



United Nations  
Educational, Scientific and  
Cultural Organization



World  
Heritage  
Convention



Rehabilitation of  
**THE SAINT SEBASTIAN FORTRESS**  
Island of Mozambique



República de Moçambique



Rehabilitation of

# THE SAINT SEBASTIAN FORTRESS

Island of Mozambique

Edited by Lazare Eloundou and Jana Weydt  
UNESCO World Heritage Centre





Aerial view of the fortress.

When, in 1991, at the proposal of the Government of Mozambique, the Island of Mozambique was inscribed on the UNESCO World Heritage List, one of the greatest aspirations of the islanders was fulfilled: to extend enjoyment of the rich and diverse cultural heritage of the island to all peoples of the world.

That desire showed an increased sense of responsibility deriving from the implementation of the Island of Mozambique Integrated Rehabilitation and Sustainable Development Programme that we had drawn up.

Among the fifty projects identified under the programme, the rehabilitation of Saint Sebastian Fortress was deemed strategic, owing to its historical value and grandeur and to the knock-on effect on the development of other sectors and activities, mainly tourism, which has contributed considerably to raising the quality of the islanders' life and institutions.

Mozambique accordingly attaches the utmost significance and importance to the invaluable support provided by the various partners (Japan, Portugal/IPAD, UCCLA, the Netherlands, Flanders and UNESCO) during the first phase of rehabilitation of the fortress.

Their gesture attests to states' and peoples' awareness of the Island of Mozambique as part of the common heritage.

The first phase of the rehabilitation works has strengthened the structure of the monument and we are proud of the successful outcome which encourages us to accomplish our wish to turn the fortress into a building of great social and public utility.

Accordingly, in cooperation with local communities, we have already decided on its post-rehabilitation use, which will be factored into the second phase.

Nevertheless, everything hinges on continuity in the joint participation of the above and other partners, to which Mozambique is very grateful.

## Ms CLAUDIA HARVEY

Director of the UNESCO Office in Maputo

The Island of Mozambique, the crossroads of so many cultures in the past, hosts living communities facing the challenges of development on a small exposed island and its environs, as well as vestiges of a glorious past. It carries an inescapable allure.

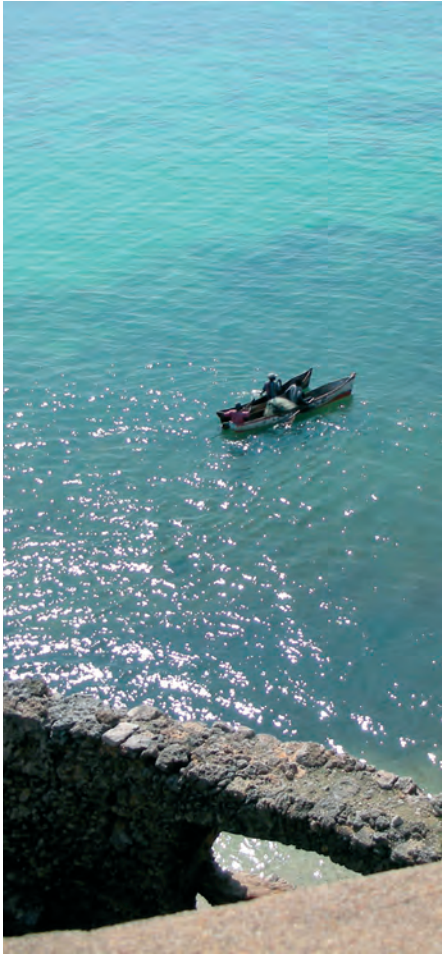
Recently, the United Nations explored the potential of the island as a small but complex geographical space in order to closely monitor the results of development action in the foreseeable future, seeking the cooperation of the Government of Mozambique and partners. Hence they see the possibilities of integrated human development efforts bearing visible fruit as in the case of the Saint Sebastian Fortress rehabilitation project, as illustrated in this publication.

Currently a UN inter-agency committee is examining these possibilities, addressing human settlement challenges within the context of preserving the past. It supports the government in achieving its goal of a fully literate population, in empowering women and youth through the Millennium Villages Project, and in working with artists and custodians of the intangible heritage to maximize the potential of creative industries on the Island. Working with the island sets an invaluable example as a test case for the UN 'Delivering as One' initiative working towards joint community and national ownership, support from partners and the realization of human potential and agreed international goals. Such is the lure and promise of the World Heritage site of the Island of Mozambique.

Verandah above the main entrance.



## FOREWORD



### H. E. Mr TADAMICHI YAMAMOTO

Ambassador  
Permanent Delegate of Japan to  
UNESCO

It is a great pleasure to see the successful conclusion of this first initiative of the rehabilitation of the Saint Sebastian Fortress on the Island of Mozambique. The project was launched in 2003 with the financial support of the Japanese Government through its Funds-in-Trust for the Preservation of the World Cultural Heritage with the aim of preserving the fortress, outstanding witness to the island's history.

This is the second project in sub-Saharan Africa funded by Japan's FIT scheme, and we appreciate that international interest in the fortress has grown as other donors have committed their financial support in recent years. Such global cooperation clearly demonstrates the importance of this monument for the people of Mozambique and the whole of humanity.

We are satisfied that our FIT project has indeed given a significant impetus to the valorization of the Island of Mozambique, and wish to encourage more active participation of the international community in safeguarding and preserving this unique World Heritage site.

### Mr MIGUEL ANACORETA CORREIA

Secretary-General of UCCLA  
Union of Portuguese-speaking Capital  
Cities

Convinced of the unique cultural value that the Saint Sebastian Fortress has for the city-island of Mozambique and surrounding regions, as well of its potential as an economic booster, UCCLA (União das Cidades Capitais Luso-Afro-Americo-Asiáticas), joined the UNESCO project for the restoration of the monument and in particular for its reuse for local and regional sustainability.

The Island of Mozambique, the capital of Mozambique until 1822, was an important trading post on the East African Coast way until the 18th century, and developed throughout the centuries into a unique melting pot of African, Arab and European cultures.

The former capital city became an effective member of UCCLA in 1994, thus supporting its mandate to promote lusophone culture and identity in a globalizing world, to enrich cultural diversity and to jointly move towards improved living conditions for the people.



**Prof. Dr MANUEL CORREIA**

President of IPAD (Portuguese Institute for Aid and Development)

For several years Portugal has had a partnership agreement with UNESCO, which includes Funds-in-Trust to be used for the financing or co-financing of projects in the Portuguese-speaking African countries. In this sense, it was with pleasure that the Portuguese Government, through IPAD (Instituto Português de Apoio ao Desenvolvimento), joined the group of donors to this important project for the rehabilitation of Saint Sebastian Fortress on the World Heritage site Island of Mozambique.

The consolidation of structures and the cleaning and waterproofing of surfaces where degradation was rife only months ago have been successfully accomplished with the active participation of local workers, whose work we acknowledge and appreciate.

Portugal's involvement in this initiative will continue and will be important to the continuation of the works that have already shown such impressive results already in this first Portuguese fortress in the Indian Ocean.

In so doing Portugal calls upon the international community to join its efforts and to financially support the ongoing work in view of completing the fortress rehabilitation by 2011.

**H. E. Mr BAREND TER HAAR**

Ambassador  
Permanent Delegate of the Netherlands to UNESCO

On behalf of the Netherlands Government, I am happy to express my contentment about the dynamic and successful development of the project. Thus far, the Netherlands is a recent partner in the rehabilitation works on the Island of Mozambique.

There are historical links between the island and the Netherlands. When the Dutch East India Company was formed in 1602, the Dutch made three efforts – between 1604 and 1608 – to capture the island as a port, but the 400 cannons on Saint Sebastian Fortress repelled them each time.

Our contemporary contribution goes beyond the first stabilization phase of the building towards the preparation for future use as a conservation and maritime research centre as well as a tourist destination and a pole for economic development in northern Mozambique.

As its theme of intervention the government, in association with UNESCO and the Mozambican Government, has chosen to rehabilitate the water system and cisterns. These have been adapted to both the future use of the fortress and the local population, for whom it remains an important water source. I am impressed with the progress made so far and the project is showing great potential.

**Mr NIC VANDERMARLIERE**

Representative of the Flemish Government to France

In addition to its extensive cooperation programme with Mozambique, Flanders also contributes through its Funds-in-Trust to the improvement of the state of conservation of the Island of Mozambique.

The Saint Sebastian rehabilitation project undoubtedly plays an important role in the safeguarding of the Island of Mozambique as a World Heritage site.

Following a fourfold and multilateral approach, the Flemish FIT supports the objective of effectively responding to the island's pressing and complex needs.

Activities include a detailed survey of the state of conservation, the finalization of the five-year management plan, the preservation of the fortress and construction of a new cistern for community use, as well as a documentary film on the restoration process.

Flanders hopes these efforts may contribute to the conservation and sustainable development of the World Heritage site and a general improvement in living conditions on the island.

# THE WORLD HERITAGE SITE, ISLAND OF MOZAMBIQUE

Mr FRANCESCO BANDARIN

Director of the UNESCO World Heritage Centre

The fortified city Island of Mozambique lies 2,000 km north of the country's capital Maputo, and occupies a once advantageous maritime position in the Indian Ocean, bearing witness to a vivid past as a main trading post on the sea route between Africa and Asia.

The island in fact closes the sequence of trading islands that border the eastern coast of Africa, including the World Heritage sites of the Stone Town of Zanzibar (United Republic of Tanzania) and Lamu Old Town (Kenya).

Its history is marked by battles of conquest and invasions between the competing economic powers of the time but also by its function as a hub of cultures in the busy course of international trading.

Indeed, the island's most striking characteristic is its distinct urban character, including a developed infrastructure with a hospital complex, several museums, schools, churches and cisterns.

This is also reflected in the multicultural traits of the many inhabitants and travellers who, over centuries, have left their imprints on the city's appearance: Arab, Swahili, Bantu, Portuguese, English, Chinese, Turkish, Indian, French, Hindu, Christians and Muslims, among others.

The island was used as a trading post from the 8th century but it was not until the Portuguese explorer Vasco da Gama landed there in 1498 and claimed it for Portugal that urban settlements were built, thanks to his countrymen's engineering skill in building intricate water storage systems, and recording them as of the 16th century.

Another century would pass before markets flourished enough to let the island's population grow into a village (1763) and finally into a city in 1818.

While the growing international economy at first traded with spices and ivory, slavery increasingly and ingloriously became the focus from the 19th century.

The island was the capital of the Portuguese colony until 1898, when infrastructural and economic changes shifted this function to Maputo. Key events in the course of the 20th century – independence in 1975 and the insurrections of sixteen years of civil war – came along with considerable changes to the population and new challenges that remain of concern today.

The city's urban fabric and buildings record the phases of its development in an astounding way. In particular, the clear division between the primarily Portuguese architecture in the northern 'Stone Town', incorporating distinctive traits of Swahili and Arab influences, and the vernacular architecture in the 'Macuti Town' in the south, is striking.

The division is further stressed by the different levels of the two districts, which resulted from the fact that the colonial Stone Town was built from the materials taken from the Macuti Town in the former quarries. Obviously, such structures convey much of the city's history and some critical aspects of colonialism.

In 1991, the Island of Mozambique was inscribed on the UNESCO World Heritage List under criteria (iv) and (vi) as an 'outstanding example of architecture in which local traditions, Portuguese influences and, to a lesser extent, Indian and Arab influences are all interwoven', bearing 'important witness to the establishment and development of the Portuguese maritime routes between Western Europe and the Indian sub-continent and thence all of Asia' (ICOMOS recommendation for nomination, 1991).

Just one year later, in 1992, peace finally ended the long period of civil war in the country.

The most imposing monument in the island, if not the most impressive military architecture in all Africa, is Saint Sebastian Fortress (1558–1620), the restoration of which this publication celebrates.

Since its construction on the orders of the King of Portugal, Dom João III, and under the authority of the Viceroy of India, Dom João de Castro, it braved history and conveys much of the defensive spirit in which it was built.



The fortress's plan and structure follow the European tradition developed on the basis of Italian Renaissance military architecture.

Nevertheless, remarkable new archaeological findings made during the restoration works indicate that much of this building's history is yet to be discovered.

Even if the function of military defence has today lost its meaning for the island, the idea of the fortress as a defender of cultural heritage may be more valid for our time.

Undoubtedly, the revival of traditional conservation techniques during the rehabilitation works will have a significant impact on the sustainable conservation of the whole island.

Moreover, it is UNESCO's belief and hope that the successful restoration of the fortress, its consolidation and entrustment with a new use, will not only preserve its historical and architectural values for future generations, but will also be an important means of boosting the island's economy and a catalyst to further activities for safeguarding the island's architectural heritage and sustainable economic development.

It is wonderful and highly encouraging how this UNESCO project has grown into an international and multi-donor cooperation, receiving funds from five different donors.

The first initiative started thanks to funding from Japan. In the course of implementation, the Union of Portuguese-speaking Capital Cities (UCCLA) and the Portuguese Institute for Aid and Development (IPAD) joined in, as in 2008 did Flanders and the Netherlands.

UNESCO is proud to have been associated with this important project, which joins the great tradition of international safeguarding campaigns that have been conducted with the extensive cooperation of governments and the private sector in many parts of the world over the past fifty years.

UNESCO expresses its gratitude to the donors whose generous contributions made these considerable achievements possible and thanks all partners, professionals and stakeholders involved in this fruitful cooperation.

Special thanks are due to the Mozambican Government, without whose steadfast support, guidance and follow-up of the activities this project would not have been possible.

UNESCO looks forward to strengthening cooperation in the conservation of the cultural and natural heritage of Mozambique.

Finally, UNESCO appeals to all the donors and the international community to continue supporting the heritage preservation efforts as a fundamental component of the social and human development of the country and the region.



Map of the Island, dated from 1957.

# CONSERVATION FOR SUSTAINABLE DEVELOPMENT



Verandah



Roof water channels



Lookout tower

Mr BENOÎT SOSSOU

Director of the UNESCO Office in Yaoundé and former Head of UNESCO Office in Maputo

The UNESCO rehabilitation project of the Saint Sebastian Fortress, Island of Mozambique, is based on the perception that the preservation of cultural heritage holds enormous potential for sustainable development and poverty alleviation.

Indeed, cultural values have the advantage of simultaneously addressing aspects of the social, economic and environmental setting of a society, and promoting ideas and attitudes favouring mutual respect, social cohesion and peace.

Culture as a driving force in development has increasingly gained recognition in the last decade, as evidenced by the number of normative instruments put in place, in particular the three UNESCO cultural conventions ratified complementing the 1972 World Heritage Convention: on the Protection of the Underwater Cultural Heritage (2001), Safeguarding of the Intangible Cultural Heritage (2003), and Protection and Promotion of the Diversity of Cultural Expressions (2005).

Statistics further reflect the increasing economic strength of the cultural sector worldwide, and as cultural values are often intrinsically linked to their place of origin they offer great opportunities for developing countries.

UNESCO and its partners therefore agree that the rehabilitation project is a perfectly suited proactive means of tackling the pertinent development issues confronting the northern region of Mozambique since the end of the civil war in 1992.

If managed successfully, such a project may be the catalyst of a more prosperous future for the World Heritage property, the region of Nampula and the whole country.

Already, the project has shown significant effects for the island. Above all, job creation for the local community was of the utmost importance in this region – about 100 local people were involved in the work and the preparatory technical assessment and they received professional training. The sourcing of traditional building techniques, methods and materials favoured the local masons'

and artisans' roles and skills. Regular steering committee meetings as a forum for awareness-raising and ownership involved local stakeholders and partners while encouraging important exchanges on the building's reuse and related issues of concern for the conservation and management of the entire island.

A very direct and tangible improvement of living conditions on the island is the rehabilitation of the fortress water-collection system and the installation of a new cistern for public use. Indeed, the restored fortress will open up the island's economy and improve future well-being, and this project offers the opportunity to reflect and decide on its most appropriate function today, commemorating its traditional use while simultaneously pointing towards a promising future, for example as a research centre for heritage conservation in cooperation with national and international universities.

In conclusion, UNESCO gratefully acknowledges the initiative from the Mozambican Government to launch the international safeguarding activity for the Saint Sebastian fortress, fittingly seizing the opportunity of the island's World Heritage status and its positive impacts beyond the mere technical restoration of the fortress.

The results achieved should be seen in the context of a growing development dynamic on the island and the surrounding region – today, a number of consolidated international projects and programmes support the Mozambican Government in its endeavours to improve the living conditions of the *ilhéus* – the people from Ilha – and the island's urban environment. The most important of these are the Millennium Villages Project, a partnership of civil society, United Nations departments and agencies, to strengthen cultural and creative industries and inclusive policies in Mozambique, and the preparation of the management plan and the Development Integrated Plan for Mozambique Island.

Let us continue along this promising path and join forces for the sustainable development of the Island of Mozambique and its people.



Views of the island and it's people.

## BRIEF DESCRIPTION OF THE ISLAND OF MOZAMBIQUE

The city-island of Ilha de Moçambique, from which the name of the country is derived, has been registered in the navigation routes of the Indian Ocean for centuries. It bears important testimony to the establishment of Portuguese maritime routes between Western Europe and the subcontinent of India and itself became something of a link to the whole of Asia.

The island is located on a coral reef with bordering sand beaches forming a barrier between the open sea and the bay. Set in calm waters and protected by the reefs, with the mainland only 4 km to the west, it provides a naturally safe anchorage for sailing vessels. Narrow tidal channels form the entrance to the bay and were once keenly observed and protected by the fortresses of Saint Sebastian and Saint Lourenço. Even today the bay is still used for communication by the boats belonging to a series of small village societies which own the remains of fortified farmsteads, trading posts, mosques and churchyards, some of which are still functioning.

The current population of the island is mainly descended from Bantu immigrants dating back to AD 200. With Arabian trading from the 8th to the 16th centuries, the island was exposed to Islam, an influence still particularly evident in the local language, Naharsa. With Portuguese settlement in the 16th and 17th centuries, followed by Indian economic dominance in the next two centuries and then the slave trade, the island became a veritable intercultural melting pot. In 1975, with the independence of Mozambique, the island acquired its own identity in the context of a newly independent nation.

The island, now linked to the mainland at Sanculo-Lumbo by a bridge, is 3 km long and 200 m–500 m wide, with an urban area of approximately 1 km<sup>2</sup> and almost 15,000 inhabitants.

There are two different types of habitation:

- The 'Stone Town' of stone and lime at the north end of the island takes up three-sevenths of the island. The seat of the first Portuguese colonial government (1507–1898), which is where the ensemble of administrative buildings, commercial businesses and warehouses, heritage landmarks and some residences offer their particular charm of original structures and building materials that seem to have remained unchanged since the 19th century. The hospital and its park mark the boundary

of the Stone Town.

- The 'Macuti Town', named after the straw roofs, emerged later, in 1868, when a decree was issued prescribing that huts were only allowed in the area south of the hospital. For the native population, this meant that huts had to be moved to the abandoned quarries. *Macuti* is a residential area with emerging local commercial activities and represents about two-sevenths of the total area of the island.

The remainder of the island consists of the fields of São Gabriel to the north, next to Saint Sebastian Fortress, and the cemetery at the extreme southern tip.

Due to the absence of groundwater, since early settlements water has been obtained by collecting rainwater on flat roofs. This has given rise to a particular architectural style in almost all buildings, from the simple macuti hut to the huge commercial buildings in the Stone Town.

Most residents of the island make a living from fishery, some from agricultural activities and cottage industries on the mainland, while others are involved in local trade and the production and prospective marketing of salt. The recent upgrading of the bridge connecting the island to the mainland promises to improve economic and social mobility.

Quite simply, the island has gradually lost its economic and political importance over the centuries. It was the capital of the Portuguese colony from 1507 to 1898, when jurisdiction was transferred to the state and today's Maputo became the capital city. This change, however, did not immediately affect island life. The simultaneous opening of the mainland interior for trade provided increased income for local traders, notwithstanding the fact that the opening of the Suez Canal in 1869 was also having a negative effect on external trade.

In 1935, the island also lost its status as capital of Niassa province, which was transferred to Nampula, and when the port of Nacala was inaugurated in 1951, most commercial and practically all navigation activities in the island also came to a halt.

During the 1960s, the island experienced a slight economic recovery with increased tourism. At that time that the Portuguese were restoring a number of religious, administrative and military monuments on purely scenic and visitor attraction criteria, such as the Governor's Palace, now a museum.

With the coming of independence in 1975, a number of Portuguese and their descendants left the island and the country. Abandoned buildings were taken over by local inhabitants. Some of the poorer ones were obliged to take beams, flooring, doors and windows for use in new structures and settlements in different parts of the island.

In spite of efforts made by the Government of Mozambique after 1975 to promote the safeguard of the island, the beginning of the civil war cancelled out earlier initiatives and weakened the installed capacity on the island.

A stagnating economy in the late 1980s and early 1990s, a consequence of the civil war, among other reasons, affected the island's quasi-subsistence economy, further undermining the physical and economic order. A number of refugees arrived on the island during the civil war, augmenting problems of over-density and increased poverty. As a result of the peace agreements, most refugees have resettled on the mainland.

However protected the surrounding waters may be, the island is affected by annual storms. In 2008, a cyclone caused considerable damage to the fortress, in response to which UNESCO granted emergency International Assistance under the World Heritage Convention.

Although the economic infrastructure of the island may remain precarious, just as the overall situation of the country which is still recovering from the years of the struggle for independence and civil wars, the global situation is showing clear signs of socio-economic development and improvement.

The World Heritage site of the Island of Mozambique is on its way to becoming an example of sustainable development, improving the living conditions of its inhabitants through activities for the preservation of its cultural heritage while simultaneously becoming a national and international tourist attraction.



Map of the Island (1639), illustrated in "Codice iluminado 139", António Mariz Carneiro Descrição das Fortalezas de Sofala e das mais da India.

## THE SAINT SEBASTIAN FORTRESS

The construction of Saint Sebastian Fortress was ordered by Dom João de Castro, Viceroy of Portuguese India from 1545 to 1547. A massive and intimidating structure was required to affirm Portugal's role and defend its interests in the upheaval of growing world trade, and the Portuguese military architect Miguel de Arruda (died 1563) was chosen to design a fortress to replace the outdated small fort of Saint Gabriel, which had clearly lost its power to confront the imminent threat from the surrounding Swahili sultanates and the Turkish artillery.

Lack of skilled labour delayed the work until 1558, when stonemasons from Goa, slaves and local residents finally started building the huge venture, which received its first military garrison in 1583. The initial capacity of the fortress, about thirty soldiers and colonial officials, was increased until the 19th century when several hundred soldiers of different companies were based there, and parts of the building were used as a prison until 1975.

Saint Sebastian Fortress possessed a remarkable military power with an important arsenal of artillery and gunpowder to defend and counter-attack the enemy. In times of danger, it sheltered the islanders – such as during the Dutch occupation in 1607 when the siege was resisted for three months, thanks largely to the intricate rainwater collection system deriving from the intelligently engineered roofs. The fortress cisterns also served to replenish the water reservoirs of trading vessels.

The description of the fortress in the legendary 16th-century Mozambique travel account *Ethiopia Oriental*, by the Dominican missionary Father João dos Santos (died in Goa 1622), indicates that little has changed since its origins, as the structures referred to still exist – in particular the little chapel of Nossa Senhora do Baluarte [Our Lady of the Ramparts (Bastion)], thought to be the oldest Portuguese building in the southern hemisphere and with its elaborately worked archways an outstanding example of Manueline architecture.

At the tip of this island, at the entrance of the sandbank lies the fortress, where the captain lives along with the Portuguese guarding soldiers, who watch the fortress night and day: during the day, at the entrance and at night on top of the walls, and of the bastions, of which there are four strong ones, two facing the sea, and two facing the island, and where the sea appears on one side and the

other, and on them there are plenty of bold and beautiful artillery pieces; ... inside the fortress there is a cistern that holds 800,000 liters of rain water, collected through pipes from the top of roofs and walls. Inside, there are storerooms for gunpowder and other implements necessary for the defense of the fortress, as well as rice and corn supplies. ... In the middle of the fortress land there is a new church, yet to be finished, which will serve as see, and next to it one of Mercy. This fortress is one of the strongest in India. Outside of the fortress, at the tip of the island, there is a chapel of Our Lady of the Bastion, whose name was given out of respect as the church used to be a bastion, where the defense artillery was kept, before the fortress was built.

Source: Adapted from Luis Felipe Pereira, *The Fortress of St. Sebastian*, Paris, UNESCO, 2003.

Map of the fortress (1802) by Carlos José dos Reis e Gama





Rampart wall vegetation removal.



Coral stone roof slab reconstruction and waterproofing.







## THE RESTORATION PROJECT:

### Restoration strategy, phasing, works carried out and results achieved

Mr JOSÉ FORJAZ

José Forjaz Arquitectos - Architectural consultant and supervisor of the works

The international competition for a rehabilitation and restoration project for the Saint Sebastian Fortress on the Island of Mozambique was a very important and significant moment in the professional careers of the architectural consultants, as it gave them the opportunity to compete with a number of highly skilled international specialists and because of the emotional and symbolic value that the fortress has for all Mozambican architects, who for so many years have been fascinated by the island and involved with its problems.

The survey work was a unique opportunity to further study the history and technical secrets of the fortress while appreciating the work and the art of generations of African and European workers who, together, made possible this extraordinary human endeavour.

Most of the interventions proposed for the first stage of the rehabilitation work were related to maintenance, directed at stopping the progressive degradation of the structure, but the need was felt to add new dimensions to the usefulness of the fortress, its defensive purpose no longer being justified, and to prevent such a rich patrimony from becoming a monumental museum piece.

In this sense it was imperative that the most immediate and useful function of the fortress as water supplier to the island's community should not be affected by the works and by any future use.

To this end the construction was proposed of a new clean-water cistern, outside the rampart walls, fed from a completely restored and improved rainwater collection system installed in the fortress.

In this way the best possible use of the historical characteristics of the monument can be made, while helping to improve the living conditions of the community.

The financial constraints of the project did not even allow for the complete recuperation of all the structural elements of the fortress, although the survey contains all the necessary elements for a complete intervention geared to adapting it to the different functions to be identified as appropriate for future use. In only one case were alterations

proposed to the original spatial and structural aspects of the buildings.

A double-storey interior was planned to take advantage of a collapsed suspended floor structure, where the memory of the restoration works will be preserved and a very special multiple-use space created.

#### **Intervention strategy**

The surveys and detailed analysis carried out for the definition and quantification of the interventions required to restore the fortress informed the intervention strategy:

- The fortress has undergone countless transformations during its history, particularly from the early to mid 20th century, as corroborated by documentation found in the National Archives and other sources.
- Those transformations were in most cases related to the construction of subdivision walls and the adaptation of the buildings to uses other than those originally intended.
- Most of the roof slabs, originally built with timber beams over which mass coral-stone concrete was laid on ceramic tiles or coral stone slabs, had been replaced by reinforced concrete slabs, following the original geometry and slopes and, presumably, using the original timber structure as formwork. In many cases those structural members were left in place without any structural function.
- Most of these reinforced concrete slabs, which at first sight seemed badly affected by water and weather, were in fact in a reasonably sound condition and could be repaired without extensive demolition.
- The timber beams left in place were useless in structural terms and at first were interpreted as an attempt by the military engineers to retain the effect of the original construction methods. The architects have since revised this opinion and the beams have been removed. The surplus structural timber recuperated from this operation was almost sufficient for the reconstruction of parts of the buildings where it was deemed necessary to follow the original construction technology.
- Most of the pathologies found in the reinforced concrete slabs were due to penetration of water from defective water-collecting systems. Part of the



Aerial view of the fortress

roof slabs had to be cut out and recast with proper care for the continuity of the reinforcement and keying of the new concrete to the old.

- The strategy of saving the structural integrity of the monument, which was the object of this phase of the project, was conditioned by the severe financial limitations imposed on the first building contract.

After an extensive survey of the geometric, technical and architectural characteristics and of the environmental conditions of the site, the following factors were found to condition the rehabilitation of the various structures and buildings:

*The fortress was in a pre-ruinous condition*, at least in the case of some of its components, although the more spectacular aspects of the decay were found to be more superficial than structural and remedial measures could solve a number of problems. The most urgent intervention, to stop any structural collapse, was largely dependent on waterproofing the roofs.

Among several contributory factors, the most important was the lack of maintenance over the past four decades.

*The extremely aggressive environmental conditions* of the site, with the rampart walls built directly on the coral rock rising out of the sea and further aggravated by the tropical climate, with cyclones, intense rains for several months of the year and permanently high humidity making the drying of walls and roofs a very slow process.

*The nature of the construction materials.* The fortress had been built entirely from coral stone, a material highly permeated with saline intrusions and extremely hygroscopic.

*The percolation of rainwater*, facilitated by defective or damaged waterproofing and cracks in the roof slabs and parapet walls, had contributed to the corrosion of sections of the steel reinforcement of the concrete structures and to the degradation of much of the wall rendering and thus of its structural integrity.

*The growth of vegetation* on the ramparts and on many crevices in the roof slabs, rainwater channels, downpipes and vertical ducts, window sills, etc., which had destroyed a number of architectural elements and, by blocking water channels, played a major role in the degradation of the roof slabs and walls.

(continued on page 22)



Plan of the lower level.



## THE SAN SEBASTIAN FORTRESS

REHABILITATION PROJECT • ISLAND OF MOZAMBIQUE • MOZAMBIQUE • MAY 2007

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JOSÉ FORJAZ • ARQUITECTOS

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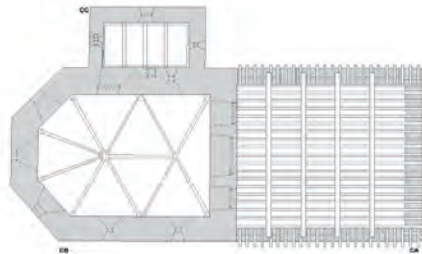
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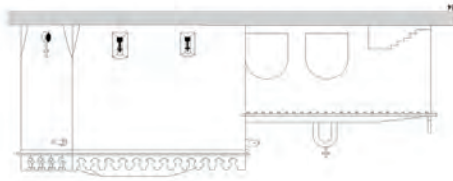
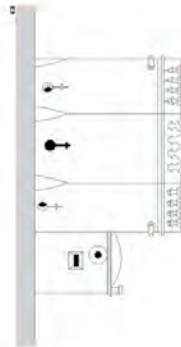
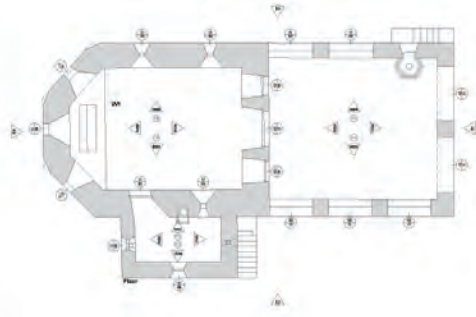
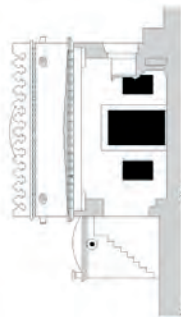
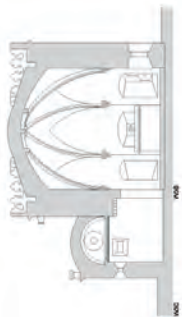
JOSÉ FORJAZ • ARQUITECTOS

Pathologies survey example



Element	Quantity	Material
Wall A	100	
Wall B	150	
Wall C	200	
Wall D	250	
Wall E	300	
Column 1	10	
Column 2	10	
Column 3	10	
Column 4	10	
Column 5	10	
Column 6	10	
Column 7	10	
Column 8	10	
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Column 98	10	
Column 99	10	
Column 100	10	

Scale: 1/100





Removal of intrusive vegetation and NW terreplein surface reconstruction.



The removal of all doors and windows, a few of which had been replaced by makeshift doors to allow the fortress to serve for a time as a secondary school. The penetration of rainwater through unprotected openings had contributed strongly to the decay of the few original wooden supported roof structures.

The definition of a strategy for the prevention of further degradation of the fortress was dependent on the following conditions:

- The financial limitations of the budget.
- The difficulties of transporting materials to and from the island, as the bridge connection to the mainland has a limited capacity of one ton payload and there is no jetty to allow for easy loading and unloading of materials for a sea crossing.
- The impossibility of disposing of demolition products on the island.
- The rainy season, which imposed strict time limits on carrying out certain operations.
- The difficulty of finding locally trained craftsmen and skilled personnel.
- The remoteness of the island from any sizeable urban centre.

Taking into consideration those limitations and conditions, and the objectives of the project, a set of guidelines for a viable intervention strategy was established which respected the objectives of the project and the need to ensure sound principles of historical monument restoration.

#### Major interventions prescribed

- Eradication and root extraction of all invasive vegetation.
- Treatment and repair of whatever damaged reinforced concrete could be saved.
- Cutting out and removal of all reinforced concrete that could not be saved and its replacement by recast new sections. In a number of cases, this work involved the recasting of structural elements such as beams, roof and floor slabs, or lintels.
- Dismantling endangered original construction roofs and/or floor slabs and reconstruction with traditional materials.
- Waterproofing all roofs and parapet walls, and any other architectural elements, to prevent the penetration of rainwater and further deterioration of the roof slabs and walls.
- Protection of waterproofed surfaces to allow for pedestrian traffic.
- Cleaning and repair of water channels, downpipes and gargoyles, at both roof and ground level, to allow for the free running of rainwater to the cisterns and the sea.
- Repair of rainwater cisterns with waterproofing and installation of submersible pumps discharging





the new cistern outside the fortress provides fresh water from the rehabilitated water system to the people of the Island of Mozambique



clean water to an external cistern.

- Construction of a cistern outside the rampart walls, to be fed from the existing cisterns to improve sanitation for the population of the island.
- Construction of public sanitary facilities within an existing building, connected to a system of effluent treatment and dispersal, assuring safe disposal of used waters.
- Installation of an electrical energy system and fitting of a main distribution board.
- Complete restoration of a chosen section of the fortress (Sector HL in the adopted notation), helping to establish real restoration costs and exemplifying the standards of finish and structural treatment to be followed in future restoration interventions.

This partial reconstruction of the HL section of the buildings would be an ideal place to install the administrative offices and the headquarters of future restoration projects. It could equally serve as an entrance/reception point for visitors as well as a source of orientation and guidance.

#### **Procurement of materials for rehabilitation works**

To facilitate the smooth running of the rehabilitation works, some distinctive aspects were given special attention, for example the procurement of lime and timber crucial to the success of the building operations. These problems were overcome by minimizing the need for new timber through the reuse of elements recuperated from the works and using locally produced lime as much as possible.

#### **Training**

A Mozambican firm of architects was commissioned to carry out the project and supervise the work after an international competition.

The architects mainly employ Mozambican nationals as architects and trainees and they recruited students of architecture for the surveys and as assistants to the supervision team.

A local branch of an international building company from Portugal was selected by international tender. The builder employed exclusively local personnel up to the level of skilled craftsmen, supported by expatriate specialists if and when necessary.

Some of the craftsmen had gone through specialized training in Lamu Old Town (Kenya) on the technology of lime preparation and its use in masonry and plasterwork.

The building site and its organization offered an excellent opportunity for the transmission of skills to over a hundred workmen.

#### **Format of presentation**

All drawings of the internal spaces were presented in the same format: plan, internal elevations, sections and reflected roof plan. The elevations and sections are rebated around the plan and the roof plan indicates all the structural elements.

For each space, two sheets were prepared with photographs of the pavement, walls and ceiling and the most important pathologies in each case.

A complete photographic survey of all the spaces was prepared and supplied with the building contract to serve as a reference in case of dispute.

The file sheet elaborated for each space was organized by building element – floor, wall, ceiling, doors, windows and other.

For each building element, a quantitative and qualitative description, referred to a codified list of pathologies, was prepared.

#### **The team**

The architects wish to thank Pierre Andre Lablaude and Colette di Matteo, French restoration specialists, who very generously accepted an invitation to come from Paris and give precious advice on defining a strategy for the rehabilitation works.

They would also like to mention all the members of the Mozambican team whose devotion and competence has achieved excellent results: Vitor Tomas, Yorick Oudayer, Jorge Silva, Carlos Schwalbach, Isa Telles, Filipe Branquinho, Bruno Lopes, António Colaço, Mdungaze Rebelo, Marco Roxo Leão, Muhamad Cassimo, Isaias Mota Ferreira (Zico), Muhamad Suhel Arby and Tarmamade Adamgy Tarmamade.



The verandah at the HL Block that overlooks the main courtyard (above).



The cistern rehabilitation (above) and the Vantmure leading to the northern bastion (below).



## CHALLENGES FOR PHASE II – REHABILITATION FOR REUSE

The rehabilitation project is conceived in two phases. Besides the technical assessment and preparation of the works, Phase I has focused on urgent structural consolidation and restoration works to prevent further deterioration and the provision of basic services and facilities (electricity, public water facilities and public toilets) and has now been largely accomplished, although some interventions remain in need of funding.

Phase II will concentrate on rehabilitation for reuse and the sustainable management and maintenance of the fortress.

What are the specific challenges of the upcoming Phase II?

First, the pending interventions for Phase I, including structural works, the restoration of the external walls, landscaping and lighting need to be completed. Also, the findings of the recent works invite more intensive historical and archaeological research on the site.

Second, the emergency repairs to the 2008 storm damage at the low-level battery defensive walls and supporting coral base need to be addressed urgently. The World Heritage Committee approved Mozambique's emergency International Assistance request covering about a quarter of the total cost and thus matching funds are required.

Third, in order to make the achievements accountable and sustainable, the fortress has to be rendered attractive and inviting to visitors and tourists, starting with the visitor centre facilities and offices for administration and management.

Last but not least is the open question of reuse of the fortress, on which the Government of Mozambique has to decide in the near future. The destiny of the rehabilitated Saint Sebastian Fortress is a complex issue and can only be defined in close consultation with all stakeholders.

As the site offers a great amount of space easily convertible for different purposes, several possibilities for reuse have been considered, including a museum, conference hall, research centre, arts and crafts workshop and market, offices, cafeteria and guest house in the traditional Portuguese *pousada* style.

All these suggestions would contribute to enhancing the fortress as a major tourist attraction in northern Mozambique and generate a sustainable revenue source for the local economy and population.

Of the range of proposals, the plan to install a postgraduate research centre for heritage preservation could be pursued thanks to the financial assistance of the Netherlands Government until 2011. Additional funds must however be raised to ensure the completion of the activity.

Without doubt, the current elaboration of the management plan of the Island of Mozambique through a participatory approach offers a great opportunity for the people and the government to tackle this central question and determine the most adequate and promising reuse of this important part of their heritage.



The entrance at the South wall (right) and the view to the chapel (below).



## THE COMMUNITY AND THE REHABILITATION PROJECT

**Mohammad Cassimo** (25), junior architect in the team of architectural consultants José Forjaz Arquitectos, participated in the survey of the fortress as well as in the daily supervision of the works.

'I was born and grew up here in Ilha and since I can remember I have wanted to become an architect to be able to help rehabilitate the Island of Mozambique.

Working with the rehabilitation project today therefore is absolutely spectacular for me. My passions for Ilha and for architecture come together in this project; it is an amazing experience.

When I finish my studies in architecture in Maputo, I wish to enrich my knowledge abroad, then to come back here and devote my skills to the preservation of the architectural heritage of my home town Ilha de Moçambique.'

**Amade Ussene** (60), a master mason, has worked for the Municipal Council of Ilha since 1997. Before the Saint Sebastian Fortress project, Amade also participated in the restoration of the Casa Girasol mansion (2003–2008) on the island.

'The invaluable merit of heritage preservation is that it creates jobs. Ilha is in need of jobs and we all have the right to work. Personally, it was very satisfying to apply my skills and experience in masonry, especially because we enjoyed great support from the supervisors.

Even though we have had some years of experience with lime and stone restoration, thanks to the close cooperation with the restoration firm, we had the opportunity to adjust and improve techniques whenever necessary.

If I could make a wish for Ilha, I would create new jobs and ensure safe water distribution here and in the surrounding areas.

All of Ilha's cisterns have to be rehabilitated so they can again provide clean water to the people. Clearly, only jobs and safe water distribution can lead Ilha towards a better future.'

**Abdala Cássimo** (46), is a master mason who has also worked in the team of the Mozambican-Portuguese restoration consortium Teixeira Duarte/Bel.

Since 1978 he has been involved with the public sector and the Museum of Ilha, and since 1997 he has been attached to the Municipal Council.

'We take great pride in Ilha – and we therefore should not allow it to be in ruins like that.

We long to have a beautiful island and therefore have to restore our heritage, maintain and preserve it.

In my current post I do not always get to use my professional skills and, of course, I immensely enjoy doing what I know best.

In fact, during these restoration works my responsibilities went even beyond mere masonry as I was entrusted with choosing the wood, and ensuring that all timber beams were positioned correctly for the following steps.

With our own long experience and special training obtained in Lamu and Zanzibar, we did not always agree immediately with the restoration methods proposed by the supervisors.

But thanks to a constant and highly constructive exchange within the team, enhanced by some on-site experiments, we always managed to quickly find the most adequate technical solutions for the respective problems.

Professionally, it was a very fruitful and enriching experience for me. It is my dream to see the whole Island of Mozambique being rehabilitated, its houses, streets, gardens and cisterns.

Rehabilitation works may create jobs, and consequently improve our lives and attract more tourists.'



Amade Ussene.



Abdala Cássimo.



Muhammad Cassimo.

## MILESTONES

10th century: First mention of the Island of Mozambique in Arab written sources.

10th–15th centuries: Arab trading posts.

1498: Vasco da Gama lands on the island.

1502: Vasco da Gama's second voyage. Portugal's first trading station on Mozambique is founded.

1507–1508: The fort of Saint Gabriel is constructed.

1522: The chapel of Our Lady of the Ramparts is built.

1558–1620: The fort of Saint Sebastian is built to guard against possible Turkish attack.

1607: The island is unsuccessfully attacked by the Dutch.

1750–1840: The slave trade period.

1762: The island ceases to be administered by the Viceroy of Goa and comes directly under the Portuguese Crown.

1869: The opening of the Suez Canal makes it possible to reach India from Europe without passing the Cape of Good Hope and Mozambique.

1898: The capital of Mozambique is transferred to Lourenço Marques (today Maputo). The island becomes a simple provincial capital.

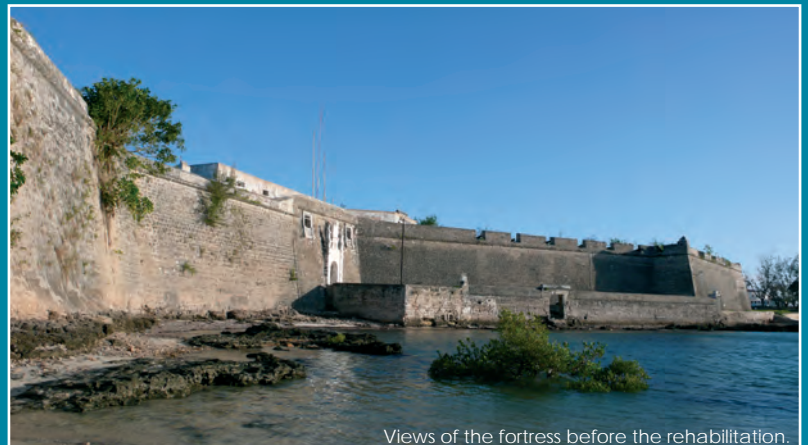
1947: The construction of the port of Nacala, a little further north, deals a death blow to the island's economy.

1975: The independence of Mozambique is proclaimed on 25 June.

1991: The Island of Mozambique is inscribed on UNESCO's World Heritage List.

2008: Beginning of rehabilitation works at the Saint Sebastian Fortress.

Source: Adapted from *UNESCO Courier*, 1997.



Views of the fortress before the rehabilitation.

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