Item 7 of the Provisional Agenda: State of conservation of properties inscribed on the World Heritage List and/or on the List of World Heritage in Danger.

Point 7 de l'Ordre du jour provisoire: Etat de conservation de biens inscrits sur la Liste du patrimoine mondial et/ou sur la Liste du patrimoine mondial en péril

JOINT ICOMOS/UNESCO (WHC) EXPERT MISSION REPORT / RAPPORT DE MISSION CONJOINTE DES EXPERTS DE L'ICOMOS ET DE L'UNESCO (CPM)

Stone Town of Zanzibar (United Republic of Tanzania) (C 173 rev)/ La ville de pierre de Zanzibar (République-Unie de Tanzanie) (C 173 rev)

5 May – 10 May 2008 / 5 mai – 10 mai 2008

This mission report should be read in conjunction with Document: Ce rapport de mission doit être lu conjointement avec le document suivant:

WHC-08/32.COM/7B
REPORT ON THE MISSION TO STONE TOWN OF ZANZIBAR, UNITED REPUBLIC OF TANZANIA, FROM 5 TO 10 MAY 2008
KAREL A BAKKER, ICOMOS & L ASSOMO ELOUNDOU, UNESCO WHC

May 2008
# TABLE OF CONTENTS

| ACKNOWLEDGEMENTS | 3 |
| EXECUTIVE SUMMARY AND LIST OF RECOMMENDATIONS | 4 |
| 1 BACKROUND TO THE MISSION | 9 |
| 2 NATIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY | 10 |
| 3 IDENTIFICATION AND ASSESSMENT OF ISSUES | 10 |
| 4 ASSESSMENT OF THE STATE OF CONSERVATION OF THE SITE | 15 |
| 5 RECOMMENDATIONS | 18 |
| 6 REPORT CONCLUSION | 22 |
| 7 ANNEXURES | 23 |

## ANNEXURE A
Terms of reference for the Reactive Mission to Stone Town of Zanzibar, United Republic of Tanzania (C 173 Rev)

## ANNEXURE B
Mission itinerary and programme

## ANNEXURE C
Composition of the Mission team

## ANNEXURE D
Maps of the Core Zone and Buffer Zone

## ANNEXURE E
Extract from Malindi Port Project Tender Document and Figures of Options A and B.

## ANNEXURE F
Email JK Rønberg of KARL BRO to UNESCO WHC, dated 04 Jan 2007

## ANNEXURE G
Letter Ministry Finance and Economic Affairs Zanzibar to Chief Authorising Officer, United Republic of Tanzania, dated 06 Nov 2006.

## ANNEXURE H
Terms of Reference – Baseline Study and EIA for rehabilitation of Malindi Wharves Option B: Carl Bro Project 80.3783.81

## ANNEXURE I
Email UNESCO WHC Africa Section to UNESCO Dar es Salam, 15 Jan 2007.

## ANNEXURE J


## ANNEXURE K
UNESCO WHC State of Conservation Report, Christchurch 31COM

## ANNEXURE L
Photographs taken during the Mission.

## ANNEXURE M
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EXECUTIVE SUMMARY AND LIST OF RECOMMENDATIONS

A combined Reactive Mission was undertaken by ICOMOS and UNESCO WHC to investigate and report on the issue of the Malindi Port Rehabilitation Project as well as the State of Conservation of Stone Town, Zanzibar. This Mission flows from decision 31 COM 7B.49 adopted by the World Heritage Committee at its 31st session in Christchurch (New Zealand) in July 2007. The report relies on a site visit, as well as many supportive and relevant documents that the team managed to identify and source during and after the Mission. These are attached in Annexures.

Regarding the concerns about the procedural problems around the Port Project and the lack of an Environmental Impact Assessment, this Report provides a progress report on the requirements of decision 31 COM 7B.49, and provides clear recommendations of a how to address the problems and come to a solution that will comply with the norms and standards of management of a World Heritage Property and that can clearly indicate real impacts and propose suitable and required mitigation and/or rectification.

Regarding the State of Conservation of Stone Town, Zanzibar, this Report provides clear recommendations to address the pertinent issues and to achieve and sustain good management of the Property.

RECOMMENDATIONS

A  Port Rehabilitation Option B at Malindi Port, Stone Town

- Even though work on Option B has commenced and is to be completed in November, it is urgent that a Environmental Impact Audit of this Option be completed, and since the EC has committed to payment of the originally required EIA, this Audit must be performed with extreme haste at the time of completion of the harbour wall of Option B. While the Mission understands that the approval of the TOR for such Audit lies with the Department of Environment of Zanzibar, the drafting of the TOR should definitely consider the contributions of the STCDA in Zanzibar and the national authority responsible for World Heritage, being the Department of Antiquities.
- The Impact Audit must conform to the requirements of the WHC Operational Guidelines.
- Apart from identifying impacts on the bio-physical environment, the Audit must thoroughly address impacts on cultural resources in the World Heritage property, which also includes visual impact. The Audit must include a baseline study of the state of environment at completion of Option B, taking into account the completed hydraulic baseline studies commissioned by the EC during the feasibility-study phase of the project (See Annexures J 1-5) as well as the Beach Erosion study of the Dept of Environment Zanzibar. As agreed to by the EC for the EIA on Option B (See reference to this in letter of the Ministry of Finance in Annexure G), a 3-5 year monitoring of potential impacts of Option B must similarly be attached to the Environmental Impact Auditing activity – the TOR of the monitoring process must be to the satisfaction of the relevant national authorities. Monitoring should start at completion of the last section of the vertical wall of the quay.
- UNESCO WHC and ICOMOS should be involved in a review of the Environmental Impact Audit document and its findings.
- The Department of Antiquities, as the relevant focal point for management of World Heritage in Tanzania, must request the National Authorising Officer of the Department of Finance and Economic Affairs in Tanzania to formally request the EC for this Impact Audit and Monitoring project.
- The location and remains of the 1927 warehouses that have been and are being demolished should be documented (through drawings) by a heritage specialist if these do not exist in the Archives, and the drawings subsequently lodged with the STCDA.
- UNESCO WHC must write a letter to the EC Delegation in Tanzania on the importance of the fulfillment of their commitment to perform the Environmental Impact Audit and Monitoring actions as stipulated.

B  State of Conservation of Stone Town
The Mission wants to give credit for conservation work achieved and positive progress made in terms of the State of Conservation of the Property.
At the time of Inscription the rapidly deteriorating State of Conservation was a definite issue – in a sense the decision by the WHC for Inscription of the World Heritage List has definitely proved correct the conclusion of the ICOMOS Evaluation Mission Report (2000: 25), which stated that Inscription would provide a positive force towards and critical mass for conservation the fragile heritage of Stone Town.

In 2006, the Report in Preparation for the Periodic Review (Pound & McDermott, Feb 2006) stated that if there was no improvement in the rate of loss of historic buildings over the next 3 years, the Property would be ready to be placed on the list of Heritage in Danger. While the Mission did not have the means or time to verify the relative status exactly, the rate of loss seems to have been diminished to an extent that such drastic action does not seem appropriate any more, even though urgent attention to this problem must remain high on the list of management priorities. Despite remaining conservation problems, the Mission could discern a general positive attitude towards conservation, and several achievements and milestones have been reached.

The following recommendations are provided and should be taken into account in future heritage management:

**B1 Recommendations regarding Development pressure**

- There is a need for an Integrated Development Plan (IDP) for Stone Town, inclusive of the Buffer Zone. This IDP of necessity will have to be responsive to the socio-economic capabilities of the city.
- At the level of the Local Authority of Zanzibar there must be a clear development plan in terms of land use, density, location of Institutional etc facilities re centralisation vs decentralisation etc, transport, services, taxes, incentives, tourism and Local Economic Development strategy.
- Ensure integration of all management between Union Government, Zanzibar Government, Local Authority and the STCDA.
- Ensure that Local Authority’s bye-laws and the STCDA guidelines are synchronised and controlled in an integrated manner.
- Identify and address inappropriate and high-rise development in the Buffer Zone – look at strengthening the buffer zone at the northern side and other sea fronts (Pound & McDermott 2006). Strategies are needed to perform short term management and conservation priorities until Management Plan is approved and operational.
- Prevent issuing of Building Permits for inappropriate works in projects involving urban infill, re-use, additions, renovation and reconstruction. Tools should also be developed for use by both the local authorities and STCDA so as to prevent the currently observed inappropriate and sometimes destructive architectural mutation of historical types that could affect the integrity and OUV of Stone Town. Cognisance must be taken of recent developments in the guidance of historical urban landscapes (Vienna Memorandum etc).
- Urban infrastructure: A joint Municipal-STCDA strategy on urban infrastructure must be drafted, in order to reverse current visual impact and to mitigate them in the future, to integrate future infrastructure projects and to maximise benefits on infrastructure investment (successful precedents from similar socio-economic contexts may be used to inform such strategy).
- Telecom masts: There must be controls on the location and mitigation of impacts by telecom masts.
- Damage from rain water: There must be controls on dealing with rain water, from the roof to the ground surface storm water reticulation, to minimise or remove damage to walls and doors.
- Waste management: A joint Municipal-STCDA strategy on waste management must be drafted in order to improve the current situation. This includes the location, design and size of household garbage bins as well as frequency of removal. This improvement could be achieved through local economic development approach that involves the local community and creates employment.
- Traffic congestion and vehicular access: The new Traffic Plan for Stone Town that is currently being drafted should be adopted as a matter of urgency in order to provide public transport, to relieve the traffic congestion and improve the pedestrian safety and experiential and spatial quality. This Traffic Plan can be further enhanced to suit the demands of conserving the historic
urban landscape as they emerge in future. From the STCDA State of Conservation Report (2008: 10) it appears as if the Local Authority needs expertise in terms of urban traffic planning in general, and for historic urban landscapes specifically.

B2 Recommendations regarding loss and degradation of historical buildings and elements

- Conduct a detailed survey of the level of degradation of heritage buildings (listed and unlisted) in order to update the existing survey and to determine and prioritise the required intervention.
- There must be monitoring of and annual reporting on all conservation actions on heritage buildings.
- There must be monitoring of and annual reporting on the state of collapse of coral stone buildings. Formulate a programme of priority measures to address preventing and predicting collapses of buildings and securing resources.
- There must be monitoring of and annual reporting on all development-related interventions in, or loss of heritage buildings.
- From an updated list of property owners, engage with owners re stabilisation, preventative measures and appropriate conservation actions.
- Update the survey that shows the location of the various architectural typologies in order to understand and control change more effectively and appropriately.
- Establish a strategy to urgently and effectively deal with the large amount of leaking roofs in the Property.
- Establish a strategy to urgently and effectively deal with rainwater runoff and problems of dampness in walls as well as rotting of carved door frames and doors.
- Perform basic maintenance at the Fort, eradicate trees growing in and on the structures and stop urban agriculture in the interior spaces. Develop a strategy for appropriate use of the property in consultation with Stakeholders.
- The sea wall at the west side of the city has to be urgently stabilised and the correct manner of repair determined and effected. This action must be given high priority given the still unknown hydraulic impacts of the new port extension in Option B.
- There is only one Government based restoration brigade attached to the STCDA - set up a roster of currently known private contractors specialising in the restoration of Stone Town buildings and also facilitate the further training and deployment of such.
- Prepare a manual with design guidelines for property owners and prospective developers in Stone Town, with a clear approach and links to conservation Charters like those developed by UNESCO and ICOMOS.

B3 Recommendations regarding Management

- The lack of a integrated management in the World Heritage property and a clear management strategy for the Buffer Zone is contributing to the lack of cohesion between and integration of stakeholders in addressing and finding shared solutions for urgent problems.
- The Mission proposes that a Platform for Integrated Management, in which all stakeholders can work towards the same vision for sustainable management and conservation of the World Heritage property. The Platform is the vehicle for discussion and to share responsibilities on the basis of an agreed vision and objectives.
- This Platform can be established in the form of the proposed Stone Town WH Board. The composition and structure of this Board should be the result of a participatory process and should include the key stakeholders, inclusive of representatives of the local community. It is this Platform which should be the driver of defining and elaborating the management strategy and detail as well as its implementation.
- The further elaboration of the proposed Heritage Management Plan is a priority, and should be conducted on the basis of a series of stakeholder meetings aiming at defining the vision, policy, guidelines and control mechanisms, analysing the strengths, weaknesses, threats and opportunities of the Property, defining the key issues to address and their level of priority, defining short medium and long terms activities to be implemented, as well as defining responsibility for implementation. In the period till completion of the Heritage Management Plan clear strategies must be formulated to deal with key issues.
• It is recommended that a neutral facilitator is engaged to help streamline and effect this activity to submit a Draft Management Plan to UNESCO WHC and ICOMOS and to finally achieve a document to will be validated by the Government of Zanzibar.

• The review of the current 1994 Heritage Act must be concluded as a matter of urgency and result in a new and updated Heritage Act.

• The official contact re the management of the property is between UNESCO WHC and the State Party in Dar es Salam, specifically the Department of Antiquities, but the organisation/government body responsible for day to day management of the property is the STCDA, which falls under the Zanzibar Revolutionary Government. While there appears to be a good working relationship between the two heritage bodies, and corroborated by the DG of the Department of Antiquities, the Mission supports the recommendation of the Pound & McDermott Report (2005 : 7) which argues that it may be beneficial if UNESCO WHC could initiate a relationship between it and the STCDA – in the immediate future this could particularly be focussed on clear communication re the needs of the STCDA in terms of facilitation and support for the Draft, finalisation and roll out of the Management Plan, with associated needs for expertise, capacity building, community participation and assistance with the procurement of resources.

• Funding for conservation: As stated in the Pound & McDermott report (2005) as well as the STCDA State of Conservation Report (2008: 9), the availability of resources, training and qualified personnel is fundamental to the Zanzibar Revolutionary Government and the Union Government of Tanzania being able to meet obligations to protect the site from further erosion, to conserve heritage fabric, manage the site effectively and to realise the benefits of the asset for the economy of Zanzibar and its people.

  i) Human resources: The STCDA clearly needs funding to train human resources, to be beneficiaries of skills transfer and empowerment programmes and additionally to have experience of and be assisted by managers from successful and similar World Heritage sites. Additionally there is a great need for skills training in structure-failure analysis and preventative intervention.

  ii) Historic buildings and places: The funding for conservation of the buildings and places in Stone Town is totally inadequate to achieve the aforementioned obligation. There is at present no vehicle for procuring any funding for conservation from private landowners or tourism in Stone Town, placing the burden squarely on the shoulders of Government. The Mission alerts the WHC that there is a need for a specialist in Heritage Economics to study the situation and propose suitable ways in which the existing funding for conservation and development, directed or controlled by various levels of Government, can be augmented through various mechanisms, or by financial support levied on speculative developers, linked to the privilege and obligations of owning and developing land in a World Heritage property.

In order to alleviate the quality of life of many Stone Town families who seem to live in less than favourable circumstances, there is a need for getting wide support for an approach to conservation that has as aim to be part of a development type that is geared towards improving quality of life and able to divert benefits flowing from WH status to local inhabitants within a focussed LED related strategy.

B4 Recommendations regarding interpretation and presentation of the criteria of Outstanding Universal Value

• There must be a management strategy to increase the level of interpretation and presentation of the heritage relating to criterion iii) relating to the importance of the historic sea trade in the formation and evolution of Stone Town and criterion vi), relating to the role of Zanzibar and its inhabitants in slavery and also its suppression - this must be sustained in the future Management Plan and be introduced as topics for debate and discussion at the consultative forum. In terms of the sea trade aspect there must be greater concentration on the role and character of the sea front and Port in the presentation of the Property. In terms of slavery and the suppression of slavery, the initiation of focussed research, creation dedicated tourist routes and forging of stronger links with the UNESCO Slave Route project, could all be beneficial to act as catalysts in this regard.

• In terms of criterion ii), as regards the fusion and harmony of cultures, there can be a greater transferral of existing knowledge regarding the individual architectural heritages and the variety of results of their fusion, to facilitate on the one hand, and enable the authorities to insist on the
transference and/or interpretation of the essential spatial composition and inherent architectural devices of historic architectural typologies that are co-existing in Swahili culture and as it is found in Stone Town on the other hand, in new developments involving buildings and places.

- In the Report in Preparation for the Periodic Review (Pound & McDermott 2006) there is a motivation for a review of the criteria on the basis of which the Property was inscribed on the World Heritage List – this Report was responded to by the STCDA in their State of Conservation Report of 2008. The Mission did not pursue this matter in detail, but is of the opinion that there can be an addition to the Inscription criteria, as suggested by the STCDA – such an addition would have to be tested by and agreed upon through a public participation process, before submission to the WHC.

B5 Conclusive Recommendation - State of Conservation

Progress has been made by the State Party and the STCDA in addressing conservation issues in Stone Town, in reacting to the findings of their own SOC report and in finalising the formulation of a relevant Management Plan. There must of course always be a realisation of what is achievable in a context with difficult circumstances for conservation, eg the aggressive climate and frailty of building materials, as well as a low level of resourcing for conservation. In this sense the Mission concurs with that of the STCDA’s SOC Report (2008) that the property is in a ‘fair’ state – as such it does not warrant that it be placed on the list of Heritage in Danger at present, if the recommendations are addressed and due vigilance is kept.

However, it is definitely clear that an awareness on what WH status implies and requires, is not sufficiently internalised by all the stakeholders of the WH Property, and that it appears that a series of actions need to be initiated to fill this gap and to ensure that Stakeholders who have up to the present been intervening in isolation can be brought together to harmonise and optimise interventions.

It is recommended that:
- an awareness-raising meeting is needed in the short term to facilitate, create the conditions for, and start the process of establishing a platform for Stakeholders to share common visions and objectives towards the sustainable conservation of Stone Town WH site, within the framework of an appropriate management and conservation strategy (inclusive of an Integrated Development Plan and Heritage Management Plan). This meeting could also include representatives of other World Heritage properties having successfully dealt with similar problems.

C REPORT CONCLUSION

This Report is sent to UNESCO WHC in compliance with and in order to implement the decision of the World Heritage Committee’s 31st Session at Christchurch, New Zealand, 23 June – 2 July 2007. These Mission findings are based on a site visit and exploration of the pertinent issues relating to the Port Project and the State of Conservation of Stone Town, and additionally relies on many supportive and relevant documents that the team has managed to identify and source during and after the Mission (Provided in the Annexures). The subsequent recommendations are grounded in that context – the Report hopefully provides guidance in the future consideration of these issues by the WHC at its next meeting.

The Mission would like to state that the WH Committee’s concern regarding the deviation from due process, in terms of the continued non-performance of an assessment of any environmental impacts deriving from the Port Project in either format, was well founded and the WH Committee was right in requesting the Mission. It is hoped that the Mission provides a suitable solution.

Also that the Mission assisted in raising awareness of WH issues amongst stakeholders in the WH Property and brought clarity to the STCDA of what periodic review of a heritage property entails.

The Mission requests that this Report be discussed with all stakeholders, including local stakeholders in the WH Property of Stone Town, Zanzibar.

Mr Lazare Assomo Eloundou, on behalf of UNESCO WHC and Prof Karel A Bakker, on behalf of ICOMOS: 28 May 2008.
1 BACKGROUND TO THE MISSION

1.1 Inscription history

Date of Inscription:
2000;

Property information:
Core zone: 96 ha. Location: S6 09 47 E39 11 21; Property WHC Reference: 173rev

Property Maps:
See Annexure D.

1.2 Criteria and World Heritage values

Justification for Inscription:

Criterion ii: The Stone Town of Zanzibar is an outstanding material manifestation of cultural fusion and harmonization.

Criterion iii: For many centuries there was intense seaborne trading activity between Asia and Africa, and this is illustrated in an exceptional manner by the architecture and urban structure of the Stone Town.

Criterion vi: Zanzibar has great symbolic importance in the suppression of slavery, since it was one of the main slave-trading ports in East Africa and also the base from which its opponents such as David Livingstone conducted their campaign.

1.3 Examination of the State of Conservation by the World Heritage Committee and its Bureau

In November 2006, the World Heritage Centre received information on a proposed, European Commission-funded, project to rehabilitate the Malindi Stone Town Port located within the World Heritage Property's boundaries. The World Heritage Centre was informed that the project included plans to fill the voids between the piers of the port, after cutting them off completely with dredged material from the port area and that the danger of the proposed port rehabilitation option would result in a raised water level throughout the sea front with the likelihood of endangering the property through hydrodynamic impacts, and additionally cause overtopping and water splash at the Port, and would alter the entire sea front of the Property. The World Heritage Committee examined the issue at its 31st session in Christchurch (New Zealand) in July 2007 and adopted decision 31 COM 7B.49 (See Annexure M), noting with concern the potential impact of the proposed European Commission-funded port development project on the state of conservation of the property and requested the State Party to:

- provide details of the proposed Malindi Stone Town Port development project and its rationale, and to co-operate with ICOMOS and the World Heritage Centre to organize an independent environmental and cultural impact assessment study prior to any consideration or approval of the proposed project;
- invite a joint World Heritage Centre/ICOMOS reactive monitoring mission to assess the state of conservation of the property and factors affecting its Outstanding Universal Value, and progress made in implementing the impact assessment of the port project;
- provide the World Heritage Centre the progress report on the implementation for the above recommendations by 1 February 2008 for examination by the Committee at its 32nd session in 2008.

On 12 October 2007, a meeting was organized in Paris at UNESCO, between the authorities of Zanzibar and World Heritage Centre. The meeting was an opportunity to provide more comprehensive historical background information on the Malindi Port rehabilitation project. The meeting also
confirmed the urgent need to carry out and Environmental Impact Assessment and to consult with UNESCO on viability of the project.

It is within this context that the joint World Heritage Centre-ICOMOS mission was undertaken from 5 to 10 May 2009. The Mission terms of reference, Programme, composition of the Mission team and directive 31COM 7B.49 are herewith attached as Annexure A, B, C and M.

2 NATIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY

Stone Town of Zanzibar is legally protected under the Stone Town Act No. 3 of 1994. It is with the passing of this Act that Stone Town was officially declared as a Conservation Area. This was rendered possible by the powers given to the Minister of Local Government under the Town and Country Planning Act 1955 to appoint planning authorities for specific planning areas. Since it forms part of the Zanzibar Municipality, the Stone Town is covered by the general local authority and land tenure legislation.

The Act of 1994 is also the one that establishes the Stone Town Conservation and Development Authority (STCDA) as a legal entity which mandate is to ‘initiate plan, prepare, co-ordinate and control all matters related to the conservation of the Stone Town’ conservation area (Stone Town Act, p.4). STCDA is a Department of the Ministry of Water, Conservation, Energy and Land. STCDA is headed by a Director General assisted by an Advisory Board (S. Karume, 2005).

STCDA main mission is to protect, plan and manage the historic area over the long term by supervision of the Master Plan and regulation of the Stone Town The principal tasks of STCDA are to issue building permits and restoration notices, to monitor construction works and prosecute illegal building activities (S. Karume, 2005). In terms of management, ICOMOS evaluation stipulates the following:

“The properties that make up this nomination of the Stone Town are owned by a variety of individuals and organizations, both public and private. A number of public buildings belong to the Ministry of Water, construction, Energy, Lands and Museums. The port and its associated buildings are owned by the Zanzibar Ports Authority. The Zanzibar Municipal Council is the owner of all designated open and public spaces, the market, and the sewerage and drainage system. Some buildings, mainly mosques, cemeteries, and some commercial and private buildings are in the custody of the Waqf and Trust Commission, an Islamic endowment.”

3 IDENTIFICATION AND ASSESSMENT OF ISSUES

3.1 Construction of Port Option B at Malindi Port, Stone Town

The current quay of the Malindi Port was constructed in 1927 during the British Colonial period. During the period 1989-1991 this quay was extended by 11 m to both the west and the south, along the outline of the original quay, by means of a suspended concrete slab on piles – the extension was designed and built by the Italian company Cogefar. After completion, this extension was found to be substandard. The Government won damages from Cogefar through arbitration. The current project, funded by the European Commission (hereafter EC), is intended to rectify the failures of this 1989-91 extension.

A Feasibility Study and Recommendation for the Rehabilitation of the Malindi Port was performed for the State Party in February 2004, which indicated pertinent information re the initial scenarios surrounding the two Options, including the estimated costs. During the tender phase it was not known how many of the Cogefar project’s piles would be reusable. The tender documents provided for two Options, ie Option A & B (See extract and drawings in Annexure E).

- Option A was a suspended concrete slab and pile solution, similar to the existing, and being described as the most feasible option with the least obvious disadvantages/impacts – Option A was to cost US$16 mill, but only if a sizable percentage of piles could be re-used.
Option B was a fall-back or reserve option, consisting of a vertical wall and fill solution, and while costing less than A, the tender document already gave an indication of the possibility of negative impacts (mainly on the marine environment) accompanying this design.

Option A was described as the most relevant response to the Port rehabilitation project and the option chosen by the Government of Zanzibar.

After review of both options, the STCDA’s recommendations to the EC was that, because Option A was intended as a rectification, a Provisional Permit for 6 Months could be awarded to the Contractor Pihl & Son – this Option was deemed to be similar to the existing situation of the Port, but still this limited permit was specifically granted to allow for time to gain more detail re the Option, before a final Permit be granted.

The tender was awarded to Pihl & Son as a ‘Design and Build’ contract, with the requirement that the suspended concrete deck be conserved, and in the understanding that the chosen Design and Build Option relied on a certain % of the piles of the Cogefar project be re-usable. Access for testing the piles - through holes cut in the wharf’s load surface - before the tender award date, was denied by the Port Authority because the Port was under high usage and had to be 100% operational at all times. After the contract was awarded but before proceeding with the works, the contractor Pihl & Son, in the order to be able to deliver a 50 year guarantee, initiated static and dynamic testing of the piles—this was achieved by cutting parts of the suspended deck. On the basis of the result of this limited test, results showed the piles having a low bearing integrity due to a high incidence of corrosion on the pilings above the high water mark, rendering these piles below the acceptable performance standard. This assessment of the situation was performed by Lockner Inros, designers of the new Port, in turn relying on the standards, assumptions and criteria used by Cogefar for the piles of the 1989-91 enlargement project. The Port Authority states that they were not made aware of the specific criteria for these tests and the resulting conclusion.

According to the EC delegation, in order to keep Option A, the Contractor would have had to replace all the piles, resulting in an escalation of the cost from approximately US$16 to US$40. In 2003/4, nobody thought that this situation would be the outcome, because the piles had up to then stood up well to continued use. Also, an additional outcome of the tests was that the Contractor refused to proceed with Option A, due to not being able to underwrite the required 50 year guarantee on a contract that relied on the defective piles.

In order to understand the impacts of Option B, the EC paid for a Hydraulic Study and a Wave Movement and Water Level Study that were performed and concluded in September 2006 before start of construction (See Annexures J 1-5). From the discussions with representatives of the State Party it appears as if they were unaware of the existence of these particular Studies.

Taking into consideration the conclusions of these Studies, the EC came to hold the opinion that Option B would have no significant negative impact on the marine environment. This left no compelling argument for retaining Option A. The EC stated in a letter to the State Party that they could not substantiate continued support for Option A, were not in a position to provide additional funding to make up the difference in cost between the two Options, and that therefore Option B, which was cheaper and within the available agreed funding, was the only possible and remaining way forward.

Taking into consideration that part of the Port was already blocked for operations due to site works and previously unforeseen destruction of one warehouse due to the previously unidentified need for horizontally anchoring the harbour wall of Option B, and due to the fact that portions of the deck were cut and non-operational, that due to the large loss of income from the port over a period of 9 months, that due to the loss of confidence by shipping companies in the operational capacity of the port, as well as that due to the rising inflation rate at the time, it is understood that the Port Authority felt it had no other option but to accede to a continuation of building operations on Option B, also fearing that the EC would withdraw the funding.

Because the State Party was under the impression that the EC would withdraw funding if it did not accept Option B it proceeded by fully endorsing Option B, as stated in a letter from the Ministry of Finance and Economic Affairs of Zanzibar to the Office of the National Authorising Officer (hereafter NAO) dated 06 Nov 2006, who then informed the EC to this effect. Through this letter the Government of Zanzibar officially expressed its reluctance to endorse Option B, due to concerns about possible
negative impacts as already mentioned in the Tender documents, but stated that it would accept Option B on condition that a Baseline Survey of current sea conditions and impacts was conducted, followed by a comprehensive EIA, and followed by an impact monitoring process after 5 years of use – all this with full participation by UNESCO WHC experts – and with the further condition that the project should have no adverse impacts on the natural and heritage environments, that the TOR of a Baseline Study or EIA should be drafted by the Zanzibar Department of Environment, that it was confirmed that the EC accepted to pay for the Baseline Survey or EIA which would include for assessing the impacts on the cultural environment of Stone Town, as well as for certain mitigation if so required from an evaluation of the project after a 3-5 years monitoring process.

The EC stated that they would cover the expenses attached to a comprehensive follow up of the environmental impact of the switch to Option B, and requested the Terms of Reference of both the Baseline Survey, the Environmental Impact Assessment (EIA) and the subsequent monitoring from the State Party. According to Act 2 of 1996 it is the Department of Environment of Zanzibar that is charged with commenting on and approving such EIA Terms of Reference, and also with issuing a certificate after satisfactory closure of a project. In an interview with the EC it was understood that the EC can only fund such a Survey and EIA if their Terms of Reference were approved by the Government and if requested to fund such. The EC acted by appointing the consultant Carl BRO Assoc to detail the environmental investigations needed before initiating any work on Option B, in the form of preparatory work for the Terms of Reference for a Baseline Survey and EIA, and for approval by the State Party – this document was completed on 12 Feb 2007 (See Annexure H).

It is important to note that, before this work was proceeded with, a representative from Carl BRO Assoc (the same person who was appointed by the EC to do the TOR Report) communicated to the UNESCO WHC (See Annexure F) on 04 Jan 2007 that the Pound & McDermott Report (of Feb 2006) did not present unambiguous evidence to substantiate a concern that the Port project would impede the chances of Stone Town to remain on the World Heritage List, and the representative also stated he did not see the Port project as presenting any serious problem. The UNESCO WH, in a letter to the UNESCO office in Dar es Salam dated 15 Jan 2007, but also copied to Carl BRO Assoc (See Annexure I), clearly stated that UNESCO WHC needed to see the results of an EIA in order to determine whether there would or would not be any negative impacts on the property resulting from the Malindi Port project.

In the mean time the National Authorising Officer of the State Party instructed that all work on Option A be suspended, and that work must proceed on Option B after a mutually acceptable financial and technical agreement with the EC was reached. In terms of the continuing construction process, the STCDA was never in a position to issue the Port Authority with a Construction permit, in accordance with and in fulfilling their conservation mandate, until the findings from the to-be-completed Baseline Survey and EIA were known. This lack of Permit was placed on record in Contractual Minutes.

The Technical Supervisor of the Port project, appointed by the National Authorisation Officer of the State Party, stated in an interview that the preparatory work on the Baseline Survey and EIA, as done by Carl BRO Assoc, was handed to the Ministry of Lands. The Mission ascertained that this document was in fact put forward for comments at a Port project site meeting in 2007 – this putting forward is however not to be confused with official submission for approval. It was understood from the interview with the Port Authorities that, at this meeting, the Department of Environment of Zanzibar pointed out that this document was not satisfactory nor in accordance with criteria stipulated by the Department of Environment of Zanzibar. This statement was subsequently confirmed during an interview with the Dept Environment of Zanzibar. The Department of Environment of Zanzibar stated that this meeting was then adjourned with the firm intention given by the Port Authority, to call a follow up meeting to finalise the matter regarding the approval of the TOR. This meeting was never called – the Department of Environment of Zanzibar feels it did not have the opportunity to put its requirements, resulting in the TOR as proposed by Carl BRO Assoc never having been approved, and the studies never conducted. The EC indicated to the Mission that they pointed out the lack of TOR from the Dept Environment of Zanzibar for the studies, at every site meeting.

In the interview with the EC it was noted that the State Party was insisting on a very comprehensive study, including socio-economic impacts due to the Port construction. Such aspects were deemed by the EC to be outside the scope of what they had agreed to fund. The Mission pointed out to the EC that the original TOR excluded the cultural environment, which cannot be excluded when
dealing with any project in a World Heritage property, even though it was insisted upon by the State Party and agreed to by the EC. During this discussion it transpired that the EC had never once referred to the Nomination Dossier Map which shows the limits of the WH Property, and that the EC was under the impression that the Port was outside the conservation area because it thought that the map of the conservation area, as included in the 1994 Heritage Act, was the one to consider.

At the interview that the Mission had with the Dept of Environment of Zanzibar, the Dept expressed its concern on the possible impact of Option B, based on experience of having observed a similar situation at Pemba Port, and further stated that several studies it had conducted for Stone Town (ie a beach erosion survey and coral reef studies) were available for use as baseline information for the impact assessment of Option B. In the interview with the EC some of the above concerns, notably re the shifting sand as well as the perilous condition of the sea front wall, were confirmed and shared. There was an absolute insistence by the Dept of Environment of Zanzibar that, in the absence of the Baseline Survey and EIA, there was still a need for an Environmental Impact Audit of Option B, inclusive of the bio-physical and cultural environments, with accompanying monitoring for a 5 year period, in order to be able to identify causes for possible negative impact/s as well as responsibility for possible remedial actions. In the interview with the EC, the Mission shared this need with them, and there was positive reaction to this Environmental Impact Auditing and Monitoring approach. In terms of funding, the EC identified two funding sources, ie either the Malindi Port rehabilitation project budget, or the larger Tanzanian Framework Agreement budget, but also stated that such a request had to be received officially from the State Party, through the office of the National Authorising Officer.

In terms of mitigation of negative impacts of Option B, the EC offered (which offer is confirmed in the letter of the Ministry of Finance of Zanzibar – Annexure G) to possibly pay for the installation of elements in front of the new construction to prevent wave topover and spray at the top of the quay.

In the subsequent meeting with the National Authorising Officer (NAO), which is the channel for all Donor funding to Tanzania, the Mission explained the need for complying with the UNESCO WHC request for a Baseline Survey and an EIA, and for finding an alternative solution to this request due to the advanced nature of the project and the impossibility of doing a preparatory EIA at this point in time. The proposal of an Environmental Impact Audit of Option B as an alternative with subsequent Monitoring, was welcomed by the NAO - they conceded exploring the possibilities of funding it and to discuss it with the Head of Office. The Mission stressed that, if the NAO was targeting EC funding, such EC funding could only be forthcoming on the basis of a formal request by the NAO, which in turn would be in response to a formal request from the Department of Antiquities, as based on the recommendations of this Mission Report. From the statements of the NAO it became clear that issues relating to the World Heritage property were not willfully neglected, but rather because the they did not realise the need for consideration of potential risk to the World Heritage property - this was due to the fact that the Port rehabilitation project was executed in 1989-91 before Inscription, and that the current activities were only intended as remedial work, similar to the existing.

Construction of the Port will be complete in November. The situation is currently that Works have been completed to approx 66%, that only a limited component of a Baseline Survey of a pre-construction phase, ie the hydraulic and wind-waves-water level studies (See Annexures J 1-5) have been performed, and that some additional baseline information from the beach erosion study by the Dept of Environment may be usable as well.

The Mission uncovered additional and previously unreported impacts related to the changeover from Option A to Option B:

In Feb 2007, an Addendum to the Malindi Port Contract was signed, requiring the Contractor to conduct a geo-technical survey of the result of using dredged sea sand for fill material, as a precondition to starting such work – the survey concluded that the dredged materials would not be of an acceptable standard and additionally that its removal from the sandbank could result in lowering the sea bottom, in this way undercutting the 20m max sea bottom depth required for the new quay wall. This situation resulted in a borrow pit having to be established on the mainland to provide suitable fill material – the impacts of this quarry has not been established. This imported fill is currently being dumped in the green belt of the Core Zone of Stone Town, next to containers from the Port that are also stored there – while this is a temporary solution, it undermines the role of the green belt as a open separator between Stone Town and the two housing precincts to its west.
Heritage resources in the Port area have been demolished without approval and without a demolition permit having been issued and contrary to the 1994 Stone Town Heritage Act – the shift from Option A to B resulted in the need for horizontal anchoring of the new harbour wall, which caused the need for dismantling and destruction of an historic 1927 steel warehouse, protected under the 1994 Stone Town Heritage Act. Another similar warehouse has been demolished for container space without approval and a demolition permit. No impact assessment was performed, and these buildings have not been recorded and documented. Of course the whole 1989-91 suspended concrete deck and piles are lost due to Option B, with no memory of their existence.

A large yellow steel structure, called a Bumper, intended to be an emergency stop-barrier for any ships overrunning their berth along the quay, has been erected - while these are shown on the drawings of the Tender document and subsequently approved by the STCDA under the circumstances mentioned before, this structure has not been individually discussed with the STCDA for approval and for undergoing any impact assessment – the Mission would like to bring it to the attention of the Centre that this structure has not been designed to have any relation to the context, and makes a huge negative visual impact in the cultural environment in terms of form and colour, both from the seaward approach to the Port as well as from the sea edge view towards the Quay and horizon.

The new connecting bridge between the jetty and quay has been erected without specific discussion with the STCDA re a possible need for undergoing any visual and cultural impact assessment - like the emergency bumper or stop-barrier, this structure has not been designed to have any relation to the context, and makes a negative visual impact in the cultural environment in terms of form and colour, both from the seaward approach to the Port as well as on disembarking and approaching the historical buildings on the quay.

As stated in the Tender Documents (See extract and drawings in Annexure E), Option B, having a sheer concrete wall on the quay edge, could alter the sandbank profile at Malimbi and additionally cause an increase of transfer of diagonal wave forces on the sea wall of the waterfront, which is already in a bad condition, and could result in failure of the wall, with accompanying impact on the sea front historical buildings and the waterfront road. In the interview with the EC in Dar es Salam, it was mentioned that the maintenance of this sea front wall was crucial and that there is concern of the fact that structural damage was never adequately stabilised.

The Mission regrets that it appears sufficiently that the Malindi Port rehabilitation project was not conceived as part of a WH property, nor executed in accordance with the requirements of the WH Operational Guidelines, and not taking into account the risk to affect the Outstanding Universal Value of the Property. The Mission has through the various interviews come to realise that this was probably due to a series of fundamental but unintended procedural errors at the start of the project, partly because the Port Authority and the National Authorising Officer was under the impression from the start that they were busy with remedial work on an existing project that had failed at its completion in 1991, before Inscription on the WH List, and therefore at the time not perceived as a new project requiring assessment.

The Mission regrets that in changing to Option B the project was implemented without the compilation of a comprehensive and suitable Baseline Survey and EIA.

The Mission notes that the lack of a comprehensive pre-construction Baseline Survey renders it impossible to fully ascertain how Option B performs relative to Option A (which was similar to the historic 1927 quay design) – however, the limited pre-construction Baseline Survey performed by the EC, added to the beach erosion survey of the Dept of Environment, can assist in providing some clarity on this vexing issue, albeit in a lesser format than would normally be required for a project of this nature and scope.

The Mission proposes that, by taking immediate action on preparing suitable Terms of Reference and procuring suitable consultants through a tender process, it will be possible to adequately ascertain any negative impacts caused by the completed Option B through conducting an Environmental Impact Audit on both the cultural and bio-physical resources, in order that already experienced impacts be identified, recorded, assessed and mitigated where still possible, and that any currently unforeseen negative impacts can be identified through a monitoring process, in order that they be avoided or suitably and timeously mitigated.
4 ASSESSMENT OF THE STATE OF CONSERVATION OF THE SITE

The Terms of Reference for the Mission also required that the current State of Conservation of the property was assessed. Due to the pressing issue of the Malindi Port Rehabilitation project, less time was spent on this component as would normally be the case if it was the only objective.

The following assessment is mainly based on the Mission’s in loco inspection and discussion with stakeholders, but during the investigation the Mission came to the understanding that two important documents had since been prepared and lodged with UNESCO WHC. These documents are the Report in Preparation for the Periodic Review (Pound & McDermott, Feb 2006) commissioned by the STCDA, and the subsequent State of Conservation Report, done by the STCDA as per request from UNESCO WHC in its decision 31Com 7B.49.

While these documents were not yet in the possession of the WHC at the time of the Mission, they were received by the Mission Team at the conclusion of the visit in Zanzibar. The Mission worked from the assumption that these are now ‘official’ documents, and therefore this Report includes and amplifies relevant aspects that are mentioned in the above documents.

The in loco inspection showed that there have been many positive accomplishments in conserving the heritage fabric of Stone Town since Incription, either as reactions to or as follow ups from various earlier reports, eg the Aga Khan Trust for Heritage sponsored Plan for Stone Town (Siravo 1996), the ICOMOS Evaluation Mission Report (Munjeri, Jan 2000), as well as the Report in Preparation for the Periodic Review (Pound & McDermott, Feb 2006). A number of buildings and places have since received attention in terms of either stabilisation or more comprehensive conservation of various types – these include the House of Wonders, Farodhani Park, the building occupied by the Stone Heritage Society and others.

In terms of management, the current size of the STCDA staff component, their level of expertise as well as dedication, was seen as positive for the future of the Property. In the matter of the problematic Malindi Port rehabilitation project the STCDA was also seen to have acted decisively and for the good of the Property, and they have shown leadership in preparing a Management Plan, in initiating the Review of the 1994 Heritage Act and in pushing for its early passing in 2008, in order to gain greater autonomy and greater effectiveness in conserving the Universal Value.

From the in loco inspection, as well as from reports by the Institutions with whom interviews were conducted, the Mission has to report that, despite the progress stated above, the Stone Town of Zanzibar is confronted by severe development and tourism pressure, a lack of resources, the loss of its historical buildings due to collapse, degradation and development, a lack of short term management strategies in the absence of an approved and operational Management Plan, as well as a current lack of integrated and clear management for the whole of Stone Town.

4.1 Development pressure

The inspection as well as evidence presented by the various Institutions interviewed stressed the scope and intensity of development and tourism pressure in Stone Town - the development and tourism pressure is observed in different ways:

• Stone Town is becoming the preferred place were all the administration and education activities would want to be located - this causes an urban pattern where the centre dominates, with an increase in density and traffic flow to the centre, with all its concurrent urban problems.

• The Mission witnessed the high incidence of vehicular traffic within the old town. Apart from the noise and pollution, there is a concurrent increase in congestion and occupation of public spaces previously used by pedestrians and for recreation, streets are choked and congested and have become unsafe for local and tourist pedestrians, the vehicles diminish the variety of uses of open spaces for all inhabitants, cause a negative visual impact to the historic urban landscape and loss of sense of place, so diminishing the experiential quality of the old town in general. Overall, the increase in vehicular traffic causes a negative impact on the Outstanding Universal Value.

• There is a progressive detrimental change in the Stone Town architecture due to an increasing number of owners and/or developers who want to introduce new styles to fit their commercial
and living expectations. New buildings authorized in the Stone Town are less and less designed in reference to or in a dialectic relationship with the traditional styles (Omani, Indian, Swahili, etc.) or fusions thereof. In addition, the STCDA does not yet have all the necessary tools to help owners in satisfactorily designing the buildings or additions/alterations that would have fit with the existing setting.

- The increase in development pressure is seen through an increase in urban density – any such increase in urban density requires good basic infrastructure and services and regular upkeep/upgrade. The Mission observed a difficulty in keeping Stone Town clean due to the combination of high occupation density and the lack of an efficient waste management strategy. Together with this, there is also a lack of forward planning and appropriate design of electrical and telecom reticulation, with a profusion of electrical and telecom wires hanging all over the streets and crudely fixed to buildings. The exposed overhead electrical and telecom reticulations have a high negative visual impact and result in damaging the fabric where attached.

- Many of the occupants of Stone Town are subject to less than favourable living conditions and have no resources to invest in the buildings. The majority of occupants live in houses owned by the Government. These building are in need of urgent conservation. The resources to execute this conservation are lacking.

- The high incidence of tenant occupants with little means to do repairs, as well as lack of resources for maintenance of buildings owned by the Government, has resulted in many leaking roofs, many roof eaves without gutters and many broken rainwater down pipes, with the result that rainwater does not always discharge to the existing storm water system at grade level but from higher up, in this way causing severe damage to the surface of walls on ground level and the loss of historical doors due to timber rot caused by splashing and by rising damp in walls with no damp barrier.

- There is an increase in tourism to Stone Town. Tourism results in the change of land use patterns, the appearance of a quantity of curio shops and hotels, displacement of inhabitants and provoking the closing of other small shops that sell food and other items to local inhabitants and users of Stone Town.

- Despite the high incidence of tourism and tourism related development, there is currently no integrated mechanism for balancing the profits from the tourism economy with the needs related to the management of the cultural heritage, nor to levy funds from this industry for conserving the cultural resource that sustains it.

- The role of the Buffer Zone is not clearly understood by all stakeholders, and its management is not adequate. The Mission observed that there are uncontrolled developments being conducted within the Buffer zone east of the Core Zone. This situation seems to be the consequence of the fact that there is insufficient awareness of the role of the Buffer Zone at the Local Authority, and that they provide building permits without approval of the STCDA. This situation has already resulted in various multi-level buildings being constructed in an area with a supposed 3-storey height limit, and in close proximity to the border of the Core Zone (This is corroborated by the Pound & McDermott Report (2006: 20) and was also seen by the Mission). Inappropriate architecture in the Buffer Zone is increasingly common. It is clear that the role, management and control of the Buffer Zone needs thorough review with all stakeholders, and that the Local Authority need to promulgate new bye-laws that coincide with the guidelines of the STCDA. In terms of the advice by Pound & McDermott (2006) to the STCDA, ie to increase the Buffer Zone to include all anchorage and beaches, as well as to provide better protection for the Funguni littoral strip on the north of Malindi, the Mission did not have the opportunity to inspect and comment on this recommendation in detail – however, the conservation of the character and public nature of the historic anchorage and beach fronts on the west and south of Stone Town, as well as protection of these from deterioration and from encroachment by new and especially high-rise building, should definitely be included in protection guidelines of the Management Plan.

- The need for cellular telephone and internet communication has caused a proliferation of high telecom masts. These masts are standard/stock items with no mitigation applied, and are all located in places where they cause a high visual impact on the sense of place and visual qualities of the old town.
4.2 Loss and degradation of historical buildings and elements

- Buildings: Stone Town stands to lose its resource and authenticity due to a (but according to the STCDA, a decreasing) loss of historic buildings, either through collapse or through wilful neglect and subsequent inappropriate new-build development. Apart from the loss of historic buildings, the old town is confronted with the steady degradation of a significant number of buildings through deterioration of the structural condition in some of the buildings, through a lack of maintenance and repair, as well as through a range of other problems, like lack of knowledge of authenticity and integrity by landowners. The problems caused by uncontrolled rain water runoff from roofs have already been highlighted above. The Mission found out that approximately 30% of the buildings are leaking from the top (a dire situation for coral stone structures) and are in need of urgent repairs. Among these buildings is the Old Fort, where stabilisation is needed, and where better control on curbing plant growth (e.g., roots of large mango trees growing in the structural elements will cause collapse of walls) is required. There appears to be too little monitoring and mapping of changes in condition of fabric and structure.

- The city’s sea edge: The sea edge of the city is very vulnerable due to the winds, wave motion and general harsh sea environment. The sea wall in particular is severely degraded due to the force of waves and sea erosion. There has already been subsidence of the main road along the old western sea edge of Stone Town.

- Loss due to Port rehabilitation: As mentioned in Item 3, the Port project resulted in the permanent loss of two historic steel warehouses on the southern quay.

4.3 Management

- There does not yet seem to be an integrated approach towards the efficient and strategic management of the Property, but this is envisaged for the future.
- There is currently no coordination between all the different actors and stakeholders concerned with the Property.
- There is no Platform which could allow for the formation of a shared conservation vision and a prioritisation of the urgent activities that the Property is in need of.

4.4 Interpretation and presentation of the criteria of Outstanding Universal Value

The Mission came to the opinion that the criteria for which the Property was inscribed are not all sufficiently researched, interpreted and presented on site.

- The Mission identified the House of the Slave trader Tippu-Tipp, the Cathedral and house of David Livingstone as representative of the aspect of slavery and subsequent anti-slavery activities in Stone Town, but there is too little done to further deepen this theme by way of research, exhibits, routes, documentation of oral history and the like, as well as a lack of awareness of the potential of integration of this aspect with international cultural tourism activity.
- The Mission also came to the opinion that the historical sea-borne trade aspect was not sufficiently realised in the interpretation and presentation of the Property, and that the Port and sea edge of the old town was underutilised and under-presented in terms of this theme.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Construction of Port Option B at Malindi Port, Stone Town

- Even though work on Option B has commenced and is to be completed in November, it is urgent that a Environmental Impact Audit of this Option be completed, and since the EC has committed to payment of the originally required EIA, this Audit must be performed with extreme haste at the time of completion of the harbour wall of Option B. While the Mission understands that the approval of the TOR for such Audit lies with the Department of Environment of Zanzibar, the drafting of the TOR should definitely consider the contributions of the STCDA in Zanzibar and the national authority responsible for World Heritage, being the Department of Antiquities.
- The Impact Audit must conform to the requirements of the WHC Operational Guidelines.
- Apart from identifying impacts on the bio-physical environment, the Audit must thoroughly address impacts on cultural resources in the World Heritage property, which also includes visual impact. The Audit must include a baseline study of the state of environment at completion of
Option B, taking into account the completed hydraulic Baseline studies commissioned by the EC during the feasibility-study phase of the project (See Annexures J 1-5) as well as the Beach Erosion Study of the Dept of Environment Zanzibar. As agreed to by the EC for the EIA on Option B (See reference to this in letter of the Ministry of Finance in Annexure G), a 3-5 year monitoring of potential impacts of Option B must similarly be attached to the Environmental Impact Auditing activity – the TOR of the monitoring process must be to the satisfaction of the relevant national authorities. Monitoring should start at completion of the last section of the vertical wall of the quay.

- UNESCO WHC and ICOMOS should be involved in a review of the Impact Audit document and its findings.
- The Department of Antiquities, as the relevant focal point for management of World Heritage in Tanzania, must request the National Authorising Officer of the Department of Finance and Economic Affairs in Tanzania to formally request the EC for this Impact Audit and Monitoring project.
- The location and remains of the 1927 warehouses that have been and are being demolished should be documented (through drawings) by a heritage specialist if these do not exist in the Archives, and the drawings subsequently lodged with the STCDA.
- UNESCO WHC must write a letter to the EC Delegation in Tanzania on the importance of the fulfilment of their commitment to perform the Audit and Monitoring actions as stipulated.

5.2 State of Conservation of Stone Town

The Mission wants to give credit for conservation work achieved and positive progress made in terms of the State of Conservation of the Property.

At the time of Inscription the rapidly deteriorating State of Conservation was a definite issue – in a sense the decision by the WHC for Inscription of the World Heritage List has definitely proved correct the conclusion of the ICOMOS Evaluation Mission Report (Munjeri, 2000: 25), which stated that Inscription would provide a positive force towards and critical mass for conservation the fragile heritage of Stone Town.

In 2006, the Report in Preparation for the Periodic Review (Pound & McDermott, Feb 2006) stated that if there was no improvement in the rate of loss of historic buildings over the next 3 years, the Property would be ready to be placed on the list of Heritage in Danger. While the Mission did not have the means or time to verify the relative status exactly, the rate of loss seems to have been diminished to an extent that such drastic action does not seem appropriate any more, even though urgent attention to this problem must remain high on the list of management priorities. Despite remaining conservation problems, the Mission could discern a general positive attitude towards conservation, and several achievements and milestones have been reached.

The following recommendations are provided and should be taken into account in future heritage management:

5.2.1 Development pressure

- There is a need for an Integrated Development Plan (IDP) for Stone Town, inclusive of the Buffer Zone. This IDP of necessity will have to be responsive to the socio-economic capabilities of the city.
- At the level of the Local Authority of Zanzibar there must be a clear development plan in terms of land use, density, location of Institutional etc facilities re centralisation vs decentralisation etc, transport, services, taxes, incentives, tourism and Local Economic Development strategy.
- Ensure integration of all management between Union Government, Zanzibar Government, Local Authority and the STCDA.
- Ensure that Local Authority’s bye-laws and the STCDA guidelines are synchronised and controlled in an integrated manner.
- Identify and address inappropriate and high-rise development in the Buffer Zone – look at strengthening the buffer zone at the northern side and other sea fronts (Pound & McDermott
Strategies are needed to perform short term management and conservation priorities until Management Plan is approved and operational.

- Prevent issuing of Building Permits for inappropriate works in projects involving urban infill, reuse, additions, renovation and reconstruction. Tools should also be developed for use by both the local authorities and STCDA so as to prevent the currently observed inappropriate and sometimes destructive architectural mutation of historical types that could affect the integrity and OUV of Stone Town. Cognisance must be taken of recent developments in the guidance of historical urban landscapes (Vienna Memorandum etc).
- Urban infrastructure: A joint Municipal-STCDA strategy on urban infrastructure must be drafted, in order to reverse current visual impact and to mitigate them in the future, to integrate future infrastructure projects and to maximise benefits on infrastructure investment (successful precedents from similar socio-economic contexts may be used to inform such strategy).
- Telecom masts: There must be controls on the location and mitigation of impacts by telecom masts.
- Damage from rain water: There must be controls on dealing with rain water, from the roof to the ground surface storm water reticulation, to minimise or remove damage to walls and doors.
- Waste management: A joint Municipal-STCDA strategy on waste management must be drafted in order to improve the current situation. This includes the location, design and size of household garbage bins as well as frequency of removal. This improvement could be achieved through local economic development approach that involves the local community and creates employment.
- Traffic congestion and vehicular access: The new Traffic Plan for Stone Town that is currently being drafted should be adopted as a matter of urgency in order to provide public transport, to relieve the traffic congestion and improve the pedestrian safety and experiential and spatial quality. This Traffic Plan can be further enhanced to suit the demands of conserving the historic urban landscape as they emerge in future. From the STCDA State of Conservation Report (2008: 10) it appears as if the Local Authority needs expertise in terms of urban traffic planning in general, and for historic urban landscapes specifically.

5.2.2 Loss and degradation of historical buildings and elements

- Conduct a detailed survey of the level of degradation of heritage buildings (listed and unlisted) in order to update the existing survey and to determine and prioritise the required intervention.
- There must be monitoring of and annual reporting on all conservation actions on heritage buildings.
- There must be monitoring of and annual reporting on the state of collapse of coral stone buildings. Formulate a programme of priority measures to address preventing and predicting collapses of buildings and securing resources.
- There must be monitoring of and annual reporting on all development-related interventions in, or loss of heritage buildings.
- From an updated list of property owners, engage with owners re stabilisation, preventative measures and appropriate conservation actions.
- Update the survey that shows the location of the various architectural typologies in order to understand and control change more effectively and appropriately.
- Establish a strategy to urgently and effectively deal with the large amount of leaking roofs in the Property.
- Establish a strategy to urgently and effectively deal with rainwater runoff and problems of dampness in walls as well as rotting of carved door frames and doors.
- Perform basic maintenance at the Fort, eradicate trees growing in and on the structures and stop urban agriculture in the interior spaces. Develop a strategy for appropriate use of the property in consultation with Stakeholders.
- The sea wall at the west side of the city has to be urgently stabilised and the correct manner of repair determined and effected. This action must be given high priority given the still unknown hydraulic impacts of the new port extension in Option B.
- There is only one Government based restoration brigade attached to the STCDA - set up a roster of currently known private contractors specialising in the restoration of Stone Town buildings and also facilitate the further training and deployment of such.
• Prepare a manual with design guidelines for property owners and prospective developers in Stone Town, with a clear approach and links to conservation Charters like those developed by UNESCO and ICOMOS.

5.2.3 Management

• The lack of a integrated management in the World Heritage property and a clear management strategy for the Buffer Zone is contributing to the lack of cohesion between and integration of stakeholders in addressing and finding shared solutions for urgent problems.

• The Mission proposes that a Platform for Integrated Management, in which all stakeholders can work towards the same vision for sustainable management and conservation of the World Heritage property. The Platform is the vehicle for discussion and to share responsibilities on the basis of an agreed vision and objectives.

• This Platform can be established in the form of the proposed Stone Town WH Board. The composition and structure of this Board should be the result of a participatory process and should include the key stakeholders, inclusive of representatives of the local community. It is this Platform which should be the driver of defining and elaborating the management strategy and detail as well as its implementation.

• The further elaboration of the proposed Heritage Management Plan is a priority, and should be conducted on the basis of a series of stakeholder meetings aiming at defining the vision, policy, guidelines and control mechanisms, analysing the strengths, weaknesses, threats and opportunities of the Property, defining the key issues to address and their level of priority, defining short medium and long terms activities to be implemented, as well as defining responsibility for implementation. In the period till completion of the Heritage Management Plan clear strategies must be formulated to deal with key issues.

• It is recommended that a neutral facilitator is engaged to help streamline and effect this activity to submit a Draft Management Plan to UNESCO WHC and ICOMOS and to finally achieve a document to will be validated by the Government of Zanzibar.

• The review of the current 1994 Heritage Act must be concluded as a matter of urgency and result in a new and updated Heritage Act.

• The official contact re the management of the property is between UNESCO WHC and the State Party in Dar es Salam, specifically the Department of Antiquities, but the organisation/government body responsible for day to day management of the property is the STCDA, which falls under the Zanzibar Revolutionary Government. While there appears to be a good working relationship between the two heritage bodies, and corroborated by the DG of the Department of Antiquities, the Mission supports the recommendation of the Pound & McDermott Report (2005 : 7) which argues that it may be beneficial if UNESCO WHC could initiate a relationship between it and the STCDA – in the immediate future this could particularly be focussed on clear communication re the needs of the STCDA in terms of facilitation and support for the Draft, finalisation and roll out of the Management Plan, with associated needs for expertise, capacity building, community participation and assistance with the procurement of resources.

• Funding for conservation: As stated in the Pound & McDermott report (2005) as well as the STCDA State of Conservation Report (2008: 9), the availability of resources, training and qualified personnel is fundamental to the Zanzibar Revolutionary Government and the Union Government of Tanzania being able to meet obligations to protect the site from further erosion, to conserve heritage fabric, manage the site effectively and to realise the benefits of the asset for the economy of Zanzibar and its people.

  iii) Human resource: The STCDA clearly needs funding to train human resources, to be beneficiaries of skills transfer and empowerment programmes and additionally to have experience of and be assisted by managers from successful and similar World Heritage sites. Additionally there is a great need for skills training in structure-failure analysis and preventative intervention.

  iv) Historic buildings and places: The funding for conservation of the buildings and places in Stone Town is totally inadequate to achieve the aforementioned obligation. There is at present no vehicle for procuring any funding for conservation from private landowners or tourism in Stone Town, placing the burden squarely on the shoulders of Government. The Mission alerts the WHC that there is a need for a specialist in Heritage Economics to study the situation and propose suitable ways in which the existing funding for
conservation and development, directed or controlled by various levels of Government, can be augmented through various mechanisms, or by financial support levied on speculative developers, linked to the privilege and obligations of owning and developing land in a World Heritage property.

- In order to alleviate the quality of life of many Stone Town families who seem to live in less than favourable circumstances, there is a need for getting wide support for an approach to conservation that has as aim to be part of a development type that is geared towards improving quality of life and able to divert benefits flowing from WH status to local inhabitants within a focussed LED related strategy.

5.2.4 Interpretation and presentation of the criteria of Outstanding Universal Value

- There must be a management strategy to increase the level of interpretation and presentation of the heritage relating to criterion iii) relating to the importance of the historic sea trade in the formation and evolution of Stone Town and criterion vi), relating to the role of Zanzibar and its inhabitants in slavery and also its suppression - this must be sustained in the future Management Plan and be introduced as topics for debate and discussion at the consultative forum. In terms of the sea trade aspect there must be greater concentration on the role and character of the sea front and Port in the presentation of the Property. In terms of slavery and the suppression of slavery, the initiation of focussed research, creation dedicated tourist routes and forging of stronger links with the UNESCO Slave Route project, could all be beneficial to act as catalysts in this regard.

- In terms of criterion ii), as regards the fusion and harmony of cultures, there can be a greater transferral of existing knowledge regarding the individual architectural heritages and the variety of results of their fusion, to facilitate on the one hand, and enable the authorities to insist on the transference and/or interpretation of the essential spatial composition and inherent architectural devices of historic architectural typologies that are co-existing in Swahili culture and as it is found in Stone Town on the other hand, in new developments involving buildings and places.

- In the Report in Preparation for the Periodic Review (Pound & McDermott 2006) there is a motivation for a review of the criteria on the basis of which the Property was inscribed on the World Heritage List – this Report was responded to by the STCDA in their State of Conservation Report of 2008. The Mission did not pursue this matter in detail, but is of the opinion that there can be an addition to the Inscription criteria, as suggested by the STCDA – such an addition would have to be tested by and agreed upon through a public participation process, before submission to the WHC.

5.2.5 State of Conservation – a conclusion:

Progress has been made by the State Party and the STCDA in addressing conservation issues in Stone Town, in reacting to the findings of their own SOC report and in finalising the formulation of a relevant Management Plan. There must of course always be a realisation of what is achievable in a context with difficult circumstances for conservation, eg the aggressive climate and frailty of building materials, as well as a low level of resourcing for conservation. In this sense the Mission concurs with that of the STCDA’s SOC Report (2008) that the property is in a ‘fair’ state – as such it does not warrant that it be placed on the list of Heritage in Danger at present, if the recommendations are addressed and due vigilance is kept.

However, it is definitely clear that an awareness on what WH status implies and requires, is not sufficiently internalised by all the stakeholders of the WH Property, and that it appears that a series of actions need to be initiated to fill this gap and to ensure that Stakeholders who have up to the present been intervening in isolation can be brought together to harmonise and optimise interventions.

The Mission makes the following recommendation:

- An awareness-raising meeting is needed in the short term to facilitate, create the conditions for, and start the process of establishing a platform for Stakeholders to share common visions and objectives towards the sustainable conservation of Stone Town WH site, within the framework of an appropriate management and conservation strategy (inclusive of an Integrated Development Plan and Heritage Management Plan). This meeting could also include representatives of other World Heritage properties having successfully dealt with similar problems.
6 REPORT CONCLUSION

This Report is sent to UNESCO WHC in compliance with and in order to implement the decision of the World Heritage Committee’s 31st Session at Christchurch, New Zealand, 23 June – 2 July 2007.

These Mission findings are based on a site visit and exploration of the pertinent issues relating to the Port Project and the State of Conservation of Stone Town, and additionally relies on many supportive and relevant documents that the team has managed to identify and source during and after the Mission (Provided in the Annexures). The subsequent recommendations are grounded in that context – the Report hopefully provides guidance in the future consideration of these issues by the WHC at its next meeting.

The Mission would like to state that the WH Committee’s concern regarding the deviation from due process, in terms of the continued non-performance of an assessment of any environmental impacts deriving from the Port Project in either format, was well founded and the WH Committee was right in requesting the Mission. It is hoped that the Mission provides a suitable solution.

Also that the Mission assisted in raising awareness of WH issues amongst stakeholders in the WH Property and brought clarity to the STCDA of what periodic review of a heritage property entails.

The Mission requests that this Report be discussed with all stakeholders, including local stakeholders in the WH Property of Stone Town, Zanzibar.
ANNEXURES

ANNEXURE A
Terms of reference for the Reactive Mission to Stone Town of Zanzibar, United Republic of Tanzania (C 173 Rev)

ANNEXURE B
Mission itinerary and programme

ANNEXURE C
Composition of the Mission team

ANNEXURE D
Maps of the Core Zone and Buffer Zone

ANNEXURE E
Extract from Malindi Port Project Tender Document and Figures of Options A and B.

ANNEXURE F
Email JK Rønberg of Karl Bro to UNESCO WHC, dated 04 Jan 2007

ANNEXURE G
Letter Ministry Finance and Economic Affairs Zanzibar to Chief Authorising Officer, United Republic of Tanzania, dated 06 Nov 2006.

ANNEXURE H
Terms of Reference – Baseline Study and EIA for rehabilitation of Malindi Wharves Option B: Carl Bro Project 80.3783.81

ANNEXURE I
Email UNESCO WHC Africa Section to UNESCO Dar es Salam, 15 Jan 2007.

ANNEXURE J

ANNEXURE K
UNESCO WHC State of Conservation Report, Christchurch 31COM

ANNEXURE L
Photographs taken during the Mission.

ANNEXURE M
ANNEXURE A
Terms of reference for the Reactive Mission to Stone Town of Zanzibar, United Republic of Tanzania (C 173 Rev)

The Reactive Mission to Stone Town of Zanzibar, United Republic of Tanzania (C 173 Rev), is a joint UNESCO World Heritage Centre / ICOMOS Mission, undertaken from the 5th to the 10th May 2008 on the invitation from the State Party, as requested by the World Heritage Centre, in order to implement the decision of the World Heritage Committee’s 31st Session at Christchurch, New Zealand 23 June – 2 July 2007, to assess all relevant dimensions pertaining to the state of conservation of the property and factors affecting its Outstanding Universal Value, as well as the progress made in implementing an independent environmental and cultural impact assessment study of the proposed European Commission-funded project to rehabilitate the Malindi Stone Town Port part of the Zanzibar Island, so as to provide to the World Heritage Centre with a progress report on the implementation for the above recommendations within two weeks on completion of the Mission for deliberation by the World Heritage Committee at its next sitting.

The Mission includes:

- Inspection of the World Heritage site, its buffer zone and the proposed port rehabilitation project site and its visual catchment area
- the conducting of meetings with relevant representatives of the State Party and other relevant stakeholders
- perusal of all pertinent developmental, city planning and city management documents
- perusal of relevant documents pertaining to the management of the bio-physical environment
- perusal of relevant documents pertaining to the detail investigations for the proposed port rehabilitation project, the design proposal and the subsequent environmental and cultural impact assessment
- perusal of pertinent legislation and bye-laws
- perusal of the updated management plan of the World Heritage site, heritage conservation monitoring reports, environmental conservation monitoring reports and information re any danger, threat or loss of outstanding universal value, authenticity or integrity of the World Heritage site, evaluation of the state of conservation processes
- recording of issues pertaining to the overall management of the World Heritage site
- reporting on findings, and
- providing a set of recommendations.
ANNEXURE B  Mission itinerary and programme

The following programme was received by the STCDA, Ministry of Culture, Revolutionary Republic of Zanzibar, for the in situ component of the Mission – the order of the visits changed during the Mission but all items were executed except the visit to the Department of Housing.

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<tr>
<td>Date</td>
<td>Time</td>
<td>Activity</td>
<td>Responsible</td>
</tr>
<tr>
<td>3rd and 4th May 2008 Saturday &amp; Sunday</td>
<td>Arrivial of the delegates at Zanzibar airport  Check in hotel</td>
<td>STCDA; Shangani Hotel</td>
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<tr>
<td>5th May 2008 Monday</td>
<td>09.00 – 11.00</td>
<td>Discussion at STCDA office</td>
<td>Director General &amp; Staffs</td>
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<td></td>
<td>11.00 – 11.30</td>
<td>Tea Break</td>
<td>STCDA Office</td>
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<td></td>
<td>11.30 – 12.30</td>
<td>Re-claim Women’s Space</td>
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<td></td>
<td>12.30 – 14.00</td>
<td>Lunch Break and relax</td>
<td></td>
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<td></td>
<td>14.00 – 17.00</td>
<td>Stone Town tour of historical and conservation sites</td>
<td>STCDA - DG</td>
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<tr>
<td>6th May 2008 Tuesday</td>
<td>09.00 – 10.30</td>
<td>Meeting Principal Secretary &amp; Director General of Port</td>
<td>Port office</td>
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<td></td>
<td>11.00 – 11.30</td>
<td>Courtesy call to his Lordship Mayor of Zanzibar and meeting with Director of ZMC</td>
<td>ZMC</td>
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<td></td>
<td>11.30 – 12.30</td>
<td>Discussion with Commission for Tourism</td>
<td>Tourism office</td>
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<td>13.00 – 14.00</td>
<td>Lunch Break and relax</td>
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<td></td>
<td>14.30 – 15.30</td>
<td>Visit Zanzibar Stone Town Heritage Society</td>
<td>Mr. Mughery</td>
</tr>
<tr>
<td>7th May 2008 Wednesday</td>
<td>09.00 – 10.00</td>
<td>Executive Director of ZIPA</td>
<td>ZIPA office</td>
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<td></td>
<td>10.00 – 11.00</td>
<td>Director of DAMA</td>
<td>Archive office</td>
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<td>11.00 – 12.00</td>
<td>Department of Environment</td>
<td>Environment office</td>
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<td>12.00 – 13.00</td>
<td>Department of Housing</td>
<td>DH office</td>
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<td>13.00 – 13.30</td>
<td>Marine science</td>
<td>Marine science University</td>
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<td></td>
<td>13.30 – 14.00</td>
<td>Lunch break</td>
<td>ZATI office</td>
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<td></td>
<td>14.00 – 15.00</td>
<td>ZATI</td>
<td>STCDA</td>
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<td></td>
<td>20.00 – 22.00</td>
<td>Refreshment</td>
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The following Programme was planned by the Department of Antiquities, Ministry of xxxx of the United republic of Tanzania, for activities to be undertaken in Dar es Salaam.

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<td>Date</td>
<td>Time</td>
<td>Activity</td>
<td>Responsible</td>
</tr>
<tr>
<td>8th May 2008 Thursday</td>
<td>Wrap up at STCDA Office  Depart Airport  Check in at Hotel  UNESCO Programme specialist for Culture</td>
<td>STCDA; Zanzinbar Peninsula Beach Hotel Tim Curtis</td>
<td></td>
</tr>
<tr>
<td>9th May 2008 Friday</td>
<td>Debrief session and work  National Authorising Officer, Ministry of Finance  Lunch break  Director, Dept Culture  Final debrief session, Director Antiquities</td>
<td>Tim Curtis</td>
<td></td>
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<tr>
<td>10th May 2008 Saturday</td>
<td>Mission Team Report – draft  K Bakker departs Jhb  L Eloundou departs Paris</td>
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ANNEXURE C  Composition of mission team

The mission was performed by:

i) Mr Lazare Assomo Eloundou
Programme specialist in the Africa Section, Unesco World Heritage Centre of UNESCO, and

ii) Prof Karel Anthonie Bakker
Academic and practicing heritage expert appointed by and acting on behalf of ICOMOS.
Figure 1: Map of the conservation area as in the Nomination Dossier (1999: Map B) – [Note that Core Zone consists of Conservation Area and green belt, and that Buffer Zone is made up of Neighbourhoods 1 & 2].
**Figure 2a (Top):** Plan of the Conservation area with Buffer Zones indicated (Pound & McDermott, 2005: Map 6) – [Stone Town is coloured dark red, but green belt is part of Core Zone]

**Figure 2b (Bottom):** Plan of the Core Zone of the Conservation area (Pound & McDermott, 2005: Map 5) – [Buffer Zone boundary black dotted line added by Mission for clarity]
ANNEXURE E
Extracts from the Tender Dossier for the Reconstruction of Wharves at Malindi Port of Zanzibar, by Inros Lackner AG. National Authorising Officer, United Republic of Tanzania (Contracting Authority) and Zanzibar Ports Corporation (Supervisor.)

MALINDI PORT OF ZANZIBAR

Reconstruction of Malindi Wharves Performance Specifications
Volume 3 - Section 200 Page 39

200 DESCRIPTIONS OF Required WORKS

201 General
The purpose of the project is to design, supply, execute and to hand-over at the end of the maintenance period without any defect appropriate, sustainable and reliable berths and quay facilities at Malindi Port, Zanzibar.

Contractor's own supervision and quality control of the works under this Design-Build Contract has to be of the highest standard.

The supervisor's representative will monitor and control contractor's conformance to design standards, material quality control and workmanship through strict supervision.

202 Preferred options

(1) General preconditions
Due to the state of deterioration at least along West Wharf, the repair of all structure elements of the present wharf structures would call for immense efforts and costs in construction as well as supervision, combined with the residual risk that these complex in-situ measures would not secure the projected service life of the structure. Therefore, any repair option comprising all structural elements of the present wharves superstructure has been rejected.

Any replacement option for the present wharf structures has to be build within the present footprint of West and North Wharves, whereby a shift of cope line towards sea of up to 5 m would be acceptable. In addition present Section 1 may be aligned straight with Sections 2-6 a, id consequently 'with the closure wall perpendicular to the shore line.

(2) Technical Option A - New RCC-superstructure on existing but improved foundation piles
Option A is defined by corrosion protection of the existing steel lined reinforced concrete piles and a complete replacement of the reinforced concrete superstructure comprising of pile heads, beams and deck slabs.

It is the advantage of Option A that the hydraulic and environmental properties of the pier structure will not OR changed and that earlier investments made for wharf construction in 1989 to 1991 can be utilised.

The contractor will be required to verify the condition of the existing foundation piles and to take over the responsibility for the integrity, stability and durability of the completed structure as a whole.

(3) Technical Option B - Steel sheet-pile wall with heavy duty apron pavement
With due regard to the requirement to remain more or less within the present footprint of East and North Wharves, Option B may be represented by an anchored steel sheet-pile structure, backfilled with compacted sandy material and completed by a heavy-duty apron pavement.

Among others, the bidder/contractor has to give specific consideration to the following aspects when opting to propose/implement such type of replacement structure:

   i) the hydraulic conditions in the area may change due to a closed structure type,
   ii) wave situation in front of the vertical faced structures may affect safe ferry operations for a certain number of days per year, as well as the stability of the northern breakwater,
   iii) extensive subsoil improvement measures or special foundation design may be needed to prevent excessive pavement settlement,
   iv) considerable cement grouting and/or extension of sheet-pile bearing piles may be needed if major cavities or weaknesses in the dead coral are detected during the construction works.
Figure 1: Drawing 1235-01 Rev.0 showing existing general layout of the proposed reconstruction of Malindi Wharves.

Figure 2: Drawing 1235-02 Rev.0 showing Project layout and site installation area for the proposed reconstruction of Malindi Wharves, Zanzibar.
Figure 3: Drawing showing southern portion of the pile layout of the existing (1989-91 Cogefar) wharf structures.

Figure 4: Drawing showing cross section A-A through the existing (1989-91 Cogefar) wharf structures on the western side of the quay.
Figure 5: Drawing showing typical cross section of wharf structures of **Option A**.

Figure 6: Drawing showing typical cross section of wharf structures of **Option B**.
Figure 7: Drawing showing Conceptual Port Development Plan (ZPC 2004).
From: Jan Kølvraa Rønberg [mailto:jvr@CARLBRO.DK]
Sent: jeudi 4 janvier 2007 10:17
To: Wangari, Elizabeth
Cc: Jan Kølvraa Rønberg
Subject: Stonetown, Zanzibar - UNESCO World Heritage list

Dear Dr. Elisabeth Wangari

In connection with the ongoing rehabilitation project for the Malindi Port in Stonetown Zanzibar, I have been appointed by the EC delegation in Dar es Salaam to detail the environmental investigations to precede the rehabilitation project of the port in Stonetown.

In this context I have met with Issa S Makarani of the Stonetown Conservation and Development Agency, STCDA, to discuss the issue of the port rehabilitation in relation to UNESCO’s appointment of Stonetown to the World Heritage List.

During the discussion I came to understand, that STCDA was under the impression that the port rehabilitation project would impede the chances for Stonetown to remain on the World Heritage List. Having subsequently read the recent UNESCO review report on Stonetown, by Christopher Pound and Jane McDermott, I do not find unambiguous evidence to substantiate the concern, for which reason I write to you, as I understand that the matter resides with you.

The port rehabilitation project is presently envisaged to proceed as a sheet pile wall construction within the same footprint as the present port layout. Whereas the present port is founded on piles (in the outer perimeter only), the only change to the port following the rehabilitation project is a change from pile structures to a sheet pile wall (but, as mentioned, within the same footprint and in the same height above water level). This change will consequently not be detectable when ships are berthing at the port, since ships will block the view to the quay structure behind it, but only appear when ships are not berthing at the quay.

Referring to the report by Pound and McDermott, it is my impression, that Stonetown faces aspects of town conservation, which are more pertinent than this issue, and that the amount of energy now exerted on this issue may be useful in the pursuit of other and more urgent aspects of town conservation.

It is for this reason I write to you; to obtain an understanding of UNESCO’s view on this issue, in the hope that the matter may be resolved in the best interest of all parties. I would be happy to detail the rehabilitation plans further, should you so wish, or provide any information I have on this issue.

I appreciate your kind cooperation and response on the subject.

Best Regards

Jan K Rønberg

Carl Bro as
Granskoven 8
DK 2600 Glostrup
Denmark

Tlf. +45 43 48 60 63 (Direct)
Email: jvr@carlbro.dk

4/30/2008
Mr. Gray S. Mgonja,
Permanent Secretary Treasury,
National Authorising Officer for EDF,
Ministry of Finance,
P.O. Box 9111,
Dar Es Salaam.

Dera Mr. Mgonja,

Re: REHABILITATION OF MALINDI WHARVES, PORT OF ZANZIBAR, EDF
PROJECT No. 9 ACP TA 014

I have the honour to your letter dated 1st November 2006 referenced TYC/E/420/23/14/274 and that of the Head of Delegation, Amb. Frans Baan dated 31st October 2006 ref. D/2006/0001149/TS in regard to the above subject.

Zanzibar government (GoZ) is pleased to note the acceptance of the EU on the Zanzibar’s perspective in moving forward with the EU preferred option B.

As per the Zanzibar’s proposal that was accepted by the EU, GoZ requests the Commission the Commission the following:

1. The Commission should outright commit to fund the proposed Comprehensive Environmental Baseline Survey or (Environmental Impact Assessment). It is aimed to utilise the transition period when there are less activities from the Contractor. GoZ considers that the survey will also include cultural impact to the Stone Town world heritage site. Accordingly, it has no objection on the use of an independent external body to conduct the survey.

The Supervisor’s Representative in collaboration with the GoZ’s department of Environment should be tasked to prepare the Terms of
Reference for this survey that should include monitoring modalities after the commencement of construction under Option B to monitor the changes in the findings of the survey.

2. GoZ understands the costs involved in erecting piles in front of the current Option B as an attempt to minimise water splash to the quay and wave overtopping. It however considers it important that the EU considers and puts firm commitment now to fund such construction of three rows of piles in front of the backfilled structure should the need arise in the future. As suggested the actual funding may come as a result of detection of any adverse effects of the structure after a detailed evaluation of the impact of Option B after the first 3-5 years after completion of the construction under Option B.

3. It will be recalled that the Contractor raised other points when considered possibility for termination. While GoZ will address the problem on VAT exemption, it is requested that EU should handle the outstanding EOT claims.

I trust the above meet favourable consideration and approval by the EU Delegation and pave the way for smooth completion of this important project.

We thank you for your invaluable cooperation,

Yours Sincerely,

Khamis M. Omar,
Principal Secretary.

c.c.
Principal Secretary,
Ministry of Communication and Transport,
Zanzibar.

Amb. Frans Baan,
Head of the EU Delegation,
Dar Es Salaam.

Director General,
Zanzibar Ports Corporation,
Zanzibar.
PREAMBLE

The Zanzibar government (GoZ) through the government of United Republic of Tanzania (URT) has received grant for rehabilitation of the Malindi Port from the European Union (EU). The project has, however, been facing problems on implementation due to request for shift on building options by the contractor from the original mutually-accepted Option A to a fallback option (Option B) as defined in the contract. While the contractor is supported by the financier on the proposed shift on options due to reasons of cost overruns on Option A, the GoZ still considers the option A as the best option technically, environmentally and operationally. Another justification has always been the concern on endangering the UNESCO’s recognised world heritage status of the Zanzibar stone town. GoZ has always understood that the project will be for rehabilitation and not re-construction of the Malindi port as has now turned to be.

Lately, the GoZ has received a letter from the financier indicating their intention to withdraw if GoZ discards option B. The purpose of this note, therefore is to register further views of the GoZ specifically on the subject Option B and a proposed way forward.

GoZ RESPONSE

Following the statement over the method of continuation of the construction of the Malindi Wharves, the GoZ has been requested to state its final position with respect to that of the EU so as the two parties can now decide on the way forward. Port itself, the world stone town heritage site, marine life and seafront;

The GoZ has the following to state:

1. The GoZ realises the importance of the port project to the economy of Zanzibar and the huge investment required to enable its rehabilitation or construction;

2. The GoZ also recognises its financial constraints in acquiring such amount of investment from its domestic sources over a short period of time and has therefore to depend for the time being on external financing. However, the GoZ’s intention has always been to have an operational and sustainable port that will serve the economy of Zanzibar for a long period of time as mentioned in the annexure to the financial agreement;

3. In pursuing the above intentions, however, the GoZ has looked into a number of parameters which are tantamount to realising that the above-mentioned goals are met with minimum or no adverse impact to Zanzibar’s environment and heritage which are very crucial to the sustainability of the port itself, the world stone town heritage site, the adjoining marine life and seafront;

4. In the ensuing discussions between the government and EU over the method of construction (Option A or B) the GoZ has raised a number
of concerns, all of them technical, environmental, or of heritage, against adoption of option B;

5. The GoZ has put forward technical, scientific, social and legal reasons why it was strongly not in favour of the Option B;

6. The GoZ regrets the down play by EU of all its concerns to the extent that it feels forced to accept the method of construction for which there is no justification other than financial.

7. The GoZ, having regard to the wishes and/or ability of the EU to go only this far in financing the project despite the said concerns, is now left with no choice but to take what is given of it.

8. The GoZ, therefore, will reluctantly allow the reconstruction of the port under Option II but wishes to do so after it is assured of some commitments by EU which would address at least some of the major concerns as enumerated in the foregoing.

WAY FORWARD
As indicated above, GoZ has been left with little option for the way forward. While it still maintains preference to option A, it considers the following as important in aligning itself to option B which is the only one considered by the financier at the moment. The points to be considered and agreed upon prior to embarking on Option B are:

1. That local experts must participate fully, at the project’s cost, during the designing stage of the proposed Option B;

2. That the current Option B will need to be adjusted to reduce the foreseen negative hydrodynamic impacts. It will be necessary to extend the deck by a few piles in front of the new wall structure so as to reduce overtopping and water splash;

3. A full independent Environmental Impact Assessment (EIA) must be conducted prior to construction under Option B guided by the laws of Zanzibar. This was not necessary under Option A since the work was to restore the previously existed port structure;

4. That in conducting the EIA heritage experts from UNESCO shall be involved in order to avoid controversy on the world heritage status of the Zanzibar stone town;

5. The EU shall commit to finance a study five years after completion of the construction to fully assess the impact of the new structure mainly in the areas of concern that are raised by the GoZ now. The EU shall also commit to finance any necessary corrective measures to remedy the identified shortfalls;

6. Now that the EU has agreed to disburse the full pre-earmarked amount of Euro 31 million, the GoZ’s fund received from arbitration of the previous case will be used, as topping up when proven necessary.

It is the hope of the GoZ that the EU will accommodate the above salient points and move forward with the project.
DRAFT

Terms of Reference

Baseline study and EIA for
Rehabilitation of Malindi Wharves, Option B

Date: 12 February 2007
EDF Project No.: 9 ACP TA 014
Carl Bro Project No.: 80.3783.01

Carl Bro as for
The National Authorizing Officer for EDF
T OF CONTENTS

BACKGROUND .............................................................................. 3
OBJECTIVE ................................................................................. 4
RESULTS ...................................................................................... 4
Key Stakeholders and their concerns ............................................ 4
ISSUES TO BE STUDIED ................................................................. 5
Description of the key environmental aspects ............................... 5
Baseline and EIA Study – Present conditions and impact identification ........................................... 5
Component 1: Baseline study including limited survey of the marine environment 6
Component 2: Hydraulic assessment using numerical model study ................................................. 8
Component 3: Environmental Impact study of rehabilitation project, Option B 10
Monitoring Programme ................................................................. 11
Component 4: Continued monitoring and evaluation of environmental conditions 11
WORK PLAN ................................................................................. 12
EXPERTISE REQUIRED ................................................................. 12
LOCATION AND DURATION .......................................................... 13
4.1 Timing and duration of the study ............................................ 13
4.2 Estimated budget ................................................................. 13
REPORTING ................................................................................. 13
TIME SCHEDULE .................................................................... 15

appendix 1: Factual information on the Port
appendix 2: Standard format for the EIA report
IMS OF REFERENCE

Country: Zanzibar - Tanzania

Project Title: Baseline and Environmental Impact Assessment Study for Rehabilitation of Malindi Wharves, Option B

BACKGROUND

Baseline and Environmental Impact Assessment Study combined with a Monitoring Study is planned to be carried out for the Rehabilitation of Malindi Wharves, Option B, project in the Malindi Port, Zanzibar. The authorising authority is the Ministry of Finance Dar es Salaam. The Funding Agency is the European Commission.

Malindi Port in Stonetown, the sea gate of Zanzibar, was constructed in its present form in 1927. The quay part consists of a quay deck founded as a pile structure. In 1990, the quay was rehabilitated, the structure has proven unable to resist the corrosive environment, for which reason renewed rehabilitation is taking place at present. The rehabilitation is financed by the European Commission through the 9th European Development Fund.

During the ongoing rehabilitation project, the choice between two initial design layouts shifted from a founded quay structure, Option A, to a sheet pile structure, Option B, within the same footprint of the quay structure. The shift in design has caused local concerns to be raised as to possible implications for the surrounding environment including the coastal dynamics of adjacent beaches.

After the concerns raised, the EU has decided to undertake a baseline investigation and environmental impact assessment to determine the present and projected future environmental conditions in the port surroundings subject to the construction of an alternate quay structure.

A new quay structure will be constructed as a sheet pile structure using sand fill material. It is expected that the amount of infill required for the construction totals approximately 65,000 m³. The fill material will be supplied from inland borrow pits solely and marine dredging activities are not taking place.

The concerns raised pertain to a sensitive coastal environment. The presently remaining sandy beach immediately south of the port is constituted by a relatively narrow and finite stretch. The beach is subjected to the annual fluctuations of the wave climate. As part of the rehabilitation of the port, dredging has recently been undertaken in close proximity to the beach, and the issue of coastal dynamics has so far not been addressed methodically, with the purpose of determining the natural variation and human impact on coastal morphodynamics. The dredging undertaken in connection with a new ferry terminal comprised the removal of 25,000 m³ sand, which has been deposited at Bwawani Dumps north of the port.

Damage to coral communities and mangrove destruction in recent years has depleted the marine resource. In 1998 major coral bleaching took place and again in 2000 bleaching affected coral communities. Along with macro-algal abundance and Crown-of-Thorn Starfish predation, the coral communities off Zanzibar are presently at a live coral coverage of about 20-55%. The condition of the coral communities off Zanzibar has been studied in a number of international projects, most recently in ongoing Coral Reef Targeted Research project, CRTR, under GEF. Institute of Marine Sciences in Zanzibar is the local anchor point for the CRTR project.
Similarly, cutting of mangrove wood have reduced a nearby mangrove area north of the port, and the remaining mangrove is most likely subjected to anthropogenic impact in the form of effluents from the urban area located behind the coastal mangrove area.

It is now of importance that the present state of the environment as well as any projected impact to the coastal and marine environment is subjected to a thorough and detailed assessment within this project.

The project defined in these Terms will provide survey data on present marine environmental conditions for the purpose of undertaking a comprehensive baseline and impact study.

2. OBJECTIVE

The Baseline and EIA Study will together with the Monitoring Programme provide the decision makers with sufficient information to assess the environmental impacts of the project and provide the basis for guiding subsequent actions. It is hereby ensured that the project is carried out with appropriate and sufficient knowledge on possible environmental impacts.

The Baseline Study will serve as a baseline for possible corrective actions.

The specific objectives of the project are:

- To perform a baseline study including a limited survey of the marine environment
- To carry out a hydraulic assessment using numerical models
- To carry out an impact assessment study related to the construction of Option B
- To implement a long term monitoring program for following years

3. RESULTS

The project is composed of two parts: a Baseline and EIA Study and a subsequent Monitoring Programme.

The Baseline and EIA Study will assess the specific environmental context in which the project will be implemented and the carrying capacity of the environmental surroundings.

The Baseline and EIA Study will deliver the following:

- An identification and assessment of the present marine environmental conditions;
- An identification and assessment of the potential significant marine environmental impacts of the project;
- Recommendations for the implementation of proposed measures to mitigate negative impacts.

The Monitoring Programme will deliver the following:

- Updated information on relevant coastal and environmental conditions after project completion

3.1 Key Stakeholders and their concerns

The stakeholders in the project are primarily:

- Zanzibar Ports Cooperation, ZPC, owner and operator of Malindi Port,
- Department of Environment, which is the environmental authority of The Government of Zanzibar,
Institute of Marine Sciences, which acts as advisory body to governmental authorities and conductor of several environmental programmes related to marine and coastal environment in Zanzibar.

ZPC will as the beneficiary assign a coordinator to assist the consultant.

4. ISSUES TO BE STUDIED

4.1. Description of the key environmental aspects

The proposed project will secure, that all environmental impacts of constructing Option B under the rehabilitation of the Malindi Wharves will be addressed and quantified, with a view to obtaining a satisfactory solution for harbour rehabilitation.

The project will address the following environmental issues, which are considered of importance in relation to any impacts from the rehabilitation project:

- Marine biodiversity in the proximity of the harbour
- Coastal morphology around the port and along the coastal stretch south hereof

In order to address these issues, the project will comprise the following four components:

- Component 1: Baseline study including a limited survey of the marine environment
- Component 2: Hydralic assessment using numerical model study
- Component 3: Environmental Impact study of rehabilitation project, Option B
- Component 4: Continued monitoring and evaluation of environmental conditions

4.2. Baseline and EIA Study – Present conditions and impact identification

![Figure 1](Image)

Stonetown area on western shore of Zanzibar
Component 1: Baseline study including limited survey of the marine environment

The marine baseline study should be performed to enable an overall assessment of the present marine environmental conditions in the project area ref. figure 1.

The marine survey should provide the basis for:

- Characterization of the marine environment with respect to environmental load and remaining environmental carrying capacity
- Hydraulic assessment using numerical models
- Environmental impact assessment of rehabilitation project, Option B

The following issues are considered of relevance and during the Baseline Study, the marine area should be investigated for impacts related to:

- Outlets, spillage and other impacts related to harbour operations
- Re-suspension of polluting bed sediments due to hydraulic conditions and ships propeller
- Chemical and nutrient concentrations in nearby river and sewerage outlets
- Possible outlet from shipbuilding industry in the nearby mangrove area
- Nutrient enrichment arising from organic waste from the local fishing harbour

The impacts arising from present harbour activities shall thus be determined through an environmental audit, in which activities potentially affecting the marine environment is described and load to the marine environment quantified.

Information on the following parameters should be obtained in relevant areas:

- Water quality
  - nutrients, oxygen, suspended sediment concentrations, turbidity
- Sea bed sediments
  - grain size distribution, sediment density, concentration of nutrients and polluting substances
- Benthic vegetation
  - diversity, coverage and quantity of species
- Benthic Fauna
  - diversity, coverage and quantity of species
- Hydrography
  - waves, currents, salinity, temperature, bathymetry
- River and sewerage outflow
  - Flow rate, nutrient load, concentration of other identified anthropogenic loads

Water quality should be determined by analysis of water samples for:

- DO
- BOD
- Total Nitrogen
- Oxidised Nitrogen (NO₂⁻, NO₃⁻)
- Ammonium Nitrogen (NH₄⁺)
- Total Phosphorous
- Phosphate Phosphorous (PO₄³⁻)
The analysis of sea bed sediments and suspended sediment samples for polluting substances include the analysis for:

- Heavy metal compounds, including at least:
  - Mercury
  - Copper
  - Zink
- TBT
- PAH
- Hydrocarbons

A minimum of 15 water samples shall be taken for analysis of heavy metals and nutrients.
A minimum of 45 water samples shall be taken for analysis of suspended sediments. These samples shall to the best possible reflect the varying hydrodynamic conditions.
A minimum of 15 bed sediment samples shall be taken for analysis of heavy metals and nutrients. The samples shall be taken so as to provide a representative picture of the bed sediments in the wider proximity of the harbour.

Where relevant, the spatial and temporal resolutions of retrieved data should be assessed with a view to the subsequent numerical modelling, and the data should be used in the calibration of the numerical model set-up.

It is proposed to carry out an assessment of the marine biodiversity in the proximity of the harbour using:

- Extensive monitoring in larger areas, hereby providing data on coverage
- Intensive monitoring in a few selected segments, hereby providing detailed information on coverage in terms of:
  - Number and type of species
  - Number of individuals

The proximity is defined to be the area of potential impact from harbour related activity extending approximately 2 km offshore and 3 km to the north and 3 km to the south of the harbour.

The information should be obtained through a limited survey and monitoring campaign conducted as part of this project and to the extent possible combined with available information from ongoing projects in the area.

Based on the findings from the survey, a baseline description of the present conditions of the marine environment shall be undertaken. The baseline shall include a description and assessment of present distribution, biodiversity and health of both biota in the project area. The assessment shall further include a description of the precedent history of the coral and mangrove communities to the extent possible based on available information from local, regional and international sources of information. This description shall allow for the present conditions to be understood in context of the preceding environmental changes, and provide an understanding of the variability of the biological communities.

The baseline description will hereby enable an assessment of the carrying capacity of the marine environment, thus indicating the tolerance of the marine environment towards any anthropogenic impacts related to the rehabilitation project.
Component 2: Hydraulic assessment using numerical model study

To assess the hydraulic and environmental dynamics of the marine system, the use of numerical models for predictive description of hydraulic and marine impacts arising from the structure should be performed.

The modelling should cover aspects such as:

- Waves
- Hydrodynamics
- Sediment transport
- Coastal morphology

and be performed using internationally recognised numerical software.

Waves

The analysis of wave conditions includes the description, assessment and simulation of wave conditions in terms of wave height, period and directions.

The modelling shall be performed using a stationary 2D spectral wind-wave model to allow for a statistical description of wind-induced wave generation subjected to refraction, shoaling and breaking. Apart from statistical output of calculated wave characteristics, the output from the wave model shall include forcing terms for subsequent generation of wave induced nearshore currents in the hydrodynamic simulations.

The coverage of the model shall be so as to provide description of the area in which wind generation of waves reaching the Stonetown area is covered. Further the spatial resolution should adequately detail the area around the construction, where subsequent wave induced currents and sediment transport shall be calculated. The output of the model shall be used as input in both the sediment transport modelling and coastline morphology study.

Further, the wave propagation pattern as a result of reflecting waves from the sheet pile construction shall be calculated and compared to wave propagation pattern for present day conditions with no sheet piles. This calculation shall be performed using a numerical model which includes the description of wave reflection.

These calculations shall cover both average and extreme wave conditions. The description shall be used to assess the importance of wave reflection for the wave conditions off the harbour and any subsequent impacts related to changes in the prevailing wave climate.

Hydrodynamics

The analysis of wave conditions includes the description, assessment and simulation of existing and future hydrodynamic conditions.

The modelling shall be performed using a dynamic 2D model which incorporates forcing from wind, tides, and refracting and breaking waves in the nearshore surfzone.

Time and spatial resolution shall be adequate to describe both the Zanzibar channel, for resolution of the regional current pattern, and resolve the detailed current pattern around Malindi Wharves and adjacent nearshore zone.

Hydrodynamic descriptions shall be statistically representative, i.e. both NE and SW monsoon conditions as well as intermediary current patterns shall be addressed.
The hydrodynamic simulations further serve as basis for the subsequent sediment transport calculations in the area around the harbour and the coastal stretch of Stonetown.

**Sediment transport**

The analysis of wave conditions includes the description, assessment and simulation of existing and future sediment transport conditions.

The simulations shall cover the coastal proximity around the harbour, in which waves and nearshore currents dominate the sediment transport.

Calculations shall be made using a 2D description of the sediment transport based on the calculated wave and current patterns previously obtained.

Statistical representativity shall be obtained by addressing both monsoonal periods, as well as the intermediate periods.

**Coastal morphology**

The sandy coastal stretch immediately south of the harbour is very narrow and limited in extent.

Annual fluctuations are reported to move the sandy beach area repetitively. South of the small sandy beach, coastal revetments prevent further coastline retreat, hereby indicating a starved and undernourished coastal area. In the spring of 2006 a major amount of sand has been extracted from the new ferry terminal area immediately north of the beach and deposited in Bwawani swamps. Erosion south of the port has previously been reported.

The analysis of coastal morphology includes the description, assessment and simulation of existing and future coastline dynamics.

The study shall determine the natural variation in coastal dynamics and based on computed coastline dynamics assess the future coastline development. The importance of sand extraction of 25,000 m$^3$ at the ferry terminal in 2006 as well as previous removals in 1991 north of the harbour should be addressed with a view to future coastline behaviour.

Nearshore statistical wave climate conditions, as computed in the wave model previously described, shall form the basis for the model description.

**General requirements**

In assessing the hydraulic conditions for the area, the long term perspective of impacts from projected climatic changes on water level shall be addressed based on the latest available projections.

Along with the model results, all model setup, pre-and post processing specification files, input data, calibration log and all other data required to run the model should be made available to the client for use in subsequent projects.

The handover of model related files and data should be accompanied by a clear specification detailing file-structure for model runs, calibration, pre- and post processing etc.
Component 3: Environmental Impact study of rehabilitation project, Option B

Based on component 1 and component 2 findings, the expected impact of the rehabilitation project, Option B shall be addressed within the aspects mentioned below. Infill material will be obtained from land pits, and the impacts associated with land based material extraction should be addressed. Impacts arising from marine based extraction through offshore dredging should however be addressed as an option.

Assessment of sediment transport and coastal morphodynamics

Quantifying actual sediment transport in the area prior to and after the port rehabilitation in order to elicitate the previous, present and expected future conditions in the sediment balance around the port shall be undertaken. Further to this, the stability of the coastline dynamics should be modelled.

The outcome of the assessment is the anticipated future coastal morphodynamics resolved with respect to anthropogenic influence on coastline dynamics.

Provision shall be made for description of sediment dispersal calculations related to offshore dredging activities. The assessment shall focus on the spreading of sediment spillage in relation to coral communities, and other sensitive marine resources in the impact area of the dredging activity. Since this assessment will depend on whether marine excavation or landfills is chosen, the description shall be quoted as optional to the project.

Construction infill is presently expected to be extracted from land pits, and the following aspects shall be addressed related to the excavation and transport of infill material.

Assessment impacts from construction traffic

Assessment of traffic related dust, noise and traffic conditions related to increased heavy truck traffic should be described, computed and assessed in order to evaluate the environmental impact of the increased traffic on the rural and urban communities affected.

An assessment of available resources relative to present resource consumption and landscape values should be conducted in relation to the appointed land pit sites. The locations of these sites are at present not known.

Biodiversity

Information on present condition of the pelagic and benthic species possibly inhabiting the marine waters in proximity to the harbour area is scarce. Possible re-suspension of nutrient enriched or polluted sediments and increased turbidity due to increased wave action is considered a possible cause for deteriorating environmental conditions for biota in the area. The issue should be addressed by use of findings from component 1 and component 2, so as to describe the influence of Option B relative to present day conditions.

Corals

Harbour related influence on coral communities could potentially come from polluting substances related to the harbour operations or polluted harbour sediments brought into suspension. These aspects shall be determined through the baseline study. By identifying the level of contamination and the current pattern and dynamics, the potential increase in concentration of polluting compounds near the corals shall subsequently be determined.

As no marine dredging is taking place as part of the rehabilitation project, the harbour project has been speculated to influence the corals by reflecting wave energy from the new harbour quay walls. Should
this be the case, the reflected energy would be beneficial to the coral communities as coral depend strongly on a dynamic environment. It is however not considered plausible that this effect should occur, considering the distances between the harbour and the coral communities.

Mangroves

The prime influence on mangroves would potentially come from polluting substances related to the harbour operations or harbour sediments. These aspects will be determined through the baseline study. As the only physical impact on the surrounding marine environment from the rehabilitation project is related to reflected wave energy, mangroves are not considered to be liable to impacts from the rehabilitated construction.

4.3. Monitoring Programme

Component 4: Continued monitoring and evaluation of environmental conditions

To enable continued surveillance of potential impacts arising from the rehabilitation project, the consultant shall specify a control and monitoring programme whereby the status and conditions of marine environmental parameters can be assessed during a 2 year period starting at project initiation. The control and monitoring program shall provide adequate information and knowledge as to ascertain that changes in the marine environmental conditions occurring as a result of the rehabilitation project would be registered. This is with reference to the marine biota in the proximity of the port.

As part of Component 4 it will be required to undertake monitoring of the following:

- Temperature and salinity
- Sediment concentration and turbidity
- Water quality

Temperature and salinity measurement

A self recording CTD measurement device should be deployed for a 2 year period. The recorder shall record salinity, conductivity and temperature in a fixed position not influenced by local anthropogenic effects.

Suspended solids and turbidity

To characterise the general level of sediment concentration in the proximity of the harbour, suspended sediment samples shall be taken in two positions off the harbour at regular intervals at two different depths. The intervals are not to exceed 2 months, unless construction activities are at a halt. The number of samples taken shall account for statistical variability of suspended sediment concentration level as well as varying environmental conditions during the sampling period. The samples shall be analysed for concentration level of suspended sediments, settling velocity and suspended solid grading.

Water quality

Along with the suspended sediment samples, water samples for determination of water quality should be taken. These samples should be taken at the same interval as suspended sediment samples and shall be analysed for:

- DO
- BOD
- Total Nitrogen
- Oxidised Nitrogen (NO₂⁻, NO₃⁻)
- Ammonium Nitrogen (NH₄⁺)
- Total Phosphorous
- Phosphate Phosphorous (PO₄³⁻)

The samples should display depth averaged levels of concentrations.

5. WORK PLAN

A work plan shall be elaborated including, but not necessarily limited to the following activities:

- Review of documentation (e.g. CEP, relevant existing SEAs, identification and pre-feasibility reports);
- Review of relevant environmental literature, environmental policy and legislation framework (legislation, regulations and standards);
- Field work and analyses, including engagement of stakeholders;
- Impact identification and evaluation;
- Preparation of mitigation/optimisation measures;
- Preparation of the final EIA report.

On the basis of the proposed work plan and time schedule outlined the consultants must provide a detailed work plan for the EIA study in their proposal.

6. EXPERTISE REQUIRED

The following team of experts will be needed for the project, depending on the combined qualifications and experience of the members. Each expert should be fluent in English.

3.1 Team leader/environmental management expert
- Advanced university degree in an environmental management-related field
- At least fifteen years working experience in managing multi-disciplinary projects, including marine environmental areas.
- Solid experience undertaking environmental impact studies (Environmental Impact Assessment)
- Solid experience with monitoring and survey campaigns in tropical waters
- Track record of facilitating development of consensus among stakeholders

3.2 Hydraulic and sediment specialist
- Advanced university degree in civil/hydraulic engineering
- Solid experience in sediment transport studies and related numerical modelling
- Solid experience in coastal morpho-dynamic studies
- Experience with monitoring and survey campaigns
- Solid experience with sediment dispersal studies

3.3 Numerical modelling specialist
- Advanced university degree in hydraulic engineering or similar qualifications
- At least 10 years working experience in modelling of marine hydrographical conditions
- Solid experience undertaking environmental impact assessments

3.4 Marine biologist
- Advanced university degree in marine biology
- Solid experience in planning and undertaking of underwater surveys at marine sites
- Solid experience in coral biology and in tropical benthic and pelagic marine organisms
For the baseline study and monitoring program, the team must include experienced and trained divers, who can undertake the field studies.

7. LOCATION AND DURATION

7.1. Timing and duration of the study

It is estimated that the duration of the project will last 3 years. Depending on the decision process, the project is scheduled to commence in summer 2007.

7.2. Estimated budget

The total estimated cost for the project is expected to be divided on the components as described below:

Component 1
Baseline study including a limited survey of the marine environment 170,000 EUR

Component 2
Hydraulic assessment using numerical model study 115,000 EUR

Component 3
Environmental Impact study of rehabilitation project, Option B 90,000 EUR

Component 4
Continued monitoring and evaluation of environmental conditions 75,000 EUR

TOTAL: 450,000 EUR

8. REPORTING

The contractor will hold progress meetings with the key stakeholders at Zanzibar as well as with the National Authorizing Office and the EC-delegation in Dar es Salaam as necessary.

Number and type of reports will be as follows:

- **Inception Report**
  The expert(s) will provide an inception report with a project planning activity and resource use schedule within the first month from the assignment start.

- **Technical Report no. 1 (Baseline Study)**
  Report on the baseline study, 3 months after start.

- **Technical Report no. 2 (Hydraulic Assessment Study)**
  Report on the hydraulic assessment study, 5-6 months after start.
- **Technical Report no. 3 (Impact Assessment Study)**
  Report on the impact assessment study, 6-7 months after start

- **Technical Report no. 4 (Control and Monitoring Program)**
  Report on second year monitoring, 18 months after start

- **Technical Report no. 5 (Control and Monitoring Program)**
  Report on third year monitoring, 30 months after start

- **Mid-Term Project Management Report**
  Report reviewing status of project to date, including activities carried out so far, outputs completed or under way, outcomes status of project resources, any problems encountered or anticipated, etc., 12 months after start.

- **Final Project Management Report**
  Final report summarising all activities carried out in the course of the project, all outputs completed, the results achieved, any gaps between the specifications set forth in the project TOR and the final results achieved, budget used, etc.

All reports should be in English. 5 copies of each of the reports must be submitted in hard copy and electronic format to the Main Beneficiary.

The exact structure and content of the reports to be submitted shall be agreed upon prior to the assignment with the consultant.

The EIA Report must be presented in the format given in Appendix 2. The underlying analyses are to be presented in appendices to this report.

The draft EIA report in 8 copies is to be presented to Zanzibar Port Cooperation for comments by (date). Within 5 weeks, comments will received from

- Zanzibar Port Cooperation
- Department of Environment
- EC-Delegation, Dar es Salaam

The consultants will take account of those comments in preparing the final report. 10 copies of the final report in English are to be submitted by (date).
TIME SCHEDULE

A proposed time schedule for the project is shown below. The monitoring campaign will continue for a total period of 2 years after initiation.

A revised time schedule with indication of milestones and reporting shall be included in the bidders' proposal.
Appendix 1. Factual information on Malindi Port

Appendix 1-1: Location Plan
Appendix 1-2: Overall plan of Port
Appendix 1-3: Dredging Plan
Appendix 1-4: Notes on dredging
Appendix 1-5: People met during preparation of TOR
APPENDIX 1-1, LOCATION PLAN
(from Google Earth)
Appendix 1-4

Notes on dredging

The present project has included dredging to -6 m (MSL) of approximately 25,000 m$^3$ in order to accommodate the relocation of the ferry berth as shown on Appendix 1-3. This dredging was carried out in spring and autumn 2008.

In addition minor dredging operations (less than 2,000 m$^3$) will be required in connection with the installation of scour protection.

The EIA shall serve as baseline for assessment if any adverse effects of this dredging.

The present project does not include further capital dredging. It should, however, be noted that the West Wharf is designed for 11 meter water depth and that the southern part of the wharf vary between approximately 7 meter at the southern end, approximately 9 meter after 100 meter and 11 meter after app 150 meter.

If, in the future, the port decides to dredge to -11 m, the quantities would be in the order of 30 to 60,000 m$^3$. The EIA should not include such dredging but serve as baseline should a dredging later be decided.

The present project does not include maintenance dredging of West or of North Wharf / Dhow Harbour.
Appendix 1-5

People visited during preparation of TOR:

The following institutions and people were met during the period 11/12 – 19/12 2006:

1. Stonetown Conservation and Development Authority, STCDA
   DG- Issa S. Makarani

2. Department of Environment
   DG- Hali Juma and Sheha Mjaja Juma

3. Institute of Marine Sciences, IMS
   Dr. Dubi, Dr. Y.W. Shaghude, Dr. N.S. Jiddawi, Dr. C.A. Muhando

4. Zanzibar Ports Cooperation, ZPC
   DG- M. Jumbe, Mr. Ali Haji, Mr. A. Rashid, Mr. Salum Udi

5. Department of Land and Maps
   Ms. Fayla, Mr. Ari Valimaa
Appendix 2. Standard format for the EIA report

The following text appears on the inside front cover of the report:
This report is financed by the European Commission and is presented by the (name of consultant) for
the ... (National Institution) and the European Commission. It does not necessarily reflect the opinion
of the ... or the European Commission.

1. Executive summary

2. Background
   2.1 Project justification and purpose
   2.2 Project location
   2.3 Project description and associated activities
   2.4 Alternatives
   2.5. Environmental policy, legislative and institutional framework

3. Approach and methodology

This chapter must set out the approach and methodology used in the EIA and how the data and
information collected has been incorporated in the findings and recommendations.
   3.1 General Approach
   3.2 Geographical or mapping units
   3.3 Environmental quality indicators
   3.4 Assumptions, uncertainties and constraints

4. Environmental baseline study

5. Impact identification and evaluation

Cumulative effects and interaction between effects could form additional subject headings to ensure
that these aspects are not overlooked. Table and diagrams should be used to summarise and clarify
findings in this chapter.

6. Mitigation/optimisation measures and residual impacts

7. Recommendations

8. Conclusions
   8.1. Statement of Impact

This section must include one of the three 'statements of impact' set out below:

The alternative(s) (name or number of the concerned alternatives) will not have a significant
environmental impact, providing that measures recommended in the EIA are followed through.

or

The less damaging alternative(s) (name, or number) will have some significant environmental impacts,
which cannot be feasibly mitigated. Therefore, it is recommended to identify and assess additional
alternatives or to check that the expected social and economic benefits are sufficiently high in order to
justify the project despite its environmental impact.

or
Each alternative will have a significant and unacceptable environmental impact irrespective of proposed mitigation and monitoring measures. Therefore, it is recommended that the project proposal is comprehensively re-worked and alternatives re-assessed.

8.2 Conclusions and recommendations

This section must present a clear statement of the conclusions and recommendations on actions to be taken to ensure that environmental issues are adequately addressed in subsequent project preparation, implementation, monitoring and evaluation phases. These conclusions and recommendations must be complete, yet concisely and clearly formulated, so that this section can be incorporated into the project documentation.

9. Technical appendices

- Input into the logical framework planning matrix of the proposed project design – intervention logic, indicators, assumptions and preconditions.
- Maps of the project area and other illustrative information not incorporated into the main report.
- Other technical information and data, as required.
- Records of stakeholder engagement.

10. Other appendices

- Study methodology/work plan (2–4 pages).
- Consultants’ Itinerary (1–2 pages).
- List of stakeholders consulted or engaged (1–2 pages).
- List of documentation consulted (1–2 pages).
- Curricula vitae of the consultants (1 page per person).
- ToR.
Dear Timothy,

First I wish to convey to you greetings for the New Year 2007.

Please see below the e-mail I have received from Jan Kolvraa Ronberg. I have also received a phone call from him today. I understand from our phone conversation that Jan has been requested to prepare ToR for an EIA for Zanzibar Island as part of the EU project for the rehabilitation of the Malindi Port. As he works for a firm, he has indicated that the request came from an agency with the abbreviation NAO but did not know what it meant. Jan did mention that the problems of the Port vis a vis the integrity of the World heritage site "are not (as he put it) very serious". He mentioned that there were other problems on the island such as coastal erosion and the deterioration of the mangroves.

I mentioned to him that:

- first of all the World Heritage Centre would be pleased to work with him to establish the ToR for the EIA of the Stone Town;

- We need to see the results of the EIA study to be able to determine whether or not there would be any negative impact on the property from the proposed Malindi Port Project

- The EIA should not be used to justify the implementation of the Project regardless of its consequences, but should be used as tool to determine as to whether the project should go forward or not, and/or depending on the level of the impact how these can be avoided;

- It was excellent that the EU is to undertake the EIA study;

- UNESCO WHC would be pleased to work with EU on these issues and to advise accordingly; and

- that he could contact Dr. Mwalim Mwalim at the Ministry for further insight on the details of the EIA and advise.

I also mentioned to Jan that you are in contact with both the local EU Representatives and also with the National Authorities on this issue.

Jan is already in possession of the comprehensive report which we prepared for the World Heritage Committee concerning this property. He was worried of the property being 'delisted' from the WH List, I mentioned to him that while such a decision rests with the World Heritage Committee, the Republic of Tanzania is fully responsible for ensuring the wellbeing of the site.

I am copying this e-mail to Jan for his further information, and thank him for contacting us and look forward to collaborating with him and his agency for Zanzibar.

Kind regards,

Elizabeth

Dr. Elizabeth Wangari
Senior Programme Specialist
Chief, AFRICA
UNESCO World Heritage Centre

4/30/2008
Reconstruction of Malindi Wharves,
Malindi Port, Zanzibar, Tanzania

Hydraulic Studies of Option B
Reconstruction of Malindi Wharves, Malindi Port, Zanzibar, Tanzania

Hydraulic Studies of Option B

April 2006

Client
Pihl & Son A/S, Denmark

Client's representative
Mr Knud Winther Hansen

Project
Reconstruction of Malindi Wharves, Malindi Port, Zanzibar – Hydraulic Studies of Option B

Project No
06-53836

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Head of Projects, POT

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Malindi Port, Zanzibar, Tanzania

Classification
☐ Open
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☒ Proprietary

Distribution
Pihl & Son A/S, DK: KWH, SEC, LL
DHI: JKJ - Archives

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CONTENTS

1 INTRODUCTION AND OBJECTIVES ............................................................................ 1

2 CONCLUSIONS ........................................................................................................ 2

3 LOCAL WAVE CONDITIONS ................................................................................ 4
  3.1 Wave Statistics ................................................................................................ 4
  3.2 Model Set-up ..................................................................................................... 4
  3.3 Test Program .................................................................................................... 5
  3.4 Results .............................................................................................................. 6

4 CONDITIONS AT THE WHARF ............................................................................ 8
  4.1 Overtopping of the Quay Structure ................................................................ 8
  4.2 Wave Impact on Moored Ships ...................................................................... 8
  4.2.1 Basic Considerations ............................................................................... 8
  4.2.2 Impact of Vertical Quay on Ship Motions .............................................. 9

5 IMPACT ON THE NORTH BREAKWATER .......................................................... 11

6 IMPACT ON THE FERRY PONTOON ................................................................ 12
  6.1 Facility Layout ................................................................................................ 12
  6.2 Wave Conditions and Wave-induced Motions ............................................ 12

7 CONDITIONS SOUTH OF THE WHARF ............................................................... 13
  7.1 Beach and Seabed Conditions ...................................................................... 13
  7.1.1 General Description of Conditions in the Area ...................................... 13
  7.1.2 Effect of Possible Increased Wave Action along the South Beach ....... 15
  7.2 Sedimentation in the Dredged Pontoons Area ........................................... 15
  7.3 Stability of Dredged Slopes around the Pontoons Area ................................ 16
  7.4 Impact on the Sea Outfall Structure ............................................................ 16

8 REFERENCES ...................................................................................................... 17

APPENDIX

A Computed Wave Fields around Malindi Wharf
1 INTRODUCTION AND OBJECTIVES

The present study has been carried out upon request of Pihl & Son A/S in response to a proposal prepared by DHI Water & Environment, dated 13 March 2006.

The objective of the study is to assess the possible changes of wave conditions around the wharves if the existing pile supported wharf structures of Malindi Port are replaced by vertical faced quay structures – reconstruction Option B - instead of reconstructing the pile supported structures – reconstruction Option A.

Subjects of particular interest are:

- Wave overtopping of the wharves
- The effect on ships moored along the wharves
- The effect on the new ferry terminal south of the West Wharf
- The impact on South Beach and the sewage sea outfall
- Impact on the breakwater north of the harbour
- Maintenance dredging at the new ferry terminal.
2 CONCLUSIONS

The studies were based on a limited statistical description of wave conditions at the site supplemented by numerical modelling of wave fields around Malindi Wharves. Particular attention was focused on wave conditions along the wharves and in front of South Beach.

The conclusions of the studies can be summarised as follows:

- A vertical wharf structure will reflect the waves from west and northwest and cause increased wave heights in the areas to the north, west and south of the wharf.

- The resulting wave heights south of the wharf will be 10-15% higher in the case of a vertical wharf structure as compared to an absorbing structure.

- The Malindi Wharves are exposed to waves from west and northwest in about 3% of the time. During these conditions the wave field along the wharves will be dominated by reflected waves interacting with the incoming waves. This will give rise to higher and steeper waves along the wharves for the vertical quay wall option.

- A vertical quay wall will cause increased overtopping of the wharf as compared to an absorbing structure. The overtopping intensity will, however, be limited to very few waves per year.

- The increased local wave action along a vertical wharf will increase the downtime for small ferries and for medium sized vessels. The downtime is estimated to increase 3-4 times the present downtime for the smallest ferries and almost double the downtime for medium sized vessels (from 3 to 5 days per year). The smallest ferries may preferably use the new ferry terminal during periods with extreme wave conditions. For the largest ships – cruise liners – the vertical faced wharf will tend to reduce the ship motions.

- The new ferry pontoon south of the West Wharf will be exposed to a more complex wave field with reconstruction Option B, which will cause a mixed pitch-roll motion of the pontoon. The vertical motions of the pontoon corners are expected to increase by about 25%. The movements of ferries moored at the pontoon will be similar to the movements experienced at the present smaller ferry pontoon.

- The very small increase of wave action along the South Beach with the Option B reconstruction will not cause significant changes to the sediment transport in the South Beach area. Consequently, Option B will not give rise to increased scour around the sea outfall or endanger the seawall.
• The dredged pocket for the new ferry pontoon will attract sand from the upper parts of the dredged slopes and from the beach. This is a consequence of the dredging itself and not of the wharf reconstruction options. It is estimated that up to 300m$^3$ may deposit in the dredged area every year and a certain (infrequent) maintenance should be expected. This effect can be mitigated by a small groyne constructed on the south side of the dredged area.

• The waves reflected from North Wharf will increase the wave impact on the south side of the breakwater by about 15% for north-westerly waves. The wave action will still be considerably less than the impact on the outer side of the breakwater and the small increase will not cause stability problems for the breakwater.
3 LOCAL WAVE CONDITIONS

3.1 Wave Statistics

Wave statistics is not available for the site. Previous wave analysis carried out by DHI, /1/, aimed at determination of a maximum wave impact at the port. This analysis was based on an assumed maximum wind condition of 18m/s from north-westerly directions as derived by Niras based on Argoss wind information, /2/.

If we rely on the Argoss data, winds from W to NNW occur in only 3% of the period October-March (5 days). According to Global Wave Statistics, /3/, waves from W and NW occur in 3.3% of the year in a larger area off the coast of East Africa. Combining these wind data and the wave analysis, we arrive at the following frequencies of winds from W to NNW and resulting waves:

<table>
<thead>
<tr>
<th>Table 3.1 Exceedence frequency of wave events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (October-March)</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>3days</td>
</tr>
<tr>
<td>8 hours</td>
</tr>
<tr>
<td>2 hours</td>
</tr>
<tr>
<td>0.5 hours</td>
</tr>
</tbody>
</table>

It is emphasised that the statistics does not take waves from other directions into account. Waves from these other directions are, however, reduced more due to the shelter by reefs to the north and to the west of the port. There are several other uncertainties in the above statistics. These can only be assessed if wave measurements be carried out at the site or by using a more comprehensive wave hindcast analysis.

3.2 Model Set-up

The study of wave conditions around Malindi wharves has been carried out using DHI’s MIKE 21 BW model adapted to the local area.

The bathymetry of the model area was obtained from the available electronic chart (C-Map) and the limited local soundings provided by Pihl. The area covered extends about 800m west and north of the harbour and 1200m south of the harbour as shown in Fig 3.1.

Shoals 400m northwest of the wharf and 300m west of the wharf are important features that will focus wave energy in distinct areas between the shoals and the shore. Two alternative wharf structures were included in the model, the existing wharf type (Option A) and a vertical walled structure (Option B).
3.3 Test Program

The numerical wave analysis focused on waves reaching the site from west and northwest. The input waves had a peak period of $T_p = 6s$ (mean period $T_m = 5s$). Initial tests with uni-directional waves were made from six directions as listed in Table 3.2. Uni-directional waves tend to exaggerate refraction effects and thus clearly show the areas of particular concern. Finally, tests with multi-directional waves from northwest ($315^\circ$) were carried out to show the realistic distribution of wave heights in the area.

Table 3.2 Test cases – all tests were carried out for Options A and B

<table>
<thead>
<tr>
<th>Wave direction</th>
<th>Type of waves</th>
<th>Wave period, $T_p$</th>
<th>Wave height, $H_s$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$330^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$315^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$300^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$285^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$270^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$240^\circ$</td>
<td>Uni-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
<tr>
<td>$315^\circ$</td>
<td>Multi-directional</td>
<td>6s</td>
<td>0.5m</td>
</tr>
</tbody>
</table>
Although carried out with a low wave height of 0.5m, the results can be interpreted for other (higher) sea states by using the wave height coefficients in the result plots (Appendix A).

### 3.4 Results

The test results are presented as isoline maps of wave height coefficients (ratio between local wave condition and wave condition at the model boundary). Examples are shown in Fig 3.2 (a and b). The two maps show results of uni-directional waves (a) and multi-directional waves (b). Figure 3.2.a illustrates the exaggerated pattern of focusing waves which is caused by the shoals northwest and west of the harbour. The more realistic distribution of wave heights is obtained with multi-directional waves, Fig 3.2.b. These isoline maps are useful for comparison of the local wave energy at selected positions.

![Wave fields computed with uni-directional (a) and multi-directional (b) waves](image)

**Fig 3.2** Wave fields computed with uni-directional (a) and multi-directional (b) waves

A useful impression of wave directions is obtained by a plot of the water surface at a particular time step of the computation. An example (Option B) is shown in Fig 3.3. It is seen that the waves in this case are reflected from the wharf structure at an almost perpendicular direction to the incoming waves.
The results of all the test runs are presented for comparison of the two optional wharf structures. Each page of Appendix A shows wave fields for Options A and Option B for one wave direction.

Wave height coefficients for the pontoon location and for the outfall area have been extracted from the plots in Appendix A and are summarised in Table 3.3.

<table>
<thead>
<tr>
<th>Wave direction and type</th>
<th>Option A Pontoon area</th>
<th>Option B Pontoon area</th>
<th>Option A Sea outfall</th>
<th>Option B Sea outfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>330°</td>
<td>0.8-0.9</td>
<td>0.9-1.0</td>
<td>1.2-1.3</td>
<td>1.2-1.3</td>
</tr>
<tr>
<td>315°</td>
<td>0.5-1.0</td>
<td>0.5-1.2</td>
<td>0.9-1.1</td>
<td>1.0-1.2</td>
</tr>
<tr>
<td>315°, Multi-dir</td>
<td>0.8-0.9</td>
<td>0.9-1.0</td>
<td>1.0-1.1</td>
<td>1.0-1.1</td>
</tr>
<tr>
<td>300°</td>
<td>0.6-1.0</td>
<td>0.6-1.0</td>
<td>0.5-0.7</td>
<td>0.4-0.6</td>
</tr>
<tr>
<td>285°</td>
<td>0.9-1.0</td>
<td>0.9-1.1</td>
<td>0.9-1.3</td>
<td>0.9-1.3</td>
</tr>
<tr>
<td>270°</td>
<td>0.4-0.7</td>
<td>0.4-0.7</td>
<td>0.9-1.5</td>
<td>0.8-1.3</td>
</tr>
<tr>
<td>240°</td>
<td>0.6-0.7</td>
<td>0.6-0.8</td>
<td>0.3-1.0</td>
<td>0.3-1.0</td>
</tr>
</tbody>
</table>
4 CONDITIONS AT THE WHARF

4.1 Overtopping of the Quay Structure

The level of the wharf structure surface is +4.00m relative to mean sea level (MSL). At mean high water springs, the still water level is 1.80m above MSL and consequently the freeboard is 2.20m in this situation. The clearance under the quay front will be approximately 0.50m with this extreme water level.

In order to assess the possible overtopping of the quay, it is necessary to determine the crest elevation of the highest waves in the actual wave condition. The crest elevation of the highest wave (defined as 1 of 1000 waves) above still water level is approximately 0.6 x 1.85 x Hₚ. For the highest waves in Table 4.1, we find:

Table 4.1 wave crest elevations above still water level

<table>
<thead>
<tr>
<th>Sea state, Hₛ</th>
<th>Crest elevation</th>
<th>Crest elevation, 100% reflected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8m</td>
<td>0.89m</td>
<td>1.78m</td>
</tr>
<tr>
<td>1.1m</td>
<td>1.22m</td>
<td>2.44m</td>
</tr>
<tr>
<td>1.3m</td>
<td>1.44m</td>
<td>2.88m</td>
</tr>
</tbody>
</table>

The highest waves will reach the quay front in the present situation (Option A). The waves will partly reflect, partly progress under the wharf deck and to a minor extent overtop the quay front. This overtopping will mainly be in the form of spray.

For Option B, with a vertical quay wall, the waves will be fully reflected and may reach levels well above the wharf deck. For Hₛ = 1.3m, a total of 5-10 wave crests will exceed the level of the deck during 1.5 hours. Bearing in mind that this only occurs if an extreme storm and an extreme tide level coincides, it is clear that the risk of overtopping by other than spray is very low even with a vertical quay structure.

4.2 Wave Impact on Moored Ships

4.2.1 Basic Considerations

The Malindi West Wharf currently serves small catamaran’s and single hull ferries with lengths of 40-60m, Ro-Ro ferries of 60-70m length, passenger ships of 80-110m length and cruise liners with length up to 180m.

The worst wave conditions at the wharf are during north-western storms, which means that the important wave impacts on moored vessels at this wharf are from quartering seas. The wavelength during extreme wave events is 20-40m. Along the wharf, the distance between wave crests is thus 30-55m for waves from northwest during the extreme situations occurring a few hours per year.
The wave statistics described in Section 3.1 covers only the most extreme events.

Pihl has reported (see note of 14.03.2006) information from Marine Operations in Malindi that downtime at the ferry pontoon, which service small catamarans and mono hulls, is at the most 2-3 days per year. If we assume that down time occurs when the significant wave height exceeds 0.4 m and plot this value together with the statistical values from Table 3.1 a total wave statistics can be estimated. This estimate is shown in Fig 4.1.

It is estimated (see Fig 4.1) that the significant wave height will exceed 0.4m in 0.8% of the time corresponding to an accumulated duration of 3 days per year and 0.6m in about 1 day per year.

![Estimated wave height statistics, Malindi](image)

**Fig 4.1 Assumed wave statistics for Malindi West Wharf**

For exposed sites, it is expected that operations (such as transfer of passengers) can continue in wave heights of \( H_s = 0.4\text{-}0.6 \text{m} \). Generally, the criterion increases with increasing ship size; however, there are large variations depending on mooring practice, fender systems, ramps and gangways, loading gear – and local practice. Based on these criteria and the assumed wave statistics, it is expected that operations at the present wharf will have to stop for some days per year, most frequently for the small ferries.

### 4.2.2 Impact of Vertical Quay on Ship Motions

A vertical quay will change the behaviour of moored vessels relative to an open platform quay. The two most important effects are:

- Wave reflection will increase the wave heights and wave steepness along the wharf. The reflection will also result in a more irregular water surface along the quay
- The proximity of the wharf face to the side of a vessel will tend to dampen water motions between the vessel and the quay

The first effect is most important for small vessels with a length comparable to the wave length. For large vessels, the more irregular wave pattern caused by reflections is of minor importance, especially when there is little underkeel clearance.
The second effect is of little importance for small vessels, whereas it provides a sort of ‘cushion’ effect for large vessels with a significant plan vertical side.

**Medium Size Passenger Ship**
DHI has previously performed a model test with a 110m long ferry exposed to quartering seas. The ship motions were compared for two types of quay wall, one case with a vertical wharf and one with a permeable structure. The wave conditions during the tests were similar to the maximum yearly conditions at Malindi. In this study, the roll and heave motions increased by 10-15% with the reflecting wall as compared with the permeable structure. Using the statistics above, this increase in motion corresponds to an increase of downtime by 100%. With a wave height criterion of $H_s = 0.6\text{m}$, this corresponds to a change of downtime from 3 days to 5 days per year.

**Small Ferries**
The small ferries have a length comparable to one to two times the wave length for smaller waves. This means that the vessels will tend to follow the water surface and consequently the roll and heave motions will be at least 50% larger at a vertical quay wall. Thus for the smallest vessels expected at the wharf, it is expected that the downtime will increase by a factor 3-4 compared to the present situation.

**Cruise Vessels**
A large vessel as the 180m long cruise liner will occupy the major part of the West Wharf and will reflect most of the impacting wave energy. For this reason, an absorbing structure, as in the present situation (Option A) will not be active. On the contrary, the above-mentioned dampening effect will tend to reduce the vessel movements. Consequently, it is expected that a vertical wharf structure will reduce downtime, which anyway is small for such relatively large vessels.
5  IMPACT ON THE NORTH BREAKWATER

The north breakwater is constructed with concrete units placed in a regular pattern, Fig 5.1. The northwest corner of the breakwater is damaged while the eastern part is intact on both sides. It is obvious that the south side is much less exposed than the north side.

Wave height coefficients around the breakwater for Option A and Option B are shown in the Figs A.10 of Appendix A. The plots show that the waves on the outer side of the breakwater are larger than on the south side for both options. It is also seen that the wave reflection from a vertical faced North Wharf in Option B increases the resulting wave heights between the wharf and the breakwater by about 15%. However, the waves are still well below the waves on the north side. For this reason, the stability of the structure will not be affected by the vertical quay wall in Option B.

![North breakwater viewed from the east](image)

Fig 5.1  North breakwater viewed from the east
6 IMPACT ON THE FERRY PONTOON

6.1 Facility Layout

A new ferry pontoon will be located south of the Western Wharf. The pontoon is 40 x 20m and has a draught of about 1.5m. This corresponds to a displacement of 1200t. The pontoon is moored with two piles allowing the pontoon to follow the tidal variations while maintaining its position. The connection to shore is by a 50m long bridge.

The orientation of the pontoon is towards west-northwest, whereby its main wave-induced motion is expected to be pitch (rotation around a transverse axis). The pontoon will provide berths for small ferries with the same heading as the longitudinal axis of the pontoon. With this orientation, the berthing facilities will improve compared to the present smaller ferry pontoon, where the vessels berth broadside to the extreme waves.

6.2 Wave Conditions and Wave-induced Motions

The wave study reported in Section 3 has shown that the general wave height will increase by about 10-15% at the pontoon location after construction of a vertical face at the Western Wharf. The wave pattern in Fig 3.3 shows that this increased wave energy is due to waves reflected from the wharf. The resulting wave disturbance is thus composed of two wave trains, an incoming and a reflected. Using the formula:

\[ H_{s,\text{res}} = \sqrt{H_{s,i}^2 + H_{s,r}^2} \]

where \( H_{s,i} \) is the incoming wave and \( H_{s,r} \) is the reflected wave, it can be seen that the reflected wave train has a height of approximately 50% of the incoming for the 315\(^\circ\) wave direction.

The impact on the pontoon is that its movements will change from predominantly pitch to a mixed pitch-roll movement. This has consequences for both the pontoon (and fixtures) itself and for vessels berthed at the pontoon.

The additional roll motion of the pontoon with wharf Option B will result in increased vertical motions of the corners of the pontoon. The impact depends very much on the roll characteristics of the pontoon. Under the assumption that the natural roll frequency of the pontoon is different from the frequency of the waves, the maximum vertical movements of the corners of the pontoon will increase moderately, probably in the order of 25%. For this reason, it may be considered to change the pile sleeves to central positions on the ends of the pontoon.

For the moored vessels, it is expected that the downtime will increase to a frequency that is similar to the conditions at the present ferry pontoon, i.e. 2-3 days per year.
7 CONDITIONS SOUTH OF THE WHARF

7.1 Beach and Seabed Conditions

7.1.1 General Description of Conditions in the Area
All depths referred to in the following are relative to MSL. The tide in the area is characterized by the following tidal levels:

- MHWS +1.8m
- MHW +1.2m
- MSL 0.0m
- MLW -1.3m
- MLWS -1.9m

Water levels are positive when above MSL, whereas levels are negative below MSL.

There is a small sandy beach in the bay south of the Malindi Wharves. The depth contours are in general relatively straight across the bay out to a water depth of approximately 2.0m, however, with a tendency to a slightly concave shape, having an average orientation of about 300°N (the orientation of the normal to the depth contours). This concave shape of the depth contours is probably caused by the sheltering effect of some of the reefs off the site, which has a dampening effect on the waves in the middle of the bay. It is evaluated that the plan shape of the beach in the bay is in equilibrium with the incoming waves.

The deepened area along Malindi West Wharf extends approximately 30m into the northern part of the beach, which has caused an abrupt turn in the depth contours for depths greater than 2.0m in this area. The depth contours in this area have an orientation of approximately 0°N.

It is generally accepted that a coastal profile possesses an average, characteristic form, which is referred to as the theoretical equilibrium profile. The following description of these conditions is taken from /6/. The equilibrium profile has been defined as “a statistical average profile, which maintains its form apart from small fluctuations, including seasonal fluctuations.” The depth $d$ [meters] in the equilibrium profile increases exponentially with the distance $x$ from the shoreline according to the equation (Dean):

$$d = A x^m$$

where $A$ is the dimensionless steepness parameter and $m$ is a dimensionless exponent. Based on fitting to natural upper shoreface profiles, Dean has suggested an average value of $m = 0.67$. 
The steepness parameter $A$ is dependent of the grain size of the sediments. Values for $A$ as a function of the mean grain size, $d_{50}$, are shown in Table 6.1.

<table>
<thead>
<tr>
<th>$d_{50}$</th>
<th>0.10</th>
<th>0.15</th>
<th>0.20</th>
<th>0.25</th>
<th>0.30</th>
<th>0.50</th>
<th>1.00</th>
<th>2.00</th>
<th>5.00</th>
<th>10.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A$</td>
<td>0.043</td>
<td>0.062</td>
<td>0.080</td>
<td>0.092</td>
<td>0.103</td>
<td>0.132</td>
<td>0.178</td>
<td>0.234</td>
<td>0.318</td>
<td>0.390</td>
</tr>
</tbody>
</table>

It is seen that the equilibrium profile does not depend on the wave height. The reason for this is that the water depth limits the wave height inside the breaker zone. However, the wave height decides the width of the littoral zone, within which the equilibrium shoreface concept is valid. Thus, the equilibrium profile is only valid for the littoral zone, ie out to the Closure Depth $d_i$ defined as:

$$d_i = 2.28 H_{s,12 h/y} - 68.5 \frac{H_{s,12 h/y}^2}{gT_s^2}$$

where $d_i$ is the closure depth relative to mean low water, $H_{s,12 h/y}$ is the nearshore significant wave height exceeded 12 hours per year, and $T_s$ is the corresponding significant wave period.

The width of the littoral zone and the slope of the shoreface thus depend on the mean grain size as well as on the wave conditions.

The equilibrium profile becomes increasingly steeper with increasing grain size.

The value of $H_{s,12 h/y}$ at the site is in the order of $H_{m0} = 1.0m$ with $T_s = 4.5s$. Inserting this in the formula for $d_i$ gives:

$$d_i \sim 2.0m \text{ relative to MLW}$$

This means that the active profile relative to MSL extends out to a water depth of:

$$d_i \sim 3.3m \text{ relative to MSL}$$

The general slope of the beach between MSL and level -3.0m is about $s = 1:40$, which is considered as the average slope over the equilibrium profile. Beyond the closure depth, a stable profile can be much steeper as this part of the profile is not exposed to any significant wave action.

The slope to the dredged area off the northern part of the beach between -3.0m and -6.0m is about $s = 1:12$. This can be interpreted as a stable slope in this depth interval, however, it is not known if this slope has originally been steeper and thereafter adjusted to the present slope or if it has been dredged to this slope. The slope can also have been under influence the propeller current from ships navigating close to the wharf.
There are no sand samples available from the beach, however, other beach samples from the area indicate that the beach sand is probably medium sand with a $d_{50} \sim 0.5$mm. Inserting this in the formula for the equilibrium beach slope and calculating the average slope between MSL and the depth of 3.0m gives $S \sim 1:37$, which fits well with the slope found at the site. This is taken as an indication that the sand in the area can be characterised as having $d_{50} \sim 0.5$mm.

7.1.2 Effect of Possible Increased Wave Action along the South Beach

The detailed wave modelling indicates that the impact of constructing an impermeable and reflecting quay wall at the Malindi Wharf will have only minor impact on the wave conditions in the bay. This is especially the case if the sheltering effect of the ferry pontoon is taken into consideration. Furthermore, the higher waves from north-westerly directions, which are reflected by the wharf towards south, occur for a very small part of the year.

7.2 Sedimentation in the Dredged Pontoon Area

The littoral processes are active to a depth of about 3.0m, as described in Section 6.1.1, however, the bulk of the transport will take place in depths between zero and 1.0m relative to the actual water depth. Taking the tidal variation into consideration, it is evaluated that the bulk of the littoral transport is taking place in the area between level $+1.2$ to $-2.3$ MSL. The littoral transport in the area is in average zero, however, the zero net transport is composed of a northward and a southward component. The magnitudes of the annual transport components are not known, however, they are evaluated to be relatively small, in the order of magnitude of $1000$ m$^3$/year.

The dredged area starts from level $-2.0$m, which means that most of the littoral transport will take place landwards of the dredged area, and that the expected backfilling will only be a fraction of the $1000$ m$^3$/year, say less than $300$ m$^3$/year. This backfilling will be distributed over a relatively small area, say in the order of magnitude $30$m x $30$m $= 900$m$^2$. This corresponds to a depth reduction of $0.3$m per year in this area. This is not considered to be a major sedimentation problem, however, it will require maintenance dredging after some years, say every 5 years.

The sand which is trapped in the dredged area will act as a sink relative to the beach sediment budget, and will therefore cause some erosion of the beach in the bay. The yearly shoreline retreat has been estimated under the following assumptions: The loss of $300$ m$^3$/year from the beach into the dredged area will result in an average shoreline retreat of about 0.4m considering: The length of the beach in the bay, at the MSL line, is approximately 200m and the height of the active profile is 3.5m (between $+1.2$ to $-2.3$).

If this shoreline retreat and the backfilling of the dredged area are considered unacceptable, it may be mitigated by a groyne as a separation between the beach and the dredged area. A groyne constructed for this purpose shall start from the present seawall and have an approximate length of 100m. The top level of the groyne shall be at level approximately 2.0m MSL.
7.3 **Stability of Dredged Slopes around the Pontoon Area**

The evaluation of the stability of the new slopes is performed under the following assumptions:

– The new slopes will be exposed to some propeller current from navigating ferries in the inner part of the dredged area
– The slopes will be exposed to waves of similar characteristics as under the present conditions

As the closure depth is \( d \sim 3.3 \)m relative to MSL, it is concluded that the sediments on the slopes above this depth will be exposed by the waves. This will have the following consequences:

– Slopes with an orientation parallel to the wave direction will be smoothed to a gentle slope down to a depth of about 3.3m MSL. This is applicable for the Eastern slope
– Slopes with an orientation different from the direction of the incoming waves will be exposed to even more smoothing to a depth of about 3.3m as there will also be transport processes along the slope. This is applicable for the Southern slope.

Furthermore, the slopes of the inner part of the basin may be exposed to some smoothing caused by propeller currents from the ferries.

It is therefore concluded that the planned slopes of 1:7 will only be stable below \(-3.3\) m MSL.

The upper part of the eastern slope of the dredged pocket is close to the rubble revetment protecting the seawall. In order to avoid erosion of this structure, it is proposed to place an additional riprap protection of a similar nature as the present revetment protection in this area.

The possible erosion of the inner part of the Southern slope, out to the alignment of the end of the pontoon can be left unprotected as this part will be subject to minor smoothing of the profile only.

7.4 **Impact on the Sea Outfall Structure**

As shown in Table 3.3, the wave conditions around the Sea Outfall will only be marginally affected by the vertical quay structure in Option B. It is evaluated that there will be no major impact on the stability of the seabed around the outlet structure except for the inner part, where some shoreline retreat may be experienced as described above. This may, as stated above, be mitigated by a groyne constructed as a separation between the beach and the dredged area.
REFERENCES

/1/ Port of Zanzibar, Tanzania – Note on Assessment of Wave Conditions. Prepared for Niras, Denmark, December 2005

/2/ ARGOSS wind data, centre of area 5°59’S, 40°19’E

/3/ Global Wave Statistics, Area 59, BMT, UK


/6/ K. Mangor: Coastal Management Guidelines, DHI, 2005
APPENDIX A

Computed Wave Fields around Malindi Wharf
Fig A.3
Fig A.4
Fig A.8  Uni-directional waves – note the increased reflection of waves from both north and west wharf in Option B
Fig A.9  Multi-directional waves
Fig A.10  Same as Fig A.3 covering also the North Breakwater area
1. Stone Town of Zanzibar (United Republic of Tanzania) (C 173 Rev)

*Year of inscription on the World Heritage List:*
2000

*Criteria:*
(ii) (iii) (vi)

*Year(s) of inscription on the List of World Heritage in Danger:*
N/A

*Previous Committee Decisions:*
N/A

*International Assistance:*
N/A

*UNESCO Extra-budgetary Funds:*
N/A

*Previous monitoring missions:*
N/A

*Main threats identified in previous reports:*
a) Development pressures;
b) Environmental pressures;
c) Natural disasters and lack of risk-preparedness;
d) Visitors/tourist pressures;
e) Lack of resources;
f) Lack of legal framework.

*Current Conservation issues:*
The World Heritage Centre received information in November 2006 on the proposed European Commission-funded project amounting to USD 31million to rehabilitate the Malindi Stone Town Port part of the Zanzibar Island, World Heritage site. In the course of the rehabilitation initiative, the World Heritage Centre was informed that the project included plans to “fill the voids between the piers of the port after cutting them off completely with dredged material from the port area”. The e-mail report pointed out the danger that the proposed port rehabilitation would result in a raised water level throughout the sea front with the likelihood of endangering the property through hydrodynamic impacts such as overtopping and water splash, and would alter the entire sea front of the property. The report further informs the World Heritage Centre of the existing national regulations that state that “any feature that has been in place for the
last 50 years should be preserved, and when necessary, replaced rather than removed”. The same report states that a full environmental and cultural impact assessment concerning this major project has not been undertaken.

The World Heritage Centre together with the UNESCO Office in Dar-es-Salaam requested the State Party in an e-mail dated 14 November 2006 to ascertain whether the above information received from Stone Town was correct. In an e-mail dated 27 November 2006 addressed to the World Heritage Centre, the Stone Town Authority, while confirming the proposed EU project for the Stone Town Port Rehabilitation Project, informed the Centre that they had expressed concern to the EU during several meetings, stating that the project “would compromise the cultural values for which Stone Town was inscribed in the World Heritage List” and had proposed to restore the Port as it is.

The World Heritage Centre received an e-mail dated 4 January 2007 from a consultant “appointed by the European Commission delegation” in Dar-es-Salaam, Tanzania, to “detail the environmental investigations to prepare the rehabilitation project of the port in Stone Town” Zanzibar. In the e-mail, the European Commission (EC) appointee promised the World Heritage Centre to further detail the rehabilitation plans, but this has not been received at the time of preparing this report. In a reply to the EC representative dated 15 January 2007, the World Heritage Centre expressed the following: an interest to work with the EC in order to establish the Terms of Reference for an independent environmental and cultural impact assessment of the project for the rehabilitation of the Malindi Port Project in Stone Town, on the World Heritage property, (a similar request emphasising the importance of involving the World Heritage Centre was made to the EC by the Stone Town Authority); the Environmental Impact Assessment should not be used to justify the implementation of the project regardless of its consequences, but as a tool to determine whether the project should go forward or not, and/or depending on the level of the potential impact how these can be avoided; and that the World Heritage Centre was ready to co-operate with the EC and its consultant on these issues in the interest of the property. The World Heritage Centre has yet to receive a reply to this e-mail letter from the EC representative.

The World Heritage Centre received a report entitled “Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP)” that was launched on 15 March 2007. The ZSGRP document forms part of the strategies to implement the long-term development plan, the Vision 2020. The focus is on ensuring the attainment of sustainable growth that will reduce both the income and non-income poverty to the majority of Zanzibaris. The strategy is in line with the international goals, commitments, and targets, including the Millennium Development Goals (MDGs). Among the operational targets highlighted in its goals are the promotion and preservation of Stone Town Cultural Heritage sites and tourist attraction areas, and improving attractions of other historical sites. The report recognises that efficient exploitation of natural and cultural heritage has not yet been achieved, partly due to inadequate resources such as human capacity and equipment, and partly due to a weak promotional strategy. In order to achieve the operational targets, the State Party proposes to put efforts into developing and implementing policies and institute an enabling legal framework for the restoration and exploitation of the Stone Town and other heritage sites, and to promote ecotourism through cultural activities and historical sites.
The World Heritage Committee,

1. Having examined Document WHC-07/31.COM/7B,
2. Notes with concern the potential impact of the proposed European Commission-funded port development project on the state of conservation of the property;
3. Calls on the State Party to provide as soon as possible full details of the proposed project and its rationale;
4. Also calls on the State Party to co-operate with ICOMOS and the World Heritage Centre to organise an independent environmental and cultural impact assessment study prior to any consideration or approval of the proposed Malindi Stone Town Port development;
5. Requests the State Party to invite a joint World Heritage Centre/ICOMOS reactive monitoring mission to assess the state of conservation of the property and factors affecting its Outstanding Universal Value, and progress made in implementing the impact assessment of the port project;
6. Requests the State Party to provide to the World Heritage Centre the progress report on the implementation for the above recommendations by 1 February 2008 for examination by the Committee at its 32nd session in 2008.

The World Heritage Committee,

1. Having examined Document WHC-07/31.COM/7B,
2. Notes with concern the potential impact of the proposed European Commission-funded port development project on the state of conservation of the property and requests the World Heritage Centre to contact once again the European Commission at Commissioners level on this issue;
3. Calls on the State Party to provide details of the proposed Malindi Stone Town Port development project and its rationale, and to co-operate with ICOMOS and the World Heritage Centre to organise an independent environmental and cultural impact assessment study prior to any consideration or approval of the proposed project;
4. Calls on the Director-General of UNESCO to discuss with the World Bank, European Commission and other relevant bodies that projects in World Heritage sites should be developed in consultation with the World Heritage Centre.
5. Requests the State Party to invite a joint World Heritage Centre/ICOMOS reactive monitoring mission to assess the state of conservation of the property and factors affecting its Outstanding Universal Value, and progress made in implementing the impact assessment of the port project;
6. Requests the State Party to provide to the World Heritage Centre a progress report on the implementation of the above recommendations by 1 February 2008 for examination by the Committee at its 32nd session in 2008.
ANNEXURE L
Photographs taken during the Mission

1 MALINDI PORT PROJECT
1.1 The original Port of 1927
1.2 Site visit to inspect the works on Option B
1.3 The Malindi Port - industrial heritage, dhow wharf and artisanal fishery heritage

2 STATE OF CONSERVATION
2.1 Sea wall on western edge of Stone Town
2.2 Site visit Stone Town - positive
2.3 Site visit Stone Town and Green Strip - negative
2.4 Site visit to Buffer Zone
Malindi Port Project: 1.1 the original Port of 1927

Top: Plan of the original Port of 1927 as part of the reconstruction of the seafront of Stone Town designed by HV Lanchester in 1923 (Drawing 2671, Port Authority)

Bottom left: Detail of wharves, with 1989-91 Cogefar extension and current Option A/B projects outlined in blue, and the partly demolished warehouses in red.

Bottom right: Aerial photograph of Malindi Port with Cogefar extension, before start of Option B (Google Earth).
Malindi Port Project: 1.2 Site visit to inspect the works on Option B

Demolition of defective 1989-91 extension

1927 warehouse being demolished

1989-91 quay with new quay behind

Section through new quay wall

Steel bumpers and wall of Option B

Detail of Option B
Steel bumpers and 1989-91 quay with piles

View of 1989-91 quay

Defective 1989-91 piles

Area below 1989-91 quay

Yellow steel gangway from ferry platform to quay

View to Stone Town with emergency bumper for boats
Malindi Port Project: 1.3 Industrial heritage, dhow wharf and artisanal fishery heritage

Dhow harbour north of the Port project                  1927 industrial heritage and Dhow harbour

1927 warehouses interior                    Artisanal fishery activity is alive

Approach to wharf from new Ferry gangway         Fishing boat with 1927 breakwater behind
State of Conservation: 2.1  
Sea wall on western edge of Stone Town

Degradation of the sea wall and subsidence of road on the west side of Stone Town

Degradation of the sea wall

Degradation of the pier at the historic Jubilee Park
State of Conservation: 2.2 Site visit Stone Town - positive

Restored Annex of the Palace of the Imam used by Stone Town Heritage Society and others.

Beit el Ajahib (House of Wonders)  Good use of public space  Restored Old Dispensary at Malindi

Farodhani Park development  Restoration examples at STHS (old Jubilee Gardens)

A typical pedestrian street with well looked after buildings and spaces
State of Conservation: 2.3 Site visit Stone Town and Green Strip - negative

New building flaunting regulations - *Faux* historicism - inappropriate details – use of cement brick

Water damage on wall due to inadequate rainwater management and timber rot due to same problem

Lack of gutters and rainwater pipes

Failure of plaster after incorrect restoration
Safety, damage and visual impact issues related to overhead electrical/telecom reticulation

Old Fort Museum – unsatisfactory use – invasive trees and other plants will destroy structure

Garbage on street behind Old Fort

Collapse of historic buildings of coral stone

No garbage containers and inadequate management

Parking, traffic congestion and loss of place
Inappropriate position and/or no mitigation of Telecom towers in Core Zone

Green strip (historic sea inlet or ‘creek’) between Stone Town and Buffer mostly maintained

Temporary storage of containers and placement of imported fill in green strip due to construction of Option B
State of Conservation: 2.4 Site visit to Buffer Zone

Buildings flaunt height limit - the edge of Buffer Zone has little coherence or relation to historic context.

Seyyideh Market by JH Sinclair (1904) is the centre piece of a possible Action Area

Tall building in process of construction – being built with Local Authority consent against STCDA directive.
II.1 INTRODUCTION

(a) State Party: United Republic of Tanzania

(b) Name of World Heritage Property: Stone Town of Zanzibar (C 173 Rev)

(c) Geographical coordinates to the nearest second: S6 09 47 E39 11 21

(d) Date of inscription on the world Heritage List: Year 2000

(e) Organization(s) responsible for the preparation of the report:

1) Organization Name: Zanzibar Stone Town Conservation and Development Authority (STCDA)

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II. 2 STATEMENT OF SIGNIFICANCE

Zanzibar Stone Town is the last and best, as well as the largest preserved living town testifying the evolution of Swahili civilization, itself a product of many cultural streams and strong maritime economic transformation. The Swahili – according to Encyclopaedia Britannic – are essentially a mixed people, the result of long crossing between the Negro’s of East Africa coast and the Arabs with an admixture of slave blood from nearly all the East African tribes.

The definition is, however, missing the substantial assimilation of European, Indian and oriental blood in the Swahili culture. Its language, the Swahili is currently spoken by almost half the African continent, prompting many politicians and linguists to seriously consider it as an official Pan-African lingua-franca. Its other manifestation: customs, architecture, music, rituals and dressing are currently not only predominant along East Africa coast, but covers considerable portions of Central, East and South African hinterland.

This confluence of many different cultures and religious has created a unique urban environment of Stone Town characterized by its exotic architecture. While there has been an on going synthesis and indigenisation of the various cultures, distinct building types originating from Oman, India, east Africa and European can still be discerned.

Stone Town furthermore bears the memories of all slaves sold in Zanzibar as well as memory of European explorers such as Vasco-da-Gama, Livingston, Speke, Stanley, Burton and others. The Stone Town is therefore an outstanding tangible and intangible manifestation of this interaction through several millennia hence bears unique universal values.

II.3 STATEMENT OF AUTHENTICITY/INTEGRITY

Speaking of authenticity in an African context, the close link between tangible and intangible must be considered as well as the link between symbolic and functional character of the heritage. African or East African principles on authenticity have not yet been formulated. In the absence of these African and East African principles on authenticity we believe that Stone Town meets the test on authenticity buy following reasons:
1) From its creation until 1964, the Stone Town has been currently maintained in the tradition way of the region, by its inhabitants as well as landlords. The political upheavals following the 1964 revolution forced many landlords and property owner to flee the country. As a result, the Stone Town was left as ghost town only later to be inhabited by desperate rural migration. Considered as a relic of colonialism, little attention and hence little disturbance was paid to the town, in favour of ambitious socialist-bloc-inspired housing schemes beyond the Stone Town. This had an enormous advantage to the authenticity of the town, as the only major tempering came with the collapse of some of the building due to lack of maintenance.

2) The materials and skill used in Stone Town construction are still widely used in Zanzibar. Naturally, any mason in Zanzibar must be capable of building in both concrete block work and the tradition lime-laterite-sand masonry. In fact, a combination of both types of construction is not uncommon in most of contemporary structures. Thus both as a process and in terms of materials, the town is still strongly authentic. Due to heavy rains early failure of masonry flat roof which originated from Arabia resulted in such roof being covered by pitched corrugated iron roofs, sometimes badly hampering architecture features such as the crenulated parapets. This, however, is an authentic process, even if the covering is being currently done in very few cases. As a matter of fact the pitched corrugated roofs which have been used as roofing for the last hundred years, has becomes a traditional material of the Stone Town.
II.4 MANAGEMENT

1) The World Heritage Committee at its 31st session (Christchurch, New Zealand, 23 June to 2 July 2007), was particularly concerned with current development of the Malindi Stone Town port project and the state of conservation the property, Stone Town of Zanzibar. The Committee called the State Party to provide the detail information of the project. It also requested the State Party to co-operate with World Heritage Centre to organize environmental and cultural impact assessment study for that project and to invite a joint World Heritage Centre/ICOMOS team for reactive monitoring to assess the state of conservation of the property. The committee requested a progressive report on the same project, as well.

Following the World Heritage Committee decision and the demand of the World Heritage Centre, the State Party conveys all Committee concerns’ to the local agency responsible of management of the property, the Stone Town Conservation and Development Authority (STCDA).

The STCDA has henceforth taken the following actions:

I. In agreement with the Zanzibar Heritage office of the State Party, STCDA requested a meeting with the Director of World Heritage Centre –UNESCO, Mr. Francisco Bandarin to enlighten him with information on the rational of the Project and its consequence on the state of conservation of the property. Therefore a delegation of five persons from Zanzibar was received by the Director of the World Heritage Centre in Paris on the 19 the December 2007. The Zanzibar delegation had; Principal Secretary of Ministry of Finance and Economic Affair as team leader. Other delegate members were: Principal Secretary of the Ministry of Water, Construction, Energy and Land; Principal Secretary of the Ministry of Communication and Transport; Director General of the STCDA, Director of Technical Service-Port Cooperation and Port senior officer.

II. In agreement with the World Heritage Centre, the STCDA, in its role as the local monitor of the Project, plead to take neutral position on assessment study of the Malindi Stone Town Port project. This position was opted because of the nature of the project.

Old structure of the Malindi Stone Town Port
which includes many actors at different levels such as the World Bank, European Union (EU), the Government of Zanzibar (GOZ) and Zanzibar Port Authority. Hierarchically the STCDA could not involve itself directly since in principle the GOZ has already entered into an agreement with both the donor (EU) and the contractor (E.Pihl and Son AS -Denmark).

III. Hence, the Zanzibar delegation requested the World Heritage Centre to facilitate the possibility of sending a monitoring mission to assess the state of conservation of the property, evaluate the factors affecting its Outstanding Universal value and the impact of the Port project on the same.

However, as the responsible body for the management of the property and local monitor of the property, the STCDA is still concerned with the consequences of the Malindi Stone Town port development on the property. The Malindi Port Authority is still continuing with the same option of construction despite it being questioned, at very early stage, by the STCDA. Nevertheless, STCDA hopes and looks forward to seeing the World Heritage Centre facilitates the monitoring mission to assess the project.

2) Three years back (2005) the Stone Town of Zanzibar with the help of Hifab Consultant hired Mr. Chistopher Pound (UNESCO consultant on heritage issues) to prepare a “Periodic Review” of the property. Mr. Pound successfully completed the first draft of the report and presented it to the Authority in September 2006. The report focused on three areas namely, the review of the outstanding value of the site, the revision of the boundary of the property and the strategy of management of the site.

The Stone Town of Zanzibar was inscribed on the World Heritage List in 2000 under Criteria C(ii); C(iii) and C(vi). In his work, Mr. Pound re-confirmed that the site meets these criteria and recommended however the revision of the supporting
statement for all three criteria. Additionally, he is of the opinion that, apart from its urban setting, the building and the layout of Stone Town are also exceptional. The recognition of these qualities makes the Stone Town to also meet Criterion C(iv). He therefore recommends the criteria for inscription of the Stone Town to also include criterion C(iv).

To give the Stone Town effective boundaries and buffer zone, Mr. Pound proposed also some changes in the actual boundaries of the site and its buffer zone. The actual boundary of the property ends at the sea front on the west, north-west and south west. But it does not include big area of the sea (west) which has been used (historically) as anchorage. Mr. Pound considers this area as a part of element which facilitated settlement in this Island; therefore, he proposed that “the anchorage area and strip of water along the beaches be part of the heritage site. This will include a big area of Funguni Creak. Following this, he proposed the revision of the buffer zone to include an area known as Funguni.

The management strategy of the site was also analyzed in Mr. Pound’s report and he recommended the need to have Heritage Management Plan. On conservation he proposed more measures be taken to stop the collapse of houses; improve condition of Stone Town houses and vandalism of features of Stone Town houses. So far different proposals have been laid down to ameliorate the actual management program although Mr. Pound is yet to finish his task. STCDA has already taken some necessary steps to solve some of the management problems of the property as it indicated in the following paragraphs.

3) Stone Town of Zanzibar deserves the credit of Universal value for its ensemble of the whole urban
area. However, as littoral port site, the safe haven of its anchorage, the adjacent beaches and the Sea front of the Town have been the reasons of the foundation of the settlement in this Island and the development of the Stone Town of Zanzibar. Furthermore, the beaches and the sea front are the boundaries of the World Heritage site.

In the Stone Town of Zanzibar the Forodhani Park, is one of the Sea front parks which present well these values. To emphasize on its importance (beaches and Sea front), the State Party, the Zanzibar Government, the STCDA and the Aga Khan Trust for Culture have since 18 January 2007 been working on a major restoration project for the Forodhani park and the Sea front. The restoration project is monitored by the State Party through its local agency the STCDA. It is envisaged that the completion of the project will enhance the outstanding value of the property, preserve and increase the values of the property to its inhabitants and its visitors.

The Stone Town of Zanzibar has been, for nearly a decade now, an image of the developing tourism industry of the archipelago of Zanzibar. Even though beach tourism is the target of the industry, the cultural and urban tourism symbolized by the Stone Town of Zanzibar is attracting more and more of the tourist. With about 100 000 tourists, per year, the industry places constant development pressure on the property.

The effect of the tourism development pressure is ambivalent. In one hand it increases the income of the poor inhabitants of the site who are taking the opportunity to restore their habitats hence effect positively the outstanding value of the property. And, in another hand, the development pressure influences rapid changes on cultural and social dynamism of the people at the site. This among others is a major concern of the State Party.

Furthermore, tourism development has also been a good catalyzing effecting to other social and cultural forces of changing. All of these orient in great part its synergy to property which is the centre of the commercial and business of the island of Zanzibar. State Party through STCDA is monitoring these dynamisms very closely. The objective of the State party is clear: exploit the developing factors to increase and preserve the outstanding universal value of the property.
To achieve this objective and to meet the recommendations of the draft “Periodic Review” the STCDA has already taken two steps: First, to initiate a process of reviewing the existing Stone Town Act of 1994 and come up with a new Act to give the Authority more autonomy, to provide to the STCDA means of efficiency management and to facilitate its financial resources for the sustainability of the management plan. The new Act is expected to be passed by the Island Parliament in 2008. Second, to finish the preparation of the Management Plan of the property. For a comprehensive and inclusive plan, the “value based” approach is used to prepare this plan and it encourages all Stone Town stakeholders to participate fully in the preservation and development of the outstanding value of the property.

II.5 FACTORS AFFECTING THE PROPERTY:

- collapse of some historic houses
- deterioration of structural condition of historic structures in Stone Town
- Vandalism of features of Stone Town houses.
- Development pressure resulting from need for new construction in the protected area

II.6. MONITORING:

- The monitoring is done under different level with different period of time. First, there is daily monitoring which is supervised by conservation officers in the section of “Monitoring and Implementation” under “Conservation and Planning Division” of STCDA structure. Second, there is monthly monitoring which is organized by “Planning team”, another subdivision in the administrative level of the STCDA, which is higher than section and division. Finally, there are joint monitoring activities between Zanzibar Municipal Council (ZMC) and STCDA. This happen quarterly during the year.

II.7. CONCLUSION AND RECOMMENDATION

a. Main conclusions regarding the state of the World Heritage values of the property (see items II.2 and II.3. above)

- The state of conservation of the property is fairly good.
- The collapse of coral stone buildings is at very lowest level from that figure of nearly 10 building per year. Further, the speed of changes the nature of building due to the demand of economic activity has also been controlled.
- New laws are prepared to curtail vandalism on the features of the Stone Town.
- New plan for open space is under preparation to give the Town and its urban space more air and fluidity. The plan will incorporate also traffic planning to reduce pressure of number and weight of the vehicle which are entering the old town.
- The littoral edge is also careful survey to limit the temptation of the big hotel to encroach into beaches available in the property thereby to prevent
the privatization of this public space and this important characteristic of the property.

b. Main conclusions regarding the management and factors affecting the property (see items II.4 and II.5. above)

- Achieve the objectives of STCDA through improved human resource and facilitating to its financial resources for efficient and sustainable management plan.
- Finalization and approval of the new Act passed by the Island Parliament before the end of 2008
- Using the “value based” approach finish preparation of the Management Plan for the property. Encourages all Stone Town stakeholders to participate fully in the preservation and development of the outstanding value of the property
- Initiate World heritage Board and Stakeholder Forum as platform and tool for discussing Management plan of the property

c. Proposed future action(s)

- Training staff on the management issue
- Joint Monitoring mission performing activities as per the request put forward by the STCDA
- The Periodic Report finalized by the UNESCO expert
- Review of the STCDA Act and formulation of a new Act commenced
- Management Plan for property developed.

d. Responsible implementing agency(ies)

- STCDA
- ZMC
- Government of Zanzibar
- Stakeholders
- The community around especially owners of some historic buildings and structures

e. Timeframe for implementation

The time framework for implementing management plan will be developed by in collaboration with stakeholder yet once the plan is finished some activity will start. This is because the plan will have short and long term activities.

f. Need for international assistance

I. STCDA needs assistance in the area of management and its organization. UNSECO and its partner like ICCROM can assist STCDA in teaching its future managers. Few staff can be given diploma courses level and at least two staff could be assisted to get degree level courses in the management of heritage property. Management plan need also a management team.
UNESCO can also assist STCDA to formulate efficiency management plan based on experience of other heritage site. This can be done either by providing consultant to STCDA or by teaching its staff, which is the best approach for sustainability.

II. Stone Town building are not very old but very vulnerable. Yet STCDA do not have well qualified engineer specialized to deal with structure of the monument. UNESCO and ICOMOS can help STCDA in providing expertise on structure analysis of Monument and Historic construction. As the time goes these buildings will need special attention to survive.

III. Transport has been a big treat to the structure and feature of the Town. The property does not have a proper public transport system. STCDA has transport officer but with no specialized education in designing and planning of the transport and urban system. UNESCO can also assist the Authority in this issue. The actual transport officer can be given more training in this field.

IV. How to harmonize tourism development and heritage asset. This has been an issue to many World Heritage Sites. Stone Town starts to face this problem. UNESCO, ICCROM can give its support to the STCDA on how to balance the tourism economy and the management of cultural heritage.