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THE MACUTI HOUSE, TRADITIONAL BUILDING TECHNIQUES AND SUSTAINABLE DEVELOPMENT IN ILHA DE MOÇAMBIQUE

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Abstract. This paper is part of the initial phase of PhD research focusing on conservation of the macuti architecture in the World Heritage City of Ilha de Moçambique. It questions how initiatives to preserve traditional ways of building in this area, of which parts could be described as an urban slum, may reflect a sustainable return to the art of building. Implied is that preservation of this way of building may have a value in the form of strengthening cultural identity and possible environmental and socio-economic advantages. However, in order to overcome negative associations with colonial subordination, poverty and low social status, such initiatives need to be part of a wider programme of strengthening cultural and social capital among the population, avoiding division into tangible and intangible heritage management, and include broad ecological and socio-economic considerations.

1. Introduction

Ilha de Moçambique is a small UNESCO World Heritage island city on the African Indian Ocean Coast. The city is divided into the colonial settlement founded after the landing of Vasco da Gama on his way to India, and the southern part first settled in the second half of the 19th century as a *bairro indígena* or native quarters for freed slaves and other local people. The two parts are known by the most characteristic building materials in the areas, "the stone and lime wash town" and "the *macuti* town", referring to the coconut palm leaf material originally covering the roofs* . Recently the listing criteria for the island have been proposed revised to reflect an increasing awareness of new aspects of local Indian Ocean culture based on Muslim social organization of the area, and generally related to a cultural mix resulting from more than 1000 years of long distance trade along the East African coast.

To balance the conventional way of focussing on the colonial monuments when talking about heritage in Ilha, in the first criteria for the World Heritage listing has been specified "the traditional architecture of the Macuti", as well as the "unique blend of architectural styles" due to its situation in the middle of the trading route from India to Europe as stated in the original listing document** (ICOMOS, 1991; GACIM, 2010).
At the same time emphasis is placed on the divided

* In 1878 a line was drawn, north of which construction of plant material roofs was prohibited. The area is also known as Ponta da Ilha, "the tip of Ilha". The colonial population was divided into *indígenas* (natives) and colonial citizens of two classes. A different set of laws applied to the citizens and the natives. From the end of the 1930s, the *indígena* could become an assimilated citizen of 3rd class by abandoning native customs and adopting European ways like eating at a table and sleeping in a bed. It was difficult for *indígenas* to build in permanent materials, as a complicated process of applications and paying of taxes had to be completed, in practice making it impossible. The *macuti* house is thus strongly associated with the status of *indígena*.

** "incredible architectural unity" resulting "from uninterrupted use of the same building techniques with the same materials and the same decorative principles" was also part of the justification of the

nature of the heritage as well as pointing out the value of an architecture still generally associated with colonial oppression and currently with poverty and environmental problems.* This paper is based on preliminary findings from the initial phase of PhD field research** focusing on conservation of the *macuti* house. It questions how attempts to preserve the traditional way of building in this part of Ilha de Moçambique, also defined as a postcolonial slum, may reflect a return to the art of building. Implied in this question is that preservation of traditional architecture and associated building techniques, has a value, in the form of strengthening a cultural identity as well as possible environmental and social qualities.

Illustration 1: Map of Ilha de Mozambique from 1982, showing the two urban systems and the densely populated island (Aarhus, 1985)

2. The Macuti House

The *macuti* house has a Swahili type plan related to other Indian Ocean cultures, and include building techniques originally brought by Arab traders from the north (Carrilho, 2005; Bruschi et al, 2005). The square or rectangular house has a central space that ensures cross ventilation, from which four bedrooms are accessed. The generous hipped roof canopy, held up by two main posts of ca 2,5 m height, allows ventilation and covers the walls against the burning sun and heavy rains. Many houses have old electrical installations and elaborately carved furniture. The stucco and painted facade facing the street often includes a bench or veranda, which become part of the street space, an important meeting place, a living room moving out into the street. The house reflects the mix of cultures and traditions in Ilha, combining Arab and African building techniques, and at times Indian craftsmanship, with European linear street organization and decorative elements inspired by the houses in the northern part of the island. The Aarhus report calls the house type "semi-urban", reflecting the building traditions on the mainland but with special decorative features, modern installations and often a more spacious layout in the city of Ilha de Moçambique (Aarhus, 1985:147).

The main frame of the houses has traditionally been built with mangrove poles *(siki)* and bamboo, the walls of the more solid houses filled in by a curtain of vertical mangrove sticks *(laca laca)* tightly bound together at the centre of the wall. This particular more solid wall is found on Ilha, not in the rural areas around. The construction is filled with stones, earth and sand in a *pau* a pique construction, the more solid version with large amounts of stone and lime approaching a coral stone double wall construction with *laca laca* in the middle. A plant extract called *murrapa** was earlier added for extra strength and waterproofing, a technique that has been attempted reintroduced in some restoration projects in the previous decade.

Since the 1950s, and especially since the end of teh 1970s, houses have increasingly been constructed in cement blocks and fibrocement or corrugated iron

universal value of Ilha from 1991.

* I would argue that the original formulation covered the macuti house perfectly and this particular change unneccessary, as there is a continuum between the architectures of the two parts of Ilha.

** The PhD project runs from 2011 until the end of 2013, is a collaboration between the Royal Academy School of Architecture in Copenhagen, Eduardo Mondlane University in Maputo and the Gabinete da Conservação da Ilha de Moçambique, funded by the

Illustration 2: Macuti houses in Ilha de Moçambique, some with cement walls and macarasse leaves instead of macuti roof cover

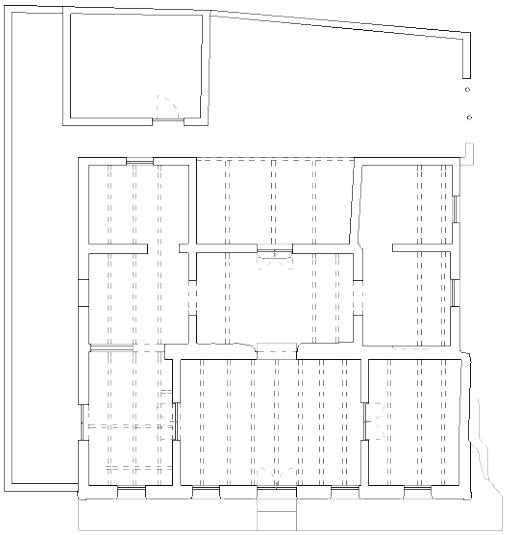
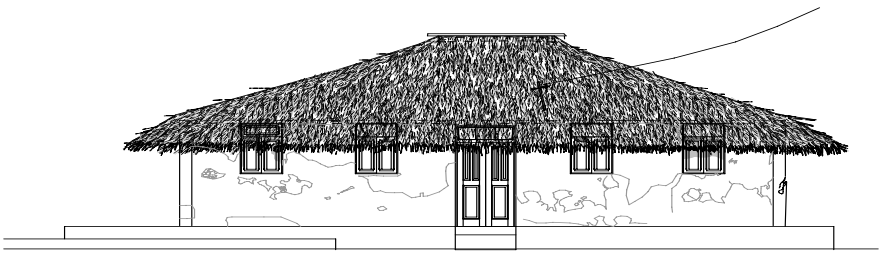


Illustration 3: Macuti house plan and front elevation



sheet roofs, which today are by far the most common building materials found in the southern part of Ilha.** Walls and roofs are changed, often one wall at a time, or you change the roof without changing the walls. This results in a hybrid between the traditional *macuti* house and the current ubiquitous Mozambican housing style seen from Maputo to Lichinga, the "house of three slopes" or what Luís Lage calls the "windmill house" where different parts of the roof slopes in different directions (Lage, 2004; Bruschi et al, 2005). Often the so important front facade of the *macuti* and *pau* a pique house has been constructed in a more solid manner and better whitewashed than the side walls and thus the side walls collapse and are replaced by sandcrete

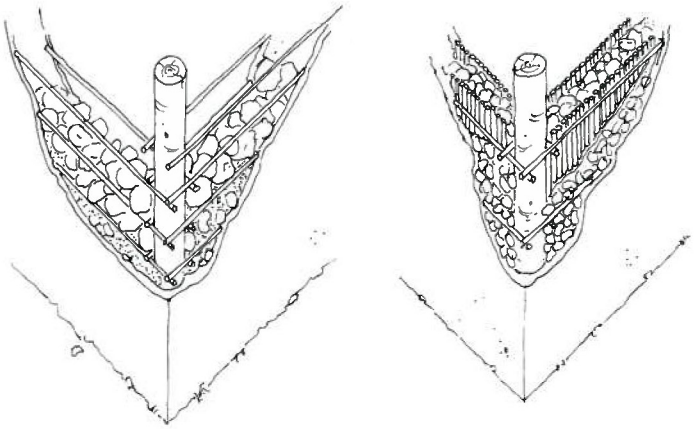


Illustration 4: Different pau a pique walls Ilha de Moçambique (Aarhus, 1985). Another version has one layer of the continuous vertical mangrove sticks and stones on both sides.

blocks while the *pau* a pique facade is preserved. A house is a continuous object of transformation and improvement, never quite finishing, some parts more permanent but always having some parts undergoing transformation.

The neighbourhoods in the southern part of Ilha were generally laid out in rows according to building lines and regulated heights of roofs and of doors reflecting the new colonial desire for order and urban planning. The houses were left with small alleys between them on two sides and the small backyard fenced in. The pattern is in places very tight, but due to the openness of the houses and the use of the street space as living room, many areas appear well planned with good public spaces. Around old water points and big trees more space is kept. Many of these public spaces have been destroyed after independence by uncontrolled building closing off alleys and streets and taking up space earlier left for water to be drained naturally. Also badly designed drainage projects take up large parts of the roads.

* Berti identified the murrapa plant with its scientific na,e Cissus Integrifola (Bak.) (Berti, 2009:105)

** Less than 25% of houses have mangrove-based construction today, ca 35% have macuti or other leaves as roof.

Illustration 5: Current house style with three slopes + transformation to house with three slopes

3. Conservation and the Macuti House in Ilha

Initiatives for systematic heritage conservation and tourism development in Ilha de Moçambique were initiated in the 1940s, resulting in a large-scale urban rehabilitation programme implemented in 1969. This first coordinated conservation effort mentions a campaign among the "autochthone population"* to improve their houses, which had as objective "creation of elements of touristic interest, as well as conservation of the old traditional houses and, in addition, giving these populations better living conditions" (Comissão dos Monumentos, 1970). By this time, there was widespread poverty in Ilha, as the capital had moved south in 1896, and

Illustration 6: Air photo from Ponta da Ilha by Google, showing the density and different roofs, some already changed since the photo was taken two years ago.

by 1951 the port had moved to Nacala, leaving little economic activity and employment opportunities in Ilha, and tourism seen as the only future option.
Various plans have been made for Ilha since independence mentioning "integrated sustainable development" and "human development" as objectives included in a conservation project, along with popularising traditional building techniques* (Aarhus, 1985; UNESCO/UNDP, 1998; Ceso-ci, 2009). A UNESCO commissioned report from 2010 on the state of conservation in Ilha de Moçambique was written by Forjaz Arquitectos in Maputo, stating that what is most important, however, is to agree that "the so-called Macuti town is a slum", and that any discussion of heritage in the area remains of academic interest, while the real problem is the lack of water and sanitation facilities, requiring a slum upgrading programme in the *macuti* neighbourhoods (Forjaz, 2010:56). The new municipal by-laws from the same year, resulting from an international capacity building programme for the municipality, state that "a

* The status of indígena was officially abolished in 1961.

conservation programme for the *macuti* town must be made according to reality" and that the municipality and the conservation office should develop such a plan. Important to remember here is a local administration with a very limited budget and low institutional capacity and possibly also lack of political will to carry out the plans.

4. Social Flux

Leading Mozambican architectural experts agree that it is difficult to deny that "conventional construction", meaning cement and corrugated iron sheets, is the construction method best adapted to the possibilities of the poorer parts of the population even if it may not be the habitat of highest quality. Interfering in their natural process of struggling improve their own lives is seen as unethical (Forjaz 2010; Carrilho, 2005). Carrilho uses more the ecological argument in relation to Ibo, which is part of a national park. Forjaz emphasizes economics, the durability and constructive superiority of industrial products, as well as cultural aspect of breaking with the colonial stereotype.** The cement block and corrugated iron house is now cheaper than the *macuti* and *pau* a pique house and requires less maintenance. In this context, asking a person to preserve his own house if not part of a support programme with incentives to earn money or subsidised materials, is very difficult.

The nicely decorated more solid *macuti* and *pau* a pique houses in Ilha are not being constructed any more and are now part of the historical repository of the island rather than a living vernacular tradition. Some families value these houses as the heritage of the family and a reminder of a time when there was employment, abundant mangrove and lime supply. Due to deteriorating economic conditions, many of the houses are in a state of advanced decay slowly collapsing around the owners. When people don't have the means to maintain their houses, they "get by" by whatever means they can manage in order to keep a roof over their heads. Thus you see houses, which are patchworks of materials in attempts to halt decay. The fact that the old system of maintenance is not achievable any more, due to lack of supply of natural materials and money to buy these, means that people opt for an alternative solution, in this case the "conventional construction" which currently is promising "development" and a better future.
Many of the old houses are rented out one room each to different families, which stay for limited periods in Ilha.*** These tenants generally do not carry out maintenance work to the houses. If there is no way to maintain the house, it may be sold to people who come to Ilha to build a modern house in the city and improve upon the living conditions they had in the village, demolishing the remains of the old *macuti* house which has no value to them. The old owners may move to the continent where land is still available at low cost, even if people are generally reluctant to do this. Another option is constructing a new simple hut in the old ruin. There is a certain status of living in the city, even if currently markets and economic activity is moving to the mainland where the bridge to Ilha lands, an area currently with rapidly expanding settlements.
The population of Ilha is a population in flux and constantly changing. A very large proportion of the population came with the destruction of the war in the late 1980s, when population doubled, and thus have a different tradition from the people living in the city for several generations*. The population is also divided along political lines, Ilha being one of the strongholds of the opposition to the government party, not a strongly rooted and united community. A creative approach to local heritage could be a resource in overcoming these differences and creating economic opportunities.

5. Materials

The most important materials for traditional building in the southern part of Ilha de Moçambique are coconut palm leaves and mangrove wood, plus the earth, lime and stone mixture for the walls. The trade in mangrove along the East African coast with the Arab countries has long been an important characteristic of Indian Ocean culture (Sheriff, 2010:32-33). However, in many areas the mangroves have been overexploited with the resulting destruction of complex ecosystems. Carrilho presents data from the island of Ibo, where legislation to restrict exploitation to sustainable levels was introduced already in 1902 due to

* Restoration efforts in the old colonial town were continued in the first years of the 21st century. A big effort was made to reintroduce traditional building techniques through collaboration with an experienced architect from Lamu in Kenya, resulting in improved and increased production of lime on the mainland near Ilha and an increased interest in traditional building techniques. The large coral stone fortress has been through an extensive rehabilitation programme training 100 workers on the job.
** Interview 6.10.2011
*** Many of these tenants are fishermen or work in the construction business until they have saved enough money to acquire a plot for themselves

explosive growth of mangrove exploitation** (Carrilho, 2005:38). In the immediate areas around Ilha, mangrove wood of construction size is not possible to find, but people who remember, claim that it still was available in the 1960s and 70s. Mangrove used in construction today comes from Lunga or Matibane by boat, ca 30 km south and north from Ilha. Architect Yorick Houdayer who has worked in Ilha for many years suggests that a wood called *wanikalia* and other types, which grows inland, could be used instead of mangrove, showing even better resistance to rot, being the main problem with a wood construction standing directly in the ground.*** Avoiding the use of mangrove for ecological reasons may not have to mean changing construction principles, and there are many other types of wood available.

The supply of *macuti* for the roofs is generally the focus when discussing traditional building techniques in the southern part of Ilha. Since colonial times, there have been claims that *macuti* is expensive and that supply is declining (Raposo, 1974:138). There is also now possible that the new tourism resorts employing *macuti* roofs buy up the *macuti* in the market and make the prices increase. The coconut plantations in the region are in many cases not well managed and produce less than a generation ago. Systematic replanting of the palm trees is not taking place and there are difficulties of finding reliable labour. Many plantations are rented to caretakers who want quick profit instead of investing in improving the future of the plantation. Increased coco production could give additional economic benefits such as production of coconut oil. In the mean time the *macarasse* leaf has taken over from macuti being the preferred roof cover material since it is easier to find. The material is placed in the same way as on straw thatched roofs and not as durable as *macuti.*

For building in a cyclone risk area like Ilha, roofs with thatch or *macuti* are safer than corrugated iron sheets, which can cause havoc in a cyclone, the *macuti* being flexible and thus moving with the wind and not leaving the whole roof destroyed. The popular

Illustration 7: Improved macuti roof construction using double tiles

* Some of the first families that settled in the southern part of Ilha came in the 19th century and were a new urban working class of freed slaves, local fishermen and traders, very quickly overcoming their differences in a social organization based on the new Muslim brotherhoods from Zanzibar and the Comoro islands, and especially women's dance groups, which remain the basis of society in Ilha until today. (Arnfred, 2004).

** There is a national law for protecting mangroves and coastal zones in general in the whole of Mozambique, which is adopted in the municipal by-laws in Ilha, stating you must declare activities exploiting mangroves.

*** Interview 3.6.2011

conception in Ilha is however, the opposite, according to my interviews. There thermal properties of the *macuti* and *pau* a pique houses are better than the ideally air conditioned conventional construction, especially the roof being important here. Most people still prefer the cement blocks and corrugated iron even if they know this, and the indoor climate does not seem to be a convincing argument for the use of natural materials in construction in Ilha, even if people have to sleep outside due to the heat accumulating in the houses.

6. Return to the art of building

Return to the art of building in the *macuti* area may be seen in different contexts. The most important one is strengthening the local community through heritage projects raising awareness and pride in history and culture, with the added potential of earning an income from cultural tourism. The preservation of certain selected houses and urban spaces in the *macuti* area should be encouraged as fragments in telling the history of the area. The built environment and the intangible heritage in Ilha still keep being part of different projects and different documentation and heritage valorisation projects. In order to achieve a more coherent conservation programme in the *macuti* area of Ilha de Moçambique, this must change and the houses to be preserved to represent the heritage of the area carry stories and traditions which make them heritage not just based on being a certain architectural type, but on the role they play in the collective memory and identity of the community.* This may also solve some of the problems of how to select only certain houses for support and not others.

There are currently NGO and private intentions to develop bed and breakfast projects in Ponta da Ilha, along with a programme of cultural tourism to generate income. A heritage fund to subsidise poor people who want to keep their *macuti* houses and to encourage better management of coconut palm plantations through a local nursery and technical assistance, mangrove protection and support for other wood types to replace mangrove, is on the wish list of the management plan. These ideas are, however, ad hoc and not coordinated with each other.*

There has been work on valorising the intangible heritage of the island, focusing on dances, traditional ways of dressing and handicrafts in the *macuti* area where most of the people live. Historians have done research on history of Islam in northern Mozambique, resulting in a new understanding of the value of the culture of the general population of Ilha among some community leaders (Bonate, 2007). This strengthening of local identity in Ilha is, however, in contradiction with the national policy of unity in the form of one African identity based on the independence struggle. The international coastal mix you find in Ilha doesn't fit this image. The heritage of the coast is neither a colonial nor a postcolonial heritage but has

Illustration 8: The two areas left with macuti houses still dominating a significant part of the street

* There are houses used by dance groups and football teams, houses which have been madrasas or homes of an important religious leader, a person fuelling a local myth of magic powers etc. We have started a process of mapping some of these historical houses as part of my research project.

roots going back much longer.
Tourism developments have embraced a new form of improved traditional architecture based on the building techniques of the *macuti* house. This is, however, a different sphere from the life of the old widow in the collapsing house already down to only two rooms and struggling to keep those dry. Her solution is not a more expensive house, even if the quality is improved. There could, however, be a form of gentrification of architecture based on traditional building targeting more affluent groups moving to Ilha. The thatched roofs are already associated with tourism and leisure for the Mozambican elites, as first seen in South Africa, but not with housing and everyday life. This development shows a return to the art of building, but it is uncertain whether it will have an effect among the people living in the *macuti* areas and influence their building practices. It may also be important here to remember that the main structure of the *macuti* house is still the standard construction method on the mainland around Ilha. The houses are not as spacious, strong or well ventilated, have different decoration from the more urban houses in Ilha and also are generally covered with different types of grasses. Thus there are many builders in the region trained in the general system of *pau* a pique construction, while some of the special techniques used previously only in the city, are not being practiced any more.

7. Conclusion

The *macuti* urban landscape calls for a type of conservation which tells the story of "the other half of the island", the history of an emerging local urban modernity of the 19th and 20th century, an urban Muslim social organization and a new economy of a working class, plantations and the big changes of the period. Ilha must be an ideal example to show how intangible and tangible heritage management is impossible to separate but part and parcel of the same story. The fact that culture is not a scarce resource and creativity potentially unlimited must be part of the same management concept as the preservation of the built heritage as a scarce resource if economic development is desired. The general return to traditional building across the *macuti* neighbourhoods seems like a remote idea, even if increased and improved production of natural building materials should be encouraged. Smaller projects to conserve a number of houses in order to keep the memory of the building techniques alive and showing how the houses in Ilha are unique blend, as part of an urban history and a special Indian Ocean culture, would be a goal to aim for and focus the efforts in a place where official management resources are minimal.

Illustration 9: Houses on the mainland, in the neighbouring districts to Ilha

* This requires organisation and funding, the resources, which in Ilha de Moçambique may be in shortest, supply of all. A new Foundation for the Development of Ilha de Moçambique currently setting up offices, which may possibly fill some gaps here. Their programme is ambitious, but it remains to be seen whether their plan of acquiring large sections of the built heritage of the island will result in profit which can be put back into community development, will be accepted by different parts of the community and thus result in better management systems and the possibility of various groups in Ilha working towards the same goals.

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