Dit boek beoogt de tot nog toe gescheiden werelden van traditionele plaatsgebonden architectuur te verbinden met het modernistische project in Afrika. Daarbij is als doel gesteld om de positie van de hedendaagse Afrikaanse architectuur ten opzichte van het modernistische project te analyseren en vooral ook aan te vullen. Deze publicatie geeft daarmee een uniek inzicht in de moderne Afrikaanse architectuur, die ontegenzeggelijk beïnvloed is door de Europese moderne architectuur, en tegelijkertijd een natuurlijk vervolg is op de bestaande plaatsgebonden en traditionele architectuur.

De vier disciplines binnen het architectenvak: stedenbouw, bouwtechnologie, bouwfysica en conservatie, komen ieder aan bod. Na een inleiding met een historische schets worden projecten geanalyseerd en met elkaar vergeleken. Aan de hand van praktijkvoorbeelden documenteert en beschrijft Folkers de hybride architectonische vormen die zijn voortgekomen uit de confrontatie en versmelting met (voor)moderne westerse architectuur en stedenbouw, en *en passant* vertelt hij een geschiedenis van de Afrikaanse architectuur.

Antoni Folkers is architect en stedenbouwkundige. In de jaren tachtig verhuisde hij naar Afrika waar hij het bureau FBW architecten opzette met filialen in onder meer Kampala (Oeganda) en Dar es Salaam (Tanzania). Sinds 2000 is Folkers met zijn bureau gevestigd in Utrecht. Hij is oprichter en directeur van platform ArchiAfrika.

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Antoni Folkers Moderne architectuur in Afrika SUN

# *Antoni Folkers*
# Moderne architectuur in Afrika

SUN

This book sets out to link the worlds of traditional site-specific architecture with the Modernist project in Africa which have been considered in isolation to date. The starting point is to analyse and especially to supplement the position of contemporary African architecture vis-à-vis the Modernist project. This publication thereby offers a unique insight into modern African architecture, which is undeniably influenced by modern European architecture, and at the same time is a natural successor to existing site-specific and traditional architecture.

The book ranges over the four architectural disciplines: urban planning, building technology, building physics, and conservation. There is an introduction with a historical outline and an analysis and comparison of a number of projects. On the basis of examples drawn from practice, the author documents and describes the hybrid architectural forms that have emerged from the confrontation and fusion with (pre)modern Western architecture and urban planning. He narrates in passing the history of African architecture.

Antoni Folkers is an architect and urban planner. He moved to Africa in the 1980s, where he set up the FBW firm of architects with branches in Kampala (Uganda), Dar es Salaam (Tanzania) and elsewhere. Folkers and his firm have been based in Utrecht since 2000. He is the founder and director of the platform ArchiAfrika.

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*Antoni Folkers* Modern Architecture in Africa SUN

*Antoni Folkers*

# Modern Architecture in Africa

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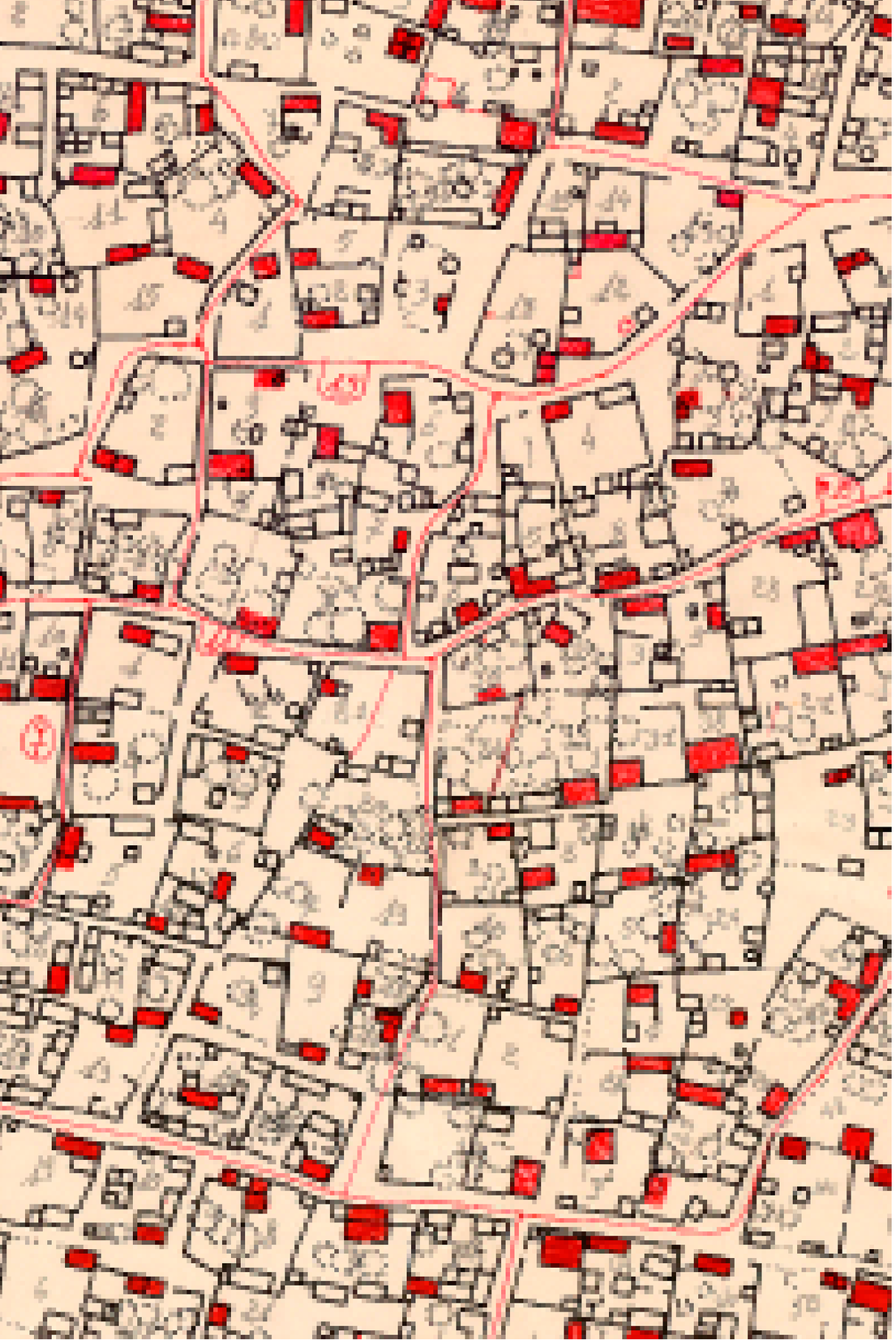

*Antoni Folkers*

# Modern Architecture in Africa

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To AC

# Foreword

Antoni Folkers' *Modern Architecture in Africa* is an architectural study conducted during a pilgrimage to a continent in which he was a stranger. It is a reflection on the experiences gained during years of residing, practicing, and observing how the people use spaces in Africa. Folkers' book explains how modern and contemporary structures have been conceived, planned, and built in order to meet the aspirations of residents from all over Africa.

Folkers' historical journey results in two major conclusions, which he presents to the reader of this book. First, he brings a new voice to the discourse of modern rrchitecture in Africa. Second, by drawing and making comparative studies of buildings in Africa that reflect modern construction methods, he reminds us that sustainable architectural design, now internationally a fashionable catchphrase, may come and go, but it was a standard practice among modernist pioneers in Africa. Below is a brief outline of these two ideas.

If the term 'modernism' means many things; it includes – but is not limited to – capitalism, colonialism, 'modern' ways of thinking, and one might add, 'modern' ways of constructing structures. In Africa, after subjugating the kings and other leaders of different kingdoms and ethnic groups to colonialist rule, the first influx of modernist structures from the early and the mid-nineteenth century was facilitated by the need for military garrisons, and later by the public works departments that served colonialists institutions. A number of texts have been published in the recent years on modern architecture in Africa, particularly in northern African countries. However, these books usually outline two lines of narratives that either glorify colonialist town planning and building ambitions, or criticize it. The essays, books, and monographs that examine colonialist projects often excluded the majority of native residents who provided the physical labor to build the projects, who were sometimes important supervisors

and foremen. The presence of natives becomes the reverse side of this domineering colonialists' power. One pioneer architectural historian, Udo Kultermann, forged a new path in 1963 when he published *New Architecture in Africa*, and in 1969 when the theme of the first book was expanded in *New Directions in African Architecture*. It is within this historical context that Folkers' study of *Modern Architecture in Africa* should be located. It is a new voice because the book's contents transcend colonialist paradigms and narratives while including architectural projects realized by the aspirations of the African peoples.

The second contribution made by this book echoes beyond the spheres of architectural practices in Africa. Folkers' book shows us that buildings can be more enjoyable and functional if builders take note of the clients' needs and the climate-related requirements. On the other hand, he explains how buildings can fail to meet their planned functionality if builders refuse to heed environmental conditions or specific cultural significance. Folkers structures his book into four parts, each representing one of four specialized but closely related disciplines of architectural construction: urban design, building technology, building physics, and conservation.

While the notion of building conservation has become increasingly popular, Folkers' text is a wakeup call to historians who believe that sustainability and environmentally sensitive design are new phenomena. Recognizing that traditional African architecture has always been sustainable, Folkers' comparative studies of building technology and building physics also reveals that, contrary to how recent history is presenting architectural sustainability as a new discovery, the idea of constructing buildings to adapt to the environment was also one of the goals of modern architecture during the colonial times. Realizing that they were in hot, humid, or sometimes dry climates, the colonialists' building agendas included plans to regulate the inside climate of their buildings through both design and natural means, such as passive daylight and cross ventilation. Such buildings achieved their objectives through a variety of means: orientation, long eaves, pitched roofs with ventilation openings, shading, elevating the buildings so as to allow wind to circulate below them, and also by climatically well-adapted material choices and construction methods. Granted, the term sustainable design was not yet coined in the early twentieth century when the colonialists were designing and constructing their buildings, but their efforts in building science reveal that many were evidently much more advanced than we are today in the effort to make buildings sustainable. This does not hint at colonialist nostalgia; it is a historic fact necessary for the documentation undertaken in this publication. Here, we can recall the works by Miles Danby, *Grammar of Architectural Design with Special Reference to the Tropics* (1963); Maxwell Fry and Jane Drew's *Tropical Architecture in the Dry and Humid Zones* (1964), and Margaret & Alick Potter's *Everything is Possible, Our Sudan Years* (1984). The field of culture and sustainability form the historical trajectory for Folkers' contribution, as he reflects on the present state of *Modern Architecture in Africa*.

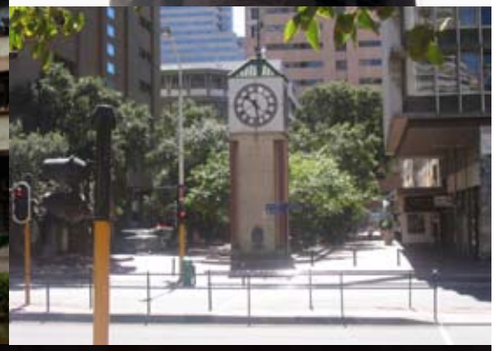
This book is singular and entertaining to read because the ideas it contains developed naturally with Folkers. And, in turn, Folkers grew with the ideas during his practice and the lectures, conferences, and workshops he and his colleagues – fellow members and founders of *ArchiAfrica* – have hosted in and beyond the continent on the subject of modern architecture in Africa. The best way to understand the cultural practices of a people is to reside side by side with them, to learn with them, and speak their language. Architecture is only one manifestation of these holistic aspects of life. Therefore, despite his status as an outsider, Folkers is uniquely qualified to bring this beautiful and accessible study of *Modern Architecture in Africa* to the public, and to scholars and students of architecture.

Nnamdi Elleh, Cincinnati, Ohio, USA, February 25, 2010

# Contents





# The Clock Tower

My longing to travel to Africa goes back to my early youth. It began with a desire for warmth and the exotic, followed by the wish to do something to improve the difficult conditions in which most Africans live.

During my studies at the Faculty of Architecture of Delft University of Technology this longing for Africa was intensified by an additional motive: the discussion – or better lack of discussion – concerning modernism in architecture, which dominated the faculty at that time.[1] The Netherlands of the 1980s was described by Bernard Hulsman strikingly as 'the Cuba of architecture'.[2] There was little space in the Netherlands for architectural considerations other than those derived from the modernist movement of the 1920s and 1930s. Even Aldo van Eyck, who was inspired by African architecture more than any other Dutch architect, fulminated against those who thought differently, calling them 'Rats, Posts, and other Pests' in his lecture to the Royal Institute of British Architects in 1981. The architecture critic Hans van Dijk coined the phrase 'Teachers' Modernism' to describe the mentality of architectural education in the Netherlands of the 1980s.[3]

Consequently, against a backdrop such as this, it was not surprising that Hassan Fathy's *Architecture for the Poor*[4] was a revelation to me. Fathy rejected modernism and created beautiful architecture in Egypt for the poor *fellahs*, which was rooted in the African tradition.

Shortly after finishing my studies, I entered a competition to redesign the Frederiksplein in Amsterdam. The crème de la crème of Dutch architects were tempted to vie for this prestigious prize, which, when announced, proved to be a smokescreen to hide the plans for an unpopular extension of De Nederlandsche Bank. While hundreds

1 In this book the term modern architecture is used to refer to systematic architecture inspired by Enlightenment principles and based on (supposed) scientifically grounded analysis. The term Modernist architecture is used to refer to the architectural style of the 1920s and 1930s that was the product of the desire to strip architecture of its historical ballast and found expression in a purist design. There were several currents within this Modernism, of which Functionalism and the International Style are the best-known.
2 Bernard Hulsman, 'De tijd heeft stilgestaan. Nederland, het Cuba van de architectuur', NRC *Handelsblad*, Cultural Supplement, 26 June 1992, p. 1.

En route to a building project: the River Ruaha crossing in 1988.

En route to a site meeting: four hours in a single-engine plane and then two hours by Land Rover.

of talented and serious designers eagerly awaited the results to be announced, and were about to be subjected to the same disappointment, my partner Belinda van Buiten and I decided to go to Africa: we called it our 'Krasnapolsky moment', named after the renowned hotel lounge where the award ceremony was held.

On my return to Europe, after a twenty-five year period of working in Africa, I was struck by how little the debate surrounding Dutch architecture had changed. 'Teachers' Modernism' had been replaced by the hedonistic hyper-modernism of Koolhaas and his followers, but academic architecture was still based on the modernist project, and still just as intolerant of other points of view. It is true that the horizon had in fact broadened, above all towards the Far East, but this was driven primarily by economic motives, and not by a genuine curiosity about, or desire for, a dialogue involving diverse cultures, or new ways of thinking about the architectural profession.

Africa has never played a significant role in the debate on architecture. The general public knows little about African architecture[5] or about architecture in Africa.[6] There is a handful of fascinating books about the great richness of traditional African architecture, but apart from Udo Kultermann's work,[7] there has been little attention paid since World War II to the idea of introducing modern western architecture to Africa; let alone to the identity and the position of African architecture in the global, over-all debate concerning architecture – a subject very few theoretical thinkers would risk seriously researching.

This book tries to link the previously separate worlds of traditional, locally rooted architecture with the modernist project in Africa. It is an attempt to contribute to the debate around the 'critical regionalism' concept introduced by Kenneth Frampton,[8] and Alexander Tzonis' theory of 'equatorial regionalism'.[9] My starting point is the position of contemporary African architecture in relation to the modernist project.[10]

An important warning is relevant here. Although I often refer to 'Africa' in this book, I cannot pretend to be referring to the whole continent. My knowledge and experience are limited to a dozen African countries and the underlying differences between these nations alone are already enormous. Consequently, it is not possible to talk about Africa in general terms. The continent is comprised of more than fifty countries and contains an enormous richness and variety of cultures. It also has almost every climatic and vegetation zone that we find elsewhere in the world. Nevertheless, from my own experience and information based on interviews, I have come to realize that striking similarities exist in addition to great differences – similarities that justify a continent-wide approach that should include the Maghreb.

3 Hans van Dijk, 'Het onderwijzers-modernisme', in: B. Leupen *et al.* (ed.), *Hoe modern is de Nederlandse architectuur?* (1990), p. 173-190.
4 H. Fathy, *Architecture for the Poor* (1973).
5 I understand architecture as the built environment in a broad sense. Any building or human spatial invention could be qualified as architecture.
6 With the possible exception of the Maghreb and South Africa.
7 U. Kultermann, *New Architecture in Africa* (1963) and *New Directions in African Architecture* (1969).
8 K. Frampton, *Modern Architecture* (2006).
9 A. Tzonis *et al.*, *Tropical Architecture* (2001).
10 H. Henket *et al.*, *Back to Utopia* (2002).

The discourse is constructed as a journey along a number of projects in which I was involved as a researcher or an architect. The reader is invited to follow the journey I made over the last twenty-five years, and to share my thoughts as a 'reflexive practitioner'.

The book is divided into four parts, representing different disciplines of architecture: urban design, building technology, building physics, and conservation. Each section will be introduced with a historical sketch, and includes an analysis and comparison of two or three projects. Despite cross-references, each section can be read as independent discourses.

In addition to the historical introduction to each section, I would like to broadly outline the circumstances of African architecture at the time I began to work on the continent. The current trend of historical writing on Africa is still largely based on a Eurocentric view of the continent. Up to the mid-twentieth century, this perspective was characterized by a denial of African history and a subsequent, anthropological focus on an idealized notion of primitive exoticism. A written Afrocentric response has long been lacking, because African culture is primarily based in the oral tradition, which has long been presented in the West as primitive and backward. This perspective has been proven false by postmodern philosophy and cultural anthropologists,[11] but it does not however deny that the written word in fact remains the norm in the contemporary world and that, 'who writes, remains'. Or, as expressed by an African proverb: 'The hunter will remain the hero of the chase, if the lions do not tell the tale.'[12]

In the second half of the twentieth century, African history began to be rewritten from a more balanced perspective and, thanks to African and international scholars, a 'new African history' started taking shape.[13]

The rewriting of general African history is a recent development; yet, the writing of African architectural history is only just beginning. The dominant picture of African architecture still current today is split into two worlds, as mentioned above. On one hand, there is the architecture imported from Europe as part of the modernist project, and on the other the cultural anthropologists' romanticized image of the primitive native hut. The intrinsic worth of what has also been called the informal, vernacular, native, or popular African traditional architecture has long been dismissed by modernists as primitive and irrelevant to the unavoidable development of Africans in becoming modern citizens of the world.[14]

Nnamdi Elleh and Masudi Alabi Fassassi are two African, architectural theorists who began to link African architecture in a broad and balanced way to the modernist project.[15] With this book, I would like to make a modest contribution to the research that they began.

11 H. Kimmerle, *Philosophie in Afrika* (1991).

12 'Tant que les lions n'auront pas leurs propres historiens, les histoires de chasse continueront de glorifier le chasseur.'

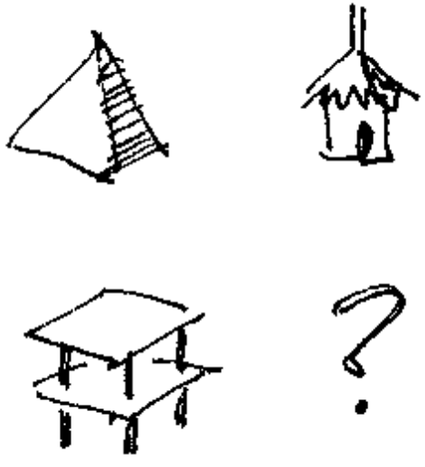
13 See the work of, amongst others, Heinz Kimmerle, Amadou Hampâté Bâ, Chris Ehret, Basil Davidson, and Sjeik A. Diop. See also: George B.N. Ayittey, *Africa Betrayed*. New York (St. Martin's Press) 1992.

14 O. Uduku *et al.*, *Africa Beyond the Post-Colonial* (2004), p. 21 ff.

15 M. Fassassi, *L'architecture en Afrique noire* (1997) and N. Elleh, *African Architecture* (1997).


Map of Africa with the most important places mentioned in this book.

*The writing that fell off the wall* by Willem Boshoff, Johannesburg Art Gallery, 1997. The artist is expressing the bankruptcy of western ideas about Africa. *Slogans of various bankrupt ideologies,* words in seven languages have fallen from the wall panels and lie scattered on the floor.



Modern building in Africa in relation to sustainable African archetypes: the pyramid and the hut.

The clock of Turiani. For the main entrance of the hospital I installed a restored station clock – ironically, the clock never worked. *Photo: Thierry van Baggem*

Because of my background, there is always the imminent danger of 'Orientalism', so abominated by Edward Said.[16] I lived and worked in Africa for a long time but I will always remain an outsider. However, Basil Davidson was also an outsider in Africa, yet he still managed to construct a balanced approach to his research, which has also received acclaim in Africa.

Despite my attempt to escape Dutch 'Teachers' Modernism', I realize that I am an inevitable product of the Eurocentric project of modernity. I too was convinced of the blessings of modernity when I went to Africa, and during the last quarter of a century I have attempted to express these in my work.

The coming of modernity[17] to Africa at the end of the nineteenth century – after a period of exclusive exploitation – brought a new social form to Africa which, in an apparently unavoidable dynamic, will evolve into a modern African culture. The colonization of Africa by the Europeans alienated the Africans from their land, by the introduction of the concept of private property, and led to the concentration of colonial power in centralized settlements. Clock towers were among the first buildings to be erected in these settlements by Europeans. These towers marked the moment that time was to be experienced in a European, rather than an African, manner. As an African saying puts it: 'When God created the world, he gave Africans the time and Europeans the clock.' These clock towers can still be seen from Casablanca to Zanzibar, from Cape Town to Cairo, and from Ile Ife to Nairobi.

A book like this is not written alone. It is a collection of contributions and lessons that I have received from other people. I was able to write this book thanks to the involvement and commitment of my colleagues in Africa and the Netherlands. In particular I want to thank my patient clients, the competent and patient craftsmen, colleagues, loyal partners, and employees of FBW architects: Heinrich Wolff, Francis Kéré, Geoff Wilks, Paul Moores, George Ssendiwala, Saskia van Haren, Charles Dobie, Sr. Mario Soethe CPS, Nuru Inyangete, Mike Leach, Bro. Kunibert OSB, Mahollo, Sadiki Msangi, Hans Neumann, Fr. Piet Bergmann, Peter Giljam, Aloyce Ndejembi, Bro. Thomas Eberl OSB, Kayzi Kalambo, Janneke Bierman, Fr. Mansuetus, Berend van der Lans, 'Ora Joubert, Cili Ter Haar-Romeny, Ola Uduku, Hannah Leroux for her photograph of the Kwa-Thema Project of the University of Witwatersrand, Rev. Mario Mgulunde, Hamad Omar, Hilde Heynen, Mick Pearce, Barry Boureima, Karel Bakker, Antoine Djigma, Joe Osae-Addo, and my dear friend Nnamdi Elleh, who provided me with a preface. I am greatly indebted to my teachers Herman Hertzberger, Georg Lippsmeier, Coen Beeker, Gilbert Kibtonré, Anthony Almeida, Friedrich Hinkel, Joseph Guiébo, Michael Radtke, Rudi van Winkelhof, Jak Vauthrin, Muhammad Salim Sulaiman, Nicola Colangelo,

16 E. Said, *Orientalism* (2003).

17 What I refer to as 'the modern project' in relation to architecture.

and my unforgettable father Jan Scholtens Folkers. The transformation of the manuscript into a book was in the good hands of Martien de Vletter, Marieke van Giersbergen, Mayke van Dieten, Daan de Kuyper, Lucy Klaassen, Marlies Dijkstra, Piet Gerards, and Monique Hegeman, with essential contributions from the draughtsmen Gerrit Vroon and Thierry van Baggem, and the translator Nick Rowling and English editor Laura Bruce. For the selection of photographs I particularly thank Mieke Woestenburg, Joep Mol, Cordelia Ossasuna, Antie Kaan, Wouter van de Brand, Janfrans van der Eerden, Nick Parfitt and Anne Katrien Denissen. I am very indebted to Bruno De Meulder, Hubert Jan Henket, Paul Meurs and Koen Ottenheym for their critical reading and commentary on the different stages of the book, which began to take shape in 2002. Wytze Patijn was always a great inspiration to me. Finally, I had three muses by my side: Henk Hoeks, Heinz Kimmerle, and Belinda van Buiten. Without them this book would not have happened.

# 1 • Working on the African city

## REVOLUTION IN ZANZIBAR AND OUAGADOUGOU

On reflection, my choice to work in two specific African cities, Ouagadougou and Zanzibar, now seems to have been product of my own romanticism and love of the exotic. They were admittedly among the original reasons that prompted my departure for Africa. Between 1984 and 1985, I worked in Ouagadougou as a researcher and designer on a project to restructure informal suburban settlements, and since 1985, I have been involved in the design and execution of various building projects in Zanzibar, where I have had the opportunity to witness the development of the city.

Ouagadougou and Zanzibar are both capital cities. Ouagadougou is the capital of Burkina Faso, formally known as Upper Volta. Zanzibar was the capital of an island empire of the same name, and is now one of the two capitals of the Tanzanian Union. Both cities have grown rapidly, are among the smaller metropolises of Africa, and are bound by a shared 'revolutionary history'. Zanzibar was transformed from a puppet sultanate to a model socialist state in 1964 under Abeid Karume; Ouagadougou managed to free itself from French domination in 1983 under Thomas Sankara.

To serve the revolution, the two cities were introduced to modernist design principles. Formalism played a less significant role in the urban development of Ouagadougou, and modern planning techniques were initially applied so as to regulate the informal growth of the city.

Sankara and Karume both died premature and violent deaths – Karume was murdered in 1972, Sankara in 1987. Little remained of their socialist principles by the end of the 1980s, with liberal capitalism triumphing in each city.

The immense growth and the reinforced division of Ouagadougou and Zanzibar into formal and informal areas are characteristic of how great African cities are now developing. Because this development escaped any system of centralized planning, an intangible situation has evolved, at least in the eyes of western-educated architects or urban planners, which is causing concern and uncertainty.

# The lost cities of Africa[1]

## THE DENIAL OF THE AFRICAN CITY

A widespread misconception that Africa did not produce any significant cities south of the Sahara before the arrival of Europeans persists even today. This misconception was initially the result of the denial of African history by the colonialists of the nineteenth and twentieth centuries. According to the generally accepted view of the period, Africans remained rooted in the Stone Age, and everything which challenged this view had been created not by the Africans themselves, but had been introduced by outsiders, in particular Europeans. For this reason research into the history of the African continent was not thought relevant, with the exception of research into subjects directly associated with the expansion of European civilization.

It was not until the 1950s that African cities were first subjected to scientific study. William Bascom in particular refuted the assertion that cities did not exist in Africa south of the Sahara, before the arrival of Europeans. He referred to Louis Wirth, who distinguished a city from a 'settlement'[2] in terms of size (more than 5000 residents), density, durability, and heterogeneity.[3] The concept of 'heterogeneity', according to Bascom, refers to the social stratification within a society or the degree of integration of different ethnic groups within the population. Bascom added the notion of an 'informal social administration' as a criterion to Wirth's definition. According to these criteria, for instance, Yoruba settlements, which already existed in the early medieval times, can certainly be seen as cities.

Bascom himself, but also his contemporaries and successors, viewed African urban developments from an anthropological perspective. The debates of this time are theoretical, and hardly examine the morphology and other urban planning aspects of the city. Moreover, anthropologists did the fieldwork regarding architecture and

1 Based on material in Basil Davidson, *The Lost Cities of Africa*, 1996.
2 'Folk communities', in, among others, Bascom 1958, p. 190-191.
3 Bascom 1995, p. 446-454.

building technology in the twentieth century. This was exceptionally important work, because a considerable amount of African architecture has since disappeared. However, it is also work that will have a stronger foundation after closer study from the perspective of architectural theorists, building experts, and urban planners. Bascom's research was carried out at a time when the western city still looked like a medieval city with suburbs. Meanwhile, western cities have evolved into polycentric metropoles, segmented districts, or dormitory cities. We still call these settlements cities, although they no longer conform to Wirth's criteria.

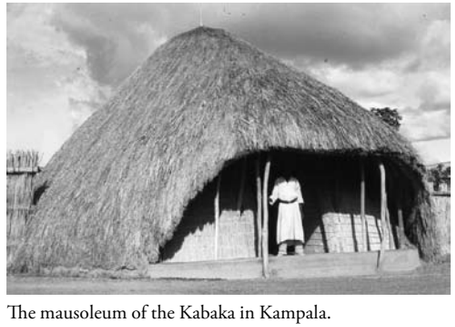
The relationship between Africa and Europe has played a great role in the development of both continents. Africa and Europe are inseparably linked and have continually influenced each other. It was not until the early Renaissance that European influence on Africa entered a phase of one-sided exploitation. With the Portuguese at the fore, African coasts were stripped and plundered starting at the end of the fifteenth century, and a century later, the forced Diaspora of millions of Africans to the American plantations began, and would continue to the nineteenth century. It is not surprising that the transportation of so many millions from a not very densely populated continent led to a weakening and depopulation of the medieval city-states. Famous cities such as Kilwa and Sofala on the African east coast disappeared at this time. Ultimately, the conquest of Africa by the Europeans after the Berlin Conference of 1885 led to the destruction of important cities such as Benin, Kumasi, and Ouagadougou in West Africa.

However, it was more than merely destruction and denial that caused the disappearance of pre-modern African cities. Traditional African cities were constructed from perishable materials such as clay, wood and straw. Durable materials, in particular stone, were also known but were used only sporadically. The erection of enduring monuments was unknown in most African cultures. Buildings were used at most for one generation; after the generation who built them deceased, they were abandoned to nature or recycled. The Kabaka, king of the Ganda in what is now Uganda, left his palace when he felt death approaching. He disappeared into the forest and never returned. His successor founded a new court on a different site; the old palace disappeared when the last surviving servant of the old Kabaka extinguished the fire. The buildings rotted away and were again overwhelmed by nature and within a generation only a memory remained. This was true of palaces, and even more for the homes and workplaces of ordinary people.

Over the last half century, the history of Africa began to be taken seriously, and archaeological research has focused on finding and reconstructing the vanished cities of Africa.[4]

4 See among others, Abdulrahman 2004; Chami 2006; Davidson 1959; Chittick 1965; and Garlake 2002.


Ancient African cities (before 500 AD).



The mausoleum of the Kabaka in Kampala.

## ◆ OLD AFRICAN CITIES

The oldest cities on the continent are also among the most ancient in the world. Memphis with the White Wall, the power base of the pharaohs, was founded by the legendary ruler Menes, who unified Egypt around 3100 BC. The origin of the cities along the Nile is connected to the drying up of the Sahara, which began six thousand years ago, when nomads were forced to live in concentrated settlements beside the river. It was the unification of peoples with different origins that led to the sudden emergence of Egyptian culture. The ancient Egyptians built a great number of cities throughout their long history. Some, such as Thebes, grew organically around the palaces and storehouses of the pharaoh; others, such as the cities of Amarna and Pi Ramses, were conceived as ideal cities, as genuine 'new towns', and were laid out according to the wishes of the pharaoh or for religious purposes.

The Egyptian city was represented by the hieroglyph *Nwt*. It was determined by crossing the south to north flowing river Nile – the bringer of water and life – and the daily passage from east to west of the Sun-god Ra. The cities were orthogonally laid out at this crossing point. Nekhen, built around 4000 BC, contains the oldest known traces of a city laid out according to such coordinates. Such orthogonal Egyptian city plans predate by three thousand years the layout of Milete by the 'father' of the orthogonal city plan, Hippodamus of Milete.[5]

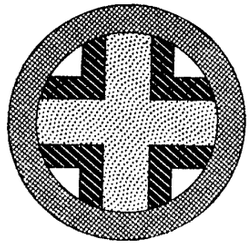
After the second millennium BC, Egyptian city culture expanded along the banks of the Nile toward the south. It formed a link between the empire of Kush with its capital Meroë (900 BC – 200 AD) in what is now Sudan, and Axum, the ancient capital of Ethiopia. Meroë can be seen as the centre from which African urban culture spread to the south and the west. Basil Davidson suspected that the significance of Meroë for Africa was comparable to the role of Athens for European development. This suspicion can only be truly verified after archaeologists investigate the vast ruins of the Kush Empire.

Following the establishment of the New Empire in Egypt (1550-1070 BC), contacts were made with city-states on the Red Sea and the Indian Ocean. During the rule of the female pharaoh, Hatshepsut in the fifteenth century BC, extensive reports were made of missions to Punt, a city that was possibly located in what is now Somalia. A thousand years later, references are still made to the trading city of Raphta that played an important role during expeditions in the Greek and Roman periods.

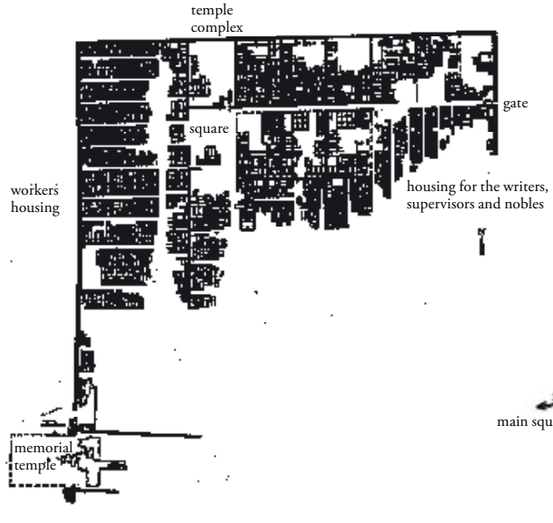
Punt and Raphta, which probably lay somewhere in the delta of the Rufiji in present-day Tanzania, have also yet to be localized. They are two more mysterious ancient cities that await archaeological discovery and research.

There are other places in North Africa that also have a documented history of urban development. Phoenician cities, such as Carthage in Tunisia; Greek colonies, such as Alexandria; and Roman garrison cities,

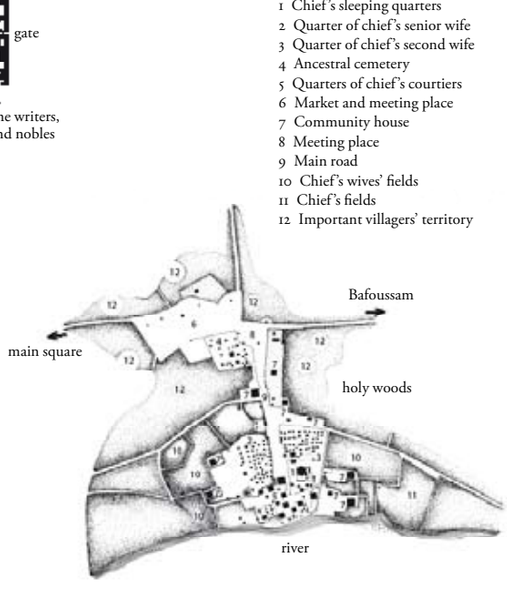
The Roman amphitheatre of El Djem in Tunisia.



The Egyptian 'nwt'-hieroglyph for 'city'.




The Egyptian *New Town* Kahun of the Middle Empire (circa 2000 BC).




Schematic map of a Bedouin *Chefferie* in Cameroon. *After M.A. Fassassi*

5 Hughes 2008.


African cities in the Middle Ages (circa 500-1500 AD).


Reconstruction of a Birni settlement on the River Logone in Chad. *After M.A. Fassassi*

such as Leptis Magna in Libya and Volubilis in Morocco are well known and, once again, were also part of a civic culture, which continued after the Arabic conquests of the seventh century. Research into North African cities focuses here, just as elsewhere, on the colonial influences of Europe and the Near East. The influence of traditional African culture on urban developments was considered insignificant. Yet today, an unmistakable African component can be seen that is rooted in comparable forms of popular housing dating back to their origins in Egyptian culture in the fourth millennium BC. The influence of Berber and Touareg cultures, which were described by Herodotus, is an example[6] of this. Among the best-known ancient African city cultures are those of the Garamantes, who founded important cities in the Fezzan in present-day Libya, and who controlled the trade between the Roman Empire and sub-Saharan Africa.[7]

The drying of the Sahara led to the division of the African continent into North Africa, the Maghreb,[8] and sub-Saharan, black Africa. The Sahara grew to be an enormous obstacle that became increasingly more difficult to cross than the Mediterranean Sea. The north-south relationship endured nevertheless, and caravans continued to cross the desert. In the Middle Ages, the exchange of knowledge and goods blossomed and well-known cities such as Marrakech and Timbuktu developed on either side of the Sahara, with Timbuktu evolving into a university city in the eleventh century comparable to Paris and Bologna.

The development of the cities of West and Central Africa can be traced back at least two thousand years. Meroetic influence on the development of the city cultures of northern Nigeria and Cameroon is unmistakable. However, the pieces of this puzzle will also only fall into place once extensive archaeological research has been carried out. The cities beside the river Logone in Chad, which were chartered by Masudi Alabi Fassassi, the settlements of the Nok culture in northern Nigeria, and the Tellem settlements in Mali, are all evidence of an intensive east-west relationship that had developed as early as two thousand years ago.[9]

It was from these developments that the powerful city cultures of West Africa emerged, as well as the kingdoms of the equatorial forest and the trading cities of the savannas, which stretched from Mauritania to Sudan. According to reports of that period, it was Ile Ife that set the pace from the early Middle Ages. Fassassi calls Ile Ife the ancient Rome of West Africa, a city that influenced many other areas of Africa.[10] In the following centuries, there evolved a great number of West African cities, such as Benin and Kano in Nigeria, Oualata in Mauretania, Kumbi, Ségou, and Djenné in Mali, Abomey in Benin, Kumasi in Ghana, Ouagadougou and Tenkodogo in Burkina Faso, and Bamoun in Cameroon.

The equatorial forest regions particularly in Nigeria reached a high level of urbanization in the nineteenth century, despite of or due to the slave trade. Statistics from the mid-nineteenth century

6 Herodotos 1995.
7 See Daniels 1970; Hyland 2007.
8 Maghreb derives from *Maghrib*, Arabic for 'where the sun goes down', the west.
9 See among others, Jean-Louis Ducène, 'Le Darb Al-Arb'aïn à l'époque musulmane', in Bruwier 2007, p. 245-251.
10 Fassassi 1997, p. 76.

show that Yoruba territories were already strongly urbanized. In 1931, almost sixty percent of the Yoruba population lived in towns with over 5000 residents, meaning, in terms of urbanization, the region was comparable with France – only England, Germany, and the United States had larger urban populations.[11]

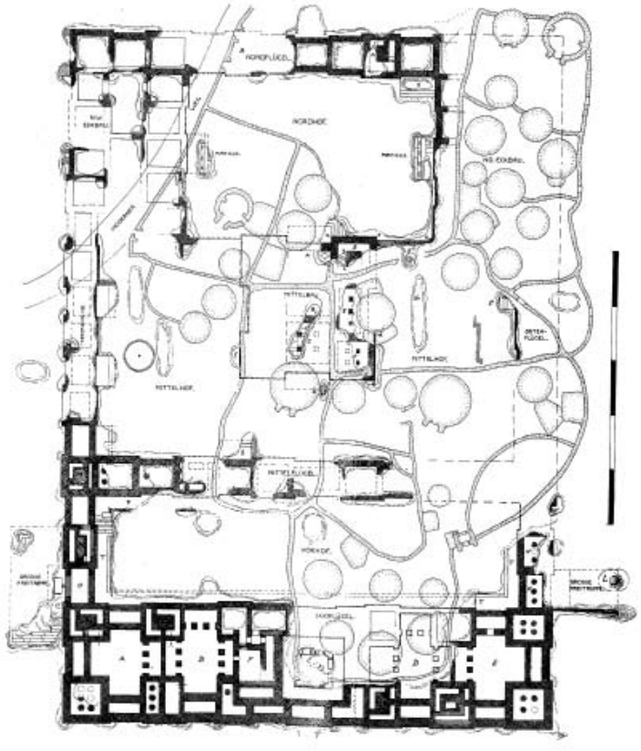
In the early Middle Ages, a city culture emerged in South and East Africa that was strongly linked with the gold trade. The royal cities of Greater Zimbabwe and Mapungubwe were built, in what is now Zimbabwe and South Africa, from the profits of gold mining, which was exported from the port of Sofala (now Mozambique). The trade in gold and, later, ivory was controlled by the sultan of Kilwa from the ninth century onward. Kilwa, located on an island before the coast of Tanzania, developed into the most powerful city in the region ruling vassal states that were strung like a string of pearls down the East African coast, from Mozambique in the south to Cape Guardafui in Somalia in the north.

Kilwa was controlled by the Shirazi, a people who evolved from the African population and the Persian colonists, who settled on the coast at the time of the Sassanid rulers. The Shirazi sultan maintained contacts with India, China, Arabia, and the African mainland. Kilwa blossomed in the Middle Ages, impressed visitors, as was documented by the renowned Arabic scientist Ibn Battuta in the thirteenth century, and in the last years of the fifteenth century by the Portuguese explorer Balboa. The empire of Kilwa aroused the envy of the Portuguese, who then conquered and destroyed the sultanate at the beginning of the sixteenth century.[12] At the end of the seventeenth century, the Portuguese were, in turn, chased out with the help of the sultan of Oman. The Omani steadily built up a coastal empire, which they controlled after 1830 from Zanzibar. From that moment, Suakin in Sudan, Lamu and Mombasa in Kenya, as well as Zanzibar developed into the impressive cities they are today.

Ethiopia was not part of these developments, but it has a unique history due to its isolation in the mountains. Ethiopia has always been an independent country with the exception of a few short periods of occupation. The oldest known Ethiopian city-state was Axum, which developed in the third century and whose influence extended to a large part of the Horn of Africa and the southern Arabian Peninsula. Ezana, the emperor of Axum in the early fourth century, adopted Christianity, similar to the Roman emperor Constantine, and this religion has since played a prominent role in Ethiopia. There was an initial close relationship with the Byzantine Empire during the first epoch; later, after the conquest of Egypt by the Arabs, Ethiopian Christianity became isolated. The decline of Axum was followed by the blossoming of the city-states of Lalibela and Gondar from the eleventh century onward. Ethiopia's unique and continuous Chris-

11 Bascom 1995, p. 447.

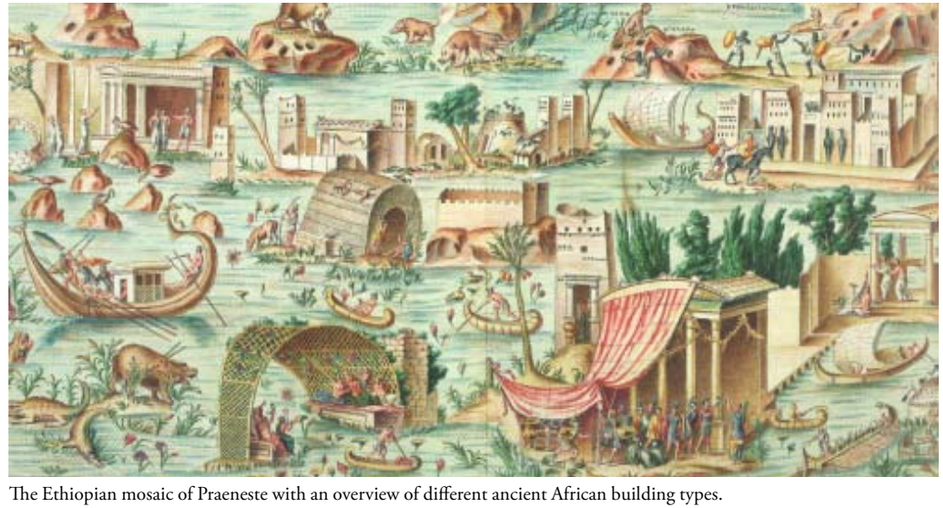
12 According to Basil Davidson, the Portuguese destroyed the East African civilization by their blind hunt for gold, an expression of their own primitiveness, 'The fault [the cause of the failed Portugese search for wealth in Africa] lay in their own antiquated system or society. Lacking a strong mercantile class, they understood little but loot and conquest. They stood outside the stream of mercantile democracy; and their rigidly autocratic methods of government and trade proved ruinous for themselves as well as for all those whom they conquered. […] Having seized the terminal ports of India and Africa and ruining these by royal order and aristocratic piracy, they blindly wrecked all that sensitive network of mercantile interest which centuries of trading had woven from one end or the Indian Ocean to the other. […] they went off desperately in search of gold; and when gold eluded them they looked for silver; and when silver failed they went for anything they could get, and were finally content with slaves [who were destined for their colony in Brazil].' Davidson 1996, p. 331.



A city palace in Axum (circa 1000 AD). *After D.W. Phillipson*

The Great Mosque of Kilwa. *Source: Ministry of National Resources and Tourism, Tanzania*

The arrival at Kilwa by *dhow*. In the background the Portuguese fort which later was rebuilt by the Omani.



The Ethiopian mosaic of Praeneste with an overview of different ancient African building types.

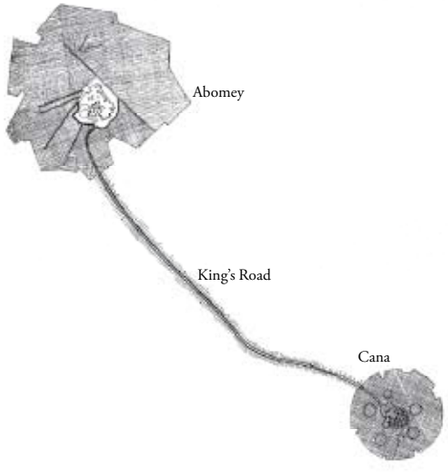
tian culture has left a wealth of stone monuments that have made it possible to reconstruct its urban history, which is different to the situation in most other African city cultures.

This summary would imply that the idea of the traditional African city is just as illusory as the idea of the traditional European or Asian city. Ali Mazrui, Kenyan cultural philosopher, sees African culture as an original amalgam of traditional animistic African, Islamic, and Christian cultures – 'the triple inheritance'. Nnamdi Elleh, who, to my belief, has made the first attempt to write a comprehensive account of African architecture,[13] followed Mazrui's lead over time and throughout the entire continent. This was an inevitably, somewhat superficial journey, due to the enormous time span and area of Africa that needed to be covered. However, the research has verified that Africa has been both the subject of other influences, as well as an influence to other cultures. The relationships with Asia and Europe reach further than a tripartite religious inheritance. Ancient Greece and Rome, the Chinese empire, the Sassanid Persian, and Indian kingdoms, and the empires of the Arabian Peninsula have had an important influence on African cultures. It is self-evident that African cultures have also had an influence on the rest of the world. The position of Africa, in relation to the rest of the world, has in fact been dramatically devalued over the last five centuries, despite the indisputable evidence that the human species originated in Africa, that the roots of human civilization lie in Africa, that Africa has exercised a vitalizing influence on other cultures, and despite the great respect that the Greeks and Romans had for the continent.[14]

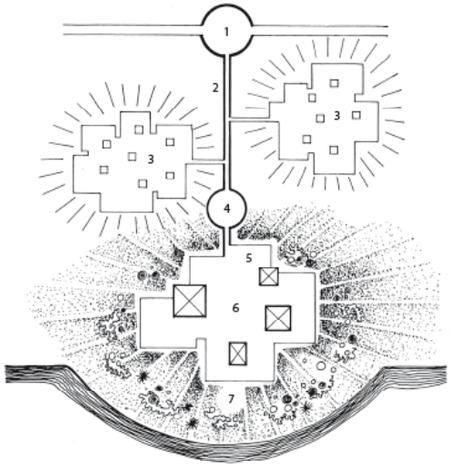
This, in addition, is to recall the words of Pliny, who two thousand years ago wrote, 'something new is always coming out of Africa',[15] and despite Pablo Picasso and Nelson Mandela, who turned modern art and world politics on their heads, Africa today is still seen as a dark continent that was only enlightened by the arrival of Europeans. This has been a persistent and standard preconception. The Dutch *Winkler Prins Encyclopedie* of 1884 described the continent as follows: 'With few good harbors, ruled by savages, scorched by the equatorial sun, and covered by extensive deserts and bare mountain ranges, it long remained hidden under a veil, which is being lifted from year to year.'[16] Preconceptions such as this are still evident in a remarkable article in *Der Spiegel*, which was devoted to Africa in 2007. The article describes the continent before colonization as a 'largely dark world, ruled by tyrants, and ravaged by slavery and cannibalism'.[17]

13 Elleh 1997.
14 For the Greeks, Ethiopia was the collective name for the part of Africa where people with a darker skin lived. Where people still lived together with the Gods; a privileged and wise people who lived in abundance on the South Sea, where gold, ebony wood, ivory, precious stones, and spices came from, which were used as luxuries by the ruling elite. See Jean Tringuier, 'L'Ethiopie vue de Grèce et de Rome aux époques hellénistiques et romaines', in Bruwier 2007, p. 217-244.
15 'Ex Africa semper aliquid novi.'
16 Winkler Prins 1869, second edition 1884, first section, p. 259.
17 Wiedermann 2007, p. 37.


Africa in the middle of the nineteenth century – slave states are indicated in grey.




Abomey-Cana, the double capital of Dahomey (now Benin).
*After M.A. Fassassi*




Urban development scheme of a Bamiléké city in Cameroon.
*After M.A. Fassassi*

1 market place
2 main road
3 women's quarters
4 entrance area
5 meeting place
6 chief's quarters
7 sacred place

Interpretation of a Bamiléké settlement at the 1931 *Exposition Coloniale* in Paris.


Walled Yoruba city with the palace of the king in Nigeria.
*After M.A. Fassassi*

## ◆ CHARACTERISTICS OF THE PRE-COLONIAL AFRICAN CITY

In addition to the diversity outlined above, the pre-modern African city possesses characteristics that can be identified as specifically African, because they can be identified in various sites throughout the continent. Whether these characteristics derive from a 'pure' African source, or are the product of a mixture of African and non-African cultures, is irrelevant in this context. Bascom wrote that the pre-modern, Yoruba city represented a city-state. Other cities, such as Timbuktu or Kano, were dependant on their positions within a trading network. What linked these cities was a high level of self-sufficiency in food production. Intensive agriculture and animal husbandry were practiced within, and just beyond, the city walls. Various industries such as textiles, carpentry, and metal work thrived in these metropoles. The market and royal palace formed the city centre. The division of commercial and political power frequently led to a bipolar city plan, which saw a literal and strict division between the different parts of the city that were assigned to work and to politics.

The relationships and responsibilities of the city's population were organized according to physical proximity and, more importantly, hierarchical relationships.

The architect Fassassi carried out research in the 1970s that verified the above statements in a series of studies and publications on the history of the African city.[18] Fassassi recognized a direct link between the anthropological and philosophical analysis of pre-modern African societies and the morphology of the African built environment. He analyzed the urban planning culture, the *lieux culturels*, of Meroë in Sudan, of Kumbi in Mauritania, of the cities along the river Logone in Chad, of the Akan in Ghana, of the city of Benin in Nigeria, of Greater Zimbabwe, of cities in Congo and Cameroon, and in the area of the Great Lakes (Uganda, Rwanda, and Burundi). He developed his analyses in fascinating schematic plans and models. According to Fassassi, the pre-modern African city is not simply a functional piling up of material and space, but a place with an evident, conscious stratification, in which the city is simultaneously a reproduction of the origin of the world (cosmogony), a memory of the past, and an imagined representation of the society. The city is a bipartite phenomenon in which physical and spiritual dimensions are given equal value.[19] Fassassi saw architecture and city plan essentially as symbols of society and culture, and, therefore, not as measurable as modernists claim. He wrote, in relation to African urbanism, of a 'teratological city', by which he meant a city that, at its foundation, is subject to a deviation that we cannot know or quantify. Studying the pre-modern African city from a morphological and technical perspective, an approach initiated by Fassassi, is still in its infancy and requires further development and research.

Among the various plans of pre-modern African cities, it is possible to recognize reoccurring themes such as a loose structure and city walls for protection. The question regarding the city walls is

18 Fassassi 1997.
19 '[…] binôme, dont la première dimension est physique et la seconde psychique'. *Ibid.*, p. 11.

whether they first appeared as a result of the turbulent period of large-scale slave trade, or whether earlier cities were also enclosed by walls. Within the city walls, which at times enclosed a sizable area, there was space for market gardens, refugees, and livestock. The city was also largely self-sufficient. Susan Denyer attributed the often labyrinthine city plans to military strategies aimed at confusing enemy troops,[20] but, as Fassassi argued, the reasons for planning strategies such as these are much more complex.

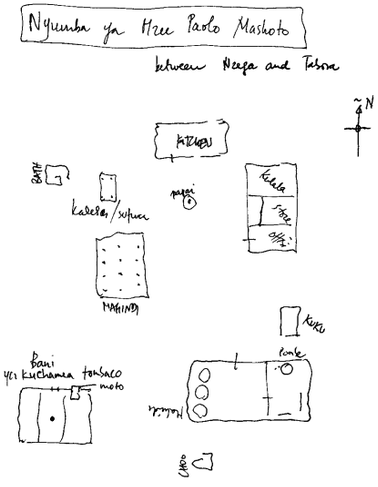
It is likely that the loose structure of many pre-modern African cities began as enclosures within the traditional African landscape. Pre-modern African cultures were usually constructed around the spatial concept of the *extended family*. The extended family is either a patrilineal or matrilineal social group consisting of grandparents, parents, uncles, aunts, cousins, and children who reside together, until a son or daughter marries into a different extended family or goes to live independently.

The extended family resides in a complex of buildings located around a communal compound[21] called a *cour*, which is the focus of family life.[22] In and around the cour are the individual family huts[23] and storehouses for food[24] and stables for animals. When necessary, additional huts are built around the cour to provide accommodation for subgroups of the extended family. The cour and the buildings together form an enclosed area, however unattached buildings can also be present on the site. Kitchen gardens are also located in the cour, as well as cages for animals, hangars, altars, and ancestral tombs, which are located in the direct periphery. Fields and pastures lie further away, are mostly determined and used according to communal rights, and do not belong to the cour. The individual cours might be widely dispersed throughout the natural landscape, or located in clusters that bear a resemblance to a form of urban settlement.

In conclusion, it is possible to argue that the blossoming and development of the pre-colonial African city were interrupted by the arrival of the Europeans in the sixteenth century. Plunder and the slave trade depopulated and weakened African cities. For approximately four hundred years African metropoles were preoccupied by survival rather than progress or development.

20 Denyer 1978, p. 31-39.
21 In French: *concession*.
22 In French: *foyer*.
23 In French: *cases*.
24 In French: *greniers*.

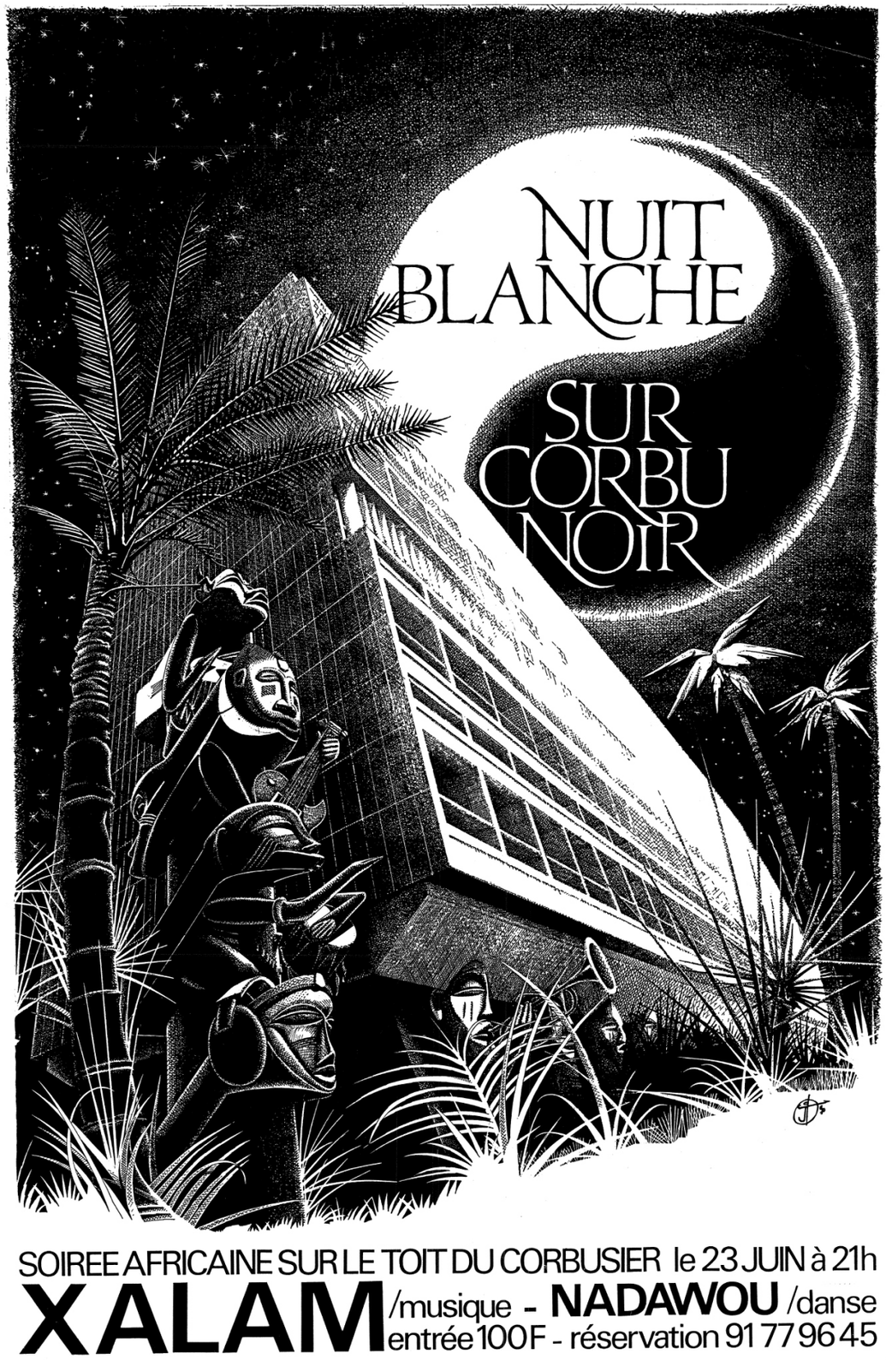
The *cour* of Paolo Masoko in 1993.




Plan of the *cour* of the family of the tobacco planter, Paolo Masoko, in Nzega in Tanzania.


Town of the Gourounsi in Burkina Faso. *After J.P. Bourdier*

Fishing village on the island of Lamu in Kenya in 1990.




# The modern African city

The Portuguese search for alternative sea routes to the Indies, starting about 1450, marked the beginning of 'modern' European interference with Africa. The Portuguese were followed by the Dutch, the French, the Spaniards, the English, and the Scandinavians who ravaged and plundered up and down the coast of Africa. It began with a search for gold, but later the search focused on other raw materials and exotic luxuries, including, at its lowest point, the large-scale transportation of the native population to supply slaves for the plantations of America and the Caribbean. There was little interest in the continent other than exploitation. The physical presence of Europeans was restricted to a string of one-horse towns and forts along the African coast. This is a remarkable fact. Thousands of traders sailed along the coasts of the continent for hundreds of years on their way to India and the Far East and they did not bother to investigate much further. They obviously saw Africa as uninteresting, dangerous, or impenetrable.

The voyage around Africa to reach the Indies took weeks, if not months, making it necessary to forage and resupply at points along the coast. Consequently, Jan van Riebeeck was ordered in 1652 by the Dutch East India Company to found a colony in what is now Cape Town, with the aim of supplying traders with fresh supplies. Until about 1850, this colony in the Cape remained the only European colony of any importance in Africa, while a great part of the rest of the world was being partitioned and distributed among the imperial super powers.

European traders had a limited interest in the African continent and its cultures. Nonetheless, they were happy to exploit the existing cultural differences between the African peoples, with the objective that the Africans themselves undertake plundering, on behalf of the traders, inside the inhospitable, African interior. With this in mind, strategic alliances were made with African rulers who were then supplied with firearms to facili-

tate these goals. Doctor Olfert Dapper visited the king of Benin on one of these diplomatic missions[1] and he described the city and its palaces. His account is one of few, remaining, eyewitness reports that describes the extent and grandeur of a royal African city.

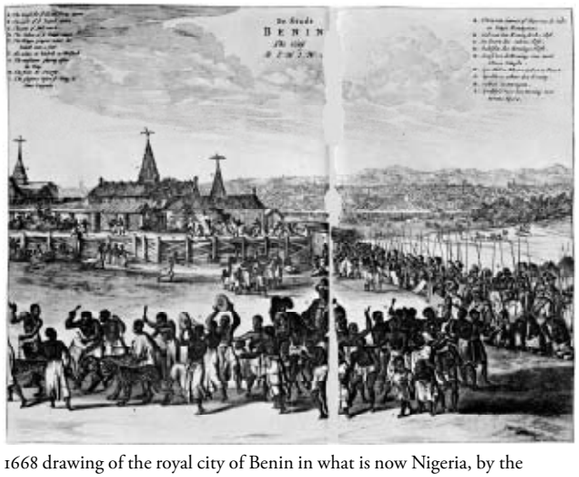
Benin, located in what is now Nigeria, was completely razed to the ground during an English penal expedition in 1897, and was never rebuilt.[2] Such penal expeditions belong to the second phase of the interference of modern Europe in Africa, which began with Napoleon's expedition to Egypt between 1798 and 1801.[3] Trading posts along the coasts were extended and local kingdoms and sultanates were turned into protectorates, or annexed by representatives of the European nations, private trading companies, and wealthy individuals. These developments accelerated after the Berlin Africa Conference of 1884-1885.[4] Within twenty years, Africa had been carved up and shared out between the world powers of the time: England, France, Germany, Italy, and to a lesser degree, Portugal and Spain. This colonization process was characterized by a swift progression of exploration, occupation, penetration, and development. By the eve of World War I, the map of modern Africa had already been drawn and the continent by and large penetrated. During the interwar years and World War II, colonial Africa was developed in phases on a great scale and witnessed the construction of roads, railways, ports, government complexes, plantations, schools, and hospitals. The last era of colonized Africa, the end of which began in the 1960s, was characterized by a final European attempt to postpone independence by introducing the building blocks of a modern welfare state.

Due to both the lack of western infrastructure and the denial of the significance of traditional African culture, a completely new infrastructure was introduced, which was based on modernist (western) concepts and which had been mostly developed outside an African cultural context.[5] The implementation of this infrastructure during the colonial period was combined with separatism, in other words, a continent-wide form of apartheid. The modern African city was divided into a formal and an informal part, in which the formal city was intended for whites: the European zone or *zone résidentielle*. On the periphery lay an informal zone, the indigenous zone, or *zone traditionelle*, where the local black population was tolerated. Splitting the city in this manner left a durable mark on the morphology of the modern African metropolis.

Many modern African cities were founded on new sites; extending the traditional city implies that the modern city has, for the most part, been created alongside the traditional city without interfering in it.[6] Studying the period between roughly 1890 and 1960, when colonial cities were being designed, shows that modernist architecture and city planning played in fact a significant role. The new

1 Dapper 1668.
2 Uduku and Zack-Williams speak of these expeditions as 'ransacking and plundering of the Africa capitals by primitive colonial expeditions.' Uduku and Zack-Williams 2004, p. 5.
3 Néret 1994.
4 The Berlin Africa Conference, the *Kongokonferenz*, was requested by Portugal and organized by Bismarck with the aim of establishing the spheres of influence in Africa by the various interested European powers.
5 The existing African city was left to its fate, 'In addition to the fully-fledged traditional towns, one can identify in Africa settlements which, largely due to European colonization, appear to have been temporarily frozen at a quasi-urban development stage.' Denyer 1978, p. 39.
6 'The zone where the natives live is not complementary to the zone inhabited by the settlers. The two zones are opposed.' Fanon 1963, p. 38-39.


1916 city plan of Dar es Salaam. *Source: The National Archives, Kew.* TNA(PRO)MPGI-1086(2) MAPS&PLANS AFRICA




1668 drawing of the royal city of Benin in what is now Nigeria, by the Amsterdam doctor Olfert Dapper.


City plan of Tabora (circa 1875).

City plan of Tabora (circa 1970).

The Boma of Tabora (circa 1910).

Aerial photo of Tabora with principle structures in 2009.
*Source: Google Maps*

1 boma (fort)
2 station
3 Railway Hotel
4 market
5 Tabora School for the Deaf

Tabora Railway Station. This hotel was built in honour of the anticipated visit of the German Crown Prince in 1914. Because of the outbreak of World War I the visit never took place.

terrain was not laden with a historical relevance and therefore offered untouched ground for the modern urban planner. In the short period before World War I, the era of the true pioneers when the main focus was directed at exploration and penetration, cities like Cairo, Pretoria, Maputo, and Dar es Salaam were arranged in the Beaux-Arts tradition, which was based on a mix of formalist monumentality and functionalism. After World War I, the accent shifted to functional differentiation along the lines of the garden city suburb that offered an attractive living environment for the white colonial elite.

### ◆ TABORA

Tabora, in what is now Tanzania, was an important trading city that served as a midway point for caravan routes traveling from the coast to the Great Lakes area in central Africa. In the early nineteenth century, Tabora (which was also known as Kazeh) developed into a great city. It is where the Nyamwezi king, Fundi Kira, established his court next to the *caravanserais* of the Arab merchants and slave traders. French White Fathers, who had traveled across Africa from Algiers, established themselves in the city and founded a mission there in which both Livingstone and Stanley stayed during their expeditions. During the occupation of the area by the Germans at the end of the century, Tabora grew to become a central garrison city with a great fort, the *boma*, a major railway intersection and a hotel built for the reception of the German crown prince – who ultimately never visited the country due to the outbreak of World War I. Because of its central location and importance, Tabora was intended by the Germans to be the future capital of the colony of German East Africa. Today, Tabora is a rather dreamy place deep in the dusty Tanzanian interior. Compared with the city plan drawn by the French missionaries at the time of Stanley's visit in 1871, the city today seems to have nothing of the nineteenth century Tabora. The organic structure of the city has been replaced by a star-formed axial structure that was laid out by the Germans for military and prestigious reasons.

### ◆ CASABLANCA

Analytical and functionalist approach to urban development had been introduced into Africa already before World War I, and served as a forerunner of the modernist city plan. The master plan[7] of Casablanca, developed by Henri Prost from 1914, is one of the first modernist city schemes in Africa. It even preceded urban planning developments in Europe. Casablanca was quickly developed as a great port, according to the master plan, which showed the port situated next to the traditional Medina. The Medina itself remained untouched and was gradually surrounded by the modern city. The scheme was laid out according to functionalist

7 Structure plan in French: *plan/schema directeur*; in English: *master plan or structure plan*.

zoning tradition and comprised a port with industrial zones, an area with government offices, a business zone, and residential areas for the Europeans and the wealthy Moroccans. Attention was also paid to areas for the poorer native population. The traditional parts of the city and the modern, popular suburbs built by the colonialists – the new Medinas – were completely isolated, according to the city plan, and cut off from the modern city. Yet, the colonialists were nonetheless still curious about these areas, which they also saw as models for future development. This curiosity cultivated a new, scientific interest in North-African traditional building methods, which simultaneously served as a foundation for the modernist elements evident in the architecture and the city plan.[8]

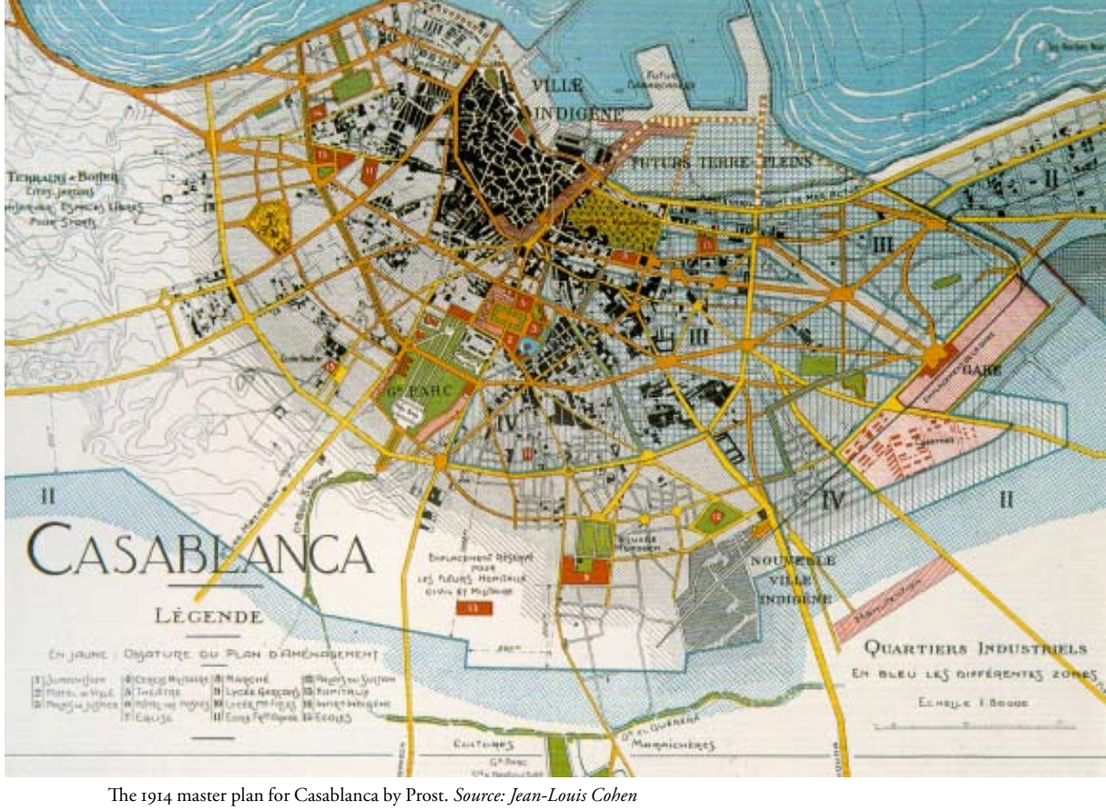
The name *bidonville*, which now defines spontaneously evolved suburbs, originated in the Casablanca of the late 1920s. They were comprised of houses that, for the most part, were made out of flattened oil cans, called *bidons*. Bidonville consequently caught on very quickly as the name and the concept for any poor areas that spontaneously developed on the periphery of great cities in Africa, but the term was also used in European cities like Paris and Porto. After 1915, under governor Hubert Lyautey, attempts were made to curb the growth of bidonvilles by building large-scale, social housing projects. But lack of means and the resistance of the local population hindered the project's success. The rural population clearly felt uneasy living in large-scale city housing and preferred life in a bidonville hut. Even when offered new housing, the new residents sublet the apartments, in order to be able to return to their bidonville, where they could build their own homes in a style that fused modern forms with adapted, local building traditions.

These tendencies remain characteristic of the development of African residential architecture. Nowhere on the continent can government-provided social housing even remotely hope to accommodate the explosive growth of the informal African city. In contemporary South Africa, many tenants rent the accommodation assigned to them, and then move to the informal shantytowns.[9]

In Casablanca as well, attempts to eliminate the bidonvilles were unsuccessful, despite the sincere attempts of French architects and administrators to develop innovative building types, which were based on the traditional Moroccan house, yet took modern comforts into account as well. The theory that bidonvilles were actually a necessary stage in the acculturation process began forming as early as 1937. A large-scale, social housing program was resumed after World War II and with renewed optimism under the enlightened direction of Michel Ecochard. Some ten thousand housing units were constructed in Casablanca in the period between 1946 and the departure of the French ten years later. The Carrières Centrales bidonville program was particularly exceptional in scale and quality. At first, single-story, one-family homes, based on rationalized traditional

8 'This focus originated in part from European modernist sensibilities that saw the cubical, white-washed masses, and sparse spaces of north African medinas as potential sources or inspiration for a modernist vocabulary.' Zeynep Çelik, 'Cultural Intersections: Re-Visioning Architecture and the City in the Twentieth Century,' in Ferguson 2005, p. 17-18.

9 On Cape Town, see for example: Low 2007; Steenkamp 2007.

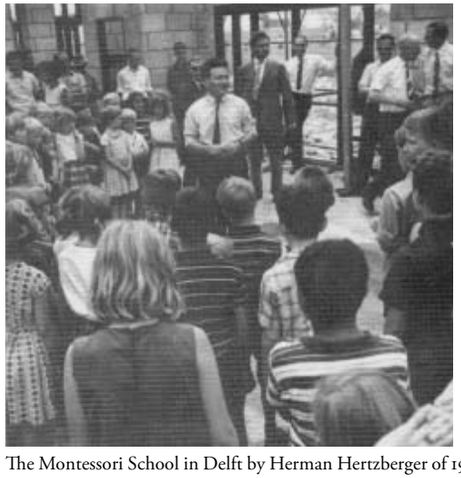


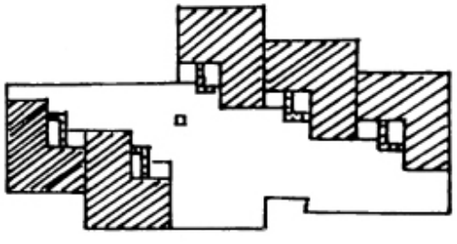

The 1914 master plan for Casablanca by Prost. *Source: Jean-Louis Cohen*

Aerial photo of the *Cité d'Habitation* of Carrières Centrales in 1955. Left foreground is the ATBAT apartment complex.

Popular housing in Casablanca of 1955, Sidi Othman district, by Jean Hentsch and André Studer.

Popular housing block in Casablanca of 1952, Carrières Centrales, Nid d'abeille of ATBAT by Candilis and Woods. [See also p. 286]





The Montessori School in Delft by Herman Hertzberger of 1967.


The Burgerweeshuis (orphanage) in Amsterdam by Aldo van Eyck.

Moroccan building types, were planned in high-density developments.[10] Later, apartment complexes were also added because many Moroccans appeared to prefer to live in modern housing that was based on European examples, rather than live in what they considered patronizing, semi-traditional solutions. Experimental apartment blocks were designed by progressive CIAM architects, such as Candilis, Woods, and Bodiansky. Candilis translated the traditional Moroccan mountain village types (ksars, kasbahs etc.) into piled-up modernist apartment complexes in Nid d'Abeille and Sémiramis.

These experiments were ecstatically received at the CIAM congress of 1953 in Aix; the future members of Team X, Aldo van Eyck and the Smithsons, were particularly inspired by the Casablancan experiment.[11] This inspiration is evident in the design for the Burgerweeshuis (the orphanage) by Aldo van Eyck in Amsterdam, or in the Montessori school by Herman Hertzberger in Delft (the primary school which I myself attended). They are both projections on Dutch sites of the kasbahs and the ksars of Morocco.

The *kasbah* was not the only source of inspiration for functionalist solutions; the seductive, snow-white crystalline aesthetic under a deep blue Mediterranean sky was a great source of ideas for Le Corbusier. Therefore, Europeans were in fact inspired by native traditional Moroccan architecture, which they attempted to preserve and further develop for the Moroccan population. While they tried to integrate specific aspects of this building tradition into their own modernist practice, the Moroccans wanted to live in a modern environment without formalist associations with their rural past.[12]

10 'Coucher l'immeuble au lieu de le dresser', Cohen and Elleb 2002, p. 316.
11 Avermate 2005.
12 'While one group of modernist architects was finding inspiration in "Non-Western" vernacular forms, modern architecture in its purest "Western" manifestation was being adopted by many "developing" countries because of its symbolic significance: its association with technological advancement and contemporary civilization.' Çelik, *op. cit.*, in Ferguson 2005, p. 23.
13 Mol and Bierman 1993; and *Le Groupe Central. Plan de rénovation*. Restoration plan for a school in Ségou, 1993, chapter 4.

◆ SÉGOU

Ségou underwent a development comparable to Casablanca, but on a more modest scale. This historic capital of the Songhay Empire (which was destroyed by the French), similar to Ouagadougou, a city that will be discussed later, became an important garrison town of the extensive territories of French West Africa, or *le Sudan Français*. Ségou, Timbuktu, Djenné, Mopt, and Gao form a series of trading cities along the banks of the river Niger, and all comprised buildings made from the clay characteristic of the area. Similar to Casablanca, Old Ségou was left untouched after the conquest; a new modern city was built next to the existing one. The modern city is laid out with broad avenues, many green spaces, and airy buildings with great verandas, so as to provide the European administrators with optimal comforts. The building forms recall traditional clay architecture, but they were constructed using bricks and concrete. This marked the birth of the *Style Sudanais*.[13]

Casablanca and Ségou are two examples from the French colo-

nial area that verify how the French, besides introducing functionalist architecture and political separatism, were also curious about and respectful of African architecture. They left it alone, even copied it. Napoleon had already set the tone with his Egyptian expedition: a successful conquest ought to be combined with scientific research and appropriation from the defeated culture. In the case of Egypt, the appropriation led to an Egyptian fashion craze in the *Style Empire* of early nineteenth-century Europe. The *Style Sudanais* of French West Africa would, in turn, have a more modest influence at the Colonial World Exhibitions in the late nineteenth and early twentieth centuries, as it so happened with Egyptian architecture after Napoleon's expedition.

### ◆ ASMARA

Asmara in Eritrea is one of the most beautiful modernist cities in Africa. As part of the megalomaniacal imperial dream of Mussolini, Asmara was erected from scratch in record speed. It was intended to be a model city of the new Roman Empire and the capital of the Italian colonial possessions in Africa. A complete modern Italian city arose in six years between 1935, when Mussolini launched his attack on Ethiopia, and the end of the Italian empire in Africa in 1941, with beautiful avenues, fountains, government buildings, villas, petrol stations, and theaters in *Novecento*, *Modernismo* and *Rationalismo* styles. Despite the haste with which it was built, the city was designed according to careful master plans. By 1938, 70,000 Italians were living in Asmara and they were driving or traveling in approximately 50,000 cars. The city had a higher density of traffic lights than any Italian city.

There was absolutely no area allocated to the Ethiopians themselves in Asmara: they lived alongside the Italian city in an informal growing town that the Italians hardly noticed.[14] The contrast between the two parts of the city was enormous. Infrastructure and facilities were practically absent in the informal city, with the exception of a beautiful cinema that ensured that Eritreans were subject to propaganda coming out of fascist Italy.

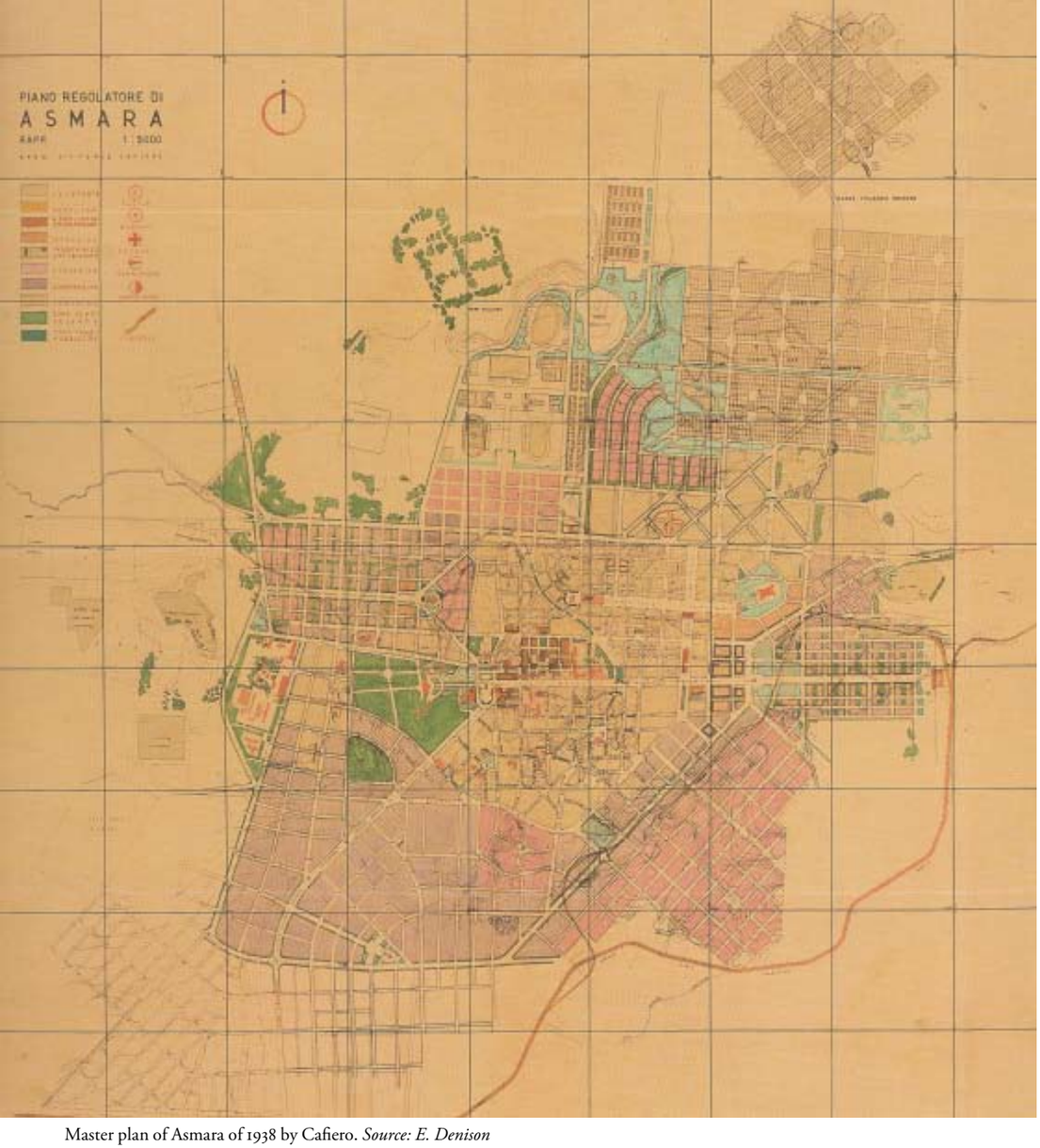
The development of Asmara more or less came to a standstill after being conquered by the British in 1941, and during the turbulent period of the Ethiopian occupation that lasted to 1993. Therefore, it has remained a frozen monument to Italian Modernism, which only now, at the beginning of the twenty-first century, is being restored to its former glory. To the question as to whether this monument to Italian fascism should be preserved, Naigzy Gebremedhin said that Eritreans had no argument with the buildings, that they had built them with their own hands, and that the last trees in Eritrea were felled to erect the city.[15]

14 'This disregard by the administration for the indigenous areas of Asmara remained a common thread in urban planning throughout the colonial period and was particularly apparent towards the end of Italian rule; it has remained one of the worst legacies of colonial maladministration in Asmara.' Denison 2003, p. 36.

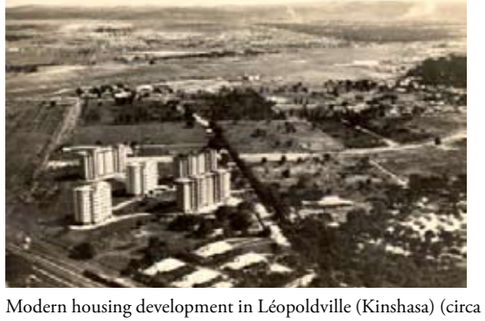
15 Gebremedhin 2007, p. 18-19.

*Style Néo-Sudanais* in the *Cité Administrative* in Ségou in the 1990s. *Photo: Joep Mol*

*Style Néo-Sudanais* at the colonial world exhibition in Paris (1931).




Master plan of Asmara of 1938 by Cafiero. *Source: E. Denison*



Modern housing development in Léopoldville (Kinshasa) (circa 1960).

◆ KINSHASA

During and after World War II the relationship between colonizers and colonized quickly changed. The importance of Africa as a supplier of soldiers, raw materials, and agricultural products for European warfare and postwar reconstruction resulted in a new consciousness among Africans and a growing desire for independence. It was clear to Europeans that they could not continue as they had before the war; they came to recognize that Africans too deserve a place as independent world citizens. The demand for raw materials and agricultural products during the period of postwar European reconstruction led to many large-scale projects in Africa, and the feeling that Europe still owed a debt to Africa, prompted them to the accelerated supply of goods and aid to the African population. Countless schools were built, universities were founded, healthcare was organized based on western models, and for the first time housing was provided for the African population on a grand scale. Bruno De Meulder calls this the export of the welfare state model to colonial Africa with programs such as the *Office des Cités Africaines* (OCA) carried out in Léopoldville, the capital of what was then Belgian Congo.[16] Here, a spectacular welfare-state city was built according to CIAM principles. It became a type of laboratory, where Belgian planners and architects could build the perfect modern city without the objections that were know to impede such projects in a European context.

◆ ACCRA

During World War II, Maxwell Fry designed in a short time a master plan for Accra, which the British government intended to use as a launching base for allied troops in West Africa. This opportunistic master plan had the general characteristics of a modernist European city in Africa, based on racial segregation and comfort for the Europeans. In the development of the plan, according to Janet Berry Hess[17] mainly buildings were planned in a *European Style* for an equatorial, British imperial architecture, which drew inspiration from a combination of the Indian bungalow and the architecture of Frank Lloyd Wright. Fry also remained working in Ghana after the war, in the period leading up to independence in 1957, where he was involved in the urban development of Accra. In 1956, he designed the modernist-style National Museum.

Directly after independence, president Kwame Nkrumah conceived an Accra as a pure modernist city that would be a symbol of progress and independence. He wished to use modernist architecture to make a break with the traditional approaches and familiar conflicts between the different cultures that now dominated the country. Fry's revised master plan of 1958 was based on these ideas, but it also somewhat preserved the segregation of the city, which was part of the plan he had sketched in the war. The plan was characterized

16 'The postwar colonial welfare offensive (which is a contradiction in terms) was indeed a desperate attempt to cope with the inevitable urbanization process that the excessive war effort (accelerated exploitation) generated.' De Meulder, in: Folkers, Van der Lans and Mol 2005, p.141.

17 Hess 2006, p. 74.

by monumental interventions with progressive modernist forms that conformed to the independent state's ideology – which is why the segregation of the colonial period was maintained. Low-density residential areas with much open space, where the white colonialists had previously lived, were now inhabited by the new diplomats and power elite, the representatives of international (aid) organizations, and a handful of industrialists and businessmen. Nkrumah himself took up residence in Christiansborg, the old, colonial slave fortress. This situation of continued post-independence segregation in African cities is still evident in many instances today.

### ◆ DAR ES SALAAM

Julius Nyerere, the first president of independent Tanganyika (now Tanzania), was, like Kwame Nkrumah, a key figure in the wave of independences that took place in Africa in the beginning of the 1960s. But, he did not see segregated Dar es Salaam as a suitable capital for his new nation. He wanted to begin from scratch and he wanted to embody his vision of a new society with a new capital: Dodoma.

Dar es Salaam had been developed by the Germans before World War I, and by the English from the interwar period up until independence in 1961, in line with the usual colonial model. The city consisted of a port and mercantile centre that was mainly inhabited by Asians, a green suburb with a golf course, administrative buildings, clubs, and villas for the Europeans, plus an extended suburb for Africans called Kariakoo,[18] which was separated from the rest of the city by a broad ribbon of green, a so-called *cordon sanitaire*. [See drawing on p. 41 and photo on p. 214 middle]

This city did not conform to Nyerere's socialist principles, which were based on the traditional African family structure, whereby each individual had his or her responsibilities and knew his or her place within the self-supporting unit. This modern translation of the traditional, autonomous family structure was called Ujamaa by Nyerere.[19]

In 1973, Dodoma was nominated as the new capital, and, in 1976, Macklin Hancock of the Canadian architectural practice Project Planning Associates Limited (PPAL) drew up a master plan for the new capital. In the introduction to this master plan, Nyerere's ideas about the new capital of Tanzania were spelt out. Dar es Salaam was identified as the opposite of what Nyerere meant by Ujamaa. If Dar es Salaam were to develop according to the accepted capitalist pattern, this would harm the principles of 'the city as a humane habitat and Tanzania as an egalitarian socialist state'.[20] In retrospect, Nyerere was right in the sense that the old and still agreeable Dar es Salaam has become a victim of uncontrolled capitalist development. The old centre has been replaced by glittering, glass office blocks and the historic, popular area of Kariakoo has exploded beyond its borders.

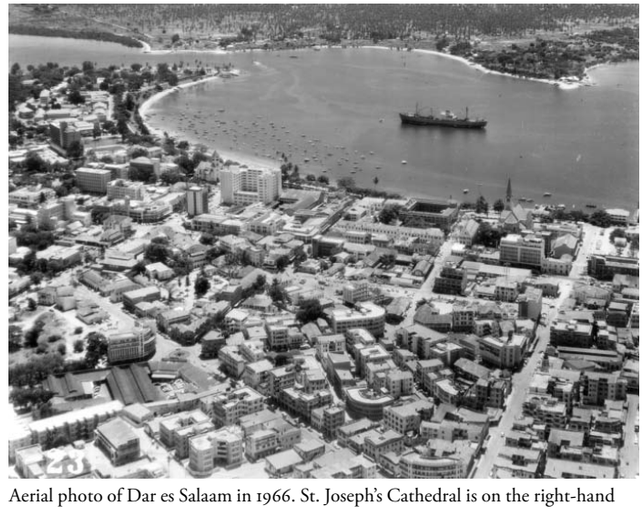
18 According to tradition the name Kariakoo means *carry-and-go*, referring to the casual labourers working in the harbour.

19 Concerning Nyerere and Ujamaa see among others: Meredith 2006, p. 249-259; Hess 2006, p. 18-125.

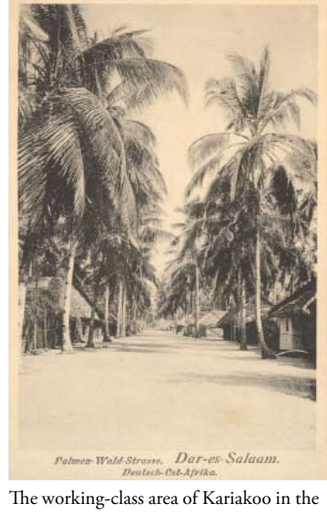
20 'Dar es Salaam is a dominant focus of most development [referring to the capitalist city], the antithesis of what Tanzania is aiming for, and is going at a pace, which, if not checked, will damage the city as a human habitat and Tanzania as an egalitarian socialist state.' Hancock 1976, p. 11.

Independence Monument in Accra, 1960s.

Transformation of a colonial-period villa in Accra into an office building in 2007.



Aerial photo of Dar es Salaam in 1966. St. Joseph's Cathedral is on the right-hand side in the middle. [See also p. 328]




The working-class area of Kariakoo in the German period (circa 1910).

Kariakoo at the beginning of the 1960s. [See also p. 140] *Photo: J. Kirknaes*

In 1968, the colonial master plans for Dar es Salaam of 1925 and 1949 were adapted by PPAL, the same office that drew up the above-mentioned master plan for Dodoma. In this plan the emphasis above all was on the functions of the port, industry, and housing. Monumentality was not considered relevant – let alone any memorial or reminder of Nyerere who, unlike Nkrumah, hated adulation. Nyerere made it clear that 'he hated the smell of wet paint', by which he meant the rapid cleaning up of places which he intended to visit. The architecture and city plan of his era are characterized by their sober modernism – in Nyerere's view, pomp could not be reconciled with democracy.[21]

### ◆ ABUJA

Similar to Dodoma, Abuja belongs to the string of new capital cities in the tropics that followed Chandigarh by Le Corbusier in 1948, Brasilia of Costa and Niemeyer in 1956, and Islamabad of Doxiadis in the same year. Dodoma, Ouagadougou, Zanzibar, and Abuja are African capital cities, for which revolutionary master plans were drawn up in the period between 1960 and 1985. Abuja like Dodoma was located for strategic reasons in the middle of the country, in an attempt to hold together a land which had been torn apart by the Biafran War.

The first master plan for Abuja was drawn up by the practice of Wallace, McHarg, Roberts, and Todd Inc. from Philadelphia, and further developed by Kenzo Tange. The new capital lies at the foot of the mythological Aso Rock, and the master plan can be summarized as a combination of the concept of the 'city beautiful', modernist principles, newly expressed African symbolism and futuristic forms. The government buildings are located along a monumental axis as they are on the Mall in Washington. This axis ends in Aso Rock; the residential areas are located in areas where expansion is possible along the side wings of the main axis.

The idea of the projected Abuja, according to Nnamdi Elleh, was to be found in the sketches for an ideal city of three million residents drawn up by Le Corbusier in 1922, in which the intention was, other than in the later plan for Brasilia, to provide suitable housing for the expected stream of migrants who would be drawn to the capital.[22] Babangida's coup of 1985 put an end to Tange's ideas and since then Abuja, according to Elleh, has become a city to which the power elite has fled to escape from the chaos of Lagos.[23] Tange's Abuja, Elleh believes, has since then been rebuilt to become a city in which the architecture is a smokescreen to divert attention from the concept of 'broad national development', a city where a social tragedy is hidden behind glittering facades.[24]

The master plan of Abuja shows remarkable similarities with the plans for Dodoma, and to a lesser degree Ouagadougou. All three are based on a belief in the development and liberation of the African population in the spirit of the modern movement. And all three use its forms in combination with the analytical and design tools that became available during the successful emergence of the modern movement in the 1960s and 1970s in architecture and urban planning.[25]

21 'The growing tendency to confuse dignity with pomposity must be checked or it will destroy the dignity of the Republic […] Hitherto, whenever I have questioned the value of all this very undemocratic pomposity, I have been assured that the people like it. But this is highly doubtful […] We should stop deceiving ourselves. This sort of pomposity has nothing to do with the people, for it is the very reverse of democracy. We must stop it!' Smith 1973, p. 25.

22 Elleh 2001, p. 15.

23 '[…] the Nigerian Elite Escape From Lagos'. *Ibid.*, p. 76.

24 Elleh 2007, p. 2.

25 'Around 1970 reassessment of Modern Movement in Europe and America, in Africa in full swing as carrier of development and liberalization to the people in the spirit of early modern movement.' *Ibid.*

26 Hancock 1976, p. 1.

27 'However, such schematic metaphors evince conflicts regarding the essence of modernism. In modern regimes, power is not centralized; disciplinary practices are broken into small mechanisms that are disseminated in a different pattern than that of a centralized, singular political authority with its institutes radiating power. Therefore, the contemporary and modern façades of the new capitals are about appearance and aspirations; consideration of their urban design principles exposes other realities.' Çelik, *op. cit.*, in Ferguson 2005, p. 24.

28 Interview with Michelle Provoost, 2007.

29 Dodoma does lie on the planned *pan-African highway* from Cairo to Cape Town.

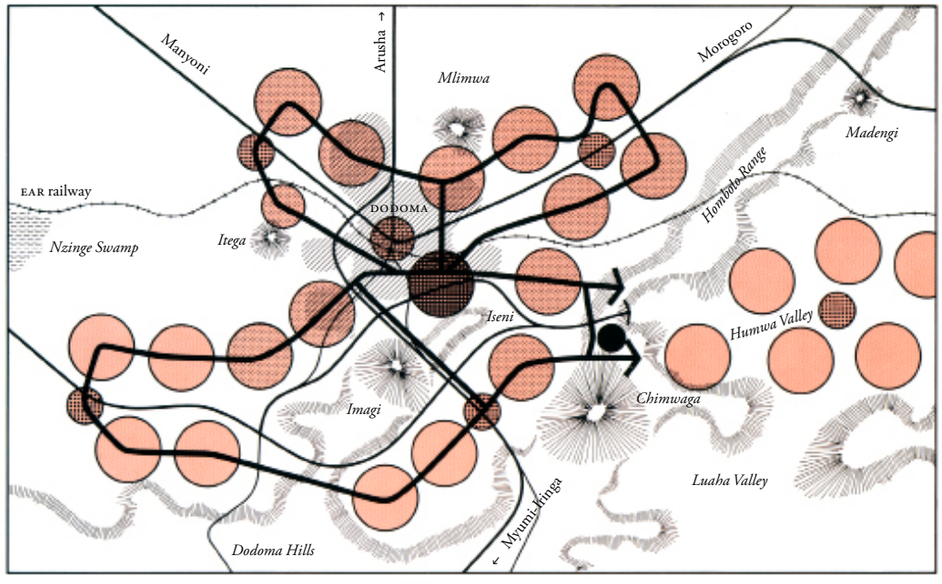
### ◆ DODOMA

If Dodoma were to be a model capital it could not simply be a monument to power but it also had to guarantee a high quality of life for its residents. The city had to be an attractive and livable place, while serving as an elegant, modern, and functional capital. It would be a new city located in the interior, and had to avoid the obvious planning mistakes that had afflicted Tanzanian cities in the colonial era.[26] These mistakes, however, were not defined; perhaps they meant zoning and segregation. The objections referred less to monumentality, because of the clear monumental characteristics of Dodoma's master plan with its *mall*, monuments, *processional way*, and government buildings, which were to be viewed along axes located on higher ground.

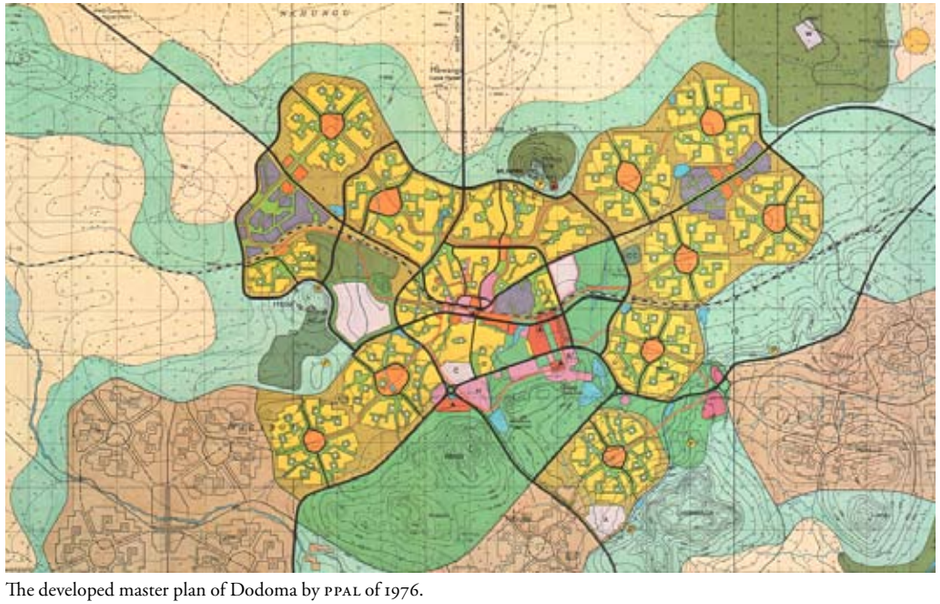
Zeynep Çelik described this contradictory situation as the reflection of a struggle to create a modern functionalist city for an egalitarian society, which also represents the formal expression of political power.[27]

The master plan for Dodoma is an example of a socialist New Town, which, according to Michelle Provoost, was characterized by organic development that guaranteed safety and would to lead to a better society. What makes Dodoma exceptional is the way in which the African ideals of Nyerere were translated into design elements on the drawing board, during the era dominated by structuralism.[28]

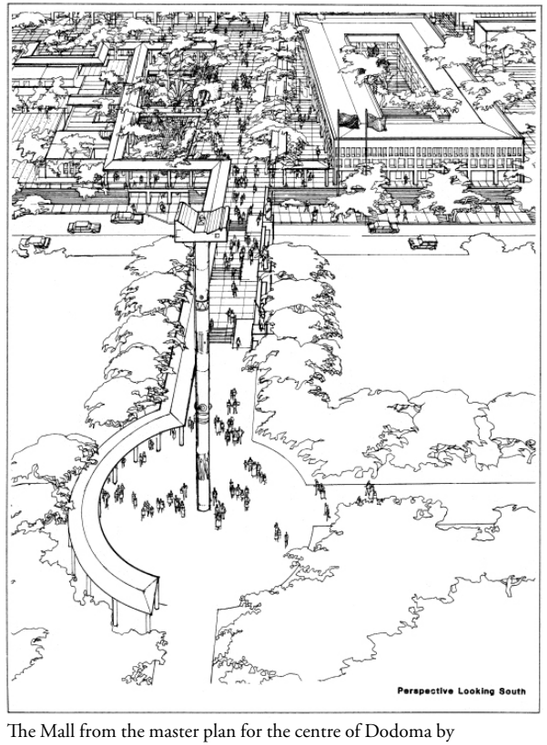
The expected development of Dodoma has still not transpired. The planned population growth has been much less than predicted; about 300,000 people live in Dodoma today, while the master plan had intended that number to be 600,000 before the year 2007. The urban infrastructure, which was to support the fragmented polycentric model, has not been installed; no central public transport system has been built. The residents move around the city by car, bicycle, or minibus depending on their income, just as in any other African city. At the moment Dodoma still lies at the end of the highway and has not become the nodal point intended for the centre of the country.[29] No scheduled flights land at the small city airport, the railway is decayed and the German colonial station and the hotel attached to it today are all that comprise the centre of the city. Only the national parliament has been transferred from Dar es Salaam to a new, baroque building in Dodoma. The planned economic development has been held back by lack of water, raw materials, labor,




The spatial concept of Dodoma by PPAL of 1976.



The developed master plan of Dodoma by PPAL of 1976.




The Mall from the master plan for the centre of Dodoma by Conklin & Rossant of 1986. *From: Conklin & Rossant*

The Bunge, the parliament building in Dodoma at the beginning of the twenty-first century. *Photo: Nuru Inyangete*

The former market square in the old city-centre of Dodoma in 2007. *Photo: Antoni Folkers*

The main building of the university of Dodoma, originally intended as head office of the CCM in Dodoma. *Photo: Thierry van Baggem*

Dance show in the Kijiji Cha Makumbusho in Dar es Salaam.

and infrastructure. The colossal ruling-party office on one of the steep hills,[30] the so-called *Kopjes*, which dominated the savannah landscape surrounding Dodoma, stands like a white elephant blinking in the sun, and is at the moment being converted to become the principle building of the newly-founded University of Dodoma, so perhaps the city's new and unexpected future lies in it becoming a university metropolis.

Today, Dodoma is a quiet, pleasant, dusty city in the middle of the country. Although the 1976 planned, clustered city structure has been realized, there is little that makes Dodoma an exception to the typical mid-size African rural town.

The Ujamaa state philosophy was not embraced by the population.[31] It became unpopular, above all, because of the forced rehousing of the rural farming population to the Ujamaa villages,[32] and because of the political and economic crisis that followed the war with Uganda. With the resignation of Nyerere in 1985, the Ujamaa concept seemed buried; the land has embraced the IMF and worldwide neoliberal capitalism and has left the Ujamaa model village, Chamwino, next to Dodoma neglected and forgotten as well. Today, Dodoma does not really deserve the status as capital of the country. The twin cities of Dar es Salaam and Zanzibar – the traditional capital cities of the historic mainland of Tanganyika and the island empire of Zanzibar – are still the twin centres of Tanzania. And it will probably take a while before the power elite moves from Dar es Salaam to Dodoma, as was the case when the politicians in Nigeria moved from Lagos to Abuja.

The Tanzanian open-air museum in Dar es Salaam, established in 1967, houses the 'Village of Memory' or *Kijiji Cha Makumbusho*. Makumbusho is a village in the city that consists of a collection of traditional domestic buildings from the whole country. Perhaps this can be seen as a monument to the Ujamaa village *avant-la-lettre*.

Dodoma is an interesting moment in modern African urban development. The city marked the end of the period of the centrally controlled African welfare state. Also the Ouagadougou of Sankara and the Zanzibar of Karume in the same period were attempts to create renewed modern African cities. I witnessed the development of these cities in the latter part of this period; and it is the subject of the following chapter.

30 According to reports this was a gift from China.
31 'There is an inherent contradiction between popular participation and formal government planning.' Yeager 1982.
32 The so-called *Vijiji*-operation.

# The other side of Zanzibar

◆ THE HISTORY OF THE CITY OF ZANZIBAR

Zanzibar is an island that lies off the east coast of Africa.[1] It forms, together with a number of other islands and the mainland, the former British protectorate of Tanganyika, the Tanzanian Union.[2] Although a strong link exists historically between the two parts of the union, Zanzibar has its own distinct history and culture. The island has been populated since Neolithic times and already had trading links with a great part of the rest of the world during antiquity. Archaeological findings reveal contacts with China, India, the Roman Empire, Sassanid Persia, and the early Islamic world. Contacts with Asia began in the eighth century and were strengthened by the great number of Persian trading settlements established along the coast of East Africa. The mixed-race descendants of the Persian colonists and the local population were known as the Shirazi. The Swahili culture and the Swahili language evolved from the meeting of the Shirazi and the local population of the East African coast of Mozambique in Lamu in Kenya.[3] Swahili was and is the lingua franca of an extended part of East Africa. From the early Middle Ages, Arabic characters were used in writing and Swahili came to have its own literature. The period has also seen the emergence of a distinctive Swahili music, art, and architecture.

The sultanates in East Africa, founded by the Shirazi, flourished between the ninth and fifteenth centuries. The economic basis of these sultanate empires lay in the gold trade with southern Africa linked by the coastal city of Sofala, which was located in what is now Mozambique. The sultan of the city of Kilwa, which lay on a small island off the coast of Tanganyika, south of Zanzibar, was the most powerful ruler of East Africa. Nevertheless, the rulers of Mombasa, Mozambique, Sofala, Gedi, and Lamu also developed their settlements into dazzling cities.

1 Zanzibar was called *Unguja* in Swahili.
2 The name *Tanzania* is combined from the two names Tan(ganyika) and Zan(zibar).
3 In Swahili *'-swahili'* is the root form; a word gets its meaning from the prefix, such as *Ki-swahili*: the language, *U-swahili*: the culture, and *Wa-swahili*: the ethnic population.

In the late fifteenth and early sixteenth centuries the Portuguese appeared off the coast of East Africa. They were amazed by the wealth and power of the sultan of Kilwa. Their travel accounts expressed admiration for the sultan's magnificent palace, the great merchants' houses, and the mosques on Kilwa, but they also expressed envy. The central mosque of Kilwa and the Husuni Kubwa, an extensive palace complex, are among the greatest and most imperial Islamic buildings of the African Middle Ages, and as we have seen it was not long before the Portuguese plundered these empires and took possession of much of the east coast of Africa. [See photo on p. 31 middle]

Zanzibar in the Middle Ages was also renowned for having the purest water from Alexandria to Cape Town,[4] but it remained ruled by the sultanates of Mombasa and Kilwa. The island was, at this point in time, largely covered by jungle with a number of smaller settlements distributed across its area. The capital Unguja Ukuu,[5] which was certainly quite sizable, was, in the first place, a Swahili city and did not have the stone buildings that had first been built by the Shirazi. The buildings in Unguja Ukuu were built out of wattle-and-daub and coral rag, with large steep roofs made of palm leaves, called *makuti*. Today, only a number of mosques scattered over the island and overgrown ruined merchants' houses in the island of Tumbatu, which is situated next to Zanzibar, stand witness to the influence of the Shirazi. These buildings were made of chalk-plastered, cut coral stone with cupolas or flat roofs. The early-medieval mosque of Kisimkazi, with an eleventh-century inscription from the Koran is one of the few remaining buildings of this period.

The Portuguese conquered Zanzibar in the early sixteenth century and built a settlement with a fort and a chapel on the site of a small fishing village in the western part of the island, called Shangani. The remains of the Portuguese buildings were later incorporated into the great fort erected by the sultan of Oman in the eighteenth century. During the seventeenth century the Portuguese lost their influence over the African east coast. The local sheikhs asked for the assistance of the sultan of Oman, who drove the Portuguese systematically out of the East African cities, and who finally, in 1698, conquered Fort Jesus in Mombasa – which was the most important Portuguese settlement in the northern part of East Africa.[6] The loss of the fort temporarily marked the end of European influence in this part of Africa. The empire of the sultan of Oman would continue to determine the fate of a large part of the East African coast up to the late nineteenth century.

Gold was initially the basis of economic power in the Islamic island empire, but later the wealth of the Omani sultanate increasingly came to depend on slaves and ivory from the African interior, as well as on control of the sea trade. In 1828, sultan Seyyid Said of Oman moved his imperial capital from Muscat to Zanzibar, since Zanzibar had meanwhile become more important than his homeland

4 Lanchester 1923, p. 10.
5 See the account of the excavations in Unguju Ukuu by the archaeologist Juma Abdulrahman, 2004.
6 Al-Maamiry 1988.

Mihrab in the Kisimkazi Mosque (twelfth century). *Source: Zanzibar Archives (AV32.51)*

in Oman. This was due to its strategic site in the middle of his empire, which stretched from the Arabian peninsular via Suakin in Sudan to the border of Mozambique, which remained in Portuguese hands.

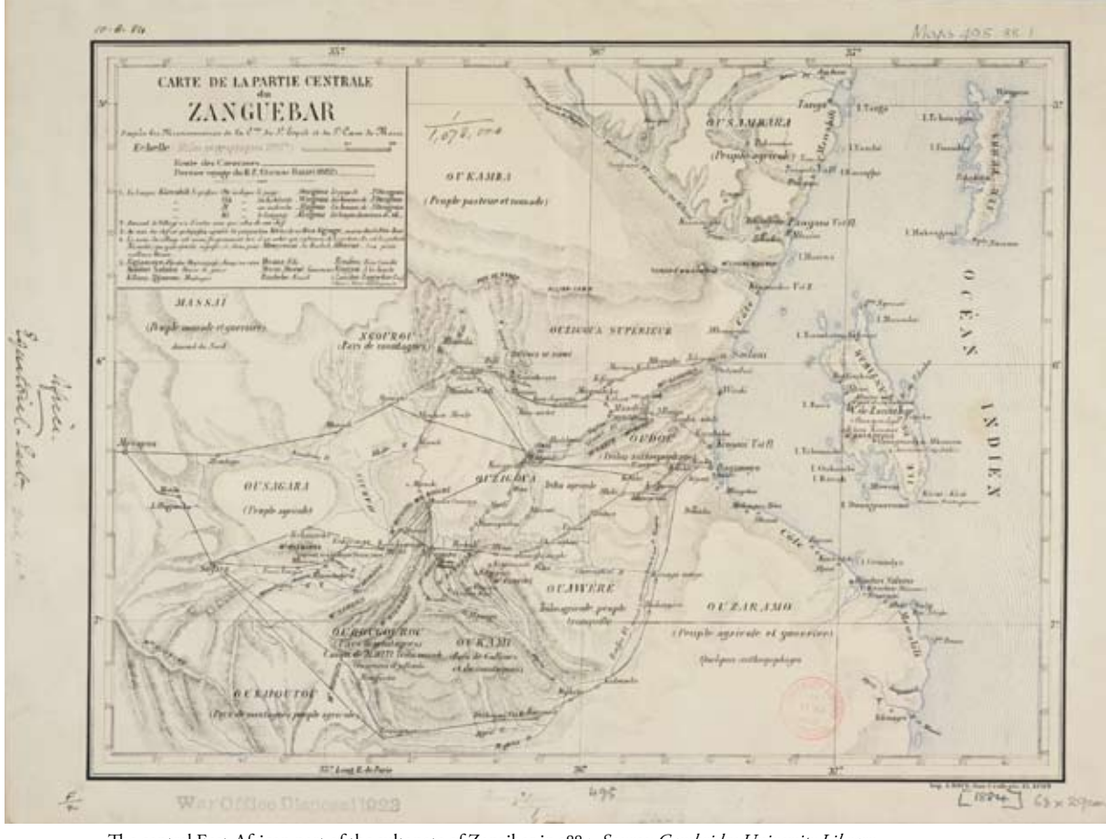
Zanzibar is not only of strategic importance in East Africa, which explains its mercantile empire. It is also a fertile island with rainfall throughout the year, which provided it with an abundance of vegetables and fruit, but also more importantly with exotic spices, of which the sought-after clove was most valuable. In a short time Zanzibar developed into the centre of the island empire with palaces, merchants' houses, plantations, and a port that served the world. The port played a key role in the traditional triangular *dhow* trade, which was carried out between Zanzibar, India, and Arabia. It was also an important *entrepot* in the growing world trade between the super powers in Europe and America. Its exceptional position made it extremely desirable to the nineteenth-century's super powers. After the death of sultan Seyyid Said in 1856, the European influence increased rapidly. Germany, England, France, and the United States of America founded consulates and trading companies in Zanzibar, with Britain ultimately taking the upper hand. The Germans exchanged their interests in Zanzibar for the island of Helgoland (then belonging to the British crown), which was strategically located off the German North Sea coast. The French had to be satisfied with the exclusive possession of Madagascar. By means of a clever policy, carried out under the anti-slavery banner, the British were able to annex the African part of the Omani empire into its sphere of influence and Zanzibar became a British protectorate in 1890.

Gerald Portal, the soldier who had earned his spurs with campaigns in East Africa, was appointed Consul General in 1891 and energetically assumed the task of modernizing the island. In 1892, Zanzibar was made into a free port and slavery was abolished in 1897. The sultan sat powerless on his throne. One of Seyyid Said's descendants attempted one last challenge to British authority in 1896, but was shamefully evicted from his palace when it was bombarded by an English warship. He was then replaced by a more obedient member of his family. (This incident has gone into the record books as the shortest war of all time: it lasted 38 minutes.)

The British departed in 1963 and the sultan was made the ruler of independent Zanzibar. The residents of the island empire off the East African coast, which in the meanwhile had been reduced to the islands of Pemba and Zanzibar, rebelled less than a year later and expelled the sultan, who spent the rest of his life in Portsmouth on a small English pension.

### ◆ STONE TOWN

The city of Zanzibar at the end of the seventeenth century, when the Portuguese were expelled by the Omani, consisted of a village surrounding the fort on the Shangani peninsular. It was ruled by Swahili sultans from 1700 to 1828, under sovereignty of the sultan of Oman. Both the imposing

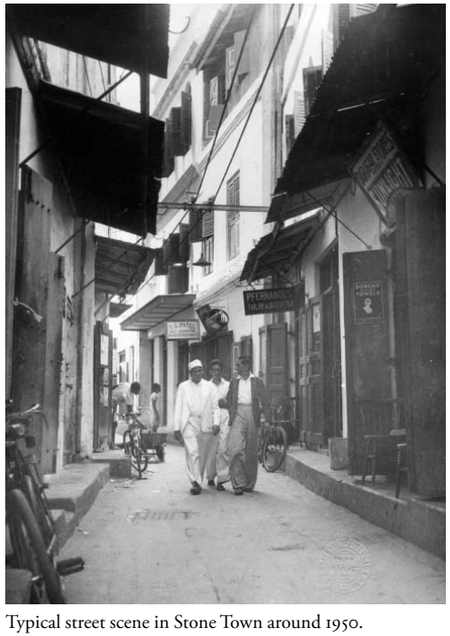



The central East-African part of the sultanate of Zanzibar in 1884. *Source: Cambridge University Library*

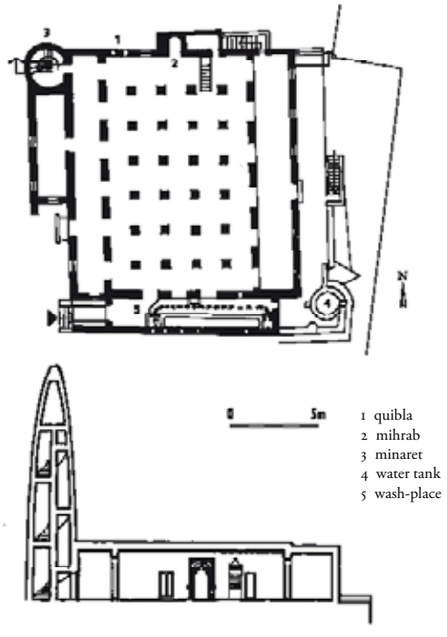
One of the reception rooms of Beit el Sahel after the bombing of 1896.

The bombardment of Zanzibar in 1896. Left, the Beit el Sahel, the oldest city-palace of sultan Seyyid Said, right, the damaged free-standing tower (later demolished) of Beit el Ajab. Source: *Zanzibar Archives*

The eighteenth-century Mnara Mosque in Stone Town.



Typical street scene in Stone Town around 1950.
*Photo: Capital Art Studio*




The Shela Mosque on Lamu. *After: U. Ghaidan*

The Mtoni Mosque in 2008. *Photo: Mieke Woestenburg*

The Mtoni Mosque in 2006.

fort and the exceptional Mnara Mosque remain from this period. The mosque is one of the few mosques in East Africa that displays the influence of the *Style Sudanais* of West Africa.[7]

The Swahili city was replaced by a stone city after the end of the eighteenth century. Stone Town was inhabited by Swahili and the Omani Arabs, who were followed by the Indian and European traders. It is a cosmopolitan city with narrow streets and high buildings: merchants' houses, warehouses, emporia, palaces, schools, and mosques.

Stone Town was located on a peninsula that was divided from the rest of the island by a lagoon, the Creek, which dried out at low tide. It was a city where rich and poor lived together with a high population density on a restricted landmass.

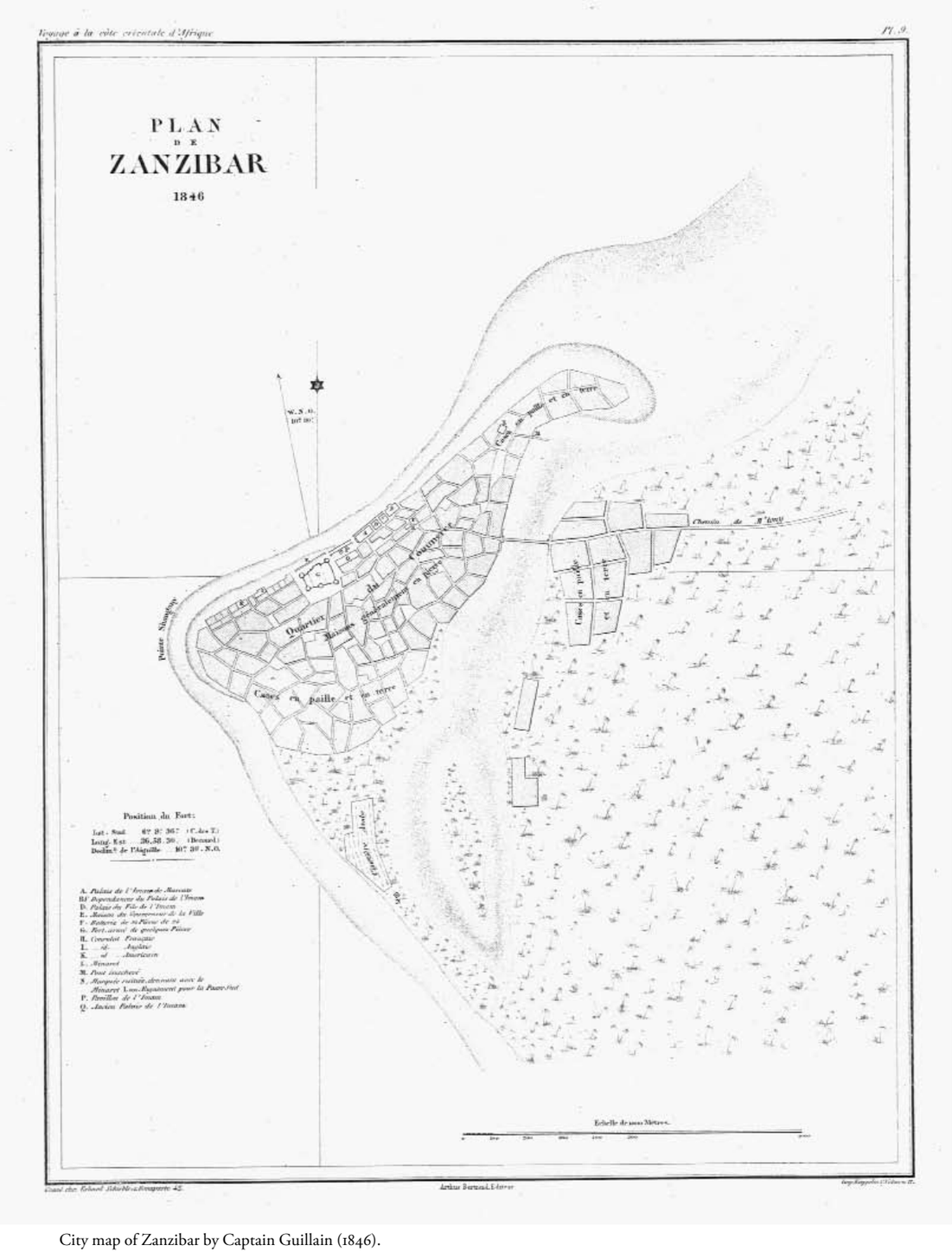
The architecture was characterized by the sober building style of the Omani. This simple architectural style, then current in Oman, was characteristic of the Islamic Ibadhi sect; introvert structures with flat roofs, whitewashed walls, and buildings devoid of decoration. Apart from Oman, this architectural style is also present in the south of Algeria, in the wadi of M'Zab, in the cities of Ghardaïa, Melika, Bou-Noura, El Atteuf, and Beni-Izguen. It was this architecture, with its rejection of monumentality and decoration, like Cistercian architecture in the west, which so enraptured Le Corbusier and other modernists in the first half of the twentieth century.[8]

The coming of Indians and Europeans introduced new elements and typologies. The flat roofs, which were much less suited to the climate of Zanzibar with its heavy rainfall and constant high temperatures than to the dry climate of the Arabian peninsular, had long been replaced by sloping roofs made of *makuti* and, later, corrugated iron. The Europeans in Stone Town sought the cool sea breezes by adding towers to their houses. Lanchester's comment was that the houses crept higher and higher with the consequence that they were neither fully occupied nor comfortable.[9]

Eventually, the buildings became more and more gaudily decorated, with classical and exotic motifs that were fashionable in other parts of the equatorial British empire. During the rule of sultan Seyyid Bargash, the son of Seyyid Said, the Omani also abandoned their Calvinist lifestyle and beliefs, and adapted to the comforts of the modern world. Bargash modernized the important government buildings, and ordered the erection of the famous Beit el Ajab, the House of Wonders, a palace that can be described as a sublimated planter's house with stacked arcades of large, cast-iron columns imported from England. After Bargash's death the British would establish their own seat of government in this palace.

It was exceptional in a European settlement in Africa for colonists to live in an existing city. As seen earlier, it was more common for colonists to construct residences for themselves alongside an existing city, or even to erect a completely separate residential city in which they could build their homes, warehouses, and administrative

7 Another important example is the Shela Mosque on Lamu. Ghaidan 1975, p. 17-20.
8 Roche 1970.
9 Lanchester 1923, p. 67.




City map of Zanzibar by Captain Guillain (1846).

buildings in a loosely planned green environment. This was not initially the case in Zanzibar. It was only after World War I that green residential areas were built outside Stone Town. Clearly, the existing city was attractive enough for colonial settlers, who appropriated existing Arabic buildings and infrastructure for their own use.

## ◆ THE OTHER SIDE: THE ORIGIN OF NG'AMBO

During the nineteenth century, Stone Town became increasingly overpopulated and out of control. There was no longer space for the large population explosion, which went hand-in-hand with the economic boom that accompanied the new capital. In addition to the immigration of Arabs and later Indians and Europeans, there was a great stream of African labourers and slaves, who worked on the plantations and in the port. Around 1840, a jump was made to the other side of the Creek. Ng'ambo, meaning literally *the other side*, was laid out. Ng'ambo immediately began to expand at an explosive rate. On the map that was drawn up by Captain Guillain during his visit in 1846, Ng'ambo was already half as large as Stone Town and, by 1890, Ng'ambo easily exceeded the old city both in size and population.

Despite the spontaneous character of its origin and the poverty of its population, Ng'ambo in the nineteenth century was nothing like a slum or bidonville. Visitors in the nineteenth century found it to be a neat suburb, in comparison with dirty, overpopulated Stone Town. It is true that streets were unpaved and crooked, but they were clean and bordered by coconut palms and the typical Swahili houses with steep makuti roofs. At this time, Ng'ambo had a rural atmosphere; the houses lay well away from each other, and the residents still had farmlands or *shambas*. This description offers a stark contrast with the report of the polyglot Richard Burton, who spoke rather patronizing of Ng'ambo. But Burton in his sardonic style also found little to please him in the rest of Zanzibar.[10] [See photo on p. 158 bottom]

Ng'ambo was divided into smaller areas, called *mitaa*,[11] which were defined by the religious and geographical origins of the population. There were mitaa for Swahili peoples from the islands of Pemba and Zanzibar and the coastal area of Tanganyika, for people from the Comoros, Madagascar, and Mauritius, and for people from the mainland who came from the vast territories reaching as far as Somalia to the north, the Great Lakes in the west and Mozambique and Zimbabwe to the south. The mitaa structure did not result in a division of the suburb into rich and poor areas. Wealthy traders lived on the same street as poor day-labourers and slaves. The difference in standard of living between the free day-labourers and slaves was disappearing during the era leading up to the abolition of slavery in 1897; after which any remaining difference vanished completely.

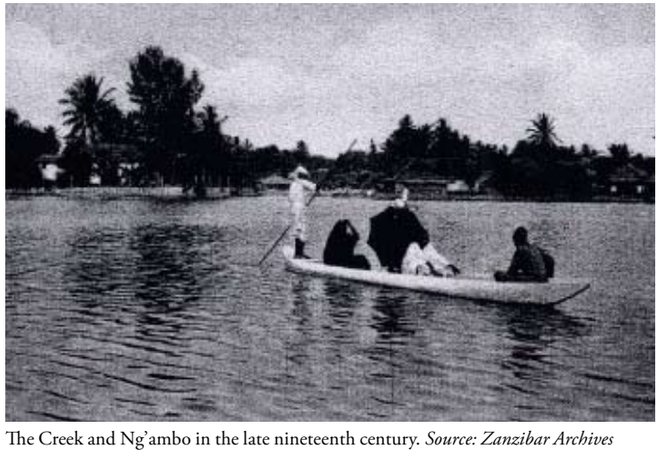
10 Burton 1872.

11 Single *m-taa*, plural *mi-taa* (Swahili).

12 'It is my final contention that we must look to local customs and religious practices internal to Ng'ambo's communities – while recognizing that these were embedded in the uneven matrix or power relations – to understand how the disorderly order of the "Other Side" in the nineteenth century was shaped.' Garth Andrew Myers, 'Early history of the Other Side or Zanzibar Stone Town'. In Sheriff 1995, p. 43.

The roadstead of Zanzibar around 1880.


Ng'ambo in the late nineteenth century. *Source: Zanzibar Archives*



The Creek and Ng'ambo in the late nineteenth century. *Source: Zanzibar Archives*

Garth Andrew Myers explained the 'organized disorder' of Ng'ambo as owing to the complex local customs and religious practices of the different mitaa population groups, who were ultimately subordinate to the ruling class of Arabs, and later Indians.[12]

There was no formal policy of segregation until Zanzibar became a British protectorate in 1890. From then on segregation was part of colonial politics, and the Creek was the *cordon sanitaire* of Zanzibar city. This was a decisive moment in the development of the metropolis: Stone Town was the formal city of the wealthy Europeans, Arabs, and Indians; Ng'ambo was the informal city of the 'African urban proletariat', inhabited by day-labourers, freed slaves, and impoverished Arabs. The year 1890 condemned Ng'ambo to becoming a suburb for the proletariat and its degeneration began.[13]

### ◆ LANCHESTER'S STRUCTURAL VISION OF 1923[14]

Gerald Portal established a Public Works Department (PWD) in 1893, which gave a strong impulse to urban development. The taxes which before had flowed into sultan Seyyid Bargash's coffers, and which allowed him to live in a state of grandeur, now reverted to the British, who used them to develop the island. Bargash's palace-building fever made way for a building boom that served the development of British trade and administration. The strategic and economic importance of Zanzibar as a nodal point within the British empire rapidly increased, which was evident in the extension of the port facilities, the construction of military factories, an oil depot in the former palace of sultan Seyyid Said in Mtoni, a short railway line linking the harbour with the depot and the workers' suburb of Bububu, as well as the building of a number of public edifices such as a hospital, post office, police station, administrative buildings, and a prison.

The outbreak of World War I in 1914 had consequences for the development of Zanzibar. Because of its strategic location on the island off the coast of German East Africa, the Germans' most important African colony, the city was of great strategic significance as a naval base, garrison town, and military depot.[15] After the Germans capitulated in 1918, and German East Africa was nominated a British protectorate, a large united British territory was created that included Uganda, Kenya, Tanganyika, and Zanzibar.

The urban development of Zanzibar was taken on systematically. In 1920, urban planner Henry Vaughan Lanchester was commissioned to complete an outline master plan for the city. Lanchester had earned his reputation in the area of tropical city planning with his master plan for Madras. This plan was admired because it was not primarily a formal monumental exercise, such as was common with the City Beautiful plans of the Beaux-Arts tradition. The master plan

13 'If visitors found Zanzibar town dirty, they characterized Ng'ambo as an utter slum [and] a filthy labyrinth which reflected the attitude and lifestyle of the inhabitants. They completely missed the point. The condition of Ng'ambo had nothing whatsoever to do with the attitude of the people, nor was the lifestyle of their making.' And: 'It has been suggested that a class alliance was made with the Arabs to facilitate British imperialism and the creation of a colonial state. One thing is clear: Zanzibar was considered an Arab state and this dictum was reflected in administrative reforms, including the development of infrastructure. Existing class dichotomies were preserved by the colonial government. Until the 1920s and 30s, little was done to improve urban conditions in Ng'ambo.' Menon 1978, p. 49 and 83.

14 Lanchester 1923.

15 Recommended are the exciting stories about the guerrilla war by the German Colonel Von Lettow-Vorbeck against the allies and the escapades of the German cruiser Königsberg, that sank the English destroyer Pegasus with a single shot off the cost of Zanzibar.

of Madras was based on statistical data of a socio-economic nature, with consequential projections. Lanchester was convinced that a modern functional city could only be developed by means of such an approach. In this way, Lanchester's vision agreed with the early modernist master plan of Henri Prost for Casablanca, which ran ahead of the renowned functionalist master plans that emerged from the Modern Movement, such as the General Extension Plan for Amsterdam of 1934 by Cornelis van Eesteren.

The outline sketch, which was finished in 1923, was an early attempt to properly regulate the growth of an African city. The analytical and systematic approach, which was not developed in depth in the first master plan, can be seen as a precursor to the later, so-called 'English School' plans, which were developed by the Colonial Building Service and the AA School of Architecture of Koenigsberger, Fry, and Drew in the 1940s and 1950s.

Lanchester's analysis was explained in chapters covering (1) geography, climate, geology, geomorphology, dendrology, and topography; (2) history and archaeology, ethnography, religion, and culture (festivals and so on); (3) traffic, roads, and bridges; (4) educational provision; (5) health, demographic data and projections, religious divisions, races and casts, statistics, epidemics, water, and (social) housing, and (6) economic factors, markets, factories, skilled workers, port, commerce, and land tenure. Lanchester concluded that Zanzibar was too thinly populated. According to him, the islands of Pemba and Zanzibar were capable of accommodating a population that was twice as large, and this would facilitate economic development.[16] He based his findings on the 1910 census, when 114,000 people were living on the island of Zanzibar, 36,000 of which resided in Zanzibar Town. There appeared to have been a sharp fall in the city's population since the 1910 census.

The question is whether this drop in population, which occurred at the end of the nineteenth century, not only happened in Stone Town. From this time onward, the African population of Stone Town began moving to Ng'ambo, and then, after 1891, Stone Town was closed to Africans.

Lanchester confirmed that Swahili peoples (whom he defined as Islamic Africans who spoke Swahili) almost all lived in Ng'ambo. The Swahili lived, according to his accounts, in neat houses, yet he had little praise for the housing of non-Swahili speaking Africans.[17] This latter population group consisted of freed slaves and labourers who had immigrated to Zanzibar to work in the port and on the plantations. He did not give much information about Ng'ambo, because no recording or surveying of the suburb had yet taken place. He proposed a rudimentary opening up of the area and the laying out of a number of through roads to the hinterland, but refused making any further proposals until a more detailed recording had been made.

Lanchester considered Zanzibar an attractive location for European colonials. The climate was certainly warm and humid, but still healthy due to the constant sea breeze. He was full of praise for the location and potential of the city, but had little admiration for its disordered appearance when viewed from the sea. His master plan included a more symmetrical and monumental design for the rebuilding of the seafront of Stone Town, with an eclectic imperial style planned for buildings that would be used for administrative and commercial purposes.

For the Europeans, he proposed a new residential suburb in Kilimani, a slanted area on the southeast side of the Creek. Lanchester specified the kinds of houses that he hoped to see built there, basing himself on studies made by Andrew Balfour, the renowned tropical doctor who had a significant role in the expansion of Khartoum.[18] Lanchester proposed typical, detached planters' houses with verandas all round and roofs with great overhanging eaves, oriented so as to benefit from the prevailing sea breezes and situated in a park-like setting.

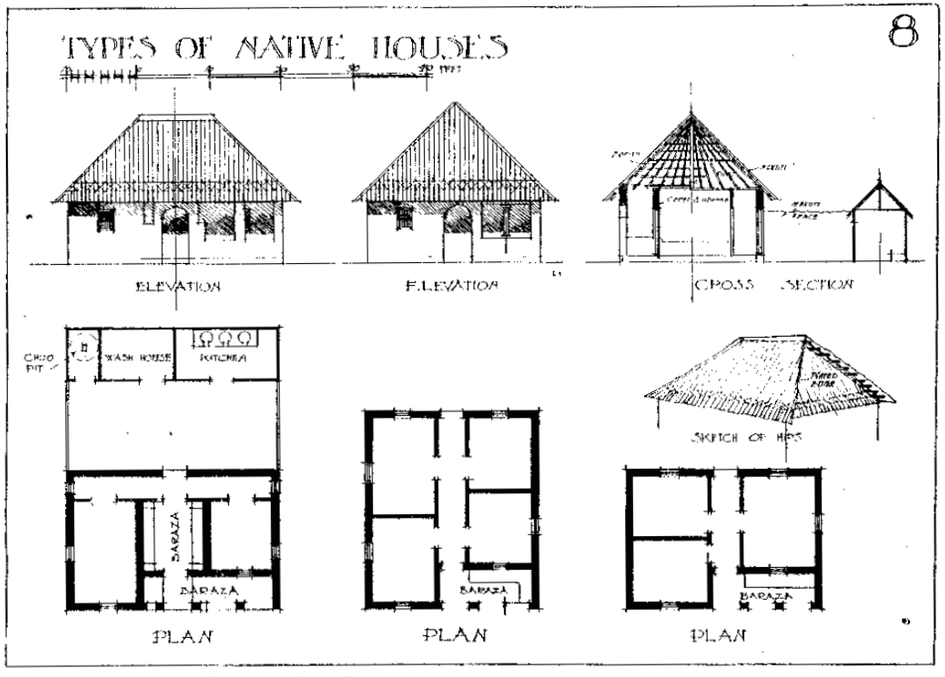
He also made proposals for social housing in and around Ng'ambo. For this scheme, Lanchester was inspired by Swahili houses, which he planned to build in clusters of two to three hundred units. These would be connected by broad avenues, which would serve as access roads to the infrastructure, and, in particular, to prevent fires from spreading among the makuti covered roofs.

One exceptional variant of the social-housing types proposed concerned the dormitories for the so-called *dhow*-Arabs. These were the 3,000 to 4,000 sailors who arrived each May with the monsoon in Zanzibar and departed a month later.

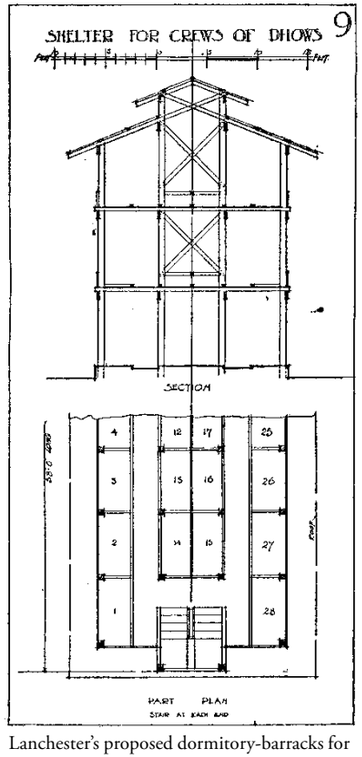
| | **Zanzibar city** | of which: **Stone Town** | of which: **Ng'ambo** | of which: **buitenwijken** | **Zanzibar island (Unguja)** |
|---|---|---|---|---|---|
| **1835** | 10,000 | 10,000 | – | – | – |
| **1876** | – | – | – | – | 80,000-100,000 |
| **1895** | 60,000 | – | – | – | – |
| **1910** | 36,000 | – | – | – | 114,000 |
| **1931** | 47,000 | 17,000 | 28,000 | 2,000 | 138,000 |
| **1958** | 54,000 | 18,000 | 31,000 | 5,000 | – |
| **1968** | 68,000 | 17,000 | 39,000 | 12,000 | 191,000 |
| **1978** | 142,000 | 15,000 | 44,000 | 55,000 | 271,000 |
| **1988** | 208,000 | – | – | – | 385,000 |
| **2002** | 390,000 | – | – | – | 622,000 |

Population growth in Zanzibar city and island in the period 1835-2002. Statistics derived from (1) R.C.Harkema, *The Town of Zanzibar in the later half of the nineteenth century and a number of older urban settlements along the East African coast*. PhD thesis University of Groningen, 1967. (2) Tanzanian government census returns: http://www.tansania.go.tzçensus/tables.htm.2008. (3) Garth A. Myers, *Reconstructing Ng'ambo: Town Planning and Development on the Other Side of Zanzibar*. PhD thesis, University of California, Los Angeles, 1993.

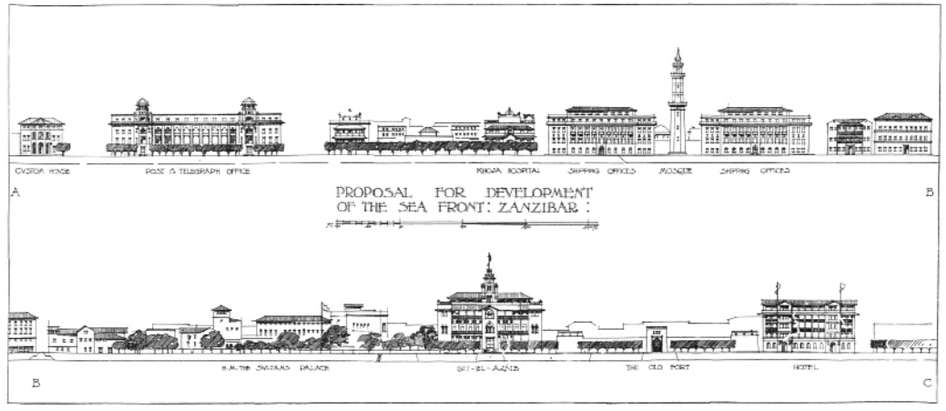
16 Lanchester 1923, p. 2.
17 'In the matter of house accommodation Swahili shows his superiority over his animist cousin the negro.' *Ibid.*, p. 70.
18 Andrew Balfour, 1873-1931.




Lanchester's proposed standard house design for Ng'ambo.




Lanchester's proposed dormitory-barracks for the dhow-Arabs.




Design for Stone Town waterfront by H.V. Lanchester.


Lanchester's 1923 master plan for Zanzibar.

◆ URBAN DEVELOPMENT IN THE LATE COLONIAL PERIOD

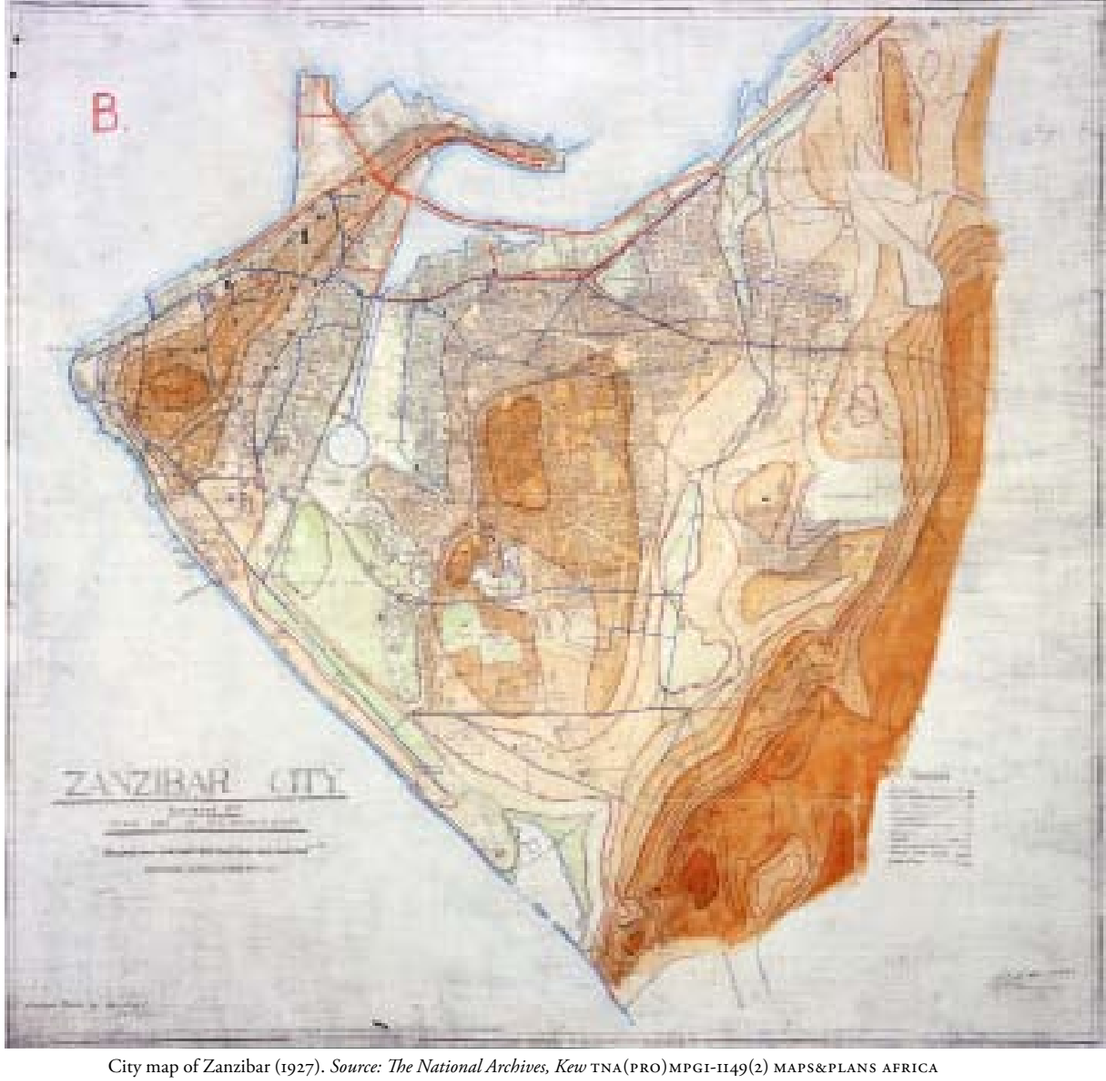
During the years after the master plan was completed, a modest development took place in the city along the lines laid out by Lanchester and fixed in regulations.[19] An important step was the completion of the *cordon sanitaire* between Stone Town and Ng'ambo. Next to the existing bridge over the Creek, which can still be recognized in the Swahili name, *Darajani*,[20] a second bridge was built, and the lagoon itself was, in line with Lanchester's master plan, transformed into a green zone: the Mnazi Mmoja recreation park with a narrow canal that ended in a round basin, called the *Banjo*.

In addition to these measures, Zanzibar's infrastructure was also further developed; roads were built and Stone Town was provided with electricity and a sewage system. Neither the monumental seafront nor the social housing plans were realized; during times of crisis Zanzibar seems to have fallen asleep, and in the 1930s Ng'ambo was left to its fate.

The situation changed at the onset of the 1940s, when Eric Dutton, an ambitious civil servant with an impressive record of work for the British colonial government in Africa, came to Zanzibar. In 1943, he launched a scheme to reorganize Ng'ambo. In line with what Bruno De Meulder called the 'colonial welfare state', the aim was to replace Ng'ambo with a modern, popular suburb. Under Dutton in 1948, the survey of Ng'ambo that in 1923 was proposed by Lanchester, was completed. This precise study, which was developed in the so-called *Ng'ambo Folder*, took roughly two years to complete.[21]

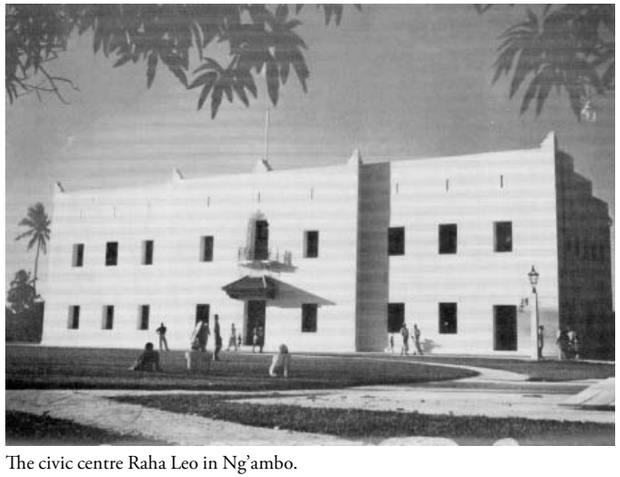
Meanwhile, Dutton commissioned a civic centre[22] to be built in the heart of Ng'ambo, in what Garth Andrew Myers considered a strategic site. From this civic centre, the colonial administration could direct Zanzibar's urban revival scheme, and effect the region's ultimate transition of self-government.[23] Armed with the Ng'ambo Folder, Dutton began the most ambitious colonial program ever to be realized in Zanzibar. It would, during the period 1946-1955, draw heavily on the colonial budget for Zanzibar. After the completion of the civic centre, the reorganization program for the mitaa Mwembetanga and Miafuni was launched. Buildings here were completely demolished and replaced by what would be baptized the Holmwood neighbourhood, a district in the tradition of the English garden city: an organic street pattern with friendly little houses, completely different to the traditional complex of the mitaa or the architecture of Swahili settlements. Around one hundred houses were erected in Holmwood, but eventually resources dried up, bringing an end to the era of the authoritarian Dutton. According to Myers, Holmwood was built not because people wanted to clean up the slums, but rather to make space for the construction of roads that would allow the colonial administration to regain control of this popular suburb. Holmwood hardly differed in density from modernized Mwembetanga and Miafuni; the demolished Swahili houses

19 Town Planning Decree No. 15/1925.
20 *Daraja* means bridge in Swahili, the suffix '-ni' means 'by the -'.
21 Ng'ambo Folder, CO 1054/146 maps, National Archives, London.
22 A civic center called Raha Leo.
23 Myers 1993, p. 226-228.




City map of Zanzibar (1927). *Source: The National Archives, Kew* TNA(PRO)MPGI-1149(2) MAPS&PLANS AFRICA *(Zanzibar City 1927)*


The central part of Ng'ambo from the so-called Ng'ambo Folder of E. Dutton (1948). *Source: The National Archives, Kew* TNA(PRO)CO1054-146 MAPS&PLANS AFRICA



The civic centre Raha Leo in Ng'ambo.

were, according to the Ng'ambo Folder, generally of rather reasonable quality.[24]

From the end of the 1930s, the colonial administration worked on providing new regulations that would facilitate the extension of the city on the other side of the Creek. However, these regulations were not decreed until 1947.[25] One significant stumbling block was the complicated issue of land ownership. There were many private freeholds in Zanzibar, and much of the land was in the hands of *Waqf*. Waqf land referred to properties that had belonged to Muslims, who bequeathed them to the religious community upon death. The British institutionalized this practice with Waqf commissions. But the intended large-scale urban development remained hampered by this complex pattern of land ownership.

The regulations of 1947 did not apparently solve the problem, because a new set was issued in 1956, on the basis of the *Town Planning Decree* of 1955, which provided a structure for a new master plan for the extension of Zanzibar. This master plan was drawn up by Henry Kendall of the Town Planning Department of Kampala.[26] Kendall's plan was elaborated by Geoffrey Mill, the resident urban planning officer on Zanzibar, into the *Zanzibar Town Planning Scheme* of 1958.[27] The Kendall-Mill master plan provided for a considerable enlargement of the city, which would not be completed until the 1980s. The plan proposed a rationalized road network, as well as a simple and clear zoning policy. The housing zones with homes for the wealthy (zone A *high class*) are located along the beaches and, by means of broad buffer zones with housing for the middle class (zone B), were separated from the zones for the natives (zone C *native-type huts*). One did not dare to clean up Ng'ambo. Although the main roads were widened and straightened, the desired reconstruction of Ng'ambo would not be realized until the site had been carefully recorded and surveyed.

In the final years of colonial regime, Ng'ambo was again excluded from Zanzibar's urban development scheme, as was the case in the period after Lanchester.

24 Myers 1995, p. 1348.
25 Town Planning Decree 1947.
26 Town planning scheme 1956, Zanzibar Archives, AW/2/12.
27 Zanzibar Town Planning Scheme, Zoning Plan 1958, Geoffrey Mill, British Library, Maps Y431, London.
28 For the revolution on Zanzibar, see for example Petterson 2002; Meredith 2006, p. 222-224.

### ◆ KARUME'S NEW TOWN

After independence was declared in 1963, politics in Zanzibar developed rapidly. The British handed power and administration over to the sultan. However, in 1964, a group of young Zanzibaris seized power under the leadership of the enigmatic, Ugandan, self-proclaimed field marshal John Okello, and dispelled the Arabic elite during a bloody coup.[28] After much in-fighting, sheikh Abeid Karume eventually emerged as the strong man of the new state. Karume pacified the island with the support of Nyerere and began an energetic attempt to develop the island. The influence of Nyerere, and the refusal of the western world to recognize the newly proclaimed Republic of Zanzibar, drove Karume into the arms of communist

states for support. Shortly after the island was pacified, Nyerere and Karume made a pact and created the Union of Tanganyika and Zanzibar, which together formed the People's Republic of Tanzania.

The East German government now saw in Zanzibar an opportunity to publicize their communist ideals, and quickly provided political and military support. When Karume proposed his scheme for a socialist New Town, East German planners, architects, and engineers were eager to help him. Karume promised the people a New Town in his famous speech of March 8, 1964. This New Town comprised an all-inclusive plan for the modern socialist citizen, a city with state-of-the-art comfortable buildings, sports facilities, highways, an airport, hospitals, a party headquarters, schools, recreation facilities and a home for the elderly. The city was to be built in Ng'ambo; the existing buildings were to be completely demolished and replaced.

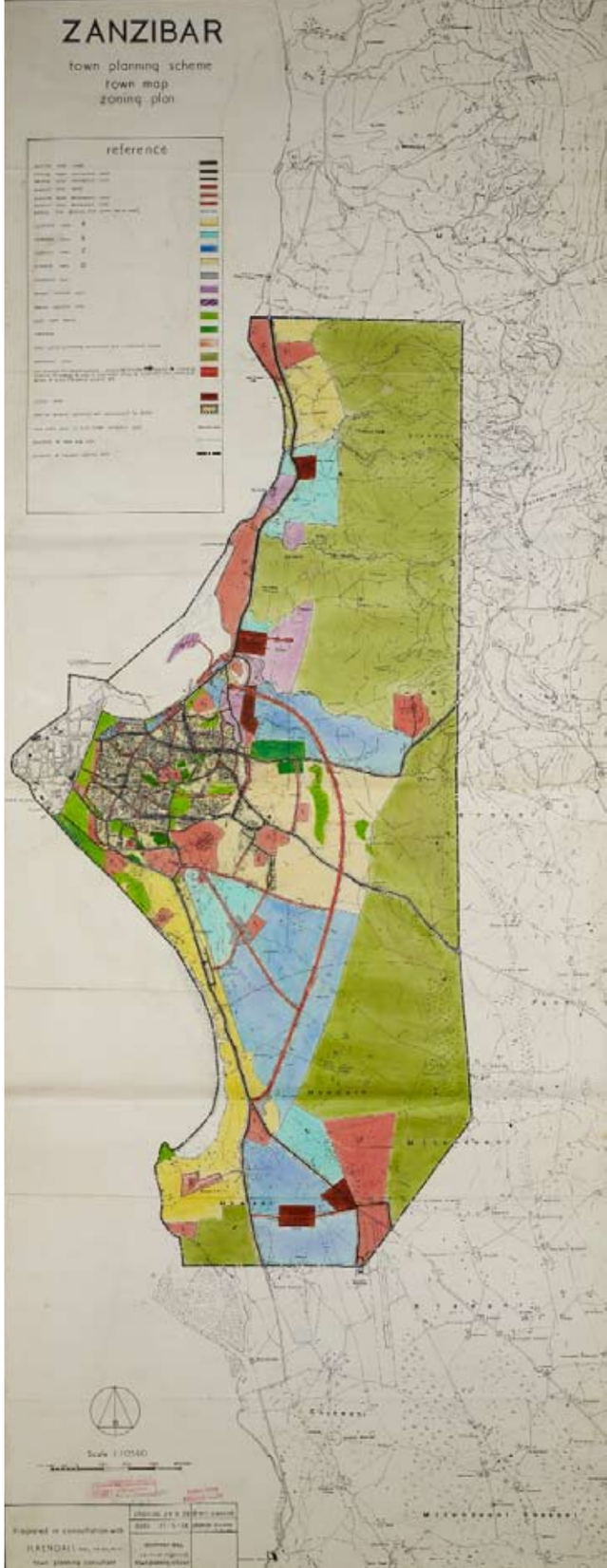
Meanwhile, the great Arabic and Indian city palaces in Stone Town were nationalized and rented to the local population. Stone Town had been neglected during the reign of Karume and his successor sheikh Aboud Jumbe. The city gradually fell into decay, until UNESCO experts sounded the alarm in the mid-1980s. Following UNESCO's call and the ensuing rise of tourism in the 1990s, the restoration of Stone Town was carried out bit by bit, ultimately leading to UNESCO awarding Zanzibar the status of World Heritage Site in 2000.

Karume asked the East German architect Hubert Scholz to design a master plan for his ideal city. Scholz's scheme envisioned a New Town that would be superimposed onto the organically evolved structure of Ng'ambo.

Scholz's master plan followed the most important elements of Kendall and Mill's earlier plans. The main roads and extension lines were maintained and straightened. Remarkably, the 1958 zoning policy was preserved. Zone A remained the residential area on the coast, and zones B and C were joined together to create one modern city with apartment blocks for workers. Kendall and Mill had excluded Ng'ambo from their scheme, but Scholz's plan implied a rigorous system of crossroads that projected outward from the midpoint of the suburb. All of the existing buildings in Ng'ambo would be replaced by a New Town comprising only apartment blocks.

Scholz's structure plan of 1968 is a monumental translation of the socialist New Town, which appears to be engrafted onto Stalin's City Beautiful. The city is developed along a monumental grid with a panorama of strategically positioned, important buildings. The palaces and forts of historic Zanzibar are replaced in the socialist version by barrack-like apartment blocks, a hotel, the party headquarters, a stadium, an airport, and a fun-fair.

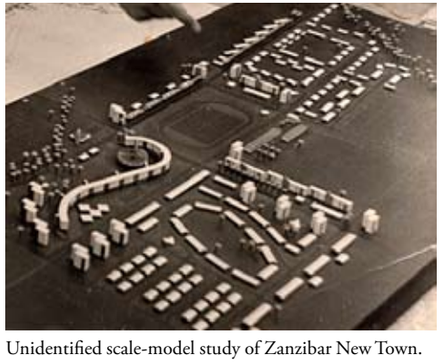
Work had begun on the first projects, even before the master plan was published. In the years 1965-1968, the ASP party headquarters at the west end was constructed, along with the home for the elderly in Sebleni



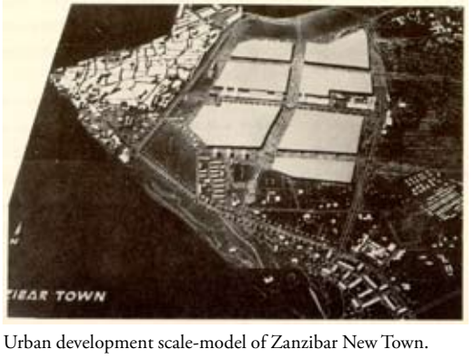

The 1958 master plan for Zanzibar by Kendall-Mill. *Source: British Library, London*


Aerial photo with the realized projects of Karume's New Town (2006).

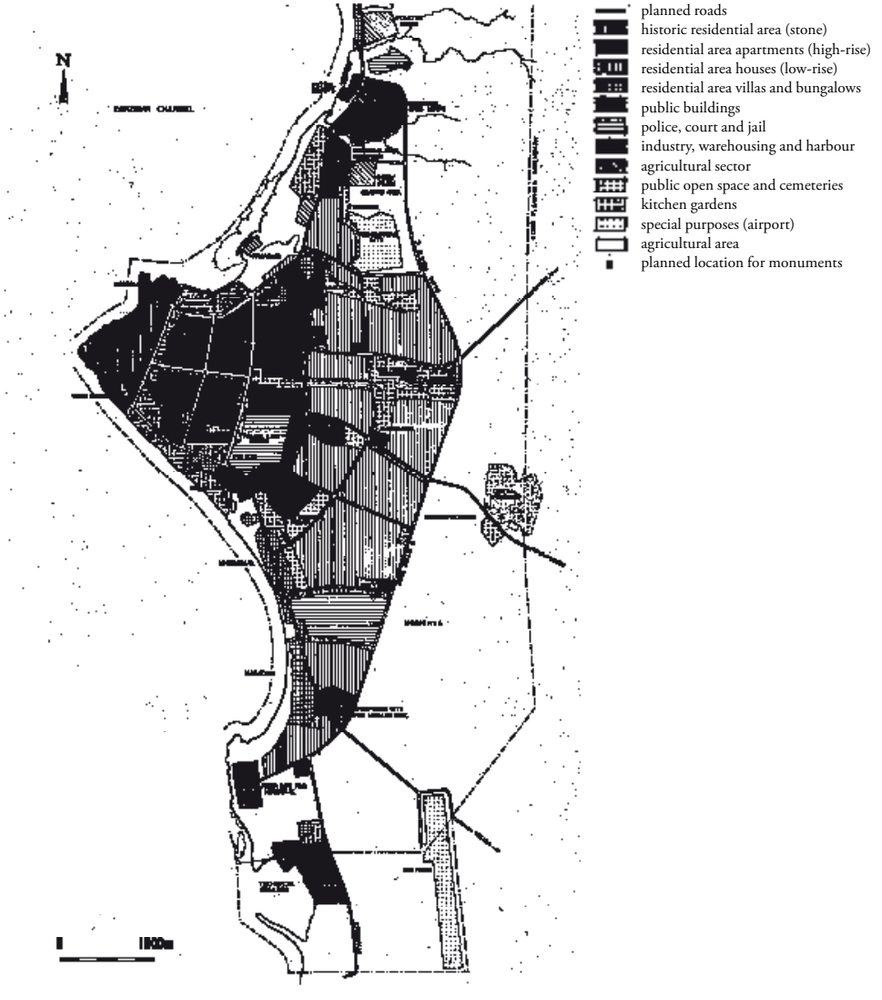
1 Stone Town
2 Mnazi Moja
3 Bwawani Hotel
4 boating lake and swimbath
5 ASP/CCM headquarters
6 Kikwajuni apartments
7 Michenzani apartments
8 Kilimani apartments
9 Uhuru Park (Kariakoo)
10 Sebleni Old-people's Home
11 Amani stadium
12 ringway



Unidentified scale-model study of Zanzibar New Town. *Source: Zanzibar Archives*




Urban development scale-model of Zanzibar New Town.




The 1968 master plan for Zanzibar by Scholz.


The ASP (now CCM) party offices in Ng'ambo. *Source: Zanzibar Archives*

on the east end of the east-west axis, and the residential area of Kikwajuni in the southwestern quadrant of the New Town.

Kikwajuni is a small neighbourhood of 150 apartments, which were copies of European prototypes. The plan was drawn up by East German architects, and the building work was carried out under East German supervisors with East German cement. The building types were inspired by East German socialist principles, and served as the prototypes for all social housing programs realized on Zanzibar and Pemba in the 1960s and 1970s.

However, the relationship between Zanzibar and the German Democratic Republic became increasingly tense during the construction of Kikwajuni. People in Zanzibar became frustrated because they felt excluded from the Kikwajuni project. On the other hand, East Germans felt their efforts were not sufficiently appreciated by Zanzibaris.

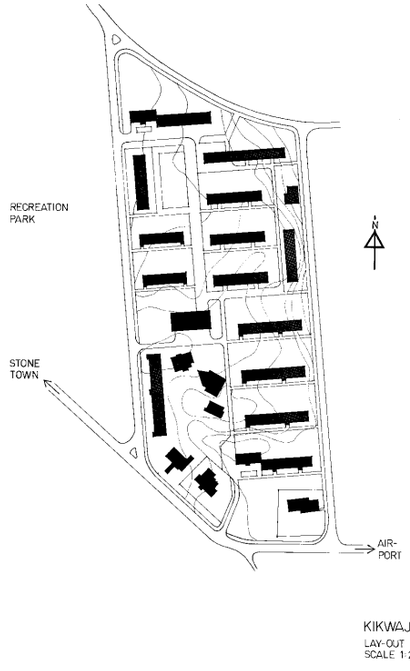
The home for the elderly in Sebleni, promised by Karume in his above-mentioned speech, was indeed built, and is to my knowledge unique among examples of African architecture in the early 1960s.[29] Unlike other New Town projects the Old people's Home was built in a traditional manner and designed by an architect of the old school, Ajit Singh Hoogan. Singh Hoogan had previously designed the low-cost housing scheme at Holmwood for Dutton. The design for Sebleni fell back on missionary architecture and plantation houses, and its friendly and livable qualities still make a favorable impression on visitors.

After Kikwajuni, Zanzibaris took control of the project and, with reduced East German influence and aid, developed the residential area of Kilimani at the south end of the north-south axis. The years 1967-1971 saw the construction of 420 apartments that were erected in compliance with an adapted version of the Kikwajuni typology. The apartments were provided with modern comfort such as electric cookers and fridges.

Kikwajuni and Kilimani were the forerunners of the critical work begun in the Michenzani neighbourhood in Ng'ambo at the end of the 1960s. Four-lane motorways were laid out between longitudinal apartment blocks along the main axis, starting from the monumental fountain that marked the geographical centre of the New Town. These apartment blocks were not part of the original structure plan, and according to reports were personally sketched by Karume.[30] They would ultimately be six to eight stories high, depending on the relief of the site. The eight-storey blocks were built on the power part of the terrain, so that the 300-meter long buildings (*trains*, as they were later called) would all be equally high. Until Karume was assassinated in 1972, 1100 dwellings were constructed at Michenzani in compliance with the modified Kikwajuni template.

29 'The government would immediately set up good homes for the care of the elderly, and every modern equipment will be installed in their homes.' Concerning which Petterson remarked that, 'these promises would turn out to be the first of many that Karume's government would be unable to fulfil'. Petterson clearly did not know Sebleni. See Petterson 2002, p. 178.

30 Different sources that tell the story of the development of Michenzani reveal that the East Germans wanted to link the separate blocks, as was done in Kikwajuni and Kilimani. But, Karume wanted to place skyscrapers at the axes, and apparently had scale models made to see how this would look. His engineers convinced him that it would not be possible to build skyscrapers due to problems with the foundations, shortage of the necessary materials, insufficient water pressure, and expensive lift installations. At which point Karume said, according to the reports: 'If we cannot get skyscrapers, we will build groundscrapers.'



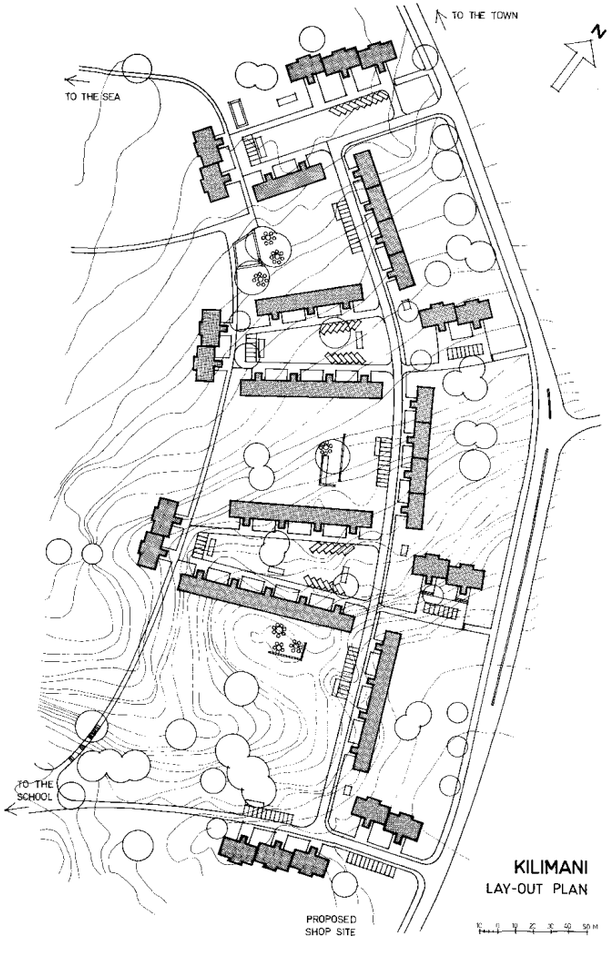

Plan of Kikwajuni district. *After: S.A. Nilsson*

Kikwajuni in the 1960s. *Photo: Capital Art Studio*

Kikwajuni in 2008. *Photos: Mieke Woestenburg*

Sebleni Old-people's Home in 2007.

Sebleni Old-people's Home in 2008. *Photo: Mieke Woestenburg*




Plan of Kilimani district. *After: S.A. Nilsson*

Kilimani in the 1960s. *Photo: Capital Art Studio*

Kilimani in 2008. *Photo: Mieke Woestenburg*

Michenzani in the 1970s. *Photo: Capital Art Studio*

Aerial photo of Michenzani district. *Photo: Mieke Woestenburg*

Michenzani in 2007. *Photo: Mieke Woestenburg*

The project was halted at the end of the 1970s due to lack of funds. The concrete foundations and the lowest stories of two long blocks would lie unfinished and decaying in the sun for thirty years.

While Kikwajuni and Kilimani were built on new sites, the roads and buildings in Michenzani were constructed in the middle of the existing structure of Ng'ambo. The people who lived in the houses on the Michenzani construction site were compensated with a home in Kilimani.

Myers, who researched the population of Ng'ambo extensively in 1993, criticized the flats in Michenzani. They were 'completely different from the local living patterns, particularly in relation to neighbourliness. Moreover, Michenzani destroyed the existing family structure and male-female relationships – and consequently, the flats were unpopular among the female residents'.[31] The flats would in time be occupied largely by single men, by married men (they used it as an additional home), and by the westernized middle class.

While work was being done in Michenzani, Karume started the construction of a recreation complex at the north end of the north-south axis. On Fungoni, a small neck of land at one end of the former Creek, Karume ordered the building of the monumental Bwawani Hotel. Supposedly, Karume, who was called the architect of the main building of Bwawani Hotel, applied the building typology of Kikwajuni also to Bwawani. The building looks more like an apartment block than a luxury hotel; the main entrance, for example, was formed simply by omitting a unit in the middle of the building.

After the death of Karume, a structuralist-style conference centre was added to the Bwawani Hotel;[32] and the architect Nostvik added a squash court, a discotheque, and a swimming pool in a flamboyant modernist style.[33] The discotheque was directly adjacent to the swimming pool, only separated from it by a glass screen; on top of the discotheque are a bar with an umbrella roof and a terrace.

While the Bwawani Hotel was being built, the small Fungoni neck of land was cut off from the sea, but the flow of salt water to a surplus basin was maintained. The basin itself was divided into a large rowing lake and enormous salt-water swimming pool.[34] The Bwawani complex flourished from the middle of the 1970s to the end of the 1980s as the meeting place for the socialist elite and foreign guests. Above all it was – besides Africa House, the earlier established English Club in Stone Town – the only public place on the island where alcohol could be served. It is not certain whether the rowing lake and the swimming pool were ever used. In the 1990s, the lake silted up and a mosque was built on piles in the middle of the swimming pool.

Uhuru Park was the counterpart of Bwawani for children. After Karume died, the fun-fair was completed under his successor Jumbe in the mid-1970s[35] with the aid of the North Koreans, the

31 Myers 1995, p. 1356. Daniel Mbisso, in his research on comparable flats in Ubungu in Dar es Salaam, came to the same conclusions. See Daniel Mbisso, 'Domiciliating Modern Architecture in Tanzania: The Case or Ubungo National Housing Corporation Scheme in Dar es Salaam'. In Folkers, Van der Lans, and Mol 2005, p.189-196.

32 According to the city planner Muhammad Salim Sulaiman designed by an architect from Eindhoven.

33 Karl Henrik Nostvik, a Norwegian architect best known for his expressionistic Jomo Kenyatta Conference Centre in Nairobi of 1974.

34 Interview with Muhammad Salim Sulaiman, Zanzibar, 17 September 2006.

Chinese, or the Japanese.[36] It is located where the east-west axis intersects a second main road that was built along the eastern perimeter of Ng'ambo. It is a walled-in and oval-formed terrain with two entrances on the short side at the north and south ends. The site contains a whirligig, a Ferris wheel, a racetrack, a miniature railway, and other playground equipment. They have futuristic forms inspired by space travel.

The early 1980s was a period that saw a growing influence of communist China on Zanzibar. The Chinese built the Amani stadium at the east end of the east-west axis, and activated Scholz's ideas in their 1982 master plan. The master plan for Greater Zanzibar by Gu Yu Chang and Qian Kequan proposed to organize the chaotic expansion of the city into fifty areas, called *Neighbourhood Units* (NU). There would be a road system as proposed by Scholz, and a new city centre in Ng'ambo that would be located near the eastern perimeter of the Ng'ambo's grid. During this time, a number of apartment blocks and a few office buildings were indeed built, and in addition to aid from the Chinese, also urban programs from Italy and Scandinavia were proposed. But the reorganization into NU's never came about and the new centre never actually materialized as a lively place. In the mid-1980s, the planned development of Karume's New Town came to a halt. The money was running out, the élan vanished, and the aid dried up. The situation at the beginning of the 1990s, when the socialist system was gradually replaced by a neoliberal capitalist model, saw the planned growth of the New Town come to a stop, the population of the historic, organic Ng'ambo explode, and Stone Town become gentrified.

Myers compares Karume's efforts of the 1960s and 1970s with those of Dutton in the 1940s. Both Dutton and Karume misjudged the enormous investments required to modernize Ng'ambo. Myers states that Karume's projects, like the projects of the colonial period, attempted to use town planning as an ideological instrument to control the population, but this time under a socialist banner.[37] According to Myers, both Dutton and Karume bureaucratized the central power, manipulated public space, and excluded the population from the planning process in order to reinforce their hegemony.[38] Myers adds that Karume replaced the colonial elite with party top guns, who continued as before, once the revolutionary dust had settled.[39] Although I did not investigate the matter as thoroughly as Myers, I get the impression that this comparison only holds true to a limited extent. Karume did in fact have to be cautious if he was to remain in power, because there were constant threats – from his own circle, from the extreme Marxists, the old power elite, the Indian financiers, and finally the faction on the mainland.[40] He was eventually murdered in 1972, and suspicion fell on the Marxists. But I have read nothing to suggest that Karume feared an revolt in the working-class areas. On retrospect, I believe that Karume sincerely believed in the

35 According to Nicola Colangelo and Muhammad Salim Sulaiman.
36 I have not been able to verify this. The comparable Luna park in Ouagadougou of 1985 was built and paid for by the Chinese.
37 Myers 1995, p. 1357.
38 *Ibid.*, p. 1356.
39 'Dutton was never far from the verandas of power.' After Elspeth Huxley. *Ibid.*, p. 1358.
40 For an extended biography of sheikh Abeid Karume, see above all Petterson 2002.

The main building of Bwawani Hotel in 2008. *Photo: Mieke Woestenburg*

Aerial photo of Bwawani Hotel. *Photo: Mieke Woestenburg*

Bwawani Hotel disco and swimming pool in 2007. *Photo: Belinda van Buiten*

The former sea-water swimming pool of Bwawani Hotel in 2005.

Uhuru Park during the opening. *Photos: Capital Art Studio*

Uhuru Park in 2008. *Photos: Mieke Woestenburg* et al.


The master plan for Zanzibar by Chang-Kequang of 1982.

Swahili baroque in Zanzibar in 2007.

New building in Michenzani in 2008. *Photos: Mieke Woestenburg*

need to create a modern city for his people and that he did his best to provide it. In view of the circumstances he achieved a great deal.[41]

### ◆ THE CITY AFTER KARUME

The 1982 master plan for Greater Zanzibar by Gu Yu Chang and Qian Kequan was intended to serve the city for a period of twenty years. Apart from providing a number of roads and a few large apartment blocks along the ring road, little else seems to have been achieved in developing this master plan.

In 2006, Muhammad Salim Sulaiman sighed[42] that the master plan period was four years overdue, that the zoning and reserves for public facilities were disregarded and that there was no follow-up plan, even though the city at this time was growing by at least four percent per year. The city in fact was growing at an almost uncontrollable rate, and a mass of packed building plots, erected on fertile land surrounding the city, quickly mushroomed with predominantly single-storied dwellings. For the middle class and the lower classes of the population the building type was based on the modern translation of the traditional Swahili-house in cement and corrugated iron. The elite has built great multi-story villas in the so-called Swahili baroque style, which will be discussed later. [See photo on p. 221 bottom]

Few public buildings were completed in this period, with the exception of tourist attractions in Stone Town and commercial buildings such as banks, offices, and shops all over the city. There were also some impressive mosques erected. The government's town planning department[43] attempted to retain control over the city's expansion, but had limited resources and few officials to do the job. The greatest problem is the failing infrastructure; the sewage system and water supply were not built to supply a city of its present size. The World Bank and Western countries were asked to provide aid. At the same time, city planners tried to curb the expansion of the city to protect valuable agricultural areas in the increasingly overpopulated island.[44] To ensure this, plans were drawn up for smaller satellite villages, such as Tunguu, to be erected near the metropolis on land comprised of barren coral rock.[45]

In Ng'ambo, the old, pre-modern structure is slowly being replaced, in a way similar to the newer expanded areas. The building of multistory apartment blocks and public facilities linking up with Karume's New Town came to a halt after the end of the 1970s, until Karume's son, Amani Abeid Karume, came to power in 2000. Under his administration in the years 2006-2008 the unfinished apartment blocks in Michenzani were completed, seemingly in compliance with the original plan. It will be interesting to see if any further plans for Karume's New Town will materialize in the future.

What makes Zanzibar unique is its cosmopolitan character. As Lanchester previously observed, 'Zanzibar's main characteristic is that

41 Dutton built 150 low-cost dwellings, Karume more than an estimated twenty times as many, apart from his other building projects in service of the revolution.
42 Interview with Muhammad Salim Sulaiman, Zanzibar, 17 September 2006.
43 Ministry of Water, Construction, Energy & Lands.
44 In 1923, Lanchester thought that a doubling of the population would be advantageous. By 2008, the population was nine times greater.

it was never prejudiced against foreigners. It admitted the Persians in the Middle Ages, was friendly towards the Portuguese, tolerated the Indians, assimilated the Omani, and welcomed the English.'[46] All these foreigners contributed to the appearance and structure of the city of Zanzibar, encountered by Lanchester in 1923. This ability to assimilate foreign influences continued during the Revolution, when the city was rebuilt with the aid of and influenced by East Germans, North Koreans, Cubans, Chinese, Scandinavians, Americans,[47] and Japanese. The Bwawani complex involved, as described above, not only Zanzibaris, but also East Germans, Norwegians, and Dutch. The post-revolutionary period has seen Arabs and Persians return to the city and provide aid and assistance in the building of mosques and emporia; the Aga Khan, the Germans, French, and English have been active in restoring Stone Town, the Italians have developed a number of tourist projects, and the Dutch offer advice.

45 Interview with the urban planner Ghalib Awadh in 2007.

46 Lanchester 1923, p. 21.

47 Petterson gives an account of the school that was built with American aid in 1964-65, despite American aversion to the communist regime, then in power in Zanzibar. Petterson 2002, p. 218-219.

# Popular housing in Ouagadougou

◆ THE LOSS OF A ROYAL CITY

Ouagadougou is the dusty capital of a country without prospects. Burkina Faso in the Sahel, until October 1984 known as Upper Volta,[1] has hardly any natural resources of economic value. The country borders the Sahara desert, and its soil is accordingly infertile and dry. The world ends at the Sahara. It is more difficult to cross than an inland sea.[2]

The Sahel[3] is a sun-burned, monotonous, grassland savannah with an occasional tree. It extends endlessly into the distance; all tracks end here. There are no major roads or railways in this region, at such a great distance from the sea. Because Ouagadougou is a thousand kilometers away from the important seaports of Lomé, Accra, and Abidjan, the city is of no industrial or commercial importance. Moreover, the land is no longer of any strategic importance.[4] Nevertheless, the population of Burkina has grown explosively. People survive on a meager diet and the little water they can squeeze out of the ground. In rural areas there is no room anymore for the growing population, because agriculture has not seen any increase in productivity. The hopes of the entire population are all focused on the city.

The limited education enjoyed by the children is guided by the former mother country, which makes young Burkinabé aspire for a career in the modern world. In short: they want to be French; all children still are educated in the French language and culture. Mola Sylla, in his heartbreaking song *Jangelma*, utters the complaint why African children still need to be educated as if they were living in France. He asks why they have to study La Fontaine's fables, or Joan of Arc's and Napoleon's heroic deeds, or learn to sing the Marseillaise – while learning not a thing about African history. Mola Sylla argues that African children will never be truly African without

1 'Burkina Faso' means 'the land of the honest people' in Mooré.
2 'Cette mer intérieure qu'est le Sahara […]', Georges Ballandier, in Fassassi 1997, p. 5.
3 'Sahel' means 'coast' in Arabic.
4 Burkina Faso was 175 out of 177 on the United Nations, 2004 Poverty Scale. It has a population of 12.7 million inhabitants in 2004, with yearly population growth of 2.8 percent. The growth of the BNP averaged 5.5 percent in the period between 1995 and 2002, but the situation of the poor has hardly improved.


The Sahara.

5 'La chanson parle de l'éducation que les colons nous [les Africains Francophones] ont imposée. Parce que chez moi quand un enfant atteint l'âge the s'instruire, on l'emmène dans les écoles françaises. Pourquoi? Parce qu'on nous a toujours fait croire qu'il n'y a pas d'autre moyen d'être civilisé. Par exemple quand j'étais à l'école, on m'a appris l'histoire de la France et ses héros comme Jeanne d'Arc ou Napoléon. C'est là-bas que j'ai écouté la poésie de La Fontaine et l'hymne national de la France: La Marseillaise. Donc pour moi jusqu'à présent nous sommes des Français. Pourquoi? Parce que tant qu'on n'a pas la liberté de "penser Africain",' on n'est pas encore devenu Africain. Et pour moi "penser Africain" veut dire pouvoir apprendre à écrire, à lire et à penser dans notre propre langue, connaître notre histoire et notre culture. J'aimerais apprendre mon histoire, j'aimerais lire les textes des historiens comme Cheikh Anta Diop, j'aimerais voir les rêves que certains chefs d'État avaient, réussir à unifier l'Afrique.' In Molla Sylla (text) and Ernst Reijsiger (arrangement), *Jangelma (apprends-moi)*, music-cd, Munich (Winter & Winter) 2003.

6 Sawadogo and Dembele 2008, p. 14-19.

the freedom to 'think in an African way', without being taught to read, write, and think in their own language, without being educated about their own history and culture, without being introduced to the works of African thinkers, such as sheikh Anta Diop. He instead would like these children to share the dreams that some African leaders have cherished about the unification of the whole continent of Africa.[5]

Young Burkinabé have moved to the largest cities in great numbers, particularly to Ouagadougou and Bobo-Dioulasso, and if they get the chance they even move across the border to Ivory Coast or France to seek a better future. In French colonial policy, the French-speaking parts of Africa were considered as belonging to the French cultural and political system. African residents of this areas were raised as Frenchmen. This policy is still in place today, despite the fact that French borders are currently closed to African immigrants. This is obviously a situation that causes a lot of frustration. Despite the lack of prospects in the cities, caused by high unemployment rates, urban incomes are nevertheless double that of rural areas. In 1978, when Burkina Faso was the poorest country in the world, the per capita annual income in the urban areas was 108 US dollars, or 30 US dollar cents per day. Despite this extreme poverty, Ouagadougou was an extraordinarily happy and busy city when I lived and worked there in the 1980s.

According to Lassina Simporé, the first residents of Ouagadougou were the Dogon.[6] In the eleventh century, Ninisi king Zabra Soba Koumemba established his throne in Ouagadougou. His fame was so great that his residence became known under the name of Wogé Zabra Soba Koumbemb'tenga.[7] According to the records, this name was later shortened to Ouagadougou by merchants from the powerful Madinka kingdom of Mali.[8] Another account claims that the name Ouagadougou is actually derived from the Madinka version of the word *Woogdo* – Mossi language for 'people have brought honour to us' – which might refer to the subjugation of the Ninisi by the Mossi of the city of Tenkodogo. The Mossi, the most important population group of middle Burkina Faso, abandoned their original capital of Tenkodogo to invade Ouagadougou in the twelfth century, where they founded the powerful and warlike Mossi kingdom under their Mogho Naaba, the King of the World. Today, Ouagadougou is still the capital of the Mossi kingdom and the residence of the Mogho Naaba. Under the Mogho Naaba Ouaraga, who reigned from around 1666 to 1681, the Mossi kingdom reached its highpoint. Ouagadougou's layout at that time is still in place today, with its characteristic royal palace court and the central market, the Mogho Naaba (Na'Tenga), surrounded by the *na-yiri*, the courts of the most eminent functionaries and princes. Most of these *na-yiri*

still exist today and are passed down in the names of the various districts, such as Bilbago, Bilibambili, Dapoya, Kamsaoghin, Samandin, Kamboinsin, Larlé, and Gounghin.

According to nineteenth-century visitors, the city encompassed an area of twelve square kilometers and had at least 5,000 residents. It had never needed walls for protection, the military reputation of the Mossi sufficed. François Crozat, the explorer who visited the city in 1890, characterized it as a *ville campagnarde*, a rural city of loosely arranged buildings separated by kitchen gardens and farmland. The palace of the Mogho Naaba was constructed in the Sudanese style, with high walls and narrow entrance doors.[9] Apart from being the political centre, Ouagadougou was also a trading city of great importance, serving as a link between the cities on the Niger and those in the equatorial forest of the empires of Benin and the Ashanti. This meant that, apart from the Mossi, there were always Madinka and Hausa traders as well as Fulani nomads (Peulh) living in Ouagadougou.

Ouagadougou was always an open city to foreign traders, and accordingly the Mogho Naaba informed Crozat that the French were also welcome to trade there. However, when the French made it clear that they had other interests besides trade, the king revolted. The French subsequently destroyed Ouagadougou in 1897, and rebuild it as a garrison city.

In 1904, the French created the colony of Upper Senegal and Niger. Ouagadougou became *chef lieu* or capital of the colony's province of the same name. The city was erected with a Place d'Armes, a parade ground, simple government buildings and residences, tree-lined avenues, canalized rivers, and a reservoir. This was all financed by levying taxes.

During World War I, the French came to Burkina Faso to recruit soldiers, which caused the city to grow exponentially. The Senegalese army captain Abdel Kader Mademba managed to recruit at least ten thousand Mossi soldiers to fight in the French army. Captain Mademba would later build the famous Missiri mosque in Fréjus.[10]

At the end of the war, Ouagadougou was made the capital of the new colony of Upper Volta. After 1919, governor François Hesling built a new government residence in the area of Koulouba, and transformed Ouagadougou into an imposing colonial capital with monumental buildings, broad boulevards, a track reserved for the planned railway to Abidjan, and a ring road. Because the buildings were constructed of clay, Ouagadougou was given the nickname of Bancoville, from *banco*, the West African word for sun-baked mud bricks.

Hesling was responsible for the new layout of the city.[11] He reorganized the centre and forced the population living there to move to traditional settlements on the periphery. Initially, there were no districts planned for the local population, and consequently the structure of the new suburbs evolved in a traditional manner.

7 Skinner 1974, p. 15-18. *Wogé* is a honorary title and *tenga* means a settlement in Mooré, the language of the Mossi.
8 'Ouaga' is derived from *Wogé* and *dougou* that means a settlement in Madinka. *Ibid.*, pp. 17-19.
9 *Ibid.*, p. 20-22.
10 Antier-Renaud 2008, p. 38-39.
11 For an extensive description of the colonial administration of Hesling, see Bâ 1996.

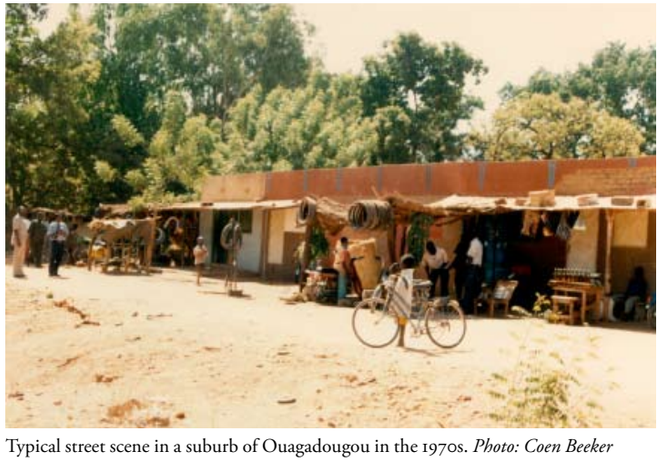
The Na-yiri of the Larlé Naaba in 2008. *Photo: Belinda van Buiten*


1888 city-map of Ouagadougou by Captain Binger. *After: S. Jaglin*

The Missiri Mosque in Fréjus (France) designed by Captain Mademba in the 1920s. *Photos: Belinda van Buiten*


Mission House of the White Fathers in Ouagadougou in the early 1900s.

Aerial photo of the centre of Ouagadougou in the 1960s. *After: E.P. Skinner*



Typical street scene in a suburb of Ouagadougou in the 1970s. *Photo: Coen Beeker*

| | |
|---|---|
| **1890** | 5,000 |
| **1908** | 8,000 |
| **1914** | 20,000 |
| **1931** | 11,000 |
| **1945** | 18,000 |
| **1953** | 32,000 |
| **1960** | 60,000 |
| **1978** | 250,000 |
| **1985** | 441,514 |
| **1990** | 600,000 |
| **1999** | 788,581 |
| **2003** | 907,459 |
| **2007** | 1,200,000 (estimation) |

Population growth of Ouagadougou from 1890 till 2007. Origin of the numbers: (1) Skinner 1974; (2) several reports by Coen Beeker *et al.* of the Planological and Demographical Institute of the University of Amsterdam; (3) Sawadogo and Dembele 2008.

Only later would a formal parcellation be carried out.

Hesling intended Upper Volta for the large-scale production of cotton, under the direction of the economic policy of Albert Sarraut, the French Minister of the Colonies. However, the economic development of the land was hindered by the economic crisis of 1929, when the price of cotton on the world market collapsed. Ouagadougou's population fell dramatically as a consequence of the Great Depression. The crisis was further aggravated when the colony of Upper Volta ceased to exist in 1932 and was reincorporated into the much larger colonial territory of French West Africa. The administrators moved to the new capital Abidjan and Ouagadougou was overshadowed by the city of Bobo-Dioulasso, which was closer to Abidjan.

At the beginning of World War II, Ouagadougou resumed its role as a garrison city, and in 1947 the city was once again made the capital of Upper Volta. The reason for this change, according to Elliot Skinner, was an attempt by the French to undermine the growing power of the *Rassemblement Démocratique Africain* – a political movement, headed by Félix Houphouet-Boigny, who later became president of independent Ivory Coast. Substantial funds were invested in the development of Upper Volta, and Bancoville was rapidly rebuilt into a modern city equipped with electricity, an airport, the long-promised railway line to Abidjan, schools, a hospital, a city park called the 'Bois de Boulogne', administrative buildings, hotels, and industrial complexes. Beyond the ring road that encircled the town centre, the traditional settlements were parcelled out and provided with a basic infrastructure.

Ouagadougou was an expanding and developing city when the French bequeathed it to the independent Upper Volta in 1961. The new power elite was full of good intentions and plans. The city authorities of Ouagadougou wanted to pave the streets and provide every inhabitant with water and electricity. They aimed to regulate the growth of the suburbs, and provide the city with a water drainage system, wrote Skinner in 1974.[12] Unfortunately, it was a goal they could not meet. They had hardly any means, and the city's population had grown rapidly, due to a birth explosion. The city was furthermore overwhelmed by an influx of people from the countryside, which was triggered by long periods of drought and famine in the Sahel. It was at this period that the population became structurally dependant on international aid and import.

The government did not succeed in realizing the promised infrastructure or in controlling and structuring the growth of the city. 'Structure' was defined by the possession (or not) of a *Permis Urbain d'Habiter* (PUH), the right to live in a certain place, according to a 1960 law. A PUH was granted if the inhabitant possessed a surveyed plot with a house that had a toilet and was covered with at least twelve *tôles* (corrugated iron

12 Skinner 1974, p. 45.

Aerial photo of Ouagadougou from the north at the end of the 1970s. *Photo: Coen Beeker*

sheets measuring 1.2 by 2.4 meters). In 1960, almost every inhabitant of the city had a PUH, living in *zônes loties*, the parcelled-out areas. But a quarter of a century later more than half the population lived without a PUH in *zônes spontanées*, areas that had not been parcelled. These spontaneously developed settlements however, did not look like slums. They were areas of low population density (one to two hundred residents per hectare). They may have seemed disorderly to western eyes, but they were neatly constructed and reasonably clean. Ouagadougou was still largely the rural city described by Crozet at the end of the nineteenth century.

### ◆ THE REDEVELOPMENT OF THE RURAL CITY OF OUAGADOUGOU

The unstructured growth of the city worried both the government and the international community. And it were the World Bank and the Dutch government who in the middle of the 1970s supported the redevelopment of the spontaneously expanding areas. The aim was to divide the areas into plots and to provide them with basic infrastructure consisting of unpaved roads, surface-water drainage, and strategically placed wells. There was no money available for sewage and electricity, nor was any attempt made to provide social housing – which were all considered to be beyond the means of the local population.

I was sent to Burkino Faso to work within the framework of the Dutch 'redevelopment project for city districts in Ouagadougou'. This project, which lasted from 1978 to 1989, was coordinated by city planner Coen Beeker of the Department of Planning of VU University Amsterdam, and later the Institute for Planning and Demography of the University of Amsterdam (UvA). Research into the possible parcelling methodologies began in 1978 as a joint project of VU University and the *Ministère des Travaux Publics, des Transports et de l'Urbanisme*, and was led by Coen Beeker and R. Scheffer.[13] The aim of this research was to come up with 'some ideas concerning the future development of the capital'.[14] From the at random field research in parcelled-out and spontaneously developed areas of the city, it soon became apparent that the city did not have an overall master plan or structural development scheme, and that extension of parcelled-out areas was brought about by a system of random planning at district level, consistent with 1:2,000 development schemes.

Both the spontaneously developed and the formal plots measured an average surface of 500 square meters, which explained the low population density of the city. Beeker and Scheffer completed an assessment, which took into account the advantages and disadvantages of this low density. Arguments in favour of a higher density included economic access to infrastructure (water, roads, electricity) and public facilities (schools, markets, and so on) as well as a shorter distance to travel to and from work. Arguments against increasing the population density included

13 Beeker and Scheffer 1978.
14 *Ibid.*, foreword.


Aerial photo of the western part of Ouagadougou in 1978.

1 planned Larlé
2 Larlé Extension
3 Wagadogo-Nossin
4 cour of Larlé-Naaba
5 Dgut Office
6 Wagadogo surveyed [see p. 115]
7 monitoring area 1984
8 railway

the need to retain traditional patterns of life within an extended family and its links to other families, as well as the possibility of creating employment in the existing plots, such as in shops, guest houses, workshops, or vegetable gardens. The planners eventually concluded that the ideal plot size would be 300 square meters.

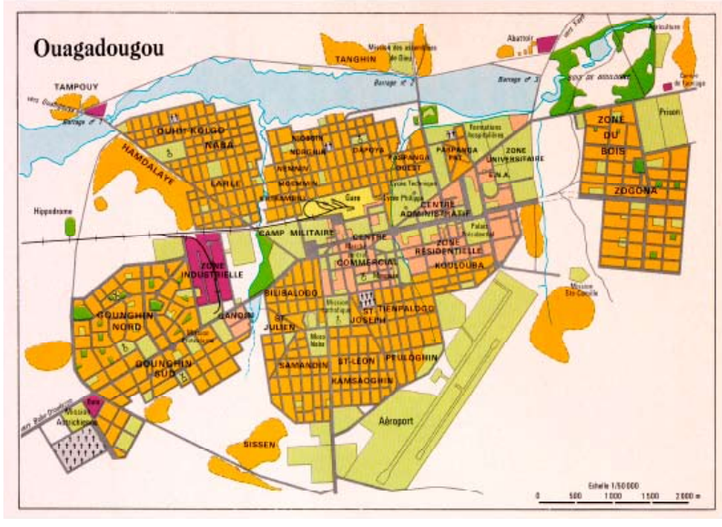
One interesting discovery made by the researchers was that the occupants of formal districts did not have significantly more money to spend than those living in the spontaneous areas, nor did they spend more money on their homes. Most of the buildings in Ouagadougou at this point in time were constructed using *banco*, and sometimes plastered over with cement.

The *droit coutumier*, or, the traditional rights, was considered to be the insurance that guaranteed people the right to remain living where they were. People saw the plot as something they owned, even if they did not have a PUH.

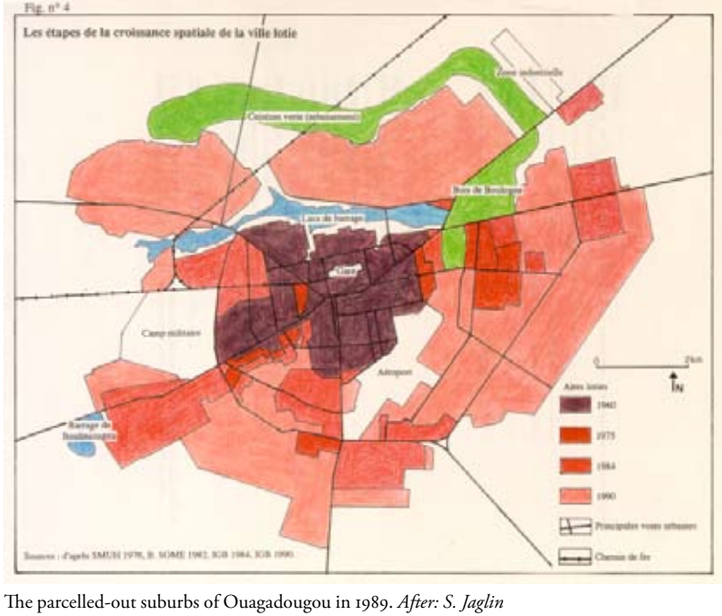
In accordance with recommendations that resulted from the research, the Dutch 'redevelopment project for city districts in Ouagadougou' was established with an initial gift of five million guilders to the Upper Voltan government, which was reorganize the spontaneous districts throughout the city. The money was to be used to create a master plan for Ouagadougou, the *Schéma Directeur de l'Aménagement Urbain* (SDAU), and to provide an urban development plan, *Plan d'Aménagement Urbain*, for the three expansion zones Wagadogo-Nossin, Tampouy, and Gounghin-Sud. These urban plans were to serve as a basis for the provision of a *Plan de Lotissement*, a zoning plan for the spontaneous residential areas of Ouagadougou. The project took ten years and was concluded on December 31, 1989.

Halfway into the project, a second project was initiated concerning the layout and development of the peripheral areas of Ouagadougou, which formed the basis of the success of the city's rehabilitation project. The Dutch money was placed into a *Fonds de Roulement* – later called the *Fonds d'Aménagement Urbain* (FAU) – a fund, which was intended to provide structural sanitation and development for the city by levying taxes. However, that was not a realistic option, so instead the fund was to generate income by selling plots, which was intended to cover the actual costs of running the scheme. This would ensure the survival of the fund. The prize of the plots was calculated on the basis of what the residents could afford and what it cost to maintain the operation of the fund. In 1989, when the Dutch project was closed down, there was almost half a billion CFA Francs in the fund and, thanks to the project, the 30,000 homeowners were now legally in possession of their own plots as well as a PUH. The amount more or less matched the original gift of five million guilders.

The project was also intended to assist in the professionalization of the *Direction Générale de l'Urbanisme et de la Topographie* (DGUT), the urban planning office that was to provide the 500,000 inhabitants of Ouaga-




City map of Ouagadougou in the late 1970s. *After: G. Kibtonré*




The parcelled-out suburbs of Ouagadougou in 1989. *After: S. Jaglin*

Aerial photo of Wagadogo in 1993. [See also p. 98]


Parcelling-out plan for Wagadogo by René van Veen (1983).

1985 design by Nossin for the Parc des Sports on the former race course.

dougou with a PUH by 1995, in a restructured city with a density of fifty households per hectare. This sounds like an appeal for the 'compact city,' a model considered in the Netherlands of the 1980s as a way of combating and controlling the feared urban sprawl, but it was difficult to get the project off the ground due to political unrest, as one coup d'état followed the next. Coups took place in 1980, 1982, 1983, 1987, and 1989, and most were accompanied by disturbances and bloodshed. The project was also hindered by the fact that the DGUT lacked the capacity to perform its task independently. Beeker nonetheless succeeded in assembling a good team, despite the constant political turmoil and changes in DGUT management. The project's subsequent directors and coordinators – Gilbert Kibtonré, Joseph Guiébo, Paré Omar, and Martin Ouédraogo – later played key roles in the Burkinabé government and Guiébo even for UN-Habitat in Nairobi.

The design and planning also suffered a rough start. The DGUT could not draw up the needed structure, zoning, and urban plans. Moreover, local bureaus could not implement the work either, making it necessary to enlist the assistance of Dutch organizations. The engineering office of Royal Haskoning from Nijmegen was commissioned to design a master plan for Ouagadougou, and development plans for the areas of Wagadogo and Nossin were drawn up by the Amsterdam-based urban designer René van Veen. The drafts were completed in 1984.[15]

Joseph Guiébo and Gilbert Kibtonré of DGUT were crucial players in getting the project off the ground. The project was given a strong boost when, in 1984, they succeeded in persuading the new president of Burkina, Captain Thomas Sankara, who had seized power with the revolution of 1983, to continue with the planned modernization of Ouagadougou as proposed by the Dutch. Sankara established the goal that every household in Ouagadougou would be provided with a PUH and, thus, have a decent roof over their heads.[16] Sankara's revolution was intended to rid Ouagadougou of the spontaneous residential areas.[17] The strong, social aspect of the Dutch methodology seemed to correspond better with the revolutionary ideals preached by Sankara and his supporters, than the development projects coordinated by the World Bank at the same time. The great difference between the approaches of Beeker in Wagadogo-Nossin and those of the World Bank in the Cissin district lay in the degree in which the residents were involved in the project.

The World Bank developed a modern zoning plan based on the imposition of a rational infrastructure, without taking into account the existing, spontaneously evolved urban fabric. Roads and sewage were installed without taking into consideration the existing buildings, which, if necessary, were bulldozed away. Plots were marked out with stones and assigned to the residents on a top to bottom basis. Consequently, precedence was given to residents who had lost their homes because a street needed to be built. The households paid

15 In Nossin lay the enormous hippodrome of the colonial period. In 1984 a decision was made to retain it. Later it was to be transformed into a city park for which I made a sketch in 1985.
16 'Une famille, une toit.' Interview with Gilbert Kibtonré, 10 July 2007.
17 'Ne plus voir les quartiers spontanées.' *Ibid.*

a sum for their new plots, which was equivalent to the amount advanced by the World Bank's loan. This amount was so high that riots broke out in Cissin, which the army had to suppress. The riots took place in 1982 and slowed down all the city renewal projects in Ouagadougou. This also led to delays in the development of the Dutch project.

The World Bank method was certainly quick to develop and simple to implement, but it led to a loss of capital and even political unrest among the population. There was another risk associated with this procedure: speculation. The residents who lost their homes moved in with family members elsewhere and sold their new plots. This was the case particularly in the areas of Ipelcé and Baoghin, which were completely demolished by the *Conseil National de la Révolution* in a 48-hour operation (one day to drive out the residents, one day to demolish their homes). Once this had been done, it became clear that most of the plots had been sold. Despite this problem, bulldozers remain a popular method.

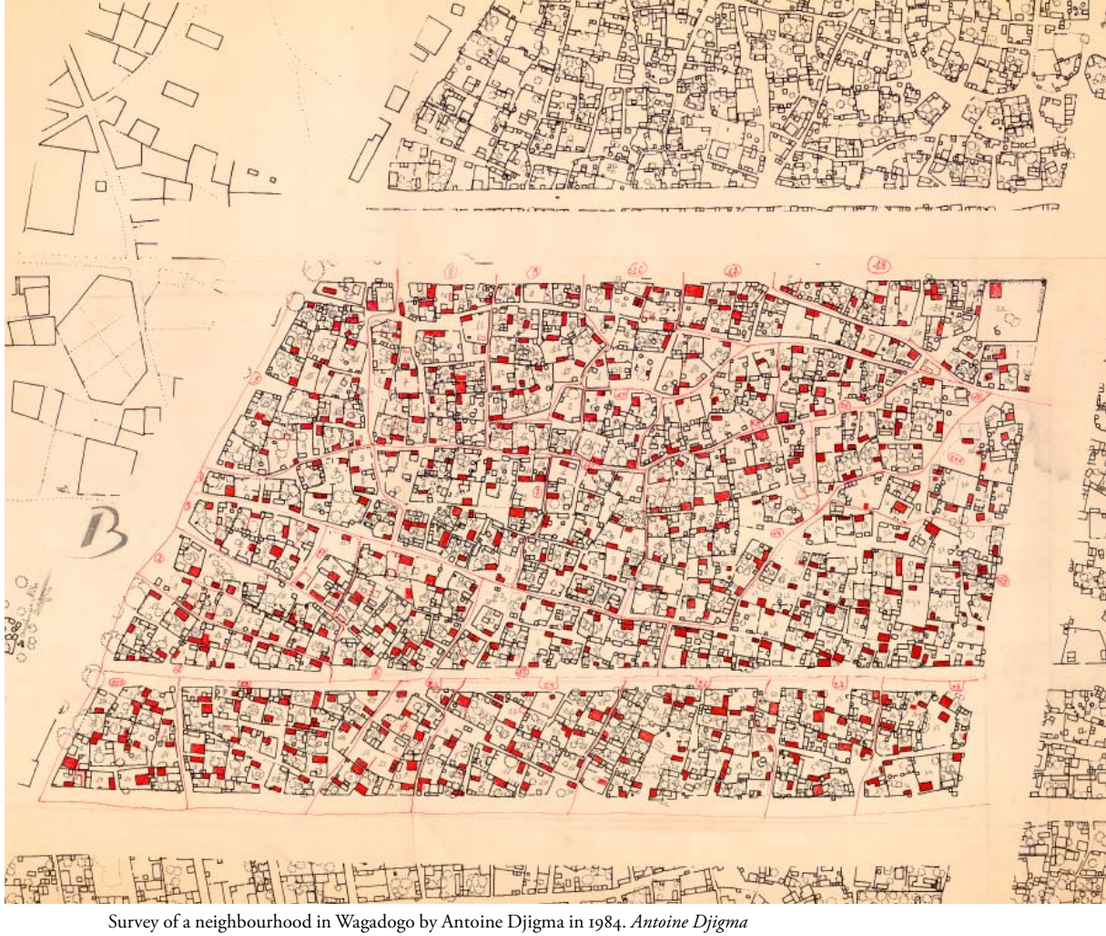
### ◆ THE EXPERIMENTAL PROJECT OF LARLÉ-EXTENSION

The Dutch project recognized the lesson to be learned from the World Bank experience in Cissin. The design for the areas that were reorganized with Dutch aid money, was based on the existing situation. This situation was carefully examined by means of field recordings and interviews, as well as by projecting the planned urban fabric onto aerial photos, which allowed the designer to work on the design like a jigsaw puzzle, and ensured as much overlap as possible between the existing layout and the rationalized new plan.

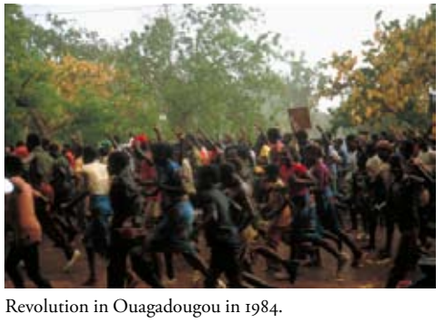
The project first focused on the allotments, which were carefully implemented with the involvement of the residents. This procedure proved to be a real challenge for the project, and required complex guidelines and long discussions with the residents. They reminded me of the opportunities for public comment I was involved in as a student in Amsterdam in the late 1970s. During the discussions the boundary markers were placed. The residents were then given a year to remove their house from outside the boundaries and rebuild them within the new borders. After this phase had been completed, the basic infrastructure was installed.

A small area was selected as experimental terrain, in order to test the Dutch method. It concerned the redevelopment of the most eastern area of Wagadogo, Larlé-Extension, that took place from the end of 1983. My job was to guide the residents and to monitor the experiment. Thus, I was the first foreigner in the field to work on the DGUT project for a sustained period of time. With the experiences of the World Bank projects in mind, René van Veen worked out a number of parcel variations for Larlé-Extension and presented them to the population.

The variations presented to the residents were as follows: (1) The urban



Survey of a neighbourhood in Wagadogo by Antoine Djigma in 1984. *Antoine Djigma*

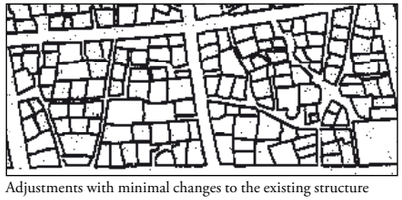


Revolution in Ouagadougou in 1984.

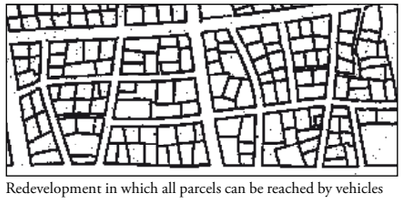
Maison du Peuple in Ouagadougou, with Ferris wheel, in 2008. *Photo: Belinda van Buiten*


Plan of Larlé-Extension in 1984.

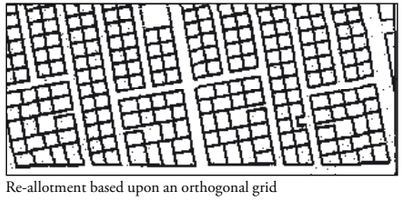
1 detail of the research area [see p. 120-121]
2 DGUT field office
3 Larlé Naaba *cour*
4 Parcelled-out Larlé



Adjustments with minimal changes to the existing structure



Redevelopment in which all parcels can be reached by vehicles



Re-allotment based upon an orthogonal grid

Plotting-out variants for Larlé-Extension by Coen Beeker and René van Veen in 1983-84.

fabric would remain in principal untouched, the main streets broadened and additional space allocated for public use. The oft-irregular fabric and the difference in surfaces of the parcels would be retained. In this way, 85 percent of the building stock would be saved. (2) All parcels would be given access to roads that could be used by motor vehicles. The new roads would involve cutting into the existing fabric, but would leave the irregular forms and surfaces of the remaining parcels unchanged. Forty percent of the buildings would need to be replaced if this option was chosen. (3) A completely new chess-board grid would be superimposed on the whole area that would create uniform plots, all with access to the road system. Seventy percent of the buildings would need to be replaced if this option were chosen. The residents of Larlé-Extension overwhelmingly selected the third model, which Beeker attributed to the fact that this new plot system guaranteed a more equable division of land, and that the model corresponds with the layout of formal Ouagadougou, and, hence, corresponded with the inhabitants' ideas of modernity.[18] It soon became clear that the plan would have to be adapted because some plots were situated in areas that had a ceremonial function in the inauguration of the Mogho Naaba and the Wagadogo Naaba. It was also discovered that three tombs and a group of holy trees were on the site.

In establishing the rights of the residents of the spontaneous areas, Wagadogo and Nossin, the *Naabas* and their surrounding nobles, the *chefs coutumiers*, played a decisive role, because they still held the power to distribute land at that time. There was no concept of private property in traditional Mossi law; all land belonged to the community and thus could not be bought or sold. The chef coutumier was the community representative, and the one that decided who could use the land and when it could be used – but he was clearly not the owner and only received a ceremonial gift, a mango for instance, for his negotiation and approval. This custom was beginning to change in the 1980s when certain chefs coutumiers began to accept money for their negotiation. The power and growing wealth of the chefs coutumiers were challenged by the government, and legalizing the spontaneous areas by means of government action was an important way of breaking the power of the chefs coutumiers. In the case of Larlé-Extension, I had to deal with the chef coutumier named Kafando. I had no reason at all to suspect the amiable Kafando of accumulating undeserved wealth or power, or to accuse him of corruption or dishonesty. He was always willing to help settle disputes and assist me with the building of the project bureau, which will be described later.

In order to ensure that the allocation procedure did not result in an endless palaver involving all three hundred households of Larlé-Extension, it was decided to implement the experimental project with small groups of residents, led by the DGUT and the *Comité de la Défense de la Révolution* (CDR). The CDRs were established by president Sankara so as to bring the revolution closer to the people and to ensure their cooperation with his

18 Beeker 1990B, p. 5.

ambitious projects. They were often comprised of small local groups of unemployed boys who supported the revolution. The CDRs gained power when I was living there. 'We will overcome! My fatherland or death!' was the slogan[19] of the revolution and the CDRs. Every official letter I wrote or received during my stay in Ouagadougou closed with this slogan. The voluntary aid of the CDR was welcomed in the project. United work on the railway and other public projects was carried out on Saturdays and in Larlé-Extension the CDR joined in and helped with infrastructural work and with procedures. But not all members of the CDR had pure motives and the CDR, thanks to their being armed and protected by Sankara, came to be an extra power, in addition to the bureaucracy and the chefs coutumiers.

The chaotic situation during the revolution was evident in the imposed curfew, but also in the liquidation of opponents which took place when I was there. The charismatic president Sankara was pushed aside in 1987 by his fellow revolutionary, Blaise Compaoré, because according to insiders he had operated too independently inside the French sphere of influence. After his last two opponents, Lingani and Zongo, were executed in 1989, Compaoré became head of state.

From the study I carried out in Larlé-Extension, it appeared that the residents were satisfied with the results and collaborated with the restructuring project.[20] The streets were almost all cleared of private structures within six months after the plots had being allocated. The residents had dismantled their corrugated iron roofed dwellings and taken the lumps of *banco* with them to their new plots. The banco was mixed with water and straw and made into new blocks, the nail holes in the corrugated iron sheets were soldered, and the sheets were fitted to the reused frames. Thus, everything was recycled with little need to acquire new materials. The work was done by the residents, their family, or a hired master bricklayer. Ouagadougou was still Bancoville. In 1985, the rehousing was complete and the infrastructure was in place.

At the end of 1984, Sankara decreed that all further restructuring of the spontaneous city areas of Ouagadougou should be based on the successful experiences in Larlé-Extension. The method was then applied to 30,000 plots that were legalized and parceled out by the Dutch project until 1989, and to an additional 30,000 plots legalized by the Burkinabé government during the same period. The operation headed by the World Bank in Cissin accounted for a further 5,000 plots. By 1990, this resulted in a total of more than 65,000 plots for half a million residents, who now had a legalized and formalized home in the city, equipped with safe drinking water from deep wells not very far away, as well as some public services, parks, and adequate space for the construction of future roads. Given this security, residents took the initiative for the large-scale planting of fruit trees and installation of septic tanks.[21]

The main objective of the project – the provision of secure

19 'La patrie ou la mort! Nous vaincrons.'
20 Folkers 1984.
21 Beeker 1990a, p. 6.

*Chef coutumier* of Goudry Kafando. *Photo: Belinda van Buiten*


Analysis of Larlé-Extension in 1984.

accommodation for the residents of the spontaneous areas, which always their greatest desire – had been successfully achieved. It appeared that the process had moved forward rather harmoniously and succeeded with a minimum of direction, advice, or negotiation. The involvement of the residents was a crucial factor here. The Larlé-Extension experimental project had its roots in the intrinsic rationale and structure of the city, and was devised and implemented by the residents themselves, rather than according to an abstract model imposed top-down. Notwithstanding all good intentions, the careful superimposition of the chessboard structure onto the existing Larlé-Extension fabric did not result in preserving all buildings that could have actually been maintained. During the time of my research, only sixty percent of the forty percent of all structures that could be preserved, actually was saved in the end – which means that three quarters of the old buildings were demolished within a year. The most important reason for the wholesale demolition was the gradual, but inevitable, transition from the traditional cour to the modern villa type, a development brought about by the change in family lifestyle. The communal living space of the extended family slowly but surely made way for the home of the nuclear family. This development – the modernizing of daily life – was hastened by the acquisition of a modern status in the form of a PUH.

At the time when the people from the country moved into the informal areas of Ouagadougou, their family lifestyle still depended upon tradition. The chef coutumier determined their legal status, not the modern bureaucracy. The spontaneously expanding city had its origins in the savannah and the organically organized rural city of Crozat. Wagadogo, the area Larlé-Extension belonged to, was, in 1984, still largely a rural area, organized according to the land use tradition of the Mossi. Many residents of Wagadogo were still farmers and small-scale cattle owners in the 1980s and worked in market gardens and fields in the surrounding areas.

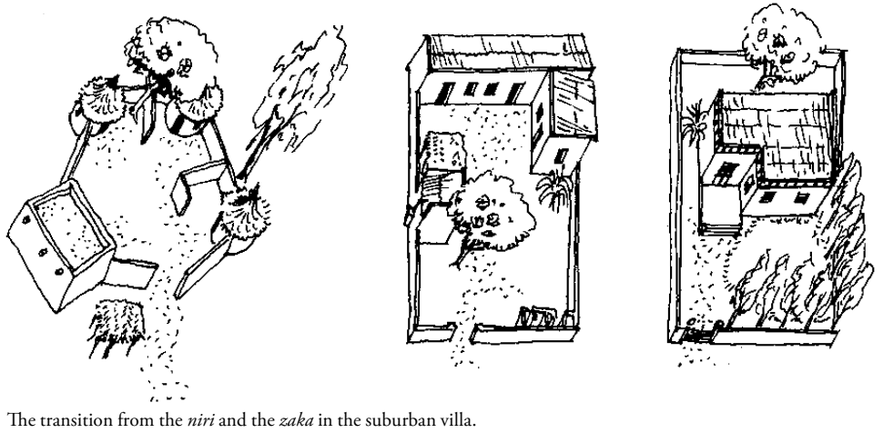
The manner in which residents of the spontaneous area of Wagadogo arranged their living space, called the *niri*, had to be adapted to the spatial limitations of their new homes and the lack of traditional materials. The organic layout and shape of their homes had already been replaced by a more orthogonal form, and the *zaka*, the inner courtyard, was reduced in size and enclosed. Due to this process, the traditional outdoor courtyards of the various *niris*, the *samandes*, were drawn together and formed a public space with unwritten rules. The *samandes* were laid out in linear form along the streets of the grid, and the boundaries of the *zakas* were now defined by straight walls. Bachelors could now no longer live all over the greater, organically organized *niri*, but had to be accommodated within the *zaka*. In some cases, plots were developed that were exclusively occupied by bachelors, living in small rooms strung along the perimeter of the *zaka*, which came to be called *celibatoriums*.

New building regulations, which were imposed in the 1990s, intro-

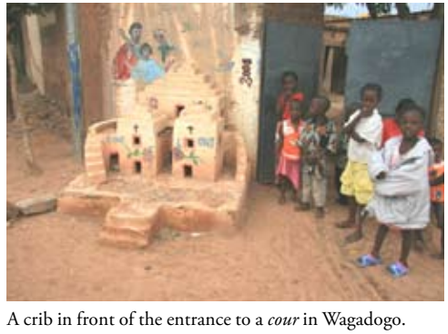



*Na-yiri* the *cour* of the extended family
*Zaka* the inner court
*Samande* the outer court
*Zande* canopy
*Tampure* rubbish heap
*Tenkugri* two large tombstones which symbolize the duality of life
*Bundu Yabramboa* the meeting of the ancestors – tombs
*Greniers* storage silos (for grain, maize, cassava, etc.)
*Celibataires* young bachelors
*Kamanga* fields and kitchen gardens near the *na-yiri*
*Puese sig* fields held in common and allocated by the *chef coutumier*

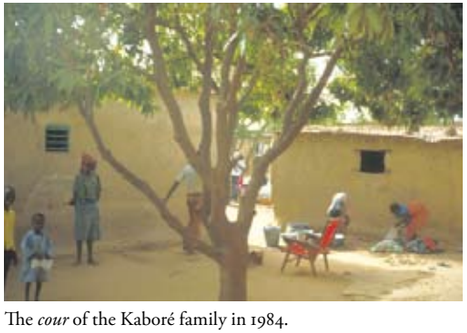
Traditional land division of the Mossi.



The transition from the *niri* and the *zaka* in the suburban villa.



A crib in front of the entrance to a *cour* in Wagadogo.
*Photo: Belinda van Buiten*



The *cour* of the Kaboré family in 1984.

duced a new phase to the modernizing of the city. The rules prescribed that buildings lots became separated areas within the plot boundaries. Buildings should maintain a minimum of 1.5-meters of clearance space from the boundaries, in order to avoid fire risks and obstruction of light and fresh air. This further curbed any possibilities for a spacious inner courtyard, and eventually caused the ground plan of the *zaka* to be turned inside out. Simultaneously the rules regarding streets and public space were also made more restrictive, and it became more difficult to use the public areas for the *samandes*. These combined regulations resulted in a suburban freestanding villa type that, remarkably enough, adapted well to the changed lifestyle of the Burkinabé citizen. The inverted *zaka*, the negative of the cour, became popular.[22] In the arrangement of the plot, a taken-for-granted distinction was created between the more public forecourt (*samande*) and the private court at the back (*zaka*). The samande at the front is the reception area, often a veranda in place of the traditional, freestanding covered reception area, the *zande* or *hangar*. The zaka with the kitchen and services is placed at the back. According to Y. Pasteur, the villa type also enhanced the development of a modern, nuclear family pattern – there was simply not enough space around the cour for extra rooms to accommodate the extended family.[23]

### ◆ THE 1984 MASTER PLAN FOR OUAGADOUGOU

The redevelopment projects of the World Bank and the Dutch for the spontaneously developed areas were necessary to relieve the need for living accommodation and helped fulfil the ambitions of the revolution, but at the same time a lack of vision for the city as a whole or for its development in the long term was regretted. There was no tradition of master plans for Ouagadougou, as had been available for Zanzibar since the colonial period, because the city had been growing so rapidly since independence.

As early as 1978, Beeker reported that redevelopment had to be implemented according to an integral vision and a long-term master plan, for which he provided an initial sketch. But it was not until 1983 that the DGUT issued a memo in which a proposal was brought forward to draw up a master plan that should curb the spontaneous growth of the city and define its borders.[24] This proposal was incorporated in the *Schéma Directeur de l'Aménagement Urbain* (SDAU), a master plan for Ouagadougou drawn up by the Dutch engineering firm Royal Haskoning. In 1984, the SDAU was completed and was presented to the minister, but it was not until 1986 that the plan was accepted by the government; the delay was due to problems concerning relocation plans for the airport, which, due to the expansion of the city, would become situated right in the middle of the city – where it still is located today.

The SDAU departed from the idea of a city with a population of 600,000 residents by 1995-2000. The master plan was initially based on a number of geological factors. It was argued that the extension had to take place eastwards, and not westwards, because that's where the water-collection area was. Borders to the north and south were defined by the watershed of two chains of hills. The soil conditions of Ouagadougou – actually quite similar throughout the country – are characterized by an ancient, impermeable subsoil – Precambrian granite – and an infertile, leached-out, porous upper layer of laterite. The precious groundwater is found between the laterite and the granite, at a depth of ten to fifteen meters. Because of the porosity of the surface layer, the danger of groundwater pollution is substantial, and hence it was considered sensible not to plan the city expansion in a water-collection area.

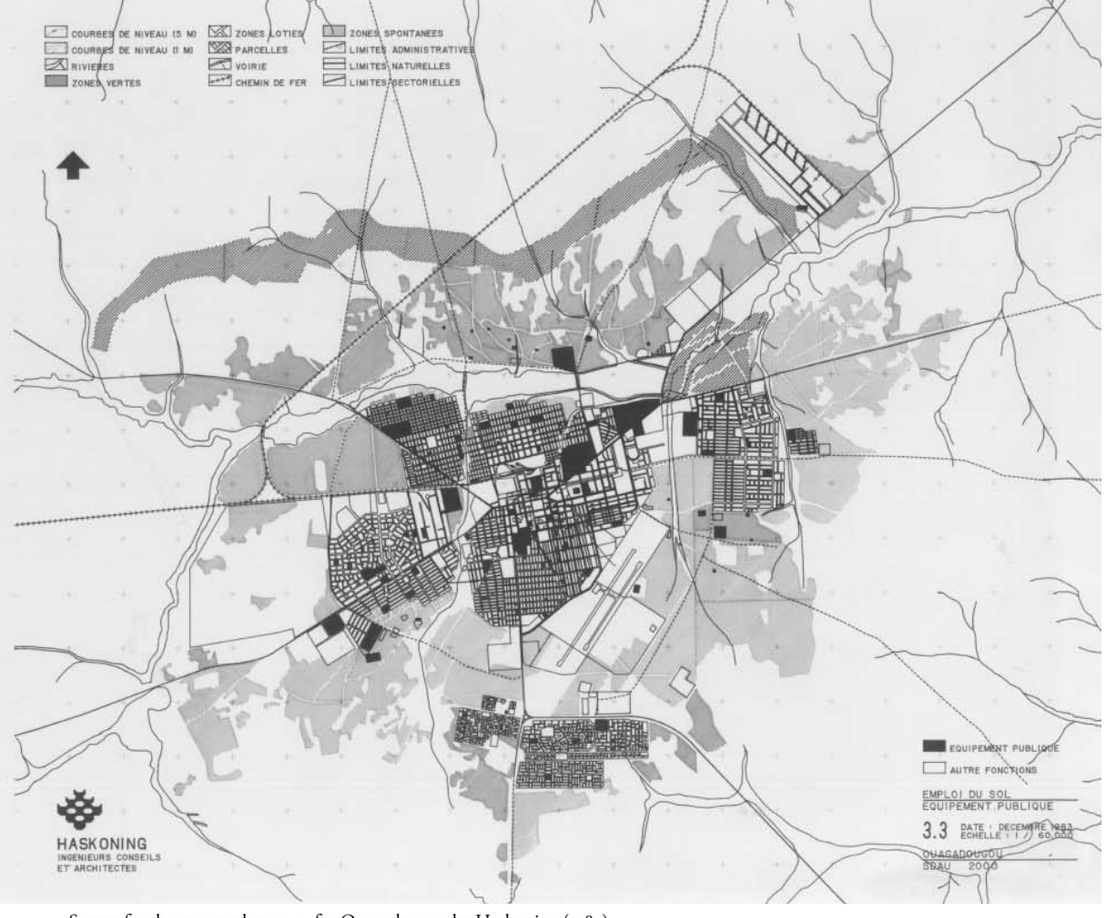
Apart from these geological considerations, the master plan was also constrained by a number of elements that go beyond the city's interests: the airport, the reservoir, the radial road structure, and the railway and its city terminus. These structuring elements enabled Haskoning to divide the city into three development areas, each with around 200,000 residents: the western part around the existing centre, the part east of the airport, and the part to the north of the reservoir. Haskoning proposed that these three areas should be autonomous and that each should be provided with two or three centres. According to Haskoning, in a polycentric city development would be simpler to control, phased growth would be possible, future adaptation and additions to the plan would be easier, no radical changes in the existing structure would be necessary, and, for the time being, the airport could remain where it was.

The SDAU is a product of its time. It is a structuralist plan that, according to Jak Vauthrin, is based on the concept of New Towns in England.[25] The influence of the Dutch SAR is also unmistakable and the SDAU resembles, as we have seen, the master plan for Dodoma of 1976. Just as the plan by the Canadian Project Planning Associates Limited (PPAL), the SDAU was intended for an egalitarian society and a government that was averse to monumentality.

The present city map shows that not much came of the proposed polycentric structure. Gilbert Kibtonré, by then secretary-general of the ministry,[26] confirmed this observation. But Kibtonré is nevertheless positive about the SDAU. The mere fact that the road network is laid out and extended according to the routes indicated in the SDAU, justifies the costs and work that went into the master plan. Moreover, the SDAU was the first of a string of master plans[27] and urban development plans[28] for Ouagadougou that would play an important role in the development of the capital. Kibtonré emphasized the importance of a binding structure plan for a city such as Ouagadougou that, in 2007, covered a surface area larger than that of Paris within the Périphérique.

In 1991, according to the new constitution, Ouagadougou was

22 Pasteur 1997, p. 10.
23 'Désir d'une petite maison pour ne pas avoir à héberger toute la famille. La maison devient ainsi le "reflet de la passion de la parenté et la capacité d'y résister".' *Ibid.*, p. 10.
24 *Le Problème de l'Habitat and Haute Volta. Note rélative à l'Aménangement des Quartiers Spontanés de la Ville de Ouagadougou.* Ouagadougou (DGUT) 1983.
25 Interview with Jak Vauthrin, Geneva, 1984.
26 Ministère de l'Habitat et l'Urbanisme.
27 Under more, see the *Stratégie d'Aménagement du grand Ouaga* and the *Plan Villages Centres de la Banlieue de Ouagadougou*.
28 The *Projets de Développement Urbain*, with as example the plan *Ouaga 2000* and the *Projet* ZACA.




Survey for the master plan SDAU for Ouagadougou by Haskoning (1984).


Sketch proposal for the master plan of Ouagadougou by Haskoning.

1 historic centre with two cores
2 satellite cores


Proposed schematic diagram for the development of Ouagadougou by Haskoning (1984).
*Source: Haskoning Archive*

divided into five districts, each with its own mayor. This decentralization had certain advantages, but it limited the development of the city as a whole, and gave rise to financial speculation. Kibtonré argues that the mayors began to make plans according to their own needs without consulting the mayors of the other districts and without taking the SDAU into consideration. This meant that many of the sites that in the SDAU were allocated for public buildings and green areas, were sold to private parties and used as building areas. Moreover, because of the decentralization the registration of the PUHS is no longer directed centrally, which again increased the possibility of speculation and abuse.[29]

In 1985, a year before the SDAU was established, interventions were made in the city that conflicted with the fundamental aims of the plan. The central market was rebuilt and extended and the old district of Bilibambili was cleaned up. Even before the plan was drawn up, team members from the University of Amsterdam questioned the practical feasibility of the SDAU, and to what extent it could in fact define the structure of the city, as a means of reference for future spatial developments.[30] According to Johan Post, a colleague of Coen Beeker, it was clear from the beginning that it would be impossible to raise the billion guilders that were needed to implement the infrastructural works, such as the road system, drainage, sewage system, water purification works, drinking-water supplies, and electrification, in the plan period between 1985 and 1995. How could this work be financed? Furthermore, the master plan according to Post was based primarily on ideas that were fashionable in Europe, but not well suited to African conditions. How did the plan's designers come up with the idea that there should be one market for every 7,000 residents? That would mean that by 2007 there would have to be at least 150 markets in Ouagadougou. Moreover, these market spaces were reserved according to the density of Dutch suburbs with corner supermarkets, while people in Ouagadougou often worked at home and shopped from home, meaning that shopping was linked with all other household activities.[31] Post questioned how such an unrealistic plan could have been accepted by the Burkinabé central government and the city council of Ouagadougou. His answer: 'the city in a positive sense needs to distinguish itself from the rural hinterland in terms of order, […] quality of the built environment, level of infrastructural provision, and extent of social services. Spatial planning serves the deeply rooted idea of urban superiority. It should not be forgotten that Ouagadougou is the capital and in the eyes of the power elite it has to be a symbol of national pride. This explains the enthusiasm for the master plan, which not only allowed the government to control spatial development, but also did justice to the idea of the modern city of Ouagadougou'.[32]

But Ouagadougou is still largely a rural city and in terms of income and services still dependent on the hinterland. Only two percent of

29 Interview with Gilbert Kibtonré, 10 July 2008.
30 Johan Post, in Beeker 1987, p. 33.
31 *Ibid.*, pp. 37-39.
32 *Ibid.*, p. 40.

the working population in 1980 was employed by industry, twenty percent worked for the government, and ten percent for a private company. At least twenty-five percent still worked in agriculture, twenty-five percent in the informal trade, service industries and crafts, and the rest was unemployed.[33] Post instead pleaded for an 'agropolitary' planning scheme in place of the introverted master plan, meaning, a plan for the metropolitan district based on intensification of agriculture in the rural areas surrounding the city. This contemporary urban-rural approach would in fact be adopted by the later plan for the surroundings of Ouagadougou, the *Schéma d'Aménagement de la Banlieue de Ouagadougou* (SABO), later also referred to as the *Plan Villages Centres de la Banlieu de Ouagadougou* (PVCBO).

### ◆ THE BILIBAMBILI AFFAIR

In 1985, the council of ministers was temporarily dissolved and comrades Sankara, Compaoré, Lingani, and Zongo (the *Conseil des Coordinateurs*) seized power. One of the first actions they took was to temporarily relocate the central market and to clear out the Bilibambili district. Everything in Bilibambili was to be torn down, apart from eighteen villas and a number of mature trees. The official explanation for this action was the unhygienic state of the area and prostitution, but rumors circulated that the location of an uncontrollable suburb adjacent to an army camp posed risks; those in power were afraid of attacks, which in fact took place occasionally. In the Bilibambili area *Cité An III* would be built, in honour of the third anniversary of the revolution; it was to be a neighbourhood with 240 apartments in the social sector (HLMS, *Habitats à Loyer Modéré*) and 175 villas. Mockingly, the neighbourhood was called *Habitat à Loyer Excessif* (HLE), because only the Burkinabé elite could afford to live there. In the *Cités* of Sankara people paid 25,000 CFA a month, which was more or less the same amount the residents had to pay only once to purchase a plot in Wagadogo and Nossin, the areas developed with Dutch aid.

The development of Bilibambili was diametrically opposed to the Dutch program, which focused on the restucturalization of the spontaneous areas and the legalizing and improvement of housing for the poor. The Bilibambili operation put extra pressure on this program, because a considerable group of people was added to the lists of those waiting for a legalized plot in the expansion zone. Bilibambili was one of the oldest popular neighbourhoods of Ouagadougou and had been in existence since 1934. Jak Vauthrin described pre-1985 Bilibambili as an example of a new and successful urban, social, African society. In fifty years Bilibambili had become an amalgam of Burkinabé and outsiders, a society, which was not primarily defined by traditional rural family bonds, but rather a society that had developed more or less by chance, and had created its own neighbourly dynamic. Moreover, the district had a large number of buildings of

Aerial photo of Bilibambili (1978).

Aerial photo of Bilibambili (2008).



33 *Ibid.*, p. 40.

permanent nature; not built of *banco* but built *en dur*, of cement blocks and reinforced-concrete roofs.[34] Finally, the district of Bilibambili was characterized by an economic activity which was made possible by the existence of large plots of more than 600 square meters. In total the district before the demolitions of 1985 had 389 plots and a population of approximately 6,000 people. There is an obvious comparison with the motives listed by Garth Andrew Myers for cleaning up Ng'ambo in Zanzibar. In Bilibambili a close-knit proletarian society existed, with its own culture and dynamic, which, just as in Ng'ambo, could be considered a threat to the position of the power elite – which may have been the true reason for the intervention.

Coen Beeker had problems with what he called 'the Bilibambili affair': 'The typical and heterogeneous (in terms of income rates) character of the households in the old and spontaneous neighborhoods was broken up by Sankara and his comrades. It is peculiar that this operation was carried out by a military regime that on the one hand claims to be inspired by the ideas of Marx and Lenin, and on the other hand in Ouagadougou seeks to establish an exclusively middle-class neighbourhood. In reality, *Cité An II* and *Cité An III* comply with the colonial French distinction between *quartiers traditionels* (comprising different income groups) and *zones résidentielles* (homogenous groups in terms of income and intended for the French and native elite).'[35] Beeker followed this reflection with the comment that 'in the context of this report it would not be wise to comment on the policy of Sankara and his associates […]', which does not imply that 'demolition day – 1 October 1985, should not go down as a black day in the calendar'.[36]

Nevertheless, Beeker and his colleagues conformed themselves to the revolutionary wishes and proposed to house the majority of Bilibambili residents in the *Trame d'Acceuil*, the overspill area in the newly to be parcelled out area of Tampouy. In Tampouy, eventually the *Cité Signonguin* was built for the people of Bilibambili, containing two hundred dwellings. As a result of this affair, it was decided that the Dutch program would concentrate on cleaning up the suburbs, to prepare for an expected influx of even more destitute Burkinabé who needed to be rehoused. It can be said that the Bilibambili affair stood at the beginning of a period of divided urban development in Ouagadougou. On the one hand, the Burkinabé government and the Dutch project team collaborated harmoniously on restructuring the suburbs of Ouagadougou, and on the other money and time were invested in boosting the prestige of the socialist city and its administrators.

After completing *Cité An III*, Sankara began work on the prestigious *Cité An IV A et B* project in the beginning of 1987. In addition, French president Mitterrand promised during his visit that year to pay for the rebuilding and extension of the central market. Once again Beeker criticized this kind of urban embellishment project, which ultimately meant that the historic districts of Zogona and Koulouba would be wiped off the map. The project was financed with loans from the World Bank and France, and France also helped with the construction of the monumental Avenue Charles de Gaulle, a road that for the moment leads nowhere. The development of the *Cités* and the revamping of the existing city led to a sharpening up of the distinction dating from the colonial time between the *zones traditionelles* and the *zones résidentielles*: the informal districts for the poor and the formal districts for the Europeans and the wealthy Voltans. The master plan, the SDAU, and the formalizing of the spontaneous suburbs could have helped to soften this distinction. The cleaning up of the *zones traditionelles* in central or attractive places in order to make room for prestigious administrative buildings or houses which the poor could not afford, hampered the success of the project.

The Dutch project fund, the FAU, was endangered in 1988 by a third party who wished to use the money to finance the forced displacement of the residents of *Secteur 14*.[37] Five thousand families were to be removed to make room for a prestigious project headed by Sankara's successor, Blaise Compaoré. Beeker described the situation as follows: 'On October 2, 1989 (World Habitat day with homelessness as its theme) a *Cité* of 1200 villas was officially opened in *Secteur 14* of Ouagadougou. […] This has nothing to do with a program for the homeless. Quite the opposite: the government has driven the residents of these "spontaneous" living areas brutally and with great speed out of their homes.'[38] This clearing-out program was also denounced in a report of the *Front Populaire* of 1988 that summed up the achievements of the four-year-old revolution. As a consequence of this criticism, a State Secretary of Social Housing was appointed and later a ministry of Social Housing and Urban Development was established.[39]

Despite all the criticism, it is understandable that Sankara wanted to give shape to his revolution by presenting a showpiece to the world. His projects were not megalomaniac and they possessed a social component unlike other projects headed by African leaders in the same period. Bilibambili district in 2008 looks like a pleasant, green suburb with middle-class families living in the villas and a younger generation of unmarried people or newly married families living in the apartment blocks. In many ways it resembles a provincial French city. Alas, the Chinese fun-fair in the *Cité An III*, which was so popular during the revolution, is in bad condition in 2008, as is Uhuru Park in Zanzibar.

### ◆ OUAGADOUGOU AFTER SANKARA

The violent death of Thomas Sankara in 1987, and the fall of the Berlin Wall two years later, were two severe blows to the faith in the socialist experiment in Burkina Faso. The dual development of

34 Bilibambili was not a spontaneous suburb such as Jak Vauthrin proposes. 'Bilibambili, c'était du tam-tam tous les soirs, des brochettes, des bars, des rires, des petits cours, quelques arbres et, le soir, le clin d'œil appuyé d'une Bukinabée… le paradis […] Bilibambili était un quartier spontané […]. La transformation d'un quartier et l'embellissement d'une ville ne se réalise pas and foutant tout par terre et and prenant les habitants pour des valises.' Vauthrin 1989, p. 70-71.
35 Beeker 1985, p. 8.
36 *Ibid.*, p. 9.
37 Trame d'Acceuil des déguerpis du secteur 14.
38 Beeker 1989, p. 15.
39 Ministère de l'Habitat et l'Urbanisme.


Suka Fun-fair in Ouagadougou in 2008. *Photos: Belinda van Buiten*

Ouagadougou on the basis of social and prestigious plans continued, but the energy after the end of the 1980s was primarily invested in the capitalist development of the city, which was expressed in embellishment projects, commercial developments, and housing for the wealthy.

Blaise Compaoré was a leader who differed totally from Thomas Sankara. In his ambitions in the field of public works, he conformed clearly to the French tradition of *grands projets*. The *Cités* of the revolution could of course also be called *grands projets*, but these had predominantly a social character that was formalized in a straightforward urbanism and sober architectural expression. In contrast, Compaoré's *grands projets* were given a much more monumental character and they served liberal capitalism and confirmed presidential power. Compaoré managed to host the French-African summit meeting of 1996, and for this occasion, he had the Ouaga 2000 district developed, located in the green buffer zone south of the SDAU project. Ouaga 2000 was laid out in the context of the new presidential palace. It was intended for the housing of ministers, senior civil servants, diplomats, presidential guests, and was to be the accommodation of the great French-African conference, with congress palaces and prestigious hotels. Space was also reserved for commercial and recreational facilities such as a shopping mall, and living accommodations for the wealthy. The *Monument des Martyrs* was built on the axis of the presidential palace, a vague symbol of reconciliation and forgiveness of the murders that were attributed to the president. Ouaga 2000 today is still largely empty, crossed by broad boulevards that are lined with the occasional expressive and luxurious building.[40]

The Avenue Kwame Nkrumah, the main artery between the central market and the airport, was demolished and rebuilt after construction was completed on the new central market. This street, now with unconcealed pride popularly called the *Avenue de la Jeunesse*, looks like a typical French boulevard with grand buildings with corner towers, friezes, and arcades in a contemporary African interpretation of the Parisian Beaux-Arts style. The most successful businesses of Ouagadougou are established here and at dusk it is home to the parade of the young and successful residents of Burkina Faso.

Following the success of the Avenue de la Jeunesse it was decided that a great part of the bordering district of Kaomsing would be demolished in order to implement the development of the modern business district of ZACA.[41] In 2004, Kaomsing was pulled down in the same way as had occurred to Bilibambili, but this time not to make room for housing, but for commerce. The operation at Bilibambili was completed within two years. Although Kaomsing was cleared of old structures four years ago, it still is largely undeveloped.

On December 31, 1989 Beeker's city renewal project was completed. It had been a success. The simple approach, the participation

40 'Ce qui frappe lors d'une visite sur le terrain, c'est le luxe des premières réalisations de Ouaga 2000: voiries et éclairages surdimensionnés, […] villas luxueuses réalisés pour les ministres et présidents du sommet France-Afrique.' Pasteur 1997, p. 6. The authors say that 30,000 people had to make way for the development of Ouaga 2000. That number appears exaggerated to me.

41 *Zone d'Activités Commerciales et Administratives*, with a reference to the word *zaka*.

of the residents, and a good team working for an inexhaustible project coordinator, who had been involved in the urban development of the city for more than ten years, were, I think, the reasons for this success. Ninety-five percent of the *Ouagalais* lived on an official PUH plot in 1989.[42] It is my opinion that this high percentage was an exception in Africa at any time.

With the decentralization of 1991, the approach to the restructuring of the spontaneous areas and the extension of the city was altered. According to Kibtonré, the district mayors wanted to show their weight as quickly as possible for political gain. The largely invisible and longer-term revival projects intended to curb the spontaneous development of the city and to provide the residents with comfortable and secure accommodation did not suit this policy. In contrary to the approach introduced by Beeker, residents are currently required to make a pre-investment in order to acquire the right to buy a plot in the future. This approach, along with the above-mentioned decentralization of the registration of the PUHs, paves the way to speculation. The residents – whether motivated by good or bad intentions – prefer certainty to uncertainty and occupy non-surveyed agricultural land on the edge of the city. Here, they build 'houses' with twelve *tôles* to show that they are in need of this piece of ground and have the right to a PUH. These are predominantly quickly constructed mud structures without doors and windows, and are appropriately referred to as dovecotes.[43] Consequently, a vibrant Ouagadougou is developing alongside a ghost town Ouagadougou that is eating up valuable agricultural land around the city.

The French urban geographer Sylvy Jaglin thought that the urban planning techniques adopted by the revolution were the cause of the large-scale speculation and the accelerated growth of the (informal) city.[44] She argued that the obtaining of a PUH and a plot by the residents was seen as an investment in their future, and above all that those with more property abused the system by buying more plots and selling them on. According to Jaglin the poor suffered most from this system and have been more or less forced to return to their villages of origin, because they cannot afford to live in modern homes in the city.[45]

Yet Jaglin might be confusing method with execution here. Until the time that the CDRs assumed responsibility for the distribution of the PUHs this process was organized centrally and abuse was rare. The decentralization, first under the CDRs and later by the district mayors, created a system that was ripe for speculation. However, in the case of Wagadogo, there was hardly any evidence of speculation and every family was catered for. Moreover, steps were taken at this time to ensure that residents from elsewhere – such as

42 Interview with Gilbert Kibtonré, 10 July 2008.

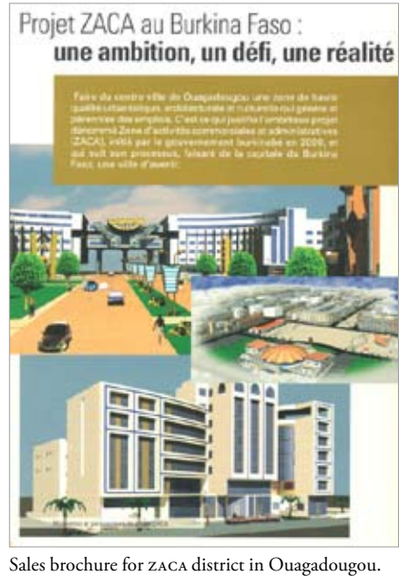
43 'Pigeonniers, fausses constructions qui sont le signe infaillible d'une occupation spéculative d'une parcelle.' Pasteur 1997, p. 14.

44 'Les politiques de gestion urbaine à Ouagadougou n'ont pas réussi dans leur triple objectif (énoncés dans le discours d'orientation politique du régime révolutionnaire) de (1) maîtrise des processus foncière, de (2) suppression de l'habitat spontané et (3) globalement de contrôle de la croissance urbaine.' And: 'Pire encore, les actions menées dans le cadre du projet urbain révolutionnaire auraient elles-mêmes contribué à l'extension incontrôlée de la ville, la régulation urbaine révolutionnaire et post-révolutionnaire fonctionnant alors the manière tout à fait paradoxale puisque les actions qu'elle mène vont à l'encontre de ses objectifs de maîtrise de la croissance urbaine!' Sylvy Jaglin cited in Pasteur 1997, p. 12.

45 'La villa a un coût et ceux qui ne peuvent s'en acquitter doivent retourner au village.' Jaglin cited in *ibid.*, p. 13.

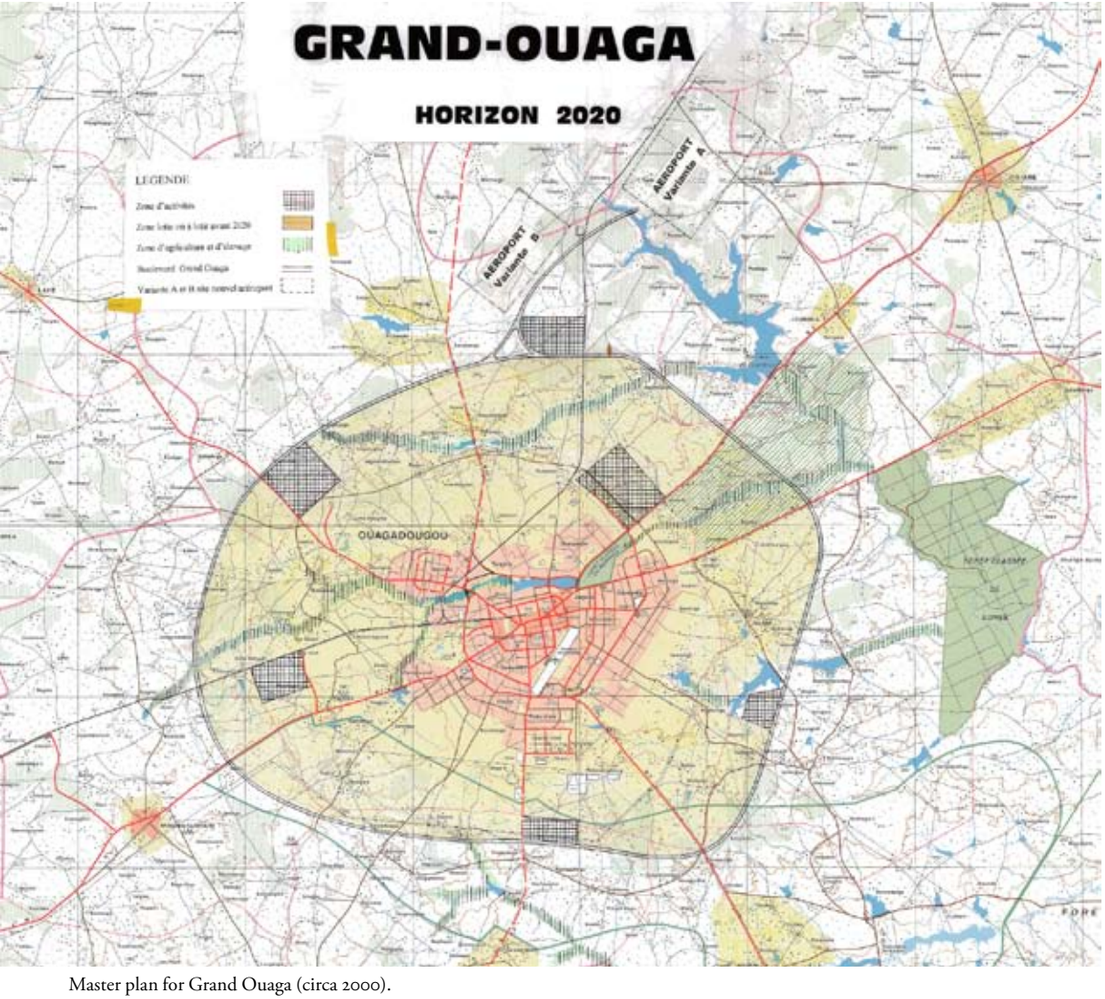
The *Monument des Martyrs* in Ouaga suburb, in 2000. *Photo: Belinda van Buiten*

Avenue de la Jeunesse in Ouagadougou, in 2008. *Photo: Belinda van Buiten*




Sales brochure for ZACA district in Ouagadougou.

ZACA district in Ouagadougou in 2008. *Photo: Belinda van Buiten*




Master plan for Grand Ouaga (circa 2000).

Ouagadougou in the 21st century: a film-city.
*Photo: Belinda van Buiten*

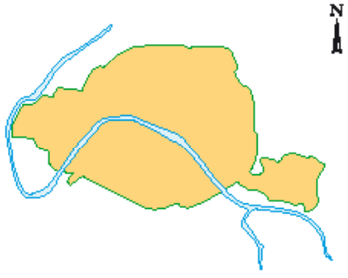
we saw in the cases of Bilibambili and Ipelcé – who lost their homes were compensated with a home in Tampouy, Wagadogo, or elsewhere. In Larlé-Extension in 2008, the majority of the poor residents, whom I had assisted and followed in 1984, still resided on their allocated plots and largely in the same homes.

Besides proposing the making of a master plan for Ouagadougou in 1984, Coen Beeker launched the idea of a systematic plotting of the peri-urban influence zone of Ouagadougou, the *aire d'influence*. Research had shown that the majority of the population growth in Ouagadougou was caused by people moving to the periphery of the city (less than forty kilometers around the city). As a preventative measure to curb the growth of the city, an attempt was made to improve living and working conditions in these areas, and to undertake measures to protect the environment. In 1985 the *Schéma d'Aménagement de la Banlieue de Ouagadougou* (SABO) was put into action, on the basis of which a number of smaller projects led by Beeker were implemented.

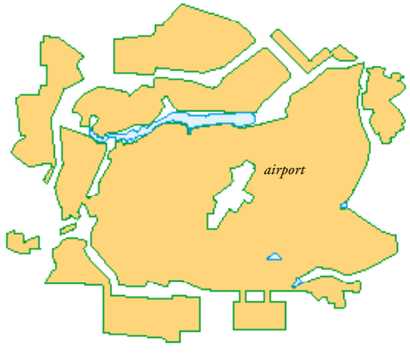
The Dutch landscape architect Marjolein Spaans outlined plans for villages in the SABO area. In 1989, when the plans were getting started, they affected an area that accommodated approximately 166,000 people in over one hundred villages, of which ten were designated as *villages centres*, or centres of urban growth. SABO aimed to protect and intensify agriculture, provide attractive housing, and restore the ecological balance by the planting of a buffer zone of trees. If the periphery were strengthened, it could better absorb the population increase and thus curb the growth of the spontaneous areas, while preserving space for important future infrastructure, such as an airport, industrial areas, motorways, and high-tension cables.

Characteristic of the SABO plan was a careful distribution and positioning of the areas intended for agriculture, dwelling and large-scale activities (new airport, industrial area, ecological buffer zones, and so on) combined with the concentrated development of the urban growth centres. The plots were relatively large so that the residents themselves could develop their own activities. The most fertile and best-irrigated agricultural land was divided into relatively small allotments that could be intensely worked for high production.

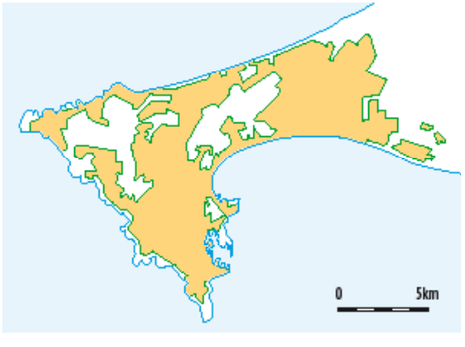
At the same time, from 1993 onward, adjustments were made to the SDAU by the DGUT, which led to the *Schéma d'Aménagement du Grand Ouaga* (SDAGO), the 1993 master plan which was linked to the SABO.




**Paris**
within the Périphérique
2,200,000




**Ouagadougou**
1,200,000




**Greater Dakar**
urban area
2,200,000

Ouagadougou and its inhabitants, compared with Dakar and Paris within the Périphérique, around 2000. Ouagadougou is still a rural city. *After: G. Kibtonré*

# The contemporary African city

The 2008 situation of the African capital cities is uncertain and worrying. Cities like Cairo, Johannesburg, Lagos, and Kinshasa are among the fastest growing and largest cities in the world. Their populations are astronomical, yet impossible to accurately gauge because of the great extent of the informal sectors.[1] Estimates for these four metropoles range from between ten and twenty million residents, with a presupposed more or less added million – numbers that make them seem almost incomprehensible. Other capital cities in Africa, such as Addis Ababa, Nairobi, Dar es Salaam, Maputo, Accra, Bamako, and Dakar, also have populations of over three million and are therefore comparable with the historic European metropoles. And finally there are the smaller capital cities, such as Ouagadougou and Kampala, which with at least a million residents are nonetheless substantially larger than Amsterdam.

About forty percent of the African population now lives in cities, compared with twenty percent in 1984 when I began to work in Tanzania and Burkina Faso. There is an enormous contrast between the great metropoles and the rural areas, where time appears to stand still. Despite obvious poverty in the cities, the incomes and consequently consumption there are much higher than in rural areas. The urban infrastructure may well be inadequate, but in the countryside, it hardly exists at all.

There were around 300,000 cars on the mainland of Tanzania in the year 2000 for a population of around 35 million.[2] Approximately 250,000 of these vehicles were active in the cities of Dar es Salaam, Arusha, and Mwanza. This situation hardly differs from colonial times, when the cities served as transfer places for the exploitation of the hinterland. The growing attractiveness of the city and the failing modernization of agriculture, cattle rearing, and industry in the rural areas, seem to enhance the situation.

1 In 2007, I was given population figures for Soweto which fluctuated between 1.3 and 3 million.

2 My own estimate.

High-tension cables in the Gogo savannah in 1993. The traditional *tembe* settlement on the left and the high-tension mast on the right-hand side of the illustration have nothing to do with each other. The high-tension cables supply the capital with power generated in a dam in the interior – the *tembe* settlement has no electricity. [See also the illustration on p. 241 middle]

According to Filip De Boeck, the belief that modernity is shared by all residents in African cities is a misconception; he maintains that the European metropolis is merely a mirror of expectations.[3] Most people do not have access to running water or decent housing, there is no electricity or a functioning sewage system available for them, and there are few paved roads. This means that an African city cannot function in the same manner as a European city.[4] The city is a jungle where the winners drive around in air-conditioned, four-wheel drives as they travel from castle to castle. In a cultural and social sense, the city can also be described as an urban jungle. The traditional African social system seems to have been left behind in the countryside, but any modern, functioning civic and social institutions are also difficult to find in the informal areas within the African cities. De Boeck believes that this void has been filled with other systems: for example, a social form in which the man again becomes the hunter and the woman the guardian of home and hearth, in a situation which has fallen into a chaotic mix of superstition, witchcraft, and apocalyptic religions. Because these religions only offer individual salvation, they contribute to the erosion of the traditional African communality.

The African metropolis will never be a generic global city – and not only because of a lack of prosperity and perspective, but also because the African city consists of more than imported western technology and institutions. The African city is both a symbol and a mirror of a culture that adamantly differs from western cultural norms. In his portrait of Kinshasa De Boeck describes the identity of this 'other city', which can be called the 'informal city', the 'shadow city', or the 'invisible world'. Kinshasa appears to be a mirrored duality, similar to Calvino's imaginary city of Valdreda.[5]

The reflections can refer to physical spaces and places, such as churchyards or theatres, but also to the human body, language, or music. These, according to De Boeck, are the *heterotopias*, the actually faked utopias.[6] He maintains that it has its roots in colonial Kinshasa, which was called Léopoldville at the time, concurrent with the creation of a modernist ideal city that had emerged from the disarray of Brussels, its mother city. Léopoldville allowed the European to escape from a laden European context. The desire of modern societies to escape from the African urban jungle is rooted in the growing middle class, a group that was until recently non-existent in Africa. However, this hope is still linked to the fear and denial of the informal city.

Meanwhile, the growth of these cities has surpassed that which was allowed for in the urban expansion projects. The failure to keep pace with this growth was already evident in the colonial period with its neglect of the informal city. Yet this situation has become even more acute, despite serious measures taken at the end of the colonial period and optimistic attempts made by the young nations to counter this with modern means. In cities such as Lagos and

3 De Boeck and Plissart 2004, p. 13.
4 Koolhaas refers in the case of Lagos to 'the city that works'.
5 Calvino 1985, pp. 52-53.
6 'Heterotopias are effectively enacted utopias, places where it is possible to think or to enact all the contradictory categories of a society simultaneously, spaces in which it becomes possible to live heterogeneity, difference, alterity and alterate ordering.' De Boeck and Plissart 2004, p. 254. De Boeck refers to *The Order of Things* by the French philosopher Michel Foucault.

Nairobi, any attempt to control the growth of the city seems to have been abandoned. In other cities, such as Dar es Salaam, there still is an element of control thanks to a strong overall structure laid down in master plans and implemented with care. Zanzibar's growth is now out of control after the liberalization of the economy at the end of the eighties, but in Ouagadougou, with its scarce means and despite a limited level of central government jurisdiction, we can still speak of a relatively controlled urban development.

Georg Lippsmeier's comment in 1976, stating that planning was no longer sensible given the apocalyptic dimensions of African urbanization, is understandable, but this is a defeatist attitude that I do not share. Designing urban master plans and structural visions is still a worthy endeavour, despite the occasionally frustrating experiences in Dodoma and Ouagadougou. However, to assume that an African city can be controlled by urban planning would be unfounded. Ultimately, cities must be constructed and at the same time they evolve independently. This, according to De Boeck, is the inevitable destiny of the city.[7]

Martin Murray and Garth Andrew Myers argue that formal city planning is purely a result of political power, and that, consequently, the *grand schemes* of urban planners fail, because the proletarian mass is opposed to centralized planning.[8] I do not share their opinion. The examples of Ouagadougou and Zanzibar show that intentions were not only directed towards the creation of a modern city as a showpiece of progress, but also that honest attempts were in fact made to create a city for both the rich *and* the poor. A city that is not only seen in terms of monuments that exclusively serve the establishment. However, there was an important source of politically related conflict and failure, yet it was rooted primarily in the establishment and not in the proletariat.

The unbridled growth of African cities was noted as early as 1969 by U Thant, then Secretary General of the United Nations. He called for large-scale investment in technology and the establishment of an international educational centre for urban development.[9] Large sums of money were made available by the World Bank to give the fastest growing African cities the necessary infrastructure by means of the so-called *site-and-services* projects. The projects in Ouagadougou are among these initiatives. Yet it seemed impossible for this impoverished African city to build infrastructure using borrowed money. The poorest residents were left out in the cold because they had to vacate their traditional homes to move to the formal areas. They were left with debts rather than money, and they could not even start rebuilding their homes because of a dysfunctional infrastructure. Ultimately, most of the money borrowed from the World Bank was used to fund infrastructure projects in the 'formal' city, where the rich lived.

Rehousing projects for lower income groups often had a comparable negative effect, as was seen in the case of Bilibambili and the experiences at Michenzani. The original residents were forced to build a life elsewhere, because the modern dwellings differed greatly from their traditional homes, and because only middle class could afford them. Bilibambili was far from unique in Africa. It is therefore not surprising that after these experiences no new low-cost housing or site-and-services projects were set up for a long time. The World Bank paid less attention to individual needs and more attention to large-scale infrastructure projects. But these great infrastructure projects, however important for the development of the country, always catered to the advantage of the formal city.

The basic approach adopted by Coen Beeker in the Ouagadougou project, which departed from the rights and aspirations of individual residents in the poorer areas, appeared at the time more successful, at least in Ouagadougou. Beeker himself warned in his final report against premature optimism and the uncritical use of this model in other African cities.[10] As this project showed, the influence of an architect or city planner is limited. René van Veen drew up the plots, Haskoning was responsible for the broader lines, and my role remained restricted to research and advising the residents on site.

Lippsmeier recognized the limited role of the architect and urban planner in 1976, as appears in his account of the mistakes made in the urban renewal project in Lima in Peru.[11] Adri Duivesteijn characterized the 1969 PREVI international popular housing competition for Lima as one of the last moments in which prominent western architects were involved in the complex of urban problems in the Third World. Most buildings realized in this project came into the hands of the middle class, who were responsible for 'the rebuilding and beautification, which quickly put a stop to this architectural demonstration'.[12] In 1994, only a handful of houses occupied by low-income residents were in their original state, although in dilapidated condition. The remaining extraordinary architecture had been rendered unrecognizable by the residents, because they had been rebuilt and enlarged. Duivesteijn concluded that the architects realized that 'the society cannot be built according to the intentions of committed designers, and thus many of their contemporaries have completely abandoned projects aimed at building a better society'.[13]

In this context, Lippsmeier stated that there is no role for the 'traditional' architect in solving the problems of urbanization. The designing and building of homes for the poorest sections of society requires a new type of architect, an advisor who is willing to leave his ivory tower and work in the suburbs. Lippsmeier defined the job of the planner and designer as 'the provision of place and space to the people, so that they are able to build their own homes, to enlarge and modify them so that they correspond to their altered circumstances. The house is therefore not an end product in the modern western sense, but a process.'[14]

The modest role I played in Ouagadougou involved making

7 'Cities have to be made, and they make themselves. That is the unavoidable fate of the city.' *Ibid.*, p. 260.
8 Murray and Myers 2006, p. 237.
9 Peters 1969, p. 1247.
10 Beeker 1990b.
11 Lippsmeier 1976.
12 Duivesteijn and Van de Wal 1994, p. 21.
13 *Ibid.*, p. 21.
14 Lippsmeier 1976, p. 4.

plans and giving advice in precisely such a process, and although this work was sensible and useful, I too returned to the 'ivory tower' of academic architecture.

Lippsmeier went on to argue that investment should be directed at the rural areas, in order to create a new viable economy. Developing rural areas and smaller towns would help stop the exodus to the big cities. Lippsmeier was also opposed to the idea of the modernist city plan, in which the city was divided into zones for living, work, and recreation. He argued instead for a uniform spreading of functions, which would prevent Africans being dependant on an unaffordable transport system and infrastructure.[15]

The master plan of Dodoma conforms to this vision, with its loose polycentric city plan and large building plots, as does the Tunguu project of Awadh on Zanzibar, and the SABO project for the periphery of Ouagadougou with buffers between the rural areas and the capital. Beeker advocated larger plots, to allow the immigrants to plant kitchen gardens, keep animals, or establish a workshop within their own cour. This should increase their living and enlarge their autonomy within the city.[16] A larger plot also offered advantages regarding the provision of water, energy, and rubbish collection, as we will see later. To conclude, neither the residents nor the poor local government agencies will be able to provide the city with an expensive and extensive infrastructure in the foreseeable future. At the moment, the tasks of the local government are limited to reserving space for future infrastructure projects, public provision, and the legalization of land ownership.

Along these lines the concept of the functionalist city of the 1930s and the idea of the compact city of the 1980s were replaced by the concept of the low-density city plan[17] leading to ever-expanding cities, a situation that will continue until rural areas and secondary cities succeed in halting the exodus to the big cities, and until an end comes to unbridled demographic growth.

Even though the master plans for the great African cities mostly ignore the cultural and historical African context, they ensure that the most important needs in relation to mobility and the environment are taken into consideration. Building major road networks, sewage systems, clean water provision, and reserving green zones according to a master plan, as occurred in Dar es Salaam, Zanzibar, and Ouagadougou, made a major contribution to the management of the city. A master plan as such is little more than an outline of an urban-design scheme, which any city authority can commission at a low cost.

Within the framework of such master plans, the population can be given the freedom to decide how to organize their districts. The question is whether residents indeed want to live on a chessboard, as research carried out by Beeker for Ouagadougou revealed. At the moment, this grid may well be the image of the modern city to which the immigrant most aspires. In time, other structures and models can be expected to emerge, which fit in better with the unavoidable mixture of modernity and African culture.[18] This situation is reminiscent of Camillo Sitte, who criticized the rationalization of the European city at the end of the nineteenth century, and called for a return to the organically evolved, romantic medieval city.[19]

Aldo van Eyck's expeditions to study dwelling patterns in African cities that could be a solution to escape from the iron grip of CIAM-steered functionalism, led to the structuralism and the *Nieuwe Truttigheid* ('New Twee') of the 1970s in the Netherlands. With the difference that the architects used out-of-context structures as a universal remedy for western problems, while the Africans were challenged to unite existing traditional structures with the modern forms,[20] without falling into the trap of building monotonous suburbs that are the same all over the world. Knowledge and the recognition of each city's distinctive culture have in fact been placed on the agenda, but they still lag behind other arts; they require self-confidence and self-study, rather than a one-sided focus on the western world. For now however, the task of western scientists and architects, as Koolhaas maintains, remains limited to listening and observing.

It is encouraging to note that the interest of architects, urban designers, and city planners in African urban questions is on the rise again, and that it is commonly understood that only a multidisciplinary approach will be productive in urban planning. The involvement of, for example, anthropologists, economists, geographers, and artists in the development of new strategies appears to open up promising directions.

We have moved on from the modernist faith in the closed technical systems and planning techniques that were applied to control urban developments in Africa. Approaching urban questions in a statistical and holistic way has proven to be an illusion. The city is a complex organism that is in constant motion according to not just one pattern, but many. Arie Graafland, in his plea for understanding the concept of the city, calls for the concept of 'baroque complexity' that was introduced by the philosopher Chungling Kwa, in opposition to the concept of 'romantic complexity' which is based on a single pattern, concept, or design. Romantic complexity may be characteristic of the modernist dream, the belief that society can be controlled. A dream that dissolved after the oil crisis of 1973, and was replaced by the notion of baroque complexity. Yet, Graafland does not imply that the chaos is completely uncontrollable. If we start by accepting the notion of baroque complexity, we may begin to develop new planning techniques.[21] Edgar Pieterse goes a step further by arguing that any fragmented resistance against institutions in the African city, which is expressed in spontaneous and illegal creativity, will ultimately and unavoidably be institutionalized.[22]

15 'Deshalb ist eines der Hauptziele aller städtebaulichen Planungen in den armen Ländern der Tropen, eine größtmögliche Verteilung von notwendigen Gemeinschaftseinrichtungen und Arbeitsmöglichkeiten zu erreichen, um die erforderlichen täglichen Wege kurz zu halten […] das wiederum heißt rigorose Abkehr von der Funktionsteilungs-Ideologie und eine weniger formalist Einstellung zur Landnutzungs- und Entwicklungsplanung.' Lippsmeier 1980, p. 211.

16 Interview with Coen Beeker in 2007.

17 'As realization of the basic infrastructure (drainage, sewerage, roads) cannot be expected in any way, it is advisable to spread the increase of the population over a larger area.' Beeker 1990a, p. 10.

18 Jak Vauthrin is outspoken about this: 'Des fanatiques gaillards stupidement armés de tés, d'équerres et d'un petit compas n'ont pas d'autre imagination que de mal copier les poncifs d'un urbanisme néo-moderniste.' Vauthrin 1989, p. 119.

19 Sitte 1983.

20 Zourgane 2007, p. 1-5.

21 'I think we need a notion of 'baroque complexity.' It means a special focus on *situational knowledge*, but always that problematic relation to abstract criteria. We cannot do without that.' Graafland 2007, p. 7.

22 Pieterse 2007, p. 2.

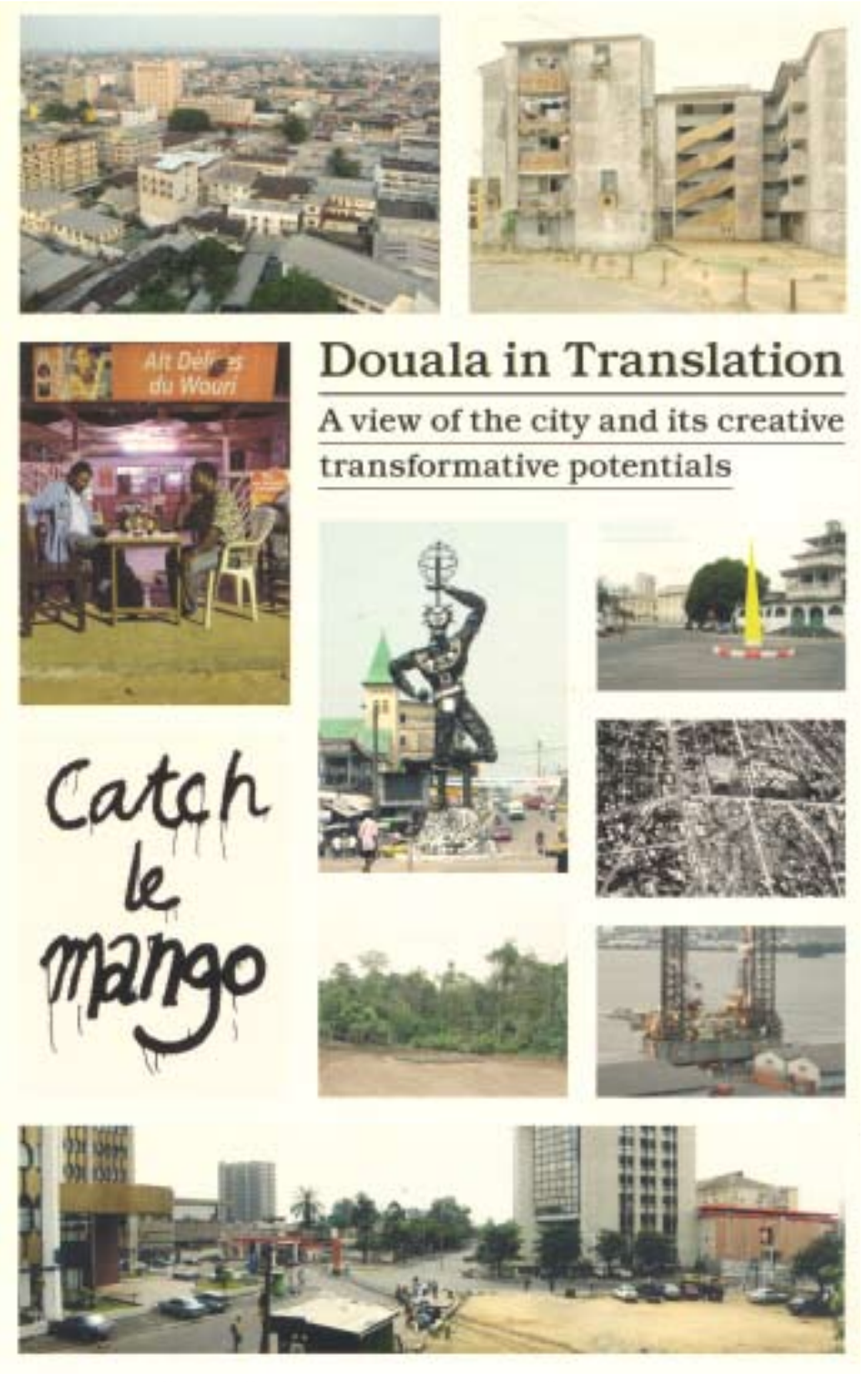
There is a growing attention to local experiments in which a spontaneous, more modest and open viewpoint takes the lead. Architects, urban planners, social scientists, politicians, residents, artists, business people, and religious leaders seek each other out in order to learn from each other and to collaborate on various projects. A sympathetic example of such an approach is the work of Doual'art in Douala. With artistic interventions in the city that are applied, for example, to monuments, bridges, and water drawing points, artists, planners, economists, and social scientists collaborate with the residents to give the city a new collective identity.[23]

It is essential to work in the field with the people, rather than to retreat into the offices of the academic world and devise building regulations. More than eighty percent of the buildings in Africa have been built by the people who actually live in them, and this percentage will not quickly alter in the near future. The question is whether one should strive to change this; would Dutch people also not prefer to live in a house they themselves had built? Modern planners primarily view self-build projects, at best, as temporary solutions, which is why these projects have attracted so little attention. The question arises as to whether a temporary house is not better suited to modern man, who is always on the move.

The creative power exhibited by the African self-builder is a source of inspiration and innovation. In the publication *Shack Chic* an appreciation is formulated for the manner in which residents in the townships of Cape Town help improve their standard of living, how they manage to make something of their problematic housing, and how they decorate their homes with brightly coloured packing materials. This has even led to the popular *Shack Chic* style, which has found its way as wallpaper and decorative motifs into middle-class homes in South Africa.[24]

These developments arouse a contradictory response. Life in the townships remains hard and the possibility of climbing into the bourgeoisie, who choose to decorate their homes in the *Shack Chic* style, are minimal. Yet, on the other hand, presenting the misery and poverty of the *bidonvilles* in politically correct books, magazines, films, and television programs, leads to pitying and aloofness. I prefer a positive approach, one that does not deny the facts, but acknowledges the power and hope of the African city dweller. As AbdouMaliq Simone argues: 'In a fundamental way, the question of where African cities are going could be answered by a consideration of where African urban residents are going, pusuing their own objectives, within their own time frames.'[25]

23 De 'Salon Urbain du Développement'. See Babina and Bell 2007.
24 Fraser 2002.
25 AbdouMaliq Simone, 'Globalisation and the Identity of African Urban Practices'. In Vladislavic and Judin 1998, p. 187.




An art-installation in Douala by Doul'art and iStrike. *Source: iStrike and Doul'art*


'Shack Chic' in a Cape Town suburb. *Photo: Heinrich Wolff*

# 11 • Building in Africa

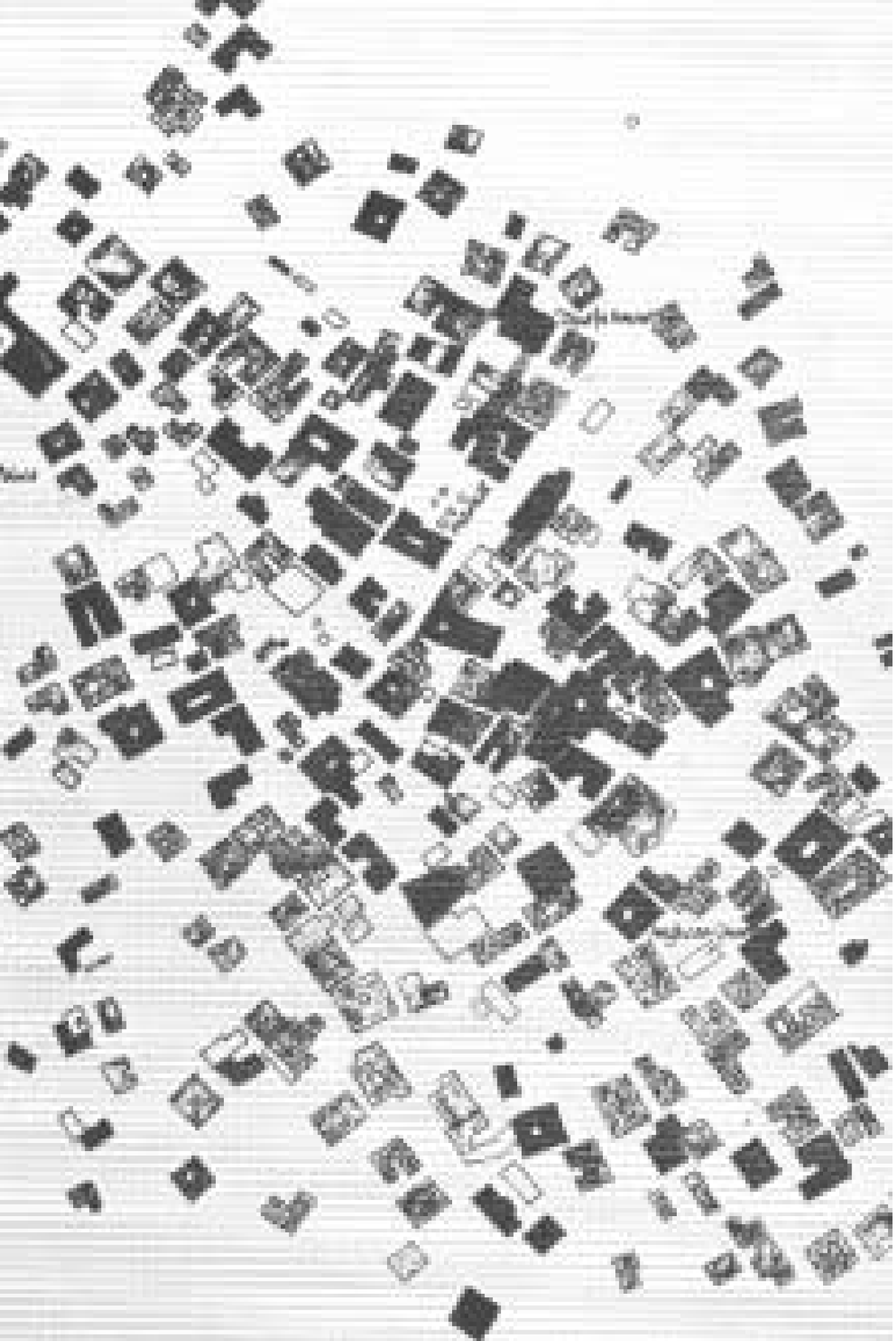
## A GERMAN ENGINEERING COLLEGE AND A FRENCH CUPOLA

My experience as an architect in Africa began in 1984 in Ouagadougou, with the design and the building of a field office for the earlier described urban renewal project, for which I worked as a researcher. I grabbed the chance to design and build it in an experimental mud building technology, and I was able to take advantage of the knowledge and experience of the architects of the ADAUA office, which was well known at the time.[1] ADAUA was the most important representative of building in appropriate technology (AT) in Africa, which was coming into use starting in the mid-1970s. A year later, as an employee of the Institute for Tropical Building (IFT), I would write a research report about the shortcomings of and user-caused damage to the Engineering Faculty of the University of Dar es Salaam. This complex was designed by the German architectural office Lippsmeier + Partner (L+P), associated with IFT, and was completed in 1974.[2]

The two projects differed in that they were the products of two diametrically opposed design cultures. The Engineering Faculty is an example of a project designed by a German architect in the western, modernist tradition and built with western technology and materials. The field office was almost entirely built using local materials, according to a philosophy that attempted to reintroduce native building traditions. The Engineering Faculty is a late product of the pure belief in modernist principles and progress, while the field office belongs to the period of reconsideration that emerged after the oil crisis of 1973. For this reason I will begin by recounting the history of the Engineering Faculty, before looking at the field office, even though I worked on the projects in reverse order.

Before examining these projects, it is first necessary to look back at the African Arcadia.

1 Association pour le Développement d'une Architecture et d'un Urbanisme Africains.
2 I worked in the architectural office of Georg Lippsmeier from 1984 to 1991.



# Farewell to the African Arcadia

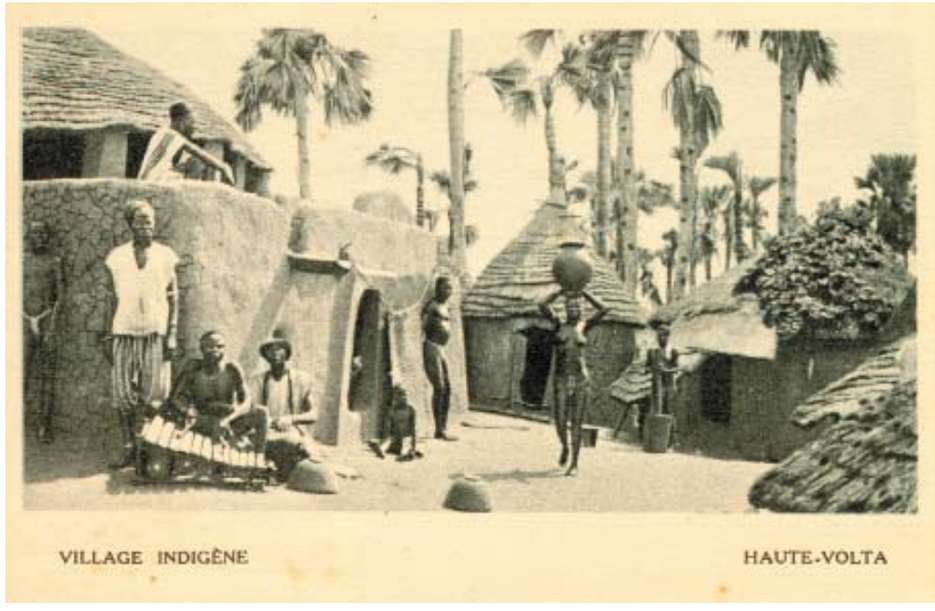
## • THE AFRICAN ARCADIA

The picture of pre-modern African architecture is one of melancholy and harmony. It is a picture of a colourful, tidy, and organic *cour*, bathed in soft light at sunset. This African Arcadia, as we well know, is doomed to vanish, apart from some places which, by chance or with the help of marketing techniques, are transformed into attractive tourist destinations. [See photo on p. 241]

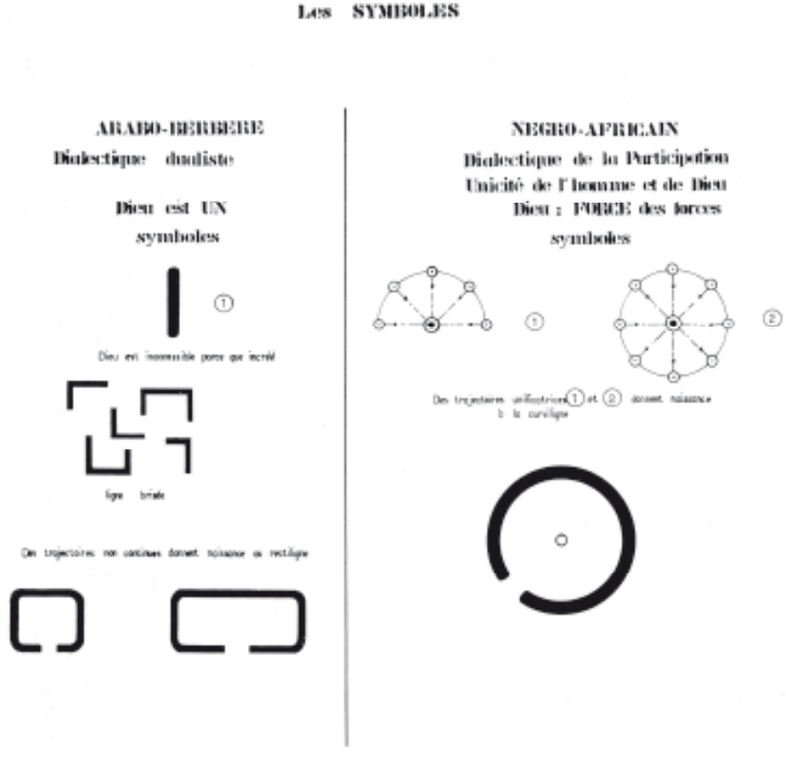
Due to poverty and long-lasting denial, this African Arcadia is still to be found in rural areas, yet there are few remaining examples of such traditional vernacular architecture in African cities. However a contemporary vernacular has developed in the cities, which seems remarkably homogeneously spread throughout the continent.

The African Arcadia was a research area for cultural anthropologists from the 1950s onward. Anthropologists were the first to document pre-modern African buildings. They regarded the building tradition as an expression of culture and described it with this in mind. After the initial dismissal of native building as 'primitive', a romanticizing vision emerged that saw African society in harmony with itself and its environment. Africans were seen as noble savages, who lived in a manner that we in the western world have long forgotten, and whose cultural expressions thus no longer have any direct relevance for our own society. Thus, a true appreciation of the quality of the African building from an architectural perspective has long been overshadowed by the romanticized anthropological vision.

The image of African pre-modern building culture evolved in the 1960s, from the denigrating image of the 'mud hut' to 'architecture without architects'. This was the title of an exhibition organized by Bernard Rudofsky in 1964 for the Museum of Modern Art in New York. It marked




African Arcadia in Upper Volta (Burkina Faso) in the early twentieth century.




Fassassi's interpretation of the right angle and the circle in African architecture. *After: M.A. Fassassi*

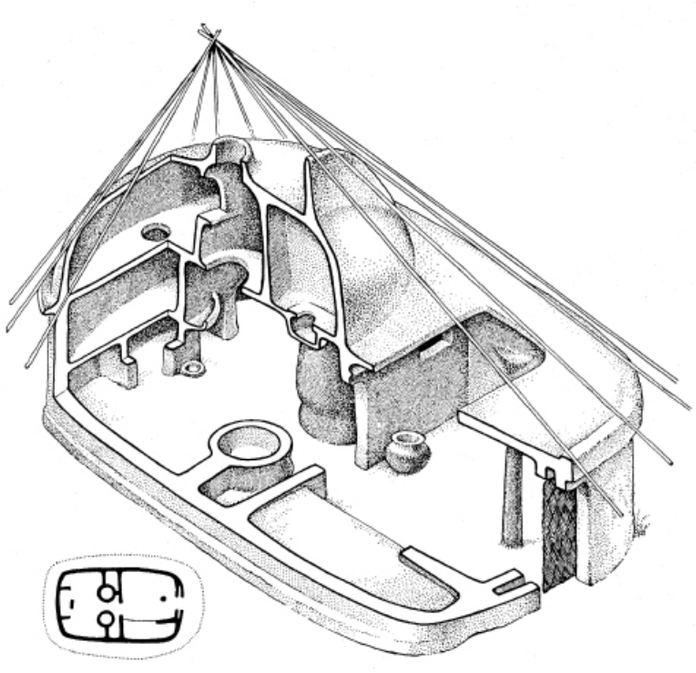
the formalization of the informal tradition of local building. The work of Bernard Rudofsky[1] and his followers, such as Denyer, Dmochowski, Oliver, Preston Blier, Prussin, Fassassi, and Bourdier, elevated traditional African building to the status of architecture.[2] However, most of these experts departed from a traditional, unchanging situation, and only studied traditional, that is to say, 'pure' buildings. A settlement that showed signs of western influence in either form, technique, or material was seen as corrupted and not worthy of further study.

The archetypical traditional African building type is the organically grown *cour* surrounded by round mud huts, called *cases*. The case is a building of mud bricks, called *banco*, or in wattle-and-daub covered with a conical straw roof that is supported by an umbrella of wood and branches. Any building types that diverged from this model were considered the product of external influences. This was the case, according to Masudi Alabi Fassassi, when eighth-century Arabs from the Maghreb arrived in West Africa and introduced the rectangle into building. The right-angled building form emerged, Fassassi argued, from the dual dialectic of Islam. God is one and unknowable because he is not the product of creation, and this is symbolized by the broken straight line. The combination of broken straight lines creates the rectangle. The round building form, on the other hand, derives from the African dialectic of involvement: God is the power that holds mankind together.[3]

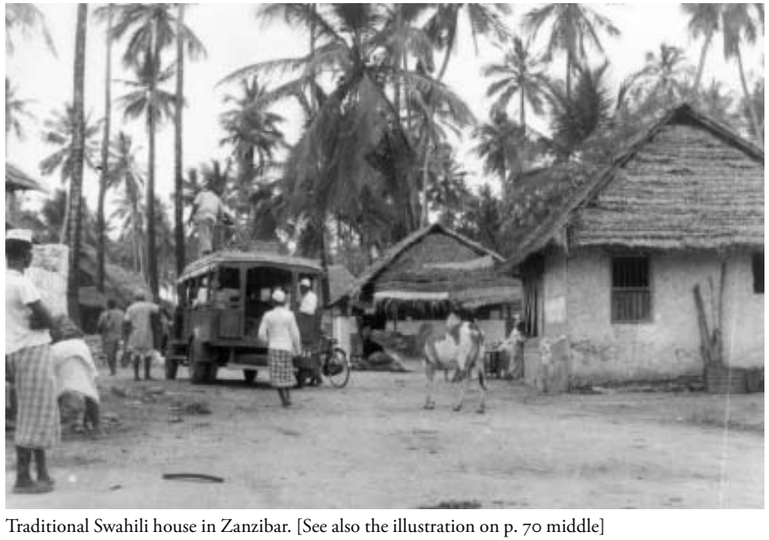
Fassassi's theory is flawed because orthogonal building types were widespread in Africa before the eighth century. Right-angled buildings can be found in different locations, where the form was dictated by economic and technical, rather than philosophical conditions. A conical roof, for example, is not the ideal form in a warm and damp environment, because it traps the heat in the building. Above all, it is not economical to cover a conical roof with palm-leaf 'tiles', called *makuti*, that, in the equatorial forest zone, take the place of the straw roofs of the savannah. It is also difficult to build hipped roofs using makuti, and therefore most traditional buildings have a large saddle roof with inlaid roofs on the short gables. Small triangular openings are left exposed under the ridge ends at the gables, which creates an optimal ventilation system that ensures the necessary flow of air into and out of the building in warm, damp regions. Later replacement of this type of roof by hipped roofs covered with corrugated-iron sheets means that this system of ventilation is often lacking.

The appearance of right-angled buildings with flat roofs in the West African savannah, according to Susan Denyer, must be seen in context with the urbanization that transpired after the early Middle Ages. In connection with this, she refers to a Sudanese style that did not come from the Islamic Maghreb, but was a logical response to the fire hazard of straw roofs in urban areas. In her book *African Architecture*, Denyer convincingly shows how the traditional African

1 Rudofsky 1964.
2 Suzanne Preston Blier elevated the master bricklayers of the Batammabila into architects. Since each and every family probably has a master bricklayer, the area in the north of Togo most likely possessed the greatest density of architects in the world. Blier 1994.
3 Fassassi 1997, p. 52-55.



Nigerian house with 'chimney'. *After: Z.R. Dmochowski*



Traditional Swahili house in Zanzibar. [See also the illustration on p. 70 middle]
*Photo: Capital Art Studio*

building culture reflected local circumstances and, in doing so, developed ingenious and economical solutions.[4] The building culture differed subtly from region to region, but it was always carefully adapted to the natural environment.

In addition to this diversity, striking similarities are clearly evident that cannot be explained by technological or economic motives alone. Functionally speaking, an African case is a place in which to sleep, but in truth, it is far more. The African house is a living organism that creates a unity with its occupants and, as Fassassi showed, is inseparably linked with society and the cosmos. Individuals in society take their place in the earthly circle of the not-yet-born, the living, and the dead, and this is true of the house as well. Consequently, the house is a moment in this circle of time, it is shaped from the earth itself, like the work of a potter, the Egyptian god of creation Chnum, who created people and their environment out of clay from the river Nile. In certain African building cultures, such as the Dogon, the house is literally an image of man, an anthropomorphic shape. The house in form and decoration is thus linked with the circle of time. Along with the living, the not-yet-born are announced and the dead are remembered. The house is often based on the sun's orbit. This short description does not do justice to the richness of form, colour, and texture that is part of the traditional African building culture; it does even less justice to its symbolic variety. Its richness and symbolism are slowly being unraveled,[5] but have not yet been given the significance they deserve in architectural and art education.

Pre-modern African building culture is marked by great ingenuity. In this context, we need to realize that most buildings were never intended to last indefinitely. The cour as the hearth of the family could last for many generations, but the cases intended for individuals were only to serve for a certain stage of life or for one generation. Buildings were optimally designed and built to serve this conscious temporality, as if they were cars or articles of clothing, with the difference that nothing remained of a building after it had been abandoned, while a lot of energy is required to recycle a car or a modern item of clothing.

In his publication *Duurzaamheid loont* F.Ph. Bijdendijk calculated the costs and profits of a traditional African case.[6] He concluded that the traditional African case is an example of extreme sustainability. Bijdendijk chose another African building type as a second example of sustainable building: the pyramid. He came to the surprising conclusion that the pyramid of Cheops, like the African case, was an example of sustainable investment. He argued that notwithstanding the enormous investment that went into the structure, after almost five thousand years of minute maintenance costs, the pyramid continues to yield profits to the Egyptians. These two examples make clear that the concept of durability is extremely broad: it can refer to both temporary and permanent buildings.

4 Denyer 1978.
5 Particularly by anthropologists and, to a lesser degree, by researchers and authors with an architectural background, such as Prussin, Bourdier, and Fassassi.
6 Bijdendijk 1997.

## • TROPICAL BUILDING AND MODERNITY

Any direct influence of European building traditions on African soil was limited until 1884. Up to the nineteenth century, the Maghreb had a strong relationship mainly with the Arabic world. South of the Sahara, Europeans built a number of isolated forts and settlements from which they exploited the continent. An exception to this was the Cape Colony, as we have seen, which was developed from the seventeenth century as an agricultural area with its own building culture.[7] It was an example of Dutch architecture that had been adapted to the subtropical climate of South Africa, with characteristic white-plastered baroque gables and large windows. The development of South Africa, and in particular of Cape Colony, has always played an exceptional role in Africa, because it was the first area to be developed in the western sense, and because of the great number of European settlers in the Cape. While South Africa today has a population of more than four million people of European descent, in other African countries the European population rarely exceeds 100,000. The accelerated colonization of the continent in the last years of the nineteenth century required bases for the establishment of colonial power, control, and exploitation. This period may be characterized as a pioneer's phase, but on the other hand, a number of modern and highly developed settlements were built purely from scratch. In the African inland, individuals and missionaries established plantation houses and mission posts that they often built with their own hands, assisted perhaps by knowledge they had gained of building in Europe, or from construction handbooks.[8] These buildings are often marked by their simplicity and an intelligent combination of western experience and local creativity.

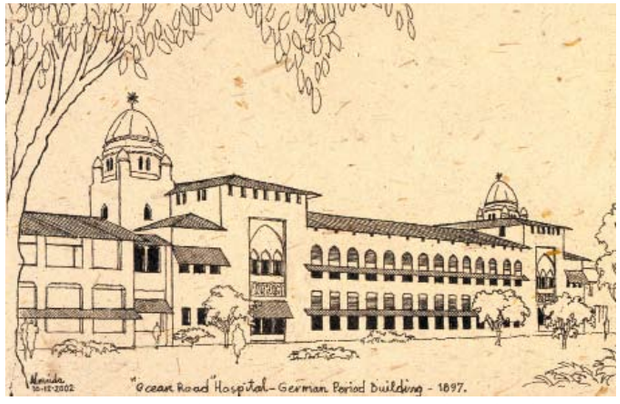
During the early period, up to World War I, colonial governments built according to plans drawn up by engineers, who were usually employed by public works departments.[9] The buildings served their purposes and were very recognizable. In English colonies in particular, there is a identifiable generic, imperial, tropical building style. This recognizable architectural style could be found throughout the empire where 'the sun never set'. The few English architects who went to work in Africa after World War I, such as Henry Vaughan Lanchester in Zanzibar, would further develop this imperial tropical building style. African influence over this style was limited; it was a tropical architecture that was first influenced by the Beaux Arts and later by Art Deco, and which manifested itself in institutional and commercial buildings. The residential building projects of this period were mainly based on a bungalow style that reminds vaguely of Frank Lloyd Wright and which we already saw in Accra. This architecture primarily seems influenced by British imperial Indian examples, and is found in former British colonies in Africa and Asia. The style was not however limited to the British Empire, but can also be found in, for instance, the former Dutch colony of Indonesia.[10]

Traditional African building culture had a greater influence on colonial architecture in French and German colonies than in English ones. As will have been clear from the description of Ségou in the previous chapter, the French allowed themselves to be inspired by 'Sudanese' architecture, even though this was limited to the form. The building techniques and use of materials were largely western.[11] The Germans in Tanzania, the former German East Africa, were inspired by the architecture and building technology of the East African coast. Probably the two most important German colonial buildings in Africa, St. Joseph's Cathedral and the Ocean Road Hospital in Dar es Salaam, were erected in plastered coral stone. The cathedral, which we will examine later, was built in the North German gothic-revival style, but the hospital is a dazzling interpretation of an East African sultan's palace.

Until World War II, colonial buildings in Africa were subject to many influences from the motherland, combined with the above-mentioned, more or less independently evolved, imperial tropical architecture. The ideas of the Modern Movement had only a limited influence in Africa at this time. One exception was South Africa, where Rex Martienssen and his colleagues, who were influenced by Le Corbusier, realized a number of original modernist buildings. But this is not to refute that modern building technologies came to be used on a wide scale in Africa; approaches different to those of modernism only prevailed in formal expression and design principles. In the coastal areas in Africa, boulevards and settlements were constructed using reinforced concrete, glass, and steel, with flat roofs, but otherwise in a generic tropical art-deco tradition.

The functionalist and analytically based architecture that was rooted in the Modern Movement was not introduced into Africa on a great scale until after World War II. The AA School of Tropical Architecture (called the English School by Ola Uduku),[12] dominated formal architecture and town planning in English-speaking Africa between 1940 and 1970. It assumed that the same models could serve throughout the tropics, with variations only determined by local climate. Thus, the distinguishing factors of the English School were the study of climate and the climate-technnological solutions in architecture and town planning. The *Building Research Institutes* (BRI) performed scientific studies all through the British Empire and the areas under its influence. In 1956 there were BRIs in Kumasi, Ghana; in Pretoria, South Africa; in Washington DC; in Roorkee, India; in Haifa, Israel; in Bogotá, Colombia; and Chatswood near Melbourne in Australia. The nerve center of the BRI institutes was in Watford in Britain, in the heart of the crumbling British empire.[13] My research concludes that the AA School of Tropical Architecture organized the first conference on tropical building in 1953 in London. The most important pioneers of the English School included Maxwell Fry, who we have already encountered when reading about Accra in Ghana,

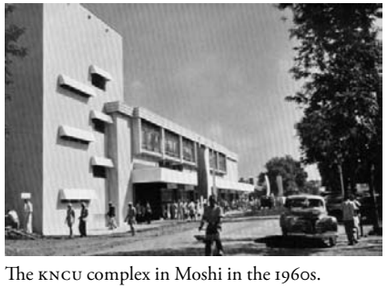
7 For example, Geoffrey Eastcott Pearse (1956).
8 A beautiful example is the book from the beginning of the twentieth century by J. Strehl (without date).
9 In French: *Travaux Publics*.
10 About architecture in Indonesia see, Folkers 2007; see also Tzonis 2001.
11 An early example of the 'concrete regionalism' according to Ozkan 1992, p. 353-366.
12 Uduku and Zack-Williams 2004, p. 110.
13 'Notes on Building, Housing and Planning in Tropical and Sub-Tropical Countries', in *Colonial Building Notes* 1950-1958, nos. 1-50, and *Overseas Building* 1958-1965 nos. 51-100. Tropical Building Section, Building Research Station, Garston, Watford, Hertfordshire WD2 7JR U.



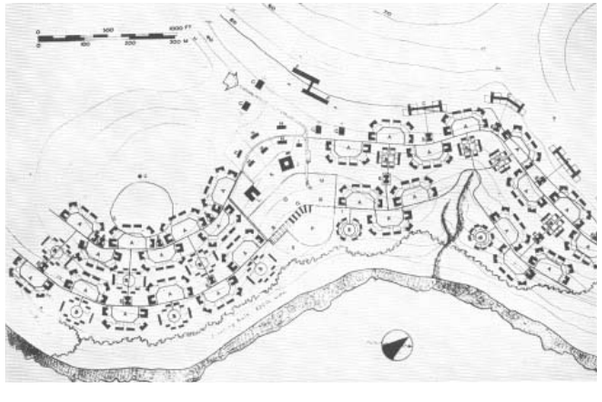

The Ocean Road Hospital in Dar es Salaam. *Drawing: Anthony Almeida*

The KNCU complex in Moshi in 2004.

Design drawing of the KNCU complex in Moshi by Ernst May (late 1940s).



The KNCU complex in Moshi in the 1960s. *After: U. Kultermann*



Urban development plan for rebuilding of the old fishing village in Tema by Maxwell Fry. A modern interpretation of the traditional compound. It contradicts Fry's expressed views concerning the irrelevance of traditional African architecture.

and Ernst May, the architect of the *Neue Frankfurt* who became disillusioned after traveling through Russia, and went to Africa. During World War II, he was employed by the British as a POW to help in the rebuilding of East Africa.

Fry worked with Le Corbusier in Chandigarh before leaving for Africa. He was most active in Ghana. To the east of Accra, he was involved in the design for the new port and city of Tema by Constantinos Doxiadis. In Tema, an existing African town was completely replaced by a new modernist model city.

In Africa, Fry and his partner Jane Drew had the opportunity to give form to their modernist vision, without meddling and impediments from the past. In their standard work *Tropical Architecture in the Humid Zone* of 1956, they remarked that it was a breath of fresh air for architects from England to be freed from the claustrophobic culture that had evolved with too great a respect for former traditions.[14] This fact was not only a driving force for Fry and Drew. Postwar Africa was the laboratory and the playground of modernist architects and town planners.[15] A place where one could ignore habits, traditions, and institutions, because they were not considered relevant to the continent's progress. John Godwin, a modernist English architect working in Nigeria at the same time, said that in this respect Africa was an architect's paradise.[16]

Long before World War II, the French governor in Morocco, marshal Lyautey, considered the colonies as a laboratory for modernism. It was Lyautey who commissioned Henri Prost to design Casablanca's master plan, which was discussed earlier. Albert Sarraut, at that time governor in Indochina and later French Minister of the Colonies, said in 1931 with a wink at Le Corbusier: 'From now on European building will stand on colonial pilotis.[17] Sarraut made this remark during the first international congress on urbanism in the colonies, which was linked to the great colonial exhibition in Paris. In colonial building projects in Morocco, Albert Caquot also saw the chance to gain experience that would have been unthinkable in France due to the restrictive French building and planning codes.[18] There was an atmosphere of architectural freedom and chance for experiment even during my period in Africa. Often one was inclined to rediscover the wheel, start from scratch – which in fact often made sense. This was very unlike the situation in the Netherlands, where the professional field has long been dominated by competitions, restricted choices, and rules that require a completely different creative approach than what would be possible in the African context.

This playground atmosphere does not imply that western modernists worked without commitment or morals. Far from it: the ideals of the Modern Movement of the 1920s were still very much in force. The architects went to work in Africa like good missionaries, first to support the colonial welfare state and then to support the

14 Fry and Drew 1956, p. 19-20.
15 Many established personalities worked in Africa; they include Fry, Simounet, Bossu, Almeida, Candilis, and Guedes. For example, see Johan Lagae's wonderful biography on Laurens (2001).
16 John Godwin, 'Architecture and Construction Technology in West Africa', in Casciato and d'Orgeix 2005, p. 75.
17 Sarraut 1931, p. 220-221.
18 See Cohen and Eleb 2002, p. 419.

newly independent African nations, all in the name of humane progress and justice. They felt supported by the scientific basis of modernism; the knowledge and experience of new building technologies gained in the years before the war would pave the way for the African welfare state. According to Fry and Drew, the first task confronted with by the modern architects and town planners in Africa was to apply their science in humanistic terms.[19] There was a dominant belief in a swift development of Africa, and an enormous optimism reigned that was expressed in the fresh architecture designed in this period. Africa would undergo the same developments as the rest of the world. Fry and Drew put forth the universal belief 'that everyone in the world is equal'.[20]

Nevertheless, there was little place for African culture in this uniform situation. It was patently obvious that Africans would adopt western traditions and, therefore, little or no attention was paid to traditional African cultures. In line with this attitude, the architects had little interest in traditional African building. Western building techniques became the standard and – although not immediately available for all Africans – western building technology was on the curriculum at the missionary's or government's technical institutes. Corrugated iron and concrete blocks were introduced to the building market at a large scale, because local construction techniques and materials were not considered suitable for the industrial building technology required to hasten the development of modern Africa. To this day, the emphasis in Africa has always been on modern building technology. Barnabas Nawangwe admiringly compared the efficiency and speed of the Israeli-introduced building projects in Kampala in the 1960s with their raid on Entebbe in 1977, and used this as an appeal not to divert from the use of modern building technology.[21]

This approach, which was adopted during the late colonial period and the first decades of African independence, completely ignored traditional African building cultures. 'From a Eurocentric view of Africa as a continent without history, the debate on architecture in the Belgian colony was driven by the belief that Congo had no significant building culture. Congo was seen as a virgin territory, and during the entire colonial period, Congolese architecture was not considered a valuable source for the development of a contemporary colonial idiom', wrote Johan Lagae about the colonial Congo.[22] According to Lagae, this resulted in Belgian architects even inventing a 'Congolese style' for the Congo pavilion at the 1931 Colonial World Exhibition in Paris.

Five years after the independence of Ghana, Fry still considered the native building tradition unsuited for the development of a modern civilization.[23]

At the same time, a serious interest in traditional African archi-

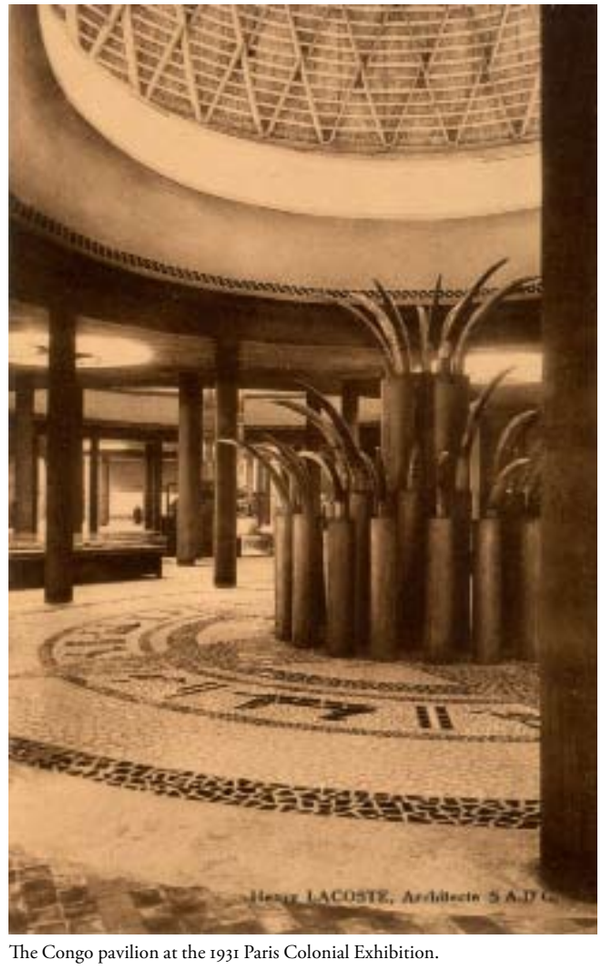
19 'Modern Architecture, and its extension into town planning, has above all this task of interpreting applied science in humanistic terms', and 'to ring from science a solution of value for humanity'. Fry and Drew 1956, p. 20.

20 *Ibid.*, p. 23.

21 Barnabas Nawangwe, Tom Sanya, and Ian Sankatuka, 'African Modernism in Post-Independent Uganda', in Folkers, Van der Lans, and Mol 2005, p. 149.

22 Johan Lagae, 'Modern Architecture in the Belgian Congo', in Casciato and d'Orgeix 2005, p. 65.

23 'African society in the customary view of most contemporaries needs Western technique to accommodate modernization and reverse its previous exploitative suppression by the unreformed dynamic of modernity. Fry expressed this opinion partly in his 1962 article "Building the New Africa" when asserting that native building was "unsuitable for the development or a modern civilization".' Windsor-Liscombe 2003, p. 59-60.




The Congo pavilion at the 1931 Paris Colonial Exhibition.

tecture emerged that was rooted in romantic and exotic anthropological studies and was not considered relevant for present and future African building. Hugo Priemus, who made a research trip to Morocco in 1964 with colleagues from Delft Polytechnic (the Kasbah Group), published a well-documented report on the so-called 'pre-industrial Moroccan architecture', stating that traditional building forms had little specific suggestions to offer to modern housing construction and urban planning.[24]

In retrospect, it is difficult to see the triumph of modernism in Africa and the rest of the world in the period after World War II as a victory of the ideals of the Modern Movement of the 1920s and 1930s. It appeared that postwar internationalist architecture was little more than a formalist and material interpretation of work achieved by the pioneers of the Modern Movement, that had become a model for the rebuilding of Europe and progress in the developing countries. Moreover, similar to Europe, there soon came a negative reaction to such internationalism in Africa. Even before the label 'Postmodernism' was invented as a catchall phrase for counter reactions to modernism, African individuals and groups, from a regional perspective, began to look for an African identity in their own architecture.

At the risk of falling into determinism, I follow the interpretation of Suha Ozkan here.[25] Ozkan was certainly not the only person to have extensively studied regionalism, but his summaries are sharp and applicable to the African situation. Ozkan begins his analysis by dividing regional reactions to internationalism into derived and transforming tendencies, that respectively lead to 'vernacularism' and 'modern regionalism'. Vernacularism is naturally derived from vernacular, the native or local informal architecture, which is at the opposite end of the spectrum from academic, formal, or official architecture. Vernacular architecture, just like regional, native, and traditional architecture, was a breath of fresh air in the academic discourses that followed Rudofsky's work that could be applied to provide informal regional architecture with a positive connotation. Ozkan subsequently divided vernacularism into 'conservative vernacularism' and 'neo-vernacularism'. Conservative vernacularism emerged with the reintroduction of traditional building methods for traditional use, while neo-vernacularism was characterized by the reintroduction of traditional building methods for contemporary use. Ozkan divided modern regionalism into 'concrete regionalism' and 'abstract regionalism'. We have already encountered concrete regionalism in the neo-Sudanese architecture in Ségou. It relates to the adoption of certain design elements, building elements, and the formal expressiveness of traditional regional building culture into modern building technology and functional typologies. In Europe, concrete regionalism has become synonymous with postmodernism in architecture. Abstract regionalism, finally, conforms with Kenneth Frampton's 'critical regionalism'[26] that we also encounter in Alexander Tzonis', Liane Lefaivre's, and Bruno Stagno's accounts

24 See Nijst 1973, p. 328.
25 Ozkan 1992, p. 353-366.
26 To my knowledge, the concept was introduced by Kenneth Frampton. See for example Frampton 2006, p. 314.



The former house of Pancho Guedes, now the famous Zambi Restaurant in Maputo. *Photo: Georg Lippsmeier*


The work of Pancho Guedes in Maputo (sketch).

Kimbembele Ihunga (Kimbéville) 1993-1994.
*After: Fondation Cartier*


Stars Palme Bouygues.

of tropical regionalism[27] and that, in the Netherlands, may be seen as an equivalent to the concept of 'analogue architecture' which was introduced by Tjeerd Dijkstra.[28] Abstract regionalism in essence embraces the ethical principles of the Modern Movement, but goes deeply into the cultural continuity of the *locus*. This cultural continuity is evident in factors such as mass, spatial experience, rhythm, proportions, and the application of light, and is similarly translated into contemporary technology and typology. Ozkan believed that characteristics like modesty and the ability to be a good listener are important qualities that help to achieve satisfying results in abstract regionalism.[29] However, modesty and being prepared to listen are not characteristics commonly associated with architecture, which may explain the relative unfamiliarity of abstract regionalism, not only in Africa but also in the rest of the world.

Nevertheless, there were still architects active in postwar Africa who were distinguished by their abstract regional style. Jean-François Zevaco in Morocco, Anthony Almeida in Tanzania, Demas Nwoko in Nigeria, Justus Dahinden in Uganda, and, in particular, Amancio d'Alpoim Guedes (Pancho Guedes) in Mozambique have left work which is comparable in quality with that of individualistic European modernists like Gaudí, Dudok, Aalto, and Plečnik. Guedes described his motive in creating an African interpretation of modern architecture in 1969 in Udo Kultermann's key book *New Directions in African Architecture*. He stated that the African 'hunger for buildings as symbols, messages, memorials, and chambers of ideas and feelings is so strong that even if their faded medicine has lost the original potency of sign and idea, our need constantly recharges them'.[30]

Guedes' prediction is proving accurate. There is an African need for identity that is shared throughout the continent, and it is inspired, for example, by the work of Bodys Isek Kingelez.

27 Tzonis 2001.
28 Dijkstra 2001.
29 'Les contributeurs au discours régionaliste abstrait approchent leur sujet avec humilité, avec un sens de la continuité et une bonne compréhension de la culture. Ozkan 1992, p. 361, and 'We translate this combination of modesty and responsibility into the term *discretio*. Discretion is required of the architect who, for every new project, must first listen, feel and absorb (like a discrete chameleon), who must show both respect for the environment and the client, in order to eventually synthesize the complexity of the problem into lucid, unique, and distinctive form. In being discrete, a personal architectural creation can distinguish itself without being asked for attention and by respecting the environment in the broadest sense.' In Folkers 2003, p. 122.
30 Pancho Guedes quoted in Kultermann 1969, p. 101.

# The Faculty of Engineering in Dar es Salaam

## • THE CAMPUS OF THE UNIVERSITY OF DAR ES SALAAM

The university campus of Dar es Salaam (UDSM) was a gift to Tanzania by the Western countries and can be counted among the many monumental and representative institutional complexes and buildings erected in the 1960s in Africa. In many cases, these schemes were still part of the project of the colonial welfare state, but due to the accelerated process of independence, they ended up as farewell gifts from the ex-colonial powers to the newly independent African nations. They included schools, universities, hospitals, administrative buildings, and infrastructure, and were sophisticated projects often comparable in complexity and technology to projects in Europe.

The UDSM campus was developed from 1960 on a hill on the north side of Dar es Salaam: a beautiful location with a panoramic view over the city and the ocean. Because of its location on the hill, the campus benefits from sea breezes, and its microclimate is much more agreeable than that of the overcrowded city centre on the coastal plain. The individual buildings are situated in a leafy park setting, which further adds to the attractiveness of the campus.

An important model for the UDSM was the University of Kumasi (KNUST) campus in Ghana. Its construction began in the 1950s according to the design of architects and planners of the English School, who following James Cubitt's master plan. In the original plan, the UDSM campus was part of the University of East Africa, with branches in Nairobi, Kampala, and Dar es Salaam. The Nairobi branch specialized in technical sciences, the medical faculty was based in Kampala, and Dar es Salaam specialized in law. In 1964, the first lawyer graduated from the University of Dar es Salaam.

The English architectural practice Norman & Dawbarn designed the

campus' master plan in line with pure modernist principles. The landscaped urban plan and the individual buildings, constructed in the 1960s and 1970s under Norman & Dawbarn's supervision, are modernist in form and arrangement. For the problem of style and standards, Norman & Dawbarn insisted that the buildings would not be lavish and showy. The minimalism and sobriety of the campus fit well in a country where dwellings are mostly small and simple, but the buildings still needed to be attractive enough for the Tanzanians to feel pride for their university.[1] The homogenous architecture and its composition in the landscape make the campus a modernist jewel. It is a pleasant place to spend time, because the ingenious orientation of the buildings optimizes the effect of the sun and prevailing winds. Some, however, criticized the campus, calling it a fantasy world, a working, learning and livind environment that, because of its deliberate isolation and distance from the city, hindered academics from being integrated into the practical development of Tanzania.[2] [See p. 173]

## • LIPPSMEIER AND THE EMERGENCE OF THE GERMAN SCHOOL

In the barely thirty years of German colonialist rule in Africa – from the 1884 conference in Berlin to the end of World War I – Germany governed its colonies with much energy and vigour. The Germans built railway lines, ports, established vast plantations, and constructed towns and cities. After World War I, German East Africa was divided into the British protectorate Tanganyika and the Belgian protectorates of Rwanda and Burundi. The British invested little money and energy in developing Tanganyika, compared with their crown colonies of Kenya and Uganda.

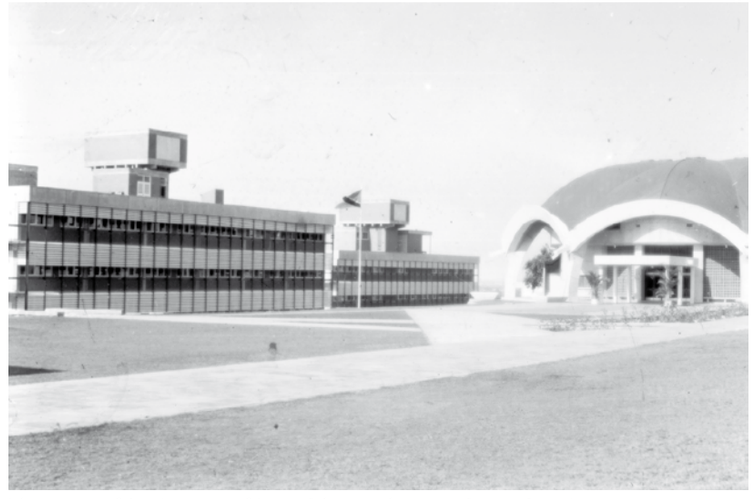
After the independence of Tanganyika in 1961 and the Union with Zanzibar in 1964, possibilities for Germany to show practical interest in Africa reemerged, after being interrupted by two world wars and national socialism. West Germany at the end of the 1960s was a wealthy state as a result of the *Wirtschaftswunder* and was now set for economic and technological expansion. The national financing institute for reconstruction, the *Kreditanstalt für Wiederaufbau* (KfW), part of the Ministry for Development Cooperation (BMZ),[3] invested considerable funds in developing countries. Much of this investment was directed at developmental aid that was channeled to serve German interests and West German corporations and organizations. The coordination of building, infrastructure, and agricultural projects was supervised by the national agency for technical cooperation, called the *Gesellschaft für Technische Zusammenarbeit* (GTZ).

From the mid-1960s to the mid-1980s, a great number of building projects were implemented in Africa, Asia, and South America

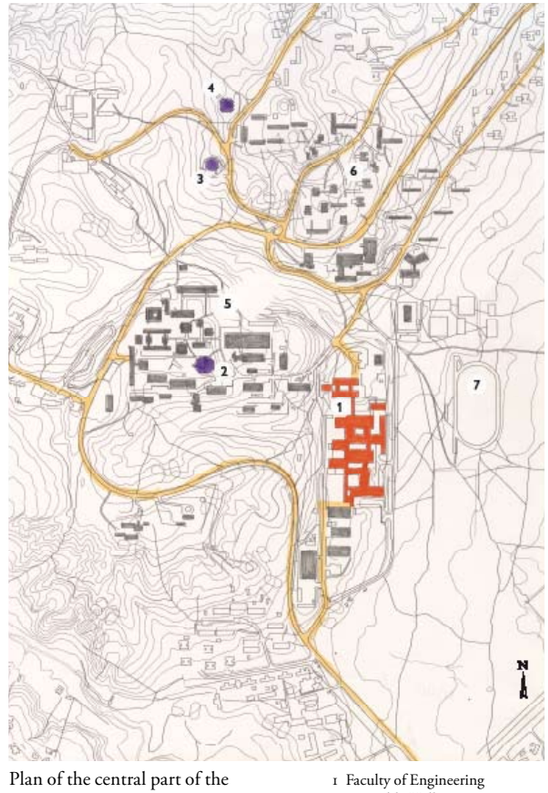
1 'Then there was the problem of style and standards: buildings had to be devised that would not be lavish and showy, and so out of place in a country where dwellings are mostly small and simple, but that would at the same time be durable, cheap to maintain, and dignified and pleasing enough for every student and every Tanzanian to feel a pride of possession whenever he looked at them.' In Figueiredo 2007. From an article of 1964.

2 'There exists a polarity between the simple way of life in the students' families and the academic life on the Hill. The student is not expected to banish all thoughts of his origins from his mind, but to live with the tension, and make it bear fruit in his future work in the country as teacher, doctor, or administration official.' In: Bieger 1970, p. 78.

3 Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung.



The campus of the University of Dar es Salaam in the 1970s. *Source: Georg Lippsmeier*




Plan of the central part of the campus of the University of Dar es Salaam.

1 Faculty of Engineering
2 Assembly Hall
3 mosque
4 Joint Christian Chapel
5 central area UDSM
6 staff and student housing UDSM
7 sports grounds UDSM

Mosque by Ernst May on the campus. *Photo: Thierry van Baggem*

with the help of West German funding. In Africa, their emphasis was focused on Tanzania and the other former German colonies Cameroon, Namibia, and Togo. This included school complexes, hospitals, factories, universities, stations, airports, and other large utilitarian structures. Housing and urban development played a more modest role. The architectural projects realized with West German capital were mostly designed by West German architects, but at the onset it seemed that few German architects were experienced in building in the tropics.

Otto Koenigsberger, professor at the Architectural Association School (AA) in London; later Erich Kühn, professor at the University of Aachen; and Georg Lippsmeier in Starnberg, established the West German approach to tropical architecture. They were clearly inspired by the English School that attributed great significance to a scientific basis of tropical building. After some time they planned to set up a German tropical architecture school, based on the principles held by the AA in London and the Technion in Haifa. However, the motivation here was mostly economic, because West Germany believed that Africa would become an important future trading partner, and this economic interest must of course be stimulated.[4]

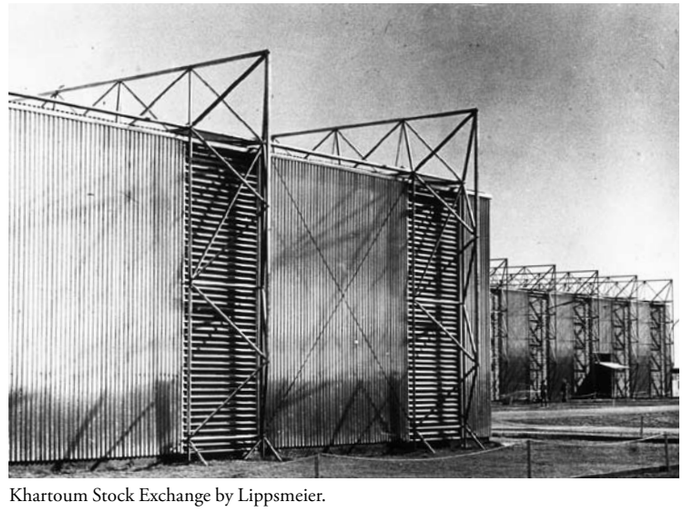
Georg Lippsmeier (1923-1991)[5] began his career as a church architect in the practice of his father, Bernard Lippsmeier. He left in 1950 to establish his own bureau and became active in exhibition architecture. The office of Lippsmeier + Partner (L+P) is still recognized in the field of trade fairs and exhibitions. In 1954, Lippsmeier designed an exhibition stand in Johannesburg and became fascinated by Africa. He carried out extensive research into tropical building technology and developed into the most successful German tropical architect of the twentieth century. From the middle of the 1960s, L+P opened offices in different countries in the Third World and realized a considerable number of building projects.

Heinz-Werner Franckson opened a L+P field office in Mwanza in Tanzania in 1967 for the building of the vaste Buganda hospital.[6] After the completion of the project at the beginning of the1970s, the office moved to Dar es Salaam.

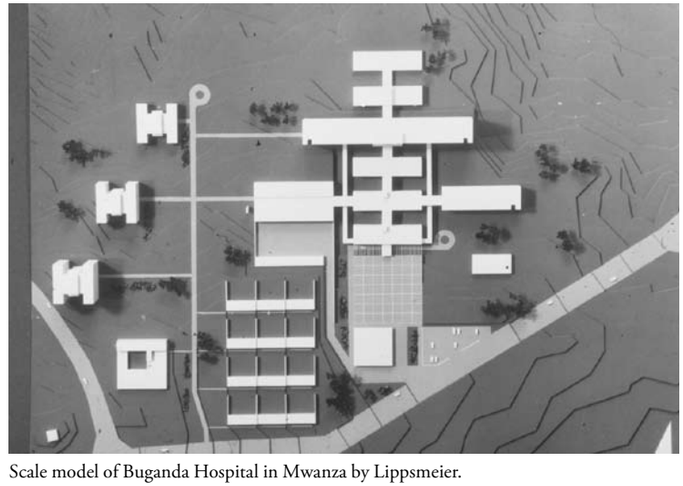
In 1969, Lippsmeier founded the Institut für Tropenbau (IFT) for the scientific research of building technology in the tropics. In the same year, he published his book *Tropenbau: Building in the Tropics*,[7] which in the seventies and eighties was the standard work in the field of tropical building technology and planning. The IFT in close cooperation with the GTZ carried out research and built experimental projects in the field, and was responsible for a series of publications commissioned by the National German Research Institute, the *Deutsche Forschungsgemeinschaft* (DFG).[8] The collaboration between the GTZ and Lippsmeier was no accident; Georg Lippsmeier and Hannah Schreckenbach, who worked for the GTZ, were childhood

4 '[…] auch Israel hat erkannt, daß Export von Wissen eine bessere politische Entscheidung sein kann als noch so großer Geld- und Investitionsexport'. Peters 1969, p. 1247.
5 Interview with Uli Lippsmeier in Starnberg, December 7, 2006.
6 Interview with Heinz-Werner Franckson in Remagen, June 2007.
7 Lippsmeier 1980.
8 Important researchers at the IFT were, apart from Georg Lippsmeier, Kiran Mukerji, Kazuo Oka, Hans Demeter, Paulhans Peters, and Hans Neumann.

Sihanoukville Railway Station in Cambodia by Lippsmeier.



Khartoum Stock Exchange by Lippsmeier.



Scale model of Buganda Hospital in Mwanza by Lippsmeier.

friends in Magdeburg. A joke circulated in the office that they were once sandbox playmates.

Schreckenbach was responsible for the building department of the GTZ. From 1960, she was active as an architect and from the mid-seventies, taught at the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana. Together with Jackson Abankwa she wrote *Construction Technology for a Tropical Developing Country*, one of the earliest African building-technology textbooks for students.[9] In this book we find the explicit change of direction from the emphasis on imported western building technology – which was characteristic of her work up until that time – to applied building techniques, based on traditional Ghanaian building forms with appropriate methods and a preference for local materials. Her significant role at the GTZ contributed to establishing the German Appropriate Technology Exchange (GATE)[10] that, together with the IFT, dominated German approaches to tropical building technology in relation to development aid in the 1980s.

## • THE NEW FACULTY OF ENGINEERING (FOE)

The end of the 1960s brought the end of the East African Union (EAU) of Uganda, Kenya, and Tanzania. Uganda was ruled by dictators at the time, first Milton Obote and then Idi Amin; Kenya developed into a capitalist bastion, and Tanzania followed Nyerere along a socialist path. In Tanzania, after the Arusha Declaration in 1967, the path was paved for large-scale reforms.[11]

There was little trust now between the East African presidents and their governments, which led to the dissolution of the EAU, and ultimately, the closure of the University of East Africa in 1970.

This closure had been anticipated shortly after the Arusha Declaration, when a workgroup was formed to bring independence to the University of Dar es Salaam. The workgroup prioritized the establishment of a technical faculty, and requested assistance from the German government. In 1968, however, the relationship between West Germany and Tanzania cooled off. This was possibly due to the large-scale nationalizations that had taken place, or the recognition of Zanzibar by the German Democratic Republic, and the subsequent establishment of an East German embassy in Tanzania. According to the *Hollstein Doctrine*, West and East Germany could not both have an embassy in the same country. This situation was finally solved by renaming the East German embassy in Dar es Salaam as a general consulate, a *Generalkonsulat*. This affair is a typical example of the political Cold War-driven power struggle that confronted development aid agencies during the post-independence periods of many African countries in the sixties. Developing countries made grateful use of this competitiveness; if the West did not want to provide what the developing country requested, they sought aid and assistance from the East. A famous example here is the Aswan Dam in Egypt: when the West rejected a request for financing, it happened that, to the surprise of many, the dam was built in no time with Russian assistance. A less well-known project, but of comparable extent, is the Tazara railroad[12] between Dar es Salaam and Lusaka. The West also refused to finance this scheme and, soon enough, China stepped in with financial aid and the railroad was built with a workforce of tens of thousands of Chinese labourers.

In 1970, the relationship between Tanzania and West Germany had settled, and the BMZ Minister Erhard Eppler, when visiting Tanzania, promised assistance in the building of a technical faculty (Faculty of Engineering, FOE). Also in the same year, and based on the advice of West German experts who visited the site, a program was drawn up for the establishment, construction, and operation of the FOE. The program of Klaus-Wolfgang Bieger, Dietrich Goldschmidt, and Wolfgang Kreuser planned to admit the first students in 1973.[13] Bieger and his colleagues emphasized that the aim was to set up a faculty that was adapted to local needs, and not an indiscriminate copy of a western technical college. This did not imply a substandard faculty compared to western institutions; but rather, it should specifically aimed at developing a Tanzania that would be able to cope for itself.[14] In accordance with the Arusha Declaration, the FOE was seen as an important basis for independence and self-reliance, as a school that deliberately promoted the cultural, social, and economic development of the country, in compliance with local traditions and the principles of democracy, socialism, and self-determination.[15]

In order for this project to be successful, FOE engineers would not become super specialists, but be trained to cope with a wide variety of practical problems. During the first decade of its existence, the FOE would limit its curriculum to civil engineering, electronics, and mechanical engineering. The main tasks of the FOE were to focus on training future teachers for technical education, technical research for the development of Tanzania that would focus on utilizing local raw materials, and providing technological assistance. Because it was assumed that the students would not need extensive knowledge of modern technology and would later return to Tanzanian grassroots practice, the emphasis on practical education was considered essential.

The emphasis on self-sufficiency appealed to the West German experts and tied in with the vision of Chancellor Willy Brandt's administration. He wanted to change the system of development aid from a centrally organized system depending on large scale import from the donor country to one which was decentralized and depending on execution by the local partner. In their proposal for the building of the FOE, Bieger and his colleagues advised to give the design contract to the architectural office of Norman & Dawbarn. This

9 Schreckenbach and Abankwa s.d. [1981].
10 German Appropriate Technology Exchange.
11 'Arusha Declaration and TANU's Policy on Socialism and Self Reliance'. In Nyerere 1969, p. 13-37.
12 Ta(nzania) Za(mbia)Ra(ilway).
13 Bieger 1970, p. 21.
14 'Tanzania does not require engineering training of any lesser quality than which is available on a German technical university, but another kind of training instead.' *Ibid.*, p. 23.
15 'The University regards as its responsibility the development of patterns of work stemming from its own social tradition, and service to the cultural, social, and economic development of Tanzania according to the principles of democracy, socialism, and self determination.' *Ibid.*, p. 12.

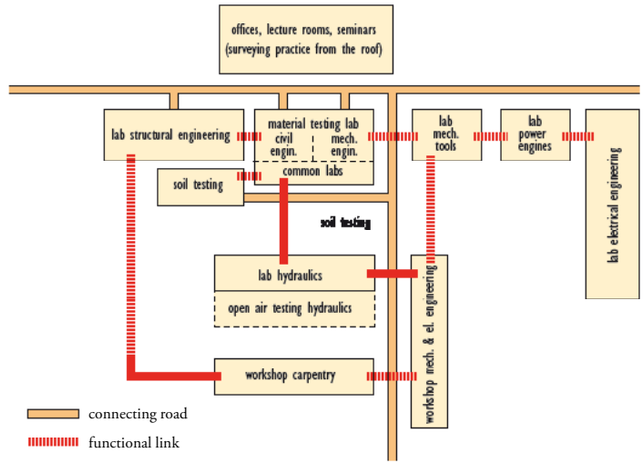
practice which had already designed and supervised the master plan and many of the buildings on the UDSM, was in Bieger's eyes as much a local company as a practice with a British and international reputation. Norman & Dawbarn had given the campus a sober and practical form with a 'pleasant absence of profusion'.[16] The replacement of Norman & Dawbarn by a West German architect would have demanded too much of such an architect according to Bieger, because which West German architect would be able to learn enough to realize a building adapted to the extraordinary climate of the University Hill and the complex site conditions within such a short time frame?[17] At the same time, Bieger added, a sketch plan had already been commissioned from Norman & Dawbarn. A remarkable piece of advice, that was based on two relatively simple aspects of a technological nature. Yet, for Lippsmeier, as a well-known tropical architect with experience in Tanzania, this advice appeared to be no obstacle to winning the contract.

Bieger and his colleagues produced a report, which contained an elaborated design brief with details rarely found in architectural practice. The report not only contained considerations concerning the kind of education that was to be offered, but also notes on the educational curriculum for 1973-1982, a list of the required staff with qualifications, a design brief with room requirements, a proposed site with alternatives, an organizational diagram for the complex, as well as a project plan and a budget. The West German government was prepared to pay for the proposed educational complex that included buildings, workshops, and laboratories, and the Tanzanian government would pay for the housing of staff and students. Starting from these preconditions, Lippsmeier went to work energetically and pragmatically. The proposed sketch layout of the complex was virtually a literal translation of the organizational diagram drawn up by Bieger. Lippsmeier began the design in 1971 and constructed started in 1972. The first students were admitted in 1973, and in 1974 the faculty complex was completed.[18] It was officially inaugurated on December 9, 1974 by President Nyerere.

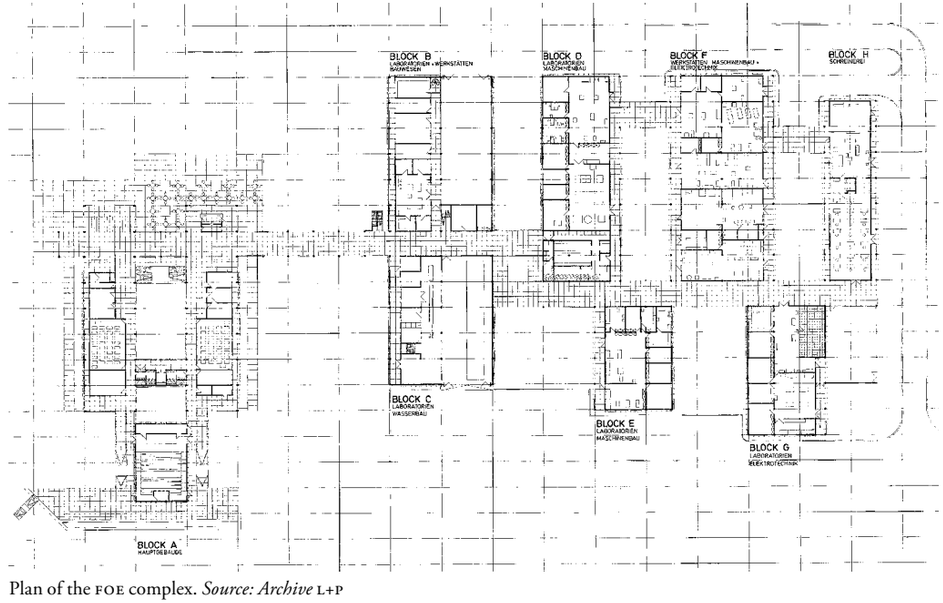
The design comprised a complex of free-standing buildings linked by covered walkways. The buildings' dimensions agree with the functional blocks in Bieger's organizational diagram, but Lippsmeier's design converted the links of the diagram into covered streets. The blocks are elongated and optimally directed towards the sun and the prevailing wind. The complex is arranged according to a 3 × 6 meter grid that covers the entire site and was prominently present in all sketches. The same consistency can also be seen on the scale of the detail and the materialization. The 3 × 6 meter grid is divided into modules of 30 and 120 centimeters that define the dimensions of all the building components.

The details in the complex are reduced to a number of carefully developed, strongly simplified, repeated solutions. The result looks quite simple, *schlicht und einfach*, as Lippsmeier called it – but

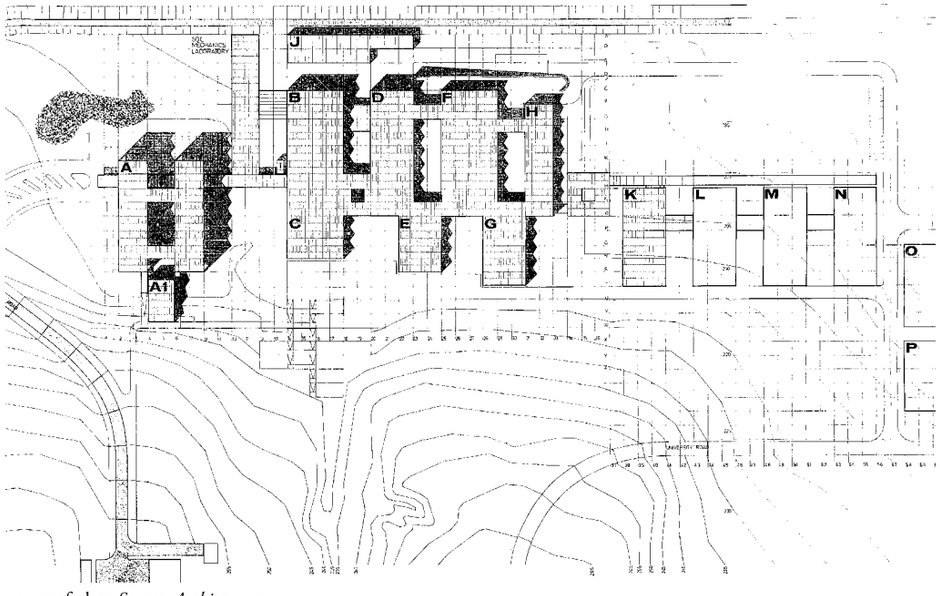
16 *Ibid.*, p. 107.
17 *Ibid.*, p. 85.
18 Karl-Heinz Tillmann was the project architect of the FOE, as well as the architect of many important L+P projects that were built between the end of the sixties and the beginning of the nineties.



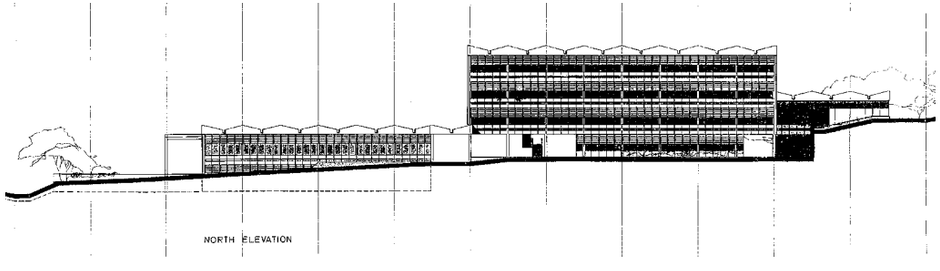

The arrangement scheme for the Faculty of Engineering by Bieger (1971).



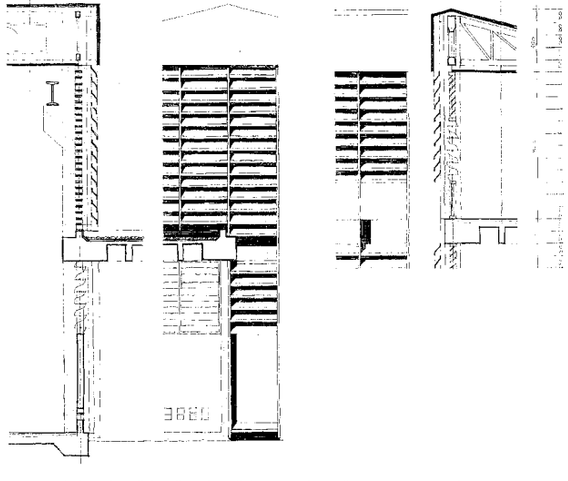

Plan of the FOE complex. *Source: Archive* L+P




FOE roof plan. *Source: Archive* L+P

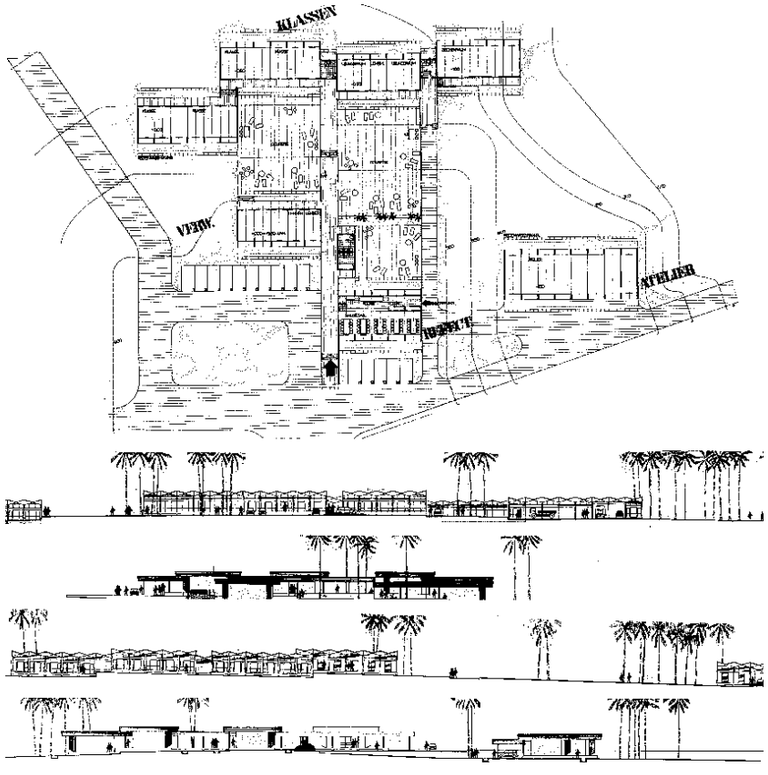


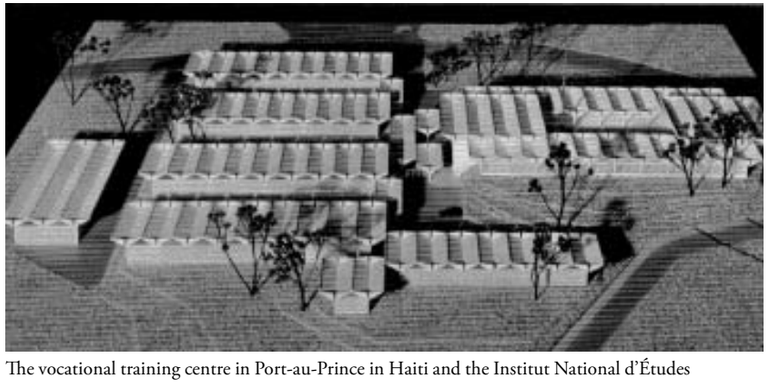

Cross-section of the design of the FOE complex. *Source: Archive* L+P



Principal details of the facade of the Faculty of Engineering. *Source: Archive* L+P

The FOE complex in the 1970s.



The vocational training centre in Port-au-Prince in Haiti and the Institut National d'Études Forestiers of Cap Estérias in Gabon by Jacobsen – Székessy.

this repetitive simplicity was based on a complex design process. All building components were conceived to be repeated and multiplied to produce a quick execution. The skeleton is constructed using concrete that was for a large part left visible, the floors are polished concrete or finished with terrazzo, the walls are of concrete or plastered brickwork, the ceilings again are of concrete left visible or equipped with suspended standardized clip-on aluminum strips. The roof, gutters, and rainwater pipes are made of aluminum, as are the sunshades and balustrades, and the windows and doors are of wood with glass louvers.

Few changes were made to the plan during the design process, largely because of the short planning time. Realizing a complex project of 7,000 square meters in one year, from first sketch to execution, is not an easy task. Nevertheless, the plan was developed and completed in detail when it landed on the contractor's worktable.

The objectivity and simplicity of the University's design are not unique in Lippsmeier's work. It is fundamentally characterized by sobriety and severity, as is that of other German architects from the period around 1970.

The typical German-originated tropical buildings from this period, characterized as 'pragmatic architecture' by L+P architect Hans Demeter,[19] could in fact be defined as a true German tropical architecture school. Lippsmeier himself thought that a pragmatic approach would be the most successful approach in building modern projects in developing countries. He believed that a direct transfer of western technology to the developing country was doomed to fail. He understood the common desire of young African governments to build prestigious modern buildings according to western standards, but warned of the problems of applying unsuitable, import- and maintenance-dependant technologies.[20] He considered Chandigarh, Islamabad, and Brasilia poor examples of tropical architecture, despite their architectural achievements.[21]

Lippsmeier was conscious of the gap between adaptation and representation that the architect was obliged to bridge. The host country might view a minimal building as primitive or non-progressive. He wanted to see a symbiosis develop between local traditions and western knowledge, in which the challenge was not to fall back on formal elements. One should avoid both an ultramodern-western and romantic-traditional concept of African form, in order to pave the way for a pragmatic application of an adjusted technology. In 1976, Lippsmeier wrote that the success of the pragmatic Chinese approach, which had occasionally been ridiculed in the West, was applied successfully in Africa and should make avant-garde and modernist architects reconsider their approach.[22] He was possibly referring to the newly completed terminus station of the Tazara Railway in Dar es Salaam.

19 'German Architektur als Exportartikel nach den Tropics. "German Schule" steht eine pragmatische Architektur vor. Zur FOE gibt es Vorbilder und Nachfolger.' Interview with Hans Demeter, 2006.
20 'Eine weitere Schwierigkeit bereitete der Wunsch nach Repräsentation und westlichem Standard, auch wenn er psychologisch verständlich war. Dieses Verlangen ist heute meist einer nüchternen Einschätzung solcher vermeintlicher Werte gewichen.' Lippsmeier 1976, p. 1.
21 *Ibid.*, p. 2.
22 '[…] Symbiose aus örtlicher Tradition und westlichem Know-how. Sonst heißt jedoch die Forderung: Abschied von der Bilderbuch-Architektur, sei sie nun modern-supertechnisch im westlichen, oder malerisch im Sinne von "Naivem, Eingebohrenem". Die pragmatische Anwendung einer angepaßten Technology, wie sie die Chinesen seit Jahren – belächelt von manchen aus den Industrieländern – in einigen Ländern Africas mit Erfolg angewandt haben, sollte allen Fortschrittsgläubigen zu denken geben.' *Ibid.*, p. 3.

Notwithstanding the applied pragmatics and sobriety, the Faculty of Engineering is visually striking. The loose, transparent structure and the human scale give the overall complex a welcoming appearance, and the students and teachers appear to feel at home there. Even on sundays, students work in the classrooms, or on the verandas, and they meet for a *pilau* or *samosa* on the terrace of the cafetaria.

### • THE FACULTY OF ENGINEERING TEN YEARS LATER

The development aid situation was greatly altered ten years after completion of the FOE. The era of aid-supported, large-scale institutional building projects was as good as over. L+P's last sizeable project, paid for through bilateral development aid in Tanzania, was the extension of the FOE with the Institute for Production Innovation (IPI), which I worked on briefly in 1985 before the completion. By that time, the notion of 'development aid' was replaced by that of 'development collaboration', which was directed at constructing institutions by means of education, training, and organizational support, rather than importing large (construction) projects. Local knowledge was now assumed sufficient, in terms of technology and architecture, to build the necessary infrastructure, and the importing of unnecessary technology and materials was to be avoided.

After ten years of intensive use, the buildings of the FOE had lost their luster. A 1983 report of a maintenance committee concluded that the problems were largely caused by the maladjustment of the design and its execution. It continued to state that maintaining the FOE was too dependent on imported materials and technology, for which no money was allocated when the building was completed. The *Gesellschaft für Technische Zusammenarbeit* (GTZ) was asked to explain how such a prestige project could deteriorate so quickly, and this question was subsequently redirected at Lippsmeier. In 1985, an extensive enquiry was conducted into the causes of the problems, and proposals were made on how to repair the damage.[23] This research took place under tensions stemming from the Tanzanian accusation that German architects had designed an unsuitable, import-dependent complex. They, in turn, responded with a counteraccusation that Tanzanians had failed to make any effort whatsoever to carry out even the slightest maintenance. Maintenance was apparently not a part of African culture, and, moreover, in Kiswahili, a word for 'maintenance' did not even exist. This was a bold statement. In traditional African building culture that uses perishable materials, constant maintenance was unavoidable. In the contemporary Tanzanian city, ancient Peugeots that would have been scrapped long ago in the West were kept on the road with great ingenuity and continuous maintenance.

John Godwin, himself a pioneer of the Modern Movement in West Africa, began to doubt modernist building technology. He looked back with nostalgia on the early colonial building methods of simple,

23 Radtke and Folkers 1985.

The Tazara Railway main terminal in Dar es Salaam. *Photo: Joep Mol*


The Faculty of Engineering in 2007.

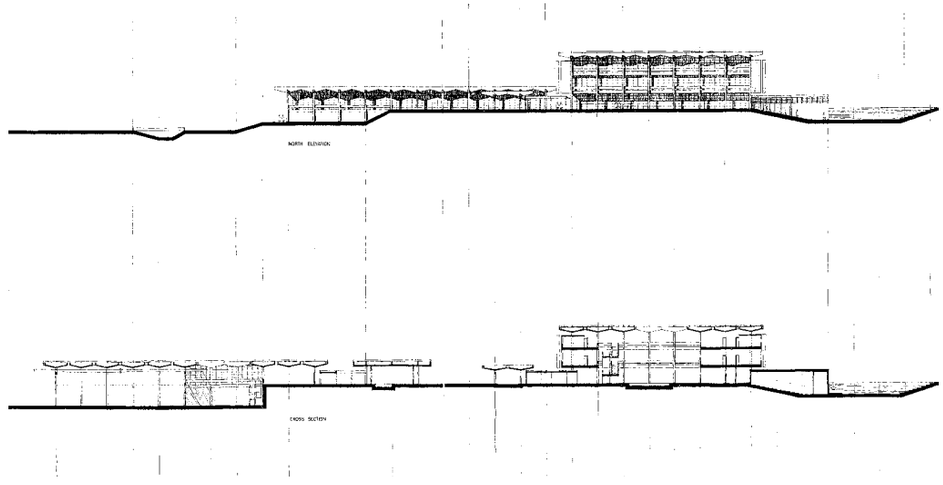
symmetrical volumes made from locally acquired raw or manufactured materials, such as untreated hardwood, bricks, tiles, and rustic plasterwork. According to Godwin, this building technology was better suited to the local building culture and simpler to maintain than modernist buildings of finished concrete, steel, and glass.[24] He compared the traditionally built campus of Legon near Accra with the modernist campus of Ibadan that was built around the same time. Legon was constructed in a straightforward, traditional technology and stylistic expression and was called 'old-fashioned' when completed,[25] but according to Godwin, it had proved better value in terms of cost and maintenance than Ibadan. From research conducted by Godwin and Hopwood into the period between 1969 and 1979, it appeared that modern building technology was twice as costly in Nigeria than it was in England.

The FOE was characterized by imported technology, using largely imported materials and installations, and was therefore dependent on imported expertise, spare parts, and precious energy. However, at the same time, it was remarkable that the maintenance backlog was so great in a school where engineers were educated in modern technology. This prompts the question as to whether a western engineering school would be any different. Most likely not. In the West, the students and teachers would care much less about the maintenance of their school, expecting third parties to be responsible because maintenance in the West is institutionalized, which is not the case in the much poorer Tanzania.

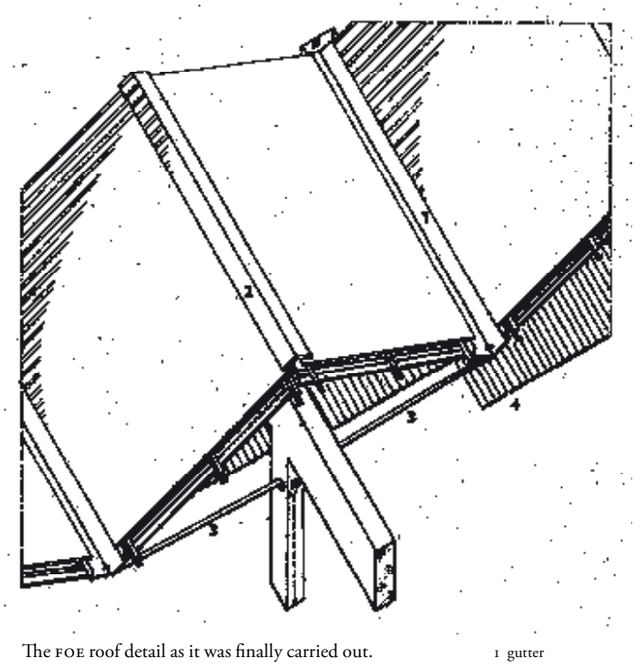
The Arusha Declaration was past history in 1985. Tanzania was slowly disentangling itself from Nyerere's socialism, and developing along the lines of a capitalist model. Yet it looked as if Nyerere's concerns were still being heeded, 'Independence means self-sufficiency. Independence cannot be achieved if the development of a country is dependent on gifts and loans from another country. Even if a land would be prepared to give us all the money we need for our development, it would be wrong to accept this help without asking ourselves how this help would affect our independence, and how it would influence the development of our country. Aid that strengthens our own efforts, or works as a catalyst to our efforts is valuable. But gifts which make us idle or limit our own growth should not be accepted."[26]

Perhaps, in retrospect, Nyerere asked too much of his country. A gift, regardless of how necessary, is a very seductive proposal. Tanzania became the darling of aid agencies in the seventies and eighties, because of the sympathetic, honest Nyerere and the friendly inhabitants who seldom sought or caused problems, and it received with open arms the gifts and loans from many countries. Germany, the Netherlands, Scandinavia, North America, Japan, China, the Soviet block; everyone indulged Tanzania. The result was that the Tanzanian economy adjusted to this situation, which led to a wait-and-see state of affairs and lethargy.

24 John Godwin, 'Architecture and construction technology in West Africa.' In Casciato and d'Orgeix 2005, p. 71.
25 'The gigantic new design for the University of Lebon [sic] near Accra, uninteresting from an architectural point of view, and built in a somewhat belated "Jugendstil", with Chinese elements, can be regarded as a romantic failure in the grand manner.' In Kultermann 1963, p. 17.
26 Nyerere 1969, p. 23-24.




Section of the FOE complex with the original roof detail. *Source: Archive* L+P




The FOE roof detail as it was finally carried out.

1 gutter
2 ventilated ridge
3 drainpipe
4 prefabricated ceiling (click profile)

Apart from some decline, theft, and vandalism of sanitary fittings, the fact that the air-conditioning system reached the end of its life expectancy, the corrosion of the aluminum clip-on ceilings by the saline sea air, and lack of maintenance in general, the greatest damage to the FOE buildings was caused by roof leakage. A poor roof is the drawback of a building in any country, but it is a particularly problematic in the tropics. The enormous temperature changes caused by the sun and the massive amount of water that falls in a short periods of time during tropical rainstorms put a great demand on a roof in the tropics. Moreover, significant cutbacks were made precisely on the roof detailing during the design process. In the final design, the roof proposal consisted of funnel-shaped concrete slabs with a floating aluminum shade roof like a continuous umbrella. The concrete slabs were insulated, sealed, and drained through the columns and drains at the gable ends. The shade roof, consisting of horizontal aluminum blinds, protected the roof from direct exposure to the sun and extreme temperature changes.

The details in the roof were simplified in the building preparations. The roof section was reversed, the corrugated aluminum hipped roofs drained into valley gutters and under the metal trusses a suspended ceiling of aluminum click-on strips was inserted. This created endless valley gutters that had to be drained by rainwater down-take pipes placed within the building. The sun's radiation made the gutters expand and contract, which caused cracks and unavoidable leakages that were further worsened by the clogged state of the gutters due to failing maintenance. A gutter in the tropics is a dangerous thing. A sixty-meter-long, invisible, and difficult-to-reach valley gutter was impossible to manage.

The terminal building of Dar es Salaam International Airport by Paul Andreu.

# A field office in Wagadogo

• APPROPRIATE TECHNOLOGY AND THE FRENCH SCHOOL

The 1973 oil crisis shook the faith in the modernist dream. The belief in progress suffered, governments could not bring about the dreams of the promised welfare state and there was a collective lack of belief in prosperity. Moreover, the report of the Club of Rome predicted an exhaustion of raw materials and energy, and identified an alarming level of pollution caused by modern consumerism. This was an even harder blow for Africa, which only benefited from a small part of the growing prosperity enjoyed by the West after World War II.

In the seventies and eighties, western modernity was widely considered to be a disruptive factor in the development of the welfare state in Africa. The African cultural legacy was 'corrupted by modern life' that in present-day Africa 'has released a sort of unchecked pioneer's spirit. The overstrained prospects of an unknown garden of delights which modern society brings have destroyed African heritage', wrote Nigerian sociologist E. Ikoku in 1975. He appealed to the original African 'welfare state' in which nobody lived in poverty: 'We should apply soft technologies which are in harmony with the environment in place of the hard technologies of modernity.'[1] Self-sufficiency was necessary in the place of dependence on imported materials and technology. In the spirit of Schumacher: keep it small because people are small.[2] This appeal found a large audience in the West where the young generation longed for true experiences which were still to be found in the largely virgin Africa: 'Away from the hard and alienating world! Back to our origins! Back to communalism and the care for those closest to us!'

Serious doubt caused a rejection of globally applied modern technology. Instead, emphasis was placed on local and energy-efficient technologies. The search into these alternatives would become known as

1 Ikoku 1975, p. 27.
2 Schumacher 1973.

Appropriate Technology (AT) by the middle of the seventies.[3] AT was the translation of Schumacher's philosophy onto the work floor. In AT-philosophy, technology had to be adapted to local circumstances. 'Appropriate technology, in the broader framework of a sustainable development approach, involves building techniques that use materials for their true value, that are appropriate to a given situation, and are available locally.'[4]

The Egyptian architect, Hassan Fathy (1900-1989), was the first twentieth-century African architect to receive international recognition, and was to become an important inspiration for the AT movement. His mud-built architecture appealed to the imagination and his book, *Architecture for the Poor*, was a main source of inspiration for architects and engineers who felt attracted to the AT movement.[5] Fathy experienced the consequences for the African continent of western domination in architecture, and drew attention to the almost inevitable loss of the rich and multifaceted tradition of African architecture, which had been cut off from its natural roots by money, industry, greed, and arrogance.[6]

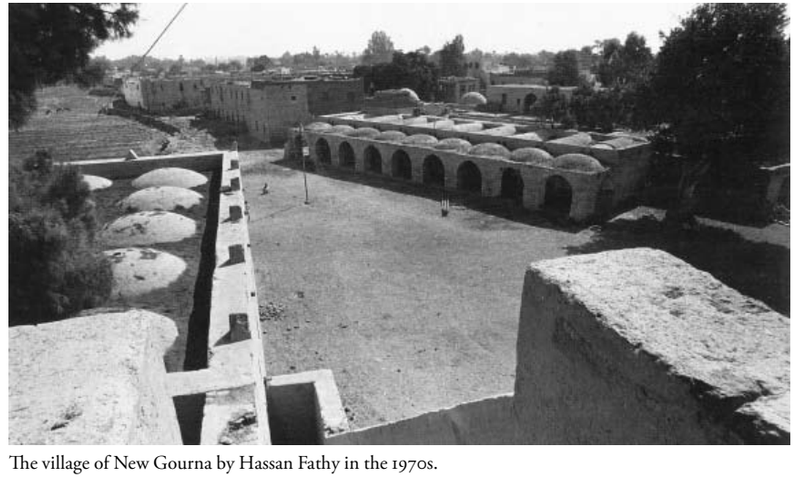
In *Architecture for the Poor*, Fathy describes the building of New Gourna, a new village for Egyptian *fellahs*, who until then had lived from what they unearthed from the antique tombs that lay under their previous village. This traditional archeology or grave robbery had to give way to modern academic archeology. Fathy designed and built New Gourna in close collaboration with the inhabitants and reintroduced the traditional mud building to improve living standards for the poor villagers. Fathy injected new life into the almost forgotten Nubian building technology and was therefore, according to Suha Ozkan, the African godfather of conservative vernacularism, which expressed itself by a great respect for existing local building traditions, of the kind which we examined earlier.[7]

According to 'Zeynep Çelik, Fathy's language of form – with its characteristic application of domes and vaults – took up the research and projects of French architects in the Maghreb in the period before World War II. She argues that his designs for the village of New Gourna must be seen in this broader context and not as the isolated experiment of a lone visionary.[8] Çelik points out that Fathy relied as much on western technology as he did on traditional Nubian building methods.[9]

Fathy had many followers who went in Africa to study and apply mud-building techniques in their projects. Fathy's appeal found a response particularly in France and in the French-speaking countries in Africa. A French School emerged that possibly, as Çelik maintains, originated before World War II, but which really got going with the establishment of the *Atelier pour le Développement naturel d'une Architecture et d'un Urbanisme Africains* (ADAUA) by Jak Vauthrin in 1975, and of CRATerre by Hugo Houben, Patrice Doat, Hubert Guillaud and others in 1979. The book, *Construire en terre*,

3 French: *techniques appropriées*.
4 '"Techniques appropriées" sont des techniques de construction qui mettent en valeur les matériaux appropriés et s'intègrent, elles aussi [such as the materials], dans un cadre donné et une perspective de développement local et durable.' In Wyss 2005, p. 28.
5 Fathy 1973.
6 '[…] money, industry, greed, and snobbery had severed architecture from the roots in nature.' Fathy quoted in Folkers 2003, p. 17.
7 Ozkan 1992, p. 357.
8 Zeynep Çelik, 'Cultural Intersections: Re-visioning architecture and the city in the twentieth century.' In Ferguson 2005, p. 21.
9 Such as, for example, is the case with the prefabricated vault shells for 508 social houses in Fédala of 1946. In Cohen and Elleb 2002, p. 275-276; and also with the experimental parabolic prefabricated housing of Ernst May in East Africa. See Herrel 2001, p. 67-69.

Villa design by Hassan Fathy.



The village of New Gourna by Hassan Fathy in the 1970s.

A 'parabolic' house in Dar es Salaam. This house is strongly reminiscent of the prefabricated concrete houses developed by Ernst May for East Africa. This unique house has since been demolished.
*Sophie Hayen and Sophie Lemmens*

published by CRATerre in 1979, would become an important handbook for the mud builder. In this book, building in mud was proposed as a means of liberating building technology from the imperialism of modernity. According to the authors, mud building enabled the poor to improve their own homes, and gave them control in the broadest sense over their living environment.[10]

The aim of CRATerre and ADAUA was to return mud-building technology into the hands of ordinary people and thus make them independent of imported materials, building technologies, and specialists. In practice, it meant predominantly building with cement-stabilized earth and pressed mud bricks (BTS),[11] techniques that, according to CRATerre, could compete with modern building technology.

The bold exhibition *Architectures de terre*, organized by Jean Dethier in the Centre Pompidou in Paris in 1981, focused attention on the importance of mud architecture worldwide.[12] Moreover, although the AT movement in the building sector was initially mainly influenced by the French and the Americans,[13] other European countries also began experimenting with adapted building technologies.[14] From the 1970s in the Netherlands, both the Eindhoven[15] and Delft[16] universities worked on alternative techniques in mud, bamboo, and straw.

Within the German School a change in perspective also took place after 1975. Georg Lippsmeier underlined the occasionally disastrous consequences of the attempt to impress by means of imported urbanism and building technologies. In the revised edition of *Tropenbau* issued in 1980, Lippsmeier argued in favour of the local and the simple in place of imported modernism. Instead of preaching the out-of-date modernism of the sixties through buildings that were already beginning to decay even before they are completed, people should turn to simple technology, which is in harmony with local traditional building methods.[17]

The influence of the AT approach appeared clear in the later publications of the IFT that were written in collaboration with GATE, the German center of expertise in the area of AT under the wing of the GTZ. These publications concerned small-scale projects and experiments with alternative building materials.[18] However, despite the Lippsmeier's affinity with the AT approach, it had little influence on his architectural practice. This was possibly because the number of L+P's institutional building projects in developing countries was greatly reduced after the shift from project-directed development aid to process-directed development collaboration, or because the commercial building market was not receptive to alternative building technology.

10 'Pour nous, bâtir en terre signifie: procurer aux populations défavorisées les moyens d'améliorer leur habitat, et aussi permettre que, par le biais de ce matérial de construction très particulier, s'établissent des rapports différents, donnant à l'usager le contrôle de son cadre de vie. Il devient urgent, en effet, de répondre à la main-mise d'un certain "impérialisme" de la production de cadre bâti. Que cette réponse se fasse au niveau local ou national, comme dans certains pays du Tiers-Monde ou à l'échelle de l'individu, le problème est posé et les voies pour le résoudre peuvent se rencontrer sur bien des points.' In Doat 1983, p. 8.

11 BTS – Brique/Bloc the Terre Stabilisé.

12 Pirovano 1982.

13 In the United States: the revival of 'pueblo' architecture in New Mexico and Arizona.

14 In Switzerland SKAT, Netherlands TOOL, Germany GATE, Belgium COTA, etc.

15 At the Faculty of Architecture of Eindhoven University of Technology by the researchers and architects Jules Jansen, Piet Beekman, Peter Erkelens, and Wolf Schijns.

16 At Delft University of Technology, Faculty of Civil Technique affiliated with CICAT with Paul Althuis, Casper Groot and Pieter Huybers.

17 Lippsmeier 1980, p. 216.

18 Among others, Mukerji and Bahlmann 1978; Mukerji 1982.

19 This was the situation during my introduction to ADAUA in 1983. Later the head office moved to Bamako. See Khan 1983, p. 35-51.



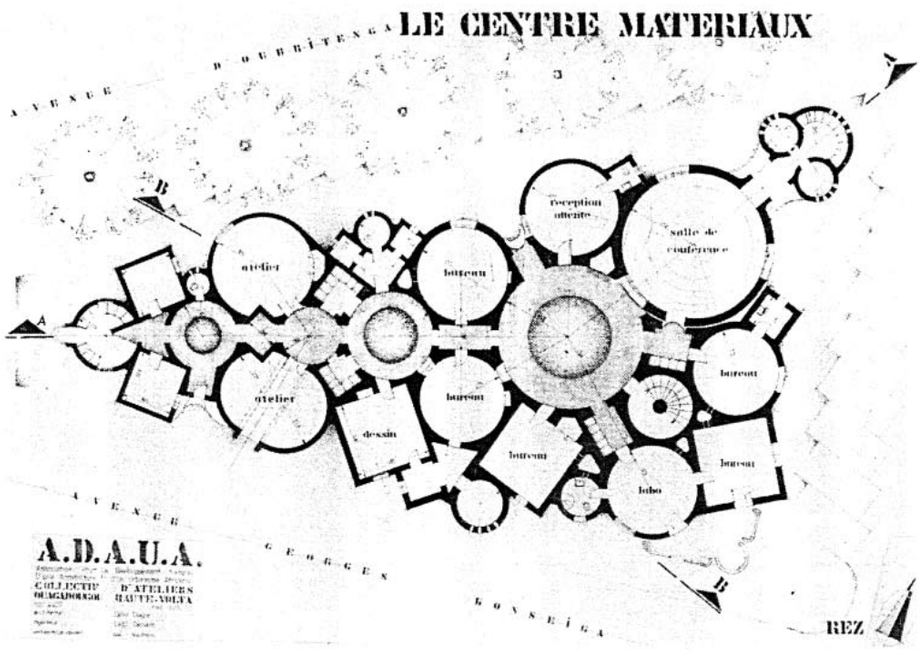
• ADAUA IN OUAGADOUGOU

1984, the year that I worked in Ouagadougou, was the year of ADAUA's greatest harvest. Perhaps the most prestigious and greatest ADAUA projects were completed that year in Upper Volta, and they happened to be the last important projects of ADAUA before the office was closed some years later. ADAUA was set up by Jak Vauthrin in 1975 and underwent a great expansion in West Africa at the beginning of the 1980s. ADAUA's head office was established in Ouagadougou with sub-offices in Bamako, Dakar, and Genève.[19] Thanks to help from important aid agencies, ADAUA was able to develop its activities. Their aim was to pick up the thread of Hassan Fathy and to develop an architectural and urban design practice that was rooted in the traditions of the Sahel. The activities of ADAUA were conducted through three studios. The first studio worked on the development of African architecture and urbanism and was responsible for popular housing and public buildings. The second studio was responsible for research and development of local building materials, and the third studio was involved in sociological research. Its goal was to mobilize the African urban poor and encourage them to take responsibility for the development of their own living situation. Between 1975 and 1985, ADAUA carried out a number of experimental and much acclaimed projects, including a housing project in Rosso-Satara and the hospital in Kaédi, both in Mauritania. The hospital in Kaédi was awarded the Aga Khan Prize of Architecture in 1993.

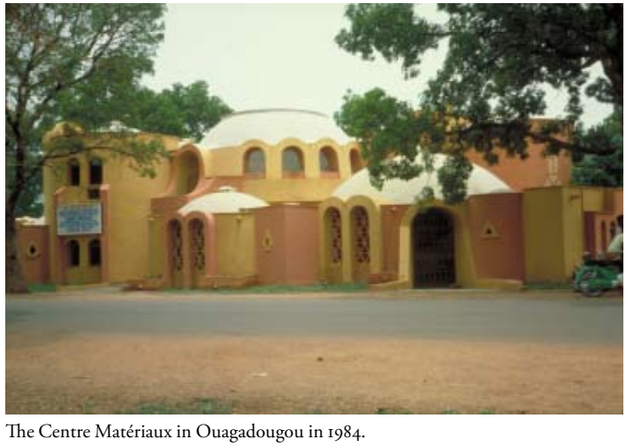
The *Centre Matériaux*, designed by Djibril N'Diaye and Jak Vauthrin in 1984, was, after the building of the ADAUA office in Ouagadougou, the first substantial work of ADAUA in Burkina Faso. The Centre Matériaux was intended to conduct research into alternative building materials and to make these known to a broad public. It was situated on an important street crossing in the center of Ouagadougou. The building consisted of an apparently chance collection of separate spaces that were linked within the borders of the triangular plot. On closer inspection, the plan is strictly organized along a bisecting line that cuts through the building as a central corridor.

The rectangular, circular and elongated rooms, covered with different forms of cupolas and vaults, show off the variety of possibilities which building in mud can offer. The building fills the entire triangular plot and the exterior walls border the noisy and dusty main streets, but despite these factors, the microclimate in the Centre Matériaux complex was pleasant because of cleverly placed *oculi* in the gables and ventilation openings in the cupolas and vaults.

The *Institut Panafricain pour le Développement – Afrique de l'Ouest – Sahel* (IPD-AOS) with a surface of 5,500 square meters was by far the largest project realized by ADAUA in Burkina Faso. ADAUA architect Philippe Glauser and engineer Ladji Camera designed and built the IPD between 1978 and 1984. It is an autonomous higher-education facility with campus buildings, dormitories for 72 students

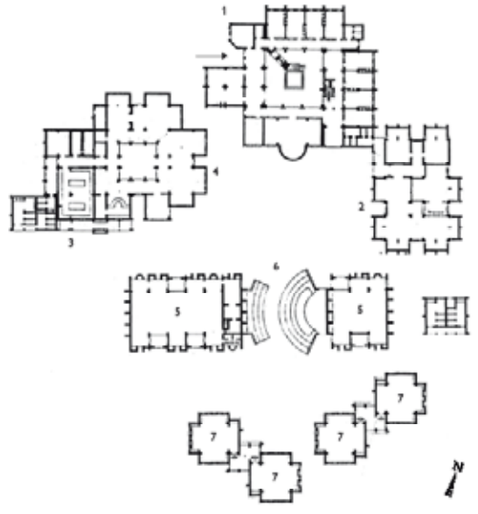



Design plan of the Centre Matériaux in Ouagadougou. *After: J. Vauthrin*



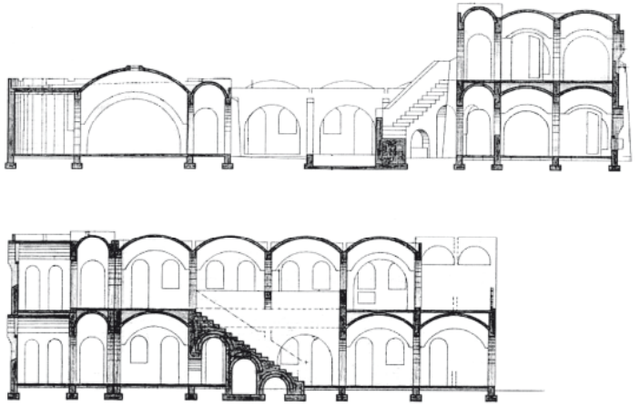
The Centre Matériaux in Ouagadougou in 1984.

Inner court in the Centre Matériaux in Ouagadougou in 1984.



1 main building/administration
2 library and study areas
3 foyer
4 restaurant
5 lecture halls
6 open-air theatre
7 classrooms

Design plan of the Institut Panafricain pour le Développement in Ouagadougou. *After: J. Vauthrin*



Cross-section of the design of the IPD. *After: J. Vauthrin*

The IPD in Ouagadougou in 2008. *Photo: Belinda van Buiten*

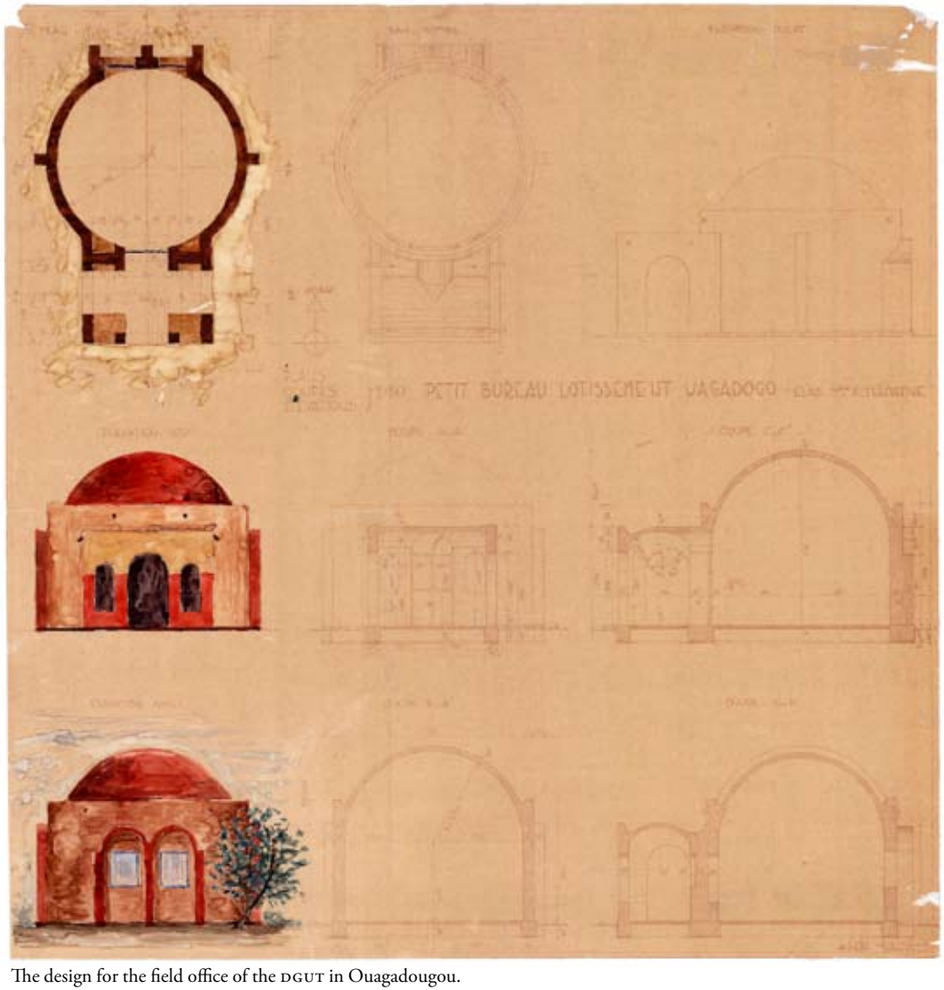
and nine teachers' houses. In the IPD, education was given to professionals who would work in regional programs in the French-speaking Sahel region. ADAUA used this large building site to train groups of builders in the use of alternative building technology for projects covering the whole country. The complex is built out of stabilized pressed mud (BTC) and elaborates on the experiences gathered during the construction of the Centre Matériaux. Foundations, walls, arches, cupolas and vaults are made in BTC with a cement component varying between 0 and 10 percent. The floors are of concrete, finished with terracotta or polished snad-cement screeds. The walls are plastered with a mixture of mud, sand, lime, and cement. Not a single *tôle*, or corrugated-iron sheet was used in the project and wood is limited to joinery. All the roofs were constructed using barrel vaults and domes, and the upper-storey floors are supported on vaults. The spaces between the vaults, floors, and walls are filled with old bottles to reduce the transverse weight load on the structure. The smaller buildings are loosely grouped around courts and larger buildings have individual courtyards. This introverted arrangement ensures optimal protection from the sun, while the clever positioning of the window openings allows breezes to flow freely through the courts and buildings. This made air-conditioning installations unnecessary.

For the colourful wall decorations and the spatial arrangement ADAUA took its inspiration from the traditional Voltan village. With the IPD, ADAUA wanted to show that a large modern institutional building could be constructed out of local materials using local labour. The project was widely admired and in 1990, was nominated for the Prix Aga Khan d'Architecture as one of the most impressive examples of mud-building technology in Africa.

- THE FIELD OFFICE IN WAGADOGO

The construction of a small field office in the regeneration district of Wagadogo was planned in connection with the *Projet d'Aménagement des quartiers spontanés de Wagadogo-Nossin*, described in the first section of this publication. The office would be used primarily by the *Commission d'Attribution des Parcelles* for its weekly interviews with the local residents, and by the local CDR for its own meetings.

The commission was to build a simple structure on a tiny budget. The brief specified an area of less than fifty square meters with a meeting room, and a covered entrance with benches for those who were waiting for an appointment. It was obvious that the building would be constructed in *parpaings* or *agglos*, that is to say cement blocks with a roof made of *tôles*, galvanized corrugated-steel sheets. The first sketch met the expectations, but I recognized an opportunity for the building to serve as an example of experimental mud-building technology. I proposed constructing it in adobe, because I was, through the work of Hassan Fathy, CRATerre, and ADAUA, interested in this alternative building technology.



The design for the field office of the DGUT in Ouagadougou.

After a visit to the two imposing building sites of ADAUA in Ouagadougou – the Centre Matériaux in Kamboincé and the Institut Panafricain pour le Développement in Wayalgui – and an introduction at the office of ADAUA by Jak Vauthrin and Ladji Camera, I was able to convince the DGUT to enter into the experiment. The condition was that the field office should not cost more than if it were made using parpaings and tôles. ADAUA provided the architect Barthélemy Ouédraogo for advice and put me in contact with master bricklayer Ambroise Kabaoré.

The first design was tossed and a new plan was devised. The new design had a round meeting room with a cupola and a rectangular portico with a barrel vault. It was like the Pantheon in miniature. With this design, it was possible to demonstrate the different ways in which new mud-building techniques could be employed.

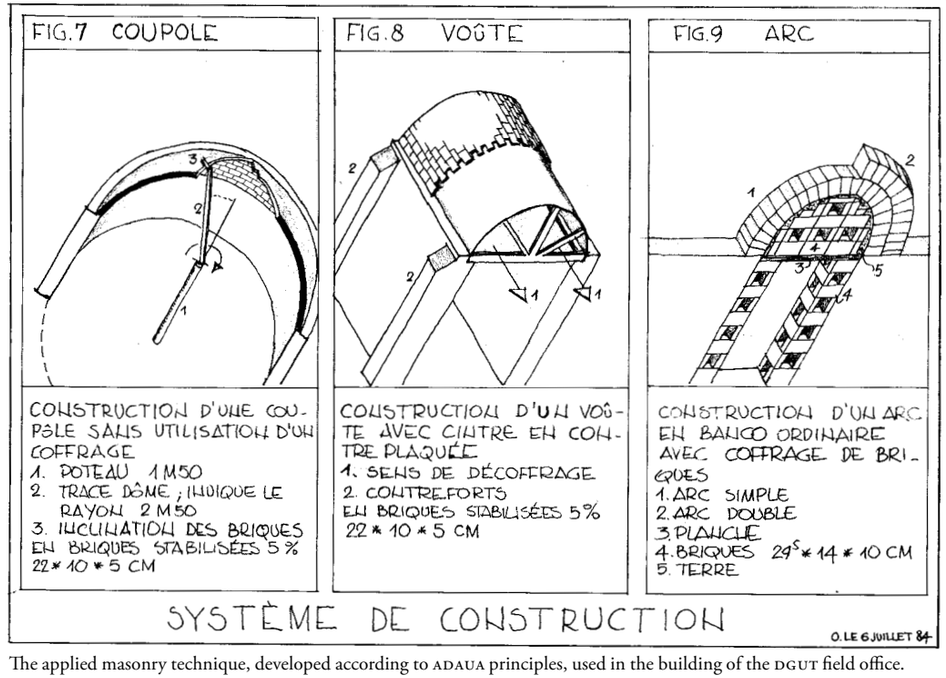
The cupola rested directly on the round walls of the office and was constructed without formwork. This was possible because the bricks were laid according to a fixed, slightly outward-directed angle in relation to the radius. This angle was indicated by a jig on a guide of the exact radius length rotating on a central pole. The oblique angle at which the bricks were laid would normally not support them at increasing height, but in this case, they were secured because the opening becomes smaller and smaller.

The barrel vault over the vestibule was constructed in a more conventional way using a centring that I borrowed from ADAUA. All door and window openings were arched and constructed without lintels. The arches were erected on a frame of stacked mud blocks.

When work was begun on the excavations for the foundations, which in the laterite-rich soil of Ouagadougou in general did not need to be more than a shallow layer of bricks, it appeared that the site was located on top of a graveyard. In order to prevent subsidence, a reinforced concrete ring beam was installed. I could buy BTC blocks (eight percent cement) for the foundations from ADAUA. Non-stabilized bricks for the walls and arches could be obtained locally, while we ourselves manufactured the smaller, stabilized bricks for the cupola and vault. Because we did not have a brick-press and a concrete mixer, we had to make the blocks by hand (ten percent cement). We ordered a steel mold from a blacksmith. The rather dry mortar was subsequently put into the mold and compacted manually with a wooden pounder. The floors were cast in lightly-reinforced concrete and covered with a screed. The walls and roof were plastered with a mix of mud, sand, lime, and cement. The roofs then were covered with a layer of asphalt mastic and coated with aluminum paint. There was no money left for windows and doors, so *tôle* shutters were hung in the openings.

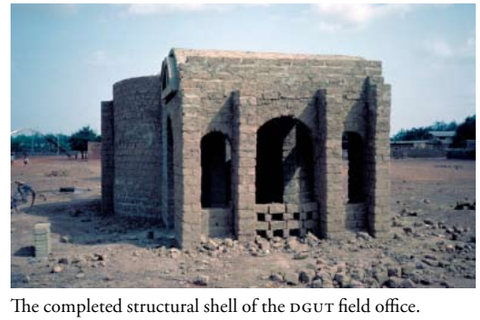
The final costs of the project were less than five thousand guilders, some fifty euros per square meter. Without the help of chef coutumier Kafando, whom we met while constructing Larlé-Extension, or without free delivery of sand and water from local businesses, or the use of Mr Kaboré's pickup truck, the help on saturdays of the team of CDR boys led by Yousouf






The applied masonry technique, developed according to ADAUA principles, used in the building of the DGUT field office.

The construction of the DGUT cupola without use of forms.



The completed structural shell of the DGUT field office.

The DGUT field office on completion in 1984.

Diallo, the voluntary steel-bending work by prince Édouard Ouédraogo, the son of the Larlé-Naaba, or the generous help of my colleague Antoine Djigma, and, finally, without my own physical effort and financial assistance from my study allowance, we could never have built the office.

### • LATER EXPERIENCES WITH TRADITIONAL BUILDING TECHNOLOGY

My love for mud building and appropriate technology in general did not cool off after my experiences in Ouagadougou. However, it was not possible to apply or broaden this experience in the climate I next worked in. The ideas of the French School did not find much of an audience in English-speaking East Africa.

The low-cost housing project of the HRDU[20] in Nairobi, which was initiated by GATE and realized by my colleague Hans Neumann of the IFT, was not successful. This was also true of MISEREOR and CRATerre's initiatives in Tanzania to establish a training course in mud-building technology, and for BRU and Habitat's attempts to develop alternative materials for building, such as water tanks of bamboo and roof tiles of sisal cement. In 1995, we designed a hostel for a hospital in Mtinko in Tanzania near Singida with mud walls, in a modern design. The contractor who was awarded the commission, however, proposed to erect the building in conventional plastered cement-block technology, for the same price. This was done.

I also tried to use mud in a number of projects in the Netherlands. We used loam-based plaster for interior walls, for instance, but the costs were invariably higher than with conventional technology. An exception was the office for the military engineering (DVD) in Zwolle. There were also problems with maintenance and guarantees which were caused by unfamiliarity with the products and their application.

Instead, in our projects in the tourist section we were more successful in applying appropriate technologies. They can be grouped under the label of Ozkan's neo-vernacularism. Unlike conservative vernacularism, neo-vernacularism does not depend on the continuation or reintroduction of a local building culture for traditional building types, but on traditional building methodologies being used as a historical reference and a source of inspiration for a modern typology. Neo-vernacular buildings are mostly found in the tourist and cultural sectors. Many African nations have open-air museums, where traditional buildings from diverse provinces are reconstructed, as we saw, for instance, in Makumbusho in Dar es Salaam. [See photos on p. 57 bottom right and p. 349 top]

Visitors' centres in national parks are also often built using traditional building techniques and traditional forms. Yet, particularly hotels, restaurants, cafés, and other recreational buildings in tourism evoke a picture of traditional palaces and villages. Architecture such as this provides the tourist with a glimpse of traditional African culture. In

20 HRDU – Housing Research & Development Unit.

Mtinko Hospital.

The new office for the military engineers (DVD) in Zwolle (the Netherlands) in 2003. The interior walls are plastered with clay. *Photo: Herman van Doorn*

The Selous Safari Camp in Tanzania in 2005. *Photo: Charles Dobie*

The Selous Safari Camp in Tanzania. *Photo: Charles Dobie*

general however, the applied style and building technology are of little relevance to the building's use or function; quotations and fragments appeal superficially to nostalgia, with the result that the buildings are little more than folkloristic pastiches.

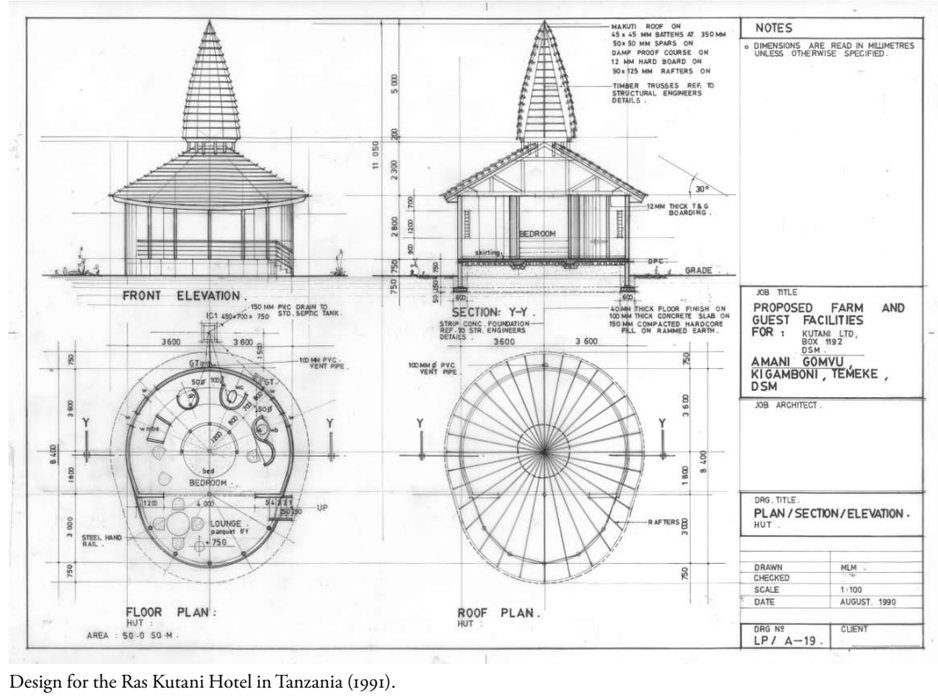
Only locally available materials could be used to construct a chic hotel in the Selous Game Reserve, one of the largest protected wildlife areas in Africa with a breathtaking flora and fauna. Nor could the buildings leave any trace in the landscape after use. An obvious choice would have been the erection of a tented camp. A tented camp gives tourists the impression of a safari while being surrounded by comforts similar to those enjoyed by explorers in the late nineteenth century: cool champagne and caviar provided by an army of servants in the middle of the bush, and romantic music on their wind-up gramophone.[21]

Although the Selous is a true paradise of unspoiled wilderness, the climate on the riverbanks of the Rufiji is mercilessly hot, making optimal ventilation and protection against the sun a requirement. In addition, the river regularly flooded, and there were scorpions, insects, and snakes and other dangerous animals in the area. The solution was to follow the traditions of the former residents of this inhospitable area. The tents were placed on elevated platforms, covered by a thatched canopy roof, and left as open as possible to allow natural cross ventilation.

Similar commercial initiatives in which low-cost local building technology is used in expensive tourist destinations have given rise to a genuine style; the rustic *Safari Style* that has become popular among the rich, in particular the whites, in South and East Africa.

21 '[…] da kam einmal wieder der ganze Zauber des afrikanischen Lagerlebens über mich. In den Improvizieren eines Stückchens europäischen Komforts im Herzen der afrikanischen Wildnis, in dem Schaffen den denkbar schroffsten Gegensatzes zwischen Kultur und Natur und in dem daraus entspringenden Vollgenuß von beiden liegt einer der größten Reize auf Forschungsreisen.' In Meyer 1989, p. 159.

Design for Stiegler's Gorge Lodge in Tanzania (1996).




Design for the Ras Kutani Hotel in Tanzania (1991).

# Inno-native African building technology

## • AFTER AT

After a period of energetic development in the 1980s, the AT-movement ran out of steam. The introduction of AT ideas began to meet institutional opposition during the construction of the field office in Ouagadougou. Habits, regulation, and bureaucracy were in opposition to experimentation. And, as mentioned above, the DGUT office would not have been possible without the selfless support of the residents and the use of my own free time and money.

Urs Wyss shows in his report a photo of a dormitory building in Fada n'Gourma, a project by architect Adel Fahmy of ADAUA in 1983.[1] In 2005, there was little more than a ruin remaining of this project. He asked what had contributed to the failure of this experiment and why mud-building technology lost favour among architects, despite the fact that forty-five percent of the building materials in the Burkinabé building sector are imported. How can it be that the AT movement, based on ideas of the local building culture and collaboration with the local residents, was not successful?

The most important reason for the failure of the AT building ethos in Africa was possibly that it was a new building technology, developed in Europe but introduced as being African. The work of ADAUA was, according to Wyss, not the simple adaptation or development of traditional mud-building technology, as was its goal. Neither the applied vaulting techniques of ADAUA nor the production of pressed, stabilized mud blocks (BTC) belonged to traditional Burkinabé building culture. It thus concerned an imported product that needed the correct marketing strategies in order to have a chance of success. The AT building was presented as a natural and logical continuation or improvement of the local building culture. Too little attention was paid to marketing and follow-up.[2] Schu-

1 Wyss 2005, p. 6-7.
2 Interview with Jak Vauthrin, 2007.

macher had already warned that the introduction of unknown technology requires intensive training and follow-up. A country's development is more likely to be frustrated than served if such a technology is not broadly applied and supported. In this light, the AT building can ironically be dubbed an example of non-appropriate technology.

The Centre Matériaux in Kamboincé was closed after a relatively short time, because the donor parties did not supply money once the building was finished. According to Vauthrin, decent salaries could not be paid, and experiments that were necessary to improvement the technology and distribute expertise could not be carried out. It surprised him that in Europe money was available for research into building technologies to be used in Africa, and that this research was subsequently carried out in European-based centres for tropical building.[3] He was probably referring to the beautiful CRATerre laboratory at the University of Grenoble. This institute, for that matter, tirelessly devotes itself to the world-wide distribution of knowledge and education in the field of mud building.

The Centre Matériaux was transformed into the Musée de la Musique in the 1990s. This change of function choked the building in both a literal and a figurative sense. The ventilation openings and *oculi* were closed, which negatively affected the pleasant microclimate, and the facades were replastered using 'Tirolean' cement-plaster, which sealed the walls so severely that they could no longer 'breathe'. This in turn hindered any regulation of humidity in the mud walls.

Apart from lacking promotion and follow-up, the distribution of the new AT technology was frustrated by bureaucracy and institutionalism. Customs and legislation were adapted to corrugated-iron roof sheets, but not to the AT building technology. Moreover, the application of mud and thatch was limited or forbidden for various reasons including hygiene and fire-prevention.

For a Burkinabé who moved to the city, obtaining a PUH is the most important step on the path to modern citizenship. It means that the new citizen will move to a home in a planned area, and away from a spontaneous area in the city, where buildings are made of *banco* – since they will most likely be demolished within the foreseeable future. But residents are only provided with a PUH after they have built a home with a roof that consists of at least sixteen corrugated-iron sheets and a toilet, as we saw in the rehabilitation of Ouagadougou. These starter homes have to be built quickly, therefore, the walls are still built with *banco* and the homes have an obligatory roof of tôles. At the same time, the residents begin to purchase *parpaings* to replace the *banco*. It usually takes an average of eight years before the first habitable structure *en dur* can be occupied.

A practical reason why AT building was not successful was that a number of building products were simply too expensive to purchase and to maintain. The BTC bricks and the roofing tiles of fiber-cement

3 '[…] la minceur des subventions n'a jamais permis un fonctionnement correct des activités du centre […] Et pendant ce temps-là fleurit à Londres, à Bâle, ou à Paris une multitude d'instituts de recherche sur les matériaux tropicaux.' Vauthrin 1989, p. 176.

The Centre Matériaux in Ouagadougou in 2008. *Photo: Belinda van Buiten*

(TMV)[4] are more expensive than *parpaings* and *tôles*. Besides this, BTC construction requires more knowledge and control than that of *parpaings*, which makes BTC less suited for non-professional self-building. Nor can the BTC bricks be stored outside for a long period, in contrast to *parpaings*, because they are eventually destroyed by rainwater. This is a problem, given the extended building timeframe needed for the completion of the average African house.

The cupola and vaulted roof of the ADAUA projects in Ouagadougou also appeared vulnerable unless they were constantly maintained. Cracks and leaks quickly appeared in the roofs of the Centre Matériaux, the IPD, and the DGUT office. They were caused by setting, by a lack of lateral buttressing to counter transverse loads, and by the failing of the mastic roof coating. Roofs were repaired with a variety of modern roofing felts, ceramic roof tiles, tar, and coatings, which finally made the roof landscape of the Centre Matériaux look like the thousand-year-old ruins of a Byzantine church.

In contrast however, the TMV roof tile has acquired some prestige. The aesthetics of this type of roofing is apparently appreciated, it offers better insulation than corrugated iron, it is cheaper than ceramic tiles, and is less noisy when it rains. But there are many disadvantages; it is much more expensive than corrugated iron, a lot of wood is necessary for the support structure, the fabric is brittle, and not durable. In addition, the tiles can sometimes blow off, and during heavy rain the roof is liable to leakage because of water splashing upwards. Yet, the TMV tile has apparently been adapted to the new building culture. It is mostly so popular, because it resembles the traditional ceramic roof tiles that were used in the houses of the old colonial elite. However, they are expensive and can only be afforded by the prosperous middle class and the government, who use them in villas and public buildings.

Apart from using new technology, the AT building of ADAUA also used a formal building language unknown at that time in West Africa. The adaptation of assumed African architectural elements such as the vault and cupola, the graphic decorative programs and the colour pallet, was allegedly inspired by the traditional African building culture, but was often found to lead to pseudo-traditional expressions of style which often hints at vernacularism. In Burkina Faso, cupolas and vaults were unknown in the traditional building culture. Decoration in colour and relief was applied, but only when bearing localized symbolical significance, and certainly was not employed as a generic, haphazard form of expression.

A final significant reason for the failure of AT building was that AT solutions both consciously and unconsciously fell back on the past. In my own experience, the residents saw mud building as local and old-fashioned, and therefore associated it with poverty and backwardness, whereas building in cement and corrugated iron represents progress, modern life, growing wealth and a carefree world. In Ouagadougou, the escape from the

4 TMV – tuile au mortier vibré.

The modernizing of Michenzani in the 1970s. The building materials of the informal Ng'ambo are transported to their new destination. *Source: Zanzibar Archives*

The modernizing of Larlé-Extension in the 1980s. The *banco* of the informal Larlé is pulverized, mixed with water and straw and reused in new residences.

past began, as in many African cities, with the replacement of a mud or thatch roof with a roof of *tôles*. The corrugated-iron roof symbolizes the status and progress of modern Ouagadougou, which has abandoned its nickname Bancoville once and for all. Corrugated iron is flexible, durable and requires little wood for a support structure. It is the basic component of the modern city home; the size of a house is expressed by the number of *tôles*. A *habitat pistolet*, the most popular form of dwelling in Ouagadougou at the beginning of the twenty-first century, is a structure with an L-shaped plan covered with a roof of twenty to thirty *tôles*.

During my stay in Ouagadougou, I did not succeed in persuading the inhabitants to adopt the DGUT field office as a model for their modern city homes. In the end, only the sheikh of Hamdallaye came by to ask me to design a new mosque with a small cupola. A mud house with a round plan similar to the homes of their ancestors in the *brousse* was too difficult to sell to the modern inhabitant of the city. People probably wondered why Europeans would promote houses in the architectural style of their African forefathers as models for the future, after they had first introduced modern, western technology on a wide scale. The field office was ultimately abandoned, and after the revolution, was left at the mercy of the elements. The ruin was demolished in the late 1990s in favour of a cultural youth centre.

In fact, the AT movement restored the principles of the Modern Movement, and distanced itself from the standardized, stereotypical application of the outdated models of the 1920s and 1930s modernism. At the same time, it was a search, initiated by western institutions, for more rational forms of architecture, and it went hand in hand with a fight against western normative models and a romantic reevaluation of native buildings spread all over Africa.

Conservative vernacularism was exhausted by the end of the twentieth century. It seemed that the return to a more or less reconstituted authenticity turned out to be dead-end.[5] This is how it was expressed by the artist Aboudramane in his empty maquettes of traditional African buildings at the exhibition of the Museum for African Art in 1993: the last inhabitant has left the traditional *case* and will never come back. It was no longer possible to retreat into the past, to return to traditional African building cultures, or to the dreamed African Arcadia that vanished forever in the face of 'the wholesale import of western technology, aesthetics and behaviour, that a painful denial of our (African) individuality and identity has brought about'.[6] The irony is that westerners, who have denied the African traditional building culture and have contributed to its demise, now attempt to keep it artificially alive by imported restoration programs and neo-vernacularism for the tourists.



5 Volgens Masao Miyoshi in Zeynep Çelik, 'Cultural Intersections: Re-visioning architecture and the city in the twentieth century', in Ferguson 2005, p. 21.

6 Serageldin 1993, p. 22.

7 Interview with Ola Uduku, Kumasi, June, 2007.

8 'While modern movement buildings are an invaluable framework for the ongoing development projects which most Africans have pragmatically embraced, more often than not the African use of these buildings differs from the Western norms.' Hannah Leroux, 'Modern movement in architecture in Ghana'. In Casciato and d'Orgeix 2005, p. 53.

9 For Pierre Goudiaby Atepa, see for example: 'Builder of Dreams', in *Brussels Airline,* 2008.

• BACK TO MODERNISM?

Thirty-three years after it was inaugurated, and twenty-two years after completing my research, I once again visited the Faculty of Engineering (FOE) in Tanzania, now renamed the College of Engineering and Technology (COET). I was curious to see how well the buildings had served their purpose, after such a long time and intensive period of use without any maintenance to speak of. I knew that the advice and the plans that we provided in 1985 had not been followed. I wandered around the complex and the Arusha Declaration rang through my head. How dependent on foreign help the FOE had been after the initial gift? It turned out better than expected. The complex was still used intensively, without many alterations, without air-conditioning, although it was in a rather dilapidated state. Ola Uduku had the same experience when she visited the campus of the University of Ibadan by Fry and Drew after fifty years of intensive use and an explosive increase in the number of students.[7]

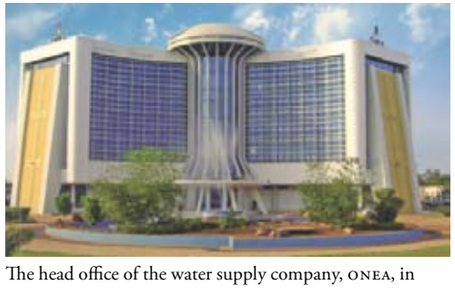
These buildings in the modernist tradition had been quite successful from a technological perspective. The robust buildings of concrete, cement, and plaster with steel facade elements appear to have successfully withstood the march of time. Hannah Leroux wrote about the university campus of Kumasi and pointed out that the buildings of the Modern Movement offered a valuable skeleton for contemporary development, and, as such, would be accepted by the Africans in a pragmatic manner, despite not being conceived for African use. The campus of Kumasi was designed by and for westerners, for the first generation of teachers who predominantly consisted of single European men.[8]

Since the building of the FOE, the raw materials needed for what in the meantime had become 'traditional' modernist building technology, such as cement, glass, corrugated iron, reinforced steel and wall tiles, have become generally available in Africa; they are now manufactured in the continent itself. In the 1990s, we no longer used local hardwood for the windows and doors of the hospital of Mtinko, for example, but classic hot-rolled Crittal-type steel sections produced in South Africa. The use of tropical hardwoods is a loaded topic not only in the Netherlands, but also in Tanzania – which is why we chose light, cold-pressed steel sections from Uganda for the roof structure and roof sheets from Kenya. Modern building technology seems to be quite sustainable and not as difficult to adapt as it appeared to be in the 1980s. [See photos on p. 203 top]

Modernist architecture is popular in contemporary Africa. In the African metropoles, monumental buildings are being erected in what Africans call 'hypermodern architecture'. The dreams of Bodys Isek Kingelez [see photos on p. 167 bottom] have been built by architects such as Pierre Goudiaby Atepa[9] and Amadée Ouédraogo in West Africa, and by Kayzi Kalambo, Martin Ombura, and Nuru Inyangete in East


Mashinini Beer Hall in the Kwa-Thema project in Johannesburg by Hannah Leroux and students of the University of Witwatersrand. A community building in the Kwa-Thema project, burnt to the ground during the 1976 township riots, was subsequently reclaimed and rebuilt by the inhabitants. *Photo: Hannah Leroux.* See also the cover photo.

The renovation of the former Nasaco building in Dar es Salaam by Nuru Inyangete and Kayzi Kalambo in 2002. *Photo: Nuru Inyangete*



The head office of the water supply company, ONEA, in Ouagadougou.

The BCEAO Bank in Lomé by Pierre Goudiaby Atepa.

The BCEAO Bank in Bamako on the River Niger by Pierre Goudiaby Atepa. *Photo: Tim Tillinghast*

Scale model for a mosque by students at the ARDHI University in Dar es Salaam (2007). *Photo: Thierry van Baggem*

Urban-development scale-model design by students at the ARDHI University in Dar es Salaam (2002). St. Joseph's Cathedral in the middle is one of the few buildings which was preserved.

Africa. These hypermodern buildings embody progress, economic growth, and proof of African abilities. [See photos on p. 53 and 57]

At the moment, monumental hypermodernism appears to be the global norm in architecture, but in Africa it has only been realized on a relatively modest scale. In Asia it flourishes on a breathtaking scale and even the parsimonious Netherlands have produced comparable projects. A massive, hypermodern Belle de Zuylen tower has been proposed for the city of Utrecht. Masao Miyoshi sees the megalomaniac hypermodernism in Asia as an intensified form of colonialism. According to him, culture and identity are added as decoration to a redefined modernism that is presented as a globalized vernacular by the American-dominated media and American architects.[10] This situation is reminiscent of the colonial period before World War II, when a localized, decorative program that had its origins in the Beaux-Arts tradition was applied to a western generic building technology.[11]

This hypermodern architecture, according to the analysis of Suha Ozkan, could be labeled 'concrete regionalism', but in the case of African hypermodern architecture the symbolism goes further than a mere reference to a regional past. References and interpretations of elements of Sudanese architecture in West Africa, and of Swahili architecture in East Africa can be recognized. Yet, there appears to be a unifying expression in this hypermodern African architecture that goes beyond localized building traditions. Kingelez seems to be on track here, he might even have been the first person to see a possible modern African identity, that now appears to have been embraced in many places on the continent. It is irrelevant whether this identity is construed or not, it is simply the case that many African architects agree with this expressive mode.

At the same time, African architects criticize the indiscriminate use of glass and steel in contemporary buildings.[12] These materials are called unsuitable, expensive, not climate-friendly, and very wasteful of energy.[13] I would not be surprised if this polarization between the temptations of hypermodernism and actual local needs comes to characterize the debate about architectural requirements in Africa in the years ahead.

## • CONTEMPORARY INFORMAL BUILDING IN AFRICA

From an academic perspective, the description of the building technology that architects in Africa typically employ is interesting, but in terms of extent, it does not at all compare with the amount of buildings that have been erected using informal methods. I estimate that more than eighty percent of the buildings in Africa are constructed without the aid of an academically trained designer. The majority is built by the residents, with or without the help of a craftsman.

10 'An age of […] intensified colonialism, even though it is under an unfamiliar guise.' And 'Highly affected by new developments in media and the recent patterns of displacement, the notions of national space and identity are ruptured and modernity is re-written by a globalization that is vernacular.' Masao Miyoshi, cited in Çelik, *op.cit.*, in Ferguson 2005, p. 29-30.

11 Or as Dmochowski put it in the 1960s, 'Accepting tradition as starting point of their [the new generation of Nigerian architects] creative, independent thinking, they should evolve in steel and concrete, glass and aluminium, a modern school of Nigerian Architecture.' Dmochowski 1990, part 1, p. 15.

12 During the final plenary discussions of the *African Perspectives* conferences in Dar es Salaam (2005) and Kumasi (2007). See: www.africanperspectives.info.

13 Antoni Folkers quoted by Hannema 2008, p. 6-7.

Until now, I have not described the development of the informal African building culture since 1984. Nor have I given it much attention in the course of my career. In the period that I was inspired by the AT building wave I turned away, like many others, from the endless sea of 'worthless' corrugated-iron-sheet architecture of the poor. This was the 'corrupted, by western technology influenced vernacular', a manner of building that I ignored because I thought it temporary and unaesthetic; perhaps I was ashamed of the cursed western influence on the African Arcadia. However, it is an unavoidable subject that deserves attention, if only because of the enormous extent of buildings erected in this manner. It concerns a building culture that has not experienced any direct influence from professional designers, and has hardly been controlled or documented – moreover, it is essentially dispersed throughout the continent. It is also a building culture that has the capacity to renew and to inspire architecture at large.

The creativity that has been developed by the inhabitants of the informal city in the area of technological solutions and cultural identity should not be underestimated. For example, it is inspiring that, precisely in the situations of great poverty and hopelessness, the expression of identity and hope in the decoration of the home is given such attention. This is undoubtedly an expression of individual identity within collective poverty. [See p. 150]

From a technological perspective there are few limitations in the West, meaning that architects are not obliged to be inventive. Designing and building are primarily a business of choices and speed; quick choices regarding material, technology, and ready-to-erect finishes, However, in the impoverished African situation, there are few choices to be made and the wheel must be constantly reinvented. This contradiction leads to a redefinition of 'cheap building'. Cheap means 'not expensive' in case of a project that demands a minimum selection of material because it has an intelligent design. It means 'easily built' in case of a project that wastes material and energy, because of thoughtlessness and hasty decisions made during the design process.[14]

Self-building is no longer fashionable in the West. At least when constructing an average house. If however you consider the western do-it-yourself builder, it appears that the need to conceive and to build one's own house has anything but vanished. A western family will often drastically refurbish their new home as soon as they move in, regardless of how well it has been maintained, and this work is often conducted pleasurably with their own hands.

The traditional situation in rural areas is rapidly changing in Africa, where the building is rooted in the extended family culture. That does not imply that most homes, shops, and workshops in the African city are no longer erected by the owners themselves. The contemporary African city grows organically. Temporary homes made of mud, corrugated iron, or packing materials are slowly but surely

14 'We see many cheap projects emerging in Europe, whereas we had learned in Africa to design inexpensive projects. An inexpensive project will use minimum materials because it is well designed; a cheap building will result from a concept that is not intelligently thought through. The challenge is to make the most out of nothing in the African situation and the least out of too much in our Western world.' Geoff Wilks, quoted in Folkers 2003, p. 94-96.


Transformation of the rural *duka* (shop) into the urban decorated cube.

A continually evolving African city. Zanzibar in 2008. *Photo: Mieke Woestenburg*

A *cour* of the Kassena in the south of Burkina Faso. The 'moulded house'. *Source: Georg Lippsmeier*

being replaced by the 'decorated cube'.[15] In Swahili this method of building is called *sukuma twende*, or 'stone-by-stone'. Whenever the family can afford it, cement blocks are bought, foundations are laid, and roofing sheets are purchased. In the meantime, for better and worse, the transforming building is used as a place of sleep or work.

The same process applies to the construction of the future house, in which the family hopes to rest after completing the hard work often carried out abroad. In this case, the building is not occupied and remains abandoned for many years before it is completed and used. The ground plans of enormous mansions, half overgrown by *brousse* and reminiscent of excavated Roman bath complexes, can be admired from the air when flying in to land at many African airports. 'What a waste of money!', we are inclined to say.

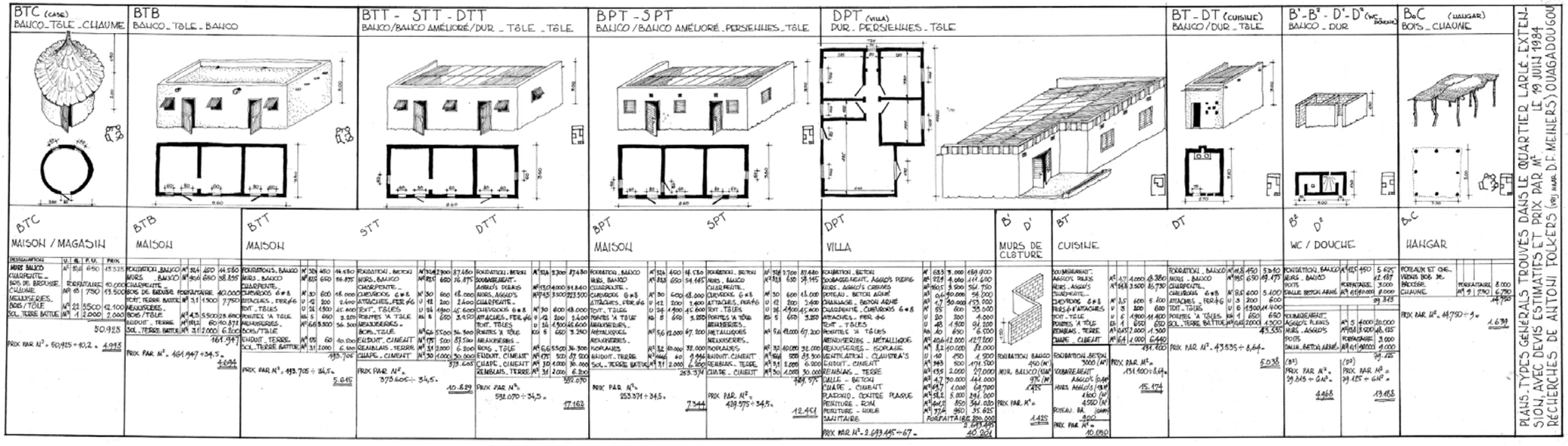
These buildings in the contemporary African city are all made predominantly from cement blocks and corrugated iron. How has it come about that in the informal contemporary building culture so little appears to have survived of the rich African traditions? How did the organically evolved *cases*, *cours*, and settlements become drowned in a sea of corrugated iron? Before going into this question, a second issue must be raised: have the traditional African building culture and its informal architectural expression indeed vanished? I cannot personally answer this, and my research in the available literature has not uncovered more information.[16] It seems that further, extensive investigation is necessary.

The reasons why contemporary, informal African building culture makes use of cement blocks and corrugated iron appear to be of a practical nature. Seen from the perspective of urbanization, the motivation seems to lie in the high density and orthogonal structure of the plan. Thatched roofs are susceptible to fire, and circular plan buildings are not economical in a grid pattern of streets and infrastructure. From the perspective of construction technology, the scarcity of traditional building materials in the city may play a role. In rural areas, the house consists of a wooden-pole support construction with non-supporting, molded *banco* walls, and a roof of thatch (sloping) or clay (flat).

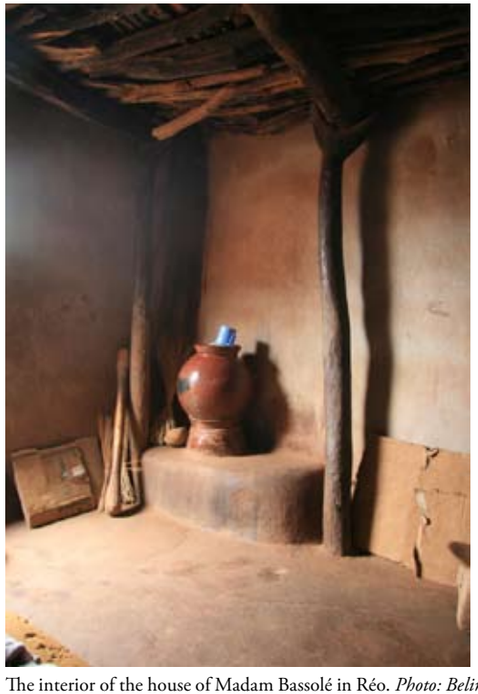
The house with a mud roof has an organic or orthogonal plan, whereas the house with a thatched roof is round. As we saw in Ouagadougou, rural forms are less common in the contemporary city, which is primarily because poles and stalks are not easily obtained. One can find mud in the city, but not in the massive quantities needed for building in the traditional 'molding' manner. Consequently, mud in the city is mostly used to manufacture bricks, called *adobe*, that are used for load-bearing walls. If it costs too much to transport thatch and mud to the city, the prices there cannot compete with those of modern materials, which makes these more 'durable' materials the

15 'A similar process can easily be seen in the inventiveness and decorative programme of the concrete cubes in the emerging African city, as we saw for ourselves. Someone acquires a piece of land and develops a building. The building commences as a single-storied *duka* [shop], and develops vertically into a hotel, an apartment building and/or an office block. The stacking goes on until the owner cannot sleep anymore for fear of collapse. The building grows from a bare reinforced-concrete skeleton into a fully decorated palace. Decoration may consist of shiny tiles, illegal, loosely hanging telephone and power cables, blue-tinted mirror glazing, spontaneously growing weeds, skillfully painted billboards, or satellite dishes.' In Folkers 2003, p. 74.

16 Folkers 2009, p. 86-89.




The components of the traditional, intermediate and modern house in Ouagadougou in 1985.



The interior of the house of Madam Bassolé in Réo. *Photo: Belinda van Buiten*

WalkGard Hotel in Bukoba in 2003.

obvious choice. Moreover, a round house cannot be covered with corrugated iron. Another reason for choosing low-maintenance materials, such as cement blocks and corrugated iron, lies in the dissolution of the traditional extended-family structure in the modern city. The communal responsibility for the annual cycle of maintenance disappears with the individualization process. As a final factor, the modern urban culture of industrially made furniture and household appliances also plays a role here. Modern tables, chairs, cupboards, washing machines, cooking stoves, and fridges are undoubtedly rectilinear, and hence do not easily fit into a round house, unlike traditional furnishings which consisted of loose pieces of furniture such as stools, baskets, jugs, cooking and storage pots, and moulded built-in furnishings such as beds, seats, benches, and clay ovens.

The *parpaing* and the *tôle* are consequently the winners. To own a house of cement blocks and corrugated iron is the first ambition of the new African city dweller. Despite the disadvantages of the *parpaing* and despite the fact that 'people are aware that corrugated iron does not protect them from the heat or the cold, that it is not very safe, and above all that it is expensive. But what are the other alternatives that meet the need to possess a home with a minimal degree of durability and a little prestige?'[17]

Corrugated iron and cement blocks are unavoidable and an automatic choice for the individual inhabitant, the city population and the government, such as was established in a report of the National Demographic and Statistical Institute of the Burkinabé Government. 'A house of questionable quality with walls of *banco* and a corrugated-iron roof is a better investment than a palace built entirely of mud.'[18]

For the modern African city dweller, the ambitions do not stop with the completion of a house in cement blocks and corrugated iron. When money becomes available, they begin with the improvement of their home by enlarging and, moreover, decorating it. Apart from the cement blocks and the corrugated iron, cement roof-tiles, prefabricated Italianate banisters, aluminum casements, decorated hardwood doors, and precast Ionic capitals are produced on the street throughout the continent. The style of such richly decorated houses of the middle class, that mostly belong to the informal building culture, was called 'Swahili baroque' in the paragraph on Zanzibar.

On closer inspection, the contemporary informal building culture in Africa is successful. Despite their poverty, Africans from almost every level of the population know how to build a home according to their own needs and in an efficient manner, without the intervention of the institutional building profession or the government.

This is obviously risky with regard to safety, and buildings do sometimes collapse because of constructional faults. It is therefore understandable that the government aims to control the informal building culture by issuing building regulations and control mechanisms. Nevertheless, Coen Beeker looked upon the announcement of new building regulations in 1987 in Ouagadougou with sorrow. He was concerned that strict observance of such regulations would cause great problems for the poor Burkinabé. The dwellings erected by the residents would become subject to an avalanche of disapproval.[19]

Nicola Colangelo expressed similar anxiety in 2007 concerning Dar es Salaam. In the short term he did not think the institutionalizing of housing offered the solution. Tanzania needed to construct 200,000 houses per year according to his calculations. He concluded that it would be impossible and unaffordable to build this number of houses in accordance with the standards developed by the Tanzanian government. These standards stipulated that homes be designed by professionals and built by formal contractors. The resulting costs would be far too high for most Tanzanians, and even if money was available, the country still lacked sufficient trained designers and builders to satisfy the demand. Colangelo argued in favour of deregulation and acceptance of the informal capabilities of the land, to ensure that the country can supply the required number of homes.[20]

Nevertheless, planned housing programs have become popular again in Africa over the last few years. In South Africa, large-scale planned housing has been a tradition since the extensive township programs of the Apartheid era, but other countries have also come forward with plans for formal housing programs intended to replace informal building in time. Projects are being launched with the help of local investors and international companies, including Dutch housing corporations. Even in poverty-stricken Ouagadougou, the government has embarked on large-scale housing schemes to replace informally self-built houses.[21]

17 Wyss 2005, p. 14.
18 *Ibid.*, p. 25.
19 Interview with Coen Beeker, 2006.
20 'But, most important, none of the above can happen in an environment hostile to private initiative and contemptuous of people's freedom to build what they believe is best for themselves. Deregulation, nationwide deregulation, at least of the "homes" building industry and its components, is really the one single requirement without which no solution can work.' Colangelo 2007, p. 7.
21 Interview with Gilbert Kibtonré in 2008.
22 Inno-native technology® is introduced by Joe Osae-Addo.
23 Wyss 2005, p. 48.

## • INNO-NATIVE AFRICAN BUILDING TECHNOLOGY[22]

Despite the triumphal progress of cement blocks, mud remains the most important African building material. In 2005, forty-nine percent of the urban residents and ninety percent of the rural population in Burkina Faso lived in homes made from mud. Corrugated-iron sheets covered most African urban homes in the same year, but this system was less common in rural areas: ninety percent of urban residents had a corrugated-iron roof compared with twenty-eight percent of the rural population.[23] I suspect that the popularity of corrugated iron and cement blocks in most other African countries is further advanced than in Burkina. Nevertheless, at least half of all African homes are still made of mud. This situation will certainly change in the coming decades, but for the moment, it will not result in mud-building techniques in Africa being marginalized.

As was quoted earlier, the AT building ideology and the associ-

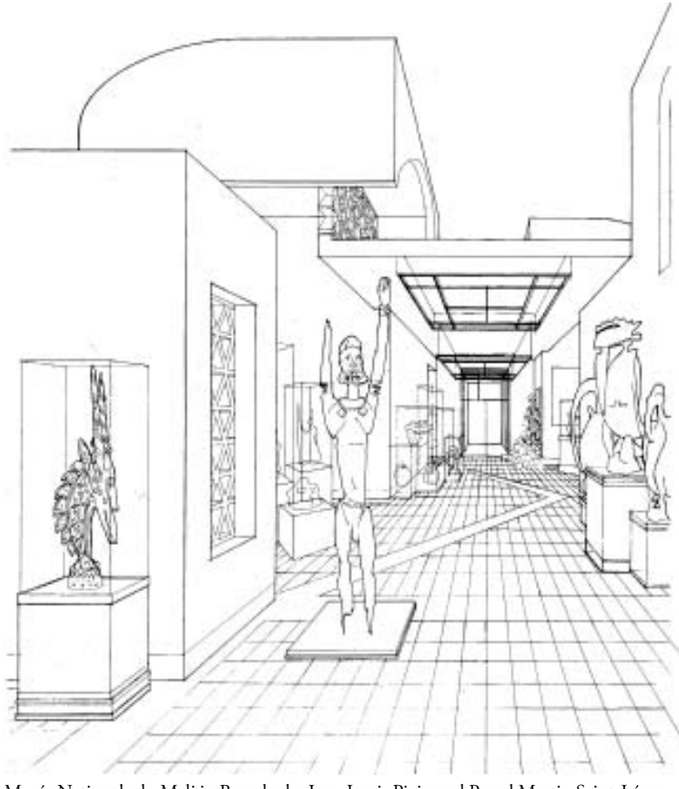
ated, conservative vernacularism did not improve the image of building in mud or earth. In order to put an end to such negative associations, material and style were disconnected in the 1980s, and mud was propagated as a modern material that was well-suited for a contemporary style idiom. The modernity of the material was emphasized both in a technical and an economical sense. References to the past were avoided and mud was promoted as a cheap material, that reduced the need for import, and was optimal in a climate-technological sense. In their book *Modernité de l'architecture de terre en Afrique*, published by CRATerre and MISEREOR in 1990, Hugo Houben and Hubert Guillaud presented a variety of projects in French-speaking Africa that possessed a largely sober and contemporary character.[24]

In his publication of 2002, about a contemporary critical regionalism, Hubert Guillaud expanded on this idea. He regarded a search for modernity in mud-building as a sustainable contribution to development. In this way he added the concept of 'sustainability' to the lobby of building in mud and makes a reference to 'glocal' thinking.[25]

CRATerre still exists and is an important laboratory and educational centre in the field of building in mud, probably the most important in Europe and maybe in the whole world. CRATerre enjoys great prestige in this area, and is a partner of UNESCO in the field of the mud-built cultural heritage. Apart from the application of research, education, and conservation, tackling poverty by improving the housing environment is still one of CRATerre's core objectives.

The idealistic and subversive spirit of mud building of the 1970s still survives in CRATerre over thirty years later.[26] After being promoted as a method of tackling poverty and reducing ecological damage, mud is now seen as a weapon in the battle against globalism. Guillaud argues that mud building can be used as a means to protect cultural diversity in a world threatened by globalized landscape, made even more banal by a generic architecture. However, he admits that the battle can only be won if consciousness is developed and supported locally; otherwise it will become one more neocolonial action doomed to fail.[27] An interest in mud building is growing in Europe, in particular in France and Germany where, in contrast to the Netherlands, traditional mud building still exists on a relatively large scale. Yet, new European mud architecture depends greatly upon commissions from people sensitive to ecology, or responsible for traditional vernacular buildings. Because of this, it rings of elitist leisure pursuit, which is far removed from African reality.[28] Is mud building thus confined to 'despairing, idealistic white people'?[29] Wyss maintains that this is not the case in Burkina Faso, because the acceptance and the reputation of mud are gradually growing. The people of Burkina Faso are deeply fond of their mud architecture and are well aware of its advantages. Moreover, there are signs of a revival of the application of building blocks made from hewn laterite stone. In Niger, where it

24 Houben and Guillaud 1990.
25 'Penser "glocal" (global et local)'. Guillaud 2002, p. 18. In other words: *think global act local.*
26 Apart from that, there is the ever-present competitor of CRATerre, the inexhaustable Jak Vauthrin who, after ADAUA and MIRHAS, also set up FISA in Seville.
27 Guillaud 2002, p. 18.
28 Interview with Patrice Doat, 2007.
29 Wyss 2005, p. 51.



Musée Nationale du Mali in Bamako by Jean-Louis Pivin and Pascal Martin Saint-Léon.

A school building near Réo in Burkina Faso in 2008. The building, developed with Swiss help and planning, was at that moment neither complete nor in use yet it was already a ruin. *Photo: Belinda van Buiten*

is even more difficult to procure timber for construction than in Burkina Faso, the method of *construire sans bois* (CSB), or constructing without wood, is becoming popular. A building that does not consist of wood leads quickly to a building with a vaulted roof and, in particular, the use of the Nubian barrel vault, as reintroduced by Hassan Fathy, that can be constructed without formwork.[30] There are multiple educational institutions now teaching this technology in West Africa, but the success of this appropriate technology will need an extended introductory period, because it is a technology entirely new to the West African culture.

In Burkina Faso a governmental organization called Locomat has been established to promote mud building on a large scale. Like ADAUA, it is supported by the Swiss Development Cooperation (SDC), which supplies funds and expertise. An office and adjoining information centre in stabilized earth with TMF roof tiles has been built in Ouagadougou for this institute. It feels like a repeat of the efforts made twenty-five years earlier, but according to the government, the chance of success is greater now due to greater need, but also because the use of local, sustainable materials and technology is now firmly supported by the government in terms of building regulations and norms.[31]

This renewed and, in my opinion, correct reevaluation of building in mud has also transpired in the non-French-speaking world. The exhibition organized in 2006 by the Ministry of Culture of Mali and FISA, entitled *Magies en Terre et l'Empire du Mali* and, moreover, the *Terra 2008 Earth Building Conference* in Bamako that was supported and partly organized by the Getty Foundation, could lead to a breakthrough. Experts from all over the world attended the conference in Bamako. However, the emphasis in these events was on the cultural heritage and its preservation, rather than on the issue as to whether mud building can be developed as a modern building technology.[32]

In addition to the institutionalization of mud building by means of legislation and restoration, a young group of architects have emerged twenty-five years after ADAUA, who use local building materials and technology for modern architectural projects. Their work could be considered examples of Kenneth Frampton's 'critical regionalism' or Ozkan's 'concrete regionalism'. The Ghanaian architect Joe Osae-Addo conveys the ideology of 'glocal' thinking in his 'inno-native' buildings, in which he attempts to build a bridge between the institutional and the practical world, where the outcome is ultimately determined by market forces. The past has shown that good intentions, research, and experimental projects by various institutions have had little influence on the development of African building practices. Osae-Addo pleads for the tapping of existing knowledge, such as the research reports of the BRIS of the period 1960-1985.[33] These reports should be republished as they are relevant to modern needs, and can contribute to the rejuvenation of building technology.

30 Its origin is thought to be Nubian and it is thus known as the *Voûte Nubienne*, or VN.

31 Interviews with Mr Bamouni, Jonas Bationo and Gilbert Kibtonré in Ouagadougou, 2008.

32 Interview with Pierre Maas, Breda 2008.

33 He speaks in this connection of a *treasure trove*, a source of useable knowledge that awaits excavation. Interview with Joe Osae-Addo, 2007.

Osae-Addo Residence in Accra. *Source: Joe Osae-Addo*

A school in Dano in Burkina Faso by Francis Kéré. *Source: Francis Kéré*

He refers to the example of tests conducted in the 1960s with Ghanaian pozzolana cement, which have gathered dust on the shelves of the BRI. He recently unearthed these tests and patented the procedure. In collaboration with local investors, the material is now marketed as a replacement for imported Portland cement.[34]

Osae-Addo's projects in Ghana show a refreshing combination of traditional and modern materials and technology. In his work, he is searching for a modern African identity that deserves to be expressed. African DNA and the African character are unique, and Osae-Addo believes it is time to confirm this modern African identity in architecture. 'We are in a difficult position of being defined by others by others and not by ourselves. We have been quite lazy intellectually or have not shared with the world who we are through our contemporary architecture', said Osae-Addo during the African Perspectives Conference at the Faculty of Architecture in Delft in 2007.[35]

Other representatives of this new generation of architects whose work bridges the informal and formal building cultures, are the architects Francis Kéré and the duo Laurent Séchaud and Pierre Jéquier, who are active in Burkina Faso. Francis Kéré designed schools in Dano, Ouagadougou, and Gando. He received the Aga Khan Award for the school in Gando. The plans of Kéré's schools hardly differ from those of standard rural schools in Burkina, yet they differ in their application of detail and their exceptional expression in form. By using floating roofs, vaulted ceilings, and moveable sunscreens, the little school in Dano rises well above the poverty aesthetics typical of familiar institutes built in the modern vernacular style. Yet the materials he uses – stabilized clay blocks, laterite stone blocks, corrugated iron, cement floors, and brightly coloured metal blinds – still belong to the simple, standard building package of institutional rural buildings.

Pierre Jéquier and Laurent Séchaud designed the new market of Koudougou for the SDC, which like the school by Kéré won the Aga Khan Architecture Prize. This large-scale project is characterized by an extremely rational interpretation of the African market. The market is subdivided into blocks. The day-stalls are set up in the ample central hall, and the fixed booths are installed along the ingenious alleys between the blocks. The combination of vaults made of stabilized mud with a floating corrugated canopy is very convincing. The vaults protect the booths against break-ins at night and the double roof ensures an excellent microclimate. The steel doors closing the booths off the alleys can be tilted like garage doors, thus doubling the display space during the day and creating a pleasant covered market street.

The house of the South African architect 'Ora Joubert in Pretoria is, because of the sculptural application of corrugated iron,

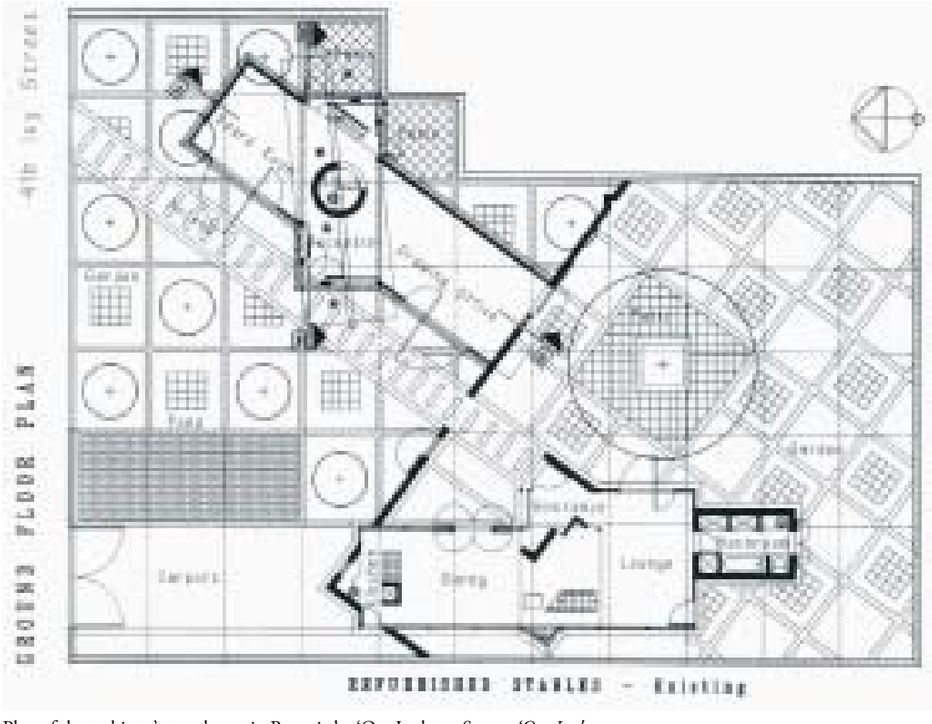
34 'Established indigenous systems need to be made relevant and useful to contemporary Africa by de-constructing them, examining their parts and then hopefully re-constructing them. This can only be achieved through research and then implementation. Inno-native technologies have been abandoned but not forgotten. There are institutions and individuals who have redefined and improved on traditional technologies such as mud and bamboo in Ghana but are never celebrated.' Joe Osae-Addo, presentation during *African Perspectives*, Delft, December 2007.

35 'Our search for our "Africaness" should evolve out of a basic understanding of who we are. To me this topic is completely "overplayed". We are in a difficult position of being defined by others and not by ourselves. We have been quite lazy intellectually or have not shared with the world who we are through our contemporary architecture. All the ingredients are around us to develop innovative solutions. There will and should be many strands of this contemporary contextual African architecture because our DNAs are different and so is the context. We should not destroy ourselves in this search but rather share and innovate.' Osae-Addo 2007, p. 4.

Aerial photo of the market in Koudougou in Burkina Faso by Séchaud and Jéquier.

The central market of Koudougou in 2008. *Photo: Belinda van Buiten*

The steel, up-and-over doors-cum-awnings of the market of Koudougou. *Photo: Belinda van Buiten*

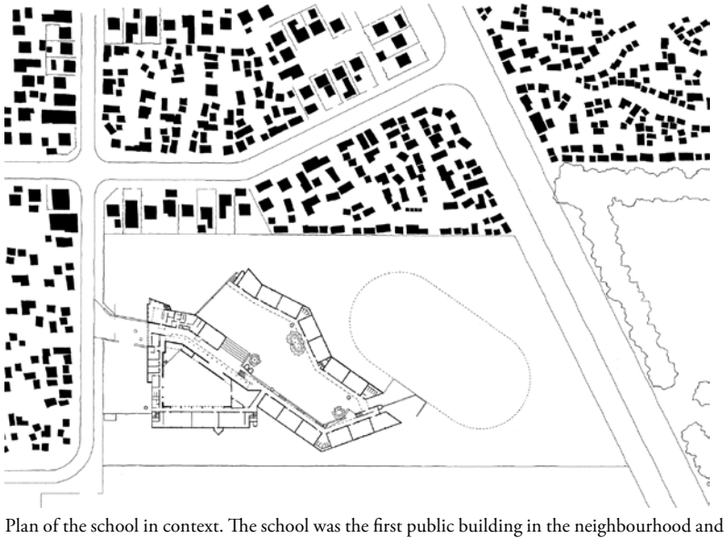



Plan of the architect's own home in Pretoria by 'Ora Joubert. *Source: 'Ora Joubert*

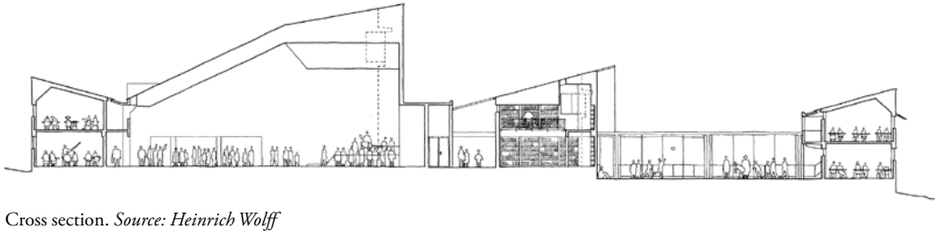
Street facade of 'Ora Joubert's house. *Source: 'Ora Joubert*

*Cour* of the house of 'Ora Joubert. [See also illustration on p. 123]

Inkwenkwezi Secondary School by Sonja Spamer in collaboration with Noero Wolff architects in Cape Town. *Source: Heinrich Wolff*

Plan of the school in context. The school was the first public building in the neighbourhood and it conformed to the informal city in an individual and yet respectful way. *Source: Heinrich Wolff*



Cross section. *Source: Heinrich Wolff*

Van der Wel House in Arusha. The house is earthquake-resistant and built of locally obtained limestone with 60 cm thick walls and an cantilevered Vierendeel-girder serving simultaneously as a continuous band of clerestory windows. [See also p. 206] *Photo: Nick Parfitt*

Van der Wel House. *Photo: Nick Parfitt*

almost an ode to contemporary informal African architecture. But her residence is not only exceptional in its use of materials. She has loosely arranged the different volumes that comprise the house – a former stable housing the kitchen and a mezzanine with a bedroom, an added living wing and a studio with guest room – around an open internal court, in the centre of which a large tree provides shade to the courtyard, the actual living room, and forms the heart of this successful interpretation of the traditional African cour.

The projects referred to above demonstrate that the best contemporary African architecture is hybrid in nature. The combination of formal and informal elements, of modern and traditional materials and technology, and the mixture of traditional and international formal aspects, can come together to form a uniquely African architecture, which can be measured against the best academic architecture in the world. Using mud in this architecture is almost unavoidable: architects of the future will have mud on their hands. In short, there is nothing new under the sun: 'Most beneficial for health are walls of sun-dried bricks which have been cured for two years', wrote Alberti in the fifteenth century.[36]

36 Alberti 1452, book x.

# III ▪ African comfort

## A CONTEMPORARY PLANTER'S HOUSE AND A BUSH HOSPITAL

Modernists believed that African society was best served by an architecture based on programmatic and economic demands derived from European models, which were thought to be both universal and fundamental. The traditional African building culture was not relevant for the modernists, as Maxwell Fry stated, neither did traditional African solutions contribute to the optimal provision of comfort. The climate of the tropics, which was seen by Europeans as almost unbearable, was the main determining factor of modernist architecture in Africa. The creation of as bearable as possible a climate for the colonist, and later the expatriate, had precedence over other aims.

The commissioning of a home for the Dobie family in Dar es Salaam in the late 1980s can be seen as a contemporary interpretation of the planter's house for a self-sustaining colonial pioneer. The Dobie House is located on the seashore in the luxury suburb of a metropolis.

The hospital of Turiani, on the other hand, lies far off the beaten track in the interior of Tanzania, in the middle of a swampy area plagued by malaria. There was hardly any money available for the extension of the urgently needed, congested Turiani Hospital.

# The people and their African environment

## TRADITIONAL AFRICAN COMFORT

The African continent offers an enormous variety of climates and environments. There are mountainous areas where it freezes at nights, deserts where it hardly ever rains, steppes, bogs, swamps, equatorial forests, subtropical paradises, areas with great temperature differences between the seasons, and endless savannahs both dusty and hot or cold, wet, and windy.

If only because of this variety, it is impossible to speak of a typical African architecture. Even so, as was seen earlier, there is a building typology, which is spread over many places on the African continent. This is the *cour* with the *cases*. The *cour* is not simply the space at the heart of a building around which the *cases* are situated, but it also gives a name to the whole complex and is the seat of the family in the broadest sense of the word.[1] The *cour* may well be called the African equivalent of the European home. In a European house, the living room is the centre of the house, in the African 'house' the *core* is the inner courtyard – the *cour* within the *cour*. The *cases* are not more than sleeping rooms. The other buildings around the *cour* are independent structures just as the *cases*, they include stables for animals and storage silos for the harvest.

Almost all of the daily activities, such as cooking, eating, working, resting, playing and washing, are conducted in the open air. 'My home is my castle', say Europeans. 'My home is a place to sleep', says the African. Or in the words of George Ssendiwala, 'Our traditional huts never had windows but only small openings in the wall to allow smoke to escape. Our daily social life took place outside and only at night did we go in to sleep and to make babies.'[2]

The traditional African building culture is tailored to the environment and the climate in ingenious ways. In the African Arcadia the buildings were adapted to local climatic conditions and the availability of building

materials, water, and energy. The African house was built of earth and what the earth in the direct environment produced in terms of organic and inorganic materials and, after its use, all these materials were returned to the earth. If a member of the family left or died, his or her *case* was abandoned. If a new adult person joined the family, then a new *case* was built. In this way, the *cour* was continually changing, like an organism that grows and contracts adapting to circumstances. The ultimate life cycle of the *cour* is determined by births or natural whim. If no more children are born, then the *cour* would die out as an infertile organism.

The *cour* of the Gourounsi chef coutumier in Réo in Burkina Faso is one example of the *cour* of an African extended family. The Gourounsi chief himself had actually left the *cour* in order to go and live in the house of a former colonial administrator. The members of his family who remained behind altered the traditional building bit by bit, creating the new type of *cour* with *parpaing & tôle* houses. In 2008, the outline of the old structure of the *cour* was still recognizable with the monumental entrance, the *greniers* (grain silos) and the typical Gourounsi walled-in *cours* of the women within the extended-family *cour*. Mrs. Bassolé was, according to reports, married over eighty years ago to the former chef coutumier and has lived since then in the small house that she built for herself.

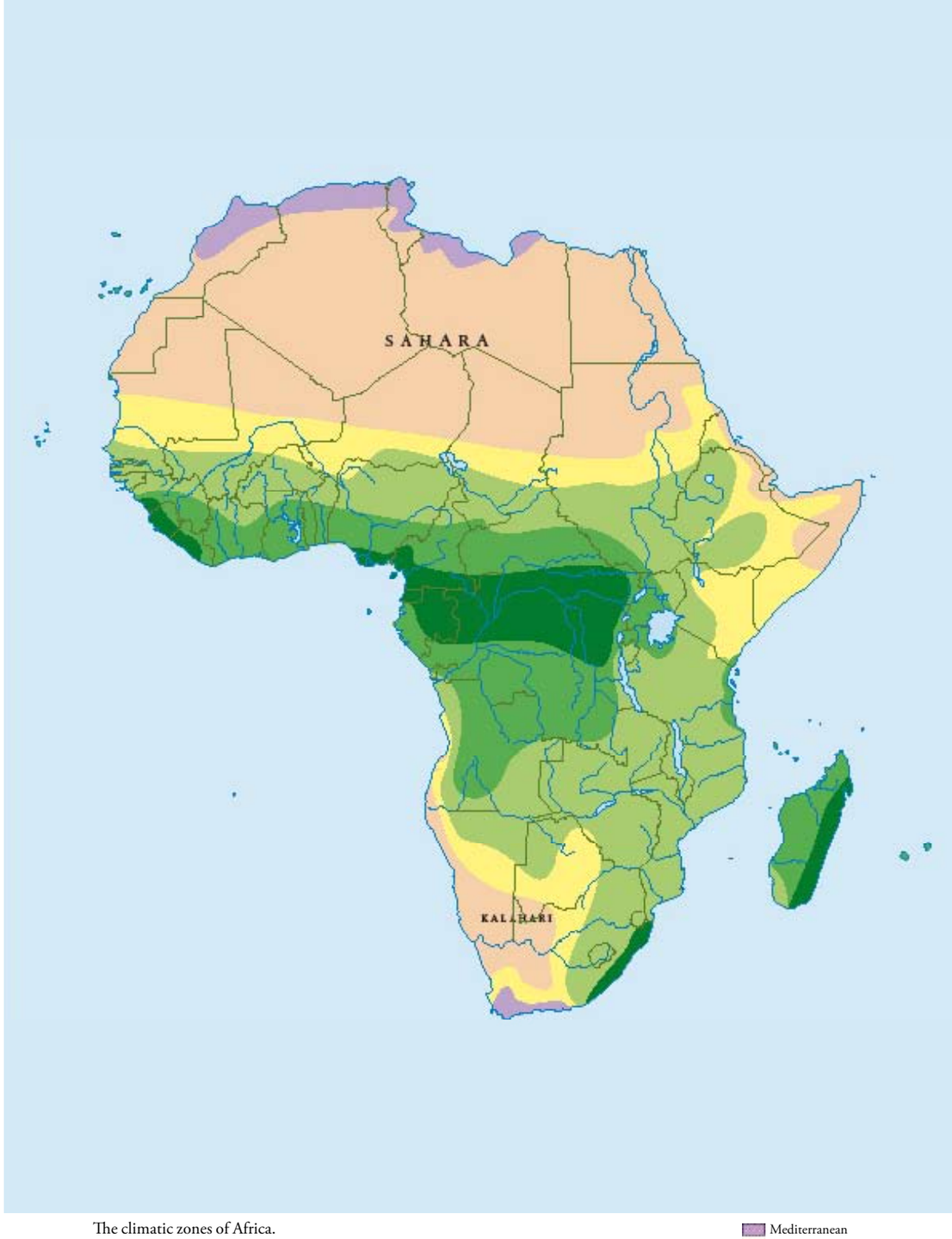
Her house is always scrupulously maintained and when I visited it, it seemed like a museum because it was so tidy and there reigned a perfect balance of space and materials in a way that feels ancient. But it was no museum – just an ordinary home. The house faces the great *cour*, with a small courtyard and a central room for work, rest, and sleeping. The central room is connected to three small rooms used for storage, cooking and for the smoking of fish and meat. The temperature in the house is kept constant because of the thick roof and walls, except during the hottest periods of the year when people escape to the flat roof to sleep there. The rooms are lit by small roof openings which can be closed with ceramic pots when it rains. A house such as Mrs Bassolé's makes one aware that the smaller the light opening, the stronger and more precise the light presents itself in space. This almost physical experience of light is, according to Jean-Paul Bourdier, the true meaning of the word light. In traditional African buildings, light gives life to the space, and darkness could well be its counterpart: the soul.[3] Such an experience is lacking in our modern living spaces with the prescribed minimal 200 lux and so on. However, the house of Mrs Bassolé *is* Mrs Bassolé and it will disappear when she dies…

Among the great variety of African climatic zones and natural environments, three dominate because of their geographic expanse. The first zone is the desert, the Sahara with its bordering steppes. These areas are characterized by low atmospheric moisture and rainfall,

1 'This traditional African house, whether situated in the forest, in the savannah, in a rural area or in the city, was organic and cosmogonic. It was a living organism sculpted from local materials; thatch, wood, and mud. An organism arranged to accommodate the time cycle of generations, the tasks and positions of the members of the *cour*. *Cour* (Fr.), the double meaning of courtyard and court, the court not belonging to a high ranking person, but being the extended family. The *cour* was the locus and the home of the extended family, transforming over time by adding and removing cells, the cabins, the *cases*, belonging to the individual, to cook, to store food, or house animals, to sleep, or to procreate. The *cour* would stay alive as long as there were children born to erect their own *cases*, once grown to adulthood, to assume their responsibility in the cycle or birth, life and death.' Folkers 2007, p. 1.

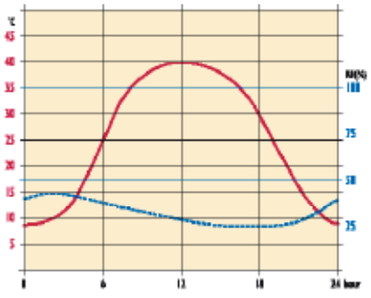
2 Interview with George Ssendiwala, January 22, 2002.

3 Bourdier and Minh-ha 2005, p. 4.



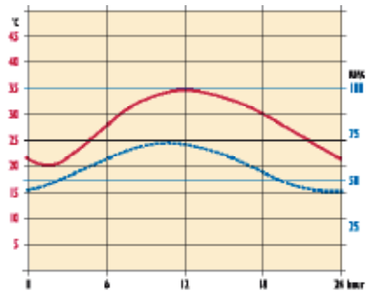

The climatic zones of Africa.

Mediterranean
desert
semi-desert (Sahel)
savannah
deciduous forest
non-deciduous forest

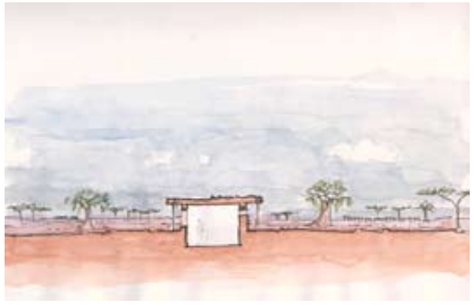


Daytime climate of desert and steppe zones.

Traditional desert- and steppe-zone building types.



Climate chart for day temperatures in savannah areas.

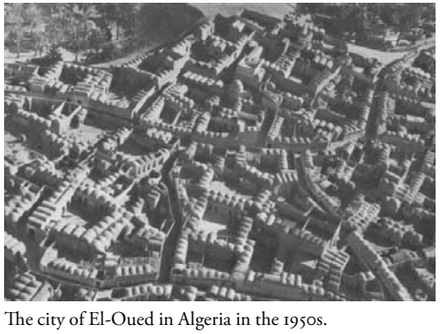


Traditional building type for savannah zones.

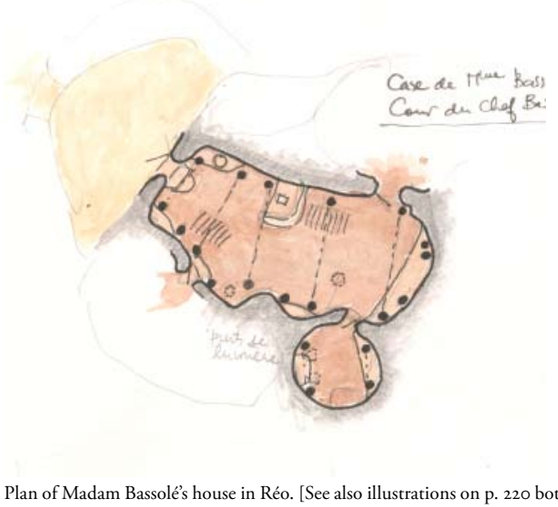
A village in the neighbourhood of Marrakech in Morocco.

A *tembe* of the Gogo in Tanzania.

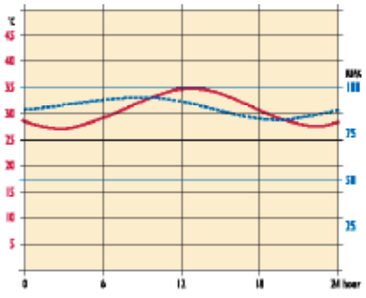
A Tamanchek tent in front of the state printing press in Nouakchott by Lippsmeier. *Source: Georg Lippsmeier*



The city of El-Oued in Algeria in the 1950s.



Plan of Madam Bassolé's house in Réo. [See also illustrations on p. 220 bottom and 236]



Climate chart for day temperatures in rain-forest zones.

Traditional building type for rain-forest zones.

The city of Granville Dahomey in Benin. *Source: Georg Lippsmeier*

President Ségou Touré's house in Conakry by Raymond Ayoub.

combined with great temperature fluctuations between day and night. In this zone, there are two predominant traditional building typologies: the nomad's tent and the building with the thick shell. This last type warms up slowly during the day because of its heavy encasing, and at night radiates the welcoming warmth into the room, only to cool down again at the beginning of the new day. The door and window openings are small, so as to keep out the hot dusty desert wind, the *Harmattan*. The buildings have walls and flat or vaulted roofs of stone or earth, standing close to each other around small enclosed courtyards which protect the scarce water supply and offer a shaded space for the residents and their plants.

The second zone is the savannah. The savannah extends over the entire southern end of the Sahel, the east African highlands, and the South African field. The climate and the biotope of the savannah are not as easy to define as those of the rain forest or the desert, and the architectural variety is consequently greater. The climate can be broadly characterized by alternating wet and dry periods with variations in temperature throughout the year. The buildings need to offer protection against cold and water and at the same time have to be open to the sun and fresh air. This translates into well-insulated buildings made of mud, wood, and thatch with ingenuously designed closable ventilation openings and a means to drain excess rainwater. The buildings are not as densely situated as in desert areas, but instead leave a space between them to allow cooling winds to enter the *cour*.

The third zone is the equatorial rain forest. In the equatorial rain forest and in a considerable part of Africa's coastal areas, it is always warm and damp. The differences between day and night and between the seasons are small. The house serves to keep the sun and the rain out but has to be inviting to the cooling breezes. This is mostly conveyed into a steep umbrella roof made of thatch or palm leaves with ample ventilation openings, and wide eaves to cast the rainwater away from the house. The walls are as porous as possible and mostly made of matting, wicker-work, wattle and daub, or wood. The homes mostly have an elongated, shallow plan and are frequently raised on a platform for optimal ventilation.

### ▪ THE PLANTER'S HOUSE

The first colonial settlers introduced a form of architecture in Africa that was characterized by a pragmatic synthesis of western imports and local resources. This synthesis emerged from the fact that, during the first period of colonialization in Africa, roughly from 1884 to after World War I, practically all colonial buildings were designed by the pioneers themselves, the missionaries, or engineers working for the government. Professional architects only made an appearance later in most African countries, with the exception of the Maghreb and South Africa.

A parallel can be discerned in African, and for that matter, Asian colonial approaches to architecture. As was seen earlier, the English, French,

and German authorities and colonists adopted a comparable building technology and typology in the mostly simple buildings which they erected. An important exponent of this generic architecture is the home of the colonist. The homes of the African colonial administrator, the plantation owner, and the missionary from the middle of the nineteenth century to the beginning of the twentieth century are all more or less alike.

This generic home, which I call the planter's house, is characterized by verandas on all four sides. The house is raised on a plinth and has one or two stories with a hipped or saddle roof. The building technology employed is mostly traditional with a structure in wood, mud, brick, or rubble, with wooden floors and ceilings, wooden casement windows, doors, and a roof construction covered with thatch, corrugated iron or, preferably ceramic roof tiles. Most of the materials, such as clay, sand, chalk, rubble stone, brick, roof tiles, and wood can be made or found locally. Imported materials are limited to the scarce sanitary fittings, glass, and the odd tin of paint.

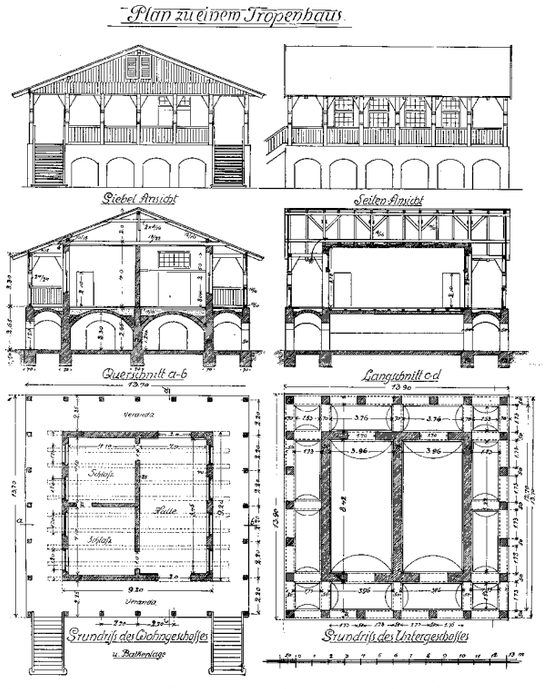
The planter's house also stood as a model for larger buildings, such as offices, hotels and monasteries. The magnificent palace of sultan Seyyid Bargash in Stone Town, which was described earlier, was the ultimate planter's house with three stories and imposing cast-iron columns that he ordered from Liverpool. This palace differed entirely from the traditional Zanzibari sultans' palaces of massive walls and small window openings, such as in the Mtoni Palace which we will examine later. Bargash palace was so radically innovative that it was called 'Beit el Ajab' (the House of Wonders).

The architecture of the planter's house is the first expression of western modernity in building to be introduced into Africa on a large scale.[4] It is an architecture that has proved its worth from a functional and technological perspective, and the buildings are still cherished by Europeans because of their character and their coolness. The planter's house is, moreover, well adapted to the warm and damp climate zone. Because of the wide roof eaves there is good protection against sun and rain and the elongated plan with great openings and shallow rooms is optimal for ventilation. The revaluing of this type of architecture took place in the 1970s and 1980s when modernism itself came under scrutiny, as we saw for example in John Godwin's work. My designs for buildings in Africa are still influenced by this simple and adequate typology. The Dobie House was intentionally inspired by this type of architecture, both in form and the technical design principles, which are comparable with those of the earlier planter's house.

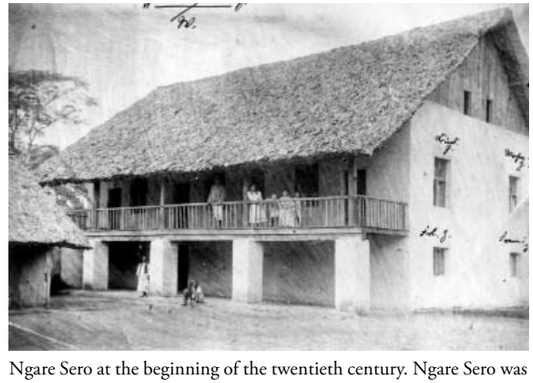
## ▪ MODERN COMFORT IN AFRICA

Until World War II, building in Africa, with the exception of the Maghreb and South Africa, was largely limited to building by engineers working for the pioneering colonists. There was little work for the professional architect. Consequently, the modernist-educated generation was the first to introduce western academic architecture

4 The large number of renaissance forts in Africa from the fifteenth and sixteenth centuries can also be seen as an earlier phase in which Africa imported a modern European building style.



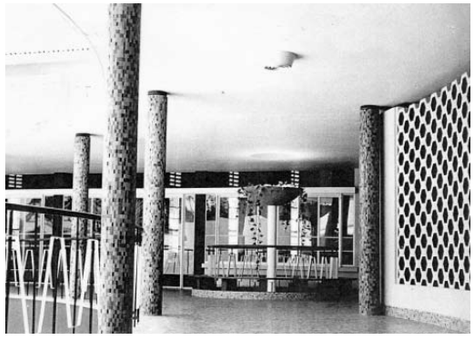

A standard example of an early-twentieth-century pioneer's house. *After: J. Strehl*



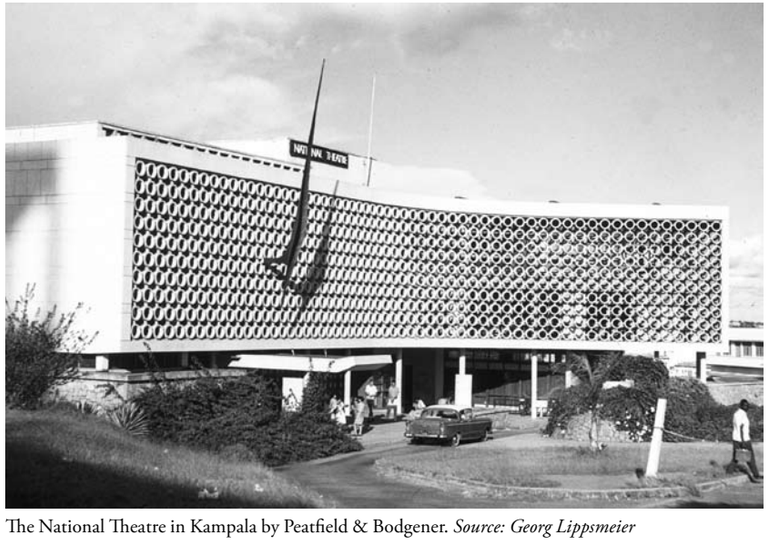
Ngare Sero at the beginning of the twentieth century. Ngare Sero was founded by August Leue in 1905. Leue was an officer in the German army that occupied Tanganyika from 1885. After leaving the army he established himself here with 200 German families from Russia – thus they were known as the 'Volga Germans'. After the occupation of German East Africa by the British in 1914, Ngare Sero was still known by the name Leuedorf. *Source: Mike Leach*

Ngare Sero at the beginning of the 21st century. *Source: Mike Leach*

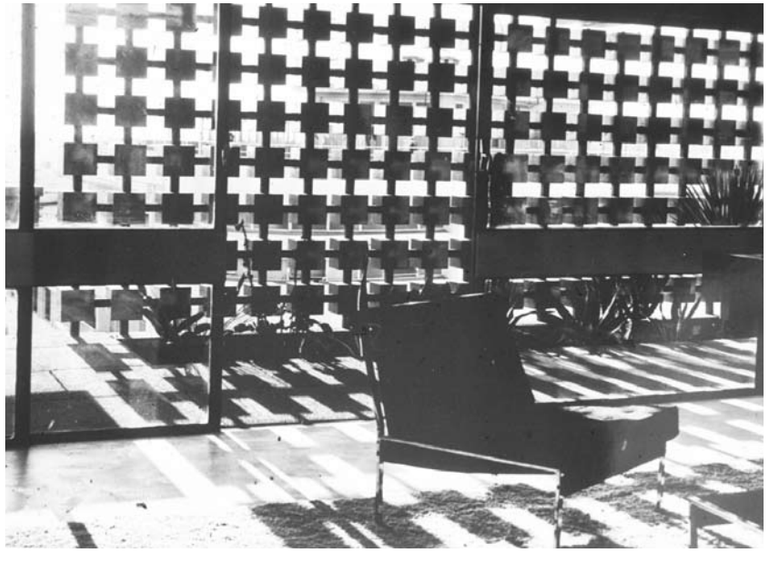
Beit el Ajab, 'the House of Wonders' of Sultan Seyyid Bargash in Zanzibar. The first building on the island with electricity, a lift and other modern conveniences. The freestanding clock-tower was badly damaged during the 1896 bombardment and it was replaced with a roof tower. [See also illustrations on p. 10, 65, 70 and 75] *Source: Zanzibar Archives*



Dar es Salaam Club, formerly known as the Goan Club, by Almeida (1958). *Source: Anthony Almeida*




The National Theatre in Kampala by Peatfield & Bodgener. *Source: Georg Lippsmeier*



to Africa on a large scale. Moreover, it was modernist architects who would design the basic physical structure of the late colonial welfare state and the young independent African nations. In many African countries, particularly the police stations, ministries, schools, hospitals, post offices, and museums were built in the post-war modernist tradition. These buildings often exude the infectious optimism of a new beginning.

Just as the planter's house, African modernist architecture of the 1950s is amazingly homogenous throughout the continent. The buildings are often sparkling, white-painted plaster or concrete edifices with ingeniously designed double facades and flat roofs, which were inspired by the 'Mediterranean' architecture of Le Corbusier and his followers in Europe, India, Brazil, and the Maghreb. Particular attention was given to the provision of screen walls, and ingenious *brises-soleil* or *claustras* were added to the glass windows. These additions had the added effect of casting beautiful light patterns into the interior.

Modernist architecture was suited to the subtropical climate of the Maghreb and the Cape, but it created problems in the warm and damp tropical zones. The polished walls soon turned green and grey from pollution and mould, because the facades lacked eaves, copings, and water drips. More problematic were the flat roofs. In the savannah and the warm wet areas of the equatorial rain forest zone, the flat concrete roofs absorbed too much heat, making it unbearably hot inside from midday through to the next morning, when the process would begin again. Moreover, it is very difficult to ensure that the flat roofs remain watertight, as the roofing seal frequently cracks under the strain of the high temperatures. Finally, large roof overhangs were not fashionable in the cubist Mediterranean architecture, which would otherwise have protected the walls from unnecessary direct exposure from the sun.

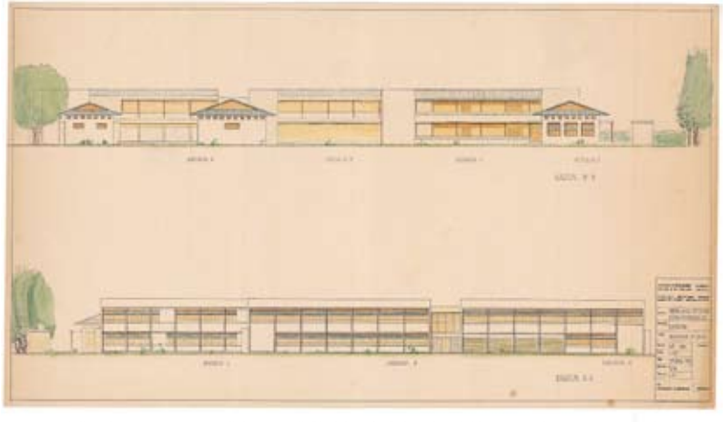
The design I conceived for the renovation and extension of a school for deaf children in Tabora, originally designed by Anthony Almeida, was intended to preserve the appearance of the classrooms. However, the flat roof leaked, and the heat at midday made it very difficult for the children to concentrate. Also, we discovered that temperature fluctuations had caused the roof structure to come loose from its supports. A loud crack sounded through the building every day at three o'clock in the afternoon, as the roof slab shifted over the supporting ring beams. With a pent-roof hidden behind a slightly raised parapet, the appearance of the school from the street remained more or less unaltered and the interior temperature control and watertight aspects of the school were improved.

Labeling Almeida as a rigid follower of Mediterranean modernism however, is not justified. Almeida was one of the modernist architects who sought solutions to problems in the adaption of local resources – for which he coined the slogan, 'adapt, not adopt'[5] – and he applied it above all with success in his later work, such as the ecumenical Joint Christian Chapel on the UDSM campus of 1975. As

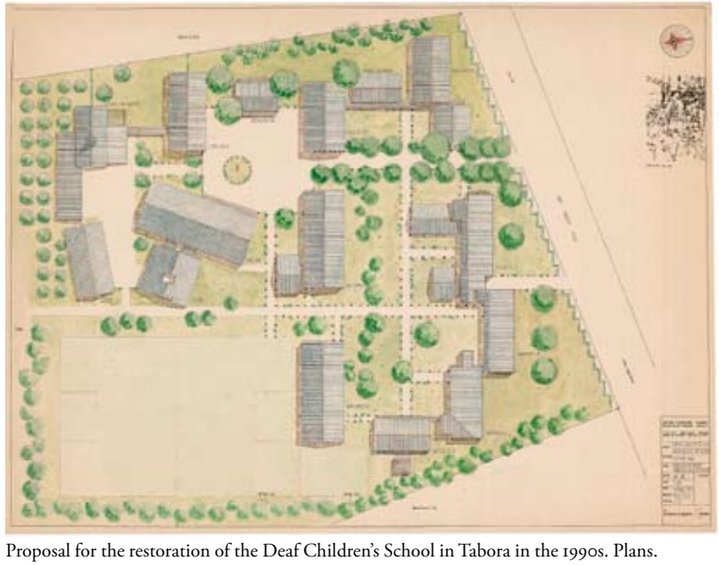
5 Anthony B. Almeida, 'To be or not to be – Traditionalist or Modernist, Nationalist or Internationalist – That is the question for architects in Tanzania', in Folkers, Van der Lans, and Mol 2005, p. 128.

School for Deaf Children in Tabora by Almeida (early 1960s).

The extension of the Deaf Children's School in Tabora in the 1990s.



Proposal for the restoration of the Deaf Children's School in Tabora in the 1990s. Facades.



Proposal for the restoration of the Deaf Children's School in Tabora in the 1990s. Plans.

the name of the chapel indicates, it provides space for different Christian groups. The building has a Greek cross plan with three arms that can be closed off by means of folding partitions for the three church groups, who can use the building independently, and a fourth arm for the communal choir and other facilities. When the partitions are opened, there is space for a communal church for large services. The building has a cassette roof with wide eaves, which gives the impression that the roof is floating over the walls. Full-height vertical strips of coloured glass blinds are placed at the interior angles between the arms of the cross. In this way the church creates a feeling of coolness, sanctity, and openness combined. [See drawing on p. 173]

Almeida represents an architecture adapted to the local climate and the natural environment, without losing faith in the universally valid principles of the modern movement, which had turned its back on local cultural conditions. The tropical climate was for internationally operating architects and urban planners, like Constantinos Doxiades and Maxwell Fry, the prevailing reason to depart in minor details from the modernist canon. Thus it was possible to adapt a specific model to conditions in Brazil, Cambodia, Indonesia, and Ghana. For the warm and wet zones in Africa, the savannah, the coasts, and the equatorial rain forest, Mediterranean modernism was not optimal for climatic reasons, thus a new generation of internationally operating architects working in Africa, such as Lippsmeier, Prouvé, Almeida, Godwin, and Hughes sought new solutions.

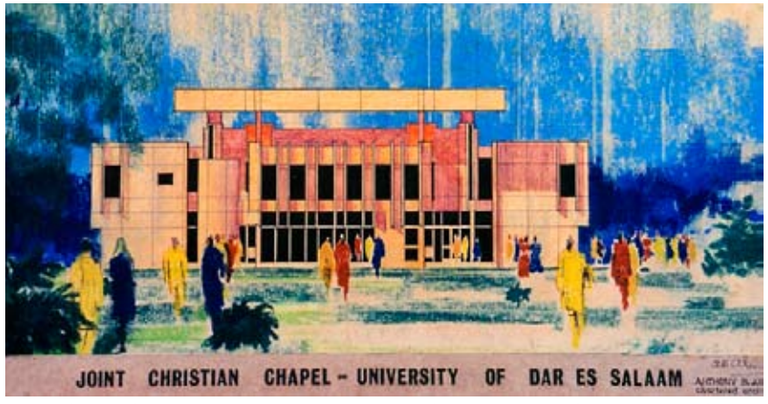
Jean Prouvé designed the *maison tropicale*, a prefabricated house for late French colonial administrators working in the equatorial forest regions of Africa. It was such a sophisticated and experimental interpretation of the planter's house that it was thought too extreme even by modern Europeans, and in the end, only three prototypes were built. [See p. 343]

Of comparable design is the house by Raymond Ayoub for the president of Guinee, Ségou Touré. It is a literal translation of the traditional African planter's house for the equatorial rain forest zone built with modern materials and technology.

Ayoub succinctly expressed the viewpoint shared by many modernist architects about African architecture in the 1950s and 1960s: 'Africa […] has since the last World War been open to the technique and the social organization of the west for its development.'[6] Up to that time, he continues, 'Africans who lived to the south of the fifteenth parallel – mostly all Africans who live to the south of the Sahara – used their energy just in trying to survive in the aggressive climate.' According to Ayoub, 'westerners had the ability to challenge this aggressive climate using modern building methods that would enable them to offer Africans a lifestyle, which would help them develop as the West had developed.'[7]

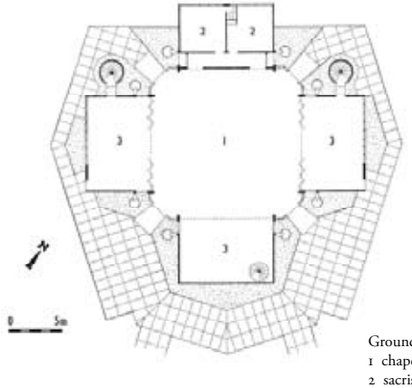
6 Ayoub 1966, p. 174.

7 'Die Behauptung ist nicht übertrieben, daß die Leistungsfähigkeit eines Volkes und sein technische und sozialer Fortschritt direkt abhängig sind von dem Grad der Behaglichkeit der Wohn- und sonstigen Bauten aller Art, die für den Menschen Obdach sind.' And: 'Südlich vom 15. Breitengrad bilden die ständige Feuchtigkeit und langweilige Wärme, die Unveränderlichkeit der Jahreszeiten und der Tage und Nächte ein besonders ungünstigem Faktor. Der größte Teil der menschlichen Energie wird für den organischen Kampf gegen das Übermaß des Klimas verbraucht.' Further: 'Ist es in unserer Macht, gegen diesen Faktor [the climate] zu kämpfen, den Menschen mindestens teilweise von den Lasten seines Klimas zu befreien, um seine Leistungsfähigkeit zu erhöhen und ihm dadurch zu ermöglichen, die technische Hilfsquellen auszunutzen, und in welchen Maße? Die Antwort is positiv. Für das Mikroklima eines Wohngebietes und das Raumklima eines Gebäudes können wir viel tun.' *Ibid.*, p. 174.




Design drawing for the Joint Christian Chapel by Almeida on the campus of the University of Dar es Salaam (1975).

Interior and exterior of the Joint Christian Chapel in 2007.



Plan of the Joint Christian Chapel.

Ground floor
1 chapel
2 sacristy
3 side chapels



The contributions building technology can make to comfort must be viewed in conjunction with the infrastructure of the city. Running water, sewage, electricity, information technology, mechanical installations, and mobility obviously make a significant contribution to the well-being of people in their environment. The introduction of this modern infrastructure went hand in hand with the advent of colonial architecture in Africa. A city like Dar es Salaam has an infrastructure that at first sight differs little from that of any other modern western city. It has paved roads, running water, sewage, an electricity grid, a rubbish collection service, and a telephone network. We have already seen in the case of Ouagadougou that such an infrastructure serves the formal city far more than the informal city. In 1990, it was estimated that only five percent of the population of Khartoum had access to a modern sewage system, and in 2005 only one percent of the more than ten million residents of Lagos were connected to sewage mains.[8]

The sewage system of Dar es Salaam largely dates from the colonial period and it still drains into the sea. This system was perhaps adequate for a city of 200,000 residents, but it is completely inadequate for contemporary Dar es Salaam with more than three million residents. The sewers often become blocked because of water scarcity. Therefore, most houses in Dar es Salaam have their own septic tank and cesspit. The city districts where the less-well-off live are mostly situated in the river valleys and the coastal swamp area, and are thus vulnerable to diseases such as cholera and hepatitis due to the high ground-water level. It is safe to assume that water from shallow wells is no longer used in Dar es Salaam, apart from in the suburbs on higher ground. But there are certainly many towns in Africa where drinking-water wells and cesspits are located in dangerous proximity.

In Ouagadougou in the 1980s seven percent of the households were supplied with running water, and only five percent of the population of Lagos in 2005 were connected to water mains.[9]

The supply of running water in most districts of Dar es Salaam is non-existent or functions erratically. At the moment, reliable drinking water is sold in plastic bottles or is brought in by tanker trucks, and sold by water sellers on bicycles in buckets and jerrycans. In Ouagadougou, it is distributed in old oil drums on handcarts. City dwellers who can afford it store their water in underground cisterns or in voluminous plastic containers, which they fill from tankers or at night from the mains, if the water supply is functioning. An infamous story is told in Dar es Salaam about water being supplied by the local fire brigade, which makes money on the side in this way but as a consequence has no water available when indeed a fire breaks out.

The situation with regard to electricity is different. Many urban households in Africa are at the moment connected to the electricity grid, but the electricity consumption of the informal city is minimal.

8 Murray and Myers 2006, p. 252.
9 *Ibid.*

In 1991, a resident of the United States used 280 times as much electricity as a resident of Chad.[10] Electricity in Tanzania is generated by a number of hydroelectric dams. The often absent rains, combined with an increasing demand for electricity, have led to power-shedding, a regulated supply that is limited to specific days and times. Yet it does not seem as though the government and the elite take the saving of electricity very seriously.

The new office buildings in the city and the villas in the suburbs are all air-conditioned. Moreover, glass at the moment is a popular building material, and it is not unusual to see office blocks with complete glass facades. During power cuts, these buildings can generate their own electricity with emergency power supplies to keep the lifts and the air-conditioning functioning. For Joe Osae-Addo the cacophony of stand-by generators is a symbol of developing Africa.[11]

The road system of Dar es Salaam, used by an estimated 75 percent of all Tanzanian cars, is overburdened and it is not advisable to try to cross the city in the rush hour. There are only a few asphalted roads; most roads have never been asphalted or if they were, the asphalt has eroded away. In the dry season the city's suburbs are covered in a cloud of dust from all the traffic that uses the sandy roads; in the wet season the road system is transformed into a muddy pool with vehicles zigzagging from side to side trying to avoid sinking into the deepest potholes. Most of the city's residents travel around by foot, bicycle, or use public transport. In the socialist period, a centrally controlled public transport system with city buses was established in Dar es Salaam, but now large buses no longer exist in the city. Instead there is an efficient system of privately owned and run, small and medium size vans.[12] Government traffic regulation and control are indispensable, as failure gives rise to dangerous situations. Many deadly accidents occur because of failing technology, reckless driving, and lack of maintenance of the road system and the vehicles that use it.

The garbage collection service of Dar es Salaam is not yet up to its job. Rubbish is mostly burned by the residents, understandably as far away from the home as possible – at the roadside, for instance, or in other public places.

Finally, the African city has a telephone network of landlines, but the system is extremely vulnerable due to the low number of subscribers and long distances that need to be spanned by outdated and cheaply executed overhead lines. During the 1980s, we encountered this as a great problem, but now it seems to be resolved by the paramount success of the mobile telephone network.

10 Sachs 1991.
11 Osae-Addo 2007, p. 3.
12 In Tanzania they are called *daladalas*, in Kenya *matatus*, in Ghana *trotros*, in South Africa *taxis*, etc.

# The Dobie House

## ▪ PEGASUS

D.T. Dobie was a colonel in the British army during World War II. In 1944, he landed as a paratrooper at Arnhem and was responsible for operation Pegasus. This operation involved the evacuation of allied soldiers after the failure of the Market Garden manoeuvre to capture and hold the bridge over the Rhine. At the end of the war, he moved to Kenya and like many other British ex-servicemen he attempted to make a living in the colonies. Kenya, unlike Tanganyika, was an important possession for the English, a crown colony, in which they had invested a considerable amount of energy and money, and today a large number of British planters, industrialists, and experts still live there. The process of Kenya's independence, which started in the 1950s, went hand in hand with violence and repression, possibly expressing the pain felt by the British at losing what was perhaps their favourite African possession. Nonetheless, at this time Dobie and his wife began a Mercedes garage that, by the 1960s, had developed into one of the most important car businesses in east Africa.

In the years of the East African Union (EAU), the bonds between Kenya, Uganda, and Tanzania were strong, as we saw in the case of the University of East Africa. But also the postal systems, railways, airports, harbours, and the road system were run as part of an integrated system, which allowed Dobie to set up garages in the remotest corners of this great territory. With the collapse of the EAU at the end of the 1960s, borders were drawn and international operations became more difficult. The war between Tanzania and the Uganda of Idi Amin in 1971 meant the end of his business in Uganda. Tanzania, which came penniless out of that war and adopted socialism,[1] was not a country in which to sell cars in the 1970s. The use of cars was regulated by the government and discouraged. When I went to work in Tanzania in

1 Thanks to the intervention of the Tanzanian army, Idi Amin was deposed and the Ugandans were relieved of their bloodthirsty tyrant. Tanzania alone opposed him and was not supported by either the West or Russia.

Arumeru House near Usa River (2008). *Source: Mike Leach*

Pegasus House in Dar es Salaam. Office building and showrooms in an old, hollowed-out railway shed (1988). *Source: Joselien Folkers*

1985, and wanted to buy a car, I had first to submit to the government an application for a 'permit to acquire a motor vehicle.' Six weeks and a large number of stamps later, I had the much-valued paper in my hands.

Just towards the end of the 1980s the market opened up again, and the son of colonel Dobie, Charles Dobie, was sent to Tanzania to revive the collapsed business of D.T. Dobie. He took on the job with energy and expanded the Mercedes garage in Dar es Salaam by adding Nissan, Suzuki, and Honda vehicles to their selection. In 1988, he moved the showroom and the head office to an old railway shed on the edge of the old city centre which we converted into the Pegasus House complex.

## ▪ THE DOBIE HOUSE

In the year after the refurbishment of Pegasus House, Charles Dobie obtained a site for his own house on the Masaki Peninsula, a place that was previously called *Kitanda cha Chui*, the leopard's cove. After the sisal plantations on the peninsula were uprooted at the beginning of the 1980s, land became available for the extension of the city. Dar es Salaam, growing at a pace of five percent per year since World War II, had meanwhile completely swallowed the peninsula, which soon became one of the most attractive of the city's districts. The development into an upper class district was anticipated, because of the beautiful sea views and cooling breezes from the ocean. Besides, Masaki borders onto Oysterbay, a district laid out for the British colonists with large plots and winding, tree-lined avenues. Kitanda cha Chui was and is a beautiful place on the west coast of the peninsula, a site with luxurious vegetation overlooking the lagoon. What is extraordinary about this location is that it overlooks the sea on the *western* side, while the East African coast obviously faces the Indian Ocean to the east. The view from Kitanda cha Chui extends over the lagoon to the mainland where the sun sets.

As we have seen, the modern infrastructure in Dar es Salaam did not function well and the same was true of Masaki. This extension to the city was realized without mains sewage, sufficient water, or electricity. The roads were not paved and there was no drainage system, which created a situation where wealthy residents of the peninsula, like modern-day medieval knights, hid behind their castle walls and drawbridge and traveled through the urban jungle in four-wheel drives. It was said jokingly that palaces on Masaki were the true recipients of Tanzania's development aid. Its residents are the ones who supposedly profited most from that aid: senior Tanzanian politicians and civil servants, diplomats, western aid workers, and Asian traders.

This was the context in which the Dobie House was designed. Charles Dobie wanted a house that could function independent of the unreliable infrastructure of Dar es Salaam. In this respect, the situation was the same as that of the early European pioneers in Africa at the end of the nineteenth

century. He was inspired by the life style of the early colonial settlers and planters, who settled in this uncultivated and hostile land, but who still wanted to enjoy western comforts. In order to achieve this he believed (possibly influenced by Nyerere) that autarky could be the answer, and this was an important element of the brief we received when commencing the design. This wish was combined with Dobie's passion for Africa's nature. Dobie was involved as an administrator responsible for the policy of the enormous Tanzanian wildlife reserves and national parks,[2] and he wanted to set an example of good practice in his own house which was to be sparing in its use of water and energy and the production of waste and should protect the endemic environment. He did not want to have air-conditioning in his house, which was extremely unusual for the upper-class urban dweller in Dar es Salaam.

The site he chose for his house was very beautiful and the view excellent, but the climatic conditions were far from ideal for building. A west-facing house is the worst orientation in the East African climate, because the house will be burned by the merciless midday sun. Moreover, the plot's location on the lee side of the peninsula meant that the house was blocked from the coastal breezes that make the coastline climate bearable.

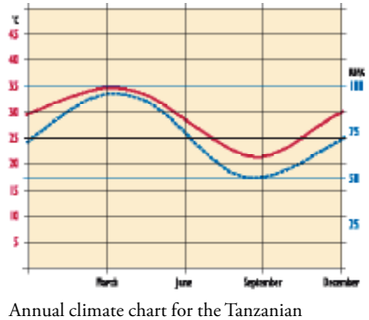
From October to May, the prevailing wind in East Africa comes from the northeast (Kaskazi) and for the rest of the year from the southeast (Kusi). These monsoon winds are as regular as clockwork, and always come from the predicted direction. The Kaskazi brings warm damp air from the ocean, which prevents the temperature from falling below approximately 25°C at night, and makes it rise to around 35°C during the day, with a prevailing relative humidity of 80-100 percent. The Kaskazi brings the rains that come in two seasons, a short rainy season in November and a long rainy season from the end of March to the middle of May. However, this does not mean that there are no heavy thunderstorms during the other Kaskazi months. The Kusi, on the other hand, brings relatively dryer and cooler air and provides a pleasant climate with temperatures at night of around 22°C and 28°C during the daytime with a relative humidity of around 60-80 percent. It hardly rains during this period.

For the east African situation this means that buildings should be of an elongated shallow plan, with the long sides orientated to the northeast and the southwest. To be able to also catch the Kusi, a slight correction to the north-south is advisable. Besides, the east and west facades need to be protected against the morning sunshine and the heat of the midday sun, and this is also achieved by designing long, slender buildings with narrow gables orientated to the east and the west.

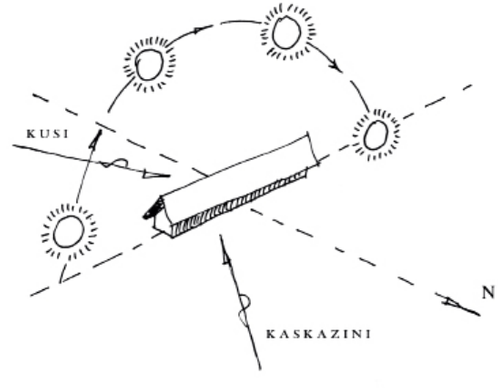
The Dobie House has a representative function. It has to provide for the regular reception of guests, but at the same time it is to be a cozy home for the small Dobie family. The house consists of three volumes orientated around a courtyard, and a large garden with a pool and a small tea pavilion. The three volumes are arranged in a triangle with the

2 About thirty percent of the land surface of Tanzania consists of protected nature reserves.

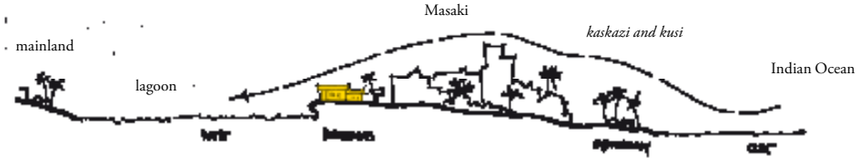
The Dobie House seen from the sea in 1995.




Annual climate chart for the Tanzanian coastal zone.

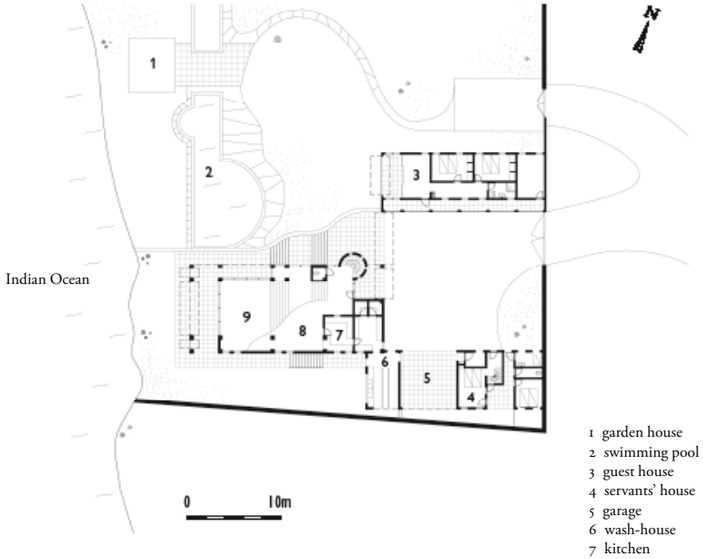



Ideal building form and orientation for the coastal zone in East Africa.




Schematic section of the Masaki Peninsula with the location of the Dobie House.

Dobie House facade design (1988).




1 garden house
2 swimming pool
3 guest house
4 servants' house
5 garage
6 wash-house
7 kitchen
8 dining room
9 living room

Plan of the Dobie House.

entrance gate at its base, the services and the guesthouse on the sides, and the main house at its apex. Service building and guesthouse are connected by a wall and the entrance gate. The service building encompasses the garage, storage, and servants' living quarters. The guesthouse is conceived as an independent home with two bedrooms, a bathroom, kitchenette, and a living room with veranda.

The main house is, unlike the other buildings, two stories high. The kitchen, dining room, sitting room, bar, and the terrace are situated on the ground floor. The natural relief of the terrain is adopted in the ground floor arrangement, resulting in three levels – the entrance with dining room and kitchen on the top level, the bar on the intermediate level, and the lounge and terrace on the lower level – interlinked by wide stairs. The lounge is more than five meters high. On the first floor there are two bedrooms, the bathrooms, a library, and the family room, which is also a loggia. All three buildings are elongated in plan, so as to cope with the East African climate, and the gables are orientated on an east-west axis. As previously stated, the situation of the house is thus that it does not profit from the prevailing winds, the Kaskazi and the Kusi. The slight relief, the trees, and the buildings on the peninsula have blocked-off the house from the sea breezes to a great extent.

To catch more sea wind and to magnify its effect, openings were set into the exterior walls and orientated towards the dominant winds. On the windward side, they are mostly narrow slits, but on the lee side, the openings are made as large as possible. This created a Bernouilli effect.

It is important that air be circulated at both a high and a low level so that the air stream flows from a relatively cool lower area to the higher area, which has relatively warm air. In order to achieve this, the windows were constructed from a combination of louvers, casement windows, and fixed openings.

We naturally wanted to avoid solar radiation impact on the facades, since it heats up glass in particular very quickly, but the slow warming of the masonry needs to be avoided as well. The accumulation of warmth, which is desirable in the desert region to keep the home warm during the cold nights, is unwanted in warm, humid climate zones, because of the small temperature fluctuations between day and night. It is relatively simple to protect the house against the heat of the sun on the north and south sides. The inclination of the sun's rays is rarely less than 70° on north and south elevations, for which the comparatively modest eaves of the Dobie House provide adequate protection. To protect the reinforced concrete construction from above – because the sun is at its zenith for most of the day – the saddle roof is raised and separated from the building's construction to avoid heat conduction. The warmed air under the roof easily escapes through the gable ends. The gable walls proved to be the most difficult situation. The east-facing gables were the lesser of this problem, since the rising sun does not immediately radiate intensive heat, and because the rays are intercepted

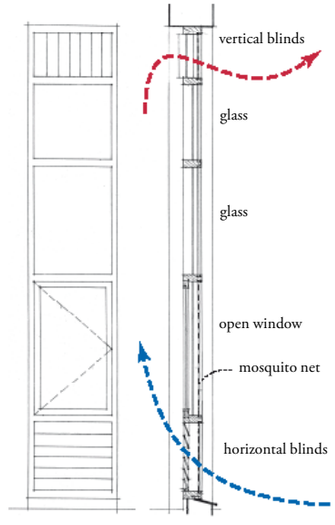
by the neighboring Masaki buildings and vegetation, due to the low inclination. The greatest problem remained the west orientation. The sun begins to set at four o'clock, and for the entire year radiates tremendous heat until around six o'clock.[3] And at the same time, the main house and the guest rooms are orientated towards the lagoon, and it was important that the breathtaking view should not be blocked by vegetation, *brises-soleil,* and so on. In order to solve this problem, the facades on the west side are greatly recessed. On the first floor, the loggia is set back fourteen meters under the roof. On the ground floor, the facade recedes by seven meters, and is protected from the sun by inserted canopy roofs placed below the balustrades level, but high enough not to hamper the view.

The main building is supplied with a rainwater collecting system. The main roof has a surface of 600 square meters, so, with an average yearly rainfall in Dar es Salaam, more than 700 cubic meters of water can be harvested. Working to capacity this should, in theory, satisfy the daily needs of the family – washing, toilet flushing, cooking, gardening, and swimming pool. The practical situation is a bit less promising. Most rain falls in the months of March, April, and May in a small number of very heavy thunderstorms, sometimes at the rate of more than a decimeter a day. Much less rain falls in the other months, and hardly any rain falls in the period between June and September. A cistern of about 150 cubic meters would therefore be necessary to guarantee a supply of water throughout the year, but such a cistern was beyond the possibilities of the site and the hard coral rocks on which the house is built. Ultimately a cistern of sixty cubic meters was provided, which offers sufficient reserve to cope with the fluctuations in rainfall and the unreliable mains water supply. The rainwater is channeled through the columns hidden in the facades into the cistern where it is being filtered. A tank placed in the roof space provides the pressure needed for water distribution, and it is heated with solar collectors and a solar boiler. In order to compensate for irregular electrical supply, a photo-electric installation and a generator were installed. The house is equipped with an Imarsat satellite antenna for communication, which allows the owner at any moment of the day to make contact with his employees in the national parks and the rest of the world.

Masaki was quickly urbanized in the 1990s. The area developed as a largely self-sufficient residential area with shops and recreation for the wealthy of Dar es Salaam. This meant, among other things, the establishment of a number of open-air discotheques that fill the tropical nights with loud music that floats over the lagoon. The Dobie family always slept at night with the windows open because they did not have air-conditioning. Now an air-conditioning system has been installed and it is turned on at weekends to allow them to sleep.

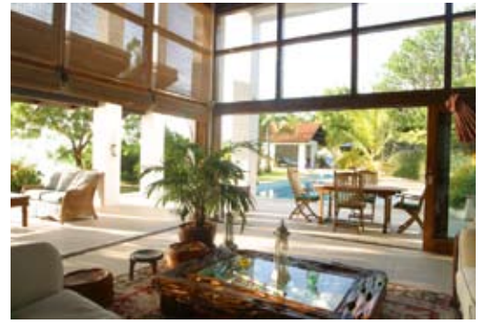
When the Dobie House was built, the west side of Masaki was still undeveloped. Today the Dobie's garden is one of the few places where the endemic coastal vegetation is still to be found. Dobie's neighbours

3 Dar es Salaam lies 6° south of the equator.




Principal cross-section of the facade of the Dobie House.

Design cross-section of the Dobie House. The small opening in the facade on the windward side and the large openings on the lee side ensure that a stronger current of air flows through the house because of the so-called 'Bernouilli effect'.



The Dobie House in 2007.

Aerial photo of Msasani Slipway at the beginning of the 21st century. *Photo: Nicola Colangelo*

Watching the sun go down on the slipway. *Photo: Berend van der Lans*

are increasingly filling up the cliffs and even extending their palaces into the sea on reclaimed land.

In the 1970s, Nyerere decreed that an area of 200 meters from the coast was public property. The Dobie House was one of the first bits of private development to be permitted on the coast. Since then, most of the coast has been taken for private development projects. It is to be hoped that the two remaining public beaches at Oysterbay and Seaview will be kept accessible to the public, and given the attention that the Tanzanian media have paid to this issue they may in fact be kept open.

The fact that private initiatives do not always serve the elite alone is evidenced by the Msasani Slipway development, which is located near the Dobie House. Following an urban design made by our firm, the owner of the former ship's wharf here created Dar es Salaam's first and only public promenade: a place where Tanzanian youth, Indian traders' families, the new local middle class, fishermen, western aid workers, and diplomats gather at sunset to stage a true Italian *giro* together.

# Turiani Hospital

## ▪ A BUSH HOSPITAL ON THE BANKS OF THE WAMI

Turiani Hospital is situated close to a village of the same name, along the old trunk road between Kilosa and Moshi. This had been one of Tanzania's most important roads dating back to the German colonial period, and the mission posts and forts strewn along the road remind us of this period.

Turiani lies in the Wami valley on the east side of the Nguru mountain chain, beyond which the Masai steppe stretches into infinity. The uplands and the valley are characterized by the many streams that flow out of the mountains, and gather in the Warmi. The soil is fertile and suited for maize, teak, rice, and sugar cane, and especially the sugar cane plantations have been important since the early years after independence. A sugar processing factory was built with Dutch aid at Mtibwa near Turiani. The construction of a new asphalted road to the north in the 1960s along a more easterly course, made the road at Turiani nevertheless lose much of its importance. The sugar plantations and factory at Mtibwa are now more an end destination than a halt on the way. The old German forts are decayed and the trading posts have dozed off. Nevertheless, the population around Turiani has grown considerably, due to a high birthrate and the many immigrants who were attracted by the fertile agricultural land.

The disadvantage of the wet and fertile climate is that it also attracts the malaria mosquito. The climate in the area around Turiani is extremely warm and damp year round, which causes a horrifying number of malaria cases. Healthcare in the area up until the 1960s was provided by the *maganga*, the traditional healers, and the missionaries. The missionaries built their typical mission posts on the slopes where the climate was healthier. The original local population, the Waguru, also lived on the slopes but the plantations persuaded many of them to move to the Wami valley.

In the 1960s, the mortality rates due to malaria were extremely high

Aerial photo of Turiani Hospital in the late 1990s. *Photo: Dr G. Thie*

Measurement of Turiani Hospital in 1992. *Source: Salim Kombe*

in the Wami valley. It was difficult to get medical help because the small mission clinics were located in the mountains at least a day's walk from the village, and the nearest hospital in the regional capital Morogoro was a hundred kilometers away. In the mid-1960s, in order to answer the growing demand for healthcare in the Wami valley area, the Congregation of the Holy Blood (CPS), from Mönchengladbach in Germany, decided to build a hospital in Turiani. However, finding a suitable location for the hospital proved difficult. Most of the land beside the main road was already built on, but finally a site was found beside the main road in the curve of the Mbagala, a tributary of the Wami. It eventually became clear why this area had remained undeveloped. After heavy rainfall, it happens that the Mbagala bursts its banks and floods the surrounding countryside. Moreover, the soil appeared to be far from ideal for building works; it consisted mostly of *black cotton soil*, a fine-grained, black subsoil that expands enormously when wet, and contracts equally when drying up.

The hospital was built with limited means, according to the plan of a tropical hospital that was fashionable at the time. The different functions were housed in freestanding pavilions that were linked by covered walkways. The original clear layout with a number of parallel east-west axes, to which the pavilions were attached, had been extended and modified over time with less organized structures.

The buildings were made of cement blocks laid on a shallow foundation of rubble, with mass concrete floors and a wooden roof structure that was covered with sheets of corrugated iron. The walls, finished with rough 'Tyrolean' plasterwork, exuded the grayness of poverty. This style of plasterwork, popular in Africa as we encountered previously in the renovation of the Centre Matériaux in Ouagadougou, is the ideal *cache misère* for uneven or poorly constructed walls, and it requires little maintenance or painting. People avoid it, and will not lean on or touch the surface because of its sharp pointed texture. It consists of a sand and cement mortar that can be sprayed onto the wall with a simple spray gun.

Turiani Hospital was built out of these 'worthless' materials, mass concrete, and corrugated iron, like the neo-vernacular buildings we encountered in the last chapter. In principle, this system of building creates relatively few maintenance problems, but in Turiani, the intensive use and constant damage to the foundations caused by dampness, soil contraction and expansion, and flooding raised the costs of the maintenance. In the 1970s, Misereor, one of the most important financiers of the building, commissioned Anthony Almeida to draw up plans for a new building that would replace some of the most dilapidated structures. Almeida designed the new radiology department, the laboratory, the sterilization department, and the infusion unit. At the same time, an extended system of drainage ditches and small dams was built to minimize the catastrophic effects of flooding.

Despite the setbacks in the construction and civil engineering of the


Angela Groothuizen in Turiani. *Source: Memisa/Cordaid*

Surgery Department of Turiani Hospital in 1992. The surgical gloves are hung up to dry for re-use.

The new Surgery Department of Turiani Hospital under construction in 1999.

building, the hospital flourished. At the end of the eighties the hospital had almost two hundred beds with an occupation rate of more than 100 percent. The hospital was famous because of the high quality of its surgical department, and it developed from a local clinic into an unofficial regional hospital visited by people from far and near. It was not unusual for people from the city of Morogoro, where the official regional hospital was located, to come to Turiani for treatment. This high-quality care was partly due to the constant support of the CPS nuns, who ran the hospital in a strict but loving manner, and by the presence of idealistic Dutch doctors and assistants who were sent to work in Turiani by Memisa for the period of one year.[1]

## ▪ THE NEW TURIANI HOSPITAL

The popularity of the hospital, the growing capacity problems, and the technical defects of the buildings led to the commission of a master plan for rebuilding in 1992.[2] A survey, which we carried out before beginning work on the plan, revealed that some of the buildings were not worth renovating. Many of them had faulty foundations, the floor levels of some were too low, they were not located in the optimal position, or the interior climate was poor. The wards were still arranged as old-fashioned *Nightingale wards*, that is, long rooms with two, endless rows of beds facing each other.

Our 1992 master plan proposed the reconstruction and extension of the hospital in three phases. The rehabilitation of the hospital according to this master plan was carried out in a period of eight years. The total costs of the rebuilding, including improving the infrastructure with roads, a water supply and drainage system, a sewage system, and electricity, was slightly less than two million euros. This meant that the hospital has been rebuilt and extended at a cost of some two hundred euros per square meter.[3] This sum was very low, even by Tanzanian standards. The available budget did not allow for a specialized building contractor, and moving the hospital to a healthier site was not possible, nor was raising the terrain on which the hospital was situated, in order to avoid flooding.

Moreover, it was impossible within this budget to install a much-desired air-conditioning system, and even if it were possible, it was questionable whether sufficient and affordable electricity would be available to run such a system. Electricity was supplied by the nationalized company Tanesco, but tension and distribution were unreliable. Technical defects, over-long cables, and scarcity due to lack of water in the reservoirs led to regular power cuts of shorter or longer duration. A power cut in a hospital is extremely dangerous, and from the beginning, Turiani was equipped with a stand-by generator to cope with this problem. During the planning, we looked at the possibility of installing a low-tension, photo-electric installation that was not linked to the Tanesco grid, such as was installed previously in Namanyere Hospital. But this was, ultimately, not a sound investment for Turiani.

1 The tropical doctor Ad Groen described his experiences in Turiani in his book *Vijftig maanden zwaar* (1997).
2 Folkers 1992.
3 At 1996 prices.

These considerations led to two important challenges for the Turiani master plan. The first challenge concerned solving the complex water problems: flooding, the problem of providing reliable drinking water, and the contamination of river water with hospital waste. The second challenge concerned the improvement of the microclimate without using energy-dependent installations. These problems needed innovative solutions, rather than conventional technical means. Standard solutions that might be found in diverse books, building traditions, and experiences were not applicable to the specific case of Turiani.

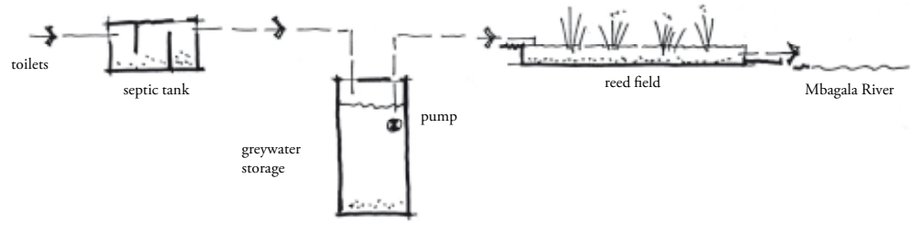
## ▪ WATER MANAGEMENT IN TURIANI

Water management in the Turiani project included the supply of drinking and washing water, the control and use of rain and ground water, and the discharge of wastewater. Although Turiani is located in an area of high rainfall, safe drinking water is scarce. Drinking water for the hospital has always been obtained from a mountain spring. It is carried over a great distance by a conduit that supplies a water tower located on the hospital's premises. The quantity is barely enough to supply the hospital with drinking water.

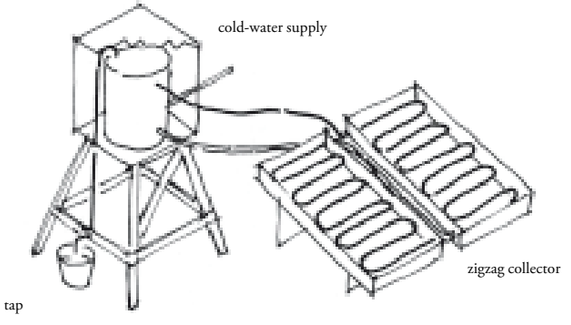
This water appeared to be too hard for the production of infusions and sterilization of instruments. In order to make it useable, it has to be filtered by means of a time-consuming and expensive process. Consequently, we looked for an alternative, and a deep borehole on the hospital site proved able to supply a sufficient quantity of high quality water. Thanks to this ninety-meter deep well, there is now water available for infusions, as well as a surplus that can be supplied to other health centres.

Rainwater was partly collected on the roofs and used for washing but, nevertheless, there was still a shortage of clean water. Therefore, water was drawn from the old conventional open well – the quality of which was unreliable, but not dangerous for laundry purposes. Shallow wells such as these still provide most of the water to the rural population. Water was warmed by a self-build Bacibo-system of solar boilers. Cis and Bart Deuss, from Hengelo in the Netherlands, have been traveling through the third world since the beginning of the 1980s, teaching the local population how to make solar-heated boilers with a self-build kit and easy-to-procure materials.

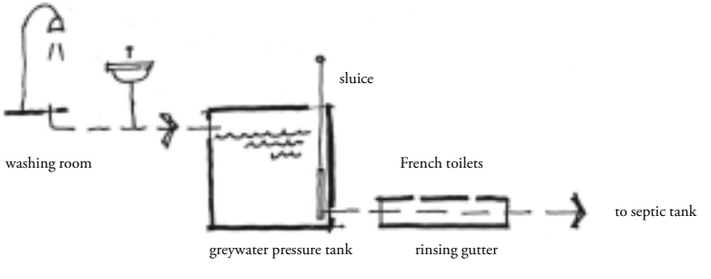
This still did not amount to sufficient water to flush the toilets. An ingenious, low-water flushing system was developed for Turiani by the German engineer Rainer Wesenberg, which we hence coined the 'Wesenberg-system'. This system used gray water to flush the toilets. This is water from the showers and washstands, which is drained into a storage and pressure tank. The toilets are located beneath this tank, and, at first glance, look like the traditional *long-drop* toilets used by the local population. The difference between the long-drop and the Wesenberg system's toilets is that excrement and urine do not fall into a pit, but are collected in a canal




The sewage and aerobic waste-water purification system of ABC. *After: Sanford Kombe*




The principal of the Bacibo self-build warm-water system. *After: Bacibo*




The water-drainage system of Rainer Wesenberg. *After: R. Wesenberg*

under the toilets. The excrement accumulates in the canal until a sluice valve of the pressure tank is opened, which releases a great quantity of water that flushes through the canal and cleans it out. This canal is linked to the terrain sewage system.

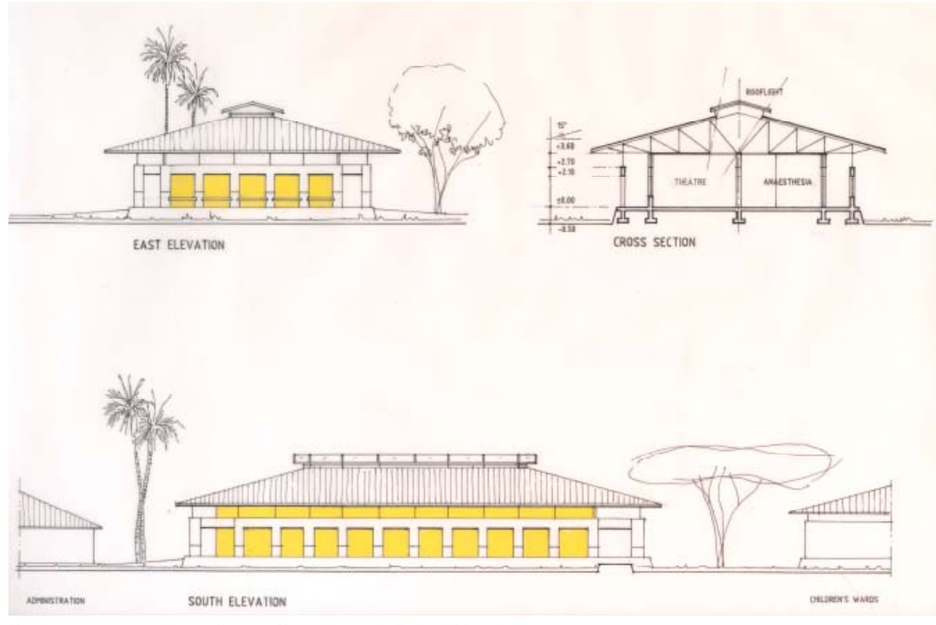
The hospital sewage water used to be stored in a septic tank before being emptied into the Mbagala. However, the water discharged into the stream was not sufficiently purified, and is therefore partly responsible for the pollution of the river and the expected increased risk of sickness. To solve this problem, the hydrologist Sanford Kombe of ABC Consultants designed an *oxidation pond,* a reed bed into which sewage water was fed, after undergoing anaerobic processing in a string of septic tanks. The water, purified in the aerobic reed bed, was discharged into the river. Because of the low hospital grounds, there was still a need for an intermediate black-water storage tank, with a pumping installation to bring the water up to the reed bed. According to the name of Kombe's firm, the new sewage installations was called the 'ABC-system'.

Apart from the hospital sewage, excess storm water was drained off to the river via a network of large drains and open gullies. It is very important to avoid water stagnating in the drains, because that is the breeding place of the malaria mosquito, and we therefore opted for easy-to-clean ground channels instead of roof gutters. Finally, in order to cope with possible floods and extreme circumstances, all new buildings were erected on elevated platforms.

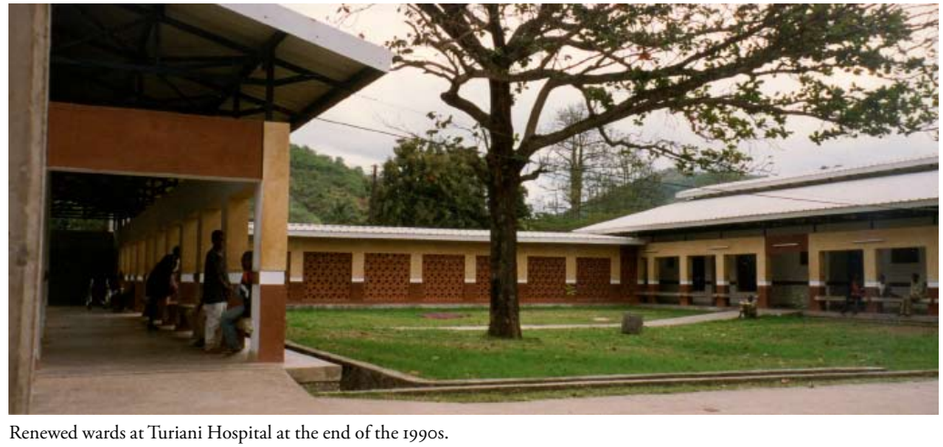
### ▪ THE MICROCLIMATE OF TURIANI HOSPITAL

The main orientation of the old hospital edifices followed the general building rule of east Africa: shallow longitudinal plans with the long elevations facing north and south. This principle was not ideal for Turiani. The Nguru mountain chain causes the warm Kaskazi monsoon to shift direction from the northeast to the east. This means that with a north-south orientation, the wind in the hottest season would be blocked by the gables – which explained the unfavourable microclimate of the existing buildings in Turiani. Instead, the new master plan proposed an east-west orientation for the new buildings. Deep verandas were proposed for the east and west sides, in order to keep out the sun, with additional sun screens and a wide overhanging roof.

In the further elaboration of the design, the roof was raised in relation to the 'inner box', which was provided with a suspended ceiling and large windows equipped with mosquito mesh or glass blinds wherever the rain could enter. The roofs were supplied with a *jack roof*, or a ridge roof, that allowed hot air to escape. To speed up the flow of hot air escaping from the roof space, we proposed the use of *windworkers*. These windworkers were developed by the Australian architect Glen Murcutt, and consist of suction pipes moving with the wind. However, these eventually were



Design drawing of the new Surgery Department in Turiani Hospital.


Renewed wards at Turiani Hospital at the end of the 1990s.


The master plan for Turiani Hospital.

Renewed wards at Turiani Hospital at the end of the 1990s.

unnecessary. For the first time in the history of the hospital, blankets were bought for the patients, because the Kusi period proved too cool. With this construction manner, energy-dependent installations for cooling and lighting were avoided. Climatic installations were installed only in areas sensitive to infection, such as operating rooms and sterilization department – however, not because of temperature control, but because the system of cross-ventilation allowed dust and polluted air into the building, which had to be avoided at all costs. Obviously the doubled climate shell led to larger building dimensions, but the verandas appeared to be attractive places for the patients and their families to gather – in Africa it is customary for patients to be accompanied by their family who feed, wash, and care for them during the day.

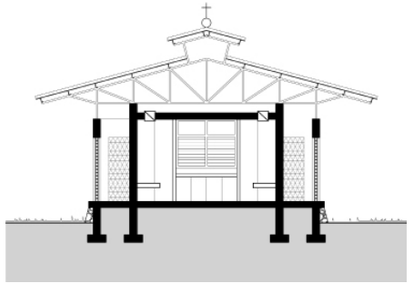
The building materials applied were conventional. Any unnecessarily complicated or unfamiliar details needed to be avoided, since local building workers would be employed for the work. The foundations, the platform, and the canals are made of locally quarried rubble and mass concrete, the walls of standard cement blocks, the ceilings of stretched metal with cement plasterwork. The outside walls are finished with a lime-based plaster mixed with local earth pigments. This saved us the costs of painting, and still resulted in colourful buildings.

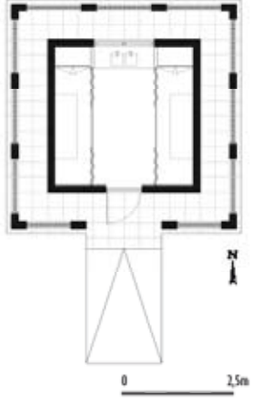
In order to protect the buildings optimally against the elements, imported galvanized and coated single-span roof sheets were used. In view of the precarious operational resources of the hospital, it did not seem sensible to save money on the 'raincoat'. The roof construction is not of wood, as would normally be the case, because the available wood had not been seasoned and it may have been illegally felled. In its place, the trusses were made of slender, cold-pressed section tubes obtained from Uganda. They were so light that they could be installed by hand without the aid of mechanical devices.

The long arcades, the gables with *oculi*, the raising of the building on a platform, and the fenestration make this project seem archetypical, perhaps even classicist. This was possibly the obvious product of a western architect's search for a new rationale that is rooted in the contemporary vernacular tradition.

### ▪ TURIANI SEVEN YEARS LATER

I visited Turiani in 2007, seven years after the rebuilding of the hospital was completed. The German CPS sisters and the Dutch doctors had meanwhile been replaced by local nuns and doctors. Turiani was still a popular hospital, but it suffered from competition with popular private clinics that pinch the rich patients that Turiani also needed. It no longer enjoyed the income from more prosperous patients, and in addition European support and support from the central government had been reduced, forcing it to economize and find new sources of income.






Mortuary and Funeral Chapel of Turiani Hospital.

In general, the complex had withstood the test of time, and a number of buildings had been added, on the hospital's own initiative, that provided extra income, such as a canteen and private wards. These buildings were not provided for in the master plan, but they were built in a fashion clearly inspired by the buildings of the 1995-2000 building period. There were also plans for further extensions that would generate even more income, such as a nursing school, and in 2005 the Kenyan architect Martin Ombura drew up a new master plan for this work.

However, after ten years not much remained of the experimental infrastructure. The Wesenberg toilets had been replaced with conventional flushing toilets, water was again heated on wood fires, the overflow area had become a paddy field, and in wet weather the sewage collection tanks had to be emptied by a tanker truck to prevent them from overflowing onto the hospital grounds. What happens with the sewage discharge during the dry season is no mystery at all.

# Restituitas and autarky

## UNACHIEVABLE WESTERN COMFORT

The main lesson we learned from our work at the Turiani Hospital was the importance of the specific climatic context, and of taking the natural environment into account in order to optimize comfort. In addition to Turiani, we worked on a number of hospitals and schools in the bush, and each time we discovered that each context required considerable variations to the so-called standard solution. Virika Hospital in the idyllic Fort Portal in Uganda had been destroyed by an earthquake and needed to be reconstructed with earthquake-resistant technology. Water was scarce and the nights were very chilly in the scorched, dusty highlands of Mtinko, Tanzania. For Namanyere, also in Tanzania, we could not find any building contractors, because it was so far off the beaten track.

The influence of the local climate and the natural environment meant that each new design required study and an adaptation of existing models. The generic architecture of the International Style, which grew out of the modern movement in the period after World War II, was tailored to the Mediterranean climate, but less so to the damp tropics. Nevertheless it was applied on a great scale, and in the early 1960s, the period of the late colonial welfare state and the young African nations, it served as a prototype of architecture for places typical of the humid, tropical regions in Africa. This climatic adaptation of the style was largely confined to lessening the sun's impact on the building's walls. The layered skins with screens, decorative concrete openwork, and *brises-soleil* certainly created beautiful light patterns and attractive facades, but were not adequate to produce a comfortable interior climate. The house of Mrs Bassolé is more comfortable than many a modernist building.

In many modernist buildings, mechanical cooling systems were installed shortly after the completion of the building – which led to closing

down the ingeniously designed ventilation systems, and, thus, often to mutilating the facades. The air-conditioning made the layered skins redundant, which paved the way for other types of facades. Olifikayo Otitoola in his praise of the modernist 'breathing wall', remarked that air-conditioning had served postmodernist architecture well.[1] Séverine Roussel and Philippe Zourgane commented that air-conditioning crippled the inventiveness of modern architects in controlling the climate.[2]

The planter's house of the pioneers appears to have coped better with the warm, damp African climate than most buildings of the International Style – perhaps because planter's houses prioritize the roof above the walls. After all, an enormous umbrella roof is the best solution for a house in the equatorial rain forest or on the savannah. Both the planter's house and the buildings of the International Style were developed for modern western clients. In first instance they were conceived for colonial clients and, after independence, for modern African clients who, as we have seen, were expected by modernist architects to break with their past and embrace a western lifestyle. There does appear to be an unavoidable attractiveness about the western way of life, to which Africans are not insensitive, but for now, the modern comforts enjoyed in Europe and North America are still beyond the reach of most Africans – but whether the entire world population can enjoy the same level of comfort is questionable. In any case, for informal Africa, it seems that a heavy infrastructure, providing comforts based on western standards, is unachievable in the near future.

Although running water, electricity, and telecommunications are present in the larger African metropolitan areas, it would be unwise to be wholly dependent on them. Congestion and high maintenance costs make them unreliable, which is why many modern buildings in Africa do not function well. It is not possible to work in high office buildings with glass facades, if the lifts and the air-conditioning are down. Africans have long existed on the tightrope of tradition and modernity, and they may continue to do so for a while to come. The traditional African *cour* in rural areas absorbs some modern elements, and the contemporary African urban dwelling still retains some traditional patterns and uses.

Wood and charcoal are still used in most African households for cooking, outside in the *cour* or under lean-to roofs of the urban house. In the field kitchens which we installed in the hospital complexes, the smoke was a welcome way of keeping the mosquitoes and germs – call them evil spirits – at bay.[3] The cleverly designed chimneys however were ignored and the ventilation openings were blocked.

In Turiani, the Bacibo solar-heating boiler, which seemed ideal according to western standards, fell out of use and water was once again boiled over wood fires. Perhaps when the effect of a change in daily life patterns is not directly measurable, people do not accept changes introduced from the outside. The solar boiler was installed because we anticipated that there would be a shortage of wood with disastrous consequences, but in the perception of the individual villager wood is not yet scarce. The ingeniously designed and well-intended Wesenberg system was not successful either. I ascribe its failure to the fact that the system involved a new task, which was not self-evident within the culture. Excrement disappears into a hole in the ground or, in the case of the westerner, into a flush toilet. The visible treatment of excrement is not self-evidently desirable within most cultures.

Despite the proven comforts of the planter's house, microclimate verandas were often walled in when the houses passed from European into African hands. Modern Europeans enjoy a view, transparency, and a cool temperature whilst sitting on the veranda, Africans appear to value privacy and safety more, as they use their homes primarily as places in which to store their possessions and as a place to sleep.

The relationship of Africans to nature is still partly determined by the traditional need to protect themselves against the dangers of the bush. Lions, elephants, and poisonous snakes still live in the African Arcadia,

1 Olifikayo Otitoola during the presentation of 'Breathing Wall. A Modernist Architectural Heritage'. In Folkers, Van der Lans, and Mol 2005, p. 67-70.

2 'Inventions by the western architects to control climate by natural means have subsequently been discarded in favour of air conditioning.' Séverine Roussel and Philippe Zourgane during their presentation of 'The Rule and the Exception. The Place of the Modern Movement in Reunion Island'. In *Ibid.*, p. 59-66.

3 Such as was said earlier – in many African hospitals patients are cooked for and washed by their families who travel to the hospital with them and remain there as well.

| | **traditional** | | **the formal city** | | **the informal city** | | **consequence for the inhabitant** |
|---|---|---|---|---|---|---|---|
| **drinking water** | well | -/+ | tap water, bottled water | + | bottled water, bulk purchase, well | -/+ | drinking water is expensive, bulk water and well water are unreliable |
| **washing water** | surface water, well | + | tap water | + | bulk purchase, well, surface water | -/+ | bulk water is expensive, surface water is unreliable |
| **waste water** | cesspit | -/+ | sewage system | + | septic tank, pit | - | septic tank is expensive, pit is unhealthy |
| **heating** | wood fire, architectural means | -/+ | mechanical warming, architectural means | + | wood fire, architectural means | - | wood is expensive, modern technology is often unsuitable |
| **cooling** | architectural means | + | climate control installation, architectural means | + | electric fan, architectural means | - | electricity is expensive and unreliable, modern building technology is not adapted |
| **lighting** | wood fire | - | electric lighting | + | electric lighting, paraffin lamp, wood fire | -/+ | electricity is expensive and unreliable, wood and paraffin are expensive |
| **cooking** | wood fire | -/+ | cooking by electricity or gas | + | wood fire, paraffin | - | expensive, fire danger |
| **telephone** | none | | fixed and mobile phones | + | fixed and mobile phones | -/+ | fixed phone is unreliable, mobile phone is expensive |
| **waste disposal** | almost entirely local recycling | + | rubbish disposal service | + | rubbish disposal service, locally burned | -/+ | rubbish disposal service unreliable, burning is dangerous |

Comfort in Africa then and now, a balance between comfort, cost and safety.

Residential block in Casablanca by Candilis and Woods (2008). [See also p. 45] *Photo: Antie Kaan*

Residential block in Casablanca by Candilis and Woods (2008). *Photo: Berend van der Lans*

and the equatorial rain forest extends to the edge of the village if it is not cut down. The bush is still nearby. In 1989, when a hippopotamus appeared in the suburbs of Dar es Salaam, the whole city was terrified. The citizens who killed the dangerous animal were treated as heroes and had their photos on the front page of the newspaper while we, as ecologically sensitive Europeans, were repelled by the cowardly murder of the poor beast.

Africa is still full of primal nature, whereas in Europe the last pieces of wilderness are scrupulously protected. In the Netherlands, where every square centimeter has been worked and reworked, there is now a process of manufacturing primal nature afresh. This is a process of remaking Eden in a flowerpot, like Nicholas Grimshaw's Eden under glass domes in Cornwall, an air-conditioned wilderness in which people are exposed to no risks whatsoever.

I find particularly painful the picture of the burning *miombo*, the park-like tree-savannah in Africa, making way for agriculture and cattle rearing in order to feed humans. Similar to Jean Giono, I ask myself whether 'the farmer is not just like a fat mule that rolls in the grass, crushing everything in sight'.[4] The African Arcadia recedes just like the land Fantasia in Michael Ende's *Die unendliche Geschichte*, into nothingness and is thus gradually alienating the Eden of the future.[5]

I wish to emphasize that studying and adapting to the local climate and the natural environment is not enough; we have to consider the cultural context. We cannot ignore existing transitional African cultures and anticipate a situation in which Africans will have the same lifestyles as westerners. The credo of the AT movement – adaptation to the environment –, in contemporary times better known as the concept of 'sustainability' – should also serve the cultural context. If this is ignored, as it was in the modernist period, architectural interventions will fail, because they do not take cultural differences into account. During the AT period, African culture was studied, but still from a western perspective, which led to a one-sided focus and misinterpretations such as we have seen in the experiences of ADAUA. The same pitfall threatens the concept of sustainability. If architects neglect the cultural context, it results in failure, not only in Africa, but in the whole world. The Maupoleum, a large modernist office building in the centre of Amsterdam, was demolished after twenty years service, not because it leaked, deteriorated, or was unusable, but because Amsterdam citizens thought it ugly. The same thing can happen with a building that is climate and emission neutral, but that arouses the wrong associations.[6] If such a building, like the Maupoleum, is demolished after a much shorter life than it was designed for, it can hardly be called a sustainable building.

On the other hand, hypermodern glass palaces are now being erected in African towns, which are fully dependent on energy consuming air-conditioning systems and lifts. Nobody can say that these buildings are adapted to the local climate and the natural

4 'Alors, comme ça, il tue, tout le temps? Il vit comme une grosse bourrique qui roule, écrasant tout autour de lui?' Giono 1929, p. 51.
5 Ende 1979.
6 'People will never want to keep an aesthetically inferior building around, no matter how well stocked it is with cutting-edge thermal glass, photo-electric cells and zero emission carpeting.' Wines 2000, p. 9.

environment, but they are welcomed; their symbolism as monuments of economic pride and progress at this moment is apparently of greater value than ecological sustainability.

## ▪ RESTITUITAS AND AUTARKY

When I returned to the Netherlands I realized how much the living environment of Westerners is orientated to comfort. The experience of Africa is full of heat and cold, of light and darkness in strong contrast to the comfort of the Western world. Even the Dutch toilets are centrally heated.

Moderation would and should lead to a fairer division of wealth and to the protection of our planet. Moderation and modesty are also preached by the world's religions and prophets, but these do not play a role in this story. Calls to moderation have been relatively ineffective, and why should Africans practice moderation and westerners not? Toby Cumberbatch, a New York engineer, remarked that he was unable to give a good answer to African students when asked why he propagated the use of mud in African architecture, whilst coming from a city that is full of energy-consuming glass skyscrapers and cars.[7] Ultimately perhaps, we must console ourselves with the thought that humans are not the pilots of planet earth, but simply a short-term, glittering, and accidental mix of atoms and molecules, as pictured by James Lovelock.[8]

In the 1980s, in the wake of the AT movement, attention came to be focused on local culture and vernacular architecture. As we have seen, academics like Kenneth Frampton, Alexander Tzonis, and Suha Ozkan introduced critical, tropical, or abstract regionalism as possible answers to the dead ends to which modernism and different forms of postmodernism seemed to have led.

'Diversity' and the 'Other' deserved a place in the development of architecture, when the uniform application of modernism appeared to be stuck in the mud of the African savannah. The focus on functionality and its logical embodiment in architectural form – which is the preached formula at the root of modernist architecture, though it is seldom encountered in modernist practice – needs to be complimented with study, respect, and anticipation of the context. Therefore, a fourth pillar was added to Vitruvius's three-pillared structure – Firmitas, Utilitas, Venustas – that is: *Restituitas*. *Restituitas* represents respect for the environment and optimal architectural adaptation to the natural context.[9] I take the freedom here to supplement the natural context with the cultural component. Cultural history and contemporary culture belong to and define the environment in which architecture is made as much as the natural environment does. Survival in an environment without relying on imports is closely linked to respect for the environment. In the bush, such as in Turiani, autarky, or a self-sustaining attitude was necessary.

There was no money that could have purchased comforts from

7 Interview with Toby Cumberbatch, Kumasi, 2007.
8 Lovelock 1989.
9 O'Cofaigh 1999.




Eastgate building in Harare by Mick Pearce. This great office block uses half the energy of a conventional building because of the ingenious ventilation system that was inspired by a termite-heap. *Photos: David Brazier*

outside, thus we were forced to rely on our own creativity and local means to attain optimal comforts.

In Masaki, the postcolonial Mr. Dobie created his comforts by making his house autarkic. He harvested the rainwater, generated electricity, warmed water with solar power, and communicated via a satellite. His house was designed for optimal protection against the sun and rain, and with a clever ventilation system avoiding the need of an air-conditioning system. With these measures Dobie was a pioneer in the application of sustainable building methods that did not became commonplace in the Netherlands until the turn of the century. The Dobie House can perhaps be seen as the prototype of a contemporary western suburban type of home. But for most Africans, who will be living in the informal city in the near future, the model of the Dobie House is still a castle in the air. In the proposed low-density urban building discussed earlier, that is not dependent on heavy infrastructural investment, urbanized Africans may get the chance to create their own comfort with autarkic methods and solutions to building problems.

An example of a situation in which heavy infrastructural investment is out of date is the landline telephone network in Africa. The rise of the mobile telephone since the turn of the century has resulted in a situation in which, even in the poorest African countries, it has been worthwhile to bring the most remote areas into the network. The landlines are out of use all together in certain areas in Africa, yet in other areas, where until now only very expensive satellite telephones could be used, the system is accessible to almost everyone. Mobile telephone technology is not autarkic; expensive installations are still needed. But it does demonstrate that advanced modern technology can serve African needs without the need of taking the interim steps that accompanied the development of this technology in the West.

The search for autonomous systems in place of heavy, fixed infrastructure seems important to me. The autonomous generation of energy and the reuse of waste and water in localized circles are areas in which a mix of modern technology and African skill and creativity could well result in extraordinary solutions to stun the world.

# IV • Monument care in Africa

## AFRICAN CHURCH RESTORATION

The thirteenth-century church complex of Lalibela in Ethiopia is one of the rare monuments south of the Sahara that is on the UNESCO list of World Heritage Sites. The complex, which is carved out of the rock, is threatened by erosion. One of the eleven churches, the Biet Mercuryos, has already greatly collapsed, which has led to the loss of the medieval frescoes. At the beginning of the 1990s, the Ethiopian government launched a rescue operation. Based on the findings of a site survey, the most threatened churches were provided with makeshift roofs. The complete restoration appeared to be an enormous undertaking that would take many years, and the temporary covering was not sufficient to protect the buildings for such a long period. Together with seven other practices, FBW was invited in 1999 to submit a design for more durable and attractive canopy roofs.

In 1987, I was asked to make a colour proposal and cost estimate for the entire repainting of the neo-gothic St. Joseph's Cathedral in Dar es Salaam. The pope was due to visit and the most important Roman Catholic church of Tanzania had to look its best. A survey revealed that the building, which dated back to 1908, was subject to many defects. The tower and spire were dilapidated, the roof structure had been attacked by ants, the belfry in the tower was subsiding, and the outside walls had been affected up to a height of two meters by damp and mould. Besides, there were complaints about the suffocating heat when large congregations gathered together to celebrate mass. The colour proposal led to a master plan and this in turn led to the execution of the desperately needed large-scale restoration.

The Bukoba Cathedral, designed by the architect George Vamos, was consecrated in 1968. The building was not completed according to the original design, but was finished provisionally. Twenty years after its consecration, the building was found to have worrying cracks, it leaked on all sides, and a bat colony lived in the attic that was polluting the entire church. The bishop lost patience and decided to complete the cathedral according to the original design. Since then I have been involved as an ad-hoc designer in the rebuilding of the cathedral, which has been realized by an engineering practice proceeding from a building shed.


# From Imhotep to Docomomo

♦ IMHOTEP

The first known architect in the world is Imhotep. Imhotep lived around 2750 BC in Egypt and was celebrated in his lifetime as vizier, doctor, high priest, astronomer, and court architect of pharaoh Zoser. His fame as a doctor was so great that he was worshiped as a god after his death. In the Ptolomaic period, he was identified with the Greek god of medicine, Asclepius. With his broad knowledge and skill, he was the archetype of the Vitruvian architect; it is likely that Vitruvius knew the name and fame of Imhotep.[1] He owes his immortality as an architect to the design for the tomb complex of the pharaoh in Saqqara. This complex must have been seen as a miracle in his lifetime. The buildings covered an enormous area, the form and the composition were new and the whole complex was built in ashlar, a feat not yet attempted at the time. The complex was conceived according to the religious and political symbolism of Upper and Lower Egypt. The Egyptians themselves viewed their land as the union of two kingdoms that had been at odds in pre-dynastic times, and had been united by the legendary pharaoh Menes. Menes built his palace, the White Wall, in Memphis on the frontier of the two former kingdoms. The Pharaonic state gained its form and unity after Menes' death, during the so-called Thinite, or Archaic Period.[2] In spite of the unification, the symbolic division of Egypt in terms of power and culture would continue to exist until the end of the Pharaonic period.

Zoser was the founder of the Old Kingdom, which began after the Thinite period (3150-2700 BC), and which marked the beginning of the first long golden age of Pharaonic Egypt. He completed the unification of the state, and Egyptian culture would barely alter much

1 'For an architect ought not to be and cannot be such a philologian as was Aristarchus, although not illiterate; nor a painter like Apelles, though not unskillful in drawing; nor a sculptor as was Myron or Polyclitus, though not unacquainted with the plastic art; nor again a physician like Hippocrates, though not ignorant of medicine; nor in the other sciences need he excel in each, though he should not be unskillful in them.' Vitruvius 1960, p. 11.

2 The name Thinite period derives from the city of This or Thinis (Abydos) in Upper Egypt, where the pharaohs of the first two dynasties (c. 3100-2800 BC) came from.

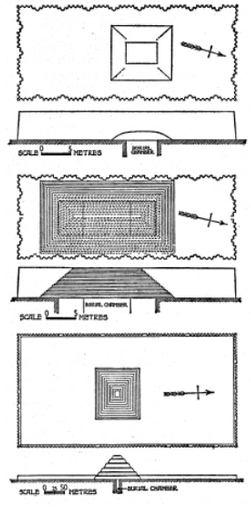
in the following millennia. As was usual with his Thinite predecessors, Zoser began with the building of his tomb complex shortly after his ascent to the throne; this would be his house for his life after death as the deified son of Horus. As far as is known, Zoser was the first ruler to break with the tradition of building two tombs, one in Thinis in Upper Egypt, and one in Saqqara in Lower Egypt. After Zoser, the pharaohs of the Old Kingdom would erect their grave monuments around Memphis, in Saqqara, Dashur, Giza, Abusir, and Meidum.

Imhotep integrated the two forms of the traditional tombs in the complex of Zoser in Saqqara. The early dynastic tombs in Upper Egypt comprised of earthen tumuli over excavated burial chambers, the tombs in Lower Egypt consisted of mud-brick *mastabas*;[3] massive, right-angled buildings that contained the burial chambers. The mastabas during the Thinite period had developed into enormous structures with painted exterior walls in a complex pattern of panels, niches, and *trompe l'oeil* doors. The burial chambers in the *mastabas* extended into true underground labyrinths with corridors, shafts, staircases, storage rooms, and trapdoors.

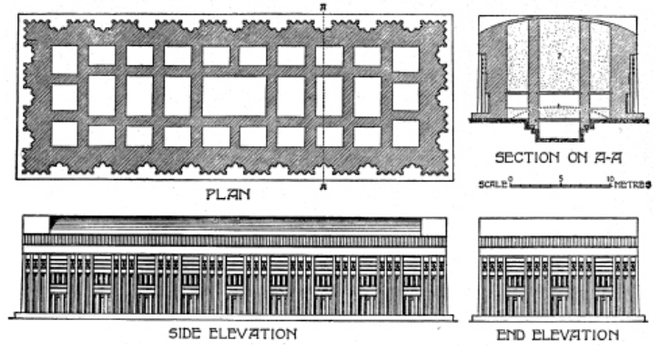
Imhotep built two tombs within the walled-in Saqqara complex. The perimeter wall was shaped like the external walls of the traditional *mastaba*, but enlarged to gigantic proportions. It measures almost two kilometers in length, and was originally more than ten meters high. Fourteen doors were placed in the surrounding wall, of which thirteen were false doors. The two tombs within the walls were shaped like a great *mastaba* and an enormous tumulus, which Imhotep translated into a stepped pyramid. The burial chambers are situated under the *mastaba* and the pyramid, in an extended labyrinth that even today still produces new surprises. An enormous complex of ceremonial buildings was erected next to the tombs, within the perimeter wall. It is not always clear what the function of these buildings was, but they were certainly intended to represent the two Egypts in temples, festive halls, offering places, and other ritual places. They are without exception massive and, hence, symbolic buildings. The sometimes half open doors are illusory.

The funeral monuments in the Thinite period were originally made of sun-dried bricks and wood. The burial chambers were cut out of the rock, first as a pit, later completely underground. Stone was first used in a rough and incidental manner for the trapdoors and the walls of the burial chamber. The grave monument of Zoser on the other hand is completely made of finished stone. Egypt is blessed with an large supply of natural stone of great diversity. In pre-dynastic times, quarries were opened in the desert to extract soft stones like limestone, alabaster, and sandstone, but also harder stones, such as flint, porphyry, basalt, quartz, natural crystal, granite and quartzite. In addition to the chipping technology for flint, which Egyptians mastered, boring and sawing techniques were developed that were employed by Menes's predecessors to fashion a multitude of vases, dishes, mace heads, and bottles for cosmetics.

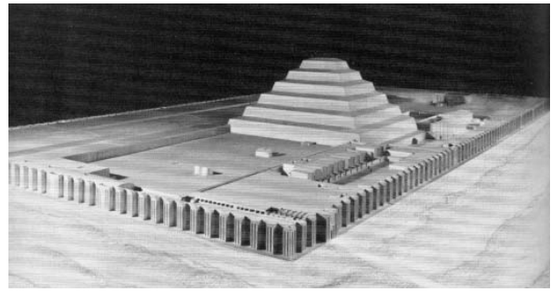
3 This type of burial monument owes its name to the Arabic word for a bench, *mastaba*, because it recalls mud benches in front of the traditional Egyptian house.

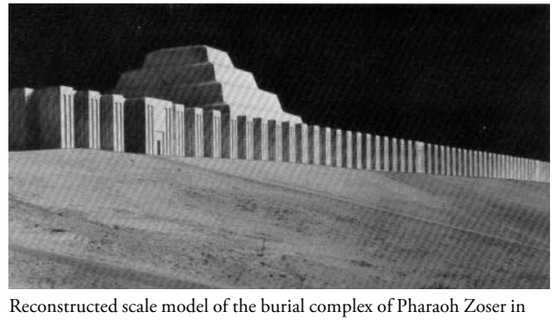


Development of the Egyptian funeral monuments from the Thinite period to that of Pharaoh Zoser. *After: W.B. Emery*

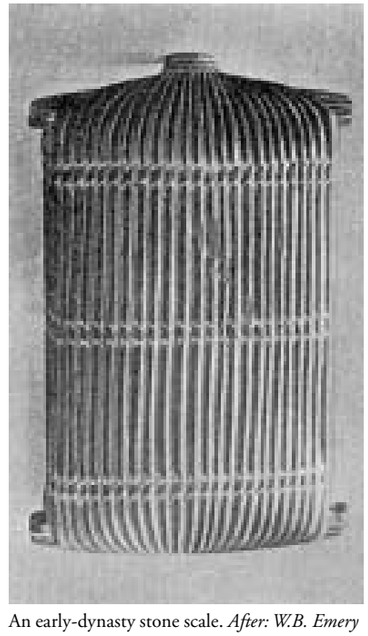



Reconstruction drawing of the royal *mastaba* from the Thinite period. *After: W.B. Emery*





Reconstructed scale model of the burial complex of Pharaoh Zoser in Saqqara by J.P. Lauer. *After: J.P. Lauer*



An early-dynasty stone scale. *After: W.B. Emery*

Jean-Philippe Lauer, the Swiss architect and archaeologist who researched and restored the complex of Zoser, found tens of thousands of stone vases under the pyramid belonging to Zoser's Thinite predecessors. He expressed his amazement of the detailing in the vases, which were strongly based on pottery, basketwork, and even brass work. Moreover, they were constructed from an imperishable material, and could thus serve the pharaoh throughout the eternity of life after death. He saw a connection between these vases and Imhotep's rendering in stone in context with architecture. Ancient buildings were recreated in stone, so as to become symbolic structures that would eternally serve the Heb-Sed festival, which celebrated the continued rule of a pharaoh and his power and virility before the people.[4]

Experiments were conducted on a large scale with these new materials. The techniques and formal expression that were created initially with other materials were copied in stone. Baskets of plaited straw, dishes of folded leaves, and cauldrons of beaten metal were copied in detail. These objects express not only uncertainty regarding still unknown possibilities, but also an obvious delight in the discovery of new materials. We find the same pleasure in the making of Zoser's tomb complex. Imhotep created stone copies of temples and colonnades, which had previously been constructed in thatch, wood and mud. The columns are bundles of plant stems or rounded tree trunks, a capital resembles a sheaf of straw, the roof is shaped like a bent truss, the eaves show protruding branches and beams, the walls are built as if they were fashioned from mud, and the hewn stones have the form of sun-dried bricks.

Zoser's tomb complex provides us with a glimpse of the ancient Egyptian perishable building technology of which nothing has survived until our times. Nothing is known of the predecessors of Imhotep, the designers and builders of this architecture.

The great scale on which Imhotep used hewn and worked stone was completely new. But it is the variety in technique, application, and formal language that makes Imhotep's deification comprehensible. A complete and mature, unprecedented program was established, which would serve as a prototype for the principles of Egyptian architecture for the next three thousand years. Imhotep did not restrict himself to freestone, he also applied glazed tiles that imitated woven mats to the walls in the corridors under the complex. It is probable that wood and painting were used in the complex as well, but after five thousand years nothing remains of such easily decaying materials.

The work of Imhotep makes him the godfather of architecture. It was Imhotep who transformed the transitory art of building into stone and, inasmuch, made the step from the ephemeral to the eternal. But this does not imply that he turned his back on transitory building. It is possible that while working on the construction for the complex at Saqqara, he built the palace of Zoser out of mud brick, thatch, and wood, because palaces, homes, workshops, stalls, and forts were typically made from perishable materials during the Pharaonic period in Egypt. Only divine buildings – the temple and the tomb complex of the pharaoh – were built in stone.

This distinction between transitory and eternal is expressed in the vernacular building tradition that exists alongside the formal architecture. Africans do not need to make the buildings they use on a daily basis last forever; they only have to serve for a certain stage of life or for one generation. We encountered this when we discussed the palace of the Kabaka, which was abandoned after the last servant departed. However, this does not imply that temporary buildings are not architecture, even though Westerners often disregard African building as architecture. We may hold Imhotep responsible for the confusion that has emerged over the term 'architecture'. Is every built structure architecture, or only structures that have been designed? I personally adhere to the first school of thought: that all built structures can be architecture.[5]

The Egyptians were responsible for the petrifaction of architecture, just as they petrified language into the written script.[6] The three hundred years between Menes and Zoser must have been a miraculous era. In this period, Egypt developed at the same frantic pace at which Europe has continued developing since the onset of the Industrial Revolution. Apart from writing and stone architecture, a legal system was established and laws were written down, science was developed, a functional religion was set up, industries and handicrafts were developed to a high degree of efficiency, agriculture and irrigation were perfected, and, all the while, many festivities were being held. The origin of this acceleration in the development of 'civilization' lies in the desertification of the Sahara, which forced the many different peoples, who had previously lived at great distances from one another throughout Africa, Asia Minor, and Arabia, to gradually resettle on the banks of the river Nile.

The knowledge and skills which these peoples brought to the Nile valley created what the archaeologist Colin Renfrew coined the 'multiplier effect'. He explains the multiplier effect as follows: 'Changes or innovations occurring in one field of human activity sometimes act so as to favor changes in other fields. The multiplier effect is said to operate when these induced changes in one or more subsystems themselves act so as to enhance the original changes in the first subsystem.'[7] This exchange leads to a sort of snowball effect for other changes. It must also be noted that this effect can only occur when no system dominates another part of the system. And that immediately explains why the multiplier effect is so rare in human history.

Egyptian development from the times of Menes led to such a successful culture that very little changed in the ensuing three thousand years. Egypt would become the source of inspiration for many

4 'Other vases translate into stone form details peculiar to pottery, basket-work, and even to metal, simple fantasies on the part of the craftsmen or representations in stone – which was considered indestructible – of certain useful objects made or fragile or perishable materials, for use in the afterlife. Did this idea […] not have many applications on a vaster scale when Imhotep petrified the shapes of archaic symbolic buildings made of light materials, in front of which the king had to celebrate his heb-sed in the afterlife?' In Lauer 1976, p. 133.

5 '*Ceci tuera cela*.' Victor Hugo on the fact that writing entails the death of architecture. See for example: http://www.urbanmag.be/artikel/952/architecture-en-literatuur-reflections-imaginations.

6 The Egyptians were not the first to develop writing, Mesopotamian cuneiform writing for example, is older.

7 In Hoffman 1990, p. 304.

other civilizations that developed in Africa, Asia, and finally, Europe.

Imhotep was the first to render the divine into stone, and the temples and the tombs of divine kings were henceforth also erected in stone. In doing so, he symbolizes the onset of modernity. In the West, in addition to the divine also the profane was rendered in stone. Permanence is necessary to Western evolutionary-inclined thinking, which required monuments as a reference to measure development. Thus, the past is demythologized and history is born and recorded. Egypt in general, and Imhotep's architecture in particular, were appropriated by European historians as the framework of Western culture.

Budding African historiography corrects this exclusive European appropriation of Egyptian culture and architecture.[8] Kemet, the Egyptian and ancient name for Egypt, means 'the black land'; ancient writers attribute this name to the black, fertile Nile silt left behind every year by the floods, which was of great significance for Egypt.

However, according to some contemporary African historians it actually means 'the land of black men', the land that was ruled by a black pharaoh.[9] According to this reading Imhotep is a black architect.[10] I will leave it there with the remark that this is a typical case of 'shared immaterial inheritance'.[11]

Imhotep is the first historically recorded architect and thus can be viewed as the first 'star' architect. The cult of the architect as a divinity or a star begins with him. Many more star architects would follow in Pharaonic Egypt, such as Prince Hemon who designed the tomb complex of Cheops in Giza,[12] and Senmut, the lover of the female pharaoh Hatshepsut and designer of her magnificent grave temple in Deir el Bahari. Egypt was unique in Africa in giving architects the status of stars. Research has not uncovered any other pre-colonial African architect outside of Egypt. In this context, Heinz Kimmerle commented that in African culture it is considered inappropriate to pass on the names of extraordinary individuals.[13]

Daily existence was never transformed into stone in Pharaonic Egypt, which served to draw a clear distinction between divine eternity and transitory daily life. After the sudden emergence of the Pharaonic state – a divine moment – Egyptian culture would barely change for three thousand years. Daily life in Egypt during Pharaonic times was lived according to a cyclical process, according to the predictable rhythm of the flooding of the Nile and the earth-bound architecture of mud brick and thatch. From a Western perspective, this situation is explained as a typical example of the *dialectics of progress*. Egypt and its civilization were not threatened, a fact that made the society eventually doze off to sleep. It was only when the Romans invaded Egypt that the Egyptians experienced the *dialectics of progress*, and their culture disappeared under the desert sand. Another interpretation could be that Egypt did not repudiate its African roots and, like the rest of the continent, had no need of further stone monuments. Consequently, it can be seen that Egypt, apart from being the origin of Western civilization, is the hinge between Africa and the Western world.

Imhotep transformed African architecture into stone and in so doing was the first to create the eternal pyramid, while documenting the perishable earth-bound architecture for posterity. This also makes him the founder of the two ideal sustainable models of F.Ph. Bijdendijk, which we came across in the African Arcadia.

## ♦ ANTIQUE MONUMENTS IN AFRICA

Little remains of pre-colonial African building, as is the case with the vanished African cities we discussed earlier. This is due in part to the unimportance of physical monuments in the cyclically inclined understanding of time shared by many African cultures. Every individual, from the simple farmer to the Kabaka of Uganda, builds a home for himself that does not have to outlast its owner. After the death or departure of the owner, the house is an empty shell without significance. Pre-colonial African architecture was generally cosmogonic and reciprocal; the physical shell had a short life cycle and was returned to the earth, while the architecture as bearer of technological knowledge and culture was passed on. On the other hand, the West, with its linearly inclined periodization of history, requires physical monuments as a framework to support its historical narrative.

The built heritage of pre-colonial Africa is comparable with the African mask, which does not have a value as an object and is only significant when worn by someone in a specific place at a specific moment. It does not matter if the mask is lost or rots away, because a new copy can be easily made. The exhibitioning of masks in Western museums has transformed them into works of art in which authenticity and uniqueness determine value, not what they signify or mean. And just as the idea of monumental sculpture is strange to an African, built monuments are also foreign to most African ways of thinking. A tomb or a palace may stand for two generations, but eventually it will disappear because no one will have bothered to maintain it. This is not a problem, because the building is not in itself important; it is a place that harbours a story passed down over generations by word of mouth.[14] However, this does not hinder African architecture constructed with perishable materials from being imposing, built with care, or beautifully decorated. Architecture on a 'monumental' scale did exist, but was not intended for eternity. Buildings were replaced, sometimes on the same site, sometimes elsewhere. Thus, great palace complexes and whole cities disappeared. Systematic European ignorance and denial of African history that continued to the late twentieth century has further contributed to the disappearance of the built heritage of Africa.

8 See for African culture and architectural history among others Davidson 1996 and 2005, Ehret 2002, and Elleh 1997, 2001 and 2007.
9 According to the Senegalese philosopher sheikh Anta Diop and his followers.
10 Elleh 1997, p. 38.
11 A free translation of the synthesis of *shared heritage* and *intangible heritage*.
12 Of the seven wonders of the world, the pyramid of Cheops or Khufu is the largest and the only one which remains today.
13 Kimmerle 1991, p.118.
14 A parallel between transitory building traditions and oral traditions is tempting.

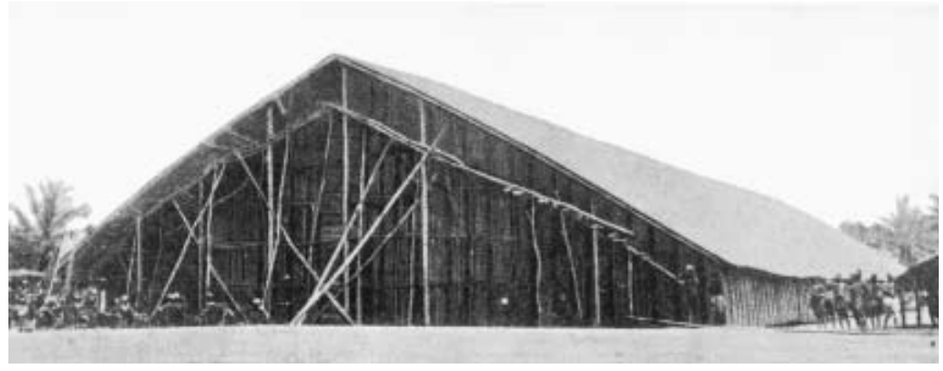
At the beginning of the twenty-first century we must deduce that many pre-colonial African buildings have vanished, and we are obliged to depend on archaeology and historical documentation in word and picture, in order to learn about ancient African architecture. The same is true for African history in general. Authentic written sources are extraordinarily rare, and the archaeologist's shovel, the anthropologist's notebook, and the etymologist's puzzle all bring Africa's history gradually to light. It will however be many years before the schoolchild from Burkina Faso is given a textbook focusing on African history, rather than that of France.

Archaeology, which began in Egypt in the nineteenth century as the hunt for treasure, has now developed into a refined science, intelligently reviving the past from the barest remains. Early on, architects were consulted by archaeologists and asked to provide surveys and reconstructions of archeological digs. Jean-Philippe Lauer, who worked for over sixty years on the tomb complex of Zoser, and Friedrich Hinkel, who restored the pyramids of Meroë and drew up an archaeological map of Sudan,[15] are examples of architect-archaeologists who have contributed invaluable knowledge and documentation about ancient African architectural history.

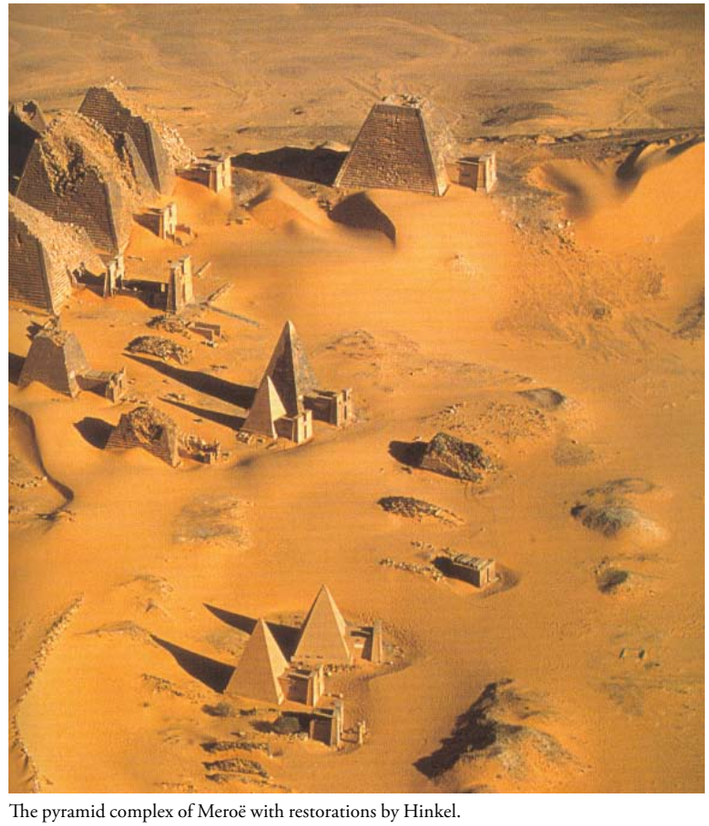
I also needed to consult an archaeologist when I was involved in the conservation and possible future restoration of the ruins of the early nineteenth-century Mtoni Palace of Sultan Seyyid Said in Zanzibar. Mtoni Palace was the first Omani sultan's palace on Zanzibar after the removal of the court from Muscat. We failed to trace any construction drawings of the palace, and apart from two engravings by the French sea captain Charles Guillain,[16] and a late nineteenth-century photo of the palace in ruins, it was the patronizing travel notes of Burton[17] and the memoirs of Princess Seyyida Salme[18] that became the most important sources of information about the building. This example shows that even a relatively recent monument in Africa can quickly become forgotten.

However, stone buildings and monuments were in fact erected in pre-colonial Africa. Apart from mud, wood, and thatch, widespread use was made of stone, sometimes in such a perfect manner that, as with the courts in Zimbabwe, they have withstood the passage of centuries. Rubble, burnt brick, or ashlar masonry, and structures hewn from the solid rock are characteristic of different parts of Africa that were particularly under the influence of ancient Egyptian architecture. The kingdoms of Kush, Napata, Meroë, and Ethiopia adapted Egyptian architecture to their own cultural and natural conditions. In Ethiopia, a building culture of cut stone emerged in the Middle Ages, and we will later examine the fabulous buildings that were carved out of solid rock. The architecture of the Maghreb developed its own specific style in stone and brick that was based on Roman, Berber and Arabic building, and in East Africa the contacts between the Africans, Persians, and Arabs led to an architecture of worked coral stone and limestone cement.

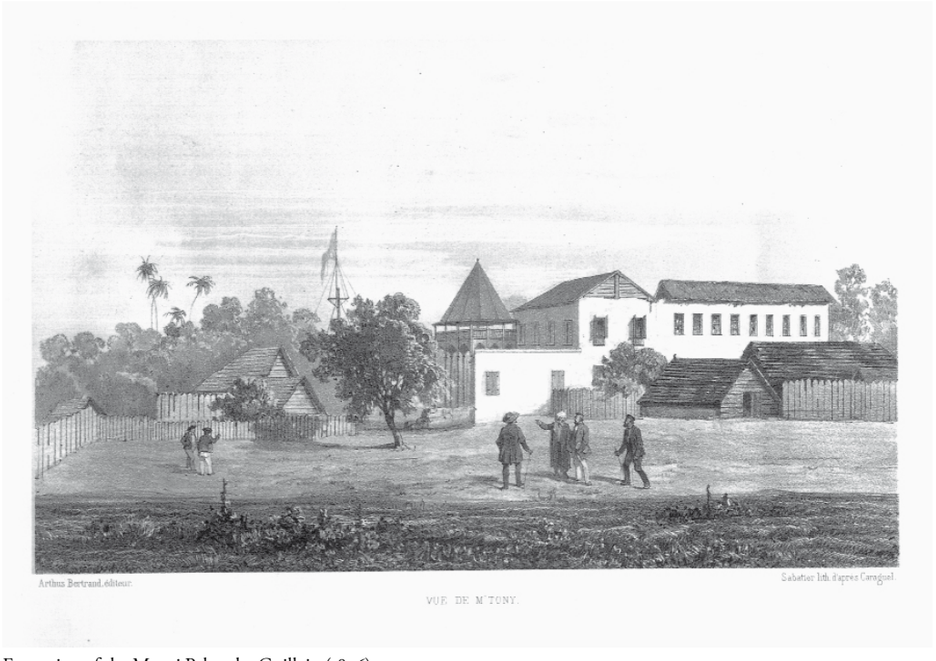
15 Hinkel 1978; and Hinkel's seven-volume series *The Archaeological Map of the Sudan*.
16 Guillain 1856.
17 'The palace […] has a quaint manner or Gothic look, pauperish and mouldy like the schloss of some duodecimo Teutonic Prince, or long-titled, short-pursed, placeless German Serenity […]. We can distinguish upon its long rusty front a projecting balcony or dingy planking, with an extinguisher-shaped roof dwarfed by the luxuriant trees.' Burton 1872, p. 30.
18 Ruete 2004.



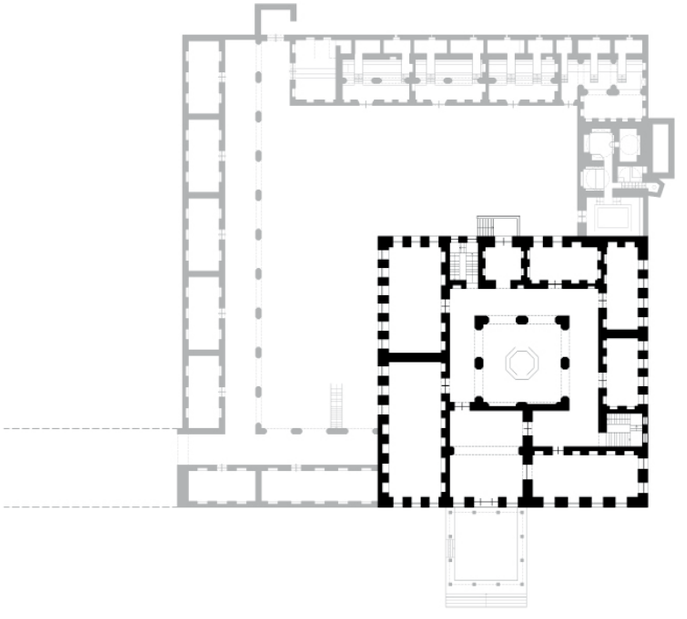
Royal presence chamber of the Mangbettu in Congo.



The pyramid complex of Meroë with restorations by Hinkel.




Engraving of the Mtoni Palace by Guillain (1846).

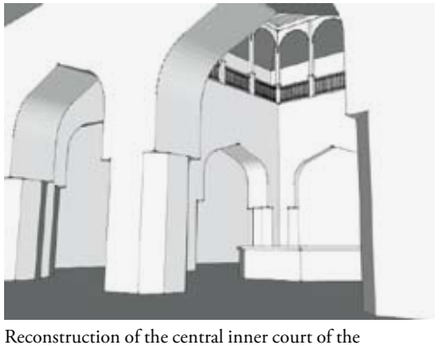


Reconstructed plan of the Mtoni Palace.

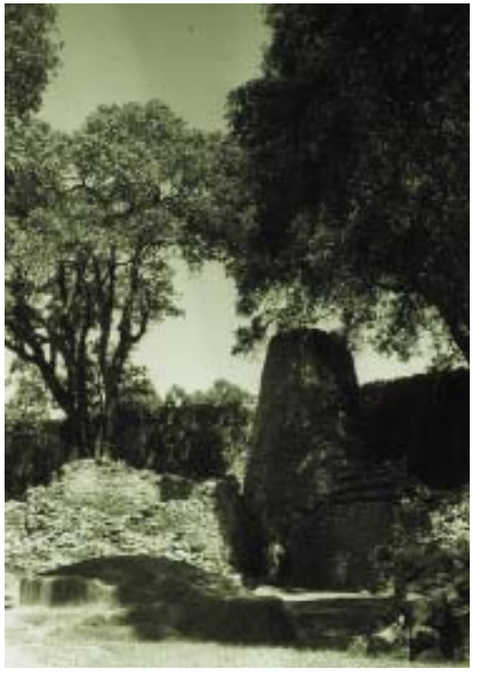
Aerial photo of the ruins of the Mtoni Palace in 2008. *Photo: Mieke Woestenburg*

Reconstruction of the Benjile of the Mtoni Palace.

The arcades around the central inner court of the Mtoni Palace. *Photo: Mieke Woestenburg*



Reconstruction of the central inner court of the Mtoni Palace.



Greater Zimbabwe. *Source: Georg Lippsmeier*

After archaeology, documentation is the most important source of information about the pre-colonial African built heritage. The oldest source, as we have seen, is the tomb complex of Zoser. The interpretation of the perishable architecture in the Saqqara complex built by Imhotep is based on primary sources and thus fairly reliable. The manner in which the bundles of thatch and cement work in mud bricks are represented is confirmed by later Egyptian and classical illustrations of architecture as well as by archaeological research. The houses still being constructed today in the Euphrates Delta in Iraq closely resemble pavilions erected by Imhotep in the Heb-Sed court.

Documentation of African architecture after Antiquity became scarce. The number of descriptions by Arabic, Chinese, and European explorers during the Middle Ages and Renaissance is limited, and it is only in the second half of the nineteenth century that we begin to find drawings, descriptions, and photos that give us some idea of the richness and diversity of ancient African architecture. Susan Denyer cataloged an impressive collection of old photos and drawings and made them available to a broad public in her book *African Traditional Architecture*.[19] Publications of, among others, Suzanne Preston Blier, Jean-Paul Bourdier, Paul Oliver, Masudi Alabi Fassassi, Z.R. Dmochowski, Labelle Prussin, and Hannah Schreckenbach have provided us with a treasure trove of information about traditional African architecture, which they found on site in the 1960s and 1970s. Much of the architecture they documented has been transformed or has since vanished. Similar to the written recording of oral traditions, the recording of a moment in an organic and dynamic tradition will be frozen for ever in a moment of time.

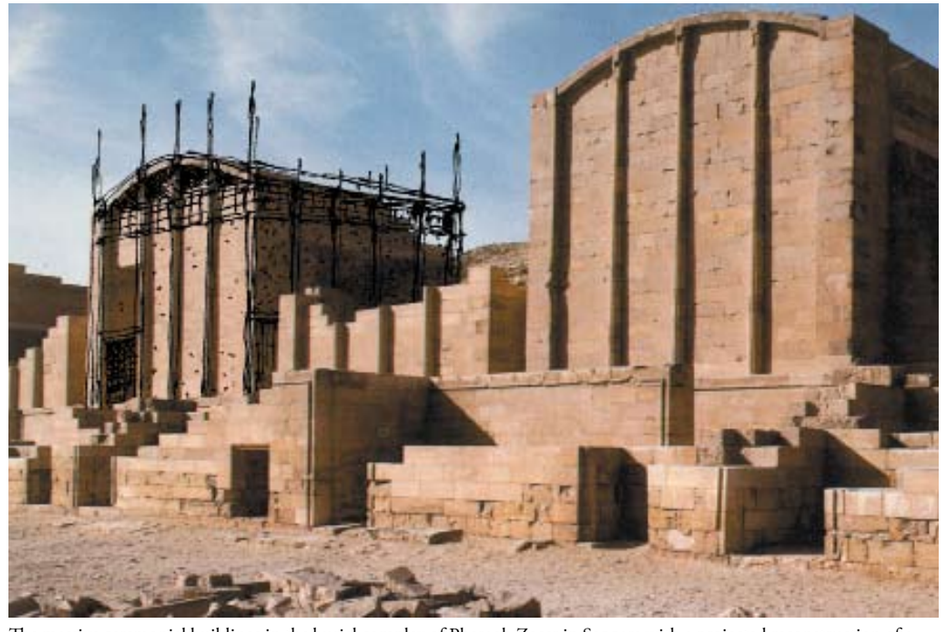
### ♦ MODERN MONUMENTS IN AFRICA

The European presence in Africa began, as we have seen, with forts and small trading posts. Many of the forts still stand along the African coasts and these are generally treated respectfully through the assistance of former colonizers. It is these buildings with their often gruesome history that mark the beginning of what has been defined as the 'shared heritage'.[20] Architectural merit is not the reason why these buildings receive so much attention; they are almost the only European buildings on the African continent that date from the period between the beginning of the sixteenth and the middle of the nineteenth century. The association with conquest, exploitation, and slavery forever belongs to this era, which makes these forts deterrent monuments. For Africans, who seldom erect monuments, recording memories is a false start that unfavourably influences the association with buildings of the colonial period after 1884.

From 1884, buildings were erected at top speed in colonized Africa. In the first instance these were pioneers' buildings, but they were quickly replaced by projects of a monumental scale. The first

19 Denyer 1978.

20 *Shared heritage*, also known as *mutual heritage* or *common heritage*.



The massive ceremonial buildings in the burial complex of Pharaoh Zoser in Saqqara with a projected reconstruction of a straw temple.

Madan home in the Euphrates delta around 1940. *After: W. Thesiger*


Pretoria High Court by Wiarda (circa 1890). 'Boer baroque' according to Braam de Villiers.

Interior of the Utrecht Head-Post-office by Crouwel. *Photo: Liesbeth Pretorius*

great European building projects in Africa were begun around 1900. In South Africa and the Maghreb, the building mania began a little earlier. The period was marked by a mixture of national traditions and Beaux-Arts in a tropical suit, such as the government buildings in Pretoria and the German neo-gothic St. Joseph's Cathedral in Dar es Salaam, which we will examine later.

After World War I buildings arose that were unmistakably influenced by African architecture, and many colonies had buildings erected in a more or less concrete regional style. We saw examples of this in Ségou and Dar es Salaam. This African concrete regionalism even made its way into Europe and contributed significantly to Art Deco, which was confirmed in the international exhibitions held in Paris in 1925 and 1931.[21]

The French in particular were curious about African architecture, which has its roots in Napoleon's expedition to Egypt and in the development of Ségou. This curiosity is reflected in the philosophy, developed during the French Revolution, that all men are created equal, and the fact that, within the French Empire, everyone has the right to French citizenship on condition they adopt high French culture.[22] For that purpose, Africans needed to be properly educated, and for this to be achieved, French scientists were obliged to gain knowledge about and study traditional African culture. Napoleon was the first to express this philosophy with his scientific studies of Egypt.[23] The knowledge and experience that scientists, architects, and artists took back to France led to a true Egyptomania, the Empire Style.

Art Deco has left many traces in Africa, partly because the style was embraced by the fast-growing Asian population on the continent. Right in the heart of Africa and well into the 1950s Asian *dukawallas* built their two- or three-storeyed shop-home-warehouses in a tropical Art Deco style, which still dominates the appearance of many East African inner cities. How long that will last is the question, because these commercial buildings are often situated along main artery roads and thus quickly fall victim to new high-rise buildings.

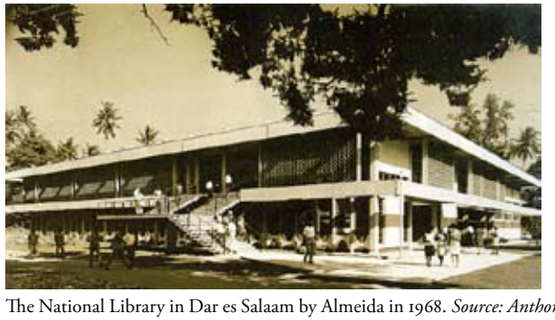
As we have seen, a building boom dominated by the postwar modernist style was characteristic in many African countries in the first years after independence. This style is distinguished by a more or less generic interpretation of the Mediterranean-inspired International Style, and, to a lesser extent, a modernism that refers to local conditions. The fact that the buildings of this period were mostly built in city centers – they often form the backbone of the built infrastructure – means that they are now at risk in the current economic boom that is transforming African cities at a dazzling pace.

The great wealth of the modernist inheritance in Africa surely deserves an important place in the global documentation process conducted by organizations such as DOCOMOMO.

21 1925, *Exposition des Arts Décoratifs* and 1931 *Exposition Coloniale*.
22 The so-called *Pax Française*. Described, for example, in: Crowder 1962.
23 Néret 1994.

CineAfrique in Stone Town, Zanzibar in 1985.


Duka in Bukoba in 2003.



The National Library in Dar es Salaam by Almeida in 1968. *Source: Anthony Almeida*

The National Library by Almeida in 2000. Almeida took account in his design of a vertical extension. It was increasingly difficult in the 1990s for the library to remain functioning and it was decided to entrust the extension to a commercial developer in order to guarantee the survival of the library. But this meant that no account was taken of Almeida's design. *Photo: Antoni Folkers*

# The rock-hewn churches of Lalibela

### ♦ UNIQUE ETHIOPIA

All countries in Africa have their own particular place on the world map, but the position of Ethiopia is truly unique because of its isolated location high in the mountain range at the source of the Blue Nile, where Ethiopians have sought refuge in turbulent times. In periods of stability and power they left their refuge and extended their territory and imposed their culture throughout a great part of the Horn of Africa and the southern part of the Arabian peninsular. The bond between the southern Arabic lands Hadramaut and Yemen on the one side and Ethiopia on the other, extended back beyond the second millennium before Christ. The legendary Queen of Sheba ruled over the unified kingdom and Menelik, the son she bore after her visit to King Solomon, was the founder of the Ethiopian Kingdom that would last until the death of Ras Tafari Makonnen, later the Emperor Haile Selassie, in 1975.

Axum was the capital of Ethiopia in late Antiquity and the early Middle Ages. As we read earlier, King Ezana adopted Christianity as the state religion in the fourth century and his kingdom experienced a golden age. From the tenth century the power of the Axumite kingdom began to decline, and in the twelfth century, the Agew seized power and established the Zagwe dynasty with a new capital at Adefa. The most powerful ruler of the Zagwe dynasty was King Lalibela. King Lalibela was the founder of the church complex in Adefa, which was later renamed in honour of this legendary king.

The Zagwe dynasty in turn fell in 1270, and power was seized by the kings of the Solomonic dynasty. These kings based their claim to power on their descent from Menelik and their direct link with the Israel of the Old Testament. They did not rule from an established capital but from a peripatetic court – similar to Charlemagne. The Solomonids were in constant

conflict with the advancing Islamic sultanates, and were finally defeated in the sixteenth century by Ahmad ibn Ibrahim, who the Ethiopians call Ahmed Gragn, the left-handed. With the help of the Portuguese under the command of Chrístovão da Gama, the son of Vasco da Gama, they managed to liberate their land, but the situation worsened and it was not until 1632, when King Fassiladas managed to escape from the influence of the hated Portuguese Jesuits, that Ethiopians once again regained full independence, with Gondar as capital of their kingdom.

Ethiopia managed to retain its independence with success over the following centuries and withstood both Italian and British imperialism in the late nineteenth century. The Italian army was annihilated in 1896 when it attempted to unite Ethiopia with the colonial empire in the Horn of Africa, which already comprised a large part of Somalia and Eritrea. The Ethiopian kings realized that their independence could only be secured through their own development, and modernized the kingdom in the nineteenth and twentieth centuries. The army and the infrastructure were developed along Western lines by kings Tewodros and Ras Tafari; during the interwar years, the Ethiopians even built their own airplanes. But the Ethiopian army was not able to withstand the megalomania and enormous army of Mussolini, who sought revenge for the defeat of 1896. Ethiopia was occupied in 1935 to remain in Italian hands for six years. Although Ethiopia was independent again under King Ras Tafari, it went through a period of disruption in the 1960s and 1970s and it has not been able to escape yet from the consequences of economic collapse, hunger, and civil war. The population explosion is most likely at least partly responsible for this misery, the land is overpopulated and no longer capable of feeding its own people in times of floods or droughts.

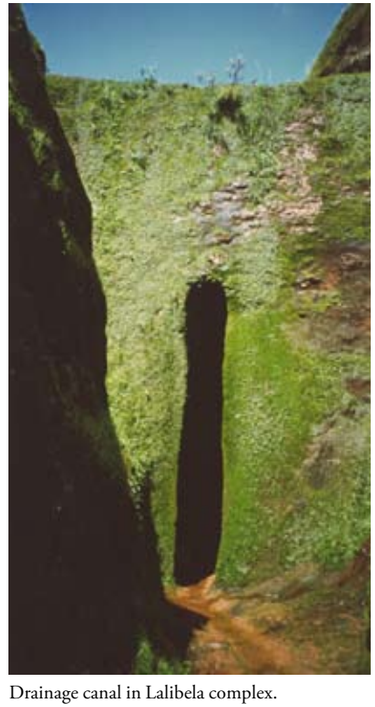
### ♦ THE ROCK-HEWN CHURCHES IN LALIBELA

A walk around the church complex of Lalibela is an unforgettable experience. One feels like a medieval shepherd strolling through the ruins of antique Rome. The contrast between the unbelievable cultural achievement of the distant past and the just-as-incomprehensible poverty of the present residents of the city is enormous. And yet it was their ancestors who liberated churches from the living rock more than eight hundred years ago. In Lalibela, it is said that the king created the complex with the help of angels, which is not difficult to believe when looking at the titanic achievement that is reported to have been completed in just twenty-three years.

The complex consists of eleven churches that together form a mirror of the holy city of Jerusalem. Jerusalem was virtually beyond reach for the Ethiopians since the conquest of Egypt and a great part of Asia Minor by the Arabs in the seventh century. And so Lalibela was intended to replace Jerusalem and up until today it is a place of pilgrimage where hundreds of thousands of Ethiopians gather every year. Lalibela is not the only church


Overview of the Lalibela church complex.

1 northern group
2 eastern group
3 Biet Giyorgis
4 Jordanos
5 surrounding walls
6 modern city

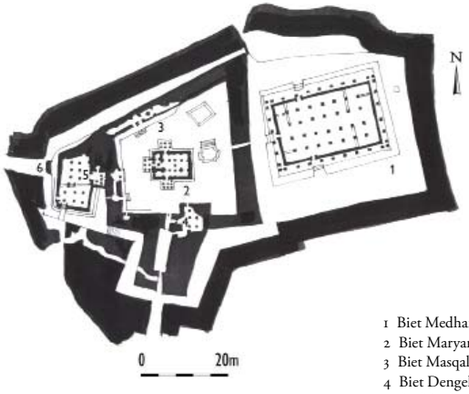


Drainage canal in Lalibela complex.

Priest in Lalibela.

Plan of Biet Giyorgis.

Biet Giyorgis.




1 Biet Medhane-Alem
2 Biet Maryam
3 Biet Masqal
4 Biet Dengel
5 double church Biet Selassie-Golgotha
6 grave of Adam

Plan of the northern group of Lalibela churches.

Cross section of Biet Medhane-Alem.

Interior van Biet Maryam.

Biet Medhane-Alem.

complex in Ethiopia that is hewn out of the rock, but it is the largest and best known. In addition to the churches, mysterious tunnels, clefts, gates, and surrounding walls were also cut from the rock. An important part of this work was devised as major infrastructure to drain the complex and provide access for visitors. The symbolical layout and arrangement of the complex however take precedence over its functions. The literal mirroring of the heavenly Jerusalem can be seen in the cleft of the River Jordan with the Golgotha outcrop, the Mount of Olives and the Way of the Cross, all bordered with centuries-old olive trees. The complex is certainly based on still more symbolism and metaphors, and the feeling of mystery and awe which it arouses in the visitor must have been consciously intended.

The buildings and infrastructure are carved from red volcanic tufa, a terrestrial sedimentary rock, as excavated works of sculpture. Each of the eleven churches is unique, although they were hewn in a short period of time. They are distributed in three groups: a northern group with six churches, an eastern group with four churches, and the solitary Biet Giyorgis in the west. Biet Giyorgis is the famous cruciform church of the patron saint of Ethiopia, Saint George.

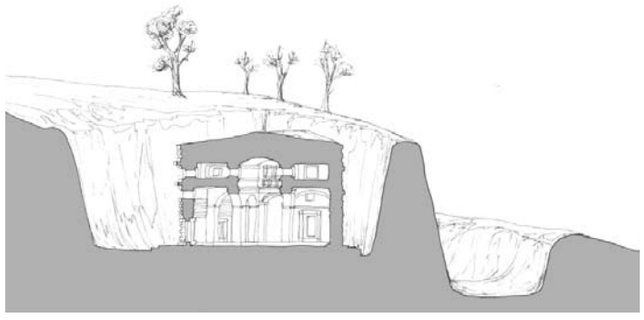
The northern group consists of Biet Medhane-Alem, Biet Maryam, Biet Masqal, Biet Golgotha, Biet Selassié, and Biet Dengel. Biet Medhane-Alem is the largest church in Lalibela. It is a five-aisled basilica with a classical facade and a saddle roof. The roof, which can be seen from the hill, is decorated with a lying arcade.

The eastern group consists of Biet Rafael-Gabriel (a double church), Biet Abba Libanos, Biet Amanuel, and the earlier named Biet Mercuryos. The ceremonial approach to Biet Rafel-Gabriel is a narrow path with a cleft on both sides, called the Path of God.

Priests, pilgrims, and other believers come from far and near to pray, learn, feast, and die in the shadow of these churches. Priests are ordained in Lalibela in services held in the Ge'ez, the secret language of the prayer books. Ge'ez is, like Latin for the Roman Catholic church, a language which is now only learned and used by the initiated and long ceased to be used by the population as a whole. The lively, bright colours of the priests' garments and the wall paintings, and the golden and silver processional crosses provide a sharp contrast with the poverty of the contemporary Ethiopian countryside and the semi-darkness of the church, under the apparently eternal cover of clouds that embrace the mountain tops where Lalibela is located. The sparse light in the church is provided by the traditional wax candles and the occasional fluorescent light tube.

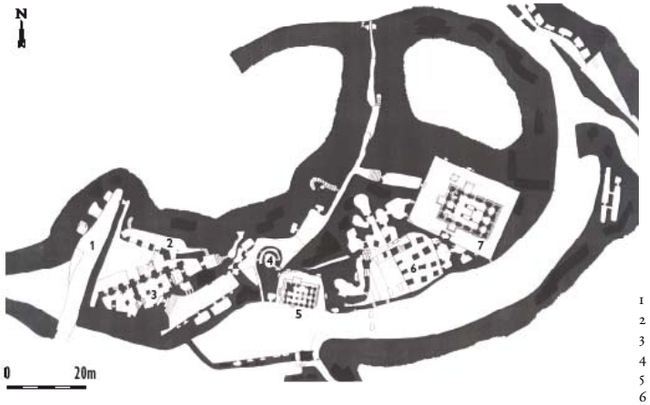
### ♦ CANOPY ROOFS FOR THE ROCK-HEWN CHURCHES OF LALIBELA

The competition announced in 1999 by the Authority for Research & Conservation of Cultural Heritage (ARCCH) of the Ethiopian Ministry for



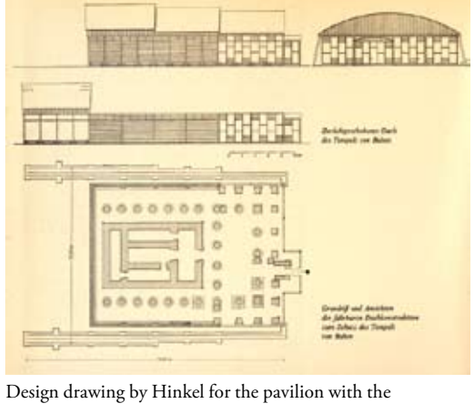
Cross section of Biet Amanuel.

Biet Amanuel.




Plan of the eastern group of Lalibela churches.

1 Path of God
2 gallery
3 double church Biet Gabriel-Raphael
4 Betlem
5 Biet Abba-Libanos
6 Biet Mercuryos
7 Biet Amanuel



Design drawing by Hinkel for the pavilion with the temple of Buhen on the terrain of Khartoum Museum.
*After: F.W. Hinkel*

Museum pavilions in Khartoum by Hinkel.
*After: F.W. Hinkel*

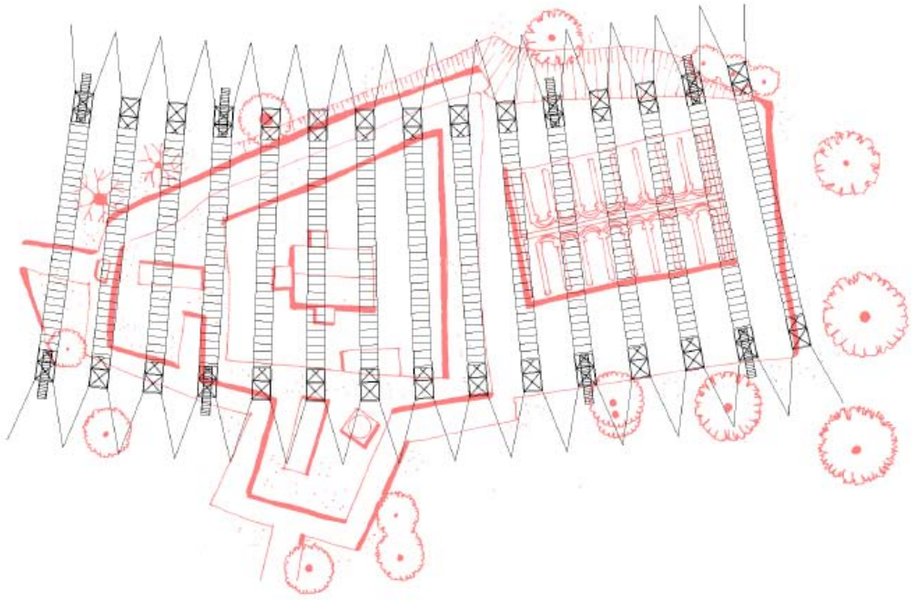
Youth, Sport and Culture with help from the European Community, consisted of the design and calculations for a temporary canopy roof over the five most threatened churches. The competition guidelines stated the need for as realistic a design as possible for as little money as possible. The canopy roofs had to take into account the local circumstances, in such a way that they could be dismantled and reused for later restorations of other churches in Lalibela and elsewhere. The support structure of the roof should not touch the monuments in any way, nor should it interrupt the ceremonial use of the churches. The important monumental infrastructure and the centuries-old olive trees were also to be left untouched.

One important limitation lay in the inaccessibility of the site. It was almost impossible to think of a solution that could be realized without the construction of new access roads to transport heavy hoisting gear, equipment, and materials to Lalibela. The existing dirt road winds from a small airfield into the mountains, and there are no nearby railways or asphalted roads. Nor was there any expertise or qualified labour in the area to be found, so this meant bringing in workers from the capital Addis Ababa, which is far away, or even from abroad.

In order to profit from the experience in similar extraordinary projects we asked Friedrich Hinkel to join our team. Hinkel had earned his spurs working as an architect-archaeologist in Sudan. He first came to Africa in 1960 in order to help in the saving of precious antiquities endangered by the construction of the Aswan Dam. Many countries contributed to this great UNESCO operation, and the Cold War seemed to have been buried for a while in the Nubian Desert. East Germany contributed to the excavation and evacuation of the temples in Semna and Buhen, located on the Sudanese part of the site, which would be flooded by the dam. Hinkel's account of the dismantling, transport, and re-erection of the temple buildings in Khartoum reads like a boy's-book adventure.[1] On the premises of the National Museum in Khartoum, Hinkel designed an extension where the excavated objects and evacuated monuments were displayed. For the temples he built protective sheds for the rainy season that could be rolled into position over railway tracks.

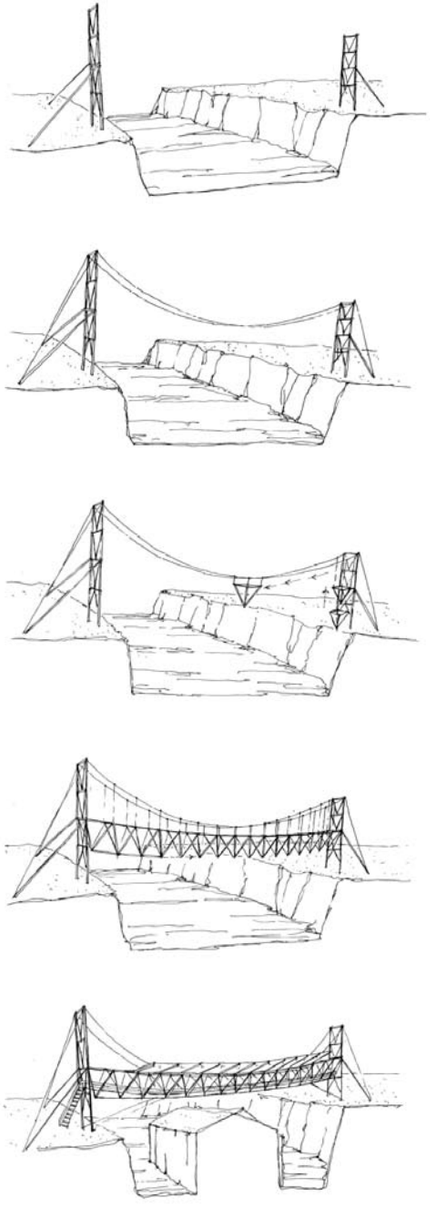
Hinkel gave his heart to Sudan after his work there at the beginning of the 1960s, and he spent the rest of his life working on excavations, restorations, and documentation. Under East-German rule this was no sinecure. He was constantly spied upon and not allowed to bring his family to Africa during his lengthy travels in the Sudan. Until shortly before his death in 2007, he remained active with the completion of his life's work – a complete archaeological atlas of Sudan.[2] The last time that I saw him, shortly before his death, he was working on the atlas of Darfur Province, just when hunger and war were taking their toll. But for Hinkel, cultural identity and consciousness were not luxuries but an important weapon in the endless struggle for recognition and a worthy life.[3]

1 Hinkel 1978.
2 The (incomplete) seven-volume series *The Archaeological Map or the Sudan*.
3 Hinkel's vision agrees with the standpoint of Jan Pronk in his lecture given during the conference of the Prince Claus Fund on September 25, 2006. Without the recognition and the protection of culture there exists, according to Pronk, no self-confidence nor belief in the future. Pronk 2006.

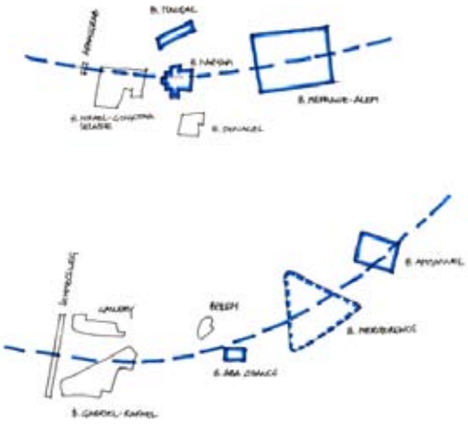


Design for roofs over the northern group.

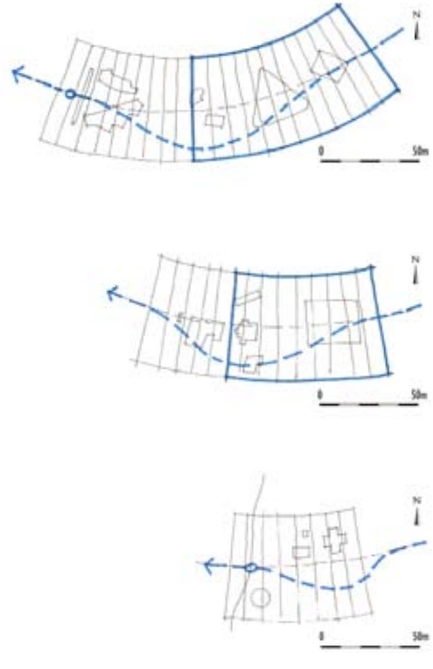
Montage of proposed roofs superimposed onto an aerial photo of Lalibela.



Proposal for the phased erection of the suspended roof construction. *Source: Frans van Herwijnen and Antoni Folkers*



The chain lines through the northern and eastern groups defining the curvature of the roofs. *Source: Frans van Herwijnen and Antoni Folkers*



The proposed roofs over the three church groups with in dotted lines the valley gutters discharging the water. *Source: Frans van Herwijnen and Antoni Folkers*

In our competition design, we departed from the condition that only the five most threatened churches needed protection, and proposed instead to safeguard all the churches. We thought that separate treatments would result in an untidy site that would undermine the unity of the complex. Moreover, we believed that it was worthwhile to protect the other churches, including the ruined Biet Mercuryos. We calculated that, with a clear span of fifty meters, all the churches could be covered with a single, standardized construction. But how can you make a cover on this scale without a lot of heavy equipment and heavy materials? We developed a system that was assembled out of relatively small and lightweight tubular steel sections that were manufactured in East Africa. The system was constructed of triangles with three-meter long sides. These triangles were stacked to form tall pylons, and anchored to the ground with hinges so they could be erected by manpower alone. The pylons were erected into position, joined in pairs fifty meters apart with cables, and secured with stays. Tetrahedrons, consisting of four of the standard triangles, were strung like a chain along the cables, thus forming fifty-meter long suspended triangular section girders. The girders were subsequently interconnected laterally with cables and steel bars. As a roof covering, translucent polycarbonate was proposed to cover the girders, and galvanized corrugated sheets to cover the intermediate sections.

Because of the three-way flexible form, the roof could freely follow the contours of the site and the organic arrangement of the churches. Rainwater could be discharged by means of an enormous valley gutter, formed by the aligned lowest points in the hanging roofs, more or less in the center of the fifty-meter span. The roof could be dismantled in the opposite process, and reinstalled without the input of heavy equipment. The roof sheets, structural cables, and the triangular elements were of manageable size and weight and thus easy to transport and re-erect at other locations.

Scale models of the three roofs.

# The restoration of St. Joseph's Cathedral

♦ A GERMAN NEO-GOTHIC CHURCH IN AFRICA

St. Joseph's Cathedral was built between 1897 and 1908 by Benedictine monks from the monastery of St. Ottilien in Bavaria. The parish church of Dar es Salaam was designed by the architect Hans Schurr of Munich in a mixture of Rhineland and northern German gothic.[1] It is considered the oldest and one of the most important monuments of the brief German colonial empire. In the series *World Architecture*, in the volume covering twentieth-century architecture in Africa south of the Sahara by Kenneth Frampton and Udo Kultermann, St. Joseph's Cathedral is the first building presented that confirms the status of this relatively early colonial monument.[2] The building history of St. Joseph's can be closely followed in different archives. During the restoration, when the four-meter-high tower cross was dismantled, a sealed glass container was found in the ball on which the cross was mounted, with a letter inside which gave an account of the different important events that took place at the time of the construction of the church.

It seems that Schurr was not familiar with the basic rules of building in the tropics. The orientation of the choir to the west was a lucky accident, but the lack of wide eaves means that the north and south elevations are exposed to an excess of direct sunlight. The gleaming white plaster makes a good reflective surface, but the smooth detailing causes quick pollution of the facades that need to be repainted every few years. The nave has two aisles and is only three bays long, which makes the church seem curtailed. The nave and aisles have cross-vaulted ceilings over which a wooden roof structure is erected that is covered with ceramic roof tiles. In the choir is a high altar that was a gift of the protestant German emperor, Wilhelm II. The heavy walls of coral stone with small openings ensure that the microclimate in the

1 Shija 1990, p. 6-9.
2 Frampton and Kultermann 2000, pp. 4-5. The facade of St. Joseph's is represented here mirrorwise. A second illustration of St. Joseph's (on p. 4) mistakenly shows the Lutheran church of Dar es Salaam.

mornings is not unpleasantly cool, due to the church cooling down overnight, but in the course of the day the temperature in the church rises to an uncomfortable degree. The fragmented ogee-arched windows are predominantly filled with glass panes, and only in some smaller sections are there blinds to regulate ventilation.

The tower shaft is also built of coral stone. At the height of fifty meters a wooden spire that is covered with zinc lozenges rises an extra eighteen meters into the air.

## ♦ THE RESTORATION OF ST. JOSEPH'S CATHEDRAL

When we inspected the church in 1987, preparing for its painting in honour of the pope's visit, we discovered a number of serious problems. Together with Father Mansuetus, we drew up an emergency plan to restore the church in short phases. Money for the restoration was raised from many different sources, from the hard-earned shillings of the parishioners to great gifts from Swiss and American philanthropists. We began with the restoration immediately after drawing up the master plan in 1988. The restoration was completed in 1991.

The most important part of the restoration was the replacement of the support of the belfry within the tower, the complete rebuilding of the spire, repairs to the main roof, the improvement of the ventilation and the electric lighting system, and finally the painting of the cathedral – which was the original reason why we had been consulted. The belfry had decayed to such an extent that when the bells were rung their support came into contact with the tower, causing dangerous cracks in the tower shaft. It appeared that the steel support of the belfry – the belfry itself being a ten-meter-high heavy wood construction that supported four enormous bells – was giving way. The support consisted of railway tracks that were placed as diagonal bracers in the corners of the tower, and these had rusted through. The rusting was caused by the hygroscopic character of the porous, salt-retaining coral stone of the tower shaft. The belfry itself was luckily still in pristine condition. After the belfry was propped up, the new support consisting of a galvanized-steel space frame was jacked into position.[3]

On further inspection of the spire it appeared that the zinc lozenges had oxidized and the roof supports were completely rotten, despite having been treated over the years with tar. Termites had bored through the heavy but porous coral stone and found their way upwards and had eaten the wood from the inside, leaving nothing to save.

Tanzania at the time was nearing the end of the socialist period, with all the restriction of truncated economic development and imports. There was limited building activity in the city and there was no building crane available that could reach to the top of the spire. Nor was there any money to purchase such a crane, and it was therefore decided to erect scaffolding around the tower to enable the spire to be dismantled by hand. After it had been removed, a thick concrete work floor was installed on top of the tower shaft, which helped strengthen the damaged coral-stone structure. The new spire was designed in light hot-rolled L- and T-profiles, with which trapezium-shaped elements were assembled in a way similar to the proposed canopy structure for the Lalibela churches. The whole spire was assembled in the contractor's yard as a test, and many of the inhabitants of Dar es Salaam must have asked themselves what this six-stories-high steel structure was doing in an industrial zone. It was subsequently dismantled and re-erected on site by manpower and the help of a small motor winch.

Because the price of copper on the world market was very low at the time, the original zinc losenges were replaced with copper ones The ornamented gutters, drainpipes, dragon-head gargoyles, spire crowning – including a new ball with the sealed glass tube with the account of our restoration – were still being produced in Germany, in copper, and according to the original detailed designs and decorative motifs.

The next problem to be solved was the dampness of the walls. We discovered that the damp problem in the outer walls of the nave was caused by the stifling microclimate and not, as we had first thought, by rising dampness through capillary action. Tests showed that the foundations and the floors were completely dry, while the walls from ground level to two meters high were heavily affected by humidity. We concluded that this damage was caused by the transpiration of the visitors and lack of air movement. As stated earlier, the stifling afternoon microclimate in the building was caused by the suffocating number of churchgoers. The dampness this caused could not escape from the church, because the cills of the windows were situated well above the heads of the people. The damp and the warmth were hence trapped in the lower regions of the church. Moreover, the ventilation was limited to one window about halfway up the register of the ogee windows, and it was not possible to release the hot and humid air at a higher point in the facades. The problem was solved by lowering the window cills, and filling the thus created enlargement of the windows with wooden blinds instead of pane glass, combined with inserting mechanical air extractors in the hoist holes of the cross vault. The changing of the form of the windows naturally affected the original design, and we first questioned the validity of this decision, but it ultimately enhanced the elevated character of the building.

From this history it becomes clear that the need for restoration was derived in the first place from the need to maintain and secure a much-used building. 'The coming of the Pope made the congregation aware', according to Pascal Shija, 'that they must show respect for the institution of the church which stood for world civilization.'[4]

3 It appeared that the design had failed to take into consideration the upward thrust occurring when all the bells in unison swing in an upward direction. When Father Mansuetus on the morning of the papal visit rehearsed with a full peal of bells, some of the plasterwork flaked off and flew around the dancing belfry. The papal safety officer advised him not to ring the bells hence they were not heard during the visit of John Paul II.

4 'Pope John Paul II, head of the Catholic Church, this year blesses Tanzania with a Papal visit during which he will also be a state guest. Beliefs notwithstanding, the citizens or Dar es Salaam and in fact the whole United Republic owe him one thing. They will have to show the Pontiff that they value institutions that fly the flag of world civilisation and heritage. Among them is St Joseph's Cathedral, head office or the Archdiocese of Dar es Salaam.' Shija 1990, p. 7.

St. Joseph's Cathedral before restoration. [See also p. 53]
*Source: Georg Lippsmeier*

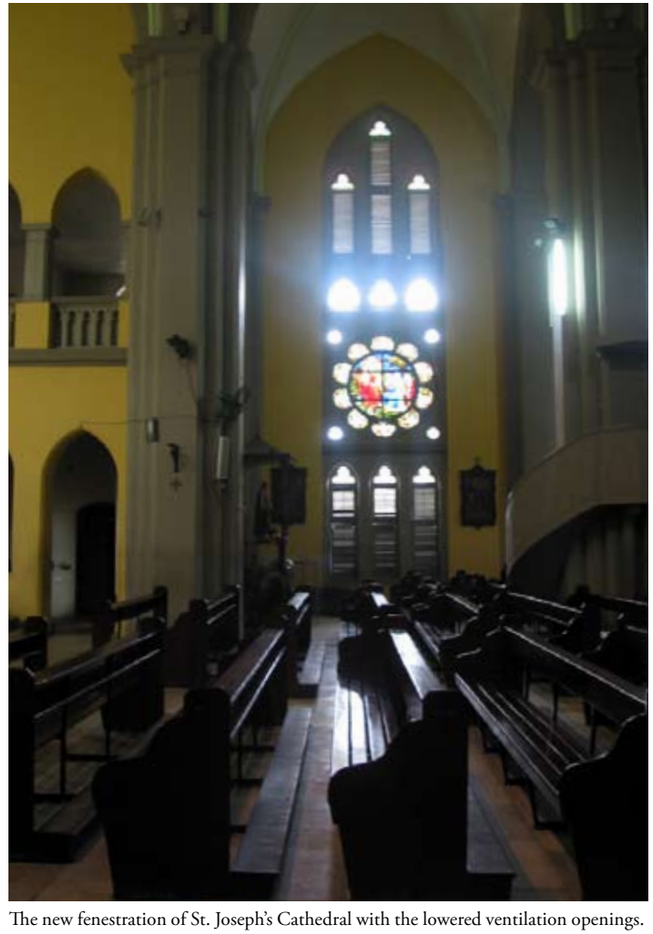
The tower and spire during restoration in 1990. *Photo: Joselien Folkers*

Plan and section of St. Joseph's Cathedral.

No ethical discussions took place during the preparatory phases or while the work was being conducted. The limited historical research, the restoration plans, and the execution were carried out by a team consisting of a group of rather inexperienced but practical local architects, true bush engineers, and an enthusiastic and intelligent builder. No international expert was involved.

St. Joseph's Cathedral after restoration.
*Photo: Belinda van Buiten*

The restored St. Joseph's Cathedral in the quickly changing urban context of Dar es Salaam.



The new fenestration of St. Joseph's Cathedral with the lowered ventilation openings.
[See also p. 328] *Photo: Belinda van Buiten*

# The completion of the Mater Misericordia

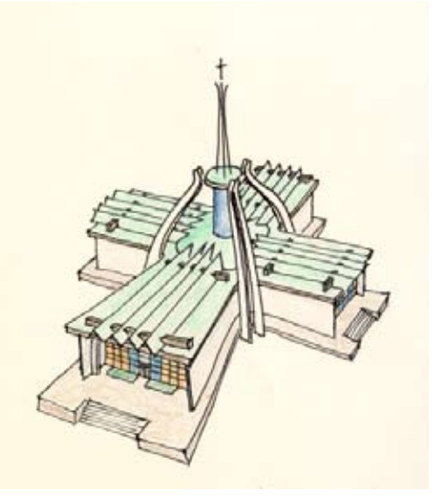
♦ BUKOBA

With the division of Africa after 1884, the border between the English colonies of Kenya and Uganda in the north and German East Africa in the south was drawn along a straight line. Only Mount Kilimanjaro, the highest mountain in Africa, disrupted the straight line by extending out of Tanzania over the Kenyan border, but this also has its origin in colonial times. Mount Kilimanjaro was apparently a birthday present from Queen Victoria to her cousin Emperor Wilhelm II of Germany. The border extends across Lake Victoria along the first southern parallel and meets the west border of Tanzania in the mountain range to the west of the lake. Because of this a small 'dead end' coastal strip, the Kagera saliant, still belongs to Tanzania, even though the area belongs both geographically, culturally, and historically to Uganda. The inhabitants, the Wahaya, are closely related with the Buganda kingdom that experienced its apogee in the nineteenth century. For these reasons, Idi Amin claimed that the Kagera saliant belonged to Uganda, and in 1971 he invaded Tanzania without warning. The Tanzanian counterattack eventually led to the toppling of the tyrant Idi Amin.

Bukoba is the capital of the Kagera saliant. It is a friendly town on the edge of the enormous Lake Victoria, surrounded by green hills where coffee, tea, and bananas are cultivated. In the center of the city are a market, some commercial streets, an old colonial hotel, and a mooring wharf for the ferry. The buildings on the main streets are predominantly three stories high with *dukas* on the ground floor and apartments above. These were built in the 1950s and 1960s, in a mild mixture of simple Art Deco and modernism. The cathedral towers over the city.

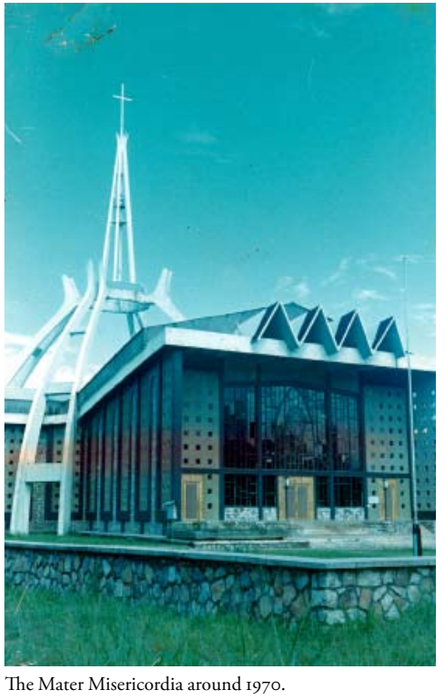
City plan of Bukoba with the Mater Misericordia Cathedral on the main street leading from Lake Victoria via the green colonial district to the market. The airfield lies directly to the north of the inner city.

The Gurdwara Sikh Temple in Nairobi by Vamos (1950s). *Photo: Janfrans van der Eerden*



Reconstruction drawing of the original design of the Mater Misericordia by Vamos.

The interior of the Mater Misericordia in 1991.



The Mater Misericordia around 1970.

The Mater Misericordia in 1991. The covering of the flying buttresses has completely disappeared and the roof is in a bad state.

### ♦ THE IMPOSSIBLE DESIGN

Missionaries were active early on in the pleasant, leafy Kagera region. The Lutheran and the Roman Catholic churches were particularly active in their attempts to convert the Wahaya to Christianity, and the competition between these two groups must certainly have had consequences for the design of the cathedral. The old mission church was not suitable as the cathedral for the newly created diocese of Bukoba, when it separated from the diocese of Mwanza.

The bishop commissioned the architect George Vamos from Nairobi to design a church appropriate to this new status. Vamos had won his spurs in Kenya with buildings such as the Gurdwara Sikh Temple in Nairobi. Vamos was inspired by the Golden Temple of Amritsar when he designed this structure in 1956.

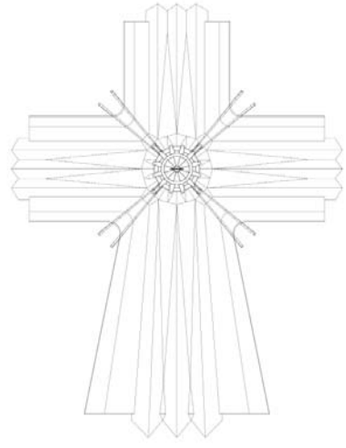
Vamos' design for the new cathedral in Bukoba took on the themes explored in the building of the Gurdwara. Vamos designed a monumental basilica with a nave that became wider and higher towards the entrance side. The nave, the choir, and the transepts were covered with folding roofs that met at a cupola over the crossing. On the relatively flat cupola stood an enormous lantern, which in turn ended in a onion-shaped spire. The spire was supported by four pairs of free-flying half-arches that reached over the crossing and the lantern. The interior was lit by stained glass facades at the gable ends of the transepts and the nave, and by many small square openings with colored glass in the side aisles. During the construction phase, it became clear that the design for the cupola and the lantern could not be executed as planned and the cathedral was instead covered with a makeshift saddle roof placed over the folding roof. Notwithstanding this failure, the interior was impressive and the church had something of the atmosphere of Gustave Perret's reinforced concrete churches, such as St.-Etienne in Le Havre. All in all it was a building that was difficult to read or to characterize. It was a highly original design with alienating modernist and Byzantine elements.

### ♦ THE COMPLETION OF THE CATHEDRAL OF BUKOBA

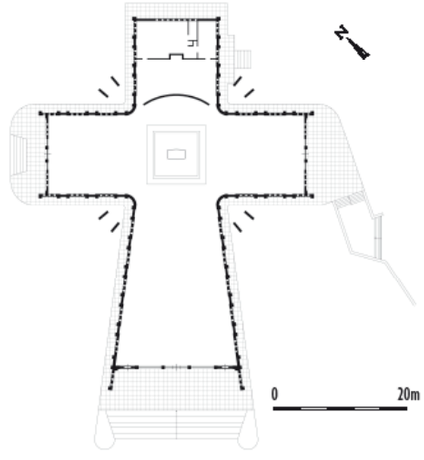
Twenty years after its consecration the cathedral was in a state of advanced decay. The roofs leaked, a colony of bats in the attic was causing much disturbance, the structure was collapsing, and the flying half-arches had lost their coat of plaster. This was anything but a worthy place of worship for the large Roman Catholic community of Bukoba, let alone for the envisaged tomb of Laurean Rugambwa (1912-1997), the first African cardinal, who came from Bukoba.

The bishop consulted the engineering firm Bish, to inquire whether it was possible to complete the cathedral according to the original design and to extend it for the enlarged community. Rudi van Winkelhof, the engineer who also worked with us on St. Joseph's Cathedral, came to the

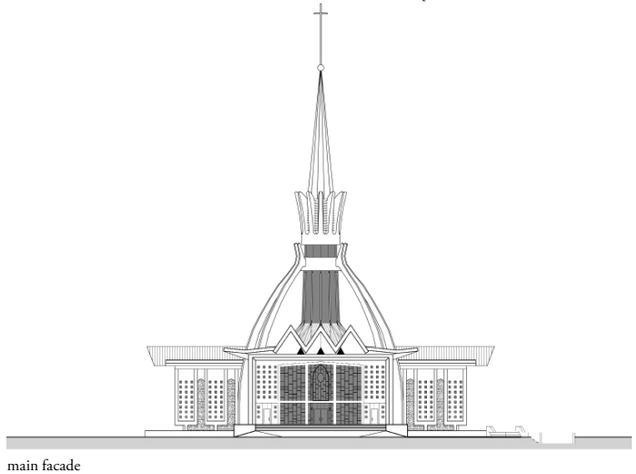
Restoration and completion drawings for the Mater Misericordia of 2003.



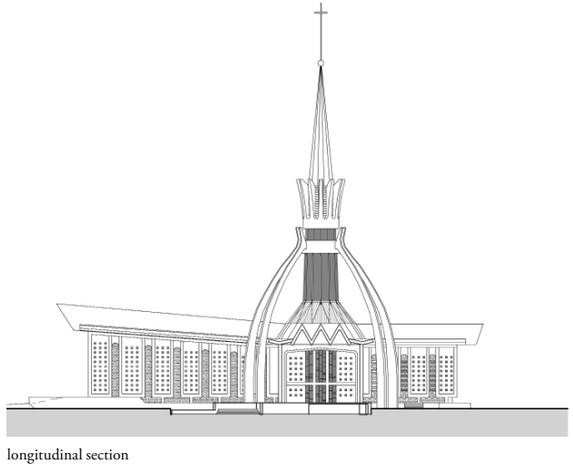
view of the roof



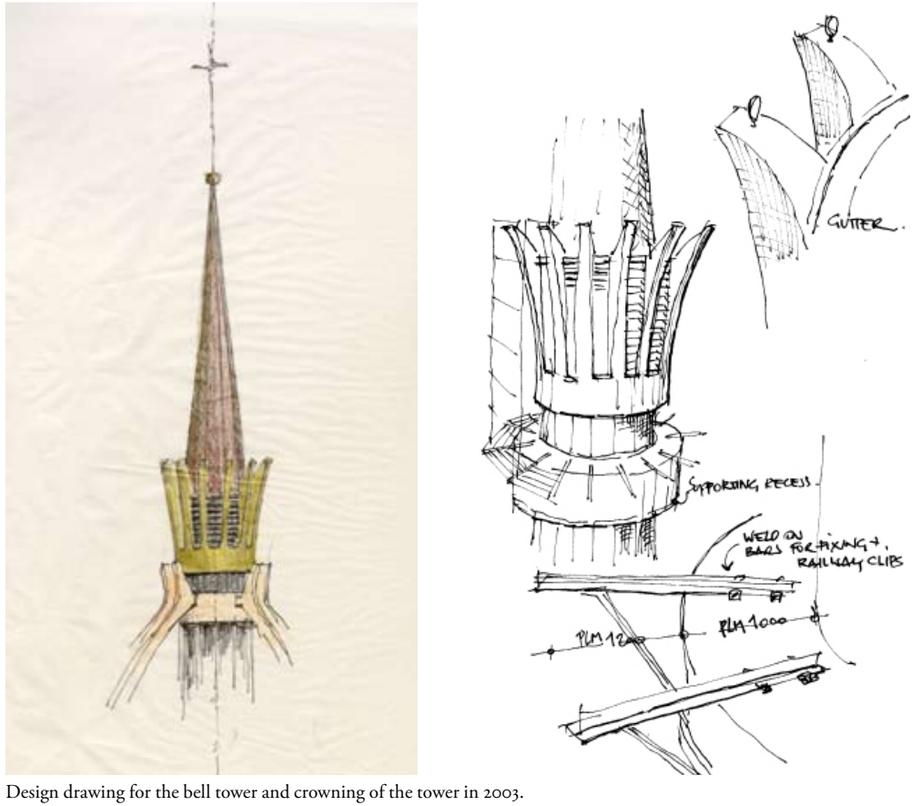

plan



main facade



longitudinal section




Design drawing for the bell tower and crowning of the tower in 2003.

The construction site in 2009. *Photo: Rudi van Winkelhof*

The Mater Misericordia in the urban context of Bukoba. *Photo: Wouter van den Brand*

same conclusion as the builders in the 1960s: the cupola and the lantern could not be completed according to Vamos's designs. This meant that the design had to be modified. This was a complicated task because the desired shape interfered with the necessary drainage system and the roof structure. We eventually solved the problem by turning the roof span ninety degrees; instead of a lateral structure we designed a longitudinal structure. The roof would then not be supported across but along the length of the nave. The decorative folds in the roof were raised in order to serve as triangular girders that could span the forty-meter void. The intermediate space between the folds was sufficiently deep to drain the water away from the slope of the main roof towards the entrance. The increased structural height also allowed a circular space frame ringbeam around the choir, on which the triangular trusses rested. This ringbeam was in turn suspended by the flying buttresses through tie rods in the lantern.

Restoration work began in 1991. There were no capable building companies in Bukoba and the use of an experienced contractor from Dar es Salaam, Kampala, or Nairobi would have been extremely expensive. Therefore, Van Winkelhof decided to conduct the work in direct labour under the coordination and supervision of an old-fashioned master builder. Amu Valambhia, who had worked in the British colonial period as a clerk of works for the PWD, undertook to do the job and organized the workshop like a medieval *Bauhütte* that he controlled with an iron hand, unbridled energy, and creativity until his death in 2005, after which Van Winkelhof himself took over his task.

In 2003, when the work had reached the top of the spire, the bishop expressed the wish to have four bells in place of one to enable the *Te Deum* to be played. There was no space for this in the spire so I was asked to design a free-standing bell tower. We quickly decided that it would not be appropriate to build a bell tower next to the cathedral – the expressive and enormous church would simply not accept such competition – and concluded that the additional bells had to be hung in the crossing tower. This meant that the newly completed spire would have to be dismantled in order to insert an enlarged belfry. This actually gave us the opportunity to literally crown the design. We had always had a feeling that the crossing tower was somehow incomplete. The eight flying buttresses were like the outstretched arms of the four evangelists, but what did they hold? The earlier design had an onion-shaped spire, in the revised version of the early 1990s there was a proposed long needle that extended the lantern into a Tintin-like rocket, but adding the nine-meter-high belfry enabled us to attach the desired crown. A golden crown with twenty-four points – for the twenty-four wise men who act as magistrates on the Day of Judgment.

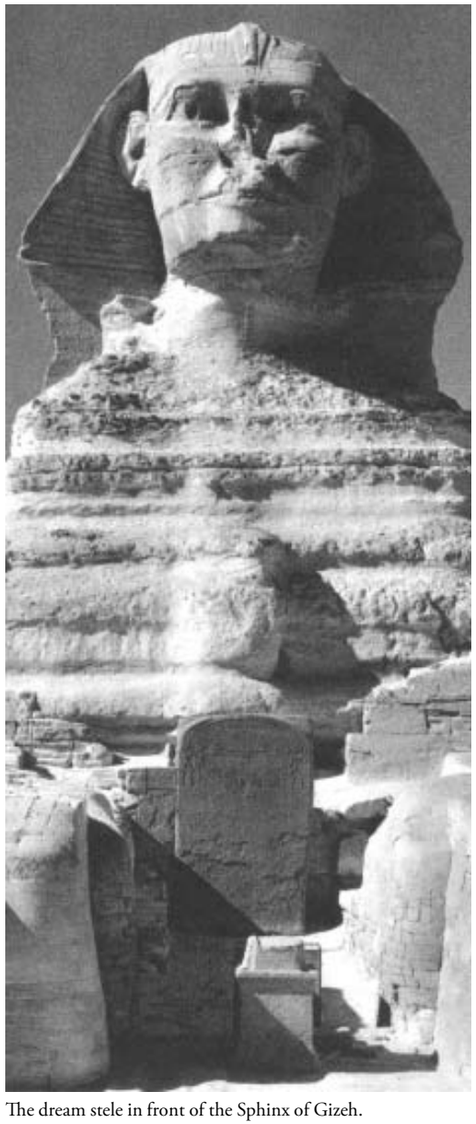
# Monument care in Africa

♦ MONUMENT CARE IN AFRICA

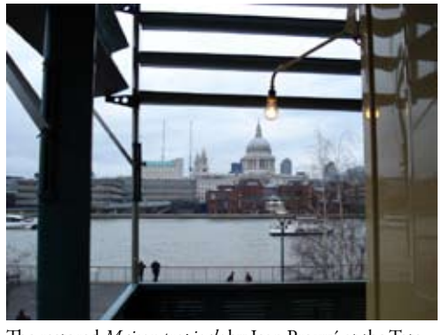
Monument care can be called a Pharaonic invention. In 1425 BC, after participating in a hunting party, Prince Tuthmosis sought the shade between the paws of the Sphinx in Gaza and fell asleep. In his dream, the lion-god Sekhmet appeared to him and chastised him for the dilapidated state of the Sphinx. Tuthmosis commanded thereupon that the thousand-year-old monument of the Sphinx be dug out of the desert sand and restored to its former splendour. As his reward Tuthmosis was crowned pharaoh.

Steles of later pharaohs commemorating the restoration of funerary monuments and temples is evidence that Tuthmosis' restoration project was not unique. The Theban temples were restored by the Nubian pharaohs after their conquest of Egypt in the seventh century BC, and the Saitic pharaohs, who originated from Libya, restored the funerary complex of Zoser almost two thousand years after it was erected. The manner in which these restorations were conducted and the reasons which underlay the restorations, were the same as the principles and approaches that modern Europe began witnessing in the second half of the nineteenth century. Restoration of ancient monuments was not common during the Middle Ages and the ancient monuments of the Maghreb were neglected and plundered for treasure and stone. The ancient Egyptian restoration tradition did not become fashionable again in Africa until the second half of the twentieth century after being reintroduced by the former colonial powers.

However, restoration was almost unknown in Africa south of the Sahara where eternal monuments were thought unnecessary. The few exceptional pre- and early-colonial stone monuments were only listed during the last colonial years. After visiting Mtoni Palace in 1919, a British resident of Zanzibar, amateur historian Major F.B. Pearce,[1] ordered that the



The dream stele in front of the Sphinx of Gizeh.



The restored *Maison tropicale* by Jean Prouvé at the Tate Modern in London in 2008.

ruins be cleared of damaging vegetation and preserved for the future, otherwise 'it would only be remembered by generations to come as the place where the oil came from',[2] as the British had just converted a part of the palace into a store for oil-drums.

After independence, the former colonial powers continued to concern themselves with African monuments. For example, the Germans restored the fabulous Ocean Road Hospital in Dar es Salaam, the Dutch took care of the monuments of the Cape Colony and the forts along the former Gold Coast, the French restored monuments in Gorée in Senegal and in the cities along the river Niger, and the English carried out projects in Lamu in Kenya and Zanzibar. Such initiatives have been supported by international organizations responsible for the cultural heritage such as UNESCO, Icomos, the Aga Khan Trust for Culture, and DOCOMOMO. The restorations that I was involved in at Lalibela, the Mtoni Palace, Bagamoyo Hospital, St. Joseph's Cathedral, and the Ocean Road Hospital in Dar es Salaam were all operations of this type. [See illustration on p. 162]

It is not surprising that this approach induces an uneasy neocolonial feeling, especially since Africans themselves were only marginally involved in these operations. The Africans have been occupied with more pressing matters than restoring old buildings that, for the most part, were not even designed by Africans. In order to encourage African participation in the care of monuments, concepts like 'shared heritage', 'mutual heritage', and even 'common heritage' were devised. The fact that these formulations are not very convincing suggests a problem, and I am happy to agree with Johan Lagae who argues that we should drop these labels and return to the straightforward name 'colonial heritage'.[3]

### ♦ SHARED HERITAGE

In July 2007, the Tanzanian premier Edward Ngoyayi Lowassa declared that Dar es Salaam was to be 'an open city', and he revoked the monument list, which had not been altered since colonial times. In doing this, Lowassa ushered in a new age; the last paternalistic yolk of the colonialists was thrown off and the way opened to an independent hypermodern future. The over-sensitive European expatriates initially believed this to be pure, rampant capitalism, a final kick at colonialism, which had perhaps been secretly encouraged by the Chinese. It is in fact a pity that the old, somewhat sleepy Art Deco centre of Dar es Salaam will be sacrificed to the glass towers of the future, and I fear that the state becomes bogged down by the evident lack of an urban vision behind this modernization process. But it also signifies an end to a Western monopoly of the modern African city's past and future, which is unavoidable and most likely constructive.

1 F.B. Pearce described the monuments of Zanzibar and Pemba that were still known in his day in his book *Zanzibar: Island Metropolis of Eastern Africa*. Zanzibar (Gallery Publications) 2006. Facsimile of the 1919 edition.

2 'P.S. I write this minute for future generations, to whom Mtoni will be merely a name of the place "where the oil comes from" so please file this for the benefit of our successors.' Letter of February 17, 1919, which is preserved in the otherwise empty Mtoni file in the National Archives in Zanzibar.

3 Johan Lagae, 'Towards a Rough Guide for Lubumbashi, Congo. Rethinking "Shared Built Heritage"in a Former Belgian Colony', Paper Conference *African Perspectives*, Delft University of Technology, 2007.

As we have seen, the evaluation, protection, and restoration of monuments in Africa was a Western affair until the end of the twentieth century. Monuments were selected according to Western criteria and they were restored according to Western principles, with the aim of preserving the building in its original form for posterity. It is tempting to view this present situation of monument preservation in Africa within a global context, and to treat it as an intermediate moment in its development, which the West has already left behind. In this light, preserving monuments in Africa is still in a pioneer's phase. Monument preservation is a new concern, it is not yet institutionalized, and much needs to be done to develop the competence and local knowledge.

Monument preservation in large parts of Africa might be defined as being in a phase characterized by Beatriz Mugayar Kühl as 'heroic' when writing about Brazil in the middle of the twentieth century. At that time, restoration contributed to shaping national identity for Brazil and was used to create a hypothetical authenticity.[4] Or, as Yumi Isabelle Akieda described the situation in Japan at the end of the nineteenth century, when restoration and conservation were placed at the service of a growing nationalism.[5] The concept of 'shared heritage' is unwanted in such a situation, because of the possible negative associations, and, consequently, valuable buildings erected in the colonial and post-colonial era might be neglected and ultimately demolished.

The *maison tropicale*, Jean Prouvé's prefabricated modernistic planter's house, which we encountered earlier, survived independence. The house had been found to be unpractical, and the Congo-Brazzaville bush vegetation quickly reclaimed the building. In 2004, the three houses were 'discovered' and purchased by the art dealers Eric Touchealeaume and Robert Rubin. The houses were dismantled and shipped to France, where they were carefully restored according to the prevailing criteria before being offered to museums for astronomical sums. They thought it was scandalous that Congolese customs tried to block the export of the pile of rust that these modernist monuments had become after years of neglect in Africa.[6] Comparisons with the 'export' of the Elgin marbles by the British spring to the mind, even though this occurred two centuries earlier, and while, at the same time, the obelisk of Axum – which had been taken by Mussolini – was returned to Ethiopia by the Italian state.

Naigzy Gebremedhin, a prominent advocate for the preservation of the modernistic Asmara since the 1990s, quoted Gaetan Siew, the President of the UIA, in his presentation during the conference *African Perspectives*, which was held at Delft University of Technology in 2007: 'Colonial architecture was conceived by others. But for us who live there, it is also part of our history and it is a testimony that one should not forget, for good or for bad… The architectural heritage now belongs to us more than to its initiators. As architects we have a duty to show the authorities and society the value of heritage and (its) contribution to our future. I see in it an object of cultural reconciliation – reconciliation between past and future – reconciliation between people.'[7] It would be nice if we could conclude the discussion on 'shared heritage' with this quotation because the lion's share of the African built environment – which I, it's true, plagued by my Western background, consider valuable or important architecture, and thus would qualify as 'built heritage' – was erected in the late colonial and post-colonial periods. The proportion of pre-colonial 'monuments' in Africa south of the Sahara is estimated at less than one percent of the total built heritage stock as defined above, and the proportion of monuments built since 1960 as more than ninety percent.

It would be regrettable if the joyful African modernism of the 1950s and 1960s were to disappear, but Africans should be the first to decide what to do with their heritage, and Western institutions will inevitably have to agree with their vision and approach. After all, we did not ask Africans permission to preserve and restore St Jan's Cathedral in Den Bosch or the Van Nelle Factory in Rotterdam. We must also accept it when the African approach leads to restorations that do not conform to our Western principles, such as that, for example, which occurred with the restoration of the Al-Azhar mosque in Cairo. The restoration of this world-heritage monument was conducted without the assistance of the established institutions. The courtyard, for example, was repaved with polished stone, which was seen by the investors as a homage to this important Islamic monument, but which completely differs from the original work. This 'defective' restoration was the reason for Icomos to put the Al-Azhar mosque on the list of seriously threatened, world-heritage monuments.[8]

4 'La phase héroïque en Brésil: 1937-1969. Construction d'un identité architectural national. Restauration pendant cette période c'est un essai de reconstruire un état hypothétique ancienne/originale.' Beatriz Mugayar Kühl, 'Conservation des monuments historiques au Brésil. Le problème des critères', in Patricio 2006, p. 123-130.

5 Yumi Isabelle Akieda, 'What are values in Japanese architectural heritage? Reading through changing approaches to protection', in *Ibid.*, p. 147-152.

6 D.J. Huppatz, 'Jean Prouvé's Maison Tropicale in New York', see www.archiafrica.org/node/4.

7 Gaetan Siew cited in: Naigzy Gebremedhin, 'Africa's Secret Modernist City', Paper Conference *African Perspectives*, Delft University of Technology, 2007, p. 21.

8 Adham Fahmy, 'Planning for conservation in Cairo. The historic Cairo restoration project. Programmes planning or crisis management?' In: Patricio 2006, p. 359-360.

## ♦ THE INTANGIBLE INHERITANCE

In the 1990s, the French scholars Christian Seignobos and Fabien Jamin went to northern Cameroon to study the architecture of the Mousgoun. The Mousgoun had once modeled their *cases* from mud into high parabolic domes decorated with scales and geometric ridges, which the French called *cases obus*, 'shell houses', because of their resemblance to grenades. This architecture had already aroused the admiration of the German explorer Leo Frobenius in the late nineteenth century, and it was lyrically praised in the 1930s by André Gide in stories about his stay in Africa. To the amazement of Seignobos and Jamin, nothing of the traditional Mousgoun building culture had survived when they arrived in the Mousgoun territories. The Mousgoun now lived in ordinary *cases* with straw roofs and, if they could afford it, in buildings with a roof of *tôles*. Only a couple of *cours* ruins still stood as evidence that the celebrated *cases obus* had once existed. Seignobos and Jamin could not leave it there but

Ministère des Finances in Ouagadougou in 2008. A new screen facade has been placed in front of the rigid modernist walls hiding the air-conditioning system. *Photo: Belinda van Buiten*

Contemporary rebuilding of the Kumasi Cultural Centre. A cubistic and asymmetrical modernist building inspired by a classical front.

searched for old Mousgoun craftsmen who still were masters of the art. With their assistance, they wrote down instructions as to how the work should be carried out and trained young masons in order to reanimate the tradition. The newly constructed *cour* was not to be inhabited in the traditional manner but, just like Aboudramane's maquettes, was to serve as a monument to a vanished culture. The *cases* are now used as a cultural center, a museum, and to accommodate tourists, which fits precisely Ozkan's definition of neo-vernacularism.[9]

Andrea Bruno, a restoration architect with an impressive international body of work to his credit and president of the celebrated Raymond Lemaire International Centre for Conservation (RLICC) attached to Leuven University, expressed contempt for such reconstructions. He sees 'tourism as a virus which is responsible for the Disneyficaton of old cities where too much is conserved or worse, where historical buildings are re-invented or reconstructed'.[10] Hubert Guillaud too, warned against over-optimism in the protection of the mud-built heritage that can lead to over-exploitation causing the buildings to lose their original significance.[11]

Although much of the rural African population, such as the Gourounsi in the south and west of Burkina Faso, the Dogon in the northeast of Mali, and the Ndebele in the north of South Africa, still live predominantly in their traditional *cours*, a development can be seen comparable to that in the Mousgoun area. The majority of the *cases* are slowly but surely being replaced by a modern vernacular and, to a small degree reconstructed in an 'ultra-traditional' style to please tourists. This need not be an objectionable development per se. It is difficult to condemn a rural population who wish to assume a modern identity in this way and to earn a little pocket money from tourism. The discussion over the remarkable tradition of body painting in Ethiopia, which has been stimulated and immortalized by the German photographer Hans Silvester, has given rise to a similar dilemma. The question is whether we can indeed speak of an authentic tradition, or that Silvester is the co-inventor of or catalyst for a recently invented tradition. Possibly the truth lies somewhere in the middle.[12]

Mud architecture is particularly susceptible to 'ultra-traditionalistic' fantasy. After all, the buildings have to be replastered every year so the appearance of the built environment can be manipulated in a simple way. According to our Western principles, the formal appearance of a monument determines its 'truth' and 'authenticity', and thus modern, internationally agreed restoration principles are in a fix when it comes to the conservation of monuments of mud.

In the Charter of Venice of 1964, the international code of restoration was determined by European principles that considered it imperative for monuments to be restored to their original state by

9 Suha Ozkan, 'Régionalisme et mouvement moderne. Á la recherche d'une architecture contemporaine en harmonie avec la culture', in *Architecture & Comportement. Architecture & Behaviour*, Vol. 8, No. 4. Lausanne (Colloquia) 1992, p. 353-366.

10 'Globalization creates non-lieux. Places without root into place', and "Reconstruction est la mort [referring to the bridge in Mostar and the Bamiyam Buddha]. Stratification de l'histoire comprend aussi les traces destructibles et négatives. Tourisme est comme une virus. Les villes deviennent Disneyworld, on conserve trop, pire reconstruise des bâtiments inventées.' Annotated comment by Andrea Bruno during the RLICC conference in Leuven in 2006.

11 Hubert Guillaud, 'Architectures de terre. Un patrimoine d'avenir', in CAES *Magazine*, No. 63, Vincennes (CAES-CNRS) 2002, p. 14-18.

12 Hans Silvester, *Natural Fashion: Tribal Decoration from Africa*. London (Thames & Hudson) 2008.

the use of authentic materials and techniques. In 1994, in the Japanese city of Nara, the Charter of Venice was amended by the 'Nara Document on Authenticity' in order to accommodate Asian, and particularly Japanese conservation principles, in which authentic material was not considered important as long as the authentic form of the building was maintained by the application of an authentic technology.

With restorations in the city of Djenné, a monument with a world-heritage status, the question of authenticity became pressing. It seemed to be impracticable to restore the city according to international norms because the population, as long as anyone could remember, had redecorated and altered the facades of their houses every year and thus an 'original' or 'authentic' state of the buildings could not be documented. A documentation of Djenné would, by definition, be a random indication, possibly supported by faded nineteenth-century photos or a thirty-year-old survey.

This problem is even more explicit in the case of the imposing central mosque of Djenné. The medieval mosque was destroyed by the Toucouleur, their early-nineteenth-century mosque was in turn destroyed by the invading French, and the design of the present mosque with all its beautiful pinnacles and spines has been attributed to a French architect as well.[13] Which building from which period could now be considered the authentic African mosque of Djenné?

Pierre Maas, who has been active for twenty years in Djenné, sees the craftsmen themselves and his friend the building master Boubacar in particular as the true monument of Djenné's architecture. It is the craftsmen who have kept the architectural culture alive and who have ensured that this culture remains part of a living modern city. The authenticity is not to be found in a specific form or in authentic materials but in the culture of the *barey-tons*,[14] the bricklayers' guilds of Djenné who have given life to the city for a thousand years with the skills that developed there. It is now up to Boubacar and his associates to add a Djenné amendment to the Charter of Venice. Subsequently, this amendment could serve the West and show how it is not always desirable, necessary, or even possible to freeze our architectural heritage.

13 Frampton names Ismael Traoré as the architect, in Frampton and Kultermann 2000, p. 16-17.

14 Michael Rowlands and Charlotte Joy, 'Can Djenné Remain a World Cultural Heritage Site? A Rhetorical Question?' Paper presented at the Conference *African Perspectives*, Delft University of Technology, 2007, p. 12.

The reconstructed Mousgoun *cour* with *cases obus* at the beginning of the 21st century. *After: C. Seignobos*

St. Jeanne d'Arc in Nice by Droz in the 1930s. The introduction of the *Case Nègre* into French architecture at this time was greeted with amazement. *Photo: Thierry van Baggem*

The Great Mosque of Djenné in 1993. *Photo: Joep Mol*

The Na-yiri in Kokologho. It is said that this palace of the local *Chef Coutumier* was designed by a French missionary. The central part with one storey betrays a French interpretation of the traditional monumental mud architecture which transformed Ouagadougou into a *Bancoville* in the early colonial period. [See also illustrations on p. 103 middle] *Photo: Belinda van Buiten*

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# Index

# Glossary / *African synonym*

# Abbreviations

# Illustration credits

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**adobe** / ***banco***
unburnt brick (stone) made from clay, sand, straw and water
origin: Central America, used in Anglophone Africa

**agglo** / ***parpaing, mtofali***
large cement block
origin: French

**banco** / ***adobe***
unburnt brick (stone) made from clay, sand, straw and water
origin: Francophone West Africa

**baraza** / ***hangar***
covered reception area in front of the house
origin: Swahili

**bidonville**
city of flattened oil cans, slum
origin: Casablanca

**boma**
fort, government building
origin: Swahili

**brousse** / ***bush***
wilderness, nowadays also the countryside in contrast to the city
origin: French

**bungalow**
detached ground-floor house, often with flat roof
origin: British colonial India

**case**
individual shelter for human beings or animals
origin: Francophone Africa

**celibatorium**
home of a bachelor
origin: Francophone Africa

**claustra**
masonry block with hole for ventilation and to filter light
origin: Latin

**compound** / ***na-yiri, concession***
family dwelling in the wide sense
origin: English

**cordon sanitaire**
green strip between districts to keep population groups separate
origin: French

**concession** / ***na-yiri, compound***
family dwelling in the wide sense
origin: French

**cour** / ***zaka, samandé***
inner courtyard in African house
origin: Francophone Africa

**daladala** / ***matatu, taxi brousse, trotro***
public transport in Tanzania: usually a minibus to carry about 15 passengers
origin: Swahili

**dhow**
freight vessel
origin: Arabia, Swahili

**duka**
shop
origin: India

**dukawalla**
shopkeeper
origin: India

**fellah**
farmer, agriculturalist
origin: Egypt

**godown**
storage shed
origin: Indonesia (*godong*)

**grenier**
storage space for the harvest
origin: French

**hangar** / ***baraza***
covered reception area in front of the house
origin: Francophone Africa

**harmattan**
desert wind
origin: Arabic, West Africa

**kashba**
unwalled and fortified part of the inner city, the medina
origin: Arabic, North Africa

**kaskazi and kusi**
trade winds from the Indian Ocean
origin: Arabic, Swahili, used in East Africa

**ksar**
fortified town or fort
origin: Arabic, North Africa

**lateriet**
red, hard and infertile old ground, very common in Africa

**mabati** / ***tôle (ondulée), g.i. sheet***
corrugated sheet
origin: Swahili

**Maghreb**
North Africa
origin: Arabic from Magharibi (West)

**makuti**
roofing made of woven palm leaves
origin: Swahili

**mastaba**
ancient Egyptian flat-topped rectangular tomb
origin: Arabic for bench

**matatu** / ***daladala, taxi brousse***
public transport in Kenya: usually a minibus for about 15 passengers
origin: Swahili

**medina**
often unwalled inner city
origin: Arabic, North Africa

**mganga, pl. maganga**
traditional healer, acquired negative connotation in the colonial era as witchdoctor, medicine man
origin: Swahili

**miombo**
tree savannah
origin: Swahili

**mtaa, pl. mitaa**
hamlet
origin: Swahili

**mtofali, pl. matofali** / ***agglo, parpaing***
large cement block
origin: Swahili

**na-yiri** / ***compound, concession***
family dwelling in the wide sense
origin: Moor

**parpaing** / ***agglo, mtofali***
large cement block
origin: French

**persiennes**
blinds
origin: French

**pisé**
rammed earth
origin: French

**piste**
unmetalled road in the brousse
origin: Francophone Africa

**samande**
forecourt, the ground immediately adjacent and belonging to the na-yiri
origin: Moor

**shamba**
vegetable garden, cultivated field, also used for the countryside in general
origin: Swahili

**taxi brousse** / ***daladala, matatu***
public transport in West Africa, usually a pickup truck with two benches that can normally accommodate about 14 passengers
origin: Francophone West Africa

**tembe**
traditional dwelling in the middle of Tanzania

**tôle (ondulée)** / ***mabati, g.i. sheet***
corrugated sheet
origin: French

**township**
planned residential district for the black population in apartheid South Africa
origin: South Africa

**waqf**
Muslim institution that manages the legacies and donations of the faithful, often in the form of property
origin: Arabic

**zaka**
courtyard, see cour, concession
origin: Moor

ADAUA Association pour le Developpement d'une Architecture et d'un Urbanisme Africains
AKTC the Aga Khan Trust for Culture
ARCCH Authority for Research & Conservation of Cultural Heritage of the Ministry of Youth, Sports & Culture, Federal Democratic Republic of Ethiopia
ASP Afro Shirazi Party (TANU, CCM)
AT Appropriate Technology
Bacibo Bart, Cis and Bob Deuss – a development organization
BMZ Bundesministerium fur wirtschaftliche Zusammenarbeit und Entwicklung
BRI Building Research Institutes
BRU Building Research Unit
BTC Brique/Bloc en terre comprimée
BTS Brique/Bloc de terre stabilisée
CDR Comité du Defense de la Revolution
COET College of Engineering and Technology of UDSM
CRATerre Centre de Recherche et d'Application – Terre
CSB Construire sans bois
DDR Deutsche Demokratische Republik – (German Democratic Republic)
DFG Deutsche Forschungsgemeinschaft
DGUT Direction Generale de l'Urbanisme et de la Topographie
Docomomo International Organization for the Documentation and Conservation of buildings and urban ensembles and landscape sites of the Modern Movement
EAU East African Union
FBW Folkers, van Buiten & Wilks architects and engineers
FISA Fondation Internationale de Synthèse Architecturale
FOE Faculty of Engineering
GATE German Appropriate Technology Exchange
GTZ Deutsche Gesellschaft fur Technische Zusammenarbeit
HRDU Housing Research & Development Unit
Icomos International Council on Monuments and Sites
IFT Institut fur Tropenbau – Institute for Building in the Tropics
IMF International Monetary Fund
IPD-AOS Institut Panafricain pour le Developpement – Afrique de l'Ouest – Sahel
KfW Kreditanstalt fur Wiederaufbau
KNUST Kwame Nkrumah University of Science and Technology (Kumasi, Ghana)
L+P Lippsmeier + Partner Architekten
Misereor Bisschofliches Hilfswerk Misereor eV, the combined German Roman Catholic organizations of development aid
PUH Permis Urbain d'Habiter
PWD Public Works Department
RLICC Raymond Lemaire International Centre for Conservation
SAR Stichting Architecten Research
SDAU Schema Directeur d'Aménagement Urbain
SDC Swiss Development Cooperation
SKAT Schweizerische Kontaktstelle fur Angepaste Technik
TMV Tuile en mortier vibre
UDSM University of Dar es Salaam
UIA Union Internationale des Architectes
UNESCO The United Nations Educational, Scientific and Cultural Organization
VOC Vereenigde Oost-Indische Compagnie





Cover: Mashinini Beer Hall in the Kwa-Thema Project in Johannesburg by Hannah Leroux with students of the School of Architecture and Planning, University of Witwatersrand.
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