and breeding sites for foul smells and diseases.

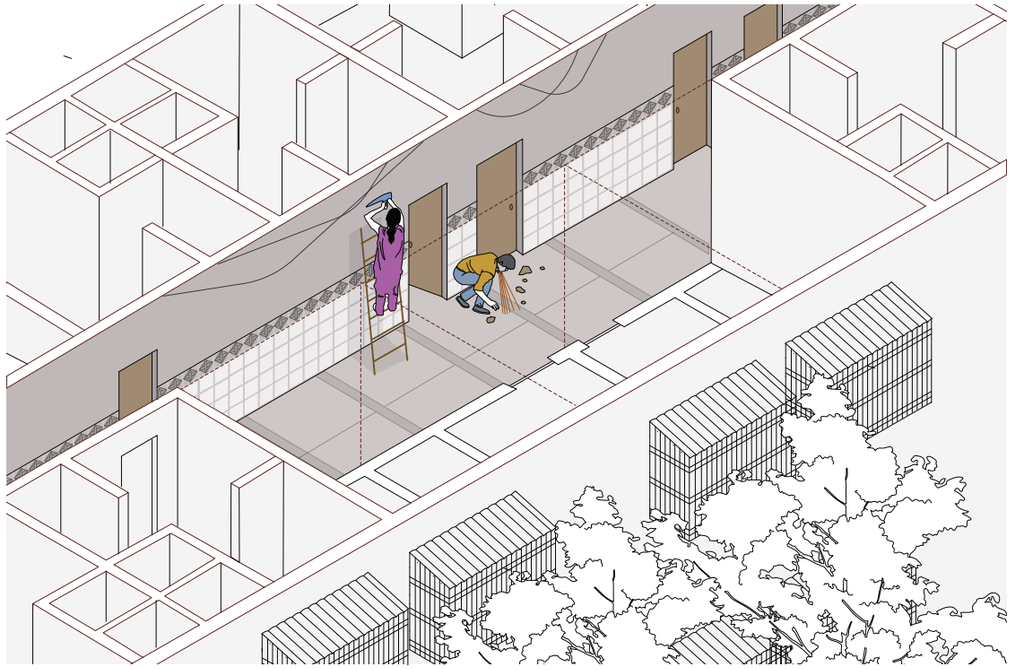


▲07 ▼08





SEMI-PRIVATE
DOMESTIC

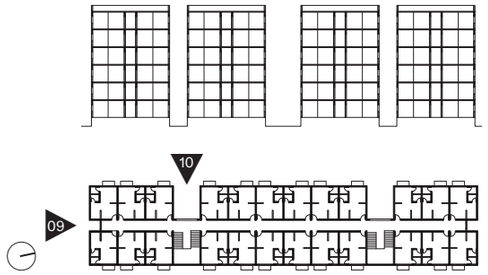




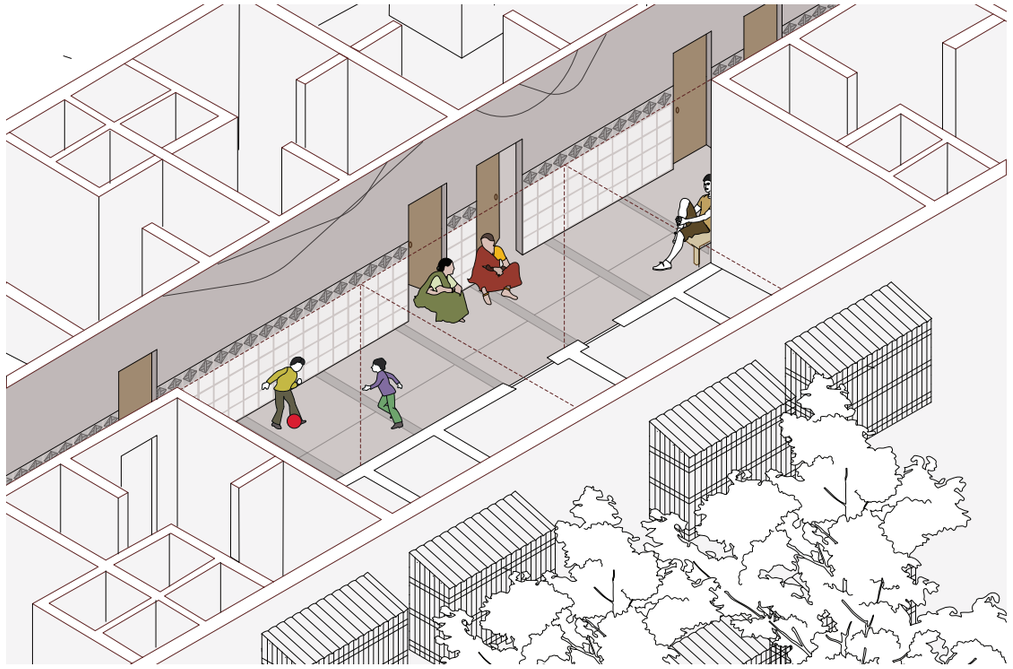
▲09 ▼10

09. Like in the case of the BDD chawls in Worli and Matoshree CHS in Parel, here too we find the use of double-loaded corridors that link several dwelling units on each floor plan. Like in the other cases, here too we find small fragments of domestic uses and practices in these semi-private spaces. As seen here, wall tiles and decorations help impart a certain sense of identity, but largely, these spaces fail to provide meaningful spaces for domestic life.
10. Here again we see wall tiles framing the identity of a few houses. But by and large, these spaces lack any visible forms of domestic life.





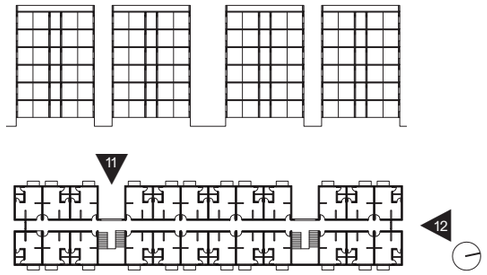
SEMI-PRIVATE
SOCIAL



11. Despite the high-density (people per square hectare) of Lallubhai Compound, the poor design and layout of these blocks renders spaces like the staircases and corridors in this project without any visible forms of social life.
12. Corridors as seen here are long and dark and devoid of any human activity.

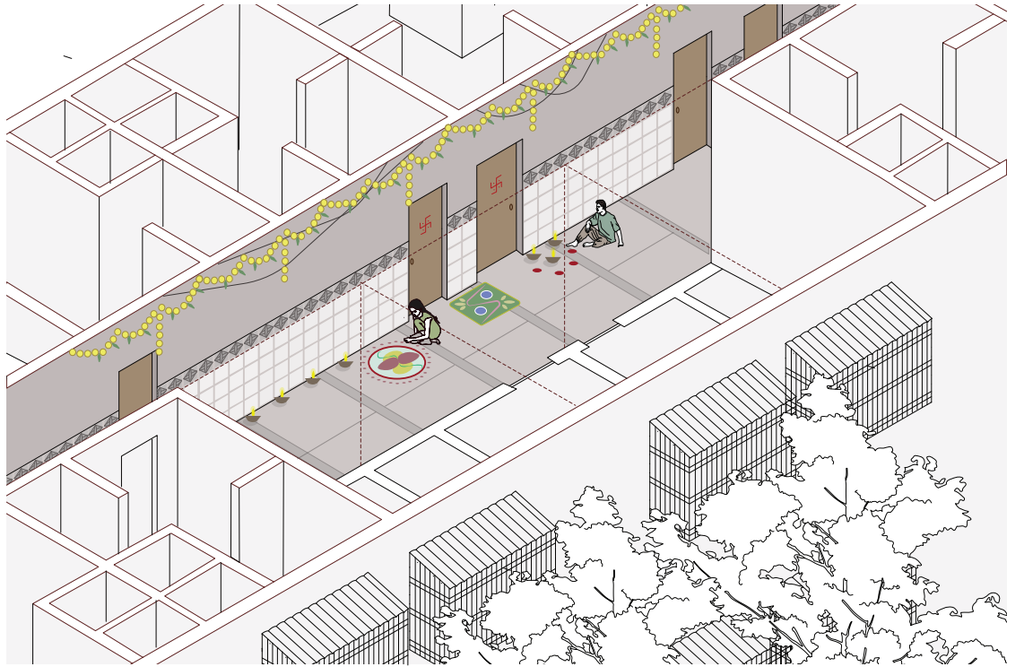


▲11 ▼12





SEMI-PRIVATE
CULTURAL

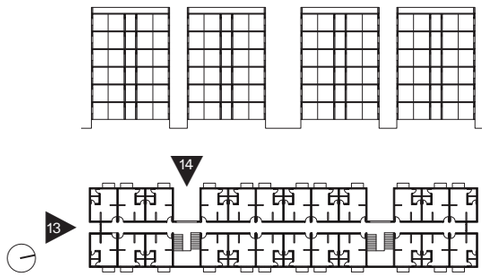




▲13 ▼14

13. Cultural appropriations of the semi-private spaces are limited to minor decorations on entrance doors.
14. The entrances of building's are as well decorated during festivals and ceremonies.

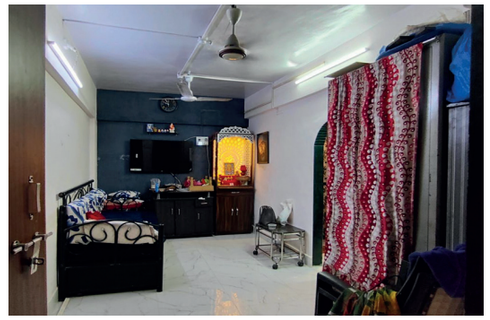




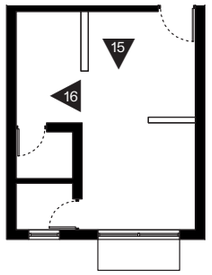
PRIVATE
DOMESTIC



15. Each dwelling unit in Lallubhai Compound measures a little under 28 square metres. Provided as simple one-room dwellings, many have over the years been modified to become compact two-room units.
16. Light and ventilation is severely restricted, with only one opening facing an open facade. To make matters worse, half of these units open onto narrow 3-metre wide alleyways that have proven to exacerbate the spread of illnesses such as tuberculosis in residents.



▲15 ▼16





5.1 STRATEGIES & SOLUTIONS 454
5.2 PLURALITY 458
5.3 PARTICIPATION 462
5.4 PROGRESSIVE DEVELOPMENT 466
5.5 PRODUCTIVITY 470

PERSPECTIVES FOR THE FUTURE
LEARNING FROM MUMBAI

STRATEGIES & SOLUTIONS

A FRAMEWORK FOR POLICY RECOMMENDATIONS

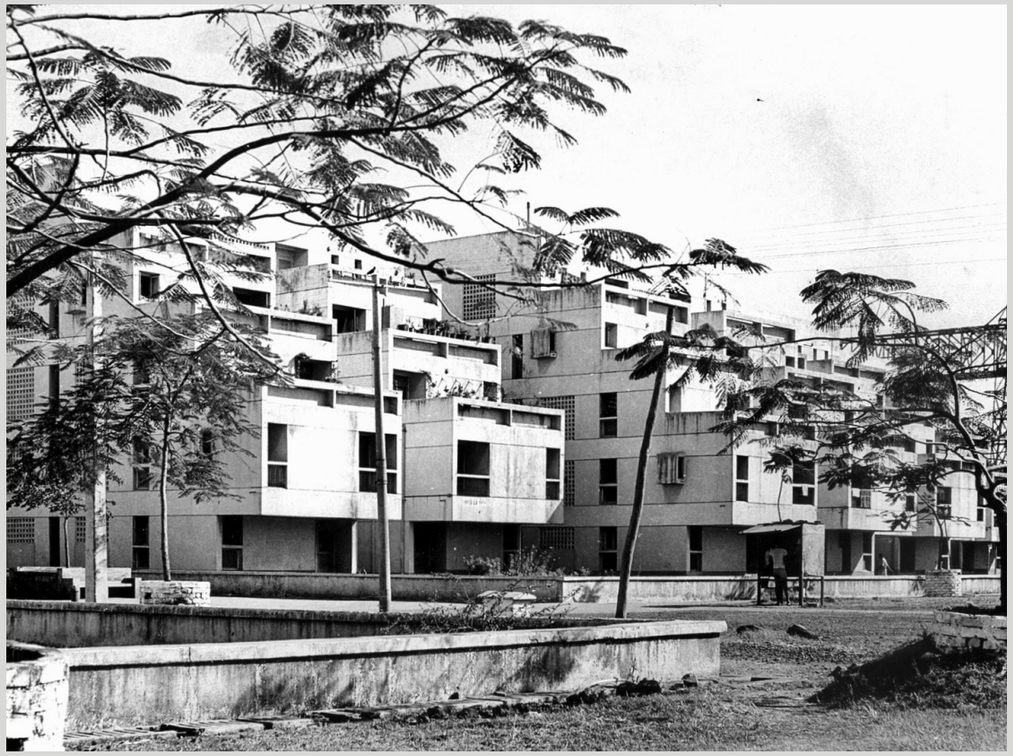


Fig. 1 The New Bombay project, led by CIDCO, in the 1970s was the last grand plan to restructure growth in the city, aimed at creating new business districts and housing for households across the income spectrum.

“You can judge a city by how its poor live”.

Kamu Iyer, *Boombay: From Precincts to Sprawl,* 2014.

If we believe veteran Mumbai architect Kamu Iyer’s quote that prefaces this chapter, Mumbai has not been doing too well for a long time. When seen from an architect’s perspective, one could argue that the main change over the last 30 years has been that of patronage. Without the government acting as the direct provider of housing, the inventive typologies developed in the decades following independence, and up and until the 1990s, particularly through the state-owned agency CIDCO in Navi Mumbai, housing today has been replaced by profit-driven models that are rubber-stamped across urban landscapes throughout India without much, if any, reference to climate, cultural traditions, infrastructural requirements and crucial live-work relationships. In fact, rather than project an “idea of India”[1] through built-form, as was the case during the nation-building era, housing in India in the neoliberal era has been reduced to a game of numbers, with the end users seen merely as investors or beneficiaries of housing, rather than active participants in neighbourhood building.

Let’s take the example of the so-called ‘Housing for All’ mission that triggered this dissertation. Although launched in 2015, the roots of this policy can be traced back to the introduction of neoliberal reforms in the early 1990s that marked the start of a new era of decreased state control and increased private sector participation. This has meant that the state no longer sees itself as the primary producer of affordable housing in the housing sector – a role it has handed over to private developers. In an era of neoliberalism, housing is increasingly seen less as a public good, and more as a site for private profit. As already mentioned earlier, ‘Slum-free India’, ‘world-class cities’, and the latest obsession – ‘smart cities’ – are all examples of state-designed policy interventions meant to attract private investment but disguised as development.

Nowhere is this more apparent than in Mumbai where for the past 40 years, housing has been objectified as a commodity, rather than as a place to dwell. But what is perhaps even more worrying is that the so-called “Mumbai model”, once limited to the island city and its peripheries, is being exported to the rest of the country through the ‘Housing for All’ mission's 'in-situ slum redevelopment' (ISSR) vertical.

Looking beyond political rhetoric, it's clear that the 'Housing for All' mission's real aim is not just to build houses but a property market. The construction industry is, after all, the country's second-largest job creator, contributing to nearly a tenth of our GDP.[2] India needs this sector to work and needs development. But it's democratic development that benefits the majority and not just the minority that it needs the most. Rather than blame the real estate sector, the need of the hour is to hold our elected officials more accountable and bring about a drastic change in the way our policies are both produced and managed.

Paradoxically, the recent COVID-19 pandemic offers a unique opportunity to shift this paradigm. As already described in Chapter 2.2, the history of urban planning is, in many ways, a reaction to extraordinary events. From the cholera outbreak in London in 1854 that improved the city's sanitation systems to the bubonic plague of 1896 in Bombay that resulted in the setting up of the Bombay Improvement Trust (BIT) to the deployment of massive social housing programmes across Europe after the Second World War, significant events have for the most part forced governments and industries to react proactively and emphatically.

As India transitions towards a predominantly urban society, learnings from past experiments must find their way back into our policies and programmes and lead to better practices on the ground that can help build better and more resilient housing and restructure urban growth and make our cities more equitable and inclusive.

For this to materialise, when it comes to housing the poorest sections of our society – waste pickers, domestic workers, daily-wage labourers, home-based workers, and street vendors – we should no longer rely on a single player, the market, to accommodate them. Instead, our policies must follow the principle of "disaggregation"[3] – an approach advocated by influential architect and urban planner, Charles Correa, that doesn't resist but accepts the nature of the built landscape in India as being participatory, piecemeal and plural, involving many different players across many different scales.

Finally, our policies must once again recognise the importance of the direct relationship between the house (the dwelling 'unit') and people's social, economic and cultural practices. Gautam Bhan hits the nail on the head with this assessment:

> "We must remember that *housing* is not *houses*. Beyond just the dwelling unit or the house, housing is an assemblage of location, services, work and tenure."[4]

Staggering as the challenges in India – and specifically in Mumbai might be – it is important to build on the rich architectural legacy of affordable housing projects that have addressed both scales – the house and the city – and blurred the dichotomies of formal and informal housing and top-down and bottom-up planning. This history covered in this dissertation compels us to reflect and learn from Mumbai's past experiments and recognise the housing and policy landscape in the city as a rich repository of numerous noteworthy experiments against what Rahul Mehrotra calls "impatient capital."[5]

Starting in the 1970s, state-sponsored sites-and-services schemes as well as grassroots movements have resulted in a variety of projects that have ranged from small-scale retrofitting schemes to large-scale urban renewal – sometimes working with the state, and sometimes with the private sector, but while always recognizing the agency of dwellers themselves in co-producing their habitats. Each of these has found varying degrees of success in finding that optimal balance between public good and private profit. Going forward, we need to experiment with all such possibilities, and not just one.

This concluding section builds on two important policy-related documents with a clear foci to propose a conceptual framework for policy recommendations that can be drawn from this dissertation.

The first is the United Nation's fact-sheet on 'The Right to Adequate Housing', jointly prepared by the Office of the United Nations High Commissioner for Human Rights (OHCHR) and UN-Habitat.[6] Based on their claim that "adequate housing must provide more than four walls and a roof"[7], the UN fact-sheet consists of seven key elements or rights: (1) legal security of tenure, (2) availability of services, materials, facilities and infrastructure, (3) affordability, (4) habitability, (5) accessibility, (6) location and finally, (7) cultural adequacy.[8]

Building on these notions, and applying them to the Indian context, Gautam Bhan, Swastik Harish and Geetika Anand from the Bangalore-based Indian Institute for Human Settlements (IIHS) in their 2014 paper 'Policy Approaches to Affordable Housing in India: Problems and Opportunities' propose a framework that housing must be thought of as three interrelated conditions: (1) adequate, (2) affordable, and (3) viable.[9]

Bhan, in particular, elaborates on these notions in another paper to explain that while housing policy-makers take the first two concepts quite seriously as they relate to the size of the dwelling unit, its material adequacy, tenure security, etc. The third condition , according to Bhan, that is, viability – is often overlooked simply because viability in his words "goes beyond just the dwelling unit"[10] further arguing that " viability cannot be captured by housing policy alone: it requires integration into broader economic and spatial planning."[11]

Looking beyond purely quantitative data and metrics, it is precisely this third dimension that this section aims to address. Spread across four short chapters, it learns from the history of building and dwelling in Mumbai and the fieldwork conducted to conclude this dissertation with a set of four lenses through which lessons learnt from Mumbai's housing history can be drawn to point directions for the future.

■

PLURALITY



Fig. 1 The mistakes of the Modern Movement seem to resurface in mass housing projects even today. Seen here is a recent development by MHADA in the northern fringes of the Mumbai Metropolitan Region.

"When we consider, for example, the remarkable opus of modern architecture in this century, we find that the exception has been in the field of public housing. Without doubt, the architects earnestly and sincerely believed that they were going to create a more humane and liveable habitat. In actual fact, in most cases what they produced was faceless, ugly and dull. Was it a matter of talent in design? I think not. Rather, it was an inevitable outcome of methodology, of the way we picked up the problem."

Charles Correa, *The New Landscape*, 1985

Returning to *The New Landscape* and the quote that opens this chapter, Charles Correa identified the major housing problem as "methodology, of the way we picked up the problem"[1]. This quote appears in one of the book's eight essays, *Disaggregating the Numbers.* In it, Correa draws on a simple analogy to make his point. He compares the production of housing to that of food and, in doing so, asks: if people living in a city are not fed through centralised kitchens, why do we insist on producing housing through centralised delivery systems – whether that's the private sector or the public? According to him, both lead to similar results: monotonous cities devoid of participation and pluralism so essential for creating habitat. Instead, he argues for a more disaggregated approach involving many participants and delivery systems.

Although this essay was written before economic reforms took shape in India, Correa's proposition is perhaps even more valid today. This is where the study of Mumbai as both the poster child of urban planning failures and a site of housing experimentation can offer lessons for building an alternate future. As already made evident in this dissertation, housing in India is dominated by definitions of what constitutes 'housing' (*pucca, semi-pucca, kutcha*) and who qualifies as the 'urban poor' (categories like EWS, LIG, MIG, HIG, etc.). Such a purely quantitative approach to understanding housing results in the building of standardised types, just as it did in the case of the large-scale housing programmes of Brazil and Ethiopia. An overemphasis on efficiency and replicability invariably produces models far removed from the social and cultural practices of those inhabiting them. Moreover, as discussed in the previous chapter in many cases, affordable housing is simply out of reach of the poorest sections of our society – waste pickers, domestic workers, daily-wage labourers, home-based workers, and street vendors.

A reading of the 'Housing for All' scheme also reveals that the policy ignores crucial data points from many other disciplines. The mission's primary ambition to build new units and encourage home ownership misinterprets both the nature and geography of the housing shortage and the complex dynamics of migratory processes that all demand a greater diversity of tenure systems and types of housing. Amitabh Kundu, for example, who headed



Fig. 2 High-income high-rise apartment buildings jostle for the same space with high-rise low-income tenement buildings.

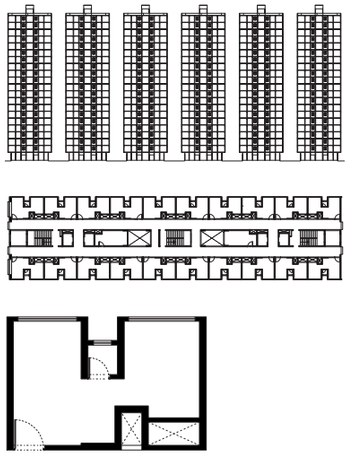


Fig. 3 The one-bedroom apartment in a high-rise, high-density site has become the default answer to Mumbai's housing problems.



Fig. 4 The authors of Charkop, as in the case of other sites-and-services schemes, are based on the self-building capacities of people and their communities. Such an approach also allows for *renewability* – a key design factor promoted by the housing activist Charles Abrams that allows for growth and change over time.

the committee that determined the housing shortage in the country, warns of "exclusionary urbanism"[2] where a focus on the larger megacities of the country will reduce with the emergence of small and medium towns and lead to significant inequalities. Chinmay Tumbe, an economist and demographer, focuses on the emergence of "remittance urbanism"[3], arguing that urban and housing policies fail to understand the nature of urbanisation and the country's economy.

Along these lines, another aspect that the COVID-19 pandemic has most recently and visibly brought to the fore is the staggering disconnect between housing policies and the oscillating migratory patterns of a vast section of India's working force. Harvard professor Rahul Mehrotra terms these dynamics "flux" – arguing that India is not simply 31 per cent urban as indicated by the 2011 census, but depending on how one defines 'urban', is, in fact, nearly 60 per cent urban for six months of the year and about 40 per cent urban for the other six.[4] As is the case with all statistics in India, this difference is humongous, with millions navigating between villages, towns and cities on a seasonal basis, often finding work only in the informal sector – without job security and guaranteed access to social protection programmes.

When viewed this way, it is evident that the "absolute solutions"[5] of homeownership models, as promoted in current housing policies, don't apply to "all" and fail to acknowledge the transient patterns of Mumbai's – and India's – urbanisation. Not only does this mean that we should focus on boosting rental and other forms of tenure, but we also need a fundamental shift in how policies define their scopes and targets. Reflecting on such realities, future urban and housing policies in the city must be informed by the demands of the real estate market and the needs of the end-users. As this research has shown, projects like Sangharsh Nagar in Chandivali and Markandeya CHS in Dharavi epitomise the opportunities in building bridges between grassroots organisations, inhabitants, developers, experts and planning authorities, which could pave the way for a more involved and participatory urban development process.

Moving forward, the evidence collected in this research demands that housing policies in Mumbai become more plural on at least three fronts: First and foremost, as Correa argued over forty years ago, housing in the city can never be the product of a single delivery system. Today, Mumbai is overrun by large-scale slum resettlement and redevelopment schemes. Although these may well be the answer in certain situations, they cannot serve as a panacea for all. Alongside curative measures or reactive strategies of slum clearance, resettlement, improvement, and redevelopment, city authorities and planners must also consider future demand and invest in proactive or preventive measures – or modes – that could limit the growth of slums in the first place. Thus, alongside an innovative model like that of the SRS, Mumbai should once again examine the potential and possibilities of other forms of housing production and intervention, such as sites-and-services schemes that are responsible for housing over half a million of Mumbai's residents.

Secondly, as mentioned earlier, our policies and programmes must move away from the dogmatic insistence on home ownership over other forms of tenure. Reintroducing rental housing as a key component of our policies could help address the needs of new arrivals in cities, especially those of low-paid seasonal migrant workers. This would necessitate the institutionalisation and expansion of rental housing as a pivotal component of agencies like MMRDA and MHADA, which currently focus primarily on building new housing stock on a home-ownership basis. Moreover, further amendments to the Maharashtra Rent Control Act of 1999 could help create a more favourable market that might revitalise the private rental market in the city and vastly improve the situation by opening up homes in Mumbai that are currently lying unused and vacant.

Lastly, as architect PK Das has argued, our policies must also encourage the democratisation of design decision-making processes. Rather than fixating on the one- and two-bedroom units in a high-rise, high-density tower block as the sole solution to the housing problem, our programmes must once again promote the participation of both residents (the end-users) and the broader community of architects and planners in designing projects for low-income populations. Here again, Mumbai's rich repository of housing experiments, from projects like Correa's LIC Colony to Das's Sangharsh Nagar, offers valuable lessons for architects and planners to learn from projects that allow for various degrees of participation. ■



Fig. 5 Strategies for small-scale interventions in existing settlements must co-exist next to whole-scale urban renewal.

PARTICIPATION



Fig. 1 Participatory planning – particularly involving women as key decision makers – has been a hallmark of the work of SPARC, and the *Indian Alliance* in general.

"Conventional planning approaches to slums and slum dwellers are thoroughly paternalistic. The trouble with paternalists is that they want to make impossibly profound changes, and they choose impossibly superficial means for doing so. To overcome slums, we must regard slum dwellers as people capable of understanding and acting upon their own self-interests, which they certainly are."

Jane Jacobs, *The Death and Life of Great American Cities*, 1961

Whichever way one might look at the history of housing provision and intervention in Mumbai, the bottom line is this: neither the public sector nor the private sector alone, or various combinations there-off, have proved capable of building housing that is affordable, adequate, accessible and at the scale and pace that is required for the targeted demographics that need them the most. To improve the housing stock in the city and build resilience against unpredictable crises such as COVID-19s in the future we need our policies to "disaggregate" housing production – in terms of design, finance as well as management – and move away from a pure "beneficiary" or "provision" based approach in favour of a "co-production" paradigm. Such a shift would not only support and harness people's agency in co-producing their own habitats – the only sector that has proved itself capable time and time again – but it would also help build that pluralistic habitat that can respond to people's changing needs and everyday practices.

This is precisely what we can learn from Mumbai. Not only are the city's slums an answer to a brutal mismatch between supply and demand, but the city is also home to noteworthy experiments that have capitalised on the self-building capacities of people and communities. For example, consider the dozen sites-and-services schemes financed and implemented during the 1980s and early 1990s in neighbourhoods like Charkop, Versova, Gorai, and Airoli. Over the last forty years, each of these has demonstrated the viability of blending top-down planning with bottom-up initiatives that harness the self-help capacities of the end-users. This has led to dwellings that are not only affordable and adequate but also accessible to a broad spectrum of society with different needs and requirements.

The same holds true for other incremental housing projects in the city, such as Charles Correa's scheme in Belapur and Sanjay Gandhi Nagar, designed and built by PK Das in the northern suburb of Goregaon. While the former is an internationally renowned case study that, through an intricate mix of dwelling types and clusters, has enabled people to participate in the expansion of their dwellings, sometimes doubling or even tripling their original areas, the latter exemplifies the emergence of a new breed of design agencies that advocate for the rights of the urban and ru-







Fig. 2 The sites-and-services scheme in Charkop remains noteworthy for involving residents in the construction of homes after providing basic services and plots. Seen here are three variations of a typical cluster in Charkop that have grown and changed over time as per the needs and requirements of the residents. The participation also extends to appropriating the space for different uses – domestic, social, cultural and economic.



Fig. 3 Das is a founding member of the NGO *Nivara Hakk* that through community gatherings and mobilisation has done pioneering work across various scales and projects.

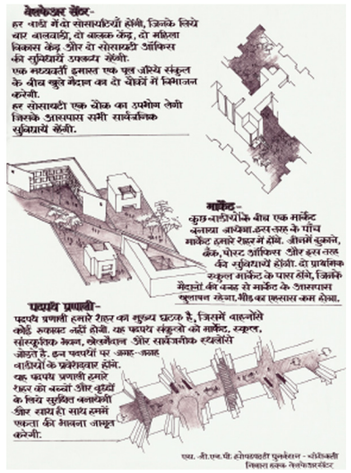


Fig. 4 The design for Sangharsh Nagar underwent a series of participatory planning meetings, at the end of which emerged a layout that responded more directly with people's needs and requirements.

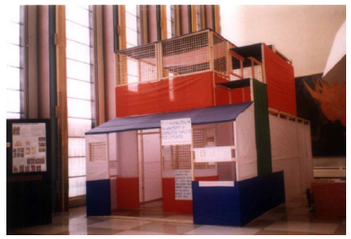


Fig. 5 A full-size mock-up of a house type developed by Slum Dwellers International was the result of participatory efforts between local grassroots organisations and communities.

ral poor through self-help, community empowerment, and in-situ upgrading. In fact, as Das has shown, community engagement and participatory planning need not be confined to one-off small-scale projects. Sangharsh Nagar, initially designed for over 18,000 families, stands out as an example of a non-governmental organisation (NGO) that bridges the public, private, and people sectors to undertake large-scale projects on a scale perhaps unparalleled in the world.

Of course, Mumbai is also home to other forms of participation. Alongside Das, various activists and community organisations such as Urbz, MESN, SPARC and others have emerged to find alternatives to the top-down planning schemes typically undertaken. Here again, Markandeya CHS remains a vital case in point. Designed and built over an arduous period of more than 13 years, SPARC engaged both the higher authorities and the end-users to execute a project that, through a series of participatory and iterative meetings, resulted in a scheme with an innovative architectural solution to a complex problem. Markandeya CHS, of course, as Chapter 3.6 and 3.7 have already shown, is also not a one-off but the result of previous projects that similarly adopted participatory design and planning methods to challenge the absolute "provider" paradigm. As already stated in the introdcution, organisations like SPARC (along with the NDSF and *Mahila Milan*) have been responsible for facilitating, designing and building thousands of low-income dwellings in the city. And although their approaches vary and results at times also fail to meet the demands of their intended target groups, they together represent new modes of housing production and spatial practice that are worth further investigation for at least three reasons:

Firstly, these movements engage with the complexities of the housing question today through several modes of housing production and intervention – from small-scale retrofitting schemes with the most minimal footprints to large-scale urban renewal schemes for the masses. As such, they offer the possibility of analysing the simultaneous validity of different approaches rather than fixating on a single delivery system.

Secondly, these projects speak in favour of democratising tools of planning and architecture, allowing design-decision making processes to include multiple actors and stakeholders – the state, the private sector, and the *bazaar* – but while always recognising the agency of dwellers themselves in co-producing their habitats. Lastly, through various forms of activism and advocacy, such modes of practice bridge Mumbai's so-called "formal" and "informal" worlds. In doing so, they could help find alternatives to standard architectural typologies and planning norms that are more responsive to people's dwelling practices.

Mumbai's experiments with mass housing teach us that the underlying lesson of the past century is that the challenges of housing the greatest number can only be met if people – and the habitats they produce – are recognised as being part of the solution and not the problem. The other part must come from policies and



Fig. 6 In 2009, SPARC organised a housing model exhibition in a slum that became the basis for building houses along with the community as equal partners in the project.

design strategies that can respond both to the macro demands of the city or the neighbourhood and the micro demands of people and their communities.[1]

What does this mean for housing design and the role of the architect? Correa, again, offers a way forward:

> "On a small scale, the architect should participate, as did the old mistri, in matters such as site layout; he should always remember that he and the people are on the same side of the table. If he has performed these two tasks effectively, all the architect really has to do when it comes to the houses is get out of the way!"[2]

■

PROGRESSIVE DEVELOPMENT



Fig. 1 A house under construction in Charkop.

“Closed means over-determined, balanced, integrated, linear. Open means incomplete, errant, conflictual, non-linear. The closed city is full of boundaries and walls; the open city possesses more borders and membranes. The closed city can be designed and operated top-down; it is a city which belongs to the masters. The open city is a bottom-up place; it belongs to the people.”

Richard Sennett, *Building and Dwelling,* 2018

In his recent book, *Building and Dwelling*, Richard Sennett talks of tension between *ville* – the actual physicality of a place – and *cité* – the way people live within it.[1] Through such a hypothesis and his observations of cities and life across the world, he presents us with two notions, the ‘Closed City’ and the ‘Open City’.[2] Regarding housing, Sennett describes Le Corbusier’s *Plan Voisin* for Paris in the 1920s as an example of a closed system. A century later, this high-rise, high-density model of standardised tower blocks has also been paralleled with the imagination of developers and authorities in Mumbai. Building on Sennett’s framework, could we describe the dominant housing typologies in India today as examples of “closed systems” and, by extension, developments that lead to a ‘Closed City’?

His ideas on “openness” and its relationship with architecture and the city are not entirely new. Half a century ago, in the Netherlands, Jaap Bakema proposed his version of an 'Open Society'[3] that looked at ways to involve ordinary citizens in matters of the built habitat. “Openness” was also an obsessive theme for another Dutch architect and theorist, John Habraken, who, in the 1960s and 1970s, proposed radical shifts in architectural thinking and housing production through his theory of 'Supports' and 'Open Building'.[4] While notions such as these remain enduring and relevant themes in architecture and planning in the context of the Western world, they have seen a renewed interest in recent decades in the cities of the Global South, where rapid urbanisation, meagre resources and forms of neoliberal thinking have brought with them heightened cases of socio-spatial inequalities in urban centres.

Mumbai has long been centre stage for many of these discussions and arguments against the closed forms of *Plan Voisin* can be found across the city. Beyond the city’s self-built settlements – which are themselves clear examples of an open system – Mumbai’s housing landscape also boasts of several innovative schemes that have built on the ideas of influential thinkers like Habraken, Bakema, Turner and others. The most obvious examples, once again, are the dozen or so sites-and-services schemes financed by the World Bank and built across several neighbourhoods in North Mumbai and Navi Mumbai. In all these schemes,



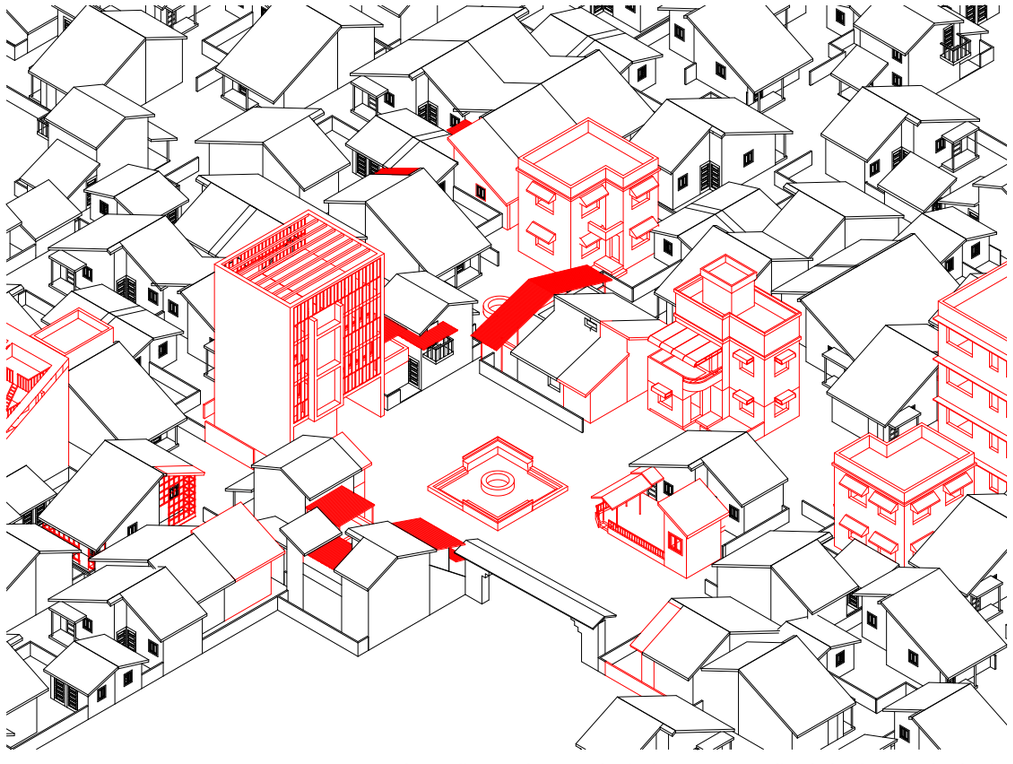


Fig. 2,3 (previous page) Collage of Charkop; (above) Isometric drawing showing growth and change in Correa's Belapur project. Over the years, modest dwellings have transformed into sizable town houses and apartment buildings.

the policy understood – in fact, was explicitly built on – the logic of an open-ended approach that anticipated people's participation in expanding their homes over time. Through the provision of legal allowances and the availability of low-interest loans, dwellings in these sites-and-services schemes were built under the notion of progressive, not instant, development. Over the years, dwellings have grown, and people have morphed them to suit their daily needs and activities. Thus, as the previous section illustrates, each cluster in a project like Charkop reveals a different identity shaped by its end-users' needs and aspirations. These are apparent in how people build extensions and appropriate their space, which can be observed at various scales, from the most private to the more public.

The same applies to other projects likein the case of Motilal Nagar in Goregaon and the plotted slum resettlement colonies of Shivaji Nagar and Malwani. However, this aspect of the advantages of progressive development is most understood and explicit in Charles Correa's incremental housing project at Belapur. More than even in the case of the World Bank sites-and-services schemes, in Correa's scheme, a clever arrangement of dwellings and courtyards has given residents considerable freedom to adapt, appropriate and expand their homes resulting in even the most basic one-room units expanding into substantial two-and-three-floor houses. The end result is a rich diversity of house types that imbibe the principles Correa advocated in his 1985 'Bill of Rights for Housing in the Third World'.[5] The key lesson that emerges here is that in this project, as in the case of the sites-and-services schemes, there is an attempt to find a middle-ground between formal and informal housing and top-down planning and bottom-up initiatives. With the architecture malleable and programmed to be morphed by people over time, it is urban design that prevails and generates community.

■



Fig. 4 Correa's Belapur scheme, centred around the clustering of free standing dwellings have allowed for a very high degree of malleability and incrementality. Seen here in this photograph is an original dwelling (pitched-roof dwelling on the right) which contrasts sharply with a four storied block right behind it.

PRODUCTIVITY



Fig. 1 Houses in informal settlements are rarely for only residential use. Home-based economies are crucial contributors to the city's productivity. Seen here is a typical street in Malwani resettlement colony.

"For anyone who has spent time in these communities, we know that the income-poor make at least three kinds of housing choices based almost entirely on work. First, the nature of the house they auto-construct – its design, form – often reflects the need of work, storage, and commerce as much as residential use. Second, and more importantly, the location of where they live – whether they do so legally or in tension with law and master plans in the "slum"– is based on proximity and access to employment. Third, investing in the housing unit itself is dependent on work and wage, and therefore the housing question is inseparable from the work/wage question."

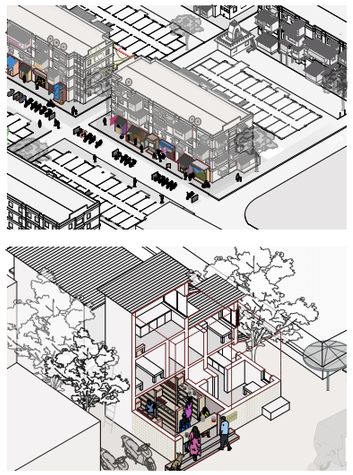
Gautam Bhan, *Informality, Housing and Work: The View from Indian Cities*, 2020

The housing activist and academic Gautam Bhan considers housing to be built on three pillars of "adequacy" (material condition, physical characteristics), "affordability" (costs, access to financial instruments) and "viability" (a combination of factors including location, home-based economies and tenure).[1] This understanding that housing is intrinsically linked to issues of labour and economy is also echoed by Charles Correa, who often claimed that "migrants don't come to cities looking for housing. They come in search of work."[2] Never has this been more apparent than during the COVID-19 pandemic when millions of Mumbai and India's urban poor found themselves overnight out of work, out of their homes – and therefore given little choice – out of the cities they helped build.

Then again, a pandemic like COVID-19 doesn't only produce new inequalities. It primarily exposes and deepens existing ones. Across multiple domains, from housing and healthcare to food and finance, it highlighted the deep-rooted structural deficiencies in our policies, capacities and institutional frameworks for decades. So, while efforts in the aftermath of an outbreak or crisis must provide short- and near-term relief to help mitigate the impact of these deficiencies, planners and authorities in Mumbai should also recognise the interconnectedness of these domains and hold the state responsible for framing better policies that can ensure long-term improvements. In other words, the more holistic and robust the housing policies and social programmes are, the less will there be the need for extravagant relief packages in times of crisis.

Martha Chen, an American academic and senior advisor to the global research-policy-action network WIEGO (Women in Informal Employment: Globalizing and Organising), has advocated for this for decades. Her assertion that housing in urban India should not merely be viewed as an "economic asset" but as a "productive asset" is clearly evident in self-built settlements throughout the city.[3]

Despite this evident reality, formal housing projects rarely consider provisions for income-generating and home-based economies in the design of new dwellings. Take for instance, Lallubhai Compound in Mankhurd. Here, evicted slum dwellers from south Mumbai—most of whom relied on home-based economies for their



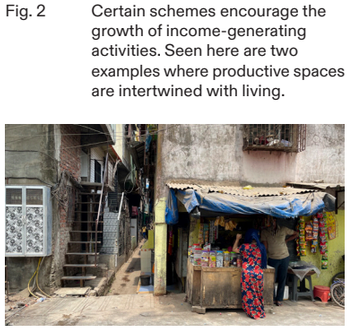


Fig. 2 Certain schemes encourage the growth of income-generating activities. Seen here are two examples where productive spaces are intertwined with living.

Fig. 3 A "tool-house" in Shivaji Nagar.
Fig. 4 (following page) A view of a typical commercial street within a self-built neighbourhood in Mumbai.



survival—are rehoused in long, monotonous slabs characterised by closely arranged dwellings in a multi-storey configuration that lacks any spaces for home-based economies and income generation – a fact limited by the low compound walls and gates that form a hard boundary between the building blocks and the street (please see again Chapter 4.6).

A similar arrangement of dense clusters and standard floor plans is observable in the slum redevelopment colony, Matoshree CHS, in Parel (please see Chapter 4.5). Though some provisions for income generation have been included, they are confined to the ground floor of the five tower blocks. However, these do not significantly improve the situation, as the layout of the tower blocks, arranged in neat rows of parallel slabs, fails to create spaces suitable for commerce. Therefore, the issue extends beyond merely providing spaces for income generation; it also pertains to the design of these spaces, their sizes and configurations.

Once again, on-site fieldwork and ethnographic surveys indicate that the most successful approach that responds to people's economic practices can be found in schemes that allow for a high degree of individuality and malleability. In Mumbai, this can be seen in sites-and-services schemes, such as those in Charkop and Airoli, as well as in the plotted-development models of slum resettlement colonies in Motilal Nagar, Shivaji Nagar, and Malwani where self-building was encouraged. In all these cases, the end-users have added to or modified their dwellings to create both domestic and productive spaces – creating in formal housing variations of the "tool houses" we can find in informal settlements like Dharavi.

■

ENVOI

"For centuries now, every society has produced the housing it needs, naturally and indigenously. Mykonos, Jaisalmer, Saana...this is not habitat that an outsider has to come in and 'design'; rather it is the end-product of a process that is organic to society, like flowers that bloom in a meadow. So if they haven't appeared, then it's a sign that something is wrong with the system. Our job is to understand just what is malfunctioning, and try to set it right."

Charles Correa, *The New Landscape: Urbanisation in the Third World*, 1985

In a city of the size and intensity of Mumbai, the scale of problems can often seem overwhelming and even unmanageable. Today, the city stands at a critical juncture, balancing people's needs and private profit. The ability to balance between the two will determine whether Mumbai moves forward as an open, inclusive city or one that, much like its colonial past, will be a city cut in two: a city divided between the haves and the have-nots.

However, the future is not as bleak as it may seem. If implemented, several physical and political adjustments can greatly minimise many of the city's inadequacies and improve the quality of life for all its inhabitants. Perhaps, to start, we must look at Mumbai from a larger regional or national perspective. While there is a need to increase Mumbai's absorptive capacity, there are enormous opportunities to use India's balanced network of cities and current rapid urbanisation to develop the country's smaller towns and cities. By converting these second and third-tier cities into the country's new growth centres, we could effectively divert much pressure away from cities like Mumbai, Bengaluru, and New Delhi.

An opportunity to do just this came in 1985, when Prime Minister Rajiv Gandhi appointed Charles Correa as the Chairman of the first National Commission on Urbanisation (NCU). The report that resulted recognised both the problems and potentials of urbanisation. Urging the government to acknowledge cities as "mechanisms for generating employment"[1], it listed 329 small *mundi* (market) towns that were growing faster than the national average.[2] Arguing that basic infrastructure could help develop these small towns into the next growth centres, Correa's recommendations attempted to solve the problems of slums such as Dharavi in Mumbai by redirecting distress migration towards these new growth centres that would lead to more balanced urban growth across the country.

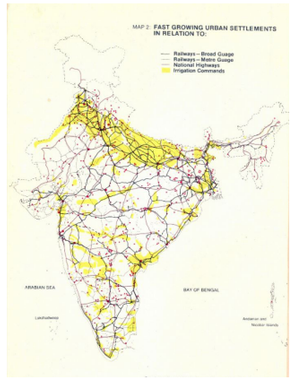


Fig. 1 Extract from the Report of the National Commission on Urbanisation headed by Charles Correa that looked at balanced growth across India's urban centres as a way to tackle growing inequalities.

Cut to the present, it is evident that the recommendations of the first national commission on urbanisation seem to have fallen on deaf ears. In a country currently undergoing a massive demographic transition that is altering the landscapes of its cities and leading to higher degrees of inequalities, there are few discussions in government circles on building a more holistic overview of India's urbanisation. Looking at the scale of growth ahead, India will be registering the largest increase in urban population of any country by adding almost 400 million people to its cities between now and 2050.[3] Contrary to our imagination, a significant bulk of this urbanisation will take place not in the larger metropolises of Mumbai, Delhi and Bangalore but, as Correa's research prophesied, in about 400 small towns and cities that are expected to grow to a million inhabitants over the next two to three decades.

There are also cues that Mumbai could take from other cities. New York City, for example, is only what it should be – a financial capital. It does not carry the burden of being the capital of New York State. The city of Albany takes that responsibility. Similarly, if the Indian government were to relocate Maharashtra's state capital to Navi Mumbai (as was initially planned), large amounts of land in South Mumbai could be put to other use. Moreover, such a shift could give the city the much-needed guidance of an elected Mayor (who, unlike the Chief Minister today), would be directly responsible for the day-to-day management of the city. Surely, a city contributing close to 30 per cent of the nation's taxes deserves such attention.[4]

If such plans were carried out, it would also be relevant to see Navi Mumbai's role in this new context. Perhaps, along with the recently-opened Mumbai Trans Harbour Link, a 22-kilometre bridge that connects Sewri in Mumbai with Uran in Navi Mumbai, the latter would finally receive the necessary stimulus to become a city on its own – and not just remain the far-off suburb it is today.

Furthermore, multiple opportunities lie within the island city – especially in recycling post-industrial wastelands. Ever since the 1980s, the city has been moving towards a post-industrial phase. Like other cities worldwide (Rotterdam, London, Hamburg), it has rendered several manufacturing and industrial sites redundant or semi-redundant, with the eastern docklands no exception. Once the very nucleus of growth, today, only about 50 per cent of the dockland's 1800 acres are used for port activities, with the rest having already been relocated or rendered obsolete. By opening up this vital stretch of land (and learning from past mistakes made during the redevelopment of the Mill Lands), Mumbai and its citizens could benefit from a whole fleet of public spaces and buildings that could be developed along its 18-kilometre length.

But, while Mumbai has much to learn from other cities, we must not forget that the city has many lessons to offer. The growing informal settlements (which seem to be the city's most crucial problem) are excellent examples of intensive mixed-use development. Dharavi, often referred to as Asia's largest slum with more than 800,000 residents, is far more than just a place of substandard housing. With industries intrinsically knitted within its residential fabric, it is believed to produce goods worth over USD one billion yearly.[5] This makes a settlement like Dharavi a vibrant community full not just of housing but commerce and employment and a substantial contributor to the city's GDP. Settlements like Dharavi need fewer radical transformations and more strategies for transition that allow them to develop into fully adequate neighbourhoods over time while keeping and growing their economies and communities intact.

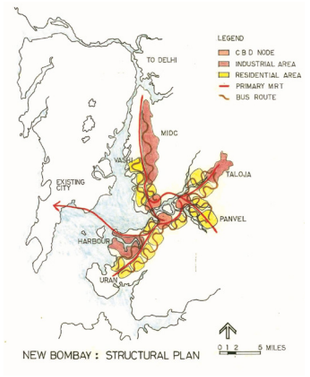


Fig. 2 The plan for New Bombay was triggered by growing informal settlements on the island city and a plan to achieve balanced growth.

On a smaller scale, and as this dissertation has shown, we must not forget that despite all of Mumbai's challenges, it remains one of the few examples of a city in the developing world that has experimented with a wide range of housing modes and models. From its early slum resettlement and redevelopment schemes sponsored by the colonial government of British India to the initiatives of today involving grassroots organisations and civil society, to the innovative sites-and-services and self-help housing projects of the 1970s and 1980s, the city's housing landscape as we see it today serves as a laboratory of experiments that offer lessons – both successes and failures – on how to build, manage, and intervene in low-income neighbourhoods. This, in fact, brings this discussion to the first of two broad conclusions that emerge from this study:

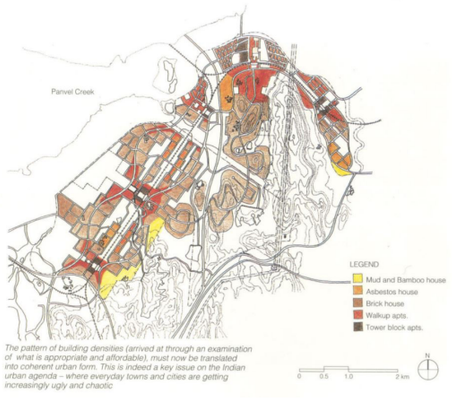


Fig. 3 The plan for Ulwe city centre was designed to cater for a wide range of income groups, including housing types of various materials and configurations that could be financed and built by various actors and agencies – the public authorities, private developers and people and communities. The plan is organised on principles of affordability, replicability and optimal densities – ideas previously studied in the NCU report.

First and foremost, rather than oscillating between paradigms of "provider" and "enabler" or concentrating solely on one approach or mode, such as slum resettlement and redevelopment, which tend to be the focus these days, this dissertation argues that it is crucial to acknowledge the complexity of the housing problem of today as one that requires a variety of strategies and solutions, not just one. Therefore, while curative measures are undoubtedly necessary and may sometimes be desired by local communities, our planning authorities must also consider future demand and shift their approaches to consider proactive or preventive measures that open up serviced land for comprehensive social housing schemes and initiatives supporting self-help, such as sites-and-services schemes. By tracing the development of these modes and models over time, this dissertation concludes by building on Correa's theory of "disaggregation" and promoting Claudio Acioly's "twin-track" approach that "combines the provision of affordable housing at scale with policies towards improvement, regularisation and upgrading of existing slums."[6] All evidence points to framing one policy that tackles both slum upgrading and slum prevention through multiple strategies and tactics. Focusing on only one strategy will not only miss combating the problem at scale, but it would also miss addressing the challenges of urbanisation in the future.

Secondly, and as Correa's epigraph that opens this concluding chapter already suggests, this dissertation also argues that the twin-track approach can only be viable if people and the habitats they produce are regarded as part of the solution rather than the problem. The key lesson that emerges from this study is that, regardless of the mode of intervention—whether they be curative strategies such as slum resettlement, redevelopment, or improvement, or proactive measures in the form of social housing and sites-and-services schemes, or whether they are designed and built by the public or private sector, or various combinations thereof—the crucial ingredient necessary for building affordable, adequate, and viable housing is participation. To borrow the title of John Turner's path-breaking book, "freedom to build"[7] must once again lie at the heart of our policies and programmes. In this context, government agencies and authorities should conceive new planning tools and methods that find an optimal balance between top-down and bottom-up planning to ensure the production of affordable and sustainable communities.

For architects and urban planners, Mumbai's large-scale sites-and-servcies schemes, and various small-and-large-scale community-driven slum resettlement and redevelopment schemes teach us that the way forward lies in rethinking design strategies and standards that, rather than hindering informal practices and the self-building capacities of people and communities, anticipates and accommodates them.

But above all else, as Suketu Mehta correctly pointed out, "For the young person in an Indian village, the call of Mumbai isn't just about money. It's also about freedom".[8] This is why cities like Mumbai are so crucial for India's future. As we rapidly move closer to predictions of a city of 35 million people, perhaps the key to Mumbai's success hinges on its ability to balance the preventive and curative measures that blur the dichotomies between formal and informal planning and top-down and bottom-up practices. Rather than focus only on a single delivery system – slum redevelopment or slum upgrading – our policies and programmes should instead build on the unique and vast legacy of past experiments and learn from them.

This dissertation has shown that the history of housing in Mumbai is a rich history of competing and complimentary roles of various actors and agencies and the simultaneous validity of multiple strategies over just one. Despite all its problems, its housing landscape remains a fertile site for understanding the emerging urbanism of the twenty-first century. It's laboratory of case studies stand even today as housing models that offer valuable lessons for policy-makers, architects and planners operating globally to learn from – and build with – people and communities. In that respect, Mumbai has much to teach the world. ■



Fig. 4 A young Mumbaikar standing alongside a self-built settlement in South Mumbai.

APPENDIX

7.1 NOTES & REFERENCES 482
7.2 IMAGE & DRAWING CREDITS 502
7.3 ABBREVIATIONS 506
7.4 BIBLIOGRAPHY 508
7.5 BIOGRAPHY 516
7.6 CURRICULUM VITAE 517

NOTES & REFERENCES

All notes and references of this dissertation are arranged here in a chronological order. Please refer to the Table of Contents on pages 8-9 for chapter titles and numbers.

1.1 - 1.6
PROBLEMS & POSSIBILITIES: AN INTRODUCTION TO THE HOUSING QUESTION

1 The city of Mumbai has been named and re-named throughout its history. One of the earliest recordings of its name dates back to the 15th century when it was referred to as *Manbai*. Later, when the Portuguese arrived at its shores, the city was called *Bombaim*, meaning the "good bay". The name 'Bombay', as many people still refer to it, is an anglicized version of the Portuguese name when the British took control of the city in the 17th century. However, the history of its name remains complicated with various records indicating different names: *Mombayn, Bombaym, Monbaym, Mombaim, Mombaym, Bambaye, Bombeye, Boon Bay, and Bon Bahia.* In November 1995, under the influence of the regional political party the Shiv Sena, the city was officially renamed as 'Mumbai' in an attempt to erase its colonial history and reflect a more local, Maratha heritage by paying tribute to the goddess Mumbadevi. This, in fact, was a name already in practice by the local fisherman community, the *Koli's*. Partly influenced by the name change of India's financial capital, other cities in India followed suit, such as in the case of Chennai in 1996 (formerly known as Madras) and Kolkata in 2001 (formerly known as Calcutta). For the purpose of this dissertation, the name 'Mumbai' will be used throughout unless being referred to a specific programme, policy or government organisation (for example, the Bombay Urban Development Program or the Bombay Improvement Trust). The same holds true for 'Navi Mumbai' which was formerly known as 'New Bombay'.

2 Further in this chapter, I will delve deeper into the history and usage of the term 'slum' from different geographical and disciplinary perspectives. However, throughout the dissertation, the term is used sparingly and only to correspond with how the state – the Government of Maharashtra – classifies certain low-income settlements in the city.

3 The term "privatopia's" can be credited to Edward Soja. See: Edward Soja, *In TransUrbanism*, edited by Joke Brouwer, Arjen Mulder, Laura Marz. (Rotterdam: NAI Publishers, 2002).

4 The Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971 has been amended several times. The original report can be accessed here: PRS Legislative Research, The Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971, 1971, https://prsindia.org/files/bills_acts/acts_states/maharashtra/1971/1971MH28.pdf. For the latest amendments, please see: Satish Waghole Legislation, Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) (Second Amendment) Act, 2023, ed. Rupendra More, Maharashtra Act, 2024, https://sra-automation.s3.ap-south-1.amazonaws.com/category/docs/1738316117404_2757_19.01.2024.pdf.

5 For further readings on the socio-spatial nature of self-built and low-income neighbourhoods in India, please read: Gautam Bhan, "From The *basti* to the 'House': Socio-spatial Readings of Housing Policy in India," *Current Sociology* 65, no. 4 (March 27, 2017): 587–602, https://doi.org/10.1177/0011392117697465.

6 Bhavika Jain, "62% of Mumbai Lives in Slums: Census," *Hindustan Times*, October 16, 2010, https://www.hindustantimes.com/mumbai/62-of-mumbai-lives-in-slums-census/story-l3bUsll9w5f6ePEfuXJEbM.html.

7 Denis John Dwyer, *People and Housing in Third World Cities: Perspectives on the Problem of Spontaneous Settlements*, 1975, http://ci.nii.ac.jp/ncid/BA22740966.

8 United Nations Human Settlements Programme, *The Challenge of Slums* (London: Earthscan Publications, 2003), 12.

9 Ibid.

10 Kumari Selja et al., "Report of the Committee on Slum Statistics/Census," *National Buildings Organisation*, 2011, https://mohua.gov.in/upload/uploadfiles/files/9Slum_Report_NBO(2).pdf.

11 Laura B. Nolan, "Slum Definitions in Urban India: Implications for the Measurement of Health Inequalities," *Population and Development Review* 41, no. 1 (March 1, 2015): 59–84, https://doi.org/10.1111/j.1728-4457.2015.00026.x.

12 Richard Sennett, "The Public Realm", in: *Being Urban: Community, Conflict and Belonging in the Middle East* (Routledge, 2020).

13 Martha A Chen and Shalini Sinha, "Home-based Workers and Cities," *Environment and Urbanization* 28, no. 2 (July 1, 2016): 343–58, https://doi.org/10.1177/0956247816649865.

14 Rahul Mehrotra, "Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai," in *Duke University Press eBooks*, 2020, 205–18.

15 For further eading on the topic, please see: Keith Hart, "Informal Income Opportunities and Urban Employment in Ghana," *The Journal of Modern African Studies* 11, no. 1 (March 1, 1973): 61–89, https://doi.org/10.1017/s0022278×00008089.

16 Please see: Colin Williams, Colin, "Defining the Informal Economy." Chapter. *In The Informal Economy*, 1–16. The Economy Key Ideas. Agenda Publishing, 2019.

17 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', Singapore Journal of Tropical Geography 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047., 144.

18 Ibid.

19 Ananya Roy, "Urban Informality: Toward an Epistemology of Planning," *Journal of the American Planning Association* 71, no. 2 (June 30, 2005): 147–58, https://doi.org/10.1080/01944360508976689, 149.

20 Lisa Björkman, "Becoming a Slum: From Municipal Colony to Illegal Settlement in Liberalization-Era Mumbai." *International Journal of Urban and Regional Research* 38 (2014): 36–59. https://doi.org/10.1111/1468-2427.12041.

21 Rahul Mehrotra, " The Permanent and Ephemeral: What Does This Mean for Urbanism?", in: Rahul Mehrotra, *The Kinetic City & Other Essays* (Berlin: ArchiTangle GmbH; 2021).

22 Gautam Bhan, "From The *basti* to the 'House': Socio-spatial Readings of Housing Policy in India," *Current Sociology* 65, no. 4 (March 27, 2017): 587–602, https://doi.org/10.1177/0011392117697465, 589.

23 Ibid., 592.

24 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', *Singapore Journal of Tropical Geography* 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047., 144.

25 Ananya Roy, 'Slumdog Cities: Rethinking Subaltern Urbanism: Rethinking Subaltern Urbanism', *International Journal of Urban and Regional Research* 35, no. 2 (March 2011): 223–38, https://doi.org/10.1111/j.1468-2427.2011.01051.x., 226.

26 Ibid., 224.

27 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', *Singapore Journal of Tropical Geography* 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047., 142.

28 Jorge Enrique Hardoy and David Satterthwaite, *Squatter Citizen: Life in the Urban Third World*, 1989, http://ci.nii.ac.jp/ncid/BA25303877.

29 Martha A Chen and Shalini Sinha, "Home-based Workers and Cities," *Environment and Urbanization* 28, no. 2 (July 1, 2016): 343–58, https://doi.org/10.1177/0956247816649865.

30 Vinit Mukhija, "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment" (Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000). Available at: https://dspace.mit.edu/handle/1721.1/8959?show=full., 13.

31 Hernando de Soto et al., *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (Johannesburg: CDE, 2001).

32 Asher Ghertner, *Rule by Aesthetics: World-Class City Making in Delhi* (Oxford: Oxford University Press, 2015).

33 Christian Werthmann, *Informal Urbanization in Latin America: Collaborative Transformations of Public Spaces* (Routledge, 2021).

34 Nabeel Hamdi, *Housing Without Houses: Participation, Flexibility, Enablement* (Practical Action Publishing eBooks, 1995, https://doi.org/10.3362/9781780442341., ix-x.

35 Charles Correa, "Author's Note", *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985).

36 Ibid. 96.

37 Ibid., 97.
38 For further reading on the topic, please see: Hussain Indorewala, “Does Mumbai Really Need 11 Lakh More Houses?,” *Scroll.In*, March 22, 2016, https://scroll.in/article/802830/does-mumbai-really-need-11-lakh-more-houses.
39 “Mumbai Has Highest Vacant Housing Inventory,” *BusinessLine*, January 29, 2018, available at: https://www.thehindubusinessline.com/economy/mumbai-has-highest-vacant-housing-inventory/article22553704.ece#:~:text=Mumbai%20tops%20the%20list%20with,highest%2C%20at%2026%20per%20cent. For more recent numbers, refer to: Prachi Pisal, “Top Indian Cities Report About 1 Million Unsold Housing Units: Study,” www.business-standard.com, December 2, 2024, https://www.business-standard.com/industry/news/top-indian-cities-report-about-1-million-unsold-housing-units-study-124120200871_1.html.
40 Neeraj Tiwari, “MHADA: Over 66,000 Apply for 217 Houses, Lottery on June 2,” *The Indian Express*, May 26, 2019, https://indianexpress.com/article/cities/mumbai/mhada-over-66000-apply-for-217-houses-lottery-on-june-2-5749622/.
41 Bella Jaisinghani, “Mhada Lottery for 1,384 Flats Gets Under Way in Mumbai,” *The Times of India*, December 16, 2018. Available at: https://timesofindia.indiatimes.com/city/mumbai/mhada-lottery-for-1384-flats-gets-under-way-in-mumbai/articleshow/67114034.cms.
42 Hussain Indorewala, “Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy,” in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 53.
43 Hussain Indorewala, “Does Mumbai Really Need 11 Lakh More Houses?,” *Scroll.In*, March 22, 2016, https://scroll.in/article/802830/does-mumbai-really-need-11-lakh-more-houses.
44 P S N Rao, "Transformation of Housing in India – the Trend towards Market Mechanisms", Paper presented in the International Housing Conference 2004 held in Hong Kong during 2-4 February, 2004.
45 Pritika Hingorani, “Revisiting Low Income Housing: A Review of Policies and Perspectives,” prepared for the Indian Institute for Human Settlements (IIHS) for the conference “Revisiting Upgrading: Low-Income Housing and Infrastructure” for the India Urban Conference, held on November 17, 2011.
46 BBC News, “India Census: Half of Homes Have Phones but No Toilets,” March 14, 2012, https://www.bbc.com/news/world-asia-india-17362837.
47 Dhaval Desai, “Resolving Mumbai’s Slum Sanitation Will Make India ODF,” orfonline.org, December 20, 2024, https://www.orfonline.org/expert-speak/resolving-mumbai-s-slum-sanitation-will-make-india-odf.
48 World Health Organization, “Guidelines On Sanitation And Health,” 2018, https://iris.who.int/bitstream/handle/10665/274939/9789241514705-eng.pdf?sequence=25.
49 Dhaval Desai, “Poor Sanitation in Mumbai’s Slums Is Compounding the Covid19 Threat,” orfonline.org, December 4, 2023, https://www.orfonline.org/expert-speak/poor-sanitation-in-mumbais-slums-is-compounding-the-covid-19-threat-66216.
50 Dipti Singh, “Mumbai: 42 per Cent of Homes Don't Have Toilets Inside, Finds Assessment Report,” *Mid-Day*, April 14, 2022, https://www.mid-day.com/mumbai/mumbai-news/article/mumbai-42-per-cent-of-homes-dont-have-toilets-inside-finds-survey-23222777.
51 Vishwadha Chander, “Mumbai’s Dirty Secret Out in the Open,” *Hindustan Times*, April 13, 2017, https://www.hindustantimes.com/mumbai-news/mumbai-s-dirty-secret-out-in-the-open/story-tDSkqPwyeswBFgqS7TJiKI.html.
52 Mike Davis, *Planet of Slums* (London: Verso, 2006), 23.
53 Bhavika Jain, “62% of Mumbai Lives in Slums: Census,” *Hindustan Times*, October 16, 2010, https://www.hindustantimes.com/mumbai/62-of-mumbai-lives-in-slums-census/story-I3bUsll9w5f6ePEfuXJEbM.html.
54 United Nations, “Around 2.5 Billion More People Will Be Living in Cities by 2050, Projects New UN Report | United Nations,” n.d., https://www.un.org/en/desa/around-25-billion-more-people-will-be-living-cities-2050-projects-new-un-report.
55 “Urban Informality-Marginal or Mainstream? - Janice Perlman, the Megacities Project | UN-Habitat,” n.d., https://unhabitat.org/urban-informality-marginal-or-mainstream-janice-perlman-the-megacities-project.
56 David Harvey, “The Right to the City,” *International Journal of Urban and Regional Research* 27, no. 4 (December 1, 2003): 939–41, https://doi.org/10.1111/j.0309-1317.2003.00492.x.
57 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018).

2.1
SCANNING FOR STRATEGIES

1 John F. C. Turner, *Housing by People : Towards Autonomy in Building Environments* (New York: Pantheon Books, 1976). 4.
2 Otto Koenigsberger, "Intentions of Housing Policy Alternatives", in: Nabeel Hamdi, *Housing Without Houses: Participation, Flexibility, Enablement* (Practical Action Publishing eBooks, 1995), 11.
3 Ibid.
4 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018), i.
5 Ibid.
6 Ibid., 83.
7 Nabeel Hamdi, *Housing Without Houses: Participation, Flexibility, Enablement* (Practical Action Publishing eBooks, 1995), https://doi.org/10.3362/9781780442341.,
8 Ibid.
9 Matthias Nohn and Reinhard Goethert, Growing up! *The Search For High-Density Multi-Story Incremental Housing,* 2017.
10 Ibid.
11 Alejandro Aravena and Andrés Iacobelli, *Elemental: Incremental Housing and Participatory Design Manual* (Berlin: Hatje Cantz eBooks, 2012).
12 UN-HABITAT, “Christian Werthmann - Metropolis Non-Formal, 10 Things Designers Need to Work On,” April 22, 2014, https://www.youtube.com/watch?v=hJiLiMlFotw.
13 Amita Bhide, “Shifting Terrains of Communities and Community Organization: Reflections on Organizing for Housing Rights in Mumbai,” *Community Development Journal* 44, no. 3 (June 9, 2009): 367–81, https://doi.org/10.1093/cdj/bsp026.
14 Claudio Acioly Jr. and UN-HABITAT, “Housing the Future: Adequate Housing for All,” January 25, 2020, https://claudioacioly.com/sites/default/files/2020-02/2011_Acioly_Housing%20%26%20Slum%20Upgrading%20at%20UN-Habitat_2014-219_BRIEF%20to%20CPR.pdf.
15 Bredenoord, Jan, P. van Lindert, and Peer Smets, *Affordable Housing in the Urban Global South: Seeking Sustainable Solutions*. (Abingdon, Oxon: Routledge, 2014).

2.2
THE FIRST PARADIGM: CONVENTIONAL STRATEGIES

1 Luisa Rollenhagen, “Germany’s Fuggerei Is World’s Oldest Social Housing Project,” *DW.Com*, May 6, 2022, https://www.dw.com/en/germanys-fuggerei-the-worlds-oldest-social-housing-project/a-58928076.
2 Ibid.
3 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018).
4 Wikipedia contributors, “George Peabody,” Wikipedia, April 3, 2025, https://en.wikipedia.org/wiki/George_Peabody.
5 “Peabody’s History – From 1862 to Today,” Peabody, n.d., https://www.peabodygroup.org.uk/about-us/our-history/.
6 Ibid.
7 The National Archives, ‘The National Archives - Homepage’, text, *The National Archives (blog)* (The National Archives), accessed 17 February 2023, https://www.nationalarchives.gov.uk/education/resources/victorian-industrial-towns/.
8 OM Editors, ‘Tenements’, HISTORY, 10 October 2019, https://www.history.com/topics/immigration/tenements.
9 Ernest Flagg, The New York Tenement-House Evil and Its Cure (New York: Scribner’s Magazine, 1896).
10 Wikipedia contributors, “Metropolitan Board of Health,” Wikipedia, February 25, 2025, https://en.wikipedia.org/wiki/Metropolitan_Board_of_Health.
11 David I. Gaines and John Nelson Tarn, “Five per Cent Philanthropy: An Account of Housing in Urban Areas Between 1840 and 1914,” *Technology and Culture* 16, no. 3 (July 1, 1975): 496, https://doi.org/10.2307/3103053.
12 ‘Health And Profit’, *The New York Times*, 29 November 1896.
13 Le Corbusier, *The City of To-Morrow and Its Planning (*London: J. Rodker, 1929).
14 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018), i.
15 Greater London Council. *Home Sweet Home Housing Designed by the London County Council and Greater London Council Architects 1888-1975*. Academy Editions. p. 22. ISBN 0-85670-276-5.
16 For further reading on Boundary Estate, please read: Bethnal Green: Building and Social Conditions from 1876 to 1914', in *A History of the County of Middlesex: Volume 11, Stepney, Bethnal Green*, ed. T F T Baker (London, 1998), *British History Online* https://www.british-history.ac.uk/vch/middx/vol11/pp126-132 [accessed 21 January 2025].
17 Please see again: Hussain Indorewala, “Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy,” in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 53.
18 Ibid.
19 Bloom Nicholas Dagen and Matthew Gordon Lasner, *Affordable Housing in New York: The People Places and Policies That Transformed a City* (Princeton: Princeton University Press, 2015). 80.
20 Nicholas Dagen Bloom and Matthew Gordon Lasner, *Affordable Housing in New York. The People, Places, and Policies That Transformed a City* (Lawrenceville: Princeton University Press, 2015).
21 For further reading on the Title 1 programme, please read: Hilary Ballon and Kenneth T Jackson, *Robert Moses and the Modern City: The Transformation of New York* (New York: W.W. Norton & Co., 2007).
22 Ibid., 21.
23 For further documentation of the project, please see: Pierijn van der Putt, "Queensbridge Houses New York, NY (US)" in *Delft Architectural Studies on Housing* (Rotterdam: NAi 01012/13, 2015), 130–139. Retrieved from https://journals.open.tudelft.nl/dash/article/view/5015
24 UNESCO World Heritage Centre, "Berlin Modernism Housing Estates", *UNESCO World Heritage Centre*, accessed 17 February 2023, https://whc.unesco.org/en/list/1239/.
25 Dick van Gameren, *Dutch Dwellings: The Architecture of Housing* (Zurich: Park Books, 2023).
26 AEDES-Vereniging van Woningcorporaties, “Dutch Social Housing in a Nutshell” in *AEDES International Relations* (Hilversum: Mimeo, 1999), 27.
27 Lea Olsson and Jan Loerakker, ‘Revisioning Amsterdam Bijlmermeer’, *Failed Architecture* (blog), 26 April 2013, https://failedarchitecture.com/the-story-behind-the-failure-revisioning-

amsterdam-bijlmermeer/.

28 Justin McGuirk, *Radical Cities: Across Latin America in Search of a New Architecture* (London: Verso, 2014).

29 Ibid., 8.

30 For a more comprehensive history of the CIAM movement, please see: Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge: The MIT Press. 2000), http://ci.nii.ac.jp/ncid/BA47762765.

31 Tom Avermaete, "The Discovery of the Everyday: Team 10s Re-Visioning of C.I.A.M.'S Modern Project," Association of Collegiate Schools of Architecture, 2003, https://www.acsa-arch.org/chapter/the-discovery-of-the-everyday-team-10s-re-visioning-of-c-i-a-m-s-modern-project/.

32 For more information on these architects please refer to: Tom Avermaete, *Another modern: the post-war architecture and urbanism of Candilis-Josic-Woods* (Rotterdam, NAi Publishers, 2005).

33 Shadrach Woods, "Aesthetics and Technology of Preassembly," in: *Progressive Architecture* (October 1964): 180.

34 P S N Rao, "Transformation of Housing in India – the Trend towards Market Mechanisms", Paper presented in the International Housing Conference 2004 held in Hong Kong during 2-4 February, 2004.

35 Rahul Mehrotra, Kaiwan Mehta, and Ranjit Hoskote, *State of Housing: Aspirations, Imaginaries and Realities* (Architecture Foundation India, 2018).

36 Pritika Hingorani, "Revisiting Low Income Housing: A Review of Policies and Perspectives," prepared for the Indian Institute for Human Settlements (IIHS) for the conference "Revisiting Upgrading: Low-Income Housing and Infrastructure" for the India Urban Conference, held on November 17, 2011.

37 Kiran Keswani, "Seminar and Exhibition on Low-Cost Housing and Community Improvement," April 9, 2020, https://architexturez.net/doc/az-cf-177948.

38 Iain Jackson and Jessica Holland, *The Architecture of Edwin Maxwell Fry and Jane Drew: Twentieth Century Architecture, Pioneer Modernism and the Tropics* (Burlington, VT: Ashgate. 2014), 233.

39 For further documentation on the project and a brief history of housing design in India, please refer to: Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 4-19.

40 For further reading on Doxiadis's ideas on architecture, housing and planning, please see: Ray Bromley, "Doxiadis and the Ideal Dynapolis: The Limitations of Planned Axial Urban Growth," *Ekistics and the New Habitat* 69, no. 415–417 (December 1, 2002): 316–30, https://doi.org/10.53910/26531313-e200269415-417357.

41 Vincent B. Canizaro (ed), Architectural Regionalism: Corrected Writings on Place, Identity, Modernity, and Tradition, Princeton Architectural Press, 2007.

42 For further reading, please see: Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi/010 Publishers, 2015), 6-7.

43 Ibid., 10.

44 As mentioned elsewhere in this dissertation, Doshi participated in the eight congress of CIAM in Hoddesdon and Team 10's 1966 meeting in Urbino and maintained life-long friendships with several Team 10 members particularly Aldo van Eyck and Giancarlo de Carlo that influenced much of his early work, particularly concerning housing for the masses.

45 Documentation on Raj Rewal's work can also be found here: Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 10-11. For an additional overview of Raj Rewal's work: Suparna Rajguru and Raj Rewal, *Innovative Architecture and Tradition* (Uttar Pradesh: OM Books International, 2013.

46 Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 10-11.

47 For an elaborate description, please see Chapter 3.2.

48 Jacobs, Jane, *The Death and Life of Great American Cities* (New York: Random House, 1961).

49 Museum of Modern Art (New York, N.Y.), *Another Chance for Housing: Low-Rise Alternatives* (New York: Museum of Modern Art, 1973); Kenneth Frampton, "The Evolution of Housing Concepts 1870-1970" in *Another Chance for Housing: Low-Rise Alternatives* (New York: Museum of Modern Art, 1973).

50 Ibid., 4-5.

51 Nelson Mota, "To Be Continued. : Housing, Design and Self-Determination". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 57.

52 For a thorough study of PREVI, please see: Peter Land, *The Experimental Housing Project (PREVI), Lima: Design and Technology in a New Neighborhood* (Bogotá, Colombia: Universidad de los Andes: Ediciones Uniandes, 2015).

53 For a complete understanding of Christopher Alexander's ideas on designing housing for PREVI and learning from vernacular, please see: Christopher Alexander et al., *Houses Generated by Patterns* (Center for Environmental Structure, 1969), 53.

54 Ibid.

55 Justin McGuirk, *Radical Cities: Across Latin America in Search of a New Architecture* (London: Verso Books, 2014), 9.

2.3
THE SECOND PARADIGM: NON-CONVENTIONAL STRATEGIES

1 In 1963, the British architect and activist authored and edited a widely influential issue of Architectural Design that looked at self-built housing as the solution, and not the problem. For further reading, please see: John F.C. Turner, " Dwelling Resources in South America". In: *Architectural Design* 8, 1963.

2 Ibid.

3 Ibid.

4 John F. C. Turner and Robert Fichter, *Freedom to Build: Dweller Control of the Housing Process*, (New York: Macmillan, 1972).

5 Ibid., 148-175.

6 John F. C. Turner, *Housing by People : Towards Autonomy in Building Environments* (New York: Pantheon Books, 1976).

7 For further reading on the Vancouver Declaration, please see: United Nations, "The Vancouver Declaration on Human Settlements," November 6, 1976, 2, http://www.un-documents.net/van-dec.htm.

8 Ibid.

9 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018), i.

10 For a more detailed understanding of incremental housing and its various form, please read: Nelson Mota, "Incremental Housing: A Short History of an Idea" in L. Medrano, L. Recaman, & T. Avermaete (Eds.), *The New Urban Condition: Criticism and Theory from Architecture and Urbanism* (160-182). Routledge - Taylor & Francis Group. https://doi.org/10.4324/9781003100362-13.

11 Horacio Caminos and Reinhard Goethert, *Urbanization Primer* (Cambridge, Mass: The MIT Press, 1978), 7.

12 Jan Van der Linden, *The Sites and Services Approach Renewed: Solution or Stopgap to the Third World Housing Shortage?* (Hants: Gower, 1986).

13 Horacio Caminos and Reinhard Goethert, *Urbanization Primer* (Cambridge, Mass: The MIT Press, 1978), 28–29.

14 Nelson Mota and I have written on this subject. For further reading, please see: Nelson Mota and Rohan Varma, "Sites-and-Services in Performance: Mass Housing Design Beyond Efficiency and Resilience," in *Radical Middle Grounds: New Agendas for Medium-Density Housing*, 1st ed. (Austin: Center for American Architecture and Design, 2024), 155-157.

15 Horacio Caminos and Reinhard Goethert, *Urbanization Primer* (Cambridge, Mass: The MIT Press, 1978), 7.

16 Kathryn E. Owens, Sumila Gulyani, and Andrea Rizvi, "Success When We Deemed It Failure? Revisiting Sites and Services Projects in Mumbai and Chennai 20 Years Later," *World Development* 106 (March 3, 2018): 260–72, https://doi.org/10.1016/j.worlddev.2018.01.021.

17 The World Bank, "Staff Appraisal Report. Ethiopia Urban Development Project," Staff appraisal report (The World Bank, November 1, 1982).

18 The World Bank, "Project Completion Report: Senegal Sites-and-Services Project (Credit 336-SE)" (The World Bank, October 31, 1983).

19 See again: Nelson Mota and Rohan Varma, "Sites-and-Services in Performance: Mass Housing Design Beyond Efficiency and Resilience," in *Radical Middle Grounds: New Agendas for Medium-Density Housing*, 1st ed. (Austin: Center for American Architecture and Design, 2024), 155-157.

20 The World Bank, "India Appraisal of the Madras Urban Development Project" (The World Bank, February 15, 1997).

21 Ibid., 208-212.

22 For further reading on this project and its relationship with the 1976 *Habitat Bill of Rights*, please see again: Mohamad Sedighi and Rohan Varma, "*Framing a New Discourse on the Notion of Habitat in Transforming Societies,*" in Yokohama: *Looking at the World History of Planning*. (Delft: Delft University of Technology, 2018). https://doi.org/10.7480/iphs.2018.1.2763

23 For further information on the project, please see: *United Nations Centre for Human Settlements. Promoting Organized Self-Help through Co-Operative Modes of Participation* (Nairobi: United Nations Centre for Human Settlements (Habitat), 1984).

24 Jan Van der Linden, *The Sites and Services Approach Renewed: Solution or Stopgap to the Third World Housing Shortage?* (Hants: Gower, 1986).

25 For a full understanding of De Soto's theories, please read: Hernando de Soto et al., *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (Johannesburg: CDE, 2001).

26 For further reading, please see: Nick Devas, "Indonesia's Kampung Improvement Program: An Evaluative Case Study." *Ekistics* 48, no. 286 (1981): 19–36. http://www.jstor.org/stable/43620193.

27 Ibid., 19-36.

28 "Kampung Improvement Programme," Aga Khan Development Network, December 5, 2024, https://the.akdn/en/how-we-work/our-agencies/aga-khan-trust-culture/akaa/kampung-improvement-programme.

29 For more information on the Favela Bairro project, see: "Urban Design Case Study Archive," n.d., https://udcsa.gsd.harvard.edu/projects/7.

30 The archives of the Aga Khan Award for Architecture are an invaluable source of material: "Archnet > Site > Slum Networking of Indore City," n.d., https://www.archnet.org/sites/1294.

31 Mike Davis, *Planet of Slums* (London: Verso, 2006).

32 Michael A. Cohen, *The Challenge of Replicability: Toward a New Paradigm for Urban Shelter in Developing Countries* (Washington D.C. U.S.A: World Bank, 1983).

33 Ibid., 90-99.

2.4
THE THIRD PARADIGM: RETURN TO CONVENTIONAL STRATEGIES

1 World Bank, *Housing: Enabling Markets to Work* (Washington, D.C.: World Bank, 1993), 51.
2 Ibid., 1.
3 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018), xiv.
4 "Annual Report 2010 | UN-Habitat," n.d., https://unhabitat.org/annual-report-2010.
5 United Nations Statistics Division, "— SDG Indicators," n.d., https://unstats.un.org/sdgs/report/2021/goal-11/.
6 "Affordable Housing | Habitat for Humanity," Habitat for Humanity, n.d., https://www.habitat.org/emea/about/what-we-do/affordable-housing.
7 Ibid.
8 United Nations Statistics Division, "SDG Indicators," n.d., https://unstats.un.org/sdgs/report/2019/goal-11/.
9 Patrick Wakely, *Housing in Developing Cities: Experience and Lessons* (New York: Routledge, 2018), xiii.
10 Ibid, 83.
11 Robert Buckley, Achilles Kallergis and Laura Sara Wainer, "The emergence of large-scale housing programs: beyond a public finance perspective", *Habitat International*, 54:199-209, 2015. https://doi.org/10.1016/j.habitatint.2015.11.022.
12 Shlomo Angel, *Housing Policy Matters: A Global Analysis* (Oxford: Oxford University Press, 2000).
13 UN-Habitat, "Condominium Housing in Ethiopia: The Integrated Housing Development Programme," (Environment and Urbanization, 2010), https://www.environmentandurbanization.org/condominium-housing-ethiopia-integrated-housing-development-programme.
14 Gebre Yntiso, "Urban Development and Displacement in Addis Ababa: The Impact of Resettlement Projects on Low-Income Households," *Eastern Africa Social Science Research Review* 24, no. 2 (June 1, 2008): 53–77, https://doi.org/10.1353/eas.0.0001.
15 Ibid.
16 Ibid.
17 Renata Tubelo et al., "Cost-effective Envelope Optimisation for Social Housing in Brazil's Moderate Climates Zones," *Building and Environment* 133 (February 2, 2018): 213–27, https://doi.org/10.1016/j.buildenv.2018.01.038.
18 Nuno Gil, "Slumming it up in Sao Paulo's Favelas" (Manchester: The University of Manchester, 2021)
19 National Housing Bank, "The National Housing & Habitat Policy-1998 : An Overview," n.d., https://www.nhb.org.in/publications_post/the-national-housing-habitat-policy-1998-an-overview/.
20 For the most current numbers, please refer to: Wikipedia contributors, "Economy of India," Wikipedia, May 16, 2025, https://en.wikipedia.org/wiki/Economy_of_India.
21 As per the 2012 report of the Technical Urban Group (TG-12) submitted to the Ministry of Housing and Urban Poverty Alleviation (MHUPA), India's urban housing shortage stood at about nineteen million (18.78 million) homes. This estimate was based on the 2011 Census of India and the 2008-2009 results on Housing conditions and Urban Slums. Of the estimated deficit, about 80 percent of households were living in congested areas and were in need of new homes, another one million were living in non-servicable "katcha" houses and about half a million households were living in a condition of homelessness.
22 For further information on India's 'Housing for All' mission, please see: "Housing for All Scheme| National Portal of India," n.d., https://www.india.gov.in/housing-all-scheme.
23 Gautam Bhan, "From The *basti* to the 'House': Socio-spatial Readings of Housing Policy in India," *Current Sociology* 65, no. 4 (March 27, 2017): 587–602, https://doi.org/10.1177/0011392117697465.
24 Ibid., 590.
25 For further information, please see: "PMAY-Urban," PMAY-Urban, n.d., https://pmay-urban.gov.in/.
26 These numbers have been obtianed from the official government press release of August 2024. For further information please see: "Houses Costructed And Allotted For The Poor In Urban Areas," n.d., https://www.pib.gov.in/PressReleasePage.aspx?PRID=2040048.
27 Sahil Gandhi, "Housing Paradox: Despite a Severe Shortage, 12% of Houses in Indian Cities Are Lying Vacant," Scroll.In, May 11, 2017, https://scroll.in/article/836589/housing-paradox-despite-a-severe-shortage-12-of-houses-in-indian-cities-are-lying-vacant.
28 Rohan Laik, "India's Housing Paradox: Empty Houses and Housing Shortages - CSEP," CSEP - Centre for Social and Economic Progress, July 21, 2023, https://csep.org/policy-brief/indias-housing-paradox-empty-houses-and-housing-shortages/. Further facts and figures can also be obtained via government sources, such as the Report of the technical group on urban housing shortage (TG-12) prepared for the Ministry of Housing and Urban Poverty Alleviation, Government of India in 2012.
29 David J. Madden and Peter Marcuse, *In Defense of Housing: The Politics of Crisis* (London: Verso Book, 2016), 4.
30 Sama Khan, "PMAY: Variations across city size categories," July 24, 2020, accessed October 21, 2020, https://indiahousingreport.in/outputs/data-tales/pmay-variations-across-city-size-categories/.
31 Ibid.
32 Ibid.
33 Ibid.
34 Ibid.
35 For further information, please see: "PMAY-Urban," PMAY-Urban, n.d., https://pmay-urban.gov.in/.
36 Amitabh Kundu and Lopamudra Ray Saraswati, "Migration and Exclusionary Urbanisation in India." *Economic and Political Weekly* 47, no. 26/27 (2012): 219–27. http://www.jstor.org/stable/23251688.
37 Chinmay Tumbe, *India Moving: A History of Migration*, 2018, https://openlibrary.org/books/OL32195067M/India_Moving.
38 Neerja Deodhar, "Rahul Mehrotra on How Architecture Is Being Divorced From Social Context, Why We Should Revise Definition of Urbanity," Firstpost, September 19, 2019, https://www.firstpost.com/living/rahul-mehrotra-on-how-architecture-is-being-divorced-from-social-context-why-we-should-revise-definition-of-urbanity-7335541.html.
39 "Baan Mankong Rural," n.d., https://en.codi.or.th/baan-mankong-rural/.
40 For further information, please see: "New Urban Agenda | UN-Habitat," n.d., https://unhabitat.org/about-us/new-urban-agenda.
41 World Economic Forum and Joan Clos, "Harnessing Public-Private Cooperation to Deliver the New Urban Agenda," February 2017, https://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf.
42 Rahul Mehrotra, "Between Equity And Impatient Capital: Making Indian Cities," *Journal of International Affairs* 65, no. 2 (2012): 133–137.
43 "PK Das – the Nature of Cities," n.d., https://www.thenatureofcities.com/author/pkdas/.
44 Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 14.
45 Ibid.
46 "User-generated Cities." Urbz. Accessed May 03, 2018. http://urbz.net
47 For more material on the work of SPARC, please see: "SPARC | Home," n.d., https://www.sparcindia.org/.
48 Arjun Appadurai, "Deep Democracy: Urban Governmentality and the Horizon of Politics:," *Environment and Urbanization*, June 29, 2016, https://doi.org/10.1177/095624780101300203.
49 David Harvey, "The Right to the City," *International Journal of Urban and Regional Research* 27, no. 4 (December 1, 2003): 939–41, https://doi.org/10.1111/j.0309-1317.2003.00492.x.

3.1
MODELS FOR THE MASSES: FIVE MODES FOR BUILDING AFFORDABLE HOUSING

1 Parts of this chapter refer to earlier research published in a chapter that I co-authored with Kritika Sha. For further reading, please see: Rohan Varma and Kritika Sha, "Profit versus People: The Struggle for Inclusion in Mumbai". In: Robrto Rocco and Jan van Ballegooijen (Eds.), *The Routledge Handbook on Informal Urbanization* (New York: Routledge, 2019). For further facts and figures of Mumbai, please read: Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017).
2 Wikipedia contributors, "Mumbai - Wikipedia," April 25, 2024, https://en.wikipedia.org/wiki/Mumbai.
3 Mariam Dossal, *Imperial Designs and Indian Realities: The Planning of Bombay City, 1845-1875* (Bombay: Oxford University Press, 1991).
4 For a comprehensive history of the growth of the city, please read: Sharada Dwivedi and Rahul Mehrotra, *Bombay: The Cities Within* (Bombay: India Book House, 1995).
5 Shashi Bhushan Upadhyay, "Cotton Mill Workers in Bombay, 1875 to 1918: Conditions of Work and Life," Economic and Political Weekly 25, no. 30 (1990), https://www.jstor.org/stable/4396556.
6 Debashish Bhattacherjee, "Evolution of Unionism and Labour Market Structure: Case of Bombay Textile Mills, 1947-1985," Economic and Political Weekly 24, no. 21 (1989), https://www.jstor.org/stable/4394859.
7 Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017), 8.
8 Mike Davis, *Planet of Slums* (London: Verso, 2006)
9 Rahul Mehrotra, "Bombay City - One Space Two Worlds," *Architecture + Design* 8 (1), 1991.
10 Ibid., 12.
11 Wikipedia contributors, "Mumbai - Wikipedia," April 25, 2024, https://en.wikipedia.org/wiki/Mumbai.
12 Daniel Hoornweg and Kevin Pope, "Population Predictions for the World's Largest Cities in the 21st Century", *Environment and Urbanization* 29, no. 1 (1 April 2017): 195–216, https://doi.org/10.1177/0956247816663557.
13 Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017), 34.
14 Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017).
15 Bhavika Jain, "62% of Mumbai Lives in Slums: Census," *Hindustan Times*, October 16, 2010, https://www.hindustantimes.com/mumbai/62-of-mumbai-lives-in-slums-census/story-I3bUsll9w5f6ePEfuXJEbM.html.
16 Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017), 36.
17 "Mumbai, India: Pavement-dwellers' Movements and Their Struggle to Define Citizenship in a City Striving to Achieve 'World-class' Status," n.d., https://www.citego.org/bdf_fiche-document-1082_en.html.
18 Greg O'Hare et.al., "A review of slum housing policies in Mumbai" in *Cities,* 1998, 269-283.
19 For further reading, please see: Guardian Staff Reporter, "Open Mumbai: How PK Das Set Out to Map the City's Slums," The Guardian, February 3, 2020, https://www.theguardian.com/

cities/2014/nov/28/open-mumbai-how-pk-das-set-out-to-map-the-citys-slums and visit the website of PK Das & Associates at: https://pkdas.com

20 Ibid.

21 Hussain Indorewala et al., *Mumbai City Résumé* (Mumbai: KRVIA, 2017), 36.

22 Andrea Hagn, "Looking at the situation of informal settlements in Mumbai" in *Mumbai Reader* 2006 (Mumbai: UDRI, 2006).

23 Akshayakumar Ramanlal Desai and Devadas Pillai, *Slums and Urbanization* (Mumbai: Popular Prakashan, 1970).

24 For the full report, please see: Satej Chinchalikar and Satej Chinchalikar, "Report on Status of Sanitation in Slums in Mumbai (2001)," *YUVA - Youth for Unity and Voluntary Action* (blog), March 14, 2025, https://yuvaindia.org/from-the-archives-report-on-status-of-sanitation-in-slums-in-mumbai-2001/.

25 For such facts and figures, please see: Wikipedia contributors, "Mumbai - Wikipedia," April 25, 2024, https://en.wikipedia.org/wiki/Mumbai.

26 For the full report, please see: https://mumbaifirst.org/wp-content/uploads/2020/11/Summary-Report_Concept-Plan-MMR.pdf

27 Jyotsna Kaushal and Pooja Mahajan, "Asia's Largest Urban slum-Dharavi: A Global Model for Management of COVID-19," *Cities* 111 (January 13, 2021): 103097, https://doi.org/10.1016/j.cities.2020.103097.

28 "Mumbai's Mix of Country-wide Migrants Can Be a Game-changer in Polls," *Business Line*, March 27, 2024, https://www.thehindubusinessline.com/news/elections/mumbais-mix-of-country-wide-migrants-can-be-a-game-changer-in-polls/article67997956.ece.

29 Economic Times (ET) Online, "Hurun India Rich List 2024: Mumbai Surpasses Beijing to Become the Billionaire Capital of Asia," The Economic Times, August 29, 2024, https://economictimes.indiatimes.com/news/company/corporate-trends/hurun-india-rich-list-2024-mumbai-surpasses-beijing-to-become-the-billionaire-capital-of-asia/articleshow/112887927.cms?from=mdr.

30 Ibid.

31 "Mumbai's GDP May Exceed Thailand and Hong Kong's by 2030," The Economic Times, April 22, 2010, https://economictimes.indiatimes.com/mumbais-gdp-may-exceed-thailand-and-hong-kongs-by-2030/articleshow/5846397.cms?from=mdr.

32 Rajshri Mehta, "Mumbai Most Unaffordable Market, Says Knight Frank Research Report," The Times of India, July 1, 2013, https://timesofindia.indiatimes.com/business/india-business/mumbai-most-unaffordable-market-says-knight-frank-research-report/articleshow/20860102.cms.

33 Ibid.

34 "Mumbai Has Highest Vacant Housing Inventory," BusinessLine, January 29, 2018, https://www.thehindubusinessline.com/economy/mumbai-has-highest-vacant-housing-inventory/article22553704

35 "Global Economic Prospects," World Bank (Washington, United States of America: International Bank for Reconstruction and Development / The World Bank, 2025), https://openknowledge.worldbank.org/server/api/core/bitstreamsf983c12d-d43c-4e41-997e-252ec6b87dbd/content.

36 United Nations Human Settlements Programme, *The Challenge of Slums* (London: Earthscan Publications, 2003).

37 P S N Rao, "Transformation of Housing in India – the Trend towards Market Mechanisms", Paper presented in the International Housing Conference 2004 held in Hong Kong during 2-4 February, 2004.

38 Shirish Patel, "Bombay's urban predicament", in Shirish Patel et.al. (eds.) Bombay Metaphor for Modern India (Oxford: Oxford University Press, 1995).

39 Ravi Ghadge, *Shanghaization of Mumbai: Visions, Displacements, Contestations*, Doctoral thesis (Illinois: University of Illinois, 2013), 224.

40 Randeep Ramesh, "Poor Squeezed Out by Mumbai's Dream Plan," The Guardian, March 1, 2005, https://www.theguardian.com/world/2005/mar/01/india.randeepramesh.

41 *Indu Prakash*, 26 January 1905, *RNNP,* No. 4, 1905.

42 Vinit Mukhija, "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment" (Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000), 13.

43 For further reading, please see the plan prepared by the MMRDA titled "Regional Plan for Mumbai Metropolitan region 1996-
2011" (Mumbai: MMRDA, 1995).

44 Amita Bhide, "Shifting Terrains of Communities and Community Organization: Reflections on Organizing for Housing Rights in Mumbai," Community Development Journal 44, no. 3 (June 9, 2009): 367–81, https://doi.org/10.1093/cdj/bsp026.

45 UN-HABITAT WORLDWIDE, "Christian Werthmann - Metropolis Non-Formal, 10 Things Designers Need to Work On," April 22, 2014, https://www.youtube.com/watch?v=hJiLiMlFotw.

46 Rohan Varma and Kritika Sha, 'Profit Versus People: The Struggle for Inclusion in Mumbai', in *The Routledge Handbook on Informal Urbanization*, ed. Roberto Rocco and Jan van Ballegooijen (Routledge, 2019).

47 Florian Urban, *Tower and Slab: Histories of Global Mass Housing*. (London: Routledge, 2012), 106.

48 Ibid.

49 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 53.

50 Ibid., 53-74.

51 Amita Bhide, "Shifting Terrains of Communities and Community Organization: Reflections on Organizing for Housing Rights in Mumbai," Community Development Journal 44, no. 3 (June 9, 2009): 370–71, https://doi.org/10.1093/cdj/bsp026.

52 Greg O'Hare et.al., "A review of slum housing policies in Mumbai" in *Cities,* 1998, 269-283.

3.2
SOCIAL HOUSING

1 Suyash Verma, "How The Bombay Plague of 1896 Played Out," July 4, 2020, https://science.thewire.in/health/how-the-bombay-plague-of-1897-played-out/.

2 Rajnayaran Chandavarkar, *History, Culture and the Indian City*, 2009, https://doi.org/10.1017/cbo9780511642036.

3 "Annual Administration Report of the City of Bombay Improvement Trust for the year ending 31st March, 1899," Bombay, 1899, 3.

4 Various scholars have written about the BIT's strategies concerning "direct" and "indirect attacks". For further reading, please refer to the work of Hussain Indorewala in: Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 56.

5 Ibid., 55.

6 Prashant Kidambi, *The Making of an Indian Metropolis: Colonial Governance and Public Culture in Bombay, 1890-1920.* (Aldershot, England: Ashgate, 2007).

7 BIT Proceedings, 30 March 1911, GoB, General, Vol. 51, Compilation 833, 1911, Maharashtra State Archives, Mumbai, 61.

8 General Department 1903, Vol. 31, Compilation 525, Report of March 6, 1902, by the President of BCIT, Maharashtra State Archives, Mumbai, 13.

9 ITJ, Vol. XI: 129, June 1901, p. 251.

10 Nikhil Rao, *House, but no garden: Apartment Living in Bombay's Suburbs, 1898-1964.* (Minneapolis: University of Minnesota Press, 2013), 28.

11 J.P. Orr, *Social Reform and Slum Reform* (Bombay, 1917), part II, 23.

12 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 55.

13 Ibid., 70

14 Ibid., 70.

15 "Chawl as Home," BARD Studio, February 18, 2019, https://bardstudio.in/chawl-as-home/.

16 L. R. C, A. R. Burnett-Hurst, and Stanley Reed, "Labour and Housing in Bombay: A Study in the Economic Conditions of the Wage-Earning Classes in Bombay.," *Journal of the Royal Statistical Society 89*, no. 1 (January 1, 1926): 154.

17 Neera Adarkar, ed., *The Chawls of Mumbai: Galleries of Life*, 1st ed. (New Delhi, India: ImprintOne, 2011), xi.

18 Ibid., ix.

19 While several have argued that the BDD chawls were used as prisons during British colonial rule, for a thorough history of the BDD Chawls in Worli, please refer to: Vanessa Caru, "The Making of a Working-Class Area, the Worli BDD Chawls (1920-40)." In Neera. Adarkar, ed. *The Chawls of Mumbai: Galleries of Life*, 1st ed. (New Delhi, India: ImprintOne, 2011), 26-36.

20 For an extensive architectural documentation of the current state of the BDD Chawls in Worli, please see: Sameep Padora, *In The Name of Housing: A Study of 11 Projects in Mumbai*, 1st ed. (Mumbai: Urban Design Research Institute, 2016), 83-108.

21 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 56.

22 P S N Rao, "Transformation of Housing in India – the Trend towards Market Mechanisms", Paper presented in the 'International Housing Conference' 2004 held in Hong Kong during 2-4 February, 2004.

23 Swapna Banerjee-Guha, "Who are the Beneficiaries? Evaluation of a Public Housing Project for the Poor in New Bombay," *Ekistics 58* n. 347 (March–April 1991), 63.

24 Pritika Hingorani, "Revisiting Low Income Housing: A Review of Policies and Perspectives," prepared for the Indian Institute for Human Settlements (IIHS) for the conference 'Revisiting Upgrading: Low-Income Housing and Infrastructure' for the India Urban Conference, held on November 17, 2011.

25 This project has also been documented in: Dick Van Gameren and Rohan Varma, *Living Ideals: Designs for Housing by Charles Correa* (Panjim: Charles Correa Foundation, 2018).

26 Florian Urban, *Tower and Slab: Histories of Global Mass Housing*. (London: Routledge, 2012), 108.

27 Neelima Risbud, "The Case of Mumbai" commissioned for the UN Global Report on Human Settlements – *The Challenge of Slums* (New Delhi, 2003), 12, available online at http://www.ucl.ac.uk/dpu-projects/Global_Report/cities/mumbai.htm

28 Prasad Shetty et al., "Housing Typologies in Mumbai" (CRIT, 2007), https://crit.in/initiatives/housing/housing-typologies/.

29 P. S. A. Sundaram, *Bombay: Can it House its Millions?* (New Delhi: Clarion Books, 1989), 68.

30 Charles Correa, *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 9.

31 Bhagyasshree Ramakrishna and Shruthi Ramesh,

"Contentions of Affordability in the Habitat Planning of a New Town: A Case of Navi Mumbai, India," December 28, 2023, https://journals.openedition.org/cidades/7841#ftn8.

32 Here I am grateful to Dr Mohamad Sedighi who first introduced me to the landmark 1974 congress in Iran and the 'Habitat Bill of Rights'. For a more detailed reading of the congress and how architects from the Developing World tackled issues of "regionality", please refer to: Mohamad Sedighi and Rohan Varma, "*Framing a New Discourse on the Notion of Habitat in Transforming Societies,*" in Yokohama: *Looking at the World History of Planning*. (Delft: Delft University of Technology, 2018). https://doi.org/10.7480/iphs.2018.1.2763

33 Raj Rewal, *Humane Habitat at Low Cost*. (New Delhi: Tulika, Architecture Research Cell, 2000).

34 MMRDA, "Regional Plan for the Mumbai Metropolitan Region 1996-2011" (Mumbai: Government of Maharashtra, 1995), https://mmrda.maharashtra.gov.in/sites/default/files/2023-05/RP%201996-2011.pdf.

35 Ibid., 30

36 Ibid., 30

37 Ibid. Please find the full report here: https://mmrda.maharashtra.gov.in/sites/default/files/2021-09/Modifications_0.pdf

38 The term "privatopia's" can be credited to Edward Soja. See: Edward Soja, *In TransUrbanism*, edited by Joke Brouwer, Arjen Mulder, Laura Marz. (Rotterdam: V2 Publishing/NAI Publishers). For further reading on the state of contemporary architecture and "Indian identity", please read: Rupali Gupte et al., " "Architecture & Contemporary Indian Identity," BARD Studio, May 10, 2017, https://bardstudio.in/architecture-and-contemporary-indian-identity/

39 For further reading on the controversial redevelopment of Mumbai's Mill Lands, please read: Darryl D'Monte, *Mills for Sale: The Way Ahead* (Mumbai: Marg Publications, 2006).

40 Rahul Mehrotra, *Architecture in India since 1990*. (Ostfildern: Hatje Cantz, 2011), 11.

41 Chandrashekhar Prabhu, "'Housing for All?,'" Economic Digest, 2003.

42 Wikipedia contributors, "Maharashtra Housing and Area Development Authority," Wikipedia, February 21, 2025, https://en.wikipedia.org/wiki/Maharashtra_Housing_and_Area_Development_Authority.

43 Neeraj Tiwari, "MHADA: Over 66,000 Apply for 217 Houses, Lottery on June 2," *The Indian Express*, May 26, 2019, https://indianexpress.com/article/cities/mumbai/mhada-over-66000-apply-for-217-houses-lottery-on-june-2-5749622/.

44 Bella Jaisinghani, "Mhada Lottery for 1,384 Flats Gets Under Way in Mumbai," *The Times of India*, December 16, 2018, https://timesofindia.indiatimes.com/city/mumbai/mhada-lottery-for-1384-flats-gets-under-way-in-mumbai/articleshow/67114034.cms.

45 Naresh Kamath, "Mumbai: Mhada Announces Lottery Process for 8,205 Low-cost Houses," Hindustan Times, August 5, 2021, https://www.hindustantimes.com/cities/mumbai-news/mumbai-mhada-announces-lottery-process-for-8-205-low-cost-houses-101628176913926.html.

46 This mode, known as 'slum redevelopment' is one of the most dominant modes in practice in Mumbai today. One of the most well-known case is the redevelopment of the BDD Chawls in central Mumbai. For further reading on this mode, please read Chapter 3.5.

47 "Rental Housing | Mumbai Metropolitan Region Development Authority," n.d., https://mmrda.maharashtra.gov.in/division/rental-housing/overview.

3.3
SELF-HELP & SITES-AND-SERVICES

1 Dharavi is widely considered as "Asia's largest slum". For further reading on the settlement, please read: Sheela Patel et al., *RE: Interpreting, Imagining, Developing DHARAVI* (Mumbai: KRVIA, 2010), and Vandana Desai, "Dharavi, the Largest Slum in Asia," in *Habitat International* 12 (2): 67–74. https://doi.org/10.1016/0197-3975(88)90027-6.

2 Sheela Patel et al., *RE: Interpreting, Imagining, Developing DHARAVI* (Mumbai: KRVIA, 2010), 14-15.

3 "New Land of Opportunity." 2011. Forbes. April 20, 2011. https://www.forbes.com/forbes/2011/0509/global-2000-11-edward-glaeser-slums-dharavi-lands-opportunity.html.

4 Jyotsna Kaushal and Pooja Mahajan, "Asia's Largest Urban slum-Dharavi: A Global Model for Management of COVID-19," Cities 111 (January 13, 2021): 103097, https://doi.org/10.1016/j.cities.2020.103097.

5 Sheela Patel et al., *ReDharavi: Interpreting, Imagining, Developing DHARAVI* (Mumbai: KRVIA, 2010), 14-15.

6 Ibid., 14-15.

7 Scott Jagow, "'Slumdog' Could Bring Fortune," April 5, 2025, https://www.marketplace.org/story/2009/02/23/slumdog-could-bring-fortune.

8 'Slumdog Millionaire Is an Assault on Indian Self-Esteem - Hindustan Times', accessed 4 June 2024, https://www.hindustantimes.com/entertainment/slumdog-millionaire-is-an-assault-on-indian-self-esteem/story-UzMRtF7U7AX7zsyupK6c6M.html.

9 Mitu Sengupta, "A Million Dollar Exit from the Anarchic Slum-World: Slumdog Millionaire's Hollow Idioms of Social Justice," *Third World Quarterly* 31(4), (June 28, 2010), 599–616. doi:10.1080/01436591003701117.

10 Ananya Roy, "Slumdog Cities: Rethinking Subaltern Urbanism," *International Journal of Urban and Regional Research* 35, no. 2 (February 11, 2011): 223–38, https://doi.org/10.1111/j.1468-2427.2011.01051.x.

11 P K Das, "Slums Improvement and Development Schemes & Policies," ed. Sujata Patel and Jim Masselos, *National Consultation Organized by NAPM, TISS, HRLN and CRH*, October 2005, https://pkdas.com/talks/Nationalconsultation-Slums.pdf.

12 Hardoy et al., "Building the Future City", *Policies for a Small Planet: From the International Institute for Environment and Development* (1st ed.). Routledge, (1992). https://doi.org/10.4324/9780429200465

13 "Typologies and Beyond: Slum Settlement Studies in Mumbai," CRIT, December 12, 2013, https://crit.in/initiatives/housing/slum-studies/.

14 Matias Echanove and Rahul Srivastava, "Homegrown Street" accessed 27 August 2024. Available at: https://urbz.net/pdf/homegrown-street-report.

15 Deyan Sudjic, "India's Urban Shift," Urban Age, 2007, https://urbanage.lsecities.net/essays/india-s-urban-shift.

16 Srivastava, Rahul, and Matias Echanove. "Why Slum Upgrading Requires A Light Touch." Next City, June 20, 2013. https://nextcity.org/informalcity/entry/how-architects-and-planners-can-lead-from-behind.

16 Ibid.

17 Ibid.

18 Ibid.

19 Matias Echanove and Rahul Srivastava. "In Practice: Urbz on the Local Actors behind Dharavi's Incremental Improvements." *The Architectural Review*, (2021), https://www.architectural-review.com/essays/in-practice/local-hands-and-homes.

20 For an overview of Patrick Wakely's strategies for housing delivery, see: Patrick Wakely, *Housing in Developing Cities : Experience and Lessons* (New York: Routledge, 2018).

21 "Implementation Completion Report: Bombay Urban Development Project (BUDP)" (World Bank, June 1997), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639, 7.

22 Swapna Banerjee-Guha, "Bombay Urban Development Project: A Solution for the Shelter Problem of the Urban Poor?," in *The Geojournal Library*, 1994, 327–36, https://doi.org/10.1007/978-94-011-1002-0_21, 327.

23 Ibid., 327.

24 Ibid., 328.

25 "Implementation Completion Report: Bombay Urban Development Project (BUDP)" (World Bank, June 1997), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639, 13-14

26 Ibid., 13-14.

27 Ibid., 16.

28 "Staff Appraisal Report: Bombay Urban Development Project (BUDP)" (World Bank, January 1985), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/974511468267022093, 23.

29 "Implementation Completion Report: Bombay Urban Development Project (BUDP)" (World Bank, June 1997), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639, 15.

30 "Staff Appraisal Report: Bombay Urban Development Project (BUDP)" (World Bank, January 1985), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/974511468267022093, 42.

31 Ibid., 19.

32 Ibid., 16. For further reading on Charkop, please refer to: Sameep Padora, *In The Name of Housing: A Study of 11 Projects in Mumbai*, 1st ed. (Mumbai: Urban Design Research Institute, 2016), 179-196.

33 Ratanchandra G Vishwakarma, "Evaluation of Site and Services Project at Gorai, Borivali, Under World Bank Project."

34 Shirish Patel, "Affordable Housing with Spatial Justice, For All." *Economic and Political Weekly* 50, no. 6 (2015): http://www.jstor.org/stable/24481365, 62.

35 "Staff Appraisal Report: Bombay Urban Development Project (BUDP)" (World Bank, January 1985), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/974511468267022093, 56.

36 Ibid., 56.

37 Ibid., 56-57

38 For further reading on the housing designs of Charles Correa, please read: Dick Van Gameren and Rohan Varma, *Living Ideals: Designs for Housing by Charles Correa* (Panjim: Charles Correa Foundation, 2018), and Rohan Varma, "From Affordable Housing to Affordable Cities." In: the *Newsletter of the Charles Correa Foundation* (Panjim: Charles Correa Foundation, 2021).

39 Christopher Alexander & Serge Chermayeff, *Community and Privacy: Toward a New Architecture of Humanism*)Garden City: Doubleday, 1963).

40 For recent documentation on the PREVI project and its development over time, please see: Fernando García-Huidobro, Diego Torres Torriti en Nicolas Tugas, *Time Builds!* (Barcelona, Editorial Gustavo Gili, 2008).

41 Dick Van Gameren and Rohan Varma, *Living Ideals: Designs for Housing by Charles Correa* (Panjim: Charles Correa Foundation, 2018), 18-23.

42 Ibid., 23.

43 "Own Your House Scheme '85: In The Artiste's Village Belapur, New Bombay" (CIDCO, 1985).

44 "Implementation Completion Report: Bombay Urban Development Project (BUDP)" (World Bank, June 1997), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639, 15.

45 Rohan Varma and Kritika Sha, 'Profit Versus People: The Struggle for Inclusion in Mumbai', in *The Routledge Handbook on Informal Urbanization*, ed. Roberto Rocco and Jan van Ballegooijen (Routledge, 2019).

46 Nelson Mota and Rohan Varma, "Sites-and-Services in

Performance: Mass Housing Design Beyond Efficiency and Resilience," in *Radical Middle Grounds: New Agendas for Medium-Density Housing*, 1st ed. (Austin: Center for American Architecture and Design, 2024), 155.

47 Bredenoord, Jan, P. van Lindert, and Peer Smets, *Affordable Housing in the Urban Global South: Seeking Sustainable Solutions*. (Abingdon, Oxon: Routledge, 2014).

3.4
SLUM IMPROVEMENT AND UPGRADATION

1 Sharada Dwivedi and Rahul Mehrotra, *Bombay: The Cities Within* (Bombay: India Book House, 1995).

2 Ibid.

3 Mark Twain, *Following the Equator: A Journey Around the World* (Hartford: The American Publishing Company, 1897).

4 Prashant Kidambi, "Housing the Poor in a Colonial City: The Bombay Improvement Trust, 1898-1918," *Studies in History* 17, no. 1 (February 1, 2001): 57–79, https://doi.org/10.1177/025764300101700103.

5 Prashant Kidambi, "Planning, the Information Order, and the Bombay Census of 1901," *Planning Perspectives* 28, no. 1 (November 12, 2012): 117–23, https://doi.org/10.1080/02665433.2012.737246.

6 For further reading on the various strategies of the BIT, please read: Nikhil Rao, *House, but no garden: Apartment Living in Bombay's Suburbs, 1898-1964.* (Minneapolis: University of Minnesota Press, 2013).

7 Ibid.

8 In addition to Rao's brilliant study on the BIT's impact on the suburbanisation of Mumbai, another paper worth reading for a better understanding of the BIT's impact on housing can be found here: Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018).

9 Report of the Bombay Improvement Trust, 1928.

10 Dunn, 19; Bombay Improvement Trust, 1901-1902, 11.

11 Ibid., 15.

12 Annual Administration Report of the City of Bombay Improvement Trust (BIT) for the year ending 31st March, 1899, Bombay, 1899, p. 3.

13 Bombay Gazette , dated 24 Feb. 1905.

14 Hazareesingh, Sandip, "Colonial Modernism and the Flawed Paradigms of Urban Renewal: Uneven Development in Bombay, 1900-25." *Urban History* 28 (2), 2001: 235–55.

15 J.P. Orr, *Social Reform and Slum Reform* (Bombay, 1917), part II, 23.

16 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 56.

17 Ibid.

18 For the full report, please see: https://www.indiacode.nic.in/bitstream/123456789/1709/1/195696.pdf

19 Ibid., 7.

20 Sundar Burra, "Towards a Pro-poor Framework for Slum Upgrading in Mumbai, India," Environment and Urbanization 17, no. 1 (April 1, 2005): 67–88, https://doi.org/10.1177/095624780501700106.

21 For more studies and insights by Bhide, please see: Amita Bhide, "Shifting Terrains of Communities and Community Organization: Reflections on Organizing for Housing Rights in Mumbai," Community Development Journal 44, no. 3 (June 9, 2009): 367–81, https://doi.org/10.1093/cdj/bsp026.

22 For a more detailed understanding of incremental housing and its various form, please read: Nelson Mota, "Incremental Housing: A Short History of an Idea" in L. Medrano, L. Recaman, & T. Avermaete (Eds.), *The New Urban Condition: Criticism and Theory from Architecture and Urbanism* (160-182). Routledge - Taylor & Francis Group. https://doi.org/10.4324/9781003100362-13.

23 Vinit Mukhija, "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment" (Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000), https://dspace.mit.edu/handle/1721.1/8959?show=full.

24 For the full report, please see: https://www.indiacode.nic.in/bitstream/123456789/15805/1/a_slum_areas_.pdf

25 Anu Kumar. "Mumbai's Expendable Poor." *Economic and Political Weekly* 40, no. 6 (2005): 506–10. http://www.jstor.org/stable/4416159.

26 Please see: "Staff Appraisal Report: Bombay Urban Development Project (BUDP)" (World Bank, January 1985), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/974511468267022093, 23.

27 Ibid., 14.

28 Ibid., 17.

29 "Implementation Completion Report: Bombay Urban Development Project (BUDP)" (World Bank, June 1997), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639, 4.

30 For the full report, please see: Shyamal Sarkar, Somnath Sen, and Soma Ghosh Moulik, "The Mumbai Slum Sanitation Program : Partnering With Slum Communities for Sustainable Sanitation in a Megalopolis," *World Bank Report*, September 1, 2006, 1–42, https://documents.worldbank.org/curated/en/620841468041130033/The-Mumbai-Slum-Sanitation-Program-partnering-with-slum-communities-for-sustainable-sanitation-in-a-megalopolis.

31 Ibid., 3.

32 Ibid., 4.

33 Ibid., 7.

34 Dhaval Desai, "Sanitation Problems in Mumbai at Catastrophic Proportions," ww.orfonline.org, December 4, 2023, https://www.orfonline.org/expert-speak/42671-sanitation-problems-in-mumbai-at-catastrophic-proportions.

35 Ibid.

36 'Homegrown Cities Project', *Urbanista* (blog), 17 June 2013, https://www.urbanista.org/issues/no-issues/news/the-homegrown-cities-projecturbz-urbanology-mumbai-goa-common-sense-to-the-rescue-of-mumbai-slums.

37 For the full report, please see: "Report of the Study Group on Upgradation of Dharavi", Government of Maharashtra, 1985, courtesy of the Charles Correa Foundation.

38 Satej Chinchalikar and Satej Chinchalikar, "Report on Status of Sanitation in Slums in Mumbai (2001)," YUVA - Youth for Unity and Voluntary Action (blog), March 14, 2025, https://yuvaindia.org/from-the-archives-report-on-status-of-sanitation-in-slums-in-mumbai-2001/.

39 "Report of the Study Group on Upgradation of Dharavi", Government of Maharashtra, 1985.

40 Prashant Kidambi, "Housing the Poor in a Colonial City: The Bombay Improvement Trust, 1898-1918," *Studies in History* 17, no. 1 (February 1, 2001): 57–79, https://doi.org/10.1177/025764300101700103.

41 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 53.

42 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', Singapore Journal of Tropical Geography 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047.

3.5
SLUM REDEVELOPMENT

1 Frederick Engels, The Housing Question (Leipzig: De Volksstaat, 1872).

2 For the exact quotation, please see: Hic-SuperAdmin, "David Harvey at the World Social Forum, Belem - HIC GS," HIC GS, September 19, 2019, https://www.hic-net.org/david-harvey-at-the-world-social-forum-belem/. For further reading on David Harvey's ideas, please read: David Harvey, "The Right to the City," *International Journal of Urban and Regional Research* 27, no. 4 (December 1, 2003): 939–41, https://doi.org/10.1111/j.0309-1317.2003.00492.x.

3 David J. Madden and Peter Marcuse, *In Defense of Housing: The Politics of Crisis* (London: Verso Book, 2016), 8.

4 To learn more about the World Bank's influence on housing and urban development, please see: World Bank, *Housing: Enabling Markets to Work* (Washington, D.C.: World Bank, 1993).

5 Ghertner, D. Asher, 'The Propriety of Property: Resettlement and the Pursuit of Belonging', *Rule By Aesthetics: World-Class City Making in Delhi* (New York, 2015; online edn, Oxford Academic, 22 Oct. 2015), https://doi.org/10.1093/acprof:oso/9780199385560.003.0007, accessed 25 May 2024.

6 Pritika Hingorani, "Revisiting Low Income Housing: A Review of Policies and Perspectives," prepared for the Indian Institute for Human Settlements (IIHS) for the conference "Revisiting Upgrading: Low-Income Housing and Infrastructure" for the *India Urban Conference*, held on November 17, 2011.

7 "Budget 1991-92: Speech of Shri Manmohan Singh Minister of Finance," July 24, 1991, accessed May 22, 2023, https://www.indiabudget.gov.in/doc/bspeech/bs199192.pdf.

8 Ibid., 7.

9 Rayaprolu Nagaraj. "Foreign Direct Investment in India in the 1990s: Trends and Issues." *Economic and Political Weekly* 38, no. 17 (2003): 1701–12. http://www.jstor.org/stable/4413497.

10 'India Replaces China as Top FDI Destination in 2015', *The Economic Times*, accessed 25 May 2024, https://economictimes.indiatimes.com/news/economy/finance/india-replaces-china-as-top-fdi-destination-in-2015-report/articleshow/51932057.cms?from=mdr.

11 For more information of India's total FDI's over various financial years, please see: "Foreign Direct Investment | FDI | Make in India," n.d., https://www.makeinindia.com/policy/foreign-direct-investment.

12 Ramachandra Guha, Makers of Modern India, 2010, http://ci.nii.ac.jp/ncid/BB06066975.

13 Saurav Anand, "India's Real Estate Sector Attracts $26.6 Bn in Foreign Investment over 5 Years: Report", *Mint*, 12 May 2023, https://www.livemint.com/news/india/indias-real-estate-sector-sees-three-fold-increase-in-foreign-investments-reaches-26-6-billion-between-2017-and-2022-11683886840788.html.

14 For more on Rahul Mehrotra's ideas on architecture and cities, please read: Rahul Mehrotra, *The Kinetic City & Other Esaays* (Berlin: ArchiTange, 2021).

15 Rahul Mehrotra, "Urban India: Negotiating the Impatience of Global Capital," *Domus*, February 8, 2021, https://www.domusweb.it/en/architecture/2021/02/08/urban-india-negotiating-the-impatience-of-global-capital.html.

16 For a full overview, please see: https://censusindia.gov.in/

17 For the full report, please see: "Regional Plan | Mumbai Metropolitan Region Development Authority," n.d., https://mmrda.maharashtra.gov.in/planning/regional-plan/final-rp-for-mmr.

18 For the full report, please see: "Report of the Study Group on Upgradation of Dharavi", Government of Maharashtra, 1985, courtesy of the Charles Correa Foundation.

19 Ibid.

20 Ajay Dua, "Towards Shelter for All: The Bombay Experiments." In *Urban Management in Asia: Issues and Opportunities* (New Delhi: National Institute of Urban Affairs, 1989), 161-173.

21 For a thorough understanding of the various shifts in FSI between the SRD and SRS, please see: Vinit Mukhija, "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment" (Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000), https://dspace.mit.edu/handle/1721.1/8959?show=full., 44.

22 Ibid., 44-51.

23 Ibid., 75

24 Shirish B. Patel. "Slum Rehabilitation: 40 Lakh Free Lunches?" *Economic and Political Weekly* 30, no. 40 (1995): 2473–76. http://www.jstor.org/stable/4403297.

25 Please see: "Slum Rehabilitation Authority (SRA)", accessed 21 September 2024, https://sra.gov.in/dashboard.

26 The concept of Transferable Development Rights Certificates or Transfer of Development Rights (TDR) allows for property pwners and developers to de-link a portion of the potential development of one sites and transfer it to another so-called "receiving-site."

27 Vinit Mukhija, "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment" (Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000), https://dspace.mit.edu/handle/1721.1/8959?show=full., 81.

28 Rahul Mehrotra, "Constructing Cultural Significance: Looking at Bombay's Historic Fort Area." *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism* 1, no. 2 (2004): 24-31.

29 "'Jai Ho' Dharavi," n.d., https://web.archive.org/web/20090531175111/http://www.nyenrode.nl/businesstopics/europeindia/Pages/%E2%80%9CJaiHo%E2%80%9DDharavi.aspx.

30 Niranjan Rajadhyaksha, "Dharavi's Makeover Man," *Mint*, October 4, 2007, https://www.livemint.com/Leisure b67oGfRdzjmryoRk8PDkGO/Dharavi8217s-makeover-man.html.

31 Benita Chacko, "New Model for Dharavi Redevelopment," *The Indian Express*, February 6, 2017, https://indianexpress.com/article/cities/mumbai/new-model-for-dharavi-redevelopment/.

32 Ibid.

33 Jeb Brugmann, "Mumbai's Biggest "Slum" Deserves Its Own Award: Protection as a UN World Heritage Site", *Mumbai Reader '09* (Mumbai: UDRI, 2009), 158-165.

34 Ibid., 159.

35 Ibid., 161.

36 Sheela Patel et al., *ReDharavi: Interpreting, Imagining, Developing DHARAVI* (Mumbai: KRVIA, 2010), 6.

37 Ibid., 7.

38 Bishwapriya Sanyal and Vinit Mukhija, "Institutional Pluralism and Housing Delivery: A Case of Unforeseen Conflicts in Mumbai, India," World Development 29, no. 12 (December 1, 2001): 2043–57, https://doi.org/10.1016/s0305-750x(01)00082-1.

39 Jockin Arputham quoted in a newspaper article, *The Independent*, 1989.

40 Sheela Patel et al., *ReDharavi: Interpreting, Imagining, Developing DHARAVI* (Mumbai: KRVIA, 2010), 7.

41 Sama Khan, "PMAY: Variations across city size categories," July 24, 2020, accessed October 21, 2020, https://indiahousingreport.in/outputs/data-tales/pmay-variations-across-city-size-categories/.

42 Nadja-Christina Schneider, *Reimagining Housing, Rethinking the Role of Architects in India* (Heidelberg: Heidelberg Asian Studies Publishing, 2024.

43 P S N Rao, "Transformation of Housing in India – the Trend towards Market Mechanisms", Paper presented in the International Housing Conference 2004 held in Hong Kong during 2-4 February, 2004.

44 Pritika Hingorani, "Revisiting Low Income Housing: A Review of Policies and Perspectives," prepared for the Indian Institute for Human Settlements (IIHS) for the conference "Revisiting Upgrading: Low-Income Housing and Infrastructure" for the *India Urban Conference*, held in Mysore on November 17, 2011.

45 PK Das, "Slums Improvement and Development Schemes & Policies," available at: https://pkdas.com/talks/Nationalconsultation-Slums.pdf.

46 Amita Bhide, "Structural Violence in Much More Than Neoliberal Times: The Case of Slum Redevelopment in Mumbai," *City* 27, no. 3–4 (June 23, 2023): 483–500, https://doi.org/10.1080/13604813.2023.2223880.

47 Srivastava, Rahul, and Matias Echanove. "Why Slum Upgrading Requires A Light Touch." Next City, June 20, 2013. https://nextcity.org/informalcity/entry/how-architects-and-planners-can-lead-from-behind.

48 Freny Manecksha, "Pushing the Poor to the Periphery in Mumbai", *Economic and Political Weekly* 46, no. 51 (2011): 28.

49 SS Kshatriyas, "Reforming the housing debate," paper presented at Housing the Urban Poor, Urban Age India Conference, Mumbai, 2 November 2007.

50 Ford Foundation, Madhu Mehta Foundation and Nitai Mehta, "The State of Affordable Housing in Mumbai," ed. Shirish B Patel et al., November 2014, https://www.praja.org/praja_docs/praja_downloads/Report%20on%20The%20State%20of%20Affordable%20Housing%20in%20Mumbai.pdf.

51 Sameep Padora and Shreyank Khemalapure, (de)Coding Mumbai (Ahmedabad: CEPT University Press, 2023, 264.

52 Hernando de Soto, Judi Hudson, and Centre for Development and Enterprise, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (Johannesburg: CDE, 2001).

53 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', *Singapore Journal of Tropical Geography* 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047.

54 Ibid., 141.

55 Asher Ghertner, *Rule by Aesthetics: World-Class City Making in Delhi* (Oxford: Oxford University Press, 2015), 272.

3.6
SLUM RESETTLEMENT & REHABILITATION

1 Vanessa Watson, "African Urban Fantasies: Dreams or Nightmares?," *Environment and Urbanization* 26, no. 1 (December 6, 2013), 215. Available at: https://doi.org/10.1177/0956247813513705.

2 Aastha Deshpande, "Rahul Mehrotra on the Kinetic City and Urbanism for the Global South," Metropolis, October 31, 2022, https://metropolismag.com/profiles/rahul-mehrotra-on-the-kinetic-city-and-urbanism-for-the-global-south/.

3 Vanessa Watson, "African Urban Fantasies: Dreams or Nightmares?," *Environment and Urbanization* 26, no. 1 (December 6, 2013), 215, https://doi.org/10.1177/0956247813513705.

4 Ibid., 229.

5 For a thorough understanding of David Harvey's ideas, please read: David Harvey, *A Brief History of Neoliberalism*, (Oxford: Oxford University Press, 2005), https://doi.org/10.1093/oso/9780199283262.001.0001.

6 For a general understanding of this term, please read: Chris de Wet, *Development-Induced Displacement: Problems, Policies and People* (Berghahn Books, 2005), https://doi.org/10.2307/j.ctv287sd3h.

7 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', *Singapore Journal of Tropical Geography* 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047.

8 Bombay First and McKinsey & Company, Inc., "VISION MUMBAI: Transforming Mumbai Into a World-class City" (Mumbai, India: A Bombay First – McKinsey Report, 1991), https://mumbaifirst.org/wp-content/uploads/2020/11/McKinsey-Report-on-Vision-Mumbai.pdf.

9 O. Söderström, "Worlding Cities. Asian Experiments and the Art of Being Global," Geographica Helvetica 68, no. 1 (May 30, 2013): 77, https://doi.org/10.5194/gh-68-77-2013.

10 Vanessa Watson, "African Urban Fantasies: Dreams or Nightmares?," *Environment and Urbanization* 26, no. 1 (December 6, 2013), 215, https://doi.org/10.1177/0956247813513705.

11 Bombay First and McKinsey & Company, Inc., "VISION MUMBAI: Transforming Mumbai Into a World-class City" (Mumbai, India: A Bombay First – McKinsey Report, 1991), 21.

12 Ibid., 11.

13 Joanna Kloppenburg, "Landscapes of Democracy: Rahul Mehrotra on the Beauty of Negotiating Difference in Urban Planning," *Architizer*, November 9, 2016, https://architizer.com/blog/inspiration/stories/rahul-mehrotra-landscapes-of-democracy/.

14 Rahul Mehrotra, *The static and the kinetic* (October 2013), accessed 24th July 2024 https://LSECiti.es/u1c5b12b2.

15 Ravi Ghadge, *Shanghaization of Mumbai: Visions, Displacements, Contestations*, Doctoral thesis (Illinois: University of Illinois, 2013), 224.

16 Ibid., 153.

17 Ibid.

18 Sunil Sethi, "Charles Correa: India's Most 'innovative' Architect," *www.business-standard.com*, June 18, 2015, https://www.business-standard.com/article/current-affairs/charles-correa-india-s-most-innovative-architect-115061700855_1.html.

19 Ravi Ghadge, *Shanghaization of Mumbai: Visions, Displacements, Contestations*, Doctoral thesis (Illinois: University of Illinois, 2013), 154.

20 Of Mumbai's 24 adminsitrative wards, M-East Ward is its poorest and ranks lowest in a number of metrics such as literacy, unemployment among women and mortality. As per the 2011 census, nearly 85 percent of its population lived in slums. For a better understanding of the history of Mumbai's M-East Ward, please read: Amita Bhide, "The Political Possibilities of an Administrative Boundary: How the Transforming M-Ward Project 'Constructed' the Ward," *Urbanisation* 5, no. 2 (November 1, 2020): 172–80, https://doi.org/10.1177/2455747120973147.

21 Apnalaya et al., "Rapid Assessment of Shivaji Nagar: Impact of COVID-19 on Social and Economic Indicators," ed. Aparna Bhasin Consulting and Ved Market Research, 2021, https://apnalaya.org/wp-content/uploads/2021/05/Revisiting-the-Margins-Final.pdf.

22 Habitat International Coalition, ed., *Forced to the Fringes: Disasters of 'resettlement' in India* (New Delhi: Housing and Land Rights Network, 2014), 12.

23 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 53.

24 Ibid., 56.

25 For further reading on the various strategies of the BIT, please read: Nikhil Rao, *House, but no garden: Apartment Living in Bombay's Suburbs, 1898-1964.* (Minneapolis: University of Minnesota Press, 2013).

26 G. Owen Dunn, "The Housing Question In Bombay." *Journal of the Royal Society of Arts* 58, no. 2989 (1910): 398. http://www.jstor.org/stable/41339064.

27 Ibid., 398.
28 Ibid., 401.
29 "Annual report of the executive health officer", in Annual Report of the Municipal Commissioner of Bombay, Bombay, 1904.
30 J.P. Orr, *Social Reform and Slum Reform* (Bombay, 1917), part II, 23. See also: See, *Report of the Indian Industrial Commission, 1916-18*, Calcutta,
1918, Evidence, A.E. Mirams, Consulting Surveyor to the Government of India, Vol. IV, 361.
31 Mumbai Vaibhav, May 11, 1905, in Native News Papers Report, 1905, Maharastra State Archives (MSA), Mumbai.
32 Caroline E. Arnold, "The Bombay Improvement Trust, Bombay Millowners And The Debate Over Housing Bombay's Millworkers, 1896-1918," *Journal of the Economic and Business Historical Society*, 2012.
33 Hussain Indorewala, "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy," in *Urban Spaces in India*, ed. Partho Datta and Narayani Gupta, 1st ed. (New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, 2018), 55.
34 Prashant Kidambi, *The Making of an Indian Metropolis: Colonial Governance and Public Culture in Bombay, 1890-1920* (Hampshire: Ashgate, 2007), 112.
35 Sandip Hazareesingh, The Colonial City and the challenge of Modernity: Urban Hegemonies and Civic Contestations in Bombay City, 1905-1925, Doctoral thesis (Warwick: The University of Warwick, 1999).
36 J.P. Orr, *Social Reform and Slum Reform* (Bombay, 1917), part II, 25.
37 Ibid.
38 For the complete report, please see: Indorewala et. al., Malvani: People's Plan (Mumbai: YUVA & KRVIA, 2014).
39 Amita Bhide, "Colonising the Slum: Changing Trajectories of State–Market Violence in Mumbai", Economic and Political Weekly, *Review of Urban Affairs* (Vol. 52, Issue No. 7), 18 Feb, 2017.
40 For more up-to-date information, please see: https://tiss.ac.in/uploads/files/MwardprojectPoster-small.pdf
41 Amita Bhide and Durgesh Solanki, "Transforming the slum through creation of property market: A case study of M-ward in Mumbai," Centre for Urban Policy and Governance, Tata Institute of Social Sciences, 2016.
42 Peehu Pardeshi et al., "Association Between Architectural Parameters and Burden of Tuberculosis in Three Resettlement Colonies of M-East Ward, Mumbai, India," *Cities & Health* 4, no. 3 (March 16, 2020): 305, https://doi.org/10.1080/23748834.2020.1731919.
43 Habitat International Coalition, ed., *Forced to the Fringes: Disasters of 'resettlement' in India* (New Delhi: Housing and Land Rights Network, 2014), 183.
44 Letter by PK Das to Sonia Gandhi. For the full letter, please see: https://pkdas.com/pkdas-articles.php
45 Ibid.
46 Habitat International Coalition, ed., *Forced to the Fringes: Disasters of 'resettlement' in India* (New Delhi: Housing and Land Rights Network, 2014)., 185-186.
47 Amita Bhide and Neela Dabir, *Staking a Claim: Housing Rights of the Poor in Mumbai*. Tata Institute of Social Sciences in collaboration with YUVA and Dignity International.
48 For a more recent study, please see: BBC News, "The Mumbai 'toxic Hell' Where Poor Are Forced to Live," December 29, 2018, https://www.bbc.com/news/world-asia-india-46436829.
49 Guardian Staff Reporter, "'Designed for Death': The Mumbai Housing Blocks Breeding TB," *The Guardian*, February 3, 2020, https://www.theguardian.com/cities/2018/apr/26/mumbai-housing-blocks-breeding-tuberculosis-death.
50 Peehu Pardeshi et al., "Association Between Architectural Parameters and Burden of Tuberculosis in Three Resettlement Colonies of M-East Ward, Mumbai, India," *Cities & Health* 4, no. 3 (March 16, 2020): 303–20, https://doi.org/10.1080/23748834.2020.1731919.
51 This text refers greatly to another short article written by me on the project. For further information, drawings and recent photography, please see: Rohan Varma, "Sangharsh Nagar: PK Das & Associates". In Dick van Gameren et al. (Eds.). *Global housing: Affordable Dwellings for Growing Cities* (Rotterdam: NAi Publishers, 2015), 270-279.
52 For further reading on this policy, please see: 'Rajiv Awas Yojana : Ministry of Housing and Urban Affairs, Goverment of India', accessed 21 October 2020, http://mohua.gov.in/cms/raji-awasyojana.php.
53 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', Singapore Journal of Tropical Geography 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047., 144.
54 Mohandas Karamchand Gandhi, *The Collected Works of Mahatma Gandhi. XXVI, XXVI*, (New Delhi: The Publications Division Ministry of information and broadcasting Government of India, 1967).
55 Ananya Roy, 'Slum-Free Cities of the Asian Century: Postcolonial Government and the Project of Inclusive Growth: Slum-Free Cities of the Asian Century', Singapore Journal of Tropical Geography 35, no. 1 (March 2014): 136–50, https://doi.org/10.1111/sjtg.12047., 146.
56 Freny Manecksha, "Pushing the Poor to the Periphery in Mumbai," *Economic and Political Weekly* 46, no. 51 (2011): 28. http://www.jstor.org/stable/23065542.
57 Amita Bhide, "Colonising the Slum: Changing Trajectories of State–Market Violence in Mumbai", Economic and Political

Weekly, *Review of Urban Affairs* (Vol. 52, Issue No. 7), 18 Feb, 2017, 76.

3.7
MAPPING MUMBAI

1 Rahul Mehrotra, Kaiwan Mehta, and Ranjit Hoskote, *State of Housing: Aspirations, Imaginaries and Realities* (Architecture Foundation India, 2018), 14.
2 Ibid., 14
3 For more background information, see also Francis Strauven, 'Typologieën', op. cit. (note 3), 6–9, and Antoine Chrysostome Quatremère de Quincy, 'Type' (1825), in: K. Michael Hays (ed.), The Oppositions Reader:
4 "Refine Results," www.jstor.org, n.d., https://www.jstor.org/action/doBasicSearch?Query=Mumbai+housing&so=rel.
5 "Mumbai Housing - Search Results," n.d., https://search.worldcat.org/search?q=Mumbai+housing&offset=1.
6 Prasad Shetty et al., "Housing Typologies in Mumbai" (CRIT, 2007), https://crit.in/initiatives/housing/housing-typologies/., 6.
7 Ibid., 6.
8 Roger Sherwood, *Modern Housing Prototypes*. (Cambridge, Mass.: Harvard University Press, 1978), 1-2.
9 Ibid.
10 Emanuel Christ and Christoph Gantenbein, "Typology Transfer – Towards an Urban Architecture" in: *Typology. Hong Kong, Rome, New York, Buenos Aires* (Zurich: Park Books, 2012).
11 Dirk van den Heuvel, Dirk, "After-Images of an Avant-Garde: From Plan Analysis to SuperDutch in Dutch Housing (1980-2003)". DASH | Delft Architectural Studies on Housing 3 (04):20-37 (2018). https://journals.open.tudelft.nl/dash/article/view/4615.
12 Frits Palmboom, *Doel en vermaak in het Konstruktivisme: 8 Projekten voor woning en stedebouw* (Nijmegen: SUN, 1979). See also: Max Risselada (ed.), *Raumplan vs Plan Libre: Adolf Loos and Le Corbusier, 1919-1930* (New York: Rizzoli, 1987).
13 The 10-week long design studio 'Mixing Mumbai: Redeveloping Worli's BDD Chawls
14 Devanshi Shah, "In Conversation With Rahul Mehrotra on Practice, Theory and Academia," October 31, 2020, https://www.stirworld.com/inspire-people-in-conversation-with-rahul-mehrotra-on-practice-theory-and-academia.

4.1
DWELLING IN MUMBAI: A SURVEY OF FIVE MODELS

1 The term *'Habitation pour le plus grand nombre'* was popularized by Michel Ecochard and members of ATBAT and Team 10. For more information please refer to: Tom Avermatae, *Another Modern: the Post-war Architecture and Urbanism of Candilis-Josic-Woods* (Rotterdam: NAi Publishers, 2005).
2 Gautam Bhan on the "Encroacher" Versus the "Citizen". [online] *The Wire*. Available at: <https://thewire.in/books/gautam-bhan> [Accessed 25 September 2021].
3 Gautam Bhan, "Demolition Cannot Be the Answer to Encroachment," Hindustan Times, January 16, 2023, https://www.hindustantimes.com/opinion/demolition-cannot-be-the-answer-to-encroachment-101673880195486.html.
4 Martha Alter Chen and G. Raveendran, "Urban Employment in India: Recent Trends and Patterns," Margin the *Journal of Applied Economic Research* 6, no. 2 (May 1, 2012): 159–79, https://doi.org/10.1177/097380101200600204.
5 Ibid., 161.
6 Martha A Chen and Shalini Sinha, "Home-based Workers and Cities," *Environment and Urbanization* 28, no. 2 (July 1, 2016): 343–58, https://doi.org/10.1177/0956247816649865.
7 Balkrishna Doshi and Simone Vera Nader, *Balkrishna Doshi: Writings on Architecture & Identity* (Berlin: Architangle, 2021).
8 Charles Correa, *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 97.
9 Dirk van den Heuvel, , Janno Martens, and Víctor Muñoz Sanz, eds. *Habitat : Ecology Thinking in Architecture* (Rotterdam: Nai010 Publishers, 2020).
10 For a more comprehensive history of the CIAM movement, please see: Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge: The MIT Press. 2000), http://ci.nii.ac.jp/ncid/BA47762765.
11 Tom Avermatae, *Another Modern: the Post-war Architecture and Urbanism of Candilis-Josic-Woods* (Rotterdam: NAi Publishers, 2005).
12 Charles Correa, *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 50.
13 Ibid., 34.
14 Ibid., 34.
15 For a brief history of housing design in India, please refer to: Dick van Gameren and Rohan Varma, "Shifting Scales: Affordable Housing in India". In Dick van Gameren et al. (Eds.). *Global housing: Affordable dwellings for growing cities (Rotterdam:* NAi Publishers, 2015), 4-19.
16 Doshi participated in the eight congress of CIAM in Hoddesdon and Team 10's 1966 meeting in Urbino and maintained life-long friendships with several Team 10 members particularly Aldo van Eyck and Giancarlo de Carlo.
17 For further reading on the congress please see: Mohamad Sedighi, *Inhabitable Voids: Housing Design in Iran's Period of High-Modernisation*. [Delft: Delft University of Technology, 2020]. https://doi.org/10.4233/uuid:5b6e71fd-150a-4b0f-8a53-8cb226d24117
18 Doshi et al. 1976. *Habitat Bill of Rights* (Tehran: Hamdami Foundation, 1976), 5.
19 For further reading, please see: Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, (Cambridge: The MIT Press. 2000), http://ci.nii.ac.jp/ncid/BA47762765.

20 Doshi et al. 1976. *Habitat Bill of Rights*. (Tehran: Hamdami Foundation, 1976), 7.

21 Ibid., 4.

22 For more literature on southern urban theory, please read: Gautam Bhan, “Notes on a Southern urban practice,” *Environment and Urbanization* 31, no. 2 (January 28, 2019): 639–54, https://doi.org/10.1177/0956247818815792.

23 For further reading on the subject, please read: Albena Yaneva, “New Voices in Architectural Ethnography,” Ardeth (Architectural Design Theory) 1, no. 2 (January 1, 2018): 17–35, https://www.research.manchester.ac.uk/portal/en/publications/new-voices-in-architectural-ethnography(86f58a66-723c-4c98-b581-ab6059d3ea25).html., and Momoyo Kaijima, Laurent Stalder, Yū Iseki, and International Architectural Exhibition Venice, Italy), *Architectural Ethnography* (Tokyo, Japan: TOTO Publishing, 2018).

24 Jan Rothuizen, Jan, *The Soft Atlas of Amsterdam* (Amsterdam: Nieuw Amsterdam, 2014).

25 “A Walk, With Artist Jan Rothuizen — Livingmaps Network,” Livingmaps Network, n.d., https://www.livingmaps.org/janrothuizen.

26 For further reading, please refer to: Izumi Kuroishi, “Visual Examinations of Interior Space in Movements to Modernize Housing in Japan, c. 1920–40.” *Interiors* 2 (1): 95–124, 2011. doi:10.2752/204191211X12980384100193.

27 Nelson Mota et al., “Alberti, Palladio, Le Modulor and the Native Genius,” 2012 ACSA International Conference, n.d., 151–201, https://www.acsa-arch.org/proceedings/International%20Proceedings/ACSA.Intl.2012/ACSA.Intl.2012.24.pdf.

28 McGill University Centre for Minimum Cost Housing, *How the Other Half Builds* (Montreal: Centre for Minimum Cost Housing, McGill University, 1990).

29 Meghna Mehta, “Travelling Through History and Culture: KRVIA Students Deconstruct the City of Braj,” December 19, 2019, https://www.stirworld.com/see-features-travelling-through-history-and-culture-krvia-students-deconstruct-the-city-of-braj.

30 Ibid.

5.1
STRATEGIES & SOLUTIONS

1 Rahul Mehrotra, Kaiwan Mehta, and Ranjit Hoskote, *State of Housing: Aspirations, Imaginaries and Realities* (Architecture Foundation India, 2018).

2 “India’s Construction Sector Second Largest Employment Generator: Report,” The Economic Times, August 3, 2023, available at: https://economictimes.indiatimes.com/industry/indl-goods/svs/construction/indias-construction-sector-second-largest-employment-generator-report/articleshow/102399804.cms?from=mdr.

3 The concept of "disaggregation" has played a central role in this dissertation, framing its research hypothesis. To better understand Correa's ideas on low-cost housing and delivery, please read: Charles Correa, "Disaggregating the Numbers" in *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 95-100.

4 Gautam Bhan, “Informality, Housing and Work,” in *Routledge eBooks*, 2020, 136, available at: https://doi.org/10.4324/9780429200724-23.

5 Rahul Mehrotra, “Between Equity And Impatient Capital: Making Indian Cities,” *Journal of International Affairs* 65, no. 2 (2012): 133–137.

6 For the full report, please see: Fact Sheet No. 21/Rev.1, *The Right to Adequate Housing*, Office of the United Nations High Commissioner for Human Rights, available at: https://www.ohchr.org/sites/default/files/Documents/Publications/FS21_rev_1_Housing_en.pdf

7 Ibid., 3.

8 Ibid., 4.

9 For the full report on policy recommendations, please see: Gautam Bhan, Swastik Harish and Geetika Anand, *Policy Approaches to Affordable Housing in India: Problems and Opportunities* (Bangalore: Indian Institute for Human Settlements, IIHS, 2014). Available at: http://iihs.co.in/knowledge-gateway/policy-approach-to affordable-housing-in-urban-india/.

10 Gautam Bhan, “Informality, Housing and Work,” in *Routledge eBooks*, 2020, 136, available at: https://doi.org/10.4324/9780429200724-23.

11 Ibid., 137.

5.2
PLURALITY

1 Charles Correa, "Disaggregating the Numbers" in *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 97.

2 Amitabh Kundu and Lopamudra Ray Saraswati, “Migration and Exclusionary Urbanisation in India.” *Economic and Political Weekly* 47, no. 26/27 (2012): 219–27.

3 Chinmay Tumbe, *India Moving: A History of Migration*, 2018, https://openlibrary.org/books/OL32195067M/India_Moving.

4 Neerja Deodhar, “Rahul Mehrotra on How Architecture Is Being Divorced From Social Context, Why We Should Revise Definition of Urbanity,” Firstpost, September 19, 2019, https://www.firstpost.com/living/rahul-mehrotra-on-how-architecture-is-being-divorced-from-social-context-why-we-should-revise-definition-of-urbanity-7335541.html.

5 Press Trust of India. “About Time Cities Liberated of ‘tyranny of Images’: Mehrotra.” *Business Standard*. December 20, 2017. Accessed May 03, 2018. http://www.business-standard.com/article/pti-stories/about-time-cities-liberated-of-tyranny-of-images-mehrotra-117122000661_1.html.

5.3
PARTICIPATION

1 I borrow this reference from John FC Turner’s foreword in Nabeel Hamdi’s 1995 book. For the full text, please see: Nabeel Hamdi, *Housing Without Houses: Participation, Flexibility, Enablement* (Practical Action Publishing eBooks, 1995, https://doi.org/10.3362/9781780442341., ix-x.

2 Charles Correa, "Urban Housing in the Third World: The Role of the Architect," In *Architecture and Community* (New York: Aperture, 1983), 45.

5.4
PROGRESSIVE DEVELOPMENT

1 Richard Sennett, *Building and Dwelling: Ethics for the City* (London: Allen Lane, 2018).

2 Ibid. For another reading of Sennett's ideas on the Open and Closed City, please read: http://downloads.lsecities.net/0_downloads/Berlin_Richard_Sennett_2006-The_Open_City.pdf.

3 Dirk van den Heuvel, *Jaap Bakema and the Open Society* (Amsterdam: Archis Publishers, 2018).

4 John Habraken, *Supports* (ebook, 2021). Available at: https://app.kortext.com/borrow/952716.

5 This dissertation has borrowed heavily from Correa's ideas on low-cost housing – particulalry his emphasis on low-rise high-density housing. For further reading, please see: Charles Correa, "Equity" in *The New Landscape: Urbanisation in the Third World* (Bombay: Book Society of India, 1985), 56.

5.5
PRODUCTIVITY

1 Gautam Bhan, “Informality, Housing and Work,” in *Routledge eBooks*, 2020, 136, available at: https://doi.org/10.4324/9780429200724-23.

2 Charles Correa, *A Place in the Shade: The New Landscape & Other Essays* (New Delhi: Penguin Books India, 2010), 109.

3 To learn more about informal economies and their relationship with housing and cities, please read: Martha A Chen and Shalini Sinha, “Home-based Workers and Cities,” *Environment and Urbanization* 28, no. 2 (July 1, 2016): 343–58, https://doi.org/10.1177/0956247816649865.

6.0
ENVOI

1 The full report of the 1985 National Commission on Urbanisation – which runs into several volumes – can be found in the archives of the Charles Correa Foundation. Please visit the website of the archives here: https://charlescorrea.com/

2 Ibid. See also: Varma, Rohan. “Affordable Cities: Interview with Charles Correa.” In: *Global Housing: Affordable Dwellings for Growing Cities* (Rotterdam: Nai010 Publishers, 2015), 93.

3 For projections concerning India’s future urban growth, please see: “Understanding India’s Urban Future | Penn Today,” *Penn Today*, February 10, 2023, https://penntoday.upenn.edu/news/understanding-indias-urban-future. For a comprehensive analysis of India’s growth patterns, please read: Elfie Swerts, Denise Pumain, and Eric Denis, “The Future of India’s Urbanization,” *Futures* 56 (October 16, 2013): 43–52, https://doi.org/10.1016/j.futures.2013.10.008.

4 For the latest statistics on Mumbai’s economy, please see: Wikipedia contributors, “Economy of Mumbai,” *Wikipedia*, May 15, 2025, https://en.wikipedia.org/wiki/Economy_of_Mumbai.

5 Jyotsna Kaushal and Pooja Mahajan, “Asia’s Largest Urban slum-Dharavi: A Global Model for Management of COVID-19,” Cities 111 (January 13, 2021): 103097, https://doi.org/10.1016/j.cities.2020.103097.

6 For a better understanding of Claudio Acioly’s "twin-track" proposition, please see: “Global Agenda for Affordable Housing Provision: Learning From Practice in Making Housing Accessible and Affordable - 2019 | Claudio Acioly,” March 1, 2018, https://claudioacioly.com/global-agenda-affordable-housing-provision-learning-practice-making-housing-accessible-and.

7 John F. C. Turner and Robert Fichter, *Freedom to Build: Dweller Control of the Housing Process*, (New York: Macmillan, 1972).

8 Suketu Mehta, *Maximum City: Bombay Lost and Found* (New York City: Alfred A. Knopf Inc., 2004).

IMAGE & ILLUSTRATION CREDITS

All credits for images and illustrations are arranged here in a chronological order, mentioning chapter titles and image/ illustration numbers. Apart from photographs and drawings made by the author, there has been an attempt to source copyright-free material and seek permissions when necessary. In certain cases, despite best efforts, it has not been possible to locate copyright holders. Concerned parties are requested to contact the author at: r.varma@tudelft.nl

COVER ARTWORK

Rohan Varma

PAGES 1, 15, 526, 527

Rohan Varma

PHOTO ESSAY

1-17 Rohan Varma

1.1 - 1.6
PROBLEMS & POSSIBILITIES: AN INTRODUCTION TO THE HOUSING QUESTION

1-16 Rohan Varma

2.1
SCANNING FOR STRATEGIES

1 Wikimedia Commons (public domain)
2 Rohan Varma

2.2
THE FIRST PARADIGM: CONVENTIONAL STRATEGIES

1 Wikimedia Commons (public domain)
2 Extract from the 'Poor Man's Guardian' newspaper, 20 November 1847, Catalogue ref: MH 12/7489, The National Archives, United Kingdom
3 Wikimedia Commons (public domain)
4 Peabody Trust
5 Lionel Pincus and Princess Firyal Map Division, The New York Public Library. "The Tenement-House Committee maps" New York Public Library Digital Collections.
6 Robert W. DeForest and Lawrence Veiller/The Macmillan Company
7 Benjamin Sheer/ Library of Congress Prints and Photographs Division Washington, D.C.
8 Muller/Library of Congress Prints and Photographs Division Washington, D.C.
9 Lester Beall/United States Housing Authority
10 Wikimedia Commons (public domain)
11-12 Wikimedia Commons (public domain)
13 Stadsarchief Amsterdam
14 Walter Mittelholzer/ETH-Bibliothek, sourced from Wikimedia Commons
15-16 Stadsarchief Amsterdam
17 Wikimedia Commons (CC BY SA 3.0)
18 Armando Salas Portugal
19 Wikimedia Commons (CC BY SA 3.0)
20 United States Geological Survey/ Wikimedia Commons
21 U.S. Department of Housing and Urban Development Office of Policy Development and Research/ Wikimedia Commons
22 GAMMA grid found in Tom Avermaete, *Another Modern: The Post-War Architecture and Urbanism of Candilis-Josic-Woods* (NAi Publishers, 2005)
23 Michel Ecochard/Photothèque, Ecole Nationale d'Architecture de Rabat
24-25 Ministry of Housing Works & Supply, Government of India
26-27 Fonds Pierre Jeanneret, Canadian Centre for Architecture, Montréal; Gift of Jacqueline Jeanneret
28-29 Doxiadis Associates
30 Peter Land
31 James Stirling/Michael Wilford fonds Collection Canadian Centre for Architecture, Montréal
32 Charles Correa Foundation

2.3
THE SECOND PARADIGM: NON-CONVENTIONAL STRATEGIES

1 John FC Turner
2 Charles Abrams, *Man's Struggle for Shelter in an Urbanizing World*
3 Architectural Design
4 John FC Turner and Robert Fichter, *Freedom to Build*
5 Habitat '76
6 Alliance Magazine
7 UN-Habitat/European University Institute
8 Charles Correa Foundation
9-10 Horacio Caminos and Reinhard Goethert, *Urbanization Primer*
11-18 The World Bank Group Archives
19 Balkrishna Doshi Archives/Vastu Shilpa Foundation
20 Balkrishna Doshi Archives/Aga Khan Trust for Culture (AKTC)
21 Rohan Varma
22 Aga Khan Trust for Culture (AKTC)
23-24 Himanshu Parikh/Aga Khan Trust for Culture (AKTC)

2.4
THE THIRD PARADIGM: RETURN TO CONVENTIONAL STRATEGIES

1 Rohan Varma
2 Google Earth (2025)
3 Brook Teklehaimanot Haileselassie
4 Google Earth (2025)
5 Secom Bahia, Wikimedia Commons (CC By 2.0)
6 Times of India
7 Centre for Social and Economic Progress
8-11 Community Organizations Development Institute

3.1
MODELS FOR THE MASSES: FIVE MODES FOR BUILDING AFFORDABLE HOUSING

1 Wikimedia Commons (public domain)
2 J.N. Bellin/ Wikimedia Commons (public domain)
3 James Douglas/Wikimedia Commons (public domain)
4-14 Rohan Varma

3.2
SOCIAL HOUSING

1 Rohan Varma
2 W.F. Gatacre, *Report on the Bubonic Plague in Bombay,* Plague Committee, 1897, courtesy of the Wellcome Collection, London
3 Annual Report of the Bombay Improvement Trust, 1932-1933 , courtsey of the Maharashtra State Archives
4 Bombay Improvement Trust/KRVIA Design Cell
5 Annual Report of the Bombay Improvement Trust, 1915-1916, courtsey of the Maharashtra State Archives
6-9 Rupali Gupte
10 Development Directorate Report, 1924/Bombaywiki
11 Municipal Corporation of Bombay
12-13 MHADA Archives; Government of Maharashtra
14-18 Charles Correa Foundation
19-20 Collective Research Initiatives Trust (CRIT)
21 Mayer Modak Plan for Greater Bombay Report 1949 Bombaywiki
22 Charles Correa Foundation
23 Rohan Varma
24 Charles Correa Foundation
25 Rohan Varma
26 Hema Sankalia, courtesy of CEPT Archives
27 Rohan Varma
28 Raj Rewal Associates
29-30 Rohan Varma
31-33 Charles Correa Foundation
34 Collage by Rohan Varma sourced from plans extracted from MHADA's archives
35 Rohan Varma
36-37 MHADA Archives; Government of Maharashtra

3.3
SELF-HELP & SITES-AND-SERVICES

1-2 Rohan Varma
3 Collective Research Initiatives Trust (CRIT)
4-5 Rohan Varma

6 Collective Research Initiatives Trust (CRIT)
7 Rahul Srivastava and Matias Echanove/urbz
8-10 The World Bank Group Archives
11 Rohan Varma
12-14 MHADA Archives; Government of Maharashtra
15-16 Google Earth (2025)
17-19 The World Bank Group Archives
20 Rohan Varma
21-31 Charles Correa Foundation
32-33 Rohan Varma
34 Charles Correa Foundation
35 Rohan Varma

3.4
SLUM IMPROVEMENT & UPGRADATION

1 National Army Museum
2 W.F. Gatacre, *Report on the Bubonic Plague in Bombay,* Plague Committee, 1897, courtesy of the Wellcome Collection, London
3 Annual Report of the Bombay Improvement Trust, 1932-1933 , courtsey of the Maharashtra State Archives
4 Annual Report of the Bombay Improvement Trust, 1899 , courtsey of the Maharashtra State Archives
5-6 Annual Report of the Bombay Improvement Trust, 1918-1919 , courtsey of the Maharashtra State Archives
7-11 J.P. Orr, Bombay Improvement Trust, 1915
12-15 Rohan Varma
16 Mumbai Slum Sanitation Programme/Cities Alliance & World Bank
17-18 Rohan Varma
19-20 Rupali Gupte
21-22 Sameep Padora (sP+a) and Rahul Srivastava and Matias Echanove/urbz
23 Rohan Varma

3.5
SLUM REDEVELOPMENT

1-3 Rohan Varma
4 Google Earth (2025)
5 Rohan Varma
6 Collective Research Initiatives Trust (CRIT)
7-8 Rohan Varma
9-11 Online archives of the Slum Rehabilitation Authority (SRA); https://sra.gov.in/en
12-13 Rohan Varma
14-15 Adrian Smith + Gordon Gill Architecture
16-17 Foster + Partners
18 Vinit Mukhija
19 Sheela Patel/SPARC
20-22 Vinit Mukhija
23 Rohan Varma
24 Vinit Mukhija
25-26 Global Housing Student Centre
27 Aneerudha Paul (KRVIA) & Sheela Patel (SPARC)

3.6
SLUM RESETTLEMENT & REHABILITATION

1 Rohan Varma
2 Wall Street Journal
3 PK Das, Shabana Azmi and Gurbir Singh/Nivara Hakk Suraksha Samiti (NHSS)
4 J.P. Orr, Bombay Improvement Trust, 1912-1915
5 G. Owen W. Dunn, *The Housing Question in Bombay,* 1910, Journey of the Royal Society of Arts
6-7 Rohan Varma
8 G. Owen W. Dunn, *The Housing Question in Bombay,* 1910, Journey of the Royal Society of Arts
9 Rohan Varma
10 G. Owen W. Dunn, *The Housing Question in Bombay,* 1910, Journey of the Royal Society of Arts
11-12 MHADA Archives; Government of Maharashtra
13-14 Rohan Varma
15 Google Earth (2025)
16-17 Rohan Varma
18 Hussain Indorewala & Shweta Wagh (Design Cell of the KRVIA) and YUVA
19-22 Rohan Varma
23 Collective Research Initiatives Trust (CRIT)
24 Google Earth (2025)
25 Rohan Varma
26 Google Earth (2025)
27 Dick van Gameren
28-29 The Guardian
30 Nivara Hakk Suraksha Samiti (NHSS)
31 -33 Sheela Patel (SPARC)
34-29 SPARC
40 PK Das & Associates
41 Rohan Varma
42-45 PK Das & Associates
46 Rohan Varma

3.7
MAPPING MUMBAI

1 Rahul Srivastava and Matias Echanove/urbz
2-5 Collective Research Initiatives Trust (CRIT)
6-7 Sameep Padora (sP+a; sPare)
8 Sameep Padora & Shreyank Khemalapure (sP+a; sPare)

9 Roger Sherwood, *Modern Housing Prototypes*
10 Bernard Leupen & Harald Mooij, *Housing Design: A Manual*
11-12 Emanuel Christ & Christoph Gantenbein
13 Max Risselada, *Raumplan versus Plan Libre*
14-15 Paul de Vroom
16 Dick van Gameren and Rohan Varma with material sourced from the Charles Correa Foundation
17-18 Student work at the TU Delft Global Housing Study Centre, 2020

3.8
MUMBAI MATRIX: AN ATLAS OF HOUSING IN MUMBAI

All photographs, maps and drawings by Rohan Varma

4.1
DWELLING IN MUMBAI: A SURVEY OF FIVE MODELS

1 Student work, TU Delft Global Housing Study Centre, 2018-2019.
2-3 Courtesy of the Josep Lluís Sert Collection at the Loeb Classical Library, Harvard University, Graduate School of Design
4 CIAM-Alger/FLC
5 Alison and Peter Smithson/ Smithson Family Collection
6 Charles Correa Foundation
7-8 Doshi et. al., for the *Habitat Bill of Rights*
9 Yoshiharu Tsukamoto and Momoyo Kaijima/Atelier Bow-Wow
10 Nishiyama Uzo
11 Antonio Paoletti, Casper Pasveer and Gavin Wallace
12 Witold Rybczynski, Vikram Bhatt et. al., courtesy of the Minimum Cost Housing Group (MCHG) at McGill University, Montreal
13 Sameep Padora (sP+a; sPare)
14-18 Rohan Varma
19 Google Earth (2010-2018)

4.2
SOCIAL HOUSING: BDD CHAWLS

All drawings and photographs by Rohan Varma except on page 382 which was sourced from Google Earth in 2025 and on page 392 which are courtesy of Kunal Bhatia

4.3
SELF-HELP & SITES-AND-SERVICES: CHARKOP SECTOR 1

All drawings and photographs by Rohan Varma except on page 394 which was sourced from Google Earth in 2025 and on page 407 which are courtesy of Saumil Sanghavi

4.4
SLUM IMPROVEMENT & UPGRADATION: LOTUS COLONY & SHIVAJI NAGAR

All drawings and photographs by Rohan Varma except on page 408 which was sourced from Google Earth in 2025

4.5
SLUM REDEVELOPMENT: MATOSHREE CHS

All drawings and photographs by Rohan Varma except on page 422 which was sourced from Google Earth in 2025

4.6
SLUM RESETTLEMENT & REHABILITATION: LALLUBHAI COMPOUND

All drawings and photographs by Rohan Varma except on page 438 which was sourced from Google Earth in 2025

5.1
STRATEGIES & SOLUTIONS: A FRAMEWORK FOR POLICY RECOMMENDATIONS

1 Charles Correa Foundation

5.2
PLURALITY

1-5 Rohan Varma

5.3
PARTICIPATION

1 Sheela Patel/SPARC
2 Rohan Varma
3-4 Nivara Hakk Suraksha Samiti (NHSS)
5-6 Sheela Patel (SPARC)

5.4
PROGRESSIVE DEVELOPMENT

1-4 Rohan Varma

5.5
PROGRESSIVE DEVELOPMENT

1-5 Rohan Varma

6.1
ENVOI: LEARNING FROM MUMBAI

1-3 Charles Correa Foundation
4 Rohan Varma

ABBREVIATIONS

Affordable Housing in Partnership	**AHP**
Ahmedabad Study Action Group	**ASAG**
Bedroom-Hall-Kitchen	**BHK**
Bhartiya Janata Party	**BJP**
Brihanmumbai Municipal Corporation	**BMC**
Bombay Metropolitan Regional Development Authority	**BMRDA**
Bombay Urban Development Project	**BUDP**
Charles Correa Associates	**CCA**
Charles Correa Foundation	**CCF**
Community based Organisation	**CBO**
Cooperative Housing Society	**CHS**
City and Industrial Development Corporation	**CIDCO**
Delhi Development Authority	**DDA**
Development Control Regulations	**DCR**
Development Plan	**DP**
Dharavi Vikas Samiti	**DVS**
Economically Weaker Section	**EWS**
Floor Area Ratio	**FAR**
Floor Space Index	**FSI**
Government of India	**GoI**
Government of Maharashtra	**GoM**
High Income Group	**HIG**
Housing and Urban Development Corporation	**HUDCO**
Indian Institute for Human Settlements	**IIHS**
Indian Institute for Management	**IIM**
Jawaharlal Nehru National Urban Renewal Mission	**JNNURM**
Low Income Group	**LIC**
Markandeya Cooperative Housing Society	**MCHS**
Municipal Corporation of Greater Bombay	**MCGB**
Maharashtra Housing and Area Development Authority	**MHADA**
Maharashtra State Road Development Corporation	**MSRDC**
Mahila Housing Trust	**MHT**
Middle Income Group	**MIG**
Ministry of Housing and Urban Affairs	**MoHUA**
Mumbai Metropolitan Region Development Authority	**MMRDA**
National Building Organisation	**NBO**
National Housing Bank	**NHB**
National Institute for Urban Affairs	**NIUA**
Non-governmental Organization	**NGO**
National Slum Dwellers Federation	**NSDF**
Nivara Hakk Suraksha Samiti	**NHSS**
Pradhan Mantri Awas Yojana - Urban	**PMAY-U**
Pradhan Mantri Awas Yojana - Gramin	**PMAY-G**
Prime Minister's Grant Project	**PMGP**
Rajiv Awas Yojana	**RAY**
Rajiv-Indira Cooperative Housing Society	**RICHS**
Slum Improvement Program	**SIP**
Society for the Promotion of Area Resource Centers	**SPARC**
Slum Rehabilitation Authority	**SRA**
Slum Redevelopment	**SRD**
Slum Rehabilitation Scheme	**SRS**
Slum Upgrading Program	**SUP**
United Nations	**UN**
United Nations Center for Human Settlements	**UNCHS**
United Nations Development Programme	**UNDP**
Urban Land Ceiling (and Regulation) Act	**ULCA**
Urban Design Research Institute	**UDRI**
Vastu Shilpa Consultants	**VSC**
Vastu Shilpa Foundation	**VSF**
World Bank	**WB**

BIBLIOGRAPHY

Aga Khan Development Network. "1998 Cycle Master Jury Statement," September 11, 2023. https://the.akdn/en/resources-media/resources/speeches/1998-cycle-master-jury-statement-members-of-the-1998-master-jury.

Livingmaps Network. "A Walk, With Artist Jan Rothuizen — Livingmaps Network," n.d. https://www.livingmaps.org/janrothuizen.

Acioly Jr., Claudio and UN-HABITAT. "Housing the Future: Adequate Housing for All," January 25, 2020. https://claudioacioly.com/sites/default/files/2020-02/2011_Acioly_Housing%20%26%20Slum%20Upgrading%20at%20UN-Habitat_2014-219_BRIEF%20to%20CPR.pdf.

Adarkar, Neera, ed. *The Chawls of Mumbai: Galleries of Life*. 1st ed. Gurgaon, India: ImprintOne, 2011.

Habitat for Humanity. "Affordable Housing | Habitat for Humanity," n.d. https://www.habitat.org/emea/about/what-we-do/affordable-housing.

Alexander, Christopher, and Center for Environmental Structure. *Houses Generated by Patterns*, 1969.

Angel, Shlomo. "Housing Policy Matters : A Global Analysis." *OUP Catalogue* 2, no. 1 (January 1, 2000). http://ci.nii.ac.jp/ncid/BA50836451.

"Annual Administration Report of the City of Bombay Improvement Trust for the year ending 31st March, 1899," 1899.

"Annual Report 2010 | UN-Habitat," n.d. https://unhabitat.org/annual-report-2010.

Apnalaya, Arun Kumar, Annabel Mehta, and Raghunandan Hegde. "Rapid Assessment of Shivaji Nagar: Impact of COVID-19 on Social and Economic Indicators." Edited by Aparna Bhasin Consulting and Ved Market Research, 2021. https://apnalaya.org/wp-content/uploads/2021/05/Revisiting-the-Margins-Final.pdf.

Aravena, Alejandro, and Andrés Iacobelli. *Elemental : Manual De Vivienda Incremental Y Diseño Participativo = Elemental : Incremental Housing and Participatory Design Manual*. *Hatje Cantz eBooks*, 2012. https://ci.nii.ac.jp/ncid/BB1074235X.

———. *Elemental : Manual De Vivienda Incremental Y Diseño Participativo = Elemental : Incremental Housing and Participatory Design Manual*. *Hatje Cantz eBooks*, 2012. https://ci.nii.ac.jp/ncid/BB1074235X.

BARD Studio. "Architecture & Contemporary Indian Identity," May 10, 2017. https://bardstudio.in/architecture-and-contemporary-indian-identity/.

"Archnet > Site > Slum Networking of Indore City," n.d. https://www.archnet.org/sites/1294.

Arnold, Caroline E. "The Bombay Improvement Trust, Bombay millowners and the debate over housing Bombay's millworkers, 1896-1918." *DOAJ (DOAJ: Directory of Open Access Journals)*, June 1, 2012. https://doaj.org/article/e915a07c26044e359ceac6c854436407.

Avermaete, Tom. "The Discovery of the Everyday: Team 10s Re-Visioning of C.I.A.M.'S Modern Project." Association of Collegiate Schools of Architecture, 2003. https://www.acsa-arch.org/chapter/the-discovery-of-the-everyday-team-10s-re-visioning-of-c-i-a-m-s-modern-project/.

"Baan Mankong Rural," n.d. https://en.codi.or.th/baan-mankong-rural/.

Banerjee-Guha, Swapna. "Bombay Urban Development Project: A Solution for the Shelter Problem of the Urban Poor?" In *The Geojournal Library*, 327–36, 1994. https://doi.org/10.1007/978-94-011-1002-0_21.

BBC News. "India Census: Half of Homes Have Phones but No Toilets," March 14, 2012. https://www.bbc.com/news/world-asia-india-17362837.

———. "The Mumbai 'toxic Hell' Where Poor Are Forced to Live," December 29, 2018. https://www.bbc.com/news/world-asia-india-46436829.

Bhan, Gautam. "Demolition Cannot Be the Answer to Encroachment." *Hindustan Times*, January 16, 2023. https://www.hindustantimes.com/opinion/demolition-cannot-be-the-answer-to-encroachment-101673880195486.html.

———. "From Thebastito the 'House': Socio-spatial Readings of Housing Policy in India." *Current Sociology* 65, no. 4 (March 27, 2017): 587–602. https://doi.org/10.1177/0011392117697465.

———. "From Thebastito the 'House': Socio-spatial Readings of Housing Policy in India." *Current Sociology* 65, no. 4 (March 27, 2017): 587–602. https://doi.org/10.1177/0011392117697465.

———. "Informality, Housing and Work." In *Routledge eBooks*, 136–40, 2020. https://doi.org/10.4324/9780429200724-23.

———. "Notes on a Southern urban practice." *Environment and Urbanization* 31, no. 2 (January 28, 2019): 639–54. https://doi.org/10.1177/0956247818815792.

Bhattacherjee, Debashish. "Evolution of Unionism and Labour Market Structure: Case of Bombay Textile Mills, 1947-1985." *Economic and Political Weekly* 24, no. 21 (1989). https://www.jstor.org/stable/4394859.

Bhide, A. "Shifting Terrains of Communities and Community Organization: Reflections on Organizing for Housing Rights in Mumbai." *Community Development Journal* 44, no. 3 (June 9, 2009): 367–81. https://doi.org/10.1093/cdj/bsp026.

Bhide, Amita. "Structural Violence in Much More Than Neoliberal Times: The Case of Slum Redevelopment in Mumbai." *City* 27, no. 3–4 (June 23, 2023): 483–500. https://doi.org/10.1080/13604813.2023.2223880.

———. "The Political Possibilities of an Administrative Boundary: How the Transforming M-Ward Project 'Constructed' the Ward." *Urbanisation* 5, no. 2 (November 1, 2020): 172–80. https://doi.org/10.1177/2455747120973147.

Bombay First and McKinsey & Company, Inc. "VISION MUMBAI: Transforming Mumbai Into a World-class City." Mumbai, India: A Bombay First – McKinsey Report, 1991. https://mumbaifirst.org/wp-content/uploads/2020/11/McKinsey-Report-on-Vision-Mumbai.pdf.

Bromley, Ray. "Doxiadis and the Ideal Dynapolis: The Limitations of Planned Axial Urban Growth." *Ekistics and the New Habitat* 69, no. 415–417 (December 1, 2002): 316–30. https://doi.org/10.53910/26531313-e200269415-417357.

"Budget 1991-92: Speech of Shri Manmohan Singh Minister of Finance," July 24, 1991. Accessed May 22, 2023. https://www.indiabudget.gov.in/doc/bspeech/bs199192.pdf.

Burra, Sundar. "Towards a Pro-poor Framework for Slum Upgrading in Mumbai, India." *Environment and Urbanization* 17, no. 1 (April 1, 2005): 67–88. https://doi.org/10.1177/095624780501700106.

C, L. R., A. R. Burnett-Hurst, and Stanley Reed. "Labour and Housing in Bombay: A Study in the Economic Conditions of the Wage-Earning Classes in Bombay." *Journal of the Royal Statistical Society* 89, no. 1 (January 1, 1926): 154. https://doi.org/10.2307/2341494.

Campbell, H. "THE HOUSING QUESTION." *BMJ* 2, no. 3016 (October 19, 1918): 450. https://doi.org/10.1136/bmj.2.3016.450-b.

Chandavarkar, Rajnayaran. *History, Culture and the Indian City*, 2009. https://doi.org/10.1017/cbo9780511642036.

Chander, Vishwadha. "Mumbai's Dirty Secret Out in the Open." *Hindustan Times*, April 13, 2017. https://www.hindustantimes.com/mumbai-news/mumbai-s-dirty-secret-out-in-the-open/story-tDSkqPwyeswBFgqS7TJiKI.html.

BARD Studio. "Chawl as Home," February 18, 2019. https://bardstudio.in/chawl-as-home/.

Chen, Martha A, and Shalini Sinha. "Home-based Workers and Cities." *Environment and Urbanization* 28, no. 2 (July 1, 2016): 343–58. https://doi.org/10.1177/0956247816649865.

Chen, Martha Alter, and G. Raveendran. "Urban Employment in India: Recent Trends and Patterns." *Margin the Journal of Applied Economic Research* 6, no. 2 (May 1, 2012): 159–79. https://doi.org/10.1177/097380101200600204.

Chinchalikar, Satej, and Satej Chinchalikar. "Report on Status of Sanitation in Slums in Mumbai (2001)." *YUVA - Youth for Unity and Voluntary Action* (blog), March 14, 2025. https://yuvaindia.org/from-the-archives-report-on-status-of-sanitation-in-slums-in-mumbai-2001/.

———. "Report on Status of Sanitation in Slums in Mumbai (2001)." *YUVA - Youth for Unity and Voluntary Action* (blog), March 14, 2025. https://yuvaindia.org/from-the-archives-report-on-status-of-sanitation-in-slums-in-mumbai-2001/.

"Condominium Housing in Ethiopia: The Integrated Housing Development Programme | Environment & Urban-

ization," n.d. https://www.environmentandurbanization.org/condominium-housing-ethiopia-integrated-housing-development-programme.

Corbusier, Le. *The City of Tomorrow and Its Planning*, 1970. http://ci.nii.ac.jp/ncid/BA71046220.

Correa, Charles. A Place in the Shade: The New Landscape & Other Essays. 1st ed. New Delhi, India: Penguin India, 2010.

———.. *The New Landscape: Urbanisation in the Third World*, Book Society of India, 1985.

Damle, Shweta. "The Redevelopment of Dharavi Will Destroy the Livelihoods of Those Who Work in Small Businesses - the Wire." *The Wire*, May 20, 2025. https://thewire.in/urban/the-redevelopment-of-dharavi-will-destroy-the-livelihoods-of-those-who-work-in-small-businesses.

Das, P K. "Slums Improvement and Development Schemes & Policies." Edited by Sujata Patel and Jim Masselos. *National Consultation Organized by NAPM, TISS, HRLN and CRH*, October 2005. https://pkdas.com/talks/Nationalconsultation-Slums.pdf.

Das, PK. "Slums Improvement and Development Schemes & Policies." October 2005. https://pkdas.com/talks/Nationalconsultation-Slums.pdf.

Davis, Mike. *Planet of Slums*, Verso Books, 2006.

Deodhar, Neerja. "Rahul Mehrotra on How Architecture Is Being Divorced From Social Context, Why We Should Revise Definition of Urbanity." *Firstpost*, September 19, 2019. https://www.firstpost.com/living/rahul-mehrotra-on-how-architecture-is-being-divorced-from-social-context-why-we-should-revise-definition-of-urbanity-7335541.html.

Desai, Dhaval. "Poor Sanitation in Mumbai's Slums Is Compounding the Covid19 Threat." orfonline.org, December 4, 2023. https://www.orfonline.org/expert-speak/poor-sanitation-in-mumbais-slums-is-compounding-the-covid-19-threat-66216.

———. "Resolving Mumbai's Slum Sanitation Will Make India ODF." orfonline.org, December 20, 2024. https://www.orfonline.org/expert-speak/resolving-mumbai-s-slum-sanitation-will-make-india-odf.

———. "Sanitation Problems in Mumbai at Catastrophic Proportions." orfonline.org, December 4, 2023. https://www.orfonline.org/expert-speak/42671-sanitation-problems-in-mumbai-at-catastrophic-proportions.

Deshpande, Aastha. "Rahul Mehrotra on the Kinetic City and Urbanism for the Global South." Metropolis, October 31, 2022. https://metropolismag.com/profiles/rahul-mehrotra-on-the-kinetic-city-and-urbanism-for-the-global-south/.

D'Monte, Darryl. *Mills for Sale: The Way Ahead*. Marg Publications, 2006.

Dwyer, Denis John. *People and Housing in Third World Cities: Perspectives on the Problem of Spontaneous Settlements*, 1975. http://ci.nii.ac.jp/ncid/BA22740966.

Fichter, Robert. *Freedom to Build: Dweller Control of the Housing Process*, 1972.

Ford Foundation and Madhu Mehta Foundation. "Report on The State of Affordable Housing in Mumbai." Praja, November 2014.

Ford Foundation, Madhu Mehta Foundation, and Nitai Mehta. "The State of Affordable Housing in Mumbai." Edited by Shirish B Patel, K.G. Krishnamurthy, Aditya Somani, Abhay Pethe, Vaidehi Tandel, Sahil Gandhi, Ashok Datar, et al., November 2014. https://www.praja.org/praja_docs/praja_downloads/Report%20on%20The%20State%20of%20Affordable%20Housing%20in%20Mumbai.pdf.

"Foreign Direct Investment | FDI | Make in India," n.d. https://www.makeinindia.com/policy/foreign-direct-investment.

Gaines, David I., and John Nelson Tarn. "Five per Cent Philanthropy: An Account of Housing in Urban Areas Between 1840 and 1914." *Technology and Culture* 16, no. 3 (July 1, 1975): 496. https://doi.org/10.2307/3103053.

Gandhi, Sahil. "Housing Paradox: Despite a Severe Shortage, 12% of Houses in Indian Cities Are Lying Vacant." *Scroll.In*, May 11, 2017. https://scroll.in/article/836589/housing-paradox-despite-a-severe-shortage-12-of-houses-in-indian-cities-are-lying-vacant.

Gershuny, J.I. "The Informal Economy." *Futures* 11, no. 1 (February 1, 1979): 3–15. https://doi.org/10.1016/0016-3287(79)90065-x.

Ghertner, Asher. *Rule by Aesthetics*, 2015. https://doi.org/10.1093/acprof:oso/9780199385560.001.0001.

Ghertner, D Asher. "Rule by Aesthetics: World-Class City Making in Delhi." *Delhi Master Plan Revision Monitor*, January 1, 2010. http://architexturez.net/doc/az-cf-175244.

———. "Rule by Aesthetics: World-Class City Making in Delhi." *Delhi Master Plan Revision Monitor*, January 1, 2010. http://architexturez.net/doc/az-cf-175244.

"Global Agenda for Affordable Housing Provision: Learning From Practice in Making Housing Accessible and Affordable - 2019 | Claudio Acioly," March 1, 2018. https://claudioacioly.com/global-agenda-affordable-housing-provision-learning-practice-making-housing-accessible-and.

"Global Economic Prospects." *World Bank*. Washington, United States of America: International Bank for Reconstruction and Development / The World Bank, 2025. https://openknowledge.worldbank.org/server/api/core/bitstreams/f983c12d-d43c-4e41-997e-252ec6b87dbd/content.

Guha, Ramachandra. *Makers of Modern India*, 2010. http://ci.nii.ac.jp/ncid/BB06066975.

Hamdi, Nabeel. *Housing Without Houses. Practical Action Publishing eBooks*, 1995. https://doi.org/10.3362/9781780442341.

Hardoy, Jorge Enrique, and David Satterthwaite. *Squatter Citizen: Life in the Urban Third World*, 1989. http://ci.nii.ac.jp/ncid/BA25303877.

Hart, Keith. "Informal Income Opportunities and Urban Employment in Ghana." *The Journal of Modern African Studies* 11, no. 1 (March 1, 1973): 61–89. https://doi.org/10.1017/s0022278×00008089.

Harvey, David. *A Brief History of Neoliberalism. Oxford University Press eBooks*, 2005. https://doi.org/10.1093/oso/9780199283262.001.0001.

———. "The Right to the City." *International Journal of Urban and Regional Research* 27, no. 4 (December 1, 2003): 939–41. https://doi.org/10.1111/j.0309-1317.2003.00492.x.

"Houses costructed and allotted for the poor in urban areas," n.d. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2040048.

Housing Enabling Markets to Work, 1993. https://doi.org/10.1596/0-8213-2434-9.

"Housing for All Scheme| National Portal of India," n.d. https://www.india.gov.in/housing-all-scheme.

"Implementation Completion Report: Bombay Urban Development Project (BUDP)." World Bank, June 1997. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639.

World Bank. "India - Bombay Urban Development Project," n.d. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/391111468260333639.

"India: World's Fastest-Growing Major Economy," n.d. https://pib.gov.in/PressReleasePage.aspx?PRID=2094025#:~:text=Introduction,%2C%20innovation%2C%20and%20unmatched%20potential.

Indorewala, Hussain. "Does Mumbai Really Need 11 Lakh More Houses?" *Scroll.In*, March 22, 2016. https://scroll.in/article/802830/does-mumbai-really-need-11-lakh-more-houses.

———. "Housing and Dishousing in Mumbai: A Historical Outline of Slum Discourse and Policy." In *Urban Spaces in India*, edited by Partho Datta and Narayani Gupta, 1st ed., 56. New Delhi, India: The Secretary Indian Institute of Advanced Study, Rashtrapati Nivas, Shimla, 2018.

Jackson, Iain, and Jessica Holland. *The Architecture of Edwin Maxwell Fry and Jane Drew: Twentieth Century Architecture, Pioneer Modernism and the Tropics*, 2014. https://www.amazon.com/Architecture-Edwin-Maxwell-Jane-Drew-ebook/dp/B01D2F5H4S.

Jacobs, Jane. *The Death and Life of Great American Cities*. Vintage, 1992.

Jagow, Scott. "'Slumdog' Could Bring Fortune," April 5, 2025. https://www.marketplace.org/story/2009/02/23/slumdog-could-bring-fortune.

"'Jai Ho' Dharavi," n.d. https://web.archive.org/web/20090531175111/http://www.nyenrode.nl/businesstopics/europeindia/Pages/%E2%80%9CJaiHo%E2%80%9DDharavi.aspx.

Jain, Bhavika. "62% of Mumbai Lives in Slums: Census." *Hindustan Times*, October 16, 2010. https://www.hindustantimes.com/mumbai/62-of-mumbai-lives-in-slums-census/story-I3bUsll9w5f6ePEfuXJEbM.html.

Jaisinghani, Bella. "Mhada Lottery for 1,384 Flats Gets Under Way in Mumbai." *The Times of India*, December 16, 2018. https://timesofindia.indiatimes.com/city/mumbai/mhada-lottery-for-1384-flats-gets-under-way-in-mumbai/articleshow/67114034.cms.

Kamath, Naresh. "Mumbai: Mhada Announces Lottery Process for 8,205 Low-cost Houses." *Hindustan Times*, August 5, 2021. https://www.hindustantimes.com/cities/mumbai-news/mumbai-mhada-announces-lottery-process-for-8-205-low-cost-houses-101628176913926.html.

Aga Khan Development Network. "Kampung Improvement Programme," December 5, 2024. https://the.akdn/en/how-we-work/our-agencies/aga-khan-trust-culture/akaa/kampung-improvement-programme.

Kaushal, Jyotsna, and Pooja Mahajan. "Asia's Largest Urban slum-Dharavi: A Global Model for Management of COVID-19." *Cities* 111 (January 13, 2021): 103097. https://doi.org/10.1016/j.cities.2020.103097.

———. "Asia's Largest Urban slum-Dharavi: A Global Model for Management of COVID-19." *Cities* 111 (January 13, 2021): 103097. https://doi.org/10.1016/j.cities.2020.103097.

Keswani, Kiran. "Seminar and Exhibition on Low-Cost Housing and Community Improvement." *Aζ South Asia*, April 9, 2020. https://architexturez.net/doc/az-cf-177948.

Kidambi, Prashant. "Housing the Poor in a Colonial City: The Bombay Improvement Trust, 1898-1918." *Studies in History* 17, no. 1 (February 1, 2001): 57–79. https://doi.org/10.1177/025764300101700103.

———. "Planning, the Information Order, and the Bombay Census of 1901." *Planning Perspectives* 28, no. 1 (November 12, 2012): 117–23. https://doi.org/10.1080/02665433.2012.737246.

———. *"the Making of an Indian Metropolis: Colonial Governance and Public Culture in Bombay, 1890-1920,"* 2021. http://ci.nii.ac.jp/ncid/BA83406119.

Kloppenburg, Joanna. "Landscapes of Democracy: Rahul Mehrotra on the Beauty of Negotiating Difference in Urban Planning." urbanNext, November 9, 2016. https://architizer.com/blog/inspiration/stories/rahul-mehrotra-landscapes-of-democracy/.

Laik, Rohan. "India's Housing Paradox: Empty Houses and Housing Shortages - CSEP." CSEP - Centre for Social and Economic Progress, July 21, 2023. https://csep.org/policy-brief/indias-housing-paradox-empty-houses-and-housing-shortages/.

Madden, David J., and Peter Marcuse. *In Defense of Housing: The Politics of Crisis*, 2016. https://openlibrary.org/books/OL27219916M/In_Defense_of_Housing.

———. *In Defense of Housing: The Politics of Crisis*, 2016. https://openlibrary.org/books/OL27219916M/In_Defense_of_Housing.

Mehrotra, Rahul. *Architecture in India: Since 1990*, 2011. http://ci.nii.ac.jp/ncid/BB10399723.

———. "Bombay City - One Space Two Worlds - ProQuest," n.d. https://www.proquest.com/openview/b00cdac4f769a4d9a5ddc45529e321e2/1?cbl=1816889&pq-origsite=gscholar.

———. The Kinetic City & Other Essays. 1st ed. Berlin, Germany: ArchiTange, 2021.

Mehrotra, Rahul, Kaiwan Mehta, and Ranjit Hoskote. *State of Housing: Aspirations, Imaginaries and Realities*. Architecture Foundation India, 2018.

Mehta, Meghna. "Travelling Through History and Culture: KRVIA Students Deconstruct the City of Braj," December 19, 2019. https://www.stirworld.com/see-features-travelling-through-history-and-culture-krvia-students-deconstruct-the-city-of-braj.

Mehta, Rajshri. "Mumbai Most Unaffordable Market, Says Knight Frank Research Report." *The Times of India*, July 1, 2013. https://timesofindia.indiatimes.com/business/india-business/mumbai-most-unaffordable-market-says-knight-frank-research-report/articleshow/20860102.cms.

Mehta, Suketu. *Maximum City: Bombay Lost and Found*, 2004. http://ci.nii.ac.jp/ncid/BA74698942.

MMRDA. "Regional Plan for the Mumbai Metropolitan Region 1996-2011." Government of Maharashtra, 1995. https://mmrda.maharashtra.gov.in/sites/default/files/2023-05/RP%201996-2011.pdf.

MOTA, Nelson, Gonçalo Canto Moniz, Mário Krüger, and University of Coimbra. "Alberti, Palladio, Le Modulor, and the native genius." *2012 ACSA International Conference*, n.d., 151–201. https://www.acsa-arch.org/proceedings/International%20Proceedings/ACSA.Intl.2012/ACSA.Intl.2012.24.pdf.

Mota, Nelson, and Rohan Varma. "Sites-and-Services in Performance: Mass Housing Design Beyond Efficiency and Resilience." In *Radical Middle Grounds: New Agendas for Medium-Density Housing*, 1st ed., 147–57. Austin: Center for American Architecture and Design, 2024.

Mukhija, Vinit. "Squatters as Developers?: Mumbai's Slum Dwellers as Equity Partners in Redevelopment." Cambridge: Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2000. https://dspace.mit.edu/handle/1721.1/8959?show=full.

———. *Squatters as Developers?: Slum Redevelopment in Mumbai*, 2003. http://ci.nii.ac.jp/ncid/BA62313993.

BusinessLine. "Mumbai Has Highest Vacant Housing Inventory," January 29, 2018. https://www.thehindubusinessline.com/economy/mumbai-has-highest-vacant-housing-inventory/article22553704.ece#:~:text=Mumbai%20tops%20the%20list%20with,highest%2C%20at%2026%20per%20cent.

BusinessLine. "Mumbai Has Highest Vacant Housing Inventory," January 29, 2018. https://www.thehindubusinessline.com/economy/mumbai-has-highest-vacant-housing-inventory/article22553704.ece#:~:text=Mumbai%20tops%20the%20list%20with%200.48%20million,0.3%20million%20and%20Bengaluru%20at%200.3%20million.&text=Despite%20the%20shortage%20of%20housing%20in%20urban,in%202001%20to%2011.1%20million%20in%202011.

"Mumbai Housing - Search Results," n.d. https://search.worldcat.org/search?q=Mumbai+housing&offset=1.

"Mumbai, India: Pavement-dwellers' Movements and Their Struggle to Define Citizenship in a City Striving to Achieve 'World-class' Status," n.d. https://www.citego.org/bdf_fiche-document-1082_en.html.

The Economic Times. "Mumbai's GDP May Exceed Thailand and Hong Kong's by 2030," April 22, 2010. https://economictimes.indiatimes.com/mumbais-gdp-may-exceed-thailand-and-hong-kongs-by-2030/articleshow/5846397.cms?from=mdr.

BusinessLine. "Mumbai's Mix of Country-wide Migrants Can Be a Game-changer in Polls," March 27, 2024. https://www.thehindubusinessline.com/news/elections/mumbais-mix-of-country-wide-migrants-can-be-a-game-changer-in-polls/article67997956.ece.

Mumford, Eric Paul. *The CIAM Discourse on Urbanism, 1928-1960*, 2000. http://ci.nii.ac.jp/ncid/BA47762765.

Muthesius, Stefan. "Tower and Slab. Histories of Global Mass Housing." *The Journal of Architecture* 17, no. 4 (August 1, 2012): 613–16. https://doi.org/10.1080/13602365.2012.709031.

National Housing Bank. "The National Housing & Habitat Policy-1998 : An Overview," n.d. https://www.nhb.org.in/publications_post/the-national-housing-habitat-policy-1998-an-overview/.

"Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai." In *Duke University Press eBooks*, 205–18, 2020. https://doi.org/10.1515/9780822389361-010.

Forbes. "New Land of Opportunity," n.d. https://www.forbes.com/forbes/2011/0509/global-2000-11-edward-glaeser-slums-dharavi-lands-opportunity.html.

"New Urban Agenda | UN-Habitat," n.d. https://unhabitat.org/about-us/new-urban-agenda.

"News," n.d. https://archplus.net/de/frothing-urbanism-urban-conditions-in-india/.

Nohn, Matthias, and Reinhard Goethert. *Growing up! THE SEARCH FOR HIGH-DENSITY MULTI-STORY INCREMENTAL HOUSING*, 2017. https://portal.dnb.de/opac.htm?method=simpleSearch&cqlMode=true&query=idn%3D1137624736.

Nolan, Laura B. "Slum Definitions in Urban India: Implications for the Measurement of Health Inequalities." *Population and Development Review* 41, no. 1 (March 1, 2015): 59–84. https://doi.org/10.1111/j.1728-4457.2015.00026.x.

Online, Et. "Hurun India Rich List 2024: Mumbai Surpasses Beijing to Become the Billionaire Capital of Asia." *The Economic Times*, August 29, 2024. https://economictimes.indiatimes.com/news/company/corporate-trends/hurun-india-rich-list-2024-mumbai-surpasses-beijing-to-become-the-billionaire-capital-of-asia/articleshow/112887927.cms?from=mdr.

Owens, Kathryn E., Sumila Gulyani, and Andrea Rizvi. "Success When We Deemed It Failure? Revisiting Sites and Services Projects in Mumbai and Chennai 20 Years Later." *World Development* 106 (March 3, 2018): 260–72. https://doi.org/10.1016/j.worlddev.2018.01.021.

"Own Your House Scheme '85: In The Artiste's Village Belapur, New Bombay." CIDCO, 1985.

Padora, Sameep. *In The Name of Housing: A Study of 11 Projects in Mumbai*. 1st ed. Mumbai: Urban Design Research Institute, 2016.

Pardeshi, Peehu, Balaram Jadhav, Ravikant Singh, Namrata Kapoor, Ronita Bardhan, Arnab Jana, Siddarth David, and Nobhojit Roy. "Association Between Architectural Parameters and Burden of Tuberculosis in Three Resettlement Colonies of M-East Ward, Mumbai, India." *Cities & Health* 4, no. 3 (March 16, 2020): 303–20. https://doi.org/10.1080/23748834.2020.1731919.

Peabody. "Peabody's History – From 1862 to Today," n.d. https://www.peabodygroup.org.uk/about-us/our-history/.

Pisal, Prachi. "Top Indian Cities Report About 1 Million Unsold Housing Units: Study." *Www.Business-Standard.Com*, December 2, 2024. https://www.business-standard.com/industry/news/top-indian-cities-report-about-1-million-unsold-housing-units-study-124120200871_1.html.

"PK Das – the Nature of Cities," n.d. https://www.thenatureofcities.com/author/pkdas/.

PMAY-Urban. "PMAY-Urban," n.d. https://pmay-urban.gov.in/.

Policies for a Small Planet. *Routledge eBooks*, 2019. https://doi.org/10.4324/9780429200465.

Prabhu, Chandrashekhar. "'Housing for All?'" *Economic Digest*, 2003.

PRS Legislative Research. *The Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971*, 1971. https://prsindia.org/files/bills_acts/acts_states/maharashtra/1971/1971MH28.pdf.

Pti. "India's Construction Sector Second Largest Employment Generator: Report." *The Economic Times*, August 3, 2023. https://economictimes.indiatimes.com/industry/indl-goods/svs/construction/indias-construction-sector-second-largest-employment-generator-report/articleshow/102399804.cms?from=mdr.

Rajadhyaksha, Niranjan. "Dharavi'S Makeover Man." *Mint*, October 4, 2007. https://www.livemint.com/Leisure/b67oGfRdzjmryoRk8PDkGO/Dharavi8217s-makeover-man.html.

Ramakrishna, Bhagyasshree, and Shruthi Ramesh. "Contentions of Affordability in the Habitat Planning of a New Town: A Case of Navi Mumbai, India," December 28, 2023. https://journals.openedition.org/cidades/7841#ftn8.

Ramesh, Randeep. "Poor Squeezed Out by Mumbai's Dream Plan." *The Guardian*, March 1, 2005. https://www.theguardian.com/world/2005/mar/01/india.randeepramesh.

Rao, Nikhil. *House, but No Garden: Apartment Living in Bombay's Suburbs, 1898-1964*, 2013. http://architexturez.net/pst/az-cf-168031-1426873833.

Regan, Patrick S., Hans Fischer Senior Fellow Christian Werthmann, Claudio Acioly, and UN Habitat. "Metropolis Nonformal – Anticipation," n.d. https://www.ias.tum.de/fileadmin/w00bub/www/Feature_Articles/TUM-IAS_2013_Feature_Article_2.pdf.

"Regional Plan | Mumbai Metropolitan Region Development Authority," n.d. https://mmrda.maharashtra.gov.in/planning/regional-plan/final-rp-for-mmr.

"Rental Housing | Mumbai Metropolitan Region Development Authority," n.d. https://mmrda.maharashtra.gov.in/division/rental-housing/overview.

Reporter, Guardian Staff. "'Designed for Death': The Mumbai Housing Blocks Breeding TB." *The Guardian*, February 3, 2020. https://www.theguardian.com/cities/2018/apr/26/mumbai-housing-blocks-breeding-tuberculosis-death.

———. "Open Mumbai: How PK Das Set Out to Map the City's Slums." *The Guardian*, February 3, 2020. https://www.theguardian.com/cities/2014/nov/28/open-mumbai-how-pk-das-set-out-to-map-the-citys-slums.

Rollenhagen, Luisa. "Germany's Fuggerei Is World's Oldest Social Housing Project." *DW.com*, May 6, 2022. https://www.dw.com/en/germanys-fuggerei-the-worlds-oldest-social-housing-project/a-58928076.

Roy, Ananya. "Slumdog Cities: Rethinking Subaltern Urbanism." *International Journal of Urban and Regional Research* 35, no. 2 (February 11, 2011): 223–38. https://doi.org/10.1111/j.1468-2427.2011.01051.x.

———. "Urban Informality: Toward an Epistemology of Planning." *Journal of the American Planning Association* 71, no. 2 (June 30, 2005): 147–58. https://doi.org/10.1080/01944360508976689.

Safi, Michael. "Coronavirus Will Reshape Our Cities – We Just Don't Know How Yet." *The Guardian*, September 23, 2020. https://www.theguardian.com/world/2020/may/22/coronavirus-will-reshape-our-cities-we-just-dont-know-how-yet.

Sanyal, Bishwapriya, and Vinit Mukhija. "Institutional Pluralism and Housing Delivery: A Case of Unforeseen Conflicts in Mumbai, India." *World Development* 29, no. 12 (December 1, 2001): 2043–57. https://doi.org/10.1016/s0305-750x(01)00082-1.

Sarkar, Shyamal, Somnath Sen, and Soma Ghosh Moulik. "The Mumbai Slum Sanitation Program : Part-

nering With Slum Communities for Sustainable Sanitation in a Megalopolis." *World Bank Report*, September 1, 2006, 1–42. https://documents.worldbank.org/curated/en/620841468041130033/The-Mumbai-Slum-Sanitation-Program-partnering-with-slum-communities-for-sustainable-sanitation-in-a-megalopolis.

Schneider, Nadja-Christina. "Reimagining Housing, Rethinking the Role of Architects in India." *hasp.ub.uni-heidelberg.de*, June 4, 2024. https://doi.org/10.11588/hasp.1381.

Selja, Kumari, National Buildings Organisation, Pronab Sen, P.K. Mohanty, C. Chandramouli, L.P. Sonkar, J. Dash, et al. "Report of the Committee on Slum Statistics/Census." *National Buildings Organisation*, 2011. https://mohua.gov.in/upload/uploadfiles/files/9Slum_Report_NBO(2).pdf.

Sennett, Richard. *Building and Dwelling: Ethics for the City*, 2018. https://openlibrary.org/books/OL26951305M/Building_and_dwelling.

Sennett, Richard, London School of Economics, and Massachusetts Institute of Technology. "THE OPEN CITY." *NEWSPAPER ESSAY*, November 2006. http://downloads.lsecities.net/0_downloads/Berlin_Richard_Sennett_2006-The_Open_City.pdf.

Sethi, Sunil. "Charles Correa: India's Most 'innovative' Architect." *Www.Business-Standard.Com*, June 18, 2015. https://www.business-standard.com/article/current-affairs/charles-correa-india-s-most-innovative-architect-115061700855_1.html.

Shah, Devanshi. "In Conversation With Rahul Mehrotra on Practice, Theory and Academia," October 31, 2020. https://www.stirworld.com/inspire-people-in-conversation-with-rahul-mehrotra-on-practice-theory-and-academia.

Shalinirajvanshi. "New Model for Dharavi Redevelopment." *The Indian Express*, February 6, 2017. https://indianexpress.com/article/cities/mumbai/new-model-for-dharavi-redevelopment/.

Shetty, Prasad, Rupali Gupte, Ritesh Patil, Aparna Parikh, and Benita Menezes. "Housing Typologies in Mumbai." CRIT, 2007. https://crit.in/initiatives/housing/housing-typologies/.

Singh, Dipti, and Dipti Singh. "Mumbai: 42 per Cent of Homes Don`T Have Toilets Inside, Finds Assessment Report." *Mid-Day*, April 14, 2022. https://www.mid-day.com/mumbai/mumbai-news/article/mumbai-42-per-cent-of-homes-dont-have-toilets-inside-finds-survey-23222777.

Singh, Manmohan. "Budget 1991-92," July 24, 1991.

CRIT. "Slum Studies," December 12, 2013. https://crit.in/initiatives/housing/slum-studies/.

Söderström, O. "Worlding Cities. Asian Experiments and the Art of Being Global." *Geographica Helvetica* 68, no. 1 (May 30, 2013): 77. https://doi.org/10.5194/gh-68-77-2013.

"Staff Appraisal Report: Bombay Urban Development Project (BUDP)." World Bank, January 1985. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/974511468267022093.

Sudjic, Deyan. "India's Urban Shift." Urban Age, 2007. https://urbanage.lsecities.net/essays/india-s-urban-shift.

Swerts, Elfie, Denise Pumain, and Eric Denis. "The Future of India's Urbanization." *Futures* 56 (October 16, 2013): 43–52. https://doi.org/10.1016/j.futures.2013.10.008.

"The Wire: The Wire News India, Latest News,News From India, Politics, External Affairs, Science, Economics, Gender and Culture," n.d. https://thewire.in/books/gautam-bhan%3E.

Tiwari, Neeraj. "MHADA: Over 66,000 Apply for 217 Houses, Lottery on June 2." *The Indian Express*, May 26, 2019. https://indianexpress.com/article/cities/mumbai/mhada-over-66000-apply-for-217-houses-lottery-on-june-2-5749622/.

Tubelo, Renata, Lucelia Rodrigues, Mark Gillott, and Joana Carla Gonçalves Soares. "Cost-effective Envelope Optimisation for Social Housing in Brazil's Moderate Climates Zones." *Building and Environment* 133 (February 2, 2018): 213–27. https://doi.org/10.1016/j.buildenv.2018.01.038.

Tumbe, Chinmay. *India Moving: A History of Migration*, 2018. https://openlibrary.org/books/OL32195067M/India_Moving.

Turner, John F. C. *Housing by People: Towards Autonomy in Building Environments*, 1976.

Turner, John F.C. *Housing by People: Towards Autonomy in Building Environments*, 1977. https://ci.nii.ac.jp/ncid/BA03941461.

Twain, Mark. *Following the Equator: A Journey Around the World*, 1897. https://fada.birzeit.edu/jspui/bitstream/20.500.11889/4989/1/following_the_equator__a_journey_around_the_world.pdf.

Penn Today. "Understanding India's Urban Future | Penn Today," February 10, 2023. https://penntoday.upenn.edu/news/understanding-indias-urban-future.

UN-Habitat. "Condominium Housing in Ethiopia: The Integrated Housing Development Programme." Environment and Urbanization, 2010. https://www.environmentandurbanization.org/condominium-housing-ethiopia-integrated-housing-development-programme.

UN-Habitat, None. "The Challenge of Slums: Global Report on Human Settlements 2003." *Management of Environmental Quality an International Journal* 15, no. 3 (June 1, 2004): 337–38. https://doi.org/10.1108/meq.2004.15.3.337.3.

UN-Habitat Worldwide. "Christian Werthmann - Metropolis Non-Formal, 10 Things Designers Need to Work On," April 22, 2014. https://www.youtube.com/watch?v=hJiLiMlFotw.

———. "Christian Werthmann - Metropolis Non-Formal, 10 Things Designers Need to Work On," April 22, 2014. https://www.youtube.com/watch?v=hJiLiMlFotw.

United Nations. "Around 2.5 Billion More People Will Be Living in Cities by 2050, Projects New UN Report | United Nations," n.d. https://www.un.org/en/desa/around-25-billion-more-people-will-be-living-cities-2050-projects-new-un-report.

United Nations Statistics Division. "— SDG Indicators," n.d. https://unstats.un.org/sdgs/report/2021/goal-11/.

———. "SDG Indicators," n.d. https://unstats.un.org/sdgs/report/2019/goal-11/.

Upadhyay, Shashi Bhushan. "Cotton Mill Workers in Bombay, 1875 to 1918: Conditions of Work and Life." *Economic and Political Weekly* 25, no. 30 (1990). https://www.jstor.org/stable/4396556.

"Urban Design Case Study Archive," n.d. https://udcsa.gsd.harvard.edu/projects/7.

Urban, Florian. *Tower and Slab*. *Routledge eBooks*, 2013. https://doi.org/10.4324/9780203804131.

———. *Tower and Slab: Histories of Global Mass Housing*, 2011. http://radar.gsa.ac.uk/1926/.

Domus. "Urban India: Negotiating the Impatience of Global Capital," February 8, 2021. https://www.domusweb.it/en/architecture/2021/02/08/urban-india-negotiating-the-impatience-of-global-capital.html.

"Urban Informality - Marginal or Mainstream? - Janice Perlman, the Megacities Project | UN-Habitat," n.d. https://unhabitat.org/urban-informality-marginal-or-mainstream-janice-perlman-the-megacities-project.

Van Gameren, Dick, and Rohan Varma. *Living Ideals: Designs for Housing by Charles Correa*. Panjim: Charles Correa Foundation, 2018.

Varma, Rohan, and Kritika Sha. "Mumbai." In *Routledge eBooks*, 205–14, 2019. https://doi.org/10.4324/9781315645544-19.

Verma, Suyash. "How The Bombay Plague of 1896 Played Out," July 4, 2020. https://science.thewire.in/health/how-the-bombay-plague-of-1897-played-out/.

———. "How The Bombay Plague of 1896 Played Out," July 4, 2020. https://science.thewire.in/health/how-the-bombay-plague-of-1897-played-out/.

WAGHOLE, SATISH, Legislation. *Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) (Second Amendment) Act, 2023*. Edited by RUPENDRA MORE. *Maharashtra Act*, 2024. https://sra-automation.s3.ap-south-1.amazonaws.com/category/docs/1738316117404_2757_19.01.2024.pdf.

Wakely, Patrick. *Housing in Developing Cities: Experience and Lessons*, 2018.

Watson, Vanessa. "African Urban Fantasies: Dreams or Nightmares?" *Environment and Urbanization* 26, no. 1 (December 6, 2013): 215–31. https://doi.org/10.1177/0956247813513705.

Werthmann, Christian. *Informal Urbanization in Latin America: Collaborative Transformations of Public Spaces*, 2021. https://www.amazon.com/Informal-Urbanization-Latin-America-Transformations/dp/0367545896.

"Why Slum Upgrading Requires a Light Touch – the Informal City Dialogues," n.d. https://nextcity.org/informal-city/entry/how-architects-and-planners-can-lead-from-behind.

Wikipedia contributors. "Economy of India." Wikipedia, May 16, 2025. https://en.wikipedia.org/wiki/Economy_of_India.

———. "Economy of Mumbai." Wikipedia, May 15, 2025. https://en.wikipedia.org/wiki/Economy_of_Mumbai.

———. "George Peabody." Wikipedia, April 3, 2025. https://en.wikipedia.org/wiki/George_Peabody.

———. "Maharashtra Housing and Area Development Authority." Wikipedia, February 21, 2025. https://en.wikipedia.org/wiki/Maharashtra_Housing_and_Area_Development_Authority.

———. "Metropolitan Board of Health." Wikipedia, February 25, 2025. https://en.wikipedia.org/wiki/Metropolitan_Board_of_Health.

———. "Mumbai - Wikipedia," April 25, 2025. https://en.wikipedia.org/wiki/Mumbai.

World Economic Forum, and Joan Clos. "Harnessing Public-Private Cooperation to Deliver the New Urban Agenda," February 2017. https://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf.

World Health Organization. "GUIDELINES ON SANITATION AND HEALTH," 2018. https://iris.who.int/bitstream/handle/10665/274939/9789241514705-eng.pdf?sequence=25.

Yaneva, Albena. "New Voices in Architectural Ethnography." *Ardeth (Architectural Design Theory)* 1, no. 2 (January 1, 2018): 17–35. https://www.research.manchester.ac.uk/portal/en/publications/new-voices-in-architectural-ethnography(86f58a66-723c-4c98-b581-ab6059d3ea25).html.

Yntiso, Gebre. "Urban Development and Displacement in Addis Ababa: The Impact of Resettlement Projects on Low-Income Households." *Eastern Africa Social Science Research Review* 24, no. 2 (June 1, 2008): 53–77. https://doi.org/10.1353/eas.0.0001.

BIOGRAPHY



Rohan Varma is an architect, researcher and educator who graduated as an architect with first-class honours from the KRVIA (University of Mumbai) in 2009 and subsequently worked for Charles Correa on several important commissions such as the Champalimaud Centre in Lisbon, the Charles Correa Foundation in Goa, the Mahindra Research Valley in Chennai, the Masterplan for the redesign of Mecca in Saudi Arabia, and the Aga Khan Ismaili Centre in Toronto.

As a Tata and Mahindra Scholar, Varma received his Masters in Architecture, graduating from the TU Delft in 2013 with honourable mention and an Archiprix nomination. For the next two years, he gained further experience at the Delft-based international practice Mecanoo Architecten working on a number of large-scale architecture and urban design projects in the Netherlands, Russia, the United Kingdom and Chile.

Currently, Varma combines his work as the Principal Architect of the Mumbai-based VARMA Architects and the TU Delft, where his doctoral research and teaching activities focus on affordable housing design in the rapidly urbanising cities of the Global South.

Parallel to his private practice and research, Varma also actively engages in teaching and is currently a graduation studio tutor at the TU Delft's Global Housing Study Centre and has lectured and presented papers at a number of universities worldwide, such as ETH Zurich, Tunghai and Harvard. Varma also regularly engages in academic and public writing and has contributed papers and essays to various publications and platforms such as *Archdaily, Learning from Mumbai* and *The Routledge Handbook on Informal Urbanization*. In 2018, along with Prof. Dick van Gameren, he co-authored the book *Living Ideals* and co-curated an international travelling exhibition on the housing designs of Charles Correa. More recently, in 2020, he was appointed as a Delft Global Fellow, and in 2022, he along with his colleagues at TU Delft won the global edX Prize for Exceptional Contributions in Online Teaching and Learning for the online course 'Global Housing Design'. In 2023 he was appointed as an editor of the journal *Delft Architectural Studies on Housing (DASH)*.

CURRICULUM VITAE

DATE OF BIRTH 7th September 1986
PLACE OF BIRTH Kolkata, India
NATIONALITY Indian

CONTACT INFORMATION

Telephone +31 626384712
Email r.varma@tudelft.nl
Website https://research.tudelft.nl/en/persons/r-varma
www.varma-architects.com

PROFESSIONAL QUALIFICATIONS

Council of Architecture (COA), India
CA/2011/52681
Netherlands Architecten Registration
1.131115.017

AWARDS & HONOURS

Global edX Prize, 2022
Delft Global Fellow, 2020
First Prize, Serendipity Arts Foundation, 2018
Archiprix (nomination), 2013
J.N. Tata Scholarship, 2011
K.C. Mahindra Scholarship, 2011
IIA P.S. Gokhale Memorial Award, 2010

EDUCATION

Doctoral Candidate
2017-2025 (part-time; self-funded)
Department of Architecture, TU Delft
Promotors: Prof. Dick van Gameren (TU Delft)
Prof. Rahul Mehrotra (Harvard University)
Dr. Nelson Mota (TU Delft)

Master of Science in Architecture
2011-2013
Graduated with Honourable Mention, Department of Architecture, TU Delft

Bachelor of Architecture
2004-2009
Graduated with First Class Honours, KRVIA, University of Mumbai

WORK EXPERIENCE

Assistant to the Dean of the Faculty of Architecture and the Built Enviornment, TU Delft
2019-till date
Key Projects: *Future Proof Neighborhood: Old & New Housing Ideals* (GSD, Harvard University, 2024)
Dutch Dwellings: The Architecture of Housing (Park Books, 2023)
Bouwkunde 2021-2025: Multi Annual Plan (TU Delft, 2021)

Research & Conference Co-ordinator
2014-till date
TU Delft Department of Architecture, Delft
Key Projects: TU Delft-Aga Khan Trust for Culture MOOC on 'Sustainable Housing Design', 2023-2025
'The Observers Observed: Architectural Uses of Ethnography', TU Delft & Het Nieuwe Instituut, Rotterdam, 2021
TU Delft-Aga Khan Trust for Culture MOOC on 'Global Housing Design', 2020-2021
Platform for Affordable Dwellings, TU Delft, 2017
'Housing in India' Seminar, TU Delft, 2017
'Double Day on Dwelling', TU Delft, 2014
'The Blessings of the Sky', TU Delft, 2014

Architect
2013-2015
Mecanoo Architecten, Delft
Key Projects: Thamesmead Masterplan, London
KLM Headquarters, Amsterdam
Lo Recabarren, Santiago de Chile
Sokolniki City Park, Moscow

Architect
2008-2010
Charles Correa Associates, Mumbai
Key Projects: Masterplan for Mecca, Saudi Arabia
Champalimaud Centre, Lisbon
Mahindra Research Valley, Chennai
Charles Correa Foundation, Panjim
Ismaili Centre, Toronto
A Place in the Shade: The New Landscape & Other Essays (Penguin Global, 2010)

Freelance & Consultancy Work
2017-till date
Key Projects: Masterplan for Rotterdam Alexander (in collaboration with FLOCKS), 2018
IJburg Master Plan, Amsterdam (in collaboration with Mecanoo Architecten), 2018-2019

PRIVATE PRACTICE

Founder & Principal Architect
2015-till date
VARMA Architects, Mumbai
Key Projects: Desert Dolphin Community Centre, Khempur (ongoing, 2022-till now)
Desert Dolphin Residences, Khempur (ongoing, 2022-till now)
Kavel 09, Delft (completed, 2021)
Gaaygaon, Karjat (ongoing, 2019-till now)
Shared Housing, Indore (unbuilt, 2019)
School of Crafts, Loutolim (winning entry, 2017)
Amenity Towers, Mumbai (special mention, 2017)
House on a Farm, Karjat (unbuilt, 2017)
Workers Housing, Silvassa (unbuilt, 2016)
Showroom of Marble, Silvassa (unbuilt, 2016)
School around a Courtyard (unbuilt, 2016)
Temple of Light, The Hague (unbuilt, 2012-2015)

TEACHING EXPERIENCE

Lecturer
2017-till now
TU Delft Department of Architecture, Delft

2024-2025
MSc 3/4 'Architecture of Transition in the Bangladesh delta'
Teaching team: Prof. Dick van Gameren, Dr. Nelson Mota, Prof. Marina Tabassum, Ir. Rohan Varma

2025
MSc2 'Buenos Aires: Dwelling on the Border'
Teaching team: Dr. Nelson Mota, Ir. Harald Mooij, Prof. Flavio Janches, Ir. Rohan Varma

2025
Q3 Elective 'Architectural Ethnography'
Teaching team: Dr. Nelson Mota, Ir. Pierijn van der Putt, Dr. Brook Teklehaimanot, Ir. Rohan Varma

2023-2025
'Sustainable Housing Design' MOOC
Teaching team: Prof. Dick van Gameren, Dr. Nelson Mota, Ir. Frederique van Andel, Ir. Harald Mooij, Ir. Rohan Varma

2023-2024
MSc 3/4 'Architecture of Transition in the Bangladesh delta'
Teaching team: Prof. Dick van Gameren, Dr. Nelson Mota, Prof. Marina Tabassum, Ir. Rohan Varma

2024
Q3 Elective 'Architectural Ethnography'
Teaching team: Ir. Pierijn van der Putt, Dr. Alejandro Campos Uribe, Ir. Rohan Varma, Ir. Antonio Paoletti

2023
MSc2 ‘Buenos Aires: Dwelling in Barrio Ricciardelli’
Teaching team: Dr. Nelson Mota, Ir. Harald Mooij, Prof. Flavio Janches, Ir. Rohan Varma

2023
Q3 Elective ‘Architectural Ethnography’
Teaching team: Dr. Nelson Mota, Ir. Pierijn van der Putt, Dr. Alejandro Campos Uribe, Ir. Rohan Varma

2022
MSc2 ‘Dwelling in the Delta: Dhaka’
Teaching team: Prof. Dick van Gameren, Prof. Kazi Ashraf, Dr. Marina Tabassum, Ir. Rohan Varma

2021
MSc2 ‘Dwelling in the Delta: Dhaka’
Teaching team: Prof. Dick van Gameren, Prof. Kazi Ashraf, Dr. Marina Tabassum, Ir. Rohan Varma

2020-2021
'Global Housing Design' MOOC
Teaching team: Prof. Dick van Gameren, Dr. Nelson Mota, Ir. Frederique van Andel, Ir. Rohan Varma

2020
MSc 2 ‘Mixing Mumbai: Redeveloping Worli’s BDD Chawls‘
Teaching team: Prof. Dick van Gameren, Ir. Rohan Varma

2017-2018
MSc 3/4 'Mixing Mumbai: Affordable Housing for Inclusive Development'
Teaching team: Prof. Dick van Gameren, Dr. Nelson Mota,
Ir. Rohan Varma

Research Mentor
2022-till date
ArtEZ University of the Arts, Zwolle

Visiting Professor
2018-2019
KRVIA, Mumbai

2019
'IJburg Dwelling Studio', KRVIA, Mumbai

2018
'High-Density Mixed-Income Housing', KRVIA, Mumbai

2018
'Architecture & Ethnography' KRVIA, Mumbai

Visiting Design Critic
2022
Department of Interior Architecture, Rhode Island School of Design (RISD), Providence

Assistant Professor of Architecture
2010-2011
KRVIA, Mumbai
1st year Architecture Design
1st year Graphics
2nd year Interior Design

PUBLICATIONS

Varma, Rohan. *“From CIAM to Correa: The 1985 Bill of Rights for Housing in the Third World”* In: The City as Public Matter: Future Histories of Urban Design (unpublished).

Mota, Nelson and Rohan Varma. *"Sites-and-Services in Performance: Mass Housing Design beyond Efficiency and Resilience."* In: Radical Middle Grounds: New Agendas for Medium-Density Housing. Hättasch, M. (ed.). The University of Texas at Austin School of Architecture: Center for American Architecture and Design. Austin. 2024.

Mota, Nelson and Rohan Varma. *"Incrementally, we Dwell: B.V. Doshi’s Aranya Township as a typological innovation in housing design inspired by the Habitat Bill of Rights."* In: Proceedings of the 2nd International Congress on Colonial and Post-Colonial Landscapes: Architecture, Colonialism, War. Lisbon, 2023.

Varma, Rohan. *“From Affordable Housing to Affordable Cities.”* In: the newsletter of the Charles Correa Foundation, 2021.

Varma, Rohan, and Kritika Sha. *“Profit versus People: The Struggle for Inclusion in Mumbai.”* In: The Routledge Handbook on Informal Urbanization. Routledge, 2018.

Gameren, Dick van, and Rohan Varma. *Living Ideals - Designs for Housing by Charles Correa*. Charles Correa Foundation. Panjim, 2018.

Varma, Rohan. *“Global Housing Models.”* In: The State of Housing: Aspirations, Imaginaries and Realities in the Emerging Urban India. Urban Design Research Institute. Mumbai, 2018.

Sedighi, Mohamad, and Rohan Varma. *“Framing a New Discourse on the Notion of Habitat in Transforming Societies.”* In: Proceedings of the 18th International Planning History Society Conference: Yokohama 2018: Looking at the World History of Planning. 1231-1241. Yokohama, 2018.

Varma, Rohan. *“Doshi: A Life in Architecture.”* Archined, April 2018.

Varma, Rohan. *“Architecture as an Agent of Change: Remembering Charles Correa, India’s Greatest Architect.”* ArchDaily, June 2016.

Gameren, Dick van and Rohan Varma. *“Shifting Scales: Affordable Housing in India.”* In: Global Housing: Affordable Dwellings for Growing Cities. Rotterdam: Nai010 Publishers, 2015.

Varma, Rohan. *“Affordable Cities: Interview with Charles Correa.”* In: Global Housing: Affordable Dwellings for Growing Cities. Rotterdam: Nai010 Publishers, 2015.

Varma, Rohan. *“Elastic Cities.”* In Lobby No.3: Defiance. University College London, 2015.

Varma, Rohan. *“Making of the Maximum City.”* In: Learning from Mumbai: Practising architecture in urban India. Ahmedabad: Mapin Publishing, 2013.

LECTURES & PRESENTATIONS

2025
"Constructing Narratives: Perspectives on Drawing." Lecture at TU Delft, Delft, March 25th, 2025.

2024
"Manifestos for Housing the Masses". Lecture at CEPT University, Ahmedabad, October 15th, 2024.

" The Bill of Rights for Housing in the Third World:
Charles Correa’s Manifesto for Housing the Masses." Lecture at The National Centre for the Performing Arts, Mumbai, October 13th, 2024.

"TU Delft Global Housing: Research, Education, Practice." Lecture at Jadavpur University, Kolkata, August 22nd, 2024.

"TU Delft Global Housing: India." Lecture at The India Habitat Centre, New Delhi, August 19th, 2024.

"Constructing Narratives: Perspectives on Drawing." Lecture at TU Delft, Delft, March 26th, 2024.

"Manifestos for Housing the Masses". Lecture at CEPT University, Ahmedabad, February 21st, 2024.

"From Affordable Housing to Affordable Cities: Tracing Charles Correa's Designs for Third World Development." Lecture at SUST, Sylhet, February 16th, 2024

2023
"Paradigms in Conflict: Global Models of Housing." Lecture at TU Delft, Delft, November 15th, 2023.

"Paradigms in Conflict: Global Models of Housing." Lecture at TU Delft, Delft, May 11th, 2023.

"Manifestos for Housing the Masses: From CIAM to Correa." Lecture at the Graduate School of Design, Harvard University, Cambridge, March 28th, 2023.

2022
"Expanding Habitat: From CIAM to Correa". Lecture at Technion Israel Institute of Technology, Haifa, November 11th, 2022.

"TU Delft Global Housing: India." Lecture at TU Delft, Delft, October 10th, 2022.

"Global Housing: Mumbai." Delft Global Lecture, Delft, May 18th, 2022.

"Housing in Mumbai." Lecture at the Bengal Institute, Dhaka, April 30th, 2022.

"Housing and the City." Lecture at the University of Amsterdam, Amsterdam, May 9th, 2022.

“From Affordable Housing to Affordable Cities.” Lecture at the Hague University of Applied Sciences, The Hague, May 3rd, 2022.

2021
“Housing Design as Urban Design: From CIAM’s ‘Charter of Habitat to Charles Correa’s ‘Bill of Rights for Housing in the Third World.“ Presented at the ‘Histories of Urban Design’ conference held at the ETH Zurich, November 17th, 2021.

"Housing the Urban Invisibles". Panel discussion at 17th Venice Architecture Biennale, Venice, September 22nd, 2021.

"Bombay/New Bombay: Planning the Self-Help City." Lecture at TU Delft, Delft, September 2nd, 2021.

"Dwelling Design: Between Ideals & Standards." Lecture at the Bharati Vidyapeeth University, Pune, August 31st, 2021.

"From Affordable Housing to Affordable Cities: Tracing Charles Correa's Designs for Third World Development." Lecture at the Bengal Institute, Dhaka, May 31st, 2021.

2020
"Decoding 'Housing for All'" Lecture for the Mixing Mumbai lecture series, TU Delft, May 12th, 2020.

“The Making of the Maximum City”, at the Mixing Mumbai lecture series, TU Delft, April 21st, 2020.

"Standards & Ideals: Low-rise High-Density Housing & Equitable Cities". Lecture at the 'Dwell 2020 Workshop', Charles Correa Foundation, Panjim, India, February 25th 2020.

2019
"Mumbai: Housing Types & Typologies." Lecture at TU Delft, Delft, November 9th, 2019.

"Housing Transitions: Decoding 'Housing for All' in Urbanizing India", at the 'Housing the Urban Invisibles' seminar, TU Delft, October 10th 2019.

2018
"Transfers, Transformations & Transitions: Architecture & Modernity in India." Lecture at the Amsterdam Academy of Architecture, Amsterdam, December 4th, 2018.

"The Third Way: Framing the Discourse on Human Habitat in Industrializing Countries". Lecture for the International Planning History Society (IPHS) Conference, Yokohama, July 17th, 2018.

"Global Housing: Trends & Trajectories." Lecture at the 'State of Housing in India: Aspirations, Imaginaries and Realities in India' Conference, Mumbai, March 18th, 2018.

"Housing in India: Between Standards & Ideals". Lecture given at the Department PhD Peer-Review Colloquium, TU Delft, Delft, May 18th, 2018.

2017
"Mumbai, A Collage", Mixing Mumbai Global Housing Studio, TU Delft, The Netherlands, September 22nd, 2017.

"Shifting Scales: The Changing Role of the Architect in India", Global Housing Seminar, TU Delft, June 22nd, 2017.

2014
"The Other Half: Types & Typologies of Housing in India", Confronting Informality Seminar, TU Delft, December 14th, 2014.

2013
"Integrating Informality", Global Housing Studio & New Town Institute Symposium, TU Delft, June 27th, 2013.

REVIEWER/JUROR

2025
Charles Correa Gold Medal Jury
Charles Correa Foundation, Panjim

'Conservation Approach to Modernist Housing'
Masters in Conservation & Regeneration, CEPT University, Ahmedabad

2024
'Form follows Affordability'
CEPT University, Ahmedabad

'Housing & Urban Design'
KRVIA, Mumbai

'Home x Habitat x City'
CEPT University, Ahmedabad

2023
'Modulating Change'
Graduate School of Design, Harvard University

'Future Proof Neighbourhood: New and Old Housing Ideals'
Graduate School of Design, Harvard University

'Experimental Housing: Density & Incrementality'
Graduate School of Design, Harvard University

2020
'Re-coding Mumbai'
KRVIA, Mumbai

2019
'Housing Ecologies'
KRVIA, Mumbai

EXHIBITIONS, WORKSHOPS & LECTURE SERIES

Concept designer for the exhibition 'Bouwkunde in Delft: A Chronology', TU Delft, 2023-2024.

Organiser for 'Dhaka: Hydro-logical Housing' lecture series that invited scholars such as Kenneth Frampton (Columbia University), Rahul Mehrotra (Harvard GSD) and Zachary Lamb (UC Berkeley), April-June 2021.

Organiser for 'Mixing Mumbai' lecture series that invited several urban practitioners that included Aditya Barve (MIT), Samarth Das (PK Das & Associates), and Vidhee Garg (Affordable Housing Institute, Boston), April-June 2020.

Mentor for the 'Dwell 2020 Tube House Workshop', Charles Correa Foundation, Panjim, India, February 26th-29th, 2020.

Co-curator for the international travelling exhibition 'Living Ideals: Designs for Housing by Charles Correa', Mumbai, Ahmedabad, Panjim, Kolkata, February 2018 - January 2019.

Co-curator for the exhibition 'Building on Ideas: Charles Correa's Built & Un-built Designs for Housing', BK Expo, Delft, June 12th-30th, 2017.

पी. टी. ज्वेलर्स
P. T. JEWELLERS
267/A, Ponmawala Bldg No.1, G.K Marg, Lower Parel, Mumbai 13. GST NO: 27AABPJ4463F1ZW

SINCE 2001
मार्क ऑप्टीकल कं.
Mark Optical Co.
Shop No. 5 & 6, Ponmawala Bldg, Nr. G.K. Marg, Lower Parel, Mumbai 13

श्री साँवरिया डेअरी
SHREE SAWARIYA DAIRY
7, Plot No. 257/275-1, Ponmawala Chawl no.1, opp A to Z, Gangotre Kadam Marg, Lower Parel, Mumbai 400 013

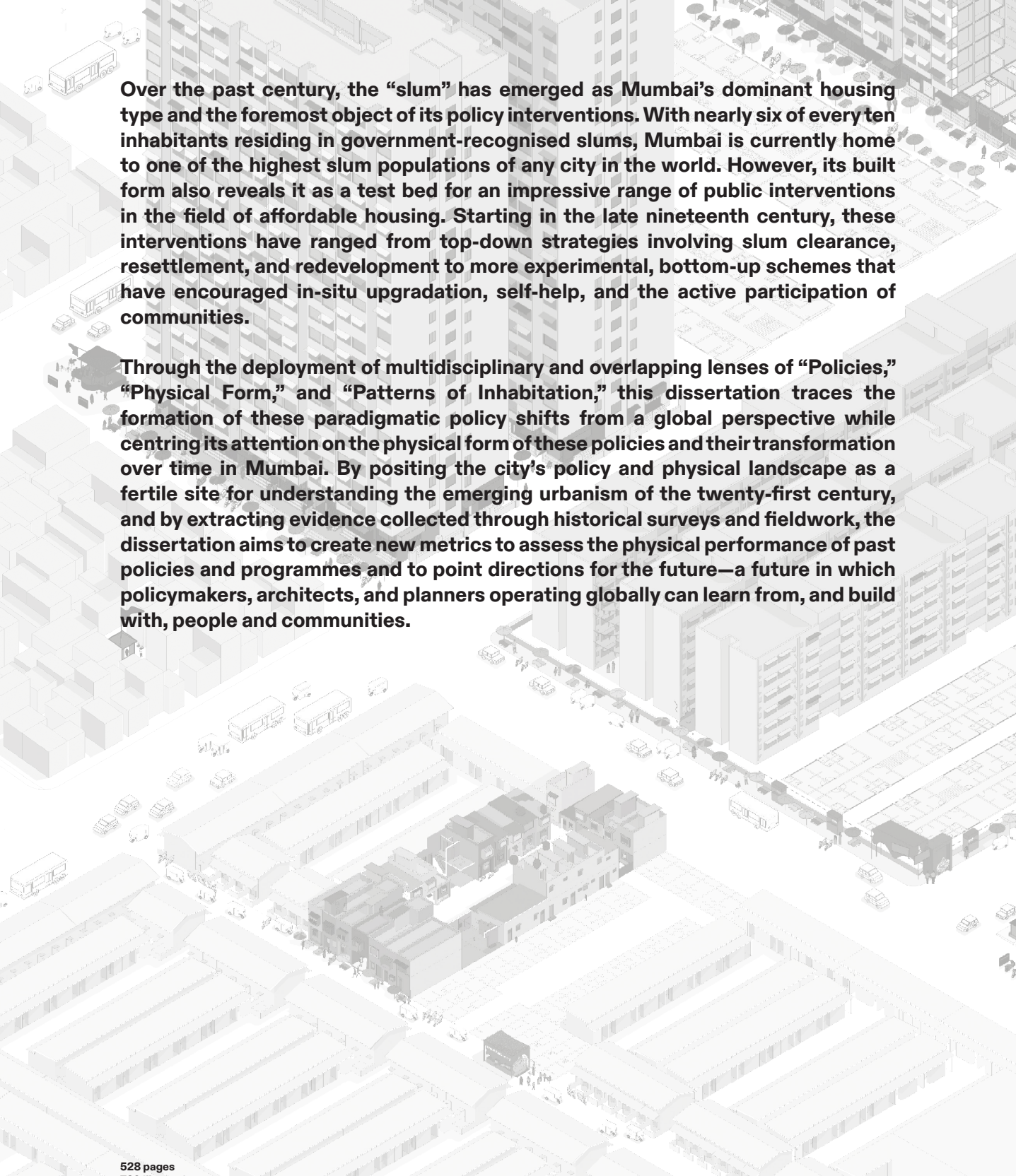
realme

पुनाबला चाल नं. २
अभिनव
स्पोर्टस क्लब

MEN'S CORNER
मेन्स कॉर्नर
Exclusive ; Gents & Boys Wear

विवो
viv
श्री हरीओवाईस हब

Shreenath Electricals
त्काल मनी ट्रांसफर
Brand Mobile Phone And Accessories
vivo oppo realme
ONEPLUS
airtel



Over the past century, the "slum" has emerged as Mumbai's dominant housing type and the foremost object of its policy interventions. With nearly six of every ten inhabitants residing in government-recognised slums, Mumbai is currently home to one of the highest slum populations of any city in the world. However, its built form also reveals it as a test bed for an impressive range of public interventions in the field of affordable housing. Starting in the late nineteenth century, these interventions have ranged from top-down strategies involving slum clearance, resettlement, and redevelopment to more experimental, bottom-up schemes that have encouraged in-situ upgradation, self-help, and the active participation of communities.

Through the deployment of multidisciplinary and overlapping lenses of "Policies," "Physical Form," and "Patterns of Inhabitation," this dissertation traces the formation of these paradigmatic policy shifts from a global perspective while centring its attention on the physical form of these policies and their transformation over time in Mumbai. By positing the city's policy and physical landscape as a fertile site for understanding the emerging urbanism of the twenty-first century, and by extracting evidence collected through historical surveys and fieldwork, the dissertation aims to create new metrics to assess the physical performance of past policies and programmes and to point directions for the future—a future in which policymakers, architects, and planners operating globally can learn from, and build with, people and communities.

528 pages
729 illustrations
Printed and bound in Amsterdam

ISBN 979-8-90046-547-0

9 798900 465470

TU Delft