

Reflections

Aspect 1

The relationship between research and design

The process of carrying out the research includes different methods which consist of Typology and Praxeology to provide perspectives for collecting and analyzing information. Dwelling chair approaches are the study of typologies and practices of inhabitations, and patterns of cohabitations. Dwelling chair conducts also research in close relation with context and regional studies. Within this study context, a solution for the research question demands enhancement in the existing solution for the housing crisis in Mumbai.

The slum redevelopment scheme of Mumbai is known as a building type which is also called the low rise high density blocks. Different factors like construction regulations, governmental policies, cost efficiency, and land ownership have affected the quality of this type under different conditions. This complexity of housing solutions in Mumbai opens the gates for further studies in the existing types with the goal of enhancing the current solutions as parts of the entity of the city. Appropriation of space in these settlements reveals inhabitants' reaction in front of the "natural setting" of these schemes. By studying praxeology, it is sought to understand how different elements of the slum rehabilitation schemes serve inhabitants.

The literature study revealed that there are adequate resources covering the topic of housing in Mumbai to start the initial research. These resources include the archive like books and peer-reviewed articles which contributed to understand the complexity of the topic. Synthesis of the resources also resulted in acknowledgment of the geographical constraints as well as the socio-spatial condition of the city, maps of settlements and amenities, and housing typologies. The site visit in Mumbai provided an opportunity to conduct qualitative research through observation, informal conversations with inhabitants, photography, and analytical drawing. In other words, "natural setting" of slum rehabilitation schemes were observed and analyzed as a component in the context of daily life within the framework of anthropological research.

In the proposed design, different aspects of the multifaceted topic of housing, which becomes more complex while aiming at being low cost, have been researched. The design is the synthesis of testing different approaches to provide a convenient unit for low-income people in the tropical climate of Mumbai. All different determining factors like form and shape of the blocks, urban layout, and appropriate techniques for being low cost have been studied during the design process. As the topic has been new to the author of this paper, research has been a vital part of the process. The evidence for this claim is that many initial ideas were improved or left aside after the field trip to Mumbai, but also based on further studies of the existing solutions and debates about the topic. For instance, incremental growth and self-help communities were considered initially as possible solutions to the problem, while further studies have revealed that these are not necessarily applicable for the high demand of housing units in Mumbai whose land is quite sparse. Similarly, the initial idea of growth and change which was part of articulated design hypothesis were substituted for the growth in housing units. It is indeed observation of previous projects designed with this approach showed that no change or only minor changes took place after the inhabitants had occupied the unit. In contrast, growth of housing unit is quite common in Mumbai's low-income housing units which are visible as encroachments to different corners of the units and even outside of the units. Similarly, providing working spaces were initially one of the aims of the design hypothesis was confirmed by qualitative research and observations during the field trip which was showing intertwined occupation spaces and housing units as a value to keep. Further studies showed that, although occupation and housing are correlated in slum areas, it is impossible to bring them back to the height as these micro commercial units do not function in the height. On the other hand, the research about right of choice, although was considered as a solution for wealthier societies and middle class, resulted in finding a study which shows the similarity of chawls with linear scheme of support and infill of Habraken (1999). In 1983 Sanyal (1983)'s Doctoral dissertation

at Massachusetts Institute of Technology was published. In this work named "*Toward a Design methodology: a case of chawls in Bombay*" the chawls blocks of Mumbai are investigated. This resulted in delving into the ideas of Habraken and comparing with the existing solution of low-rise high-density blocks.

The field trip was an important part of the research and considerably/significantly contributed/helped to revise the perception of the problem and its context. Collective research at Nallasopara, the area of design, with the help of KRVI's students, surveying the local inhabitants, and qualitative research through the workshop at KRVI contributed to gain knowledge about the topic which was channeled into the design.

Aspect 2

The relationship between the graduation (project) topic and the studio topic

The proposed system is the synthesis of different solutions for different aspects of affordable housing in Mumbai. The Proposed graduation topic is the improvement of the existing solutions for low-cost housing in Mumbai. It is a metamorphosis of chawls in the scale of the building, following the logic of clustering in order to make meaningful social spaces. The suggested scheme provides dense housing fabric without losing the quality of public space. This system is not based on a *Tabula Rasa* or a utopian scheme. It is designed to connect the existing fabric to valuable spots of the site to make a network of current potentially valuable social nodes. The adaptability of the designed scheme makes it appropriate to be generalized to other locations with different borderlines and existing fabric. The economy of the scheme is low cost due to the size of dwellings, involves simple structures and uses conventional construction methods and vernacular or/and accessible materials.

Inclusive development is one of the main aims of this design assignment, as already suggested by the title of the Global Housing Studio, "Mixing Mumbai, Affordable Housing for Inclusive Development". In my scheme, inclusive housing has been studied in order to be applied. Providing mixed-income area, right of choice for inhabitants, social space, and public amenities are all answers to this assignment to help the low-income group of people to become more integrated into the society.

Aspect 3

Elaboration on research method and chosen approach

My approach is positioned between epistemes of typology and praxeology that involves typological study of slum rehabilitation system and its adjustment by people through the means of praxeology. In addition, the approach demands regional studies to cater for enough study of social context. Apart from typology, the way people inhabit the existing solutions is notable. Considering the social content of the city is inevitable that is covered by the archival study of existing literature about Mumbai and also qualitative research, which to some extent were done during a site visit by means of photography, sketching, and preparation of diagrams. This topic is partly covered in the analysis of typological researchers in the field of housing typology. Books such as "*In the name of Housing, a study of 11 projects in Mumbai*" (Padora, S. 2016) have been valuable resources of this category that is not only about the form of the housing types of the city but it is also related to the social content of the type and its surrounding. About the thinkers of the debate, I believe experimental research conducted by URZ cannot lead to major changes and it is slow for the urgent housing crisis of Mumbai. Instead, I agree with P K Das's idea to change housing policy that is one of the major causes of housing problems in Mumbai. By mapping the slum settlements and different assumptions of land allocation on a bigger scale, designers would be able to come up with relevant responses for major changes questioned in this research.

Combination of Typological approach and Praxeology is the optimization of typology approach to accentuate how people act in front of the built environment and existing types. Borrowed from the context of Dwelling chair at TU Delft, I believe that the study of typology is

a classification of building types to use them as starting point or as the precedents. Therefore, the adopted approach is considered relevant and praxeology alters the position of determining factors of the design, which do not include only the designer, but also covers the user within the context of the research. This would make the approach as a synthesis of Typology research method with the focus on anthropological research.

Archival study of In- Situ upgrading scheme reveals its scope as the upgrading of slum settlements. The typological study of different patterns of slum rehabilitation schemes also lacks consideration of social aspects of inhabitants' life. Relocation of slum dwellers causes social and financial problems for them, offering minimum housings which ignore the conditions of target groups. Synthesizing these facts, lead to the development of new type that merges the advantages of different solutions, social consideration of In- Situ Upgrading, and potentials of slum rehabilitation schemes as different components of the city.

Aspect 4

The relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results

The proposed design is applicable to the reality of Mumbai. In different aspects of the design, an extent of reality has been always considered. Techniques of construction have been selected through local techniques, like in cast reinforced concrete structure or clay pot filling ceiling. Due to the height of the blocks, a large amount of excavation of the ground is needed to build the foundation. Therefore, excavated soil can be used to make compressed stabilized earth blocks which create also occupation chances for people of the area during construction. Conventional material like corrugated metal sheets and vernacular material like bamboo, quite abundant in Mumbai, make the scheme feasible. As mentioned before, the proposal is the metamorphosis of existing solutions, keeping the advantages of current schemes like cross ventilation due to linear layout of the units. The large area of the design is not necessary to be built at once, because the clusters are designed in a way to make their own neighborhood. This feature makes it possible to develop the area gradually, even by different developers or real state agencies. The only aspect of the scheme that may seem less possible is building support following the idea of Open Building.

Aspect 5

The ethical issues and dilemmas you may have encountered in (i) doing the research, (ii) elaborating the design and (iii) potential applications of the results in practice

During the process of research, it was revealed that the problem of lack of affordable housing in India is not the issue of design, but the lack of larger intervention by the government. The role of policy in this topic makes one doubtful about the meaning of a well-developed scheme, while any decision is related to the profits of local developers.

References:

1. Habraken, N., & Valkenburg, B. (1999). Supports, an alternative to mass housing. [England]: Urban International Press.
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3. Sanyal, S. (1983). *Toward a design methodology: a case of chawls in Bombay* (Doctoral dissertation, Massachusetts Institute of Technology).