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CONVENTION CONCERNING THE PROTECTION OF THE WORLD
CULTURAL AND NATURAL HERITAGE

CONVENTION CONCERNANT LA PROTECTION DU PATRIMOINE
MONDIAL, CULTUREL ET NATUREL

WORLD HERITAGE COMMITTEE / COMITE DU PATRIMOINE MONDIAL

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Christchurch, New Zealand / Christchurch, Nouvelle Zélande
23 June - 2 July 2007 / 23 juin - 2 juillet 2007

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

MISSION REPORT / RAPPORT DE MISSION

Rock Hewn Churches, Lalibela (Ethiopia) (C 18) / Eglises creusées dans le roc de Lalibela
(Ethiopie) (C 18)

7-12 mars 2007 / 7-12 mars 2007

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

WHC-07/31.COM/7A

WHC-07/31.COM/7A.Add

WHC-07/31.COM/7B

WHC-07/31.COM/7B.Add

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The authors also wish to express their gratitude to the Patriarch of the Ethiopian Orthodox Church, his Holiness Abuna Paulos, for his warm welcome in Addis Ababa and his support of the UNESCO initiatives in Lalibela, as well as to all the persons who assisted them in Addis Ababa and Lalibela in their enterprise.

1. BACKGROUND TO THE MISSION

This mission was requested by the World Heritage Committee during its 30th meeting in Vilnius (July 2006).

The mission was programmed in mid February 2007 in cooperation with the Ethiopian authorities, and took place from 7 to 14 March 2007

The background of the mission is the construction of temporary shelters over the Lalibela Rock Hewn Churches, and the follow-up on a joint WHC/ICOMOS/ICCROM reactive monitoring mission conducted in Lalibela in June 2006 which executive summary and list of recommendations are listed hereafter; the resulting World Heritage Committee decision is also copied below:

1. The EU funded project “Temporary shelters over five churches in Lalibela” is necessary as a temporary protection of the churches from weathering, while conservation studies are undertaken and conservation activities implemented
2. Shelters are one main element of an integrated project that includes:
 - Understanding causes of deterioration
 - Providing appropriate remedial measures
 - Developing long term sustainable maintenance and conservation approaches regulated by an integrated Management Plan that takes into account the socio-economic context
3. The construction drawings resulting from an international competition should be modified to protect Lalibela’s integrity; while maintaining the same architectural concept, the following elements should be taken into consideration:
 - Ensuring the reversibility of the new construction, by using surface foundations (movable) instead of cast foundations (permanent), and by replacing micro piles with anchors whenever possible
 - Minimizing the environmental impact of the construction site by reducing the weight of the construction elements whenever possible, and reducing the use of heavy machinery that produce vibrations in the proximity of endangered churches
 - Moving the foundations away from the tuff bedrock and from locations that are close to the cliff or that present land sliding risks

- Improving the water collection system to avoid the effects of direct water fall and humidity in the proximity of the monuments
4. A maintenance plan of the temporary shelters is crucial to prevent risks of damage to the site and to its users (inspection of steel cables and protective membrane)
 5. The dismantling of the temporary shelters is the definitive aim of the conservation initiatives in Lalibela;
 6. Archaeological supervision should be provided throughout the works and mainly in the areas where debris are removed
 7. A detailed Impact Assessment Study of the proposed project should be undertaken to address:
 - The impact of the construction works, equipment and machinery on the landscape, historic resources and the stone bedrock, and in particular the impact of the foundations;
 - The channelling of rainwater from the shelters' roof surfaces;
 - The risk presented by elements of the shelters dropping on the historic resources during/after the construction and during the dismantling of the shelters;
 - The maintenance plan of the new roofing and its durability;
 - The effects of the micro-climate created by the shelters on the historic resources;
 - The potential impact of the dismantlement of the temporary shelters.

**The World Heritage Committee Decision:
30 COM 7B.40 for the Rock-Hewn Churches, Lalibela (Ethiopia) (C 18)
July 2006 - Vilnius**

The World Heritage Committee,

*Having examined Document WHC-06/30.COM/7B,
Recalling Decision 21 COM VII.46, adopted at its 21st session (Naples, 1997),
Referring to the mission reports of the World Heritage Centre, in July 2004 and March 2005, and to the World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring Mission of June 2006,
Taking note of the State Party's decision to implement the European Union funded Project,
Reiterates its request to the State Party to prepare a conservation project that ensures an integrated and reversible approach;
Urges the State Party to ensure, before any works are carried out on the site that:*

An Impact Assessment Study for the European Union funded Project in Lalibela is prepared;

The integrity of the property during the construction and dismantling works of the planned temporary shelters is maintained, taking into consideration the recommendations expressed by the above-mentioned World Heritage Centre, ICOMOS and ICCROM mission,

An Action Plan is prepared including:

Detailed description of the project activities, the financial resources and short and long term timetable for the restoration of the property;

Detailed investigation into the causes of deterioration of the structure of the property;

A monitoring system for the historic site;

A system for the maintenance of the shelters and their subsequent dismantling; and the

Development of an overall Management Plan with the participation of the local communities,

Requests the State Party to up-date the construction drawings of the planned temporary shelters in order to integrate the modifications considered necessary by the joint World Heritage Centre/ICOMOS/ICCROM mission to Lalibela;

Further requests the State Party to invite a joint World Heritage Centre/ICOMOS mission to Lalibela to monitor the works and review the Impact Assessment Study and Action Plan prepared by the Ethiopian Authorities, and report to the Committee at its 31st session in 2007.

2. JUSTIFICATION OF THE MISSION

The construction site for the temporary shelters has officially started on the 12th of February 2007. With reference to the World Heritage Committee decision 30 COM 7B.40 (Vilnius, July 2006) requesting a monitoring mission to Lalibela before the 31st World Heritage Committee meeting, and following the agreement of the Ethiopian authorities, the World Heritage Centre and ICOMOS conducted a mission to Lalibela from 7 to 11 March 2007, with the following objectives:

1. to report to the World Heritage Committee (Christchurch, 23 June - 2 July 2007) on the EU funded project “Temporary shelters over five churches in Lalibela”
2. to follow-up with the Ethiopian authorities on the actions taken since June 2006

Please refer to Annex 1 (composition of mission team), Annex 2 (terms of reference), Annex 3 (Programme of the mission and persons met).

3. RESPONSE TO THE RECOGNITION OF VALUES UNDER THE WORLD HERITAGE CONVENTION

Following the World Heritage Committee decision (Vilnius, 2006) and despite the very complex administrative framework of the EU funded shelters’ project, the Ethiopian Government in collaboration with the European Commission has taken a major step towards conserving the integrity of Lalibela by making changes in the execution design of the temporary shelters. While maintaining the architectural design that had won the 1997 architectural competition, the new execution project that is now being built is reversible and presents no physical threat to the World Heritage site. In addition, the Ethiopian Government has also guaranteed the mitigation of the risks and the minimization of environmental damage to the site and its surroundings throughout the construction works. Finally, the Ethiopian Government has foreseen in the Construction Company contract the establishment of a maintenance plan for the shelters, as part of the risk mitigation measures.

4 IDENTIFICATION AND ASSESSMENT OF ISSUES

4.1 The construction site of temporary shelters over five churches in Lalibela, a project funded by the European Union

On 13 October 2006, Mr Baldisserrri met the Director of the UNESCO World Heritage Centre in Rome and presented him the up-dated design. The new design was in full accordance with the World Heritage Committee requirements. UNESCO congratulated the State party by letter of this positive development. The new design drawings were sent to UNESCO by e-mail (refer to Annex 4).

From 9 to 11 March 2007, the members of the mission were in Lalibela accompanied by the Director General of the Authority for Research and Conservation of Cultural Heritage (ARCCH). Mr Matteo Valerin, the Project Engineer representing the Construction Company Endeco made a detailed presentation of the construction plan and the mitigation measures. During the mission, a geologist and a remote sensing expert were working for Endeco to study the stone condition and the eventual presence of cavities in the locations where the surface foundations are foreseen.

The ARCCH in collaboration with Teprin Associati (the project designers and site supervisors) and Endeco have agreed to send UNESCO a report summarising the actions taken as explained to the mission members.

The drawings in possession of Endeco were not yet execution drawings. Mr Valerin informed the mission that the execution drawings for the modular space mesh structure have been finalised but that the other components of the shelters, and in particular the columns, are still to be developed. The only works that could be seen on the site were the temporary offices built in the space between the village at the main entrance to the site, and the positioning of the columns around the Churches.

The construction elements of the shelters will be manufactured soon in Italy, and shipped to Lalibela via Djibouti. The mounting of the modular metallic structure is expected to start in June 2007 and end in December 2007.

The changes to the previous project, visible in the project architectural drawings, and described orally by Mr Valerin can be summarised as follows:

Foundations

In line with the reversibility requirements, no excavations in the rock are foreseen.

The revised project foresees dry building technology for the setting-up of the foundations. The support plinths of the ties are designed without using poured in-situ concrete. Prefabricated parts in reinforced concrete will be used.

A thin layer of concrete will be poured to set the horizontal level that should receive the prefabricated foundation elements. This concrete layer will be removed after the dismantlement of the shelters.

The space mesh

The elements composing the space mesh structure that used to weight 200 kg each are now reduced to pieces weighing 30 to 70 kg. This allows easy handling and access, and the use of lighter construction machinery and transportation equipment (small crane).

This solution also creates jobs for the local workers.

The scaffoldings

The scaffoldings will be erected around the concerned churches to assemble and mount the space mesh. Mattresses and a net will be used to protect the churches of any fallen metal elements on the roofs.

Risk of structural failure

The shelters structure has been calculated so as to stand on three columns in case on the four columns presents any structural failure.

Thunderbolt

A protection against thunderbolt is foreseen.

Drainage of rainwater

The drainage of rain water will be done through appropriate gutters and water evacuation canalizations in the peripheral drainage trenches.

Maintenance

The Construction Company will provide the Ethiopian Government with a maintenance plan for the shelters. The Ethiopian authorities will ensure the required maintenance.

Dismantlement

The Construction Company will provide the Ethiopian Government with a dismantlement plan of the shelters. The dismantlement method has been described to the mission participants as the reverse of the construction method.

Environmental impact

The revised project has led to considerably minimizing the environmental impact of the construction works on the site and the landscape. No new roads will be created to transport construction materials to the site; the recently built main road in the village will not be used for moving heavy machinery and the area that will be used as the construction site stocking area has been appropriately chosen to minimise visual impact on the site and its surroundings.

As outlined earlier, only light construction machinery and transportation equipment will be used during the construction works.

A written note by the ARCCCH should confirm the above points before the 31st World Heritage Committee session in Christchurch.

Conservation Action Plan

Since the Monitoring mission of June 2006, the UNESCO World Heritage Centre has developed in cooperation with the ARCCCH a conservation action plan for the Lalibela rock hewn churches (refer to Annex 5). This action plan is based on the technical and mission reports undertaken by UNESCO since the 1980's as well as the learned lessons and results of restoration campaigns done in Lalibela in the 1950's and 1960's, notably by Architect Angelini for the International Fund for Monuments. In addition, the UNESCO World Heritage Centre organised in September 2006 an experts' meeting to better define this action plan.

The resulting project document is a tool has served to plan the needed actions and prioritize them, as well as fundraise for the project implementation.

As a result, and in addition to the one million dollars allocated by the World Monuments Fund in Lalibela, the Norwegian Government has allocated 300 000 dollars for the implementation of a pilot project in Lalibela (Annex 6).

During the field visit, the mission members have identified, in cooperation with the ARCCCH Director, the church of Biet Mercurios for the implementation of the pilot

project funded by the Norwegian Government. This choice is justified by the following elements:

- Biet Mercurios is not concerned by the new shelters construction works
- It is a small scale church, suitable for an experimental project
- It is easily accessible for the workers and the materials
- It needs quick fixing to prevent structural failure of the rock of several points around it
- It has mural paintings that need to be protected from further damage immediately
- The pilot project can also be used to analyse the effects of the climate on the church's structural behaviour.



Fig.1. Biet Mercurios, exterior

It is to be reminded that the amount allocated by the World Monuments Fund requires, in order to be spent, a matching fund. In the case of the Norwegian contribution, the World Monuments Fund will disburse the amount of 150 000 dollars that should be used to undertake preparatory studies: the completion of the survey techniques, an archaeological study, a structural study and the analysis of decay factors. These studies were a requirement of the World Heritage Committee (Vilnius 2006); they should be implemented in 2007 and 2008, together with the pilot project funded by Norway.

Mr Jara, the ARCCCH Director, will engage a team of restorers trained in the restoration of mural paintings for the project.

Mr Jara will also provide the UNESCO office in Addis a set of existing maps and aerial views of Lalibela.

4.2 Management and urban growth

The mission noted two new developments in addition to the observations made in the June 2006 mission report:

- The Patriarch of the Ethiopian Orthodox Church expressed his willingness to displace the inhabitants from the archaeological site to ensure its protection and to allow further archaeological studies and investigations. Nevertheless he also said he was open to UNESCO's proposal on this matter. This issue is very important because the traditional village of which a small part is within the church property is part of the World Heritage site. It is also equally important with regard to the sustainable management and conservation of the site, the local population being a very important stakeholder in these areas and the main beneficiary from the conservation and development of Lalibela.
- The Ethiopian Government will present a bill to the Parliament that would enable it to share with the Ethiopian Orthodox Church the revenues from the entrance fees to the churches. Until now, these revenues have been solely for the Church. If adopted, this decision will certainly have an impact on the management of the site.

The site management plan

Although foreseen in the conservation action plan developed by UNESCO and ARCCCH, and until adequate funding is available, appropriate actions on the site can be done by the ARCCCH and the local authorities as follows:

- Mapping and documentation of the site
- Definition of the boundaries and the buffer zone that were not included in the initial nomination file
- Studying alternative solutions for the housing issue within the archaeological site
- Studying solutions to improve the sanitary conditions of the traditional village that is part of the inscribed site.

4.3 The environmental impact assessment study

This study was not undertaken by the Ethiopian authorities. Nevertheless, the mitigation measures taken in the framework of the revised construction project of the shelters are an important step towards mitigating the impact of the shelters on the site. In addition, the construction works will allow employing more local workers (versus heavy machinery), which improves the social and economic impact.

The Impact on the urban context and the traditional village of Lalibela and the religious impact, outlined in the June 2006 Reactive Monitoring Report, have not been addressed.

With regard to the physical impact of the shelters on the hewn churches, it is still very important to ensure a monitoring of the micro-climate effects. Indeed, the climatic conditions of the churches under the shelters are exceptional and temporary. Their

effects should be monitored in order to take appropriate decisions for the after conservation solutions in view of the dismantlement.

The churches monolithic behaviour will considerably differ after more than 15 years of non exposure to rain and sun; the conservation project and works should take into consideration the change of structural behaviour that will occur after the dismantlement of the shelters.

5 CONCLUSIONS AND RECOMMENDATIONS

The revised Shelters' project and the construction site modalities that are foreseen by the ARCCH Supervision team and the designated Construction Company are certainly much better than those examined by the joint UNESCO WHC/ICOMOS/ICCROM mission in June 2007. It is therefore clear that the Ethiopian Authorities and the European Commission, as well as the project designers Teprin made a considerable effort to satisfy all the parameters at stake: maintain the site's integrity, maintain the architectural design, protect the churches from rainwater, mitigate the risks during the construction works, respect the EC administrative procedures, and complete the works before the 31 December 2008 deadline.

The ARCCH director, Mr Jara, promised to send the World Heritage Centre a report confirming the construction modalities and mitigation measures described orally to the UNESCO/ICOMOS measures. This document should confirm and document the above.

Special attention should be given during the works to Archaeological supervision
Any removal of debris requires archaeological supervision and analysis of the displaced elements.

- A. Most importantly, the Ethiopian Authorities, with the help of the World Heritage Centre and the International Community, shall work on finding long lasting solutions to ensure a sustainable conservation of the site and ultimately the dismantlement of the shelters. This can be done in the framework of an integrated management plan that addresses all the conservation and management problems in Lalibela, most of which were identified in the joint WHC/ICOMO/ICCROM monitoring report of June 2006.**

The following input to the conservation action plan is recommended by the mission:

- The importance of an adequate team leader that ensures the scientific and technical coordination and the decision making in terms of the conservation strategy and works, in the framework of an integrated approach for the site.
- The importance of the historical and archaeological study –included in the conservation action plan- should not be underestimated. It should be accompanied with a dendrochronolgy of the trees planted around the site and test excavations in the debris areas, and an expert's analysis of the rock excavation and carving techniques, stylistic analysis.

This study should allow dating the site and understanding its evolution; it study will be the key for defining the main conservation choices of the site as a whole, and the environmental “restoration” of the archaeological area and its landscape, as well as the interpretation of the site in relation to the visiting circuits.

In addition, samples of existing traces of mortars on Biet Maryam and elsewhere should be analysed.

- The input of an engineer specialised in quarries and mines could be very useful to undertake the structural analysis of the churches. The structural study could be done in three phase:
 1. Diagnosis of the most endangered areas.
 2. Mathematical models.
 3. Monitoring: Analysis of the expected structural behaviour under the foreseen shelters, and after their dismantlement.
- The archives of Angelini on Lalibela should be copied and integrated in the conservation action plan.
- The cleaning and restoration of the mural paintings should take into consideration the existing patina of the hewn rock of the churches around the paintings.

6 Annexes

6.1 Composition of the team

- Mr. Michel Goutal, Conservation Architect (Architecte en chef des Monuments historiques) ICOMOS
- Ms. Nada Al Hassan, Conservation Architect, Programme Specialist, UNESCO World Heritage Centre

6.2 Terms of Reference

Following the World Heritage Committee decision 30 COM-7B.40 (attached) and the recent start of the construction works of “Temporary shelters over five churches in Lalibela” funded by the European Union, and in the framework of the Reactive Monitoring Mission of the UNESCO World Heritage Centre and ICOMOS, the Consultant shall:

- Take part in the Reactive Monitoring mission at the Rock Hewn Churches Lalibela, in Ethiopia
- Ensure that the up-dated project of the temporary shelters, that was communicated to UNESCO in October 2006, and that guarantees total reversibility of the shelters is implemented as per the drawings communicated to UNESCO
- Ensure that the necessary guarantees for the protection of the site’s integrity are provided during and after the works
- Enquire with the Ethiopian Authorities about their response and actions following the WH Committee decision on Lalibela and namely:
 - a) The Impact Assessment Study for the European Union funded Project in Lalibela
 - b) The integrity of the property during the construction and dismantling works of the planned temporary shelters
 - c) The Ethiopian Government initiatives for the implementation of a Conservation Action Plan in Lalibela
 - d) The monitoring of the historic site after the construction of the shelters

- e) The maintenance of the shelters and their subsequent dismantling;
 - f) An overall Management Plan of Lalibela
- Prepare a report for the World Heritage Committee that answers all the elements raised in the World Heritage Committee decision
The final report shall be submitted no later than the 30th of March 2007

6.3 Timetable of the mission and persons met

Date / time	Contents/ Issues discussed	Persons met / Meeting place
7 March 07 21.15 pm	Arrival at Addis Ababa Airport of: Ms. Nada Al Hassan	
8 March 07 8.30 am.	Arrival at Addis Ababa Airport of: Mr. Michel Goutal	
9.30 am	Meeting of Ms. Nada Al Hassan with DIR/FO/ Addis: <ul style="list-style-type: none"> • Presentation of the Monitoring Mission objectives for Lalibela • The political pressure from the Ethiopian Government, the Italian Embassy and the entire international community represented in Ethiopia to start the works in Aksum 	Mr. Nureldin Satti, Director of UNESCO Office Ms. Fumiko Ohinata, Programme Specialist for Culture was away on mission in Djibouti. Meeting place: UNESCO premises
11 am	Meeting of Nada Al Hassan with the ARCCCH Director General: <ul style="list-style-type: none"> • Objectives of the Monitoring Mission to Lalibela • Actions taken by Ethiopia in response to the World Heritage Committee decision • Actions still to be undertaken by Ethiopia and not yet foreseen • The contents of the new project proposal for EC funding in Lalibela that Mr Jara would like UNESCO to assist the ARCCCH in preparing (Site Management Plan and Structural Engineering Study) 	Mr. Jara Haile Mariam, Director - Authority for Research and Conservation of Cultural Heritage (ARCCCH), Ministry of Culture. Meeting place: ARCCCH premises
13.00 am Business lunch	Endorsement by the Ethiopian Church of the Lalibela Conservation activities funded by Norway and the World Monuments Fund	Ms. Nada Al Hassan Mr. Michel Goutal Mr. Nureldin Satti
16.00	The Patriarch complained that UNESCO	Patriarch of the Ethiopian

	<p>never did concrete conservation works in Lalibela, despite the numerous studies that it conducted.</p> <p>He endorsed UNESCO's initiatives in Lalibela and ensured his full support to the projects</p> <p>He promised access to the sacred parts of the Churches to complete the studies and works</p> <p>He expressed his readiness to listen to UNESCO's input with regard to the issue of removing the inhabitants from the archaeological site. He also supported all initiatives that aim at relieving poverty and empowering the local community in Lalibela</p>	<p>Orthodox Church Abuna Paulos</p> <p>Mr Jara Haile Mariam Director, ARCCH</p> <p>Mr Tadesse Wolde Aregay Art Conservator</p> <p>Mr Nureldin Satti could not come due to an unforeseen mission to Nazareth with the Education Minister. Mr Satti was on mission out of the country during the remaining stay of the mission members.</p>
9 March 2007 7 am.	<p>Departure from Addis Ababa Airport of Ms. Nada Al Hassan Mr. Michel Goutal Arrival to Lalibela airport at 9.30 am</p>	
10.30	<p>Site visit guided by Mr Valerin; the following subjects were discussed: The construction methods The construction site Risk mitigation measures Environmental impact Dismantlement method Remote sensing investigations Short in situ meeting with the Head of the Lalibela Church/ welcome</p>	<p>Bishop Abba Gebre Eyesus, Head of the Lalibela Church</p> <p>Mr Matteo Valerin, Resident Engineer, Endeco spa Ms. Cristina Squarizoni, Geologist Mr. Ezio Giuffrè, owner of Metralab Mr Daoud Abdelaziz ARCCH/Teprin resident Engineer Mr Berhane Deguenet, resident ARCCH / Teprin Quantity Surveyor</p>
Afternoon	<p>Detailed site visit Work on the conservation requirements (Conservation Action Plan)</p>	<p>Arrival of Mr Jara Haile Mariam Director - Authority for Research and Conservation of Cultural Heritage (ARCCH) to Lalibela in the late afternoon</p> <p>Mr Daoud Abdelaziz ARCCH/Teprin resident Engineer Mr Berhane Deguenet, resident ARCCH / Teprin Quantity Surveyor</p>
Evening	<p>Dinner with all the national and international team working on the shelters</p>	
10 March 2007 All day	<p>Detailed conservation assessment by the ICOMOS expert to the ARCCH Director and the Shelters' supervision team</p>	<p>Departure of Mr. Jara to Addis Ababa in the late afternoon</p>

	<p>Choice of the pilot project to be implemented by UNESCO: Biet Mercurios</p> <p>Visit of the Market Place</p> <p>Brief meeting on site with the Mayor on the issue of financial revenues of the site (see point 4.2 above)</p>	<p>Mr. Jara Haile Mariam, Mr Daoud Abdelaziz ARCCH/Teprin resident Engineer Mr Berhane Deguenet, resident ARCCH / Teprin Quantity Surveyor</p> <p>Mr Malaku Abebe, Mayor of Lalibela</p>
<p>11 March 2007 Morning</p> <p>Afternoon</p> <p>Evening</p>	<p>Field work to identify further conservation issues and mainly on the pilot project</p> <p>Departure of N. Al Hassan and M. Goutal from Lalibela Hotel at 2 pm. The plane was 3 hours late. Arrival to Addis Ababa at 7 pm.</p> <p>Departure of Mr. Goutal to Paris</p>	
<p>12 March 2007</p>	<p>De-briefing meeting of Ms. Nada Al Hassan</p> <p>Ms. Nada Al Hassan discussed with Mr. Jara the objectives of the mission, the persons to meet in Lalibela, the World Heritage Committee requirements and achievements), the Lalibela Project document that was presented to the EC Delegation</p>	<p>Ms. Fumiko Ohinata</p> <p>Mr Jara Haile Mariam ARCCH Office Ms. Fumiko Ohinata was invited but could not come</p>

Annexes

6.4 Conservation Action Plan



United Nations
Educational, Scientific and
Cultural Organization

World Heritage Centre

Rock Hewn Churches, Lalibela - Ethiopia Conservation Action Plan for 4 years

October 2006

1. Introduction

The present document describes the Conservation Action Plan for the Rock-Hewn Churches of Lalibela in Ethiopia, inscribed on the World Heritage List in 1978.

The large number of studies conducted since the 1960's has allowed to identify some causes of decay of the Lalibela churches and to define a clear and broad methodological approach to address the conservation problems. The restoration works that were done on the churches during the 1950s and 1960s have also allowed to learn from bad and good practices, and to verify the viability of some good interventions.

Due to the complexity of the issues at stake in Lalibela and to the large scale of the site, the studies and the conservation works in Lalibela require a long term strategy to be implemented in different steps. This document describes the UNESCO long term approach in general, and details the activities that should be implemented for the safeguard of Lalibela.

These activities take into consideration the following factors:

- The emergency actions required to mitigate imminent risks of structural failures in some churches
- The order of priorities linked to the global conservation needs of the site
- The logistical constraints linked to the undertaking of the construction works for the shelters in parallel with conservation studies and works (European Union funded project).

On 27th of September 2006, UNESCO World Heritage Centre organised a Scientific Experts' Meeting in Paris which involved specialists from different disciplines who have worked in Lalibela and/or have addressed problems similar to those encountered in Lalibela in other historical sites. The UNESCO World Heritage Centre has also consulted specialists in survey techniques, stone and wall painting conservation as well as site management in the African and Ethiopian contexts. The present project document is the result of these consultations and of the experts' input and multidisciplinary approaches.

2. Objectives

The overall objectives of this Project are

The sustainable conservation of the World Heritage site: Lalibela Rock Hewn Churches.

The sustainable management of the World Heritage site: Lalibela Rock Hewn Churches

The specific objectives of this Project are:

- To protect Lalibela from immediate and medium term threats
- To ensure the sustainable conservation and management of Lalibela
- To benefit the local community from conservation and tourism activities in Lalibela
- To increase professional knowledge and skills in the management and conservation of the site

3. Expected results and beneficiaries

3.1 The results to be achieved in the framework of this Project are:

- Conservation Action Plan established and implemented
- Site Management Plan principles established and operational
- Pilot conservation project implemented
- Conservation and Community Centre established and operational
- Sanitary conditions in the Lalibela village improved
- Civil Servants and Local community trained in conservation techniques, in site management and tourism services
- Movable heritage in Lalibela inventoried and protected
- Local Community involved in, and benefiting from, the management and conservation of the site

4. Scope of the Work

4.1 General

The approach developed in this project is inscribed in the socio-economic perspective of the Lalibela village; it takes into consideration the poverty of the population, the lack of human and technical resources and the remoteness of the site.

The guiding principle for the implementation of this project is to establish community-driven development initiatives. This will be made possible through participatory planning, capacity building, training and creating local labour opportunities. Successful initiatives in this field would reinforce the sense of ownership of the Lalibela population and contribute to the sustainability of conservation initiatives.

The conservation activities are conceived in accordance with the internationally acknowledged charters on the conservation of architectural and urban heritage, and of cultural landscapes. Indeed, the conservation action plan will have to derive from a thorough understanding of the site's history, construction properties and techniques, and a detailed analysis of its causes of decay; its proposed physical interventions will be minimalist and reversible in order to fully preserve the site's integrity.

The analysis and implementation phases will involve the systematic participation of the Ethiopian Church, owner of the site, the Ethiopian Authorities and mainly the Authority for Research and Conservation of Cultural Heritage (ARCCCH), the Contracting Authority for this project, as well as the regional authorities in Lalibela that include the Lalibela Tourist Information Centre and the Lalibela Municipality.

Senior and junior Ethiopian civil servants, professionals, scholars, university students, as well as Ethiopian trainees and apprentices will also have an active and participatory role in the project implementation. This approach will guarantee that every step of the project is the result of consultation with the owners of the site and the stakeholders; it will enrich the project with a good knowledge and analysis of the situation on the field and will create and consolidate a sense of ownership by the beneficiaries and stakeholders for all the activities to be implemented, and guarantee the sustainability of these activities.

Finally, the identification of the project partners, the members of the Project Steering Committee, the members of the Site Management working group, the beneficiaries if the

training courses as well as the other actors in the project, will be defined in close collaboration with the Ethiopian Church and the ARCCH, as well as the main stakeholders.

4.2. Specific Activities / Analysis

The indispensable background activities that will be conducted to understand the Rock Hewn churches of the Lalibela archaeological site and the problems related to its conservation require a necessary period of research, study and analysis in all the concerned fields. It shall lead to a comprehensive conservation project for the site, and be planned in close collaboration with experts working on Conservation, Management, Community Participation, Economic Development, and Training.

4.2.1 Recording and survey

A complete digitized survey of the whole archaeological site shall be undertaken.

Available data at the Ethiopian Mapping Authority and recently completed surveys shall be collected and needs accordingly formulated.

The result must be a topographic survey of the archaeological site and the detailed architectural survey of the churches.

In addition, aerial views and maps of the site and surrounding area shall be done to allow the development of site management activities in the whole area, and the sanitary improvement of the Lalibela village.

4.2.2 Historical and archaeological investigation

The history of the site will be researched and summarized. The relation between the site's history and its decay factors will be highlighted with the help of a highly qualified multidisciplinary team through field analyses of the constructions (choice of the churches' location, carving techniques, construction techniques "options", comparative dating, iconography versus present *in situ* observation, etc.).

Investigation in the Lalibela area on the extent of the archaeological remains, remote sensing investigations and a comprehensive landscape archaeology study shall allow having a complete understanding of the site's history and evolution.

It is important to underline that the village is built in an archaeological area. Therefore, the archaeological Investigation should also concern the village.

These findings might bring new information about the delimitation of the site, its religious functions and its overall structure.

The archaeological investigation will be seconded by laboratory tests where needed, such as tests to study the eventual presence of original mortars on the churches' internal and external surfaces, analysis of samples from mortars and other materials to identify the chemical composition and provide date hypothesis, etc.

The Historical and archaeological investigation team will illustrate the history of the site on the topographical and architectural surveys.

4.2.3 Analysis of decay factors

A multidisciplinary team of experts will review all the existing pertinent studies undertaken on Lalibela to take advantage from the accumulated knowledge and to plan the new activities related to the analysis of the structural, physical and chemical decay in Lalibela.

This team will undertake the analysis of the conservation problems and the degradation factors, and will report them on the architectural drawings.

The failure and “obstacles” in the drainage system will also be reported on the topographical maps.

The weathering processes and causes of damage to the churches

Several combined reasons that cause physical and chemical decay in the hewn rock, and their interrelations have been identified: characteristics of the basalt and tuff, evaporation of salts, expansion of Montmorillonite, decomposition of feldspar, heavy weight of hewn roofs versus a lighter bearing capacity of the walls, dilatation of the large monolithic structures, mechanical erosion produced by rain drops, tuff stone alteration due to meteo-climatic factors, discontinuities in the rock geological formation with direction and dip capable to generate a sliding, etc.

Studies undertaken by UNESCO experts in 2004 and 2005 have allowed progress in understanding the precise causes of decay, but still need to be deepened and improved.

Tests still need to be done systematically to fully analyse the decay related to the geological, geophysical and chemical properties of the hewn rock. In addition, the humidity rates inside the churches should be analysed and monitored.

Structural problems

The most critical structural problems have been identified in Biet Amanuel where an imminent risk of collapse is possible (cf. Margottini, 2004). Immediate studies and remedial measures need to be undertaken in this church.

In Biet Aba Libanos, the sliding problem seems to have stabilised, but necessitates further monitoring and, if needed, consolidation measures.

In Biet Mercurios, structural investigation is necessary to determine if the past structural failures have stabilised or are still active.

To define the appropriate solutions, detailed studies of the structural behaviour need to be undertaken and a monitoring system installed in these churches.

Systematic structural assessment should also be done on all the other churches Lalibela and, if needed, in their surroundings.

Wall paintings and sculptures

When comparing archive pictures with the current situation on site, it is evident that serious degradation of the paintings inside the churches has occurred in the last thirty years due to water infiltration.

The paintings properties and decay factors should be thoroughly studied in order to define restoration solutions. The study should include historical research, detailed survey and recording of the wall paintings as well as sample analyses to identify the composition of the wall paintings and their decay pattern. Sample consolidation and restoration tests should be performed before generalising any solution.

Sculpted elements have the same dilapidation pattern of the tuff out of which the churches are hewn. Although sculpted windows are exposed to rain, these are slightly damaged in general. However, sculptures and bas-reliefs (like the ones at the entrance of

Biet Mariam) were severely damaged in the last thirty years, and their original features are hardly recognisable.

These elements should be surveyed and restored following an historical research, a detailed survey and recording, and an analysis of their decay pattern in order to define a restoration action plan.

Unfortunately, within the framework of the project, the restoration of wall paintings and sculptures cannot be addressed because of time constraints. Nevertheless, conservation studies and works will concern the protection of paintings and sculptures from already identified decay factors such as water infiltration, direct rainfall, humidity and cracks.

4.2.4 Analysis of urban issues and site management needs

Today's urban development in Lalibela endangers the integrity of the archaeological site; some hotels are under construction and new housing areas are located in the vicinity of the churches within the site's buffer zone.

The traditional village of Lalibela – which was considered by ICOMOS as an integral part of the site at the moment of its inscription on the World Heritage List – is in immediate need for infrastructure facilities that improve the sanitary conditions of its inhabitants. No financing exists at present for its renewal.

A Master Plan for Lalibela has been recently prepared. This plan is a good starting tool for the analysis of urban issues as it includes the boundaries of the Church Property, the Buffer zones -although without precise outer limits - and the areas foreseen for the development of new housing. An urban study is necessary to assess the current situation from an institutional point of view (existing regulations and master plan) and analyse the urban growth needs and trends. Such a study cannot be done independently from a comprehensive site Management Plan.

Currently, there is no management plan for the site of Lalibela. The World Heritage Committee decisions and the UNESCO previous reports underlined the importance of an integrated management plan for Lalibela taking into account the whole territory.

The analysis of site management needs should be conducted not only to address urban development but also a wide range of interrelated issues such as the state of significance of the site, the institutional framework, the structural, architectural and landscape conservation, the traditional drainage system(s), risk-mapping, site interpretation and enhancement, maintenance, tourism, community participation, public awareness, pilgrimage and religious needs, church/community relationships, financial resources, education, and training.

The survey and analysis related to site management shall be done with the support of the Ethiopian Orthodox Church, the ARCCH and local authorities and with the participation and involvement of the Lalibela inhabitants. Other main actors will be consulted during the identification and study phase, such as the Authority for Research and Conservation of Cultural Heritage (ARCCH), the Addis Ababa University, the tourism private sector, the Housing and Agriculture ministries, local and national NGOs and other relevant entities.

4.2.5 Survey of local community needs

Involving the local community in the formulation of needs and in the conservation and regular maintenance of the site should be a central activity, interrelated to all the others. This requires information and awareness raising actions both at the beginning of the project and during its implementation.

In close collaboration with Ethiopian experts, the Ethiopian Church, the ARCCH, the Lalibela based public administrations and local community representatives, and with reference to existing studies on the subject, appropriate survey of the needs will be done and a consultation mechanism established to evaluate how best the Lalibela community and the Ethiopian church can participate to the analysis, planning and implementation of the activities.

The analysis of needs will be directed towards involving the local community and the Church in the conservation and management processes, empowering it by giving the community an active role in the project and by developing job generating activities.

4.3. Specific Activities / Conservation Action Plan

The conservation action plan develops along three parallel tracks: 1) emergency actions to prevent further immediate damage to the site, 2) medium term actions designed according to a methodological approach (research, recording, diagnosis, experimentation, identification of solutions, execution, and training) to be implemented in different phases, 3) long term actions related to studies and experimental field work on conservation, regular restoration campaigns, planning and implementation of an integrated site management plan capable to ensure the sustainability of the conservation activities, the maintenance and the monitoring of the site.

The short and medium term activities include the overall planning of a conservation action plan including the planning of long term activities, the implementation of the short term emergency activities and of the medium term ones, provided that they fit into the constraints and feasibility factors enumerated in the introduction (deadline, construction works, imminent risks and order of priorities).

The activities to be implemented are described hereafter.

4.3.1 Community participation

The involvement of the Lalibela community and the Ethiopian Orthodox Church clergy concerns all the project components. Following the close involvement of the community in the planning phase, activities will have the community as its main actor and/or beneficiary.

To ensure an appropriate mechanism for the involvement of the Lalibela community, studies aiming at establishing a dialogue about the process, options and responsibilities of managing the World Heritage site for the benefit of the local community, defining training programmes for community members, creating jobs and developing business opportunities will be conducted. Information meetings and events will be organised with/for the community; awareness raising and education activities about the World Heritage values of the site will take place for obtaining sustainable results in the conservation initiatives.

This process shall be done with the support of several Ethiopian experts who know the Ethiopian/ Lalibela context; it shall also lead to recruiting trainees from the local community (to be employed in the implementation of a pilot project for restoration and conservation works and throughout the regular maintenance programme) who will become active members in the project and beyond it.

The establishment of a Conservation and Community Centre described in paragraph 5.3.3 will consolidate the participation of the community in the conservation of the site on a long term basis.

4.3.2 Emergency Conservation activities

The emergency actions aim at intervening as quickly as possible to halt (or slow down) damage to the most endangered elements of the site by using simple and reversible means. They will be carried out by a multidisciplinary team who will work *in situ* to define the emergency actions to be undertaken and assess the imminent risks through the analysis of existing data and recent experts' reports. The immediate protective actions will concern provisional conservation and consolidation interventions; these may include:

- The structural consolidation of Biet Amanuel (that present a risk of collapse) and the installation of an appropriate monitoring system

- The evaluation of land sliding risks in Biet Aba Libanos and the appropriate monitoring and consolidation measures
- The evaluation of structural failure at Biet Mercurios and the appropriate monitoring and consolidation measures
- The repair of existing cracks that expose the churches to water infiltration and/or the mural paintings to direct damage
- Emergency consolidation of mural paintings and sculpted elements
- Repair of the existing modern or traditional drainage system

Such interventions will be carefully planned in coordination with the firm implementing the works of the shelters' project. Monitoring the structural behaviour of the endangered churches could also be very useful during the construction works of the planned shelters (effect of the vibrations generated by the construction site on the churches).

4.3.3 Medium term conservation activities

4.3.3.1 Studies

The medium term activities shall include the detailed analysis of all components described from item 5.2.1 to 5.2.5 above. Only a comprehensive analysis can lead to a coherent action plan.

Other needs may arise during this phase led by the advancement of the analysis. These may be added to the foreseen ones in due course.

The studies will be led by different teams in parallel and will require field work, laboratory tests and processing and coordination of the information.

4.3.3.2 Pilot project

A Pilot Project shall be implemented on a hewn structure that is not concerned by the planned shelters to avoid disrupting -and being disrupted by- the course of the construction works, and for safety reasons. This pilot project shall allow experimenting different reversible conservation techniques on the internal and external surfaces of an edifice before generalising their use and will lead to the conservation of the totality of the site.

The Pilot Project will concern architectural conservation of the hewn rock and the stone conservation, surface treatment and protection from water and damp, and the rehabilitation of the water drainage system

The Pilot Project will be used as a workshop for the on-the-job training of 45 Ethiopian restorers and workers for traditional conservation techniques and mainly the use of lime based mortars and their application techniques for impermeabilization, filling of cracks and voids. Their apprenticeship will serve as a nucleus for the establishment of the Lalibela Conservation and Community Centre and for allowing the implementation of a regular maintenance programme for the site.

The team in charge of the Pilot Project will be closely involved in the analysis phase that will determine the conservation solutions. The Pilot Project team leader will organise the working site after completion of the analysis phase. He/she will conduct several experiments, choose the site to be used as a pilot site, and recruit the workers/trainees. Several small groups of trainees will be formed in different locations of the site to allow for high quality training. A construction company will be employed to support the logistics during the works by providing scaffoldings, equipment, machinery, materials, and organising the recruitment process of workers/trainees.

4.3.3.3 Establishing the principles of the Site Management Plan

The Site Management Plan will be implemented over a long span of time. A committee with representatives of all stakeholders will be established at the beginning of the process to implement this activity. The management plan will address short and medium issues.

Short term issues concern the up-dating of the existing Master Plan, the improvement of the urban regulations (in order to avoid rapid change in the wrong direction) and the liberation of the historical drainage system from rubbish and – if possible – from the dwellings that obstruct it (the relocation the inhabitants of these dwellings will be addressed).

Medium term issues concern detailed urban planning, addressing the extension of the World Heritage site boundaries, the exact definition of its buffer zone, and the improvement of the legal and institutional frameworks.

The archaeological investigations and historical research undertaken in the framework of this project will be a tool for defining the boundaries and the structure of the site, and envisaging the urban protection needs.

A multidisciplinary team of experts will be recruited to draw the main lines for the implementation of the site management activities and establish a sound and timely process for implementation.

Site management is a process that requires a large spectrum of experts and extensive consultation and negotiation with the key stakeholders. This process can be launched, and the committee responsible for it established and functioning, in addition to the implementation on the ground of the short and medium term activities described above.

Medium term issues also focus on finding solutions for Urban Waste Disposal, and on the rehabilitation of the traditional village. **The project foresees to provide the traditional village of Lalibela with an improvement of its sanitary conditions.** It is very important that the inhabitants sense that they have benefited from this project through concrete measures that not only protect this part of the World Heritage site but also and foremost, improve their daily lives and thus their sense of ownership of the archaeological site. Such an initiative might well be the key to the success of the project and a good starting point in the planning of site management activities. In addition, it is a job-generating activity that can be carried out with local know-how and techniques, once the technical needs are studied and formulated.

Medium term issues will also address sustainable visitor and tourism management. Indeed, Lalibela has a high visitor pressure (estimations suggest some 20.000-50.000 pilgrims during the three yearly festivals and 10.000-20.000 additional tourists – data to be checked). The number of tourists is expected to rise because of the easier access offered by the new airport and the increasing promotion of Lalibela site together with Aksum. The EU funded shelters' project is also expected to bring more visitors. The growth of tourism will benefit the local community only if proactive measures are put in place to manage, control and monitor tourism flow, and if community empowerment activities are implemented.

Preserving the site from destructive tourism initiatives and intrusive behavior of foreign visitors during religious services and events is a high priority. It shall be integrated in the Site Management Plan in the form of administrative measures for the preservation of the environmental, architectural, social and religious integrity of Lalibela from tourism, as well as through raising-awareness campaigns and the involvement of the local population in the preservation of their heritage.

Past experiences from World Heritage sites have proven that tourism development as well as arts and crafts production can be significant ways to develop the local economy and empower the community, contributing in turn to the sustainability of the conservation efforts for World Heritage sites. Within the framework of this project, the local arrangements for tourism will be improved, particularly by training of tourist guides, improving the institutional framework that protects the site's integrity and thus its interest for the visitors, improving the visitors' circuits on the site, as well as producing a pamphlet about Lalibela.

The archaeological studies developed under this project shall lead to defining these visiting circuits and preparing the promotional and informative material on Lalibela.

UNESCO conducted training on creative interventions for the crafts people of Lalibela in 2004/5, which resulted in creating a range of products and establishing an association for crafts people. Building on this experience, the project also includes activities related to further training of the local crafts people on the enlargement of their product range, design improvements, marketing and entrepreneurship as well as support for the association.

In addition, the planned economic development study will address any further needs for the community of Lalibela in the fields of tourism, conservation techniques, materials and skills, as well as arts and crafts production.

Pilgrimage in Lalibela has to be addressed in order to provide the needed sanitary services for the pilgrims, to improve pilgrims' visit and mitigate the negative effects on the site and its population. This very important element of the site's life will be integrated in the Management plan.

While the **short and medium term activities** will allow protecting the site from immediate threats, and establishing the mechanism for managing Lalibela, **long term activities** will concern the implementation of the Site Management Plan with the support of the committee and stakeholders who were involved in launching it. The site will be managed through a process of continuous consultation and evolving methods.

4.3.3.4 Conservation and Community Centre

To ensure the sustainability, the constant evolution and the progressive implementation of the management and conservation action plans for the site, it is proposed to establish a permanent Conservation and Community Centre in Lalibela. The Centre would be the focal point for research, training, conservation, management, awareness raising, cultural tourism development and fundraising. The establishment of this centre aims at representing a pilot experience in the management of Ethiopian cultural sites and capacity development, and attracting further interest from specialists and funding agencies.

The architectural design of the Conservation and Community Centre would consist of a vernacular architecture built with traditional materials and construction techniques. Its exact location will be established in the first months of the project implementation. It is proposed to build, furnish and equip this Centre as well as to establish its administrative chart and its detailed mandate and activities.

The output of all the activities implemented in the framework of this project will constitute the basis for its start-up.

4.3.3.5 Inventory of movable heritage

Protecting the movable heritage of Lalibela shall be included in its management plan. This consists of the existing manuscripts, liturgical artefacts, paintings and other objects.

A systematic inventory of the Lalibela movable heritage will be undertaken, and the strategy to protect it defined. Furthermore, urgent measures will be implemented to ensure its protection.

4.3.3.6 Training

Training activities concern the Ethiopian Authorities in charge of managing and maintaining the site (ARCCCH managers and technicians, managers from the Office of Culture and Tourism and from the Amhara Region, Lalibela Municipality and the Regional Committee), the managers on behalf of the Ethiopian Orthodox Church – custodian of the Lalibela Churches – and the local community.

While training civil servants will contribute to the institutional support and to conserving and managing the site, community empowerment will also be strengthened through awareness raising activities, and by developing real capacities in restoration craftsmanship and as well as in the tourism field.

On-the-job training for Ethiopian professionals, civil servants and local communities including workers is an element present in the course of the key conservation and management activities:

The following on the job training will take place in the framework of this project:

- Training through regular participation in the Analysis and Implementation phases as well as in the Site Management activities will concern all the stakeholders through the technical support of specialists in the various fields

- 7 civil servants and 3 Ethiopian academics will be regularly involved in the planning and implementation process of site management and community participation activities organised
- Young Ethiopian professionals and university students will be involved in all technical teams dealing with Survey, Archaeological and Architectural Studies, Structural studies, Pilot Project planning and implementation and Inventory techniques of movable heritage.
- Ethiopian workers and restorers will be trained in conservation techniques

Specific training courses will be conducted as follows:

- Training workshop for 15 Tourism Guides
- Training workshop for arts and crafts development for 30 crafts people
- On the job training and employment of 45 local workers

Scholarships will be granted to civil servants as follows:

- Training in site management(possibly under the ICCROM Africa 2009 Programme) for 2 civil servants - 3 months
- Individual scholarships in conservation techniques for 4 civil servants (1 month/ ICCROM, Rome)
- Introduction to the local authorities and church managers in inventorying the movable artefacts of the churches and to their precautionary conservation
- Introductory training on conservation techniques, maintenance and site management for the Church clergy

The recruitment process of trainees will be established in collaboration with the Ethiopian Authorities and the Ethiopian Orthodox Church at the start of the project. It shall take into consideration the restricted access to the holy places and liturgical artefacts.

4.3.3.7 International Experts' Conference in Lalibela


To foster the work planned and implemented in Lalibela and to evaluate its results, an international experts' conference will be organised near the end of the implemented activities. This conference will allow assessing the achieved results and adjusting initially planned activities by the main actors of the Conservation Action Plan and Experts in the concerned fields.

4.3.3.8 Meetings and Seminars

Meetings will regularly be organised to implement Site Management and Conservation activities and to ensure participatory planning throughout the project activities (analysis and implementation). A special budget is provided to cover the travel and daily subsistence allowances for the stakeholders who will be identified for the implementation of the site management and technical activities or meetings.

A mid term evaluation seminar will be held 6 months after the project's start.

6.5 Project funded by Norway

 <p>United Nations Educational, Scientific and Cultural Organization</p>	<p><i>Project Document</i></p> <p>1.1 Project Title: Conservation Action Plan for the Rock Hewn Churches, Lalibela</p> <p>1.2 Beneficiary Country: Federal Democratic Republic of Ethiopia</p> <p>1.3 Time Frame: Time frame for 1st phase: 1 year</p> <p>1.4 Funding source : Norway</p> <p>1.5 Co-funding sources: World Monuments Fund (USD 1 million dollar) provided the availability of a matching fund</p> <p>1.6 Total estimated budget, including support costs: Budget of the present phase proposal: USD 299,959</p> <p>1.7 International Executing Agency: UNESCO</p> <p>1.8 Responsible Sector Culture Sector, World Heritage Centre, in cooperation with UNESCO Addis Ababa Office</p> <p>1.9 Name of the project officer F. Bandarin, Director, World Heritage Centre</p> <p>1.10 Partners (external and/or UN) Authority for Research and Conservation of Cultural Heritage (Ethiopia)</p>
<p>1.11 Executive Summary</p>	<p>The present document describes the Conservation Action Plan for the Rock-Hewn Churches of Lalibela in Ethiopia, inscribed on the World Heritage List in 1978, to be implemented by UNESCO over three years.</p> <p>The approach developed in this project takes into consideration the socio-economic context of the Lalibela village, the extreme poverty of the population, the lack of human and technical resources and the remoteness of the site.</p>

	<p>The guiding principles for the implementation of this project are to establish community-driven development initiatives and create local labour opportunities in the conservation and tourism fields. This will be made possible through participatory planning, capacity building and training. Successful initiatives in these fields would contribute to poverty alleviation and to the sustainability of the conservation initiatives.</p> <p>The conservation activities are conceived in accordance with the internationally acknowledged charters on the conservation of architectural and urban heritage, and of cultural landscapes. The conservation action plan will be based on a thorough understanding of the site's history, physical conservation and management needs, urban growth, and economic development perspectives; the conservation project will be minimalist and reversible in order to fully preserve the site's integrity.</p> <p>During the project's first phase, UNESCO will start the restoration works in Lalibela and will implement a pilot activity. It will also undertake an on the job training in conservation techniques for a core of local workers, and plan local economic development opportunities.</p> <p>At the end of the first phase, UNESCO will convey the project's scientific committee to evaluate the project's first phase results, orient and plan the project's successive phases.</p>
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2.1. Background/ Context

Lalibela is a village located in the northern-central part of Ethiopia, approximately 600 km north of Addis Ababa in northern Wollo, one of the most food deficit areas of the Amhara Region. The town, which has about 12,000 inhabitants, is situated at an altitude of 2,500 metres. In its centre lies a unique complex of eleven rock-hewn churches cut out of the living rock some 800 years ago whose construction is attributed to King Lalibela (1167-1207) of the Zagwe dynasty. The churches are still used daily for religious practices and ceremonies, whilst on major religious occasions, large crowds of believers and pilgrims at the site.

Some of churches are sculpted out of solid volcanic rock. Others are connected by long underground tunnels and mazes. Some are quarried enlargements of caves.

The main cluster of eleven churches are located in the village centre - Biet Golgotha/Biet Mia'el, Biet Mariam, Biet Meskel, Biet Danaghel, Biet Medhane Alem, Biet Amanuel, Biet Mercurios, Biet Aba Libanos, Biet Gabriel-Rufa'el, and Biet Gyorgis.

Over the years, the churches have been exposed to wind, rain, and thermal changes as well as to human activities. This has resulted in a severe degradation of the monuments, most of which are now considered to be in a critical condition. However, because of the outstanding value and the nature of the monuments, the conservation of the Lalibela churches attracted long ago the interest of the international community. A first restoration attempt of the Lalibela rock-hewn churches was carried out in the 1920's, followed by other campaigns in the 1950's and the 1960's. More recently, protection measures from direct exposure to the rain was undertaken between 1989 and 1997 over five churches, namely Biet Medhane Alem, Biet Maryam, Biet Masqal, Biet Emanuel and Biet Abba Libanos, whereas temporary shelters made of timber and corrugated sheets have been provisionally built.

Given the damaging visual impact of these temporary shelters and their interference with the religious rituals in the surrounding of the churches, the European Union (EU) funded a project for the construction of new shelters to replace the poor existing ones. The very large scale of this project (total cost of 5 million euros) and the planned foundations strongly threatened the integrity of the site, which made the World Heritage Committee request Ethiopia to revise the EU funded Shelters' project (July 2007). The project was recently revised to the satisfaction of UNESCO and the Advisory Bodies of the World Heritage Centre.

In parallel, the UNESCO World Heritage Centre prepared a comprehensive conservation action plan that should ultimately lead to durably protect the site and dismantle the EU funded shelters. This initiative was supported by the World Monuments Fund, a private American Foundation, which pledged 1 million US dollars for the conservation of Lalibela¹.

The large number of studies conducted since the 1960's has allowed to identify some causes of decay of the Lalibela churches and to define a clear and broad methodological approach to address the conservation problems. The restoration works that were done on the churches during the 1950s and 1960s have also allowed to learn from bad and good practices, and to verify the viability of some good interventions.

¹ A financial contribution from the World Monuments Fund requires a matching fund from other funding sources: an amount equal to the pledged one from private donors, or the double of the pledged amount from public donors. Contributions from other American foundations are not eligible as matching funds.

Due to the complexity of the issues at stake in Lalibela and to the large scale of the site, the studies and the conservation works in Lalibela require a long term strategy to be implemented in three phases. This document describes the UNESCO overall approach to the Lalibela Conservation Action Plan, and details the activities that may be implemented with the support of the Norwegian Fund for the first phase of the project, as well as the complementary activities that will be implemented with the support of the World Monuments Fund.

On 27th of September 2006, UNESCO World Heritage Centre organised a Scientific Experts' Meeting in Paris which involved specialists from different disciplines who have worked in Lalibela and/or have addressed problems similar to those encountered in Lalibela in other historical sites. The UNESCO World Heritage Centre has also consulted specialists in survey techniques, stone and wall painting conservation as well as site management in the African and Ethiopian contexts. The present project document is the result of these consultations and of the experts' input and multidisciplinary approaches.

The primary beneficiaries of the project are:

- Central and regional heritage institutions
- Ethiopian professionals and policy makers who have an impact on the management and conservation of the site
- Local communities who live and depend on the site

The secondary target beneficiaries are

- The Ethiopian Orthodox Church, owner of the site
- The local tourism actors.

Policy of the Ethiopian Government for cultural heritage research and conservation

The activities of the government, pertaining to the conservation and protection of cultural heritage, are coordinated through the Authority for Research and Conservation of Cultural Heritage (ARCCH), and the Ethiopian Tourism Commission (ETC). Both Government Departments are currently implementing the «Ethiopia Cultural Heritage Project». ² The commitment of the Government to conserve and protect its heritage is further demonstrated by the large number of sites inscribed on the World Heritage List under the UNESCO's 1972 Convention for the conservation and protection of heritage of universal value. So far the sites include: Aksum, the Rock-hewn Churches of Lalibela, Fasil Ghebbi, Gondar Region, the city of Harar, the Lower Valley of the Awash, Tiya and Lower Valley of the Omo and Simien Park.

While Ethiopia has made much progress with respect to the nomination of World Heritage sites, the creation of institutions and the establishment of regulations that ensure the integrity of heritage sites and their appropriate management and the development of legislation and sites delimitation and zoning require up-dating. More capacity building is also required in recording, historical site management, conservation techniques and craftsmanship.

2.2 Objectives

The overall objective of this Project is:

The sustainable conservation of the World Heritage site: Lalibela Rock Hewn Churches.

² The Government of Ethiopia has secured from the World Bank a Learning and Innovation Loan (LIL), with the objective of testing out and developing, in a pilot yard, the means for more fully integrating the conservation and management of its cultural heritage into local and national economic development.

The specific objectives of this Project are:

- To identify the most adequate conservation solutions for Lalibela
- To benefit the local community from conservation and tourism activities in Lalibela
- To increase professional knowledge and skills in the conservation of the site.

2.3 Project justification

The Rock hewn churches of Lalibela constitute a unique ensemble of outstanding universal value. This value is now in danger because of the decay of its structures. It is therefore very urgent to restore the site and plan a long term and sustainable programme to maintain and protect it.

The remoteness of Lalibela and the extreme poverty of its population make its restoration an urgent matter, not only to maximize the chances of keeping the Lalibela World Heritage site for the future generations, but also to turn the rescue operation into a beneficial activity for the local population. A pilot experience in Lalibela can indeed prove to the international community that heritage conservation is intrinsically linked to poverty alleviation, if local conservation techniques are taught, transmitted and regularly used to protect the site, and if sensible and sustainable tourism related activities are planned to develop the local economy.

Moreover, successful pilot restoration initiatives will allow in the medium term to liberate the site from all temporary structures, built and planned, that hinder its integrity.

The present project serves the objectives and priorities of UNESCO by contributing to development in Africa, protecting and rehabilitating the rich cultural heritage of Ethiopia, supporting and enhancing its cultural diversity and empowering the civil society, contributing to the economic development through cultural heritage conservation and sustainable tourism development.

2.4. Expected results

The results to be achieved in the framework of this Project are:

- Pilot conservation project planned and implemented
- Economic development activities identified and planned
- Local Community involved in, and benefiting from the conservation of the site

Section III – Logical Framework Matrix

Intervention	Logic	Objectively verifiable indicators of achievements	Sources and means of verification	Assumptions
Overall Objective	<i>Sustainable conservation of the World Heritage site: Lalibela Rock Hewn Churches</i>	- Physical improvement of the Lalibela churches	- Pictures: before and after the project	Assumptions - Collaboration and active participation of the Central and Regional authorities in charge of Lalibela - Collaboration and active participation of the Ethiopian Orthodox Church
		- Local actors able to restore and maintain the Lalibela churches by themselves (sustainability)	- Physical results of the on the job training in conservation works observable on the site	- Collaboration and active participation of the Lalibela community - Adequate candidates for on the job training Risk - Political instability in the region
Specific Objectives	<i>To identify the most adequate conservation solutions for Lalibela</i>	- Conservation Project	- Experts' reports - Minutes of meeting of the Scientific Committee	- The beneficiaries and stakeholders agree with the UNESCO scientific committee recommendations

	Intervention Logic	Objectively verifiable indicators of achievements	Sources and means of verification	Assumptions
Specific Objectives	<i>To benefit the local community from conservation and tourism activities in Lalibela</i>	<ul style="list-style-type: none"> - Jobs created in conservation works - Economic development opportunities identified 	<ul style="list-style-type: none"> - On the job training courses reports and contracts with the trained workers - Experts' reports 	<ul style="list-style-type: none"> - Recruitment process for the trainees set and agreed upon by decision makers and beneficiaries
	<i>To increase professional knowledge and skills in the conservation of the site</i>	<ul style="list-style-type: none"> - Local people and civil servants trained in site management on the job - Local community members trained in conservation techniques on the job 	<ul style="list-style-type: none"> - Refer to the point above 	<ul style="list-style-type: none"> - Civil servants committed to participatory planning - Local workers motivated for the training
Expected Results	<i>Pilot conservation project planned and implemented</i>	<ul style="list-style-type: none"> - Pilot conservation project produced and implemented on site 	<ul style="list-style-type: none"> - The architectural drawings and reports - The visible results <i>in situ</i> 	<ul style="list-style-type: none"> - Tender is successful
	<i>Economic development activities identified and planned</i>	<ul style="list-style-type: none"> - Economic study conducted and action plan defined 	<ul style="list-style-type: none"> - Experts' reports 	<ul style="list-style-type: none"> - Good collaboration between the local and the international expert
	<i>Local Community involved in, and benefiting from, the conservation of the site</i>	<ul style="list-style-type: none"> - Participatory planning of local community ensured through the project - Jobs created for the local community - Awareness raising meetings and activities 	<ul style="list-style-type: none"> - Public consultation events - Produced leaflet(s) - Contracts with local workers 	<ul style="list-style-type: none"> - Active participation of local community - Decision makers facilitate local community's participation

	Intervention Logic	Means employed	Sources and means of verification/ Action costs	Assumptions
Activities	4.1.1 <i>Survey of local community needs</i>	- Local Community needs identified	- Reports on local community consultation meetings - Personnel & field missions: (partially included in UNESCO staff field missions of 3000\$)	- Good cooperation of the local community
	4.1.2 <i>Pilot Conservation Project</i>	- Conservation architects - Ethiopian master mason	- Architectural report, project, and drawings - Pilot project implemented: physical results <i>in situ</i> - On the job training conducted <i>in situ</i> - Personnel and field missions: 67500\$ - Rental of car with driver 1000\$	- The Church agrees and facilitates the team's work - The tender procedure is successful
		- Local construction company	- Support in the implementation of the conservation and structural works - Logistical and technical services and equipment 50000\$ - Recruitment of 35 workers for on the job training for six months: 54000\$	- Conservation works are synchronised with the construction works of the EU funded shelters - Recruitment standards of workers set in collaboration with the local community and agreed upon by decision makers

	Intervention Logic	Means employed	Sources and means of verification/ Action costs	Assumptions
Activities	<i>4.1.3 Economic development</i>	- Economists	- Experts' reports - Experts' fees and travel: 8500\$	- Good collaboration between international and national expert
	<i>4.1.4 Meetings & Seminars</i>	- Experts	- Scientific Coordination meetings' costs: 8000\$+ hospitality 400\$ + UNESCO staff participation	- Beneficiaries and the Church agree on the experts' proposals
		- Church and community representatives, civil servants	- Meetings' costs for participatory planning & evaluation: 8000\$ + premises 400\$ + publication of leaflets: 2000\$ + hospitality: 1150\$+ UNESCO staff participation : 7000\$	- Decision makers agree on the participatory planning
			- Other costs: - Reporting and communication costs: 500\$	

ARCCH: Authority for Restoration and Conservation of Cultural Heritage

Section IV – Description of the Activities

Preparatory studies

The indispensable background studies that will be conducted to understand the Rock Hewn churches of the Lalibela archaeological site and the problems related to its conservation require a necessary period of research, study and analysis in all the concerned fields. It shall lead to a comprehensive conservation project for the site, and be planned in close collaboration with experts working on Conservation, Management, Community Participation, Economic Development, and Training.

The studies will be undertaken by different teams in parallel and will require field work, laboratory tests and processing and coordination of the information.

These studies will be implemented in the framework of the World Monuments Fund Project, before the present project starts, and will include the following points:

- Recording and survey
- Historical and archaeological investigation
- Analysis of decay factors
 - *The weathering processes and causes of damage to the churches*
 - *Structural problems*
 - *Wall paintings and sculptures*
- Analysis of urban issues and site management needs

Please refer to Annex 1 for a summary of these activities that will constitute the technical and scientific basis for the implementation of the present project.

4.1 Detailed Activities

4.1.1 Survey of local community needs

Involving the local community in the formulation of needs and in the conservation and regular maintenance of the site should be a central activity, interrelated to all the others. This requires information and awareness raising actions both at the beginning of the project and during its implementation.

During the first phase of the present project, UNESCO will collect existing studies on the subject, and consult Ethiopian experts, the Ethiopian Church, the ARCCCH, the Lalibela based public administrations and local community representatives, an appropriate survey of the needs will be done and a consultation mechanism established to evaluate how best the Lalibela community and the Ethiopian church can participate to the analysis, planning and implementation of the activities.

The analysis of needs will be directed towards involving the local community and the Church in the conservation and management processes, empowering the local community by giving it an active role in the project and by developing job generating activities.

4.1.2 Pilot project

This activity constitutes the core of the present project. It aims at proposing conservation solutions for the Lalibela Rock hewn churches, based on the scientific and technical analysis conducted in the preparatory studies –briefly described in Annex 1- and at testing these solutions by implementing a pilot project. In addition, to ensure the sustainability of the conservation activities in Lalibela, the conservation works of this pilot project will be executed by local workers who will be trained on the job by the UNESCO international and national conservation team over a period of 6 months.

The Pilot Project will concern architectural conservation of the hewn rock and the stone conservation, surface treatment and protection from water and damp; it shall be implemented on a hewn structure that is not concerned by the planned construction works of the EU funded shelters to avoid disrupting -and being disrupted by- the course of the construction works, and for safety reasons. This pilot project shall allow experimenting different reversible conservation techniques on the internal and external surfaces of an edifice before generalising their use and will lead to the conservation of the totality of the site.

The Pilot Project will be used as a workshop for the on-the-job training of 35 Ethiopian workers for traditional conservation techniques and mainly the use of lime based mortars and their application techniques for impermeabilization, filling of cracks and voids. Their apprenticeship will serve as a nucleus for the future restoration works and for allowing the implementation of a regular maintenance programme in Lalibela.

The team in charge of the Pilot Project will be closely involved in the analysis phase that will propose the conservation solutions. The Pilot Project team leader will organise the working site after completion of the analysis phase. He/she will conduct several technical experiments, choose the site to be used as a pilot site, participate to the recruitment of the workers, organise and closely supervise the pilot work site

Small groups of trainees will be trained in different locations of the site to allow for high quality training. A local construction company will be employed to support the logistics during the works by providing scaffoldings, equipment, machinery, materials, and organising the recruitment process of workers/trainees.

4.1.3 Economic development

In addition to creating jobs in the field of conservation techniques, during the first phase of the project, one international and one national expert in economic development will undertake a joint study that addresses development possibilities and mechanisms in the fields of tourism, conservation techniques, materials and skills, as well as arts and crafts production. Their recommendations will be developed in the future phases of the project, and will build on previous and current UNESCO initiatives in the field of crafts development in Ethiopia and in Lalibela.

4.1.4 Meetings and Seminars

Meetings will regularly be organised to plan and implement the Conservation activities and to ensure participatory planning throughout the project activities (analysis and implementation). A special budget is provided to cover the travel and daily subsistence allowances for the stakeholders who will be identified for the implementation of the site management and technical activities or meetings

An evaluation seminar will be held at the end of the project's first phase.

The scientific committee (described in item 4.5 below) will be conveyed to endorse the technical activities, evaluate the project's first phase and recommend the activities to be conducted in the future project phases.

4.2 Services to be provided by UNESCO

A. Technical assistance

The Project will be executed by the UNESCO World Heritage Centre in cooperation the UNESCO Field Office in Addis Ababa. UNESCO will be responsible for the implementation of the overall project and mainly the scientific coordination of activities. UNESCO will ensure all substantive technical, administrative and financial functions, as well as the supervision of the experts, research institutes and firms whose services are utilized for the purposes of the project, the management of the project activities and the coordination between all the project partners and actors (experts, beneficiaries and Ethiopian stakeholders).

The UNESCO Addis Ababa administrative unit will follow-up on the Ethiopian based contracts and activities and will provide coordination and communication with the Ethiopian stakeholders, as well as administrative and logistical support throughout the project implementation.

In addition, the tasks of the UNESCO team will also include:

- Technical backstopping throughout the project;
- Technical support missions of UNESCO Headquarters and UNESCO Addis Office staff to Lalibela;
- Secretarial and administrative support;
- Reporting to the World Heritage Committee on the development of the project;
- Reporting to the Donors.

UNESCO Headquarters and the UNESCO office in Addis Ababa will use their premises for most of the experts' meetings and logistical support.

4.3. Responsibilities of the parties

At the national level, project implementation will largely be carried out in cooperation with the Authority for Research and Conservation of Cultural Heritage (ARCCH), the Agency in Ethiopia responsible of cultural heritage in general and World Heritage sites in particular. The ARCCH will serve as the counterpart for this Project and will have the central coordinating role. The ARCCH is also present in a regional office in Lalibela that will provide the necessary administrative and logistical support.

The main activities that will be implemented by the ARCCH will concern the logistical and administrative matters such as the memorandum of understanding for the project, custom clearance, legal permits and construction permits, as well as providing maps, archives and other data that is relevant to the project implementation.

4.4 Project Coordination

UNESCO is responsible for the overall coordination of the project activities by the different donors operating in Lalibela through UNESCO. By assuming scientific coordination, it will liaise with the experts and allow for them to interact and share the results of their work in

order to guarantee a multidisciplinary approach to the project, and conservation and management solutions with a clear vision of the whole picture.

UNESCO will also coordinate where necessary with other donors and agencies operating in Lalibela to allow cooperation and avoid duplication of efforts.

The ARCCH will be responsible for coordinating the work between UNESCO and other governmental and non-governmental counterparts present in Ethiopia, and will organize consultative meetings between the project team and other relevant bodies whenever necessary.

4.5. Project Monitoring, Reporting and Evaluation

A Scientific Committee composed of experts in fields relevant to the project will be created to plan and monitor the conservation action plan during the project inception phase. This committee has met to plan the overall project activities. It shall meet at the end of this project first phase to evaluate its results and recommend the contents of its next phases.

A Steering Committee will be established to endorse strategies, follow-up on project implementation, monitor and evaluate the project, as well as endorse the conservation action plan proposed by the Scientific Committee; it will be composed of representatives of the ARCCH, the donor and UNESCO.

The Steering Committee will meet at key points of the project and whenever deemed necessary by one of its members.

UNESCO will organise an evaluation seminar, where all the stakeholders will be conveyed, towards the end of the project.

UNESCO will provide a mid term progress report 6 months after the start of the project activities, and a final report 14 months after the start of the activities.

Briefings and occasional reports will be provided as required by the donor and the various UNESCO sections.

A budget is foreseen for the scientific committee meetings and the participatory planning meetings, of respectively 8000\$ and 8000\$.

4.6. Visibility of the project

The project will prepare background information studies that will lead to verifiable and visible results on the site. The planned restoration works shall provide visible results of the donors' contribution in Lalibela. During the works, a panel will display the name and the logo of the donor.

Hospitality events and the foreseen leaflets for the community participation will refer to the donor's contribution and guarantee the project's visibility.

The UNESCO websites (general website, WHC, Culture and ERC websites), will report regularly on the project progress and main activities and give the project appropriate visibility.

The successive phases of the project foresee communication/ awareness raising activities amongst the local community and the publication of leaflets, a final conference and a publication on all the project achievements.

Section V - Sustainability

The sustainability of the project activities is a central element in the project planning, because of Lalibela's remoteness from the capital and most of all the very poor conditions of its population.

The following elements described in the project activities should ensure the sustainability of the project's first phase:

- Participatory planning of the activities by all the stakeholders and an active role given to the local community throughout the project implementation
- Training of local workers that enables the local community to continue restoring the site without external technical assistance
- Creating jobs that will be regularly needed to protect the site and will enable the maintenance of the site on the long term;
- Involvement of Ethiopian experts and civil servants in the project activities to guarantee a good decision making process, and thus more sustainable results
- Raising awareness within the local community and allowing the local community to link conservation of cultural heritage with economic development, and to develop better individual behaviours in the historical areas

The project will involve the systematic participation of the national and regional institutions, the Ethiopian Church, owner of the site, and the civil society. Senior and junior Ethiopian civil servants, professionals, scholars, university students, as well as Ethiopian trainees and apprentices will also have an active and participatory role in the project implementation. UNESCO will do its utmost to create the best conditions to involve all the actors of the project in its implementation, so as to reinforce the sense of ownership of the project by the Lalibela population and the stakeholders, and ensure the sustainability of its activities.

Section VI - Work Plan and Budget

Work plan

	USD	1 st month	2 nd month	3 rd month	4 th month	5 th month	6 th month	7 th month	8 th month	9 th month	10 th month	11 th month	12 th month	13 th month	14 th month
Recruitment/ Project personnel and consultants	54000														
4.1.1 Survey of local community needs	3000 + 2000 for leaflets														
4.1.2 Pilot project Studies	20 000 (experts) + 1000 (car)														
4.1.2 Pilot Project implementation	47 500 (experts) + 50 000 (construction company)														
4.1.2 On the job training of workers in conservation techniques	54 0000 (construction company: local recruitment)														
4.1.3 Economic development	8500														
4.1.4 Meetings and seminars	16000 + 400 +1550														
UNESCO staff planning ,coordination and monitoring	7000 travel														
Submission of progress report	200														
Submission of final technical and financial report	300														



Biet Medhane Alem and Biet Mariam



Existing shelters, Shelters over Biet Medhane Alem (left) and Biet Mariam (right), *Margottini, June 2006*



Urban growth around the site



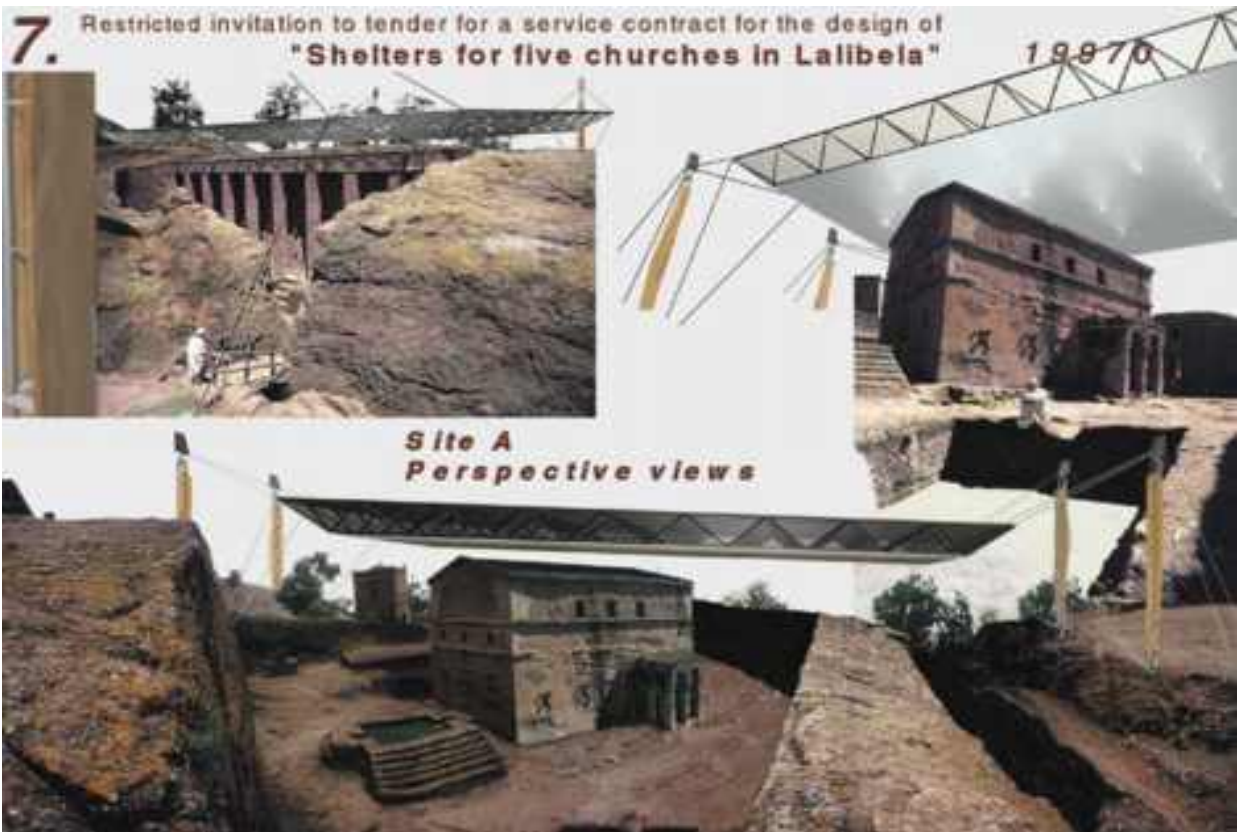
Biet Giorgis



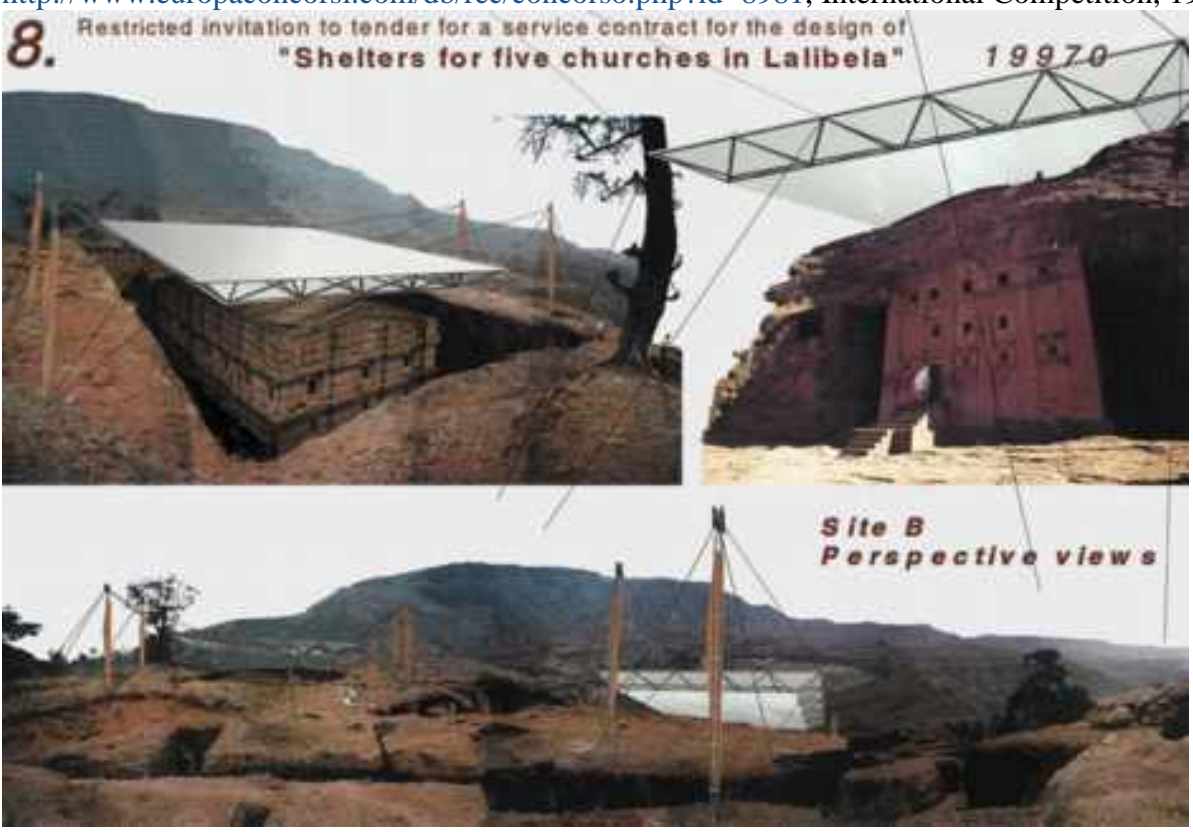
Lalibela village



Biet Amanuel



EU funded shelters project before revision , Teprin Associati, <http://www.europaconcorsi.com/db/rec/concorso.php?id=8981>, International Competition, 1997.



EU funded shelters project before revision, Teprin Associati, Shelters over Biet Amanuel (upper left) and Biet Aba Libanos (upper right), International Competition, 1997

Annex 1

Summary of the activities to be implemented in collaboration with the World Monuments Fund, prior to the start of the present project

Recording and survey

A complete digitized survey of the whole archaeological site shall be undertaken for the site of Lalibela. The result must be a topographic survey of the archaeological site and the detailed architectural survey of the churches.

Historical and archaeological investigation

The history of the site will be researched and summarized. The relation between the site's history and its decay factors will be highlighted with the help of other members of the multidisciplinary team to be involved in the project.

Investigation in the Lalibela area on the extent of the archaeological remains and a landscape archaeology study shall allow having a complete understanding of the site's history and evolution.

These findings will bring new information about the delimitation of the site, its religious functions and its overall structure, that will be very useful in drawing up the site's management plan, tourism development strategy and in up-dating the information of the nomination dossier on the World Heritage site (possible extension of the site and definition of its buffer zone).

The historical and archaeological investigation will be graphically summarized on the site's survey.

Analysis of decay factors

A multidisciplinary team of experts will review all the existing pertinent studies undertaken on Lalibela to take advantage from the accumulated knowledge and to plan the new activities related to the analysis of the structural, physical and chemical decay in Lalibela.

This team will undertake the analysis of the conservation problems and the degradation factors, and will report them on the existing architectural drawings.

The failure and "obstacles" in the drainage system will also be reported on the maps.

The weathering processes and causes of damage to the churches

Tests will be done to fully analyze the decay related to the geological, geophysical and chemical properties of the hewn rock. In addition, the humidity rates inside the churches should be analyzed and monitored.

Structural problems

To define the appropriate solutions, detailed studies of the structural behaviour will be undertaken and a monitoring system installed in these churches.

Systematic structural assessment will also be done on all the other churches Lalibela and, if needed, in their surroundings.

Wall paintings and sculptures

The paintings properties and decay factors will be thoroughly studied in order to define restoration solutions.

Sculpted elements will be surveyed and restored following an historical research, a detailed survey and recording, and an analysis of their decay pattern in order to define a restoration action plan.

the restoration of wall paintings and sculptures cannot be addressed because of time constraints. Nevertheless, conservation studies and works will concern the protection of paintings and sculptures from already identified decay factors such as water infiltration, direct rainfall, humidity and cracks. Where possible, protection measures will be taken.

4.1.4 Analysis of urban issues and site management needs

Today's urban development in Lalibela endangers the integrity of the archaeological site; some hotels are under construction and new housing areas are located in the vicinity of the churches within the site's buffer zone.

The traditional village of Lalibela – which was considered by ICOMOS as an integral part of the site at the moment of its inscription on the World Heritage List – is in immediate need for infrastructure facilities that improve the sanitary conditions of its inhabitants. No financing exists at present for its renewal.

A Master Plan for Lalibela has been recently prepared. This plan is a good starting tool for the analysis of urban issues as it includes the boundaries of the Church Property, the Buffer zones - although without precise outer limits - and the areas foreseen for the development of new housing. An urban study is necessary to assess the current situation from an institutional point of view (existing regulations and master plan) and analyse the urban growth needs and trends. Such a study cannot be done independently from a comprehensive site Management Plan.

Currently, there is no management plan for the site of Lalibela. The World Heritage Committee decisions and the UNESCO previous reports underlined the importance of an integrated management plan for Lalibela taking into account the whole territory.

A site management expert will conduct the analysis of site management needs not only to address urban development but also a wide range of interrelated issues such as the state of significance of the site, the institutional framework, the structural, architectural and landscape conservation, the traditional drainage system(s), risk-mapping, site interpretation and enhancement, maintenance, tourism, community participation, public awareness, pilgrimage and religious needs, church/community relationships, financial resources, education, and training.

The Site Management activities implemented in the framework of the World Monuments Fund contribution will lead to improving the institutional and legal frameworks for the protection of Lalibela, thus contribute to the protection of the site and the sustainability of the conservation activities.

The survey and analysis related to site management shall be done with the support of the Ethiopian Orthodox Church, the ARCCCH and local authorities and with the participation and involvement of the Lalibela inhabitants. Other main actors will be consulted during the identification and study phase, such as the Authority for Research and Conservation of Cultural Heritage (ARCCCH), the Addis Ababa University, the tourism private sector, the Housing and Agriculture ministries, local and national NGOs and other relevant entities.

BUDGET FOR THE ACTION

Note: The consultants' rates are based on the standard UNESCO fees for consultants and travel expenses. The estimated costs include professional fees, travel costs, per diem, insurance, airport transportation and miscellaneous expenses.

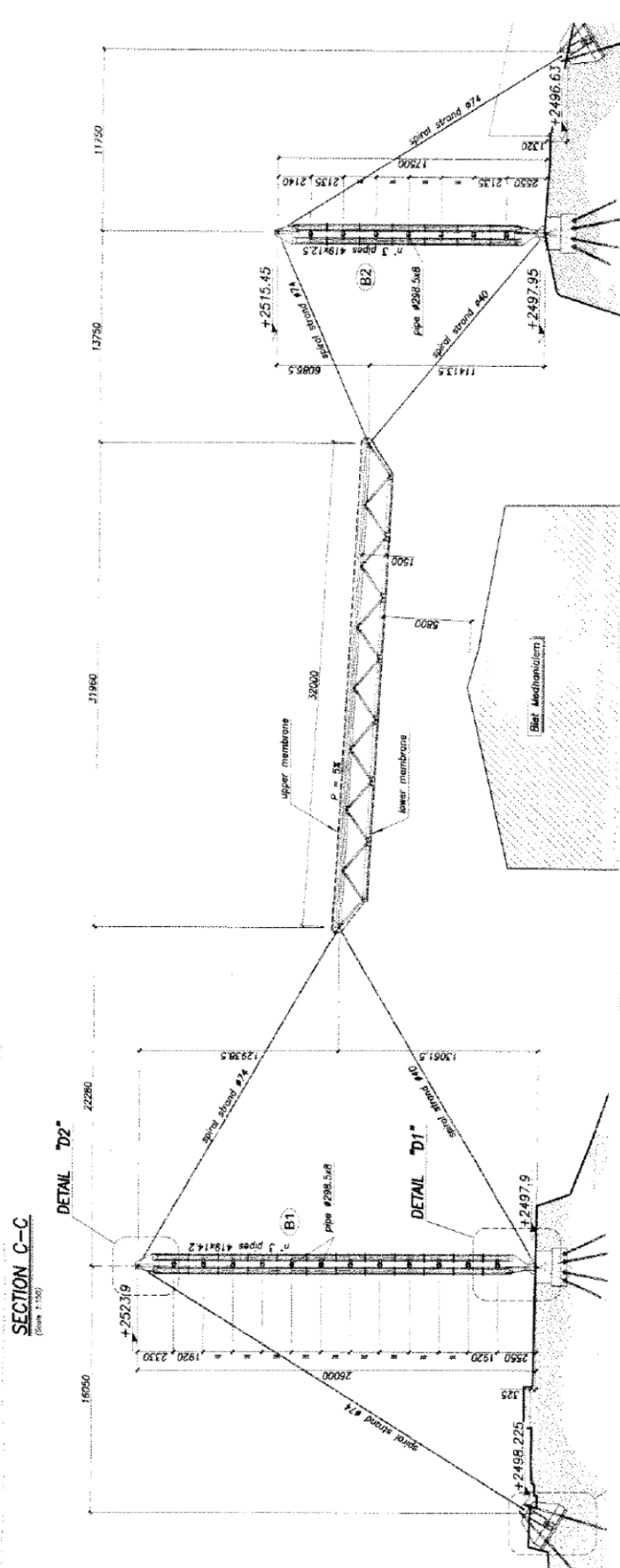
Sub-codes	Budget in USD
10'	<u>UNESCO Project Personnel</u> 1-Travel 1.1. Travel of UNESCO Staff (Project planning, coordination and monitoring) 10 000 Sub total 10 000
11	<u>Consultants</u> 1- Pilot Conservation Project 1.1- Team Leader/ Pilot conservation project and on the job training 30 000 1.2- Conservation Architect and on the job training 24 000 1.3- Conservation Architect and on the job training/ Ethiopian 10 500 1.4- Master Mason/ Ethiopian 3000 Sub total 67 500
	2- Economic development 2.1- Expert in Economic Development 6 500 2.2- Economist/ Ethiopian 2 000 Sub total 8 500
	3- Project management 3.1. Professional temporary assistance 54000 Sub total 54000
20	<u>Sub-contracts</u> 1- Conservation Action Plan: Pilot Conservation Project 1.1- Logistical and technical services for the Pilot Project and provisional conservation works / materials, scaffoldings, equipment, authorizations 50 000 1.2- Recruitment of 35 local workers for 6 months 54 000 Sub total 104 000
30	1- Training and Meetings 1.1- Experts' Meeting for technical evaluation and planning 8 000 1.2- Participatory planning for stakeholders during the Planning and Implementation phases (travel and DSA) 8 000 Sub total 16 000
40	Equipment and Publications 1- Project Management 1.1- Rental of Car with driver in Lalibela during certain field missions 1 000 2- Publications 2.1- Publications/ community participation 2 000 3- Rental of premises 3.1- Rental of premises for meetings and training 400 Sub total 3 400

	50	Miscellaneous	
		1- Reporting costs (DHL, Photos, printing, etc.)	500
		2- Hospitality	1550
		Sub total	2 050
		Total BL 10 - 50	265 450
	80	Programme Support Costs (13%)	34 509
		GRAND TOTAL	299 959
		USD	

Funding sources			Amount in USD	
World Monuments Fund			1 000 000	50%
Fundraising/ Phase 1			300 000	15%
Fundraising/ Phase 2			300 000	15%
Fundraising/ Phase 3			400 000	20%
		GRAND TOTAL	2 000 000	

6.6 Drawings by Teprin Associati

Due to the impossibility of reproducing the drawing files, a sample drawing of the shelters design before and after the revision are presented hereafter :



The previous version

