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ORGANISATION DES NATIONS UNIES
POUR L'EDUCATION, LA SCIENCE ET LA CULTURE

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

Thirty-sixth session / Trente-sixième session

St. Petersburg, Russian Federation/ St. Petersbourg, Federation de Russie
24 June – 6 July 2012 / 24 juin – 6 juillet 2012

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

Historical Monuments at Makli, Thatta (Pakistan) (C 143) /

Monuments historiques à Makli, Thatta (Pakistan) (C 143)

5 - 10 May 2012 / 5 – 10 mai 2012

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

WHC-12/36.COM/7B.Add

Report on the Joint UNESCO/ICOMOS Reactive Monitoring Mission to the Historical Monuments at Makli, Thatta (Pakistan) From 5 to 10 May 2012

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Acknowledgements

The mission would like to express its thanks to the Government of Sindh represented by the Secretary Culture, Government of Sindh, Mr. Abdul Aziz Uqaili, the Director Directorate of Archaeology, Sindh Government, Mr Qasim Ali Qasim and the CEO Heritage Foundation, Ms Yasmeen Lari for their full support of this mission.

Executive Summary and List of recommendations

The World Heritage Committee at its 35th session (UNESCO, 2011) requested a reactive monitoring mission to the Historical Monuments at Makli Thatta, Pakistan, to assess the state of conservation of the property, the progress made in the implementation of its recommendations and to assist the State Party in the preparation of the post-flood emergency and conservation action plan. Specific concerns have been raised by the World Heritage Committee regarding the identification of the boundaries of the property and its buffer zone, the identification of individual monuments within the inscribed area, the detailed conditions assessment and the presentation of a Master and Cultural Management Plan, including a Disaster Preparedness Plan and provisions for capacity building.

The reactive monitoring mission was carried out in May 2012 and evaluated current conservation conditions as well as management and conservation arrangements. It concluded that the current state of conservation of the property is a matter of significant concern and that the attributes that sustain its Outstanding Universal Value could be threatened if conservation and management actions are not implemented in the short term. Factors affecting the property include theft, uncontrolled excavations, vandalism and general deterioration derived from natural factors. To date, hardly any measures are taken to address the serious decay of the material fabric, which has been further exacerbated as a result of the monsoon seasons of 2010 and 2011. However, the mission considers that the new management arrangements and new approaches under the Provincial Government, including the outsourcing of technical activities, may help to improve the critical situation in the very near future.

The main general recommendations include the following:

- Identify the boundaries of the inscribed property and its buffer zone and develop adequate regulatory measures to ensure its adequate protection and management. The developed maps, along with the statement of Outstanding Universal Value of the property,

should be the basis for decision-making regarding the conservation and management of the property which needs to be reflected in the development of the Management Plan.

- Carry out a comprehensive inventory of all monuments, including appropriate documentation and historical information, within the inscribed property. The inventory should be the basis of the recording of current conservation conditions, including the identification of decay factors and effects and proposals for interventions so as to develop a conservation plan which prioritises actions based on the state of conservation. The conservation plan should include specifications for interventions together with detailed budget estimates. Furthermore, the mission considers that environmental monitoring is critical for the assessment of current deterioration mechanisms and recommends that at least three weather stations are set up in different points of the inscribed property to obtain and analyse data pertaining to wind velocity, air humidity, temperature and precipitation. Adequate financial and technical resources need to be secured for the comprehensive implementation of this project.
- Further develop the specific damage assessment (condition recording) and define a treatment plan for the monument of Jam Nizzamuddin. The existing documentation carried out by the Heritage Foundation can be used as a basis for this task. The mission also recommends that additional monitoring of cracks is carried out to prioritise interventions.
- Implement a planning process to formulate a Management Plan for the property, including provisions for conservation actions, public use and Disaster Risk Management. The latter is particularly important in light of the heavy Indus flood anticipated for 2012 so disaster preparedness measures should be implemented as soon as possible.
- Due to the decentralization of the cultural properties (18th Amendment), including the World Heritage sites (for the Province of Sindh Makli Hills and Mohenjo-Daro) from Federal to Provincial levels, adequate capacity on the administrative/ technical sectors in the provinces needs to be enhanced. Immediate actions for quality capacity building are urgently needed and the Advisory Bodies could be consulted on the best means to achieve this purpose.

1. BACKGROUND TO THE MISSION

1.1. Inscription History

The Historical Monuments at Makli, Thatta (C 143) was inscribed on the World Heritage List under criterion iii during the 5th session of the World Heritage Committee held in 1981.

1.2. Statement of Outstanding Universal Value

The following Statement of Outstanding Universal Value is pending approval by the World Heritage Committee during its 36th session:

Historical Monuments at Makli, Thatta (Pakistan)
Retrospective Statement of Outstanding Universal Value (RSOUV)
Nomination Submission Number: 143
Date of Inscription: 1981
Criterion: iii
Date of RSOUV: 2012

Brief synthesis

Near the apex of the delta of the Indus River in Pakistan's southern province of Sindh, is an enormous cemetery possessing half a million tombs and graves in an area of about 10 km^2. Massed at the edge of the 6.5 km-long plateau of Makli Hill, the necropolis of Makli – which was associated with the nearby city of Thatta, once a capital and centre of Islamic culture – testifies in an outstanding manner to the civilization of the Sindh from the 14th to the 18th centuries.

The vast necropolis of Makli is among the largest in the world. Kings, queens, governors, saints, scholars, and philosophers are buried here in brick or stone monuments, some of which are lavishly decorated with glazed tiles. Among the outstanding monuments constructed in stone are the tombs of Jám Nizámuddín II, who reigned from 1461 to 1509, and of lsa Khan Tarkhan the Younger and of his father, Jan Baba, both of whose mausolea were constructed before 1644. The most colourful is that of Diwan Shurfa Khan (died 1638). The unique assemblage of massive structures presents an impressive order of monumental buildings in different architectural styles. These structures are notable for their fusion of diverse influences into a local style. These influences include, among others, Hindu architecture of the Gujrat style and Mughal imperial architecture. Distant Persian and Asian examples of architectural terra-cotta were also brought to

Makli and adapted. An original concept of stone decoration was created at Makli, perhaps determined by the imitation of painted and glazed tile models. The historical monuments at the necropolis of Makli stand as eloquent testimonies to the social and political history of the Sindh.

Criterion

Criterion iii:

The historical monuments at Makli, Thatta testify in an outstanding manner to the civilization of the Sindh region from the 14th to the 18th centuries. The site preserves in a state of exceptional integrity an imposing monumental complex comprised of the remains of the necropolis, massed at the edge of the Makli plateau and covering an area of about 10 km^2.

Integrity and Authenticity

Integrity

Within the boundaries of the property are located all the elements and components necessary to express the Outstanding Universal Value of the property, including the tombs and graves located in the necropolis of Makli. Nevertheless, a number of the historical monuments have reached an advanced stage of degradation. The integrity of the property is threatened by the significant decay caused by the local climatic conditions (earthquakes, variations in temperature, winds containing salts and humidity, heavy rains, natural growth) and the shift of the riverbed. In addition, encroachments and vandalism threaten the site, and damage and loss by pilferage have assumed colossal proportions.

Authenticity

The historical monuments at Makli, Thatta, are authentic in terms of their forms and design, materials and substance, and locations and setting. Because elements of the property are in an advanced state of decay and disintegration, however, the authenticity of the property is threatened, particularly concerning the materials and forms of the monuments. Unless scientific action is taken to reduce the threats to the property, irremediable damage will be caused.

Management and Protection

The historical monuments at Makli, Thatta, are protected under the *Antiquities Act, 1975*, promulgated by the Federal Government of Pakistan. The Culture Department of the Provincial Government of Sindh is responsible for managing the property. The site is

staffed by a curator, archaeological conservator, technical assistant, supporting staff, and attendants. Funding comes from the annual Regular Budget of the Ministry of Culture and other Government programmes; this funding is recognised as inadequate.

Sustaining the Outstanding Universal Value of the property over time will require developing and implementing an emergency action plan to address urgent measures necessary for the security and the stabilisation of structures; completing, approving, and implementing the Comprehensive Master Plan and a Management Plan for the property; defining the precise boundaries of the property and the buffer zone; preparing a condition report for all monuments and tombs; taking appropriate measures to stabilise the tomb of Jám Nizámuddín II; and implementing an overall monitoring programme.

1.3. Integrity issues raised in the ICOMOS evaluation report

The evaluation report at the time of the nomination specifically underlines that adequate measures should be taken to ensure the preservation of the site and it also mentions the damaging effects of salts on the corrosive bricks.

1.4. Examination of the State of Conservation by the World Heritage Committee and its Bureau (refers to previous State of Conservation reports etc.)

The World Heritage Committee at its 29th session (Durban, South Africa, 2005) decided to examine the state of conservation of properties which had been inscribed in the List of the 100 most endangered sites of the World Monuments Watch.

At its 30th session (Vilnius, 2006) the World Heritage Committee examined the state of conservation report of the Historic Monuments of Makli, Thatta. It also requested the State Party to invite a joint World Heritage Centre/ICOMOS mission to the property to examine the urgency of the situation.

At its 33rd session (Seville, 2009) the World Heritage Committee requested the State Party to provide three printed and electronic copies of the Master Plan, for review by the World Heritage Centre and the Advisory Bodies and asked the State party to make progress in the implementation of the following: a) Overall monitoring programme, b) Management plan, c) Condition report for all monuments and tombs, d) Prioritized emergency intervention plan, and e) Identification of the boundaries of the property and its buffer zone. It also requested the State Party to make progress with the soil investigations and stabilization of the tomb of Jam Nizamuddin.

At its 35th session (UNESCO, 2011), the World Heritage Committee regretted the little progress that had been made in the implementation of prior decisions and the lack of information regarding conservation works. It also expressed its concern about the serious

degradation of the property and the lack of security measures to ensure the protection of the property and urged the State Party to develop and emergency action plan, to adopt the Master Plan and to develop the management plan. It further requested that appropriate measures were carried out to stabilise the Tomb of Jam Nizammudin.

1.5. Justification of the mission

The World Heritage Committee at its 35th session (UNESCO, 2011) requested the State Party to invite a joint World Heritage Centre/ICOMOS reactive monitoring mission to the property to review the state of conservation with a view to considering, in the case of confirmation of the ascertained or potential danger to the Outstanding Universal Value, the possible inscription of the property on the List of World Heritage in Danger. The terms of reference for the mission were developed based on this decision and the mission was carried out in May 2012.

2. LEGAL AND INSTITUTIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF WORLD HERITAGE PROPERTY

2.1. Protected Area Legislation

The historical monuments at Makli, Thatta, are protected under the *Antiquities Act, 1975*, promulgated by the Federal Government of Pakistan. The Antiquities Act of 1975 and the Excavation and Exploration Rules of 1978, as well as a number of Regulations relating to the protection of cultural properties in Pakistan are being applied. Difficulties in the implementation of the legislation and Rules have been encountered in the past due to the unclear management structures and frequent changes in the national authorities.

In April 2010, the 18th Amendment to the Constitution of the Islamic Republic of Pakistan was adopted. As of June 2011, all Provincial Government have the sole responsibility and have administrative as well as financial authority over all cultural heritages in their Province. To date, the Government of Punjab has made an amendment to the Antiquities Act but as the Government of Sindh has taken over only recently, no amendments to the Antiquities Act have been made so far. As a new provincial law has not yet been established, it is not clear whether the federal law can be applied provincially and a legal decision has yet to be taken.

In Pakistan all conservation activities are based on the Marshall Conservation Manual of 1929, in conjunction with the Venice Charter and ICOMOS recommendations.

2.2. Institutional Framework

With the decentralization of cultural property to provincial level that took place in 2011, significant gaps exist in terms of proper provincial infrastructure and lack of adequate competency and capacity to adequately deal with the protection and management of the property. It has to be critically mentioned here, that the condition in other provinces of Pakistan is even worse. The province of Baluchistan, for example, has not a single expert or institution to deal with the protection of cultural property and significant assistance in capacity building is urgently needed.

In the case of the Historical Monuments at Makli, Thatta, the World Heritage property is under the custody of the newly founded Directorate of Archaeology in Sindh province under the ambit of Culture Department, Government of Sindh. As can be seen by the organogram, the present capacity of this directorate is insufficient to professionally run the Directorate of Archaeology, being the custodian of over more than 1200 monuments in the province. Technical capacity is outdated and capacity is limited for the implementation of updated conservation techniques and approaches. With the outsourcing of conservation work, new strategies have been introduced in the past six months by the Heritage Foundation. However, they have no experience in the conservation of monuments and archaeological remains, so significant capacity building is urgently needed to ensure the adequate conservation of the property.

During the visit to the site, the mission noted that the site custodian was absent and no technical personnel attended the meeting. Presently there seems to be no staff at all at the site. The new PC1 foresees a new personnel structure. It is extremely important to subdivide the too large site into 5-6 sub units each with its individual inventory system (reference) and individual management structure consisting of one engineer (architect, foremen and trained labour).

2.3. Management structure

There is no established management plan as such and works carried out at the World Heritage property are organized according to the level of urgency and necessity. A Master Plan has been prepared by the DOAM for the Historical Monuments of Thatta and has been presented to the Secretary of Culture for approval. The mission notes however that what has been presented is only an action-budget plan, not a Management Plan which could be utilised as a planning tool for the future development of the site. Consequently, the management structure for the property is completely insufficient for such a large site with several thousand monuments spread over an area of at least six sq.

kilometres. As mentioned above, a work sub-division into different clusters is suggested with individual supervision and conservation units.

3. STATE OF CONSERVATION OF THE PROPERTY

The reactive monitoring mission evaluated current conservation conditions as well as management and conservation arrangements. It concluded that the current state of conservation of the property is a matter of significant concern and that the attributes that sustain its Outstanding Universal Value could be threatened if conservation and management actions are not implemented in the short term.

To date, hardly any measures are taken to address the serious decay of the material fabric, which has been further exacerbated as a result of the monsoon seasons of 2010 and 2011. Almost none of the recommendations made by the World Heritage Committee have been fulfilled. However, through the outsourcing of activities to the Heritage Foundation, new activities have started, namely: the beginning of structural stabilization at two Samma period buildings, the establishment of a documentation centre at the site, the professional documentation of the tomb of Jam Nizamuddin and the dry core drilling for the stability study. As stated by the CEO Heritage Foundation, Ms. Yasmeen Lari and as later confirmed by the Secretary Culture, Mr. Abdul Aziz Uqaili, a MOU has been signed recently between the Sindh Government and Heritage Foundation for joint caretaking of the site. During the meetings carried out within the scope of the mission, two documents were presented. A PC1 (Project Document) being a midterm time- finance- action plan along with the suggestion of positions to be created (capacity) and a disaster contingency plan for district Thatta by the District Disaster Management Authority (DDMA)

The following section notes the specific conditions noted by the mission.

a. Boundaries and buffer zone of the property

The boundaries and buffer zone of the property have not been properly identified and this is a critical matter which needs to be addressed as it informs decision making regarding the property and its buffer zone. The site consists of thousands of individual monuments which extend in approximately six square kilometres. They each present a different state of conservation and represent different time periods. Although later monuments might not be attributes that sustain the Outstanding Universal Value of the property, they are still part of it and require adequate conservation and management measures. This should be reflected in the development of the management plan.

The mission made an inspection tour around the site. While the eastern side (slope) and the southern side (street) are clearly identified, the boundaries of the property to the north and especially to the west are unclear. It was suggested to trace the official revenue map for identification of ownership by the government and to mark the owned property by survey fix points. In addition, a surface survey has to be made to identify the extent of the archaeological/ structural remains especially towards the west. During the meeting with the District Commissioner Thatta, cooperation from his side was granted to the director archaeology. This activity should be carried out within the coming month as it is the basis for the Master Plan and the other plans.

In addition, regulatory measures need to be developed to ensure the adequate protection and management of the buffer zone. This is particularly relevant as the mission noted that no actions could be observed for the control of encroachment. The encroachment has taken place in the recent past and is taking place at the eastern side of the site (around the mausoleum of Abdullah Shah Ashabi). There is also an evidence of encroachment at the western side of the site. However, the extent of encroachment at the western part could not be ascertained as there is no clear boundary line for the buffer zone. Establishing of the proper zoning law was discussed with clear demarcation of the core zone as well as the buffer zone. In addition, the topographic map and numbering of all monuments and graves inside the World Heritage property with clear numbering and referral system within the clearly marked clusters were also discussed.

b. Documentation Centre

The mission visited the newly founded Documentation Centre, Heritage Foundation, supported by Prince Claus Foundation, the Netherlands. It has been established to host the data collection which will be made in future. It also will provide space for researchers to work there. Presently it is equipped only with basic furniture.

c. Conservation measures

Hardly any measures have been implemented to address the serious degradation of the property. Factors affecting the property include theft, uncontrolled excavations, vandalism and general deterioration derived from natural factors. As noted in the statement of Outstanding Universal Value, the integrity of the property is threatened by the significant decay caused by the local climatic conditions (earthquakes, variations in temperature, winds containing salts and humidity, heavy rains, natural growth) and the shift of the riverbed. In addition, encroachments and vandalism threaten the site, and damage and loss by pilferage have assumed colossal proportions. The mission considers

that a primary deterioration factor is the technical neglect and the exposure of monuments to natural and man-made factors without any protection, conservation and monitoring measures in place. A number of the historical monuments have reached an advanced stage of degradation but since a complete inventory is missing, the individual identification of the state of condition cannot yet be made but is *conditio sine qua non* for further action. Therefore, there is an urgent need to develop a complete inventory of the monuments at the property so that a comprehensive condition recording can be carried out to inform the formulation of an emergency intervention plan in the short term and a conservation plan to be included in the management plan.

Recently conservation work has been started by the Heritage Foundation at two monuments of the Samma period close to the Nizamuddin tomb. The same organization has executed a first general damage assessment of 36 monuments and has executed a detailed documentation at the Jam Nizamuddin tomb. No new information signs and boards have been installed. Two badly concrete constructed boards were found erected near the tomb of Jam Nizamuddin and the Mosque building- with no signs placed. These were found to be obstructing the path and affecting the aesthetic beauty of the site. As informed by the Director, the concrete boards will be dislodged and removed from the site.

d. Conservation projects at the Tomb of Jam Nizam al-Din,

Through the report of Heritage Foundation, the mission was informed that a dry core drilling had been taking place, financed by UNESCO Islamabad. The interpretation of the data does not give essential information regarding the stability problems of the monument. The monument was carefully inspected and discussions took place with the structural engineer Mr. Mushtaq Dawood as well as with the company which had done the drilling. The mission asked for the dry core samples but no information was given where they are kept. Discussions on site were more general; observations regarding the cracks were made and discussed. No crack monitoring system has been installed so far which could inform about the active moving of the monument. The documentation (Heritage Foundation) of the tomb is professionally done but the mission experts observed that proper measures of the width of the cracks and their monitoring over time were missing. A scientific monitoring was again recommended. If resources are secured in the future, and upon addressing pressing conservation concerns, the mission suggest that a laser scan of the building is carried out to ensure the highest level of recording of the three dimensional carved sandstone surface.

The mission therefore recommends fixing of an adequate monitoring system along with a weather station, for monitoring the impact of environmental factors on the monuments, in the very near future. Restudy of the dry core samples by an earth mechanic engineer, research into the horizontal cracks on the floor inside the monument, checking whether the cracks are continuing in the rock (due to possible effect of earthquake). There seems to have been one major action in the past as can be seen by a major crack on both sides (north and south approx. 10 cm of deformation at the bottom of the walls) and there seem to have been further actions reflected in small additional cracks. The close position to the slope (approx 2-3- meters away from the slope, being approx 12 meters deep) might be one reason for the secondary cracks.

e. Prioritized emergency intervention plan, including timeframe and required resources for implementation,

An intervention plan is reflected in the PC1 that was reviewed by the mission. The experts consider that the present PC1 has to be adapted to consider adequate site management and conservation (several sectors and several working groups). In addition, immediate training at the site for new personnel is a prerequisite. It also notes that the existence of this document does not suffice or substitute the pressing need to develop and adequate management plan.

f. Emergency preparedness actions

A District Disaster Management Authority (DDMA) has been established which has worked out a disaster contingency plan for the Thatta district. However, this plan does not specify the individual situation of the World Heritage property and does not refer to a specific emergency plan for site itself, even though the DDMA and District Administration of Thatta have earmarked Ghulamullah Hills, approximately 5 KMs south-west of Makli hill, as an emergency evacuation site. However, the precise provisions for the property are not included in the contingency plan and no map has been provided. Map with GPS and clearly laid out evacuation plan is needed as an important commitment by Sindh Government in order to safeguard the World Heritage property from its use as an evacuation site, as was done in the impelling humanitarian displacement during floods in Sindh in 2010.

The mission recommends that in close cooperation with the DDMA, the Directorate of Archaeology prepares a disaster risk management plan for the World Heritage Property. According to recent information the coming (2012) Monsoon season is forecasted with extremely heavy rains. Therefore, a plan should be **immediately** prepared and measures

implemented on a priority basis to ensure that existing precarious conditions are not further exacerbated.

g. Planning tools for the property

The mission notes that limited progress has been made in developing adequate planning tools for the property. This situation jeopardizes the ability to systematically and comprehensively address pressing conservation concerns and leads to a situation where actions are implemented on an ad hoc basis, without precise prioritization or without a clear conservation strategy in mind. It also leads to situations where allocation and use of the very limited available resources is not made according to long-term conservation and management arrangements.

In order to develop an adequate management plan, several conditions need to be met. In first place, as aforementioned, the boundaries and buffer zone of the property need to be urgently identified. Secondly, the comprehensive inventory of all monuments and their condition recording is needed to inform the conservation plan. The mission suggests dividing the site for inventory into several clusters with an individual numeration (index) to enable the identification of each monument, also to allow a reference system for the damage assessment and treatment plans. Accordingly each cluster would need its own management structure to allow a systematic protection/ treatment of the individual monuments.

Upon finalisation of the above, a planning process to formulate a Management Plan for the property, including provisions for conservation actions, public use and Disaster Risk Management needs to be implemented. It should be noted that while these actions are taking place, an emergency action plan to ensure the stability of the most vulnerable places and the implementation of disaster preparedness measures should be developed.

The PC1 needs a revision in relation to the site management based on discussions carried out. These include considering the division of the site into several management sectors and to manage each sector by a supervisor (conservation architect/ engineer) plus a group of trained masons/ labour, conservators. Each sector needs its controlled inventory and supervision.

An important consideration to be taken into account for the management of the property is that it is partly still in use as an adoration place, combining tangible and intangible components. Indeed, therefore the site is extremely complex and it would be worthwhile to further discuss this case.

4. CONCLUSIONS AND RECOMMENDATIONS

As a conclusion, the mission notes that in relation to the last reactive monitoring mission and in consideration of the decisions made by World Heritage Committee, no major development has been taking place. Based on the 18th Amendment of the Government, the responsibility for the cultural heritage in Pakistan, including World Heritage Sites, has been delegated from the responsibility of the Federal Government to the responsibility of the Provinces. With this change, which took place only last year, major constraints in management of the property occurred. The Provincial Government has tried to meet these challenges by formulating of the PC1 for Thatta and its approval by the Government, by outsourcing specialist´s works to the Heritage Foundation (Karachi) and by establishing the District Disaster Management Authority (DDMA) which has prepared a ´Disaster Contingency Plan´ for district Thatta.

Although the site is in a serious state of deterioration, time should be given to the State Party to continue the implementation of very recent activities which were observed and are quite promising, along with concrete indications of success (Heritage Foundation, approval of PC1 along with guarantee of finances), before a decision is made to put the property in the List of World Heritage in Danger. Notwithstanding, the mission notes that significant interventions and resources are needed, as well as a capacity building program, before a successful strategy can be implemented. The assistance of the World Heritage Centre and the Advisory Bodies would be important in defining this strategy.

In addition to the recommendations made in each specific section, the mission can summarise the following:

- Identify the boundaries of the inscribed property and its buffer zone and develop adequate regulatory measures to ensure its adequate protection and management. The developed maps, along with the statement of Outstanding Universal Value of the property, should be the basis for decision-making regarding the conservation and management of the property which needs to be reflected in the development of the Management Plan.
- Carry out a comprehensive inventory of all monuments, including appropriate documentation and historical information, within the inscribed property. The inventory should be the basis of the recording of current conservation conditions, including the identification of decay factors and effects and proposals for interventions so as to develop a conservation plan which prioritises actions based on the state of conservation. The conservation plan should include specifications for interventions together with detailed budget estimates. Furthermore, the mission considers that environmental monitoring is critical for the assessment of current deterioration mechanisms and recommends that at least three weather stations are set up in different points of the inscribed property to

obtain and analyse data pertaining to wind velocity, air humidity, temperature and precipitation. Adequate financial and technical resources need to be secured for the comprehensive implementation of this project.

- Further develop the specific damage assessment (condition recording) and define a treatment plan for the monument of Jam Nizzamuddin. The existing documentation carried out by the Heritage Foundation can be used as a basis for this task. The mission also recommends that additional monitoring of cracks is carried out to prioritise interventions.
- Implement a planning process to formulate a Management Plan for the property, including provisions for conservation actions, public use and Disaster Risk Management. The latter is particularly important in light of the heavy Indus flood anticipated for 2012 so disaster preparedness measures should be implemented as soon as possible.
- Due to the decentralization of the cultural properties (18th Amendment), including the World Heritage sites (for the Province of Sindh Makli Hills and Mohenjo-Daro) from Federal to Provincial levels, adequate capacity on the administrative/ technical sectors in the provinces needs to be enhanced. Immediate actions for quality capacity building are urgently needed and the Advisory Bodies could be consulted on the best means to achieve this purpose.

5. Annexes

Annex 1: Composition of mission team

Michael Jansen (ICOMOS)

Kazi Ayaz Mahessar (Provincial Coordinator, Sindh, UNESCO)

Annex 2: Itinerary and Programme

1. Itinerary:

05.05.2012 12.00 Aachen- Düsseldorf- Dubai- Karachi

06.05.2012 13.00 Arrival Karachi

16.00 Departure Keenjhar Lake

07.05.2012 10.00 Makli, Thatta

08.05.2012 Thatta- Karachi

09.00 Bund- Visit to Sonda graveyard

11.00 Keenjhar Lake- Karachi

15.00 Culture Department

17.00 Working meeting + Meeting with Deputy Commissioner, Thatta at Avari

09.05.2012 Karachi

09.00 Meeting Yasmeen Lari

13.30 Lunch

15.00 UNICEF, Video conference with UNESCO Islamabad

17.00 Working meeting with Kazi

20.00 Dinner

10.05.2012 Karachi- Dubai- Düsseldorf- Aachen

09.30 Departure Airport

12.15 Karachi- Dubai

14.45 Dubai- Düsseldrf

19.45 Düsseldorf- Chateau Graaf, Montzen/ Belgium

Annex 3: Terms of Reference for the mission

In accordance to **Decision 35 COM 7B.76** adopted by the World Heritage Committee at its 35th session (UNESCO, 2011), the reactive monitoring mission shall fulfill the following tasks:

1. Assess the state of conservation of the property and the factors affecting it, with particular focus on:

· *Measures implemented to address the serious degradation of the property, aggravated by the recent two monsoon seasons of 2010 and 2011, including on-going conservation works to pavilions and monuments, documentation of works and installation of interpretive signs and boards,*

· *Conservation projects at the Tomb of Jam Nizam al-Din,*

· *Formulation of a prioritized emergency intervention plan, including timeframe and required resources for implementation,*

· *Status of undertaking of emergency preparedness actions, including security measures, and development of disaster risk management plan,*

· *Status of development and implementation of planning tools for the property, including the Master Plan for Historic Monuments of Malki, Thatta, the comprehensive management plan for the property with provisions for a conservation action plan and an overall monitoring programme for all pavilions, tombs and monuments,*

· *Prioritisation for allocation and use of available resources according to the management objectives determined in the master plans,*

· *Identification of boundaries and buffer zone for the property and establishment of regulatory measures to ensure its protection and management,*

· *Actions implemented to address encroachments and control urban pressure,*

2. Analyze the current and potential impact of ongoing and projected projects and initiatives, as well as possible encroachments, on the Outstanding Universal Value of the property;

3. Evaluate the progress made by the relevant national and local authorities in the implementation of the recommendations of the 2006 joint World Heritage Centre/ICOMOS reactive monitoring mission and decisions the decisions made by the World Heritage Committee at its 30th, 31st, 33rd and 35th sessions;

4. Analyze whether there are ascertained or potential dangers to the Outstanding Universal Value of the property which would warrant its inscription on the List of World Heritage in Danger;

5. On the basis of the foregoing findings, make recommendations to the Government of Pakistan and the World Heritage Committee as to the future conservation and management required for the property;

6. Prepare a joint mission report in English or French, for review by the World Heritage Committee at its 36th session (St Petersburg, 2012). The report should follow the attached format and should be submitted to the UNESCO World Heritage Centre and ICOMOS Headquarters by **May 31, 2012** at the latest in hard copy and an electronic version.

Annex 4: Decisions of the World heritage Committee

Decision 29COM 7B.103 - Examination of the State of Conservation Reports

The World Heritage Committee,

1. Decides to examine at its 30th session (Vilnius, 2006) the state of conservation reports of the following World Heritage properties inscribed in the List of the 100 most endangered sites of the World Monuments Watch:

a) Ancient Ksours of Ouadane, Chinguetti, Tichitt and Oualata (Mauritania);

b) Historic Centre of Mexico City and Xochimilco (Mexico);

c) Old Town of Segovia and its Aqueduct (Spain); and

d) Historical monuments of Thatta (Pakistan).

Decision 30COM 7B.68 - State of Conservation (Historical Monuments of Thatta)

The World Heritage Committee,

1. Having examined Document WHC-06/30.COM/7B,

2. Recalling Decision 29 COM 7B.103, adopted at its 29th session (Durban, 2005),

3. Regrets that insufficient information on the state of conservation of the property has been provided by the State Party;

4. Notes with great concern that the site has been included in the List of the 100 Most Endangered Sites of the World Monuments Watch in 2005, due to the significant decay of the property caused by the local climate conditions and the shift of the riverbed;

5. Requests the State Party to invite a joint World Heritage Centre/ICOMOS mission to the property to examine the urgency of the situation, in close consultation with the responsible authorities, and report to the Committee on the outcome of the mission at its 31st session in 2007;

6. Further requests the State Party to submit to the World Heritage Centre by 1 February 2007 a detailed report on the state of conservation of the property for examination by the Committee at its 31st session in 2007.

Decision - 33COM 7B.80 - Historical Monuments of Thatta (Pakistan) (C 143)

The World Heritage Committee,

1. Having examined Document WHC-09/33.COM/7B,

2. Recalling Decision 31 COM 7B.85, adopted at its 31st session (Christchurch, 2007),

3. Notes the ongoing conservation work undertaken by the State Party including the documentation of monuments and tombs, repair work and the installation of interpretive signs and boards;

4. Requests the State Party to provide three printed and electronic copies of the Master Plan, for review by the World Heritage Centre and the Advisory Bodies;

5. Also requests the State Party to continue progress in the implementation of the following:

a) Overall monitoring programme,

b) Management plan,

c) Condition report for all monuments and tombs,

d) Prioritized emergency intervention plan, and

e) Identification of the boundaries of the property and its buffer zone;

6. Further requests the State Party to make progress with the soil investigations and stabilization of the tomb of Jam Nizamuddin, in the light of comments received from the Advisory Bodies and the World Heritage Centre;

7. Requests furthermore the State Party to submit a report to the World Heritage Centre by **1 February 2011** on the progress in implementing the recommendations of the 2006 mission, for examination by the World Heritage Committee at its 35th session in 2011.

Decision 33COM 8B.1 - Changes to names of properties inscribed on the World Heritage List

The World Heritage Committee,

1. Having examined Document WHC-09/33.COM/8B,

2. Approves the proposed name change to Historical Monuments of Thatta as proposed by the Pakistani authorities. The name of the property becomes Historical Monuments at Makli, Thatta in English and Monuments historiques à Makli, Thatta in French.

Decision: 35 COM 7A.76

The World Heritage Committee,

1. Having examined Document WHC-11/35.COM/7B,

2. Recalling Decision **33 COM 7B.80,** adopted at its 33rd session (Seville, 2009),

3. Expresses its condolences to the State Party for the loss and devastation caused by the floods in 2010;

4. Regrets that little progress has been made towards the implementation of the World Heritage Committee decisions and that no information has been provided concerning ongoing conservation works including repair works to pavilions, monuments and tombs;

5. Expresses its concern about the serious degradation of the property aggravated by the recent flood and the lack of preparation for emergency actions, including the lack of security measures to protect the property and urges the State Party to develop an emergency action plan to address urgent measures necessary for security and stabilisation of structures and to implement them;

6. Also urges the State Party to take action to adopt the Master Plan and to develop the management plan;

7. Further urges the State Party to take appropriate measures to stabilise the Tomb of Jam Nizamuddin;

8. Requests the State Party to submit the defined boundaries to the World Heritage Centre and proposals for the establishment of a buffer zone, for approval by the World Heritage Committee;

9. Also requests the State Party to invite a joint World Heritage Centre/ICOMOS reactive monitoring mission to the property to review the state of conservation and the progress on the above issues, and to help the State Party to prepare the post-flood emergency and conservation action plan;

10. Further requests the State Party to submit to the World Heritage Centre, by **1 February 2012**, a detailed report on the state of conservation of the property, including progress on the above issues and the recommendations of the 2006 joint World Heritage Centre/ICOMOS reactive monitoring mission, for examination by the World Heritage Committee at its 36th session in 2012, **with a view to considering, in the case of confirmation of the ascertained or potential danger to the Outstanding Universal Value, the possible inscription of the property on the List of World Heritage in Danger.**

Annex 5: Action Plan

JUSTIFICATION

The hills called Makli are situated about three miles from Thatto. On these a vast necropolis stretches as far as eye can see. The burial area is about 6½ square miles. Whether it is the individual grave or the mausoleum, each is an exquisite example of the art of the stone mason. A part from acknowledging the beauty in the shape and precision of the masonry, one cannot help admire the excellence of the calligraphy carved into the surface of the stone or of the perforated designs and arrangements worked into others. The precious glazed/mosaic tile works in geometrical and floral designs at the monuments are also given an attractive atmosphere.

The graves are no ordinary though; within them lie the remains of kings and queens, saints and scholars, philosophers and soldiers of a period when the nearby city of Thatto was not only the capital of Sindh but also a seat of learning and culture.

Just three hundred years ago, in 1699, captain Alexander Hamilton, a British businessman wrote: "Thatto is the emporium of the Province, a very large and rich city. It is three miles long and one and a half broad, and is about 40 miles from Larry Bunder and has a large citadel at it west capable to lodge 50,000 men and horse, and has barracks and stable convenient for them and with a palace built in it for the nabob. Thatto stands about two miles from the river Indus, in a spacious planing, and they have canals (taken) out from the river to bring water to the city, and some for the use of their gardens. The King's gardens were in pretty condition in Anno Domini 1699 and were well stored with excellent fruits and flowers particularly the most delicious pomegranate that ever I tasted". He went on to write further: "The city of Thatto is famous for learning in theology, philosophy and politics, and they have 400 colleges for training up youths in those parts of learning" and such was the exalted status of Thatto until about 1739.

It is from those and the times before that Makli received its eminence. But now it is Thatto that derives its source of importance from Makli. Modern Thatto is shabby, without much evidence of its past glory except for the Mughal Shah Jahan Mosque and the pre-Mughal Dagbir Masjid.

In considering the significance of the Makli Hill monuments in the Cultural Heritage of Pakistan has already been made of the diverse cultural and historic forces at play in this part of the world and due to consideration of importance and valuable architect, this glorious site has been described in the World Heritage list.

PRESENT CONDITION OF THE MONUMENTS

(a) General Problems Effecting the Monuments

The monuments at Makli, located on the brow of the hill, are exposed to many hazards, both natural as well as man mad.

The agencies of decay active on this site have generated problems ranging from general states of disrepair to conditions verging on collapse. Brick structures are in an advanced stage of decay and disintegration whilst many of the stone structures are in urgent need of repair and consolidation.

The situation concerning the uncovered graves is exacerbated by their easy accessibility whereby damage ad loss by pilferage has assumed colossal proportions.

The ubiquitous symptoms of weathering, decay and deterioration in the masonry structures along with their causes and effects are summarized below:

- Cracking due to structural movements and settlements of large areas of some buildings.
- Cracking due to unequal settlement of elements poorly bonded to each other.
- Cracking due to poor detailing and construction such as thin stone facings to poor quality core filling.
- Spelling, splitting and lifting due to the volume increases resulting from embedded ferrous material.
- Staining, decay and open joints due to neglect of joint condition. The same neglected joints have become conduits for the free access if water and dust particles.
- Roughened surfaces on stone where washed and 'etched' by rain especially as a result of accelerated weathering out of weaker areas of pockets of soft sand or clay beds.
- Cracking, splitting and spelling of stone surfaces where normally sheltered from direct rain. This may be due to the formation of crystalline sulphate skins, which are prone to failure ultimately.
- 'Contour scaling' or uniform thickness scales separating from stones following the profile of the surface. This effect is normally associated with wetting and drying cycles, followed by migration of natural cementing matrices, exacerbated by the blocking of surface pores with materials deposited from the atmosphere.
- Scaling and powdering of stone surfaces linked with efflorescence and due to soluble salt crystallization damage.

(i) Presence of Harmful Salts in the Structures

The incidence of sulphate attack and salt action appears to be widespread on the site. The level at which the resultant damage is visible, i.e. near the tops of the walls or within the domes, combined with the fact that the water table on the Hill is very low suggest that:

- Deposition of salts in the fabric is occurring through the salt-laden moist air to which the monuments have continuous exposure all the year round.
- Presence of calcium sulphate is a very distinct possibility for which the laboratory testing of bricks and mortars needs to be commissioned. It is possible that impurities were present in the original building materials and may have been re-introduced unwittingly in materials used for repair and restoration work in more recent times.

The severe disintegration of many brick structures would therefore suggest the strong possibility of the presence of contaminated original material alongwith continued exposure to a salt laden moist atmosphere.

(ii) The Action of Wind

Thatto falls within a zone of high wind velocity. The velocity at times can reach 30 miles per hour, which, normally, is limited to a few hours annually. The average is about 10-12 miles per hour.

Exposure to winds at these velocities, besides their saline nature, has other implications for the monuments at Makli. It is worth considering these to form the overall view of cause and effect in the general condition of the monuments.

Cracks and fissures abound in the structures on site. Penetration of these by rain, driven by wind pressure, is bringing about the most harmful effects of the combination, causing serious internal decay after saturation of the external surfaces.

(iii) Problems of Rain Water Disposal and Organic Growth

A qualitative appraisal of the pattern, direction and intensity of precipitation is of crucial importance in the maintenance and preservation of historic buildings.

On the whole, Sindh suffers from paucity of rainfall. In addition to being precarious and scanty, its incidence is highly variable. The little precipitation it gets is almost invariably due to cyclonic storms. In lower Sindh the average rainfall is about 7 inches with only about 8 rainy days in the whole year. July is the wettest month.

There is a peculiarity about the rainfall pattern. There are gaps of anything up to six or seven years of scarcity followed by peaks of good and, at times, heavy rainfall.

Geologically, ground movements occur all the time. The rainfall quirks described above would abnormally accentuate such movements during and after the peculiar

spells of heavy rainfall. Of these movements those that induce differential settlements are of particular interest. **Investigations of suspected foundation trouble would therefore be necessary where indications of differential settlement such as cracking and consequential damage have manifested.**

Rain damage to the masonry above ground will occur in several ways. Penetration of rain to the interior of building will cause several types of decay.

After saturation of the brick or stone surfaces, water will stream down vertical surfaces and wind pressure will force these through cracks or even through the material itself because of its high porosity.

Rain penetration can cause internal decay in stonewalls, forming voids which could be a large as one-fortieth of the wall's volume in a period of about four to five centuries.

(iv) Thermal Expansion

Thermal movement is a well known cause of decay in buildings. Exposure of the monuments to a high diurnal range of temperature could not indefinitely postpone the effects of repeated heating and cooling of the outer skins of masonry.

Despite the differential has been the core and the enclosing skins, the walls by natural their assembly are capable of absorbing many stresses remarkable degree. The absorption of stresses occurs in the following pattern:

- ❖ Compression of mortar
- ❖ Absorption of internal stresses
- ❖ Friction between blocks of stones

And the whole is aided by the plasticity of the lime mortar, the serious decay or disintegration of which will adversely affect the entire process.

(v) The Effects of Condensation and Aerosols

The effects of rain penetration and exposure to a moisture laden atmosphere, with particular reference to salt crystallization, Water can also gain access to masonry materials through the agencies of condensation and aerosols-both of which are likely to be active on this site.

(vi) The Effects of Earthquakes

Earthquake shocks consist of direct primary waves, secondary waves, and surface ripples of Raleigh waves. The resultant violent earth-shaking shocks induce dynamic movements in all three dimensions of a building.

Serious damage can occur from major tremors. Minor tremors, consisting of smaller relative movements and energy releases, nevertheless, adversely affect the stability

of the structures by accelerating the processes of decay due to instability brought about by other forces.

The extent of earthquake damage depends upon the interplay of many complex factors and usually becomes apparent by symptoms such as:

- Cracking at the corners in walls
- Cracking where stresses concentrate around door openings and in arches
- Downward slippage of the center portion of an arch, wedging and prising apart the structure
- Falling in of portions of domes
- Vibration and the consequent cracking of columns
- Damage to badly bonded elements. This usually takes place during severe earthquakes when the elements in question batter each other due to variable rates of oscillation
- Disintegration of well-built structure into large lumps
- Disintegration of poorly-built structures into rubble

(vii) Wear and Tear Caused by Visitors

Despite lack of facilities, in hospitability of weather and an almost desolate environment, the number of visitors to the monuments is quite impressive. The numbers are bound to increase as consciousness of the country's heritage grows and as the Makli Monuments become more firmly established on the international tourist map.

The impact on the fabric of the monuments, quite distinct from vandalism, resulting from wear and tear is already meriting serious attention.

(b) <u>Environmental Problems</u>

(i) Lack of Vegetation: To walk the entire length of the site and back is quite demanding considering the distances involved. The route, unrelieved by any shade or tree becomes even more taxing in the unremitting heat and glare of the sun.

(ii) Road access: A narrow metalled road takes off from the Karachi-Thatta road, past the first group of Monuments to the second group. From the second to the third groups there is a stony carriageway, hardly tolerable in vehicle, let alone on foot or bicycle.

(iii) Electricity supply: A supply exists to the Department's Rest House and offices and to the tomb of Abdullah Shah Ashabi.

(iv) Water supply: This is a major problem on the site. There is, at best, a primitive and by no means certain, water supply to the Rest House and Offices. Any additional demands from the current source cannot be met.

(v) Sewage: The present arrangement caters for the needs of the Rest House and Department's Offices.

(c) <u>Archaeological Problems</u>

(i) Pilferage and Vandalism

The problems of pilferage are all the apparent. An almost unguarded and a very extensive site with a large number of ruins on it presents itself as in easy target for an unending source of good quality building material. That the pilfering has been rife on this site since long before partition. Apparently, in pre-partition times an appropriate fee could produce many willing hands that would remove cartloads of material from the site.

An aspect of vandalism is the growing incidence of graffiti. The use of a variety of writing implements is current. Regrettably incisions into the surface of masonry with sharp implement it also now visible.

There are problems associated with food consumption. May a picnic unfold itself within the confines of the monument where shade and coolness are readily available. Spillage of liquid and general litter from food consumption is not an uncommon sight. Pan spit is indiscriminately lodged on masonry surfaces.

There are instances of incense and oil lamp burning on some of the graves. This is not only disfiguring but is also adding to the decay of the surfaces concerned.

Urination against or near the masonry structures is also in evidence from time to time.

(ii) Local Collectors

To problem of pilferage can be added the advent of the present day souvenir-seekers and the treasure-hunters. Although both are forms of pilfering, the aims of the perpetrators are distinctly different.

The souvenir-seekers are many and come from all sections of society from the high and mighty down to the very humble and low. The range covers anything that will serve as a mantle-shelf decoration to glazed tiles and carved stones from sarcophagi as prestige elements, which are built into a prominent position in a new dwelling. A carved stone capital, for instance, was pressed into service as a receptacle, after appropriate modification, for an indoor plant.

The problem of the treasure-hunter is likely to grow owing to the greater interest developing in the public consciousness in both history and culture. The lucrative

pursuit could become an additional threat to the monuments because of the resale value of many items from the site on the commercial market, both nationally as well as internationally.

(d) Presentation of the Monuments

Monument Zones:

Other than the fact that the monuments are grouped into three natural zones there is no indication or explanation available to the visitor regarding the arrangement. Taking the advantage of the natural grouping it would be convenient, therefore, to define the 'Monument Area' of Groups and to plan the access, servicing and provision of facilities to each accordingly. These areas, with their several mausoleum area:

Monument Area ONE,

At the south of the site.the principal monuments here include:

- Tomb of Mirza Jani Beg Tarkhan
- Tomb of Ghazi Beg Tarkhan
- Canopy
- Canopy over Mirza Tughril Beg
- Tomb of Baqi Beg Uzbek (built 1586)
- Tomb of Jan Baba
- Tomb of Mirza Isa Khan Tarkhan, the younger
- Mausoleum of Diwan Shurfa Khan (built 1639)
- Graveyard of Nawab Amir Khan's family

Monument Area TWO,

North of Area the principal monuments of this area include:

- Tomb of Isa Khan Tarkhan, the Elder
- Tomb of Pir Assad
- Tomb of Nawab Amir Khalil Khan
- Tomb of Baqi Beg Tarkhan
- Tomb of Ahinsa Bai
- Tomb of Sultan Ibrahim
- Tomb of Mir Sulaiman

Monument Area THREE,

At the northern extremity of the site. The principal monuments of this area include:

- Tomb of Jam Nizamudin (d.1508)
- Tomb of Mubarak Khan S/o Jam Nizamuddin
- Tomb of Malik Rajpal
- Mausoleum of Sayyid Ali Shah Shrizai (d.1578)
- Group of dilapidated structures, so that the mausoleum of Sayyid Shirazi. Among the(built 1410) containing graveyard of Makli
- The old Mosque
- Sheikh Hamad Jamali's Khanqah(ruin), west of Old Mosque
- Sheikh Hamad Jamali's tomb, east of Old Mosque

The numerous graves in the open, located throughout the site, could be defined as sub zones of the three Monument Areas.

(ii) Local Amenities

Local Amenities near the site are limited to a few small shops. The are is also a boarding and lighting-point used by buses playing the National Highway between Karachi and Hyderabad via Thatta. The road to Jangshahi takes off westwards at this point whilst Thatta the nearest town for shopping and other amenities is two miles away due east.

(iii) Tourism: Lack of Promotional Materials

Makli Hills with its vast necropolis is potentially a very desirable tourist attraction. Other than one leaflet produced by the Pakistan Tourist Development Corporation Limited and the booklet of Thatta published by the Department of Archaeology and Museums, there is no other promotional material available.

(iv) Visitor Facilities

Other than the Department of Archaeology and Museum's Rest House there are no facilities available for visitors. Since the Rest House itself is reserved for use by the Department's Officials or by other Government officials, its existence may be discounted for all practical purposes. It is therefore an accurate reflection of the truth to say that visitor facilities at the Makli Hills Monuments site are non-existent.

FUTURE DEVELOPMENT-AIMS AND OBJECTIVES

(a) <u>For the Monuments Generally</u>

(i) Preventing the Cause or Effect of Salt Action

The presence of salts in the Monuments and their damaging effects due to crystallization.

(ii) Treatment of Brickwork

The action of rainwater and moisture from the atmosphere would aid the crystallization of salts from the contaminated.

In selected areas of some monuments a fairly quick method of tackling the degradation of brickwork by sulphate attack can be undertaken almost immediately. This will involve the through brushing down, with a dry hard brush, of all salt affected areas, taking care to brush the salts into a container and not onto the ground beneath. Water must not be used under any circumstances as the salts will be dissolved and reabsorbed into wall. Areas for such treatment must be indicated on the lavational grids produced from the survey.

Record photographs should be taken every six months of the affected areas, for comparative readings. If reduction in salt action is indicated within the first year then nothing additional to this process will be required other than the application of clay poultices over the worst areas.

Any future work must ensure that all materials used in the mixes are free impurities and the water must be fresh water; original used materials should be batch tested, brick dust should be derived from well-burnt bricks straight from the kiln and not second hand bricks; the lime should be pure and slaked from real limestone and not a substitute. Finally, all lime should be rigorously tested for its sulphate content.

(iii) Reinsertion of Stone

Treatment of symptoms, rather than causes, has not only incurred unnecessary expense but has compounded the original problem by the introduction of new dimensions to it. Replacement, whether of ashlars or of elaborately worked historic stones for instance, cannot and must not be undertaken lightly.

Similarly, there have been instances of redressing stone. Removal of the originally face from an old stone as a practice is quite alien to the normal principles of conservation. As a practice if must only be undertaken as a last resort where stones have become so badly decayed or damaged that some intervention is justified. Even then there are other options that must be considered first.

For repair and replacement work, a thorough survey should assess:

- The whole condition of the wall
- Condition of individual stones
- Condition of joints

The following options must then be considered:

- Carry out minimal de-scaling and mortar filling
- Stitch and fill fractured stones
- Carry out minimal piecing in of stones
- Carry out minimal placing in mortar (plastic repair)
- Treat joints
- Treat surface with consolidate
- Replace stones

In arriving at a decision to replace stone, alternatives suggested above must, in the first instance, have been properly studied and evaluated. The criteria for identifying stones to be replaced should include the value of the stone in its setting, context, function and the timing of the proposed work.

(iv) Repair of Brickwork

Defects observed in brick walls are:

- Aging and decay of pointing
- Failure of individual bricks
- Vertical cracking in arches and in the walls above
- Diagonal cracks.

Repair work undertaken without first rectifying the cause of the defect will only be cosmetic.

Repairs ill generally involve cutting in new matching brickwork. Not only should new bricks match the color and texture of the old, the bonding and jointing of the new work should also match that of the old.

The effectiveness of a brick wall against rain penetration and its durability depend upon the condition of its pointing. In pointing and re-pointing work, colour of mortar along with the profile and texture of the pointing are important. Raking out of brickwork joints should be to a minimum depth of 3/4 ". Pointing should be inserted neatly with a suitable trowel ensuring there are no smudgy edges.

Samples should be erected before final specification so that the interrelated factors of colours, texture and profile can all is decided upon.

In the renewal of the face of a wall the new brickwork must be tied back to the old. This is best done as in cavity wall construction. The gap between the old and the new should be grouted in to prevent any water seepage.

(v) Stabilization, Structural Repairs and Core work

The guiding principle, again, is to avoid an "overkill" response. The objective is to carry out repair and consolidation with the minimum disturbance leaving little or no evidence of intervention.

Problems requiring attention, especially in the ruined buildings are:

- Fracturing due to unequal settlement
- Fracturing due to geological movements
- Local building due to loss of integrity of rubble cored walls and due to lack of ties between the masonry skins enclosing the core material
- Leaning due to settlement
- Leaning due to loss of restraint
- Fractures due to loss of bearings

Taking down and rebuilding and even the introduction of new masonry is never desirable in historic buildings and should only be seen as a last resort solution.

Structural repairs incorporating wall head beams, fracture stitching, underpinning and secret lintels should be resorted to after careful diagnosis of the problems.

The stability of many ruined monuments has been considerably jeopardized by the loss of significant structural elements. These are in need of immediate first aid to ensure that further collapse, disintegration or vandalism is kept to a minimum.

Formwork to support partially collapsed domes and arches in danger of collapse along with shoring against leaning and bulging walls are the necessary emergency measures to be adopted now. Secure fencing around the endangered structures should also be provided.

Exposed cores of the ruined masonry structures are vulnerable to the effects of weathering. They are also an easy target for thieves. Neglected masonry buildings always provided a tempting source of ready cut and dressed stone and facing bricks, which can be praised away from the face leaving the rough core filling exposed.

Exposed areas of cores will require general treatments involving techniques known as 'rough racking'. The work demands a high level of skill and experience. The aim is to reproduce the appearance of existing exposed core whilst, concurrently, providing adequate protection for the wall. As always with conservation work, the same care has to be exercised is executing 'rough racking' as in pointing face work. The distention must always be evident. Under no circumstances must conservation core work be finished to look like rubble facing.

Where it is known that original openings formed part of the core work, allowances will have to be made for the missing face work at those openings by keeping the core sufficiently back to account for the space which the face work originally occupied.
Detailed investigations is also required to be done for check the contain poor weathering material.

(vi) The Control of Rainwater

There are essentially two problems that need immediate attention.
The first relates to the percolation of water through the structures. This is made possible by cracks in the foot finishes and by the masonry open joints in the Buildings Remedial measures dealing with these must be into the types and concentrations of salts present and any desalination procedures necessary.
The second relates to the run-off of rainwater from the structure. The discharge from gargoyles is fairly close to the base of the structure and because it has nowhere to go in particular it will seep back into the structure from the adjoining ground. Stone plinths should be checked for their falls and any adjustments necessary should be made to ensure a proper run-off. For the buildings without plinths, a suitable width of paving laid to falls with a run-off channel at the outer edges will be necessary to gather and direct the flow of storm water.

(vii) Dealing with Earthquake Damage

Each monument is a case for individual study in which detailed inspections of the fabric should be undertaken. Strengthening against dynamic loads should be considered in the most practicable and economic way in keeping with its overall conservation plan.
Investigation of foundations must form part of the detailed inspections since earthquake shocks are transmitted to the building through them.
Particular attention must be given to strutting and shoring so as to prevent collapse and to make safe dangerous elements.
Principles of repair should aim at restoring and improving the building's capacity to resist an earthquake. Minimizing disintegration of elements into mutually destructive parts must be achieved by their proper typing in.
In improving the absorption capacity of the building the fabric must be considered as a whole.

(viii) Prevention of Wear and Tear by Visitors

A greater degree of control and supervision needs to be provided for the site. A variety of means to direct and regulate the movement of visitors will need to be explored. Some suggestions are given further on. At the monuments themselves,

however, greater supervision of visitor activity must be aimed for. Consumption of food and drink and the clambering over of walls and other features of structures must be forbidden and enforced. Additional watchmen and sign posting will be required.

(b) proposals to Protect Their Environment

(i) Monument Zone

Defining the cartilage of the monument should protect the immediate surroundings of each monument. Inevitably, some of the canopies, roofless plinths and nearby graves in the open will become grouped with principal monuments. Definitions of the zones might then be achieved by hedges, bollards, fencing etc in a variety of combinations. Paving should be used to define pathways by which the visitors will be enabled to circumambulate within and around the zones.

(ii) Monument Areas

Visitor facilities will also form part of the areas and, therefore, will need to be integrated in the overall scheme of circulation.

(d) <u>Archaeological proposals</u>

(i) Protection against pilferage and vandalism

Vigilance by the monument watchmen cannot be overstated. The effectiveness of the watch will obviously depend upon the numbers and frequency of visitors. Notices discouraging vandalistic practices and fines for commission of acts or vandalism must be displayed as warnings along side the descriptive notices for each monument.

With the expansion in the number of list and theft should be considerably reduced. For the more report sizes observation and control points should be set up for supervisory staff from where effective vigilance could be maintained. The regular patrolling of the entire site cannot be overemphasized.

It is proposed that a much more prohibitive barrier be erected around the entire site. Serious consideration should be given to solid walling of stone or stone and brick. Manned gateways through the wall will then become effective checkpoints for the prevention and control of pilfering.

(ii) Local Private Collection

All private collections should eventually be acquired by acquired by the Department, with a view to housing them in a specifically dedicated museum on the site. The collections should be properly recoded.

(d) Presentation of the Monuments

(i) Accessibility

The main access to the monuments at Makli is by road on the National Highway linking Karachi with Hyderabad. This will continue to be the principle means of access in the foreseeable future.

Visitors will arrive by:

Bus : Individuals and small groups

Hired coach : Organized groups and parties

Private Car :Family outings

Hire Car :Foreign tourists

Parking facilities will be required for coaches and cars. It is proposed that this will be along the perimeter of the site starting from the entrance gateway running westwards parallel to the Jungshahi Road. No vehicle, other than those belonging to the Department, should be allowed beyond that point in order to keep exhaust emissions in the vicinity of the monuments to the monuments to a minimum.

It is further proposed that visitors be marshaled into groups at the main entrance from where they would proceed on their visit, in what would amount to a mini conducted tour, in the Department's mini buses for which a nominal fare would be payable.

Bicycles for hire should also be available to those requiring more freedom but not the strenuous exertion of a very long walk to the northern end of the site and back.

Clear and explanatory signposting should be designed and erected at strategic locations so as to direct visitors on pre-defined routes.

Whereas the road linking the three areas must be metalled in its entirety, it is also proposed that an ample pavement for pedestrians be provided on at least one side of the road. Trees terms of space, along the route.

(ii) Visitor Accommodation

Overnight accommodation at Makli itself is not being proposed because demand for it is not likely to be pressing in the near and foreseeable future. On the whole the nature of visits will be on the basis of day trips for most people. Of the visitors whose purpose is much more serious than that of the casual sightseer, some might require overnight accommodation. For these, the excellently located motel at Kinjher Lake is by far the most suitable provision. Indeed, should demand grow for provision of

overnight accommodation for visitors to Makli, first considerations should be focused on enlarging the motel complex at Kinjher.

(iii) Visitor Facilities in General

The distances between the areas are quite considerable especially for those on foot and particularly those accompanied by children. It is therefore proposed that separate visitor amenities be provided within each area;

(iv) Group 1: - Visitor Amenity Area

For an estimate of the number of visitors expected for the general arrangement of visitors amenities and the staff campus**.**

A car and coach park along the perimeter at the entrance to the site has the following provision must also be made:

- General information office
- Ticketing, parking fees and cycle hire office
- Audio-guide hires equipment office.

The existing rest house, along with the areas to its west should be redeveloped to house a Museum/Exhibition Building. This building, which will be site just to the north of the coach/car park, will be the hub of the visitors' amenity area. Among the exhibits in the exhibition hall, provision must be made for the display of easily assimilated information through the media of models, maps, photographs and drawings so that visitors may absorb a broad outline of the geography and history of Makli Hill and Thatta. The Museum section will display the present private collections, which might have either been acquired by the Department or on loan to them.

In addition to housing the exhibition hall and/museum the following are also proposed for sitting within this building:

- Souvenir shop, selling scale models of the monuments, publications, picture post cards, transparencies, guide books to the monuments and simple specially drawn maps showing paths and the location of each monument.
- Cafeteria dispensing good quality sandwiches and other snacks, cold drinks, ice-cream and fruits, tea and coffee
- Photoshop for the sale of films and camera accessories such as batteries
- Handicrafts shop for the sale of general items of local craftsmanship
- Curator's office
- Secretarial office

- Male and female toilets
- Public call office

Vigorous efforts must be made to re-develop the garden area to the east of the existing Rest House and its upkeep attended to on a regular basis.
security purpose

(v) Group 2: - Visitor's Facilities

Toilet facilities should be duplicated here. A small sales kiosk/visitor pavilion and snack bar should also be provided.

Infrastructure for Visitors

Signposts have been mentioned previously. These must be installed throughout the site and should be design to be read by pedestrians and slow moving traffic. Each monument should display a securely and discreetly fixed plate giving, very briefly, its name and history. Also located near the amenity and facilities areas should be clearly painted maps of the site, with "You are Here" marked to assist visitors to orientate themselves. All signage must be written in English, Sindhi and Urdu.

Part IV- FIRST AID WORKS

General

Certain works should be put in hand immediately. These will be in the nature of temporary stabilization by shoring, erection of formwork to arches and domes and the fencing off, generally, of dangerous structures.

Also to be undertaken at this point in time are certain analytical investigations as the essential and necessary preliminary steps which will facilitate the principal and eventual task of the conservation of the monuments.

ITEMS OF FIRST AID WORKS

The following list indicates works to be carried out across the site:

- ✓ Trial holes for composition of soils for the buildings which have undergone unequal settlement
- ✓ Trial holes for composition of soils for the buildings where integrity of foundations is suspect due to earthquake activity
- ✓ Erection of form work/centering of weakened arches and domes including partially fallen domes
- ✓ Shoring of all leaning walls including the upgrading of shoring of those walls where the current provision is inadequate

- ✓ Repairs of existing rainwater installations including insertion of gargoyles where they are missing
- ✓ Facilitate the proper discharge of rainwater from roofs by repairing/filling cracks in roof finishes
- ✓ Construction of aprons around the buildings from where rain water run-offs can be collected into drainage channels and led away from the immediate vicinity of the buildings
- ✓ Plug holes and cracks in all finished to other area further seepage of water during the wet season and reduce the forced ingress of moist salt laden air through the action of wind
- ✓ Partially fallen domes have caused some very fine internal finished in the spaces below to be exposed to the full impact of the elements. This must be checked immediately by the provision of temporary structures above them till such time as the conservation proposals for the domes have been finalized
- ✓ All original hunching to the tops of walls must be checked for their integrity and cracks and holes filled as necessary. Where the hunching have disintegrated or are non-existent they must be reconstructed so as to prevent further ingress of moisture or rainwater. This could be executed in a sacrificial render of clay and renewed as necessary until such time as the undertakings of the principals of conservation work to the wall in question.
- ✓ Many decorative plaster surfaces exposed to the impact of the elements are in imminent danger of becoming dislodged from their backgrounds and thereby becoming irretrievably lost
- ✓ In all such cases they must be meticulously recorded by photographs and drawings in addition to squeeze moulds being taken of their profiles
- ✓ Since much of the detail is still available it is possible to reconstruct the plastered finishes to their original profiles. Squeeze moulds will be necessary for the reproduction of detail casts in plaster, clay or silicone rubber applied on a barrier of tissue or after the application of a release agent. It must be remembered that clay will distort as it dries and therefore plaster casts should be made before this takes place.
- ✓ Demarcation of the site is also immediately to be done.
- ✓ Documentation of each and every part of the monuments is required to be done on top priority basis.
- ✓ Providing boundary wall for

Annex 6. PC1 (Management Plan) along with approval by the Government

(PHASE-I)

PC-I Performa for

Protection, Preservation, Promotion, Development, of World Heritage Site of Makli Hill Monuments, Thatto and Establishment of Directorate of Archaeology (Conservation Wing) and Excavation and Exploration Branch.

Total Cost 361.206 Million

GOVERNMENT OF SINDH

CULTURE DEPARTMENT

DIRECTORATE OF ARCHAEOLOGY AND MUSEUMS SINDH

2012

PROLOGUE

The work on the preparation of this PC-I in short term and emergency/ Ist aid basis as phase-I was undertaken for Conservation, Preservation, Restoration and Development of Site and Monuments of greatest Muslim necropolis Makli Hill Monuments, Thatta as per international Standard has been made possible by the cooperation and very valuable guidance and advice of all those who are involved in the Preservation and Maintenance of the prestigious World Heritage site. The material prepared in accordance with the same keeping in view the report on the conservation of the Makli Hill Monuments by Mr. Iftikhar Ahmed Khan.

The project will be executed by the available existing staff of the office of the Director of Directorate of Archaeology and Museums Sindh as well as appointed on contract basis staff. They will be executed under the supervision of the well experienced technical/ conservation experts and their fruitful advices shall be utilized to prolong the life of the precious and glorious monuments and to safe the cultural heritage which are in very jeopardize condition and taking last breathing to disappear from the surface.

DIRECTOR

Executive summary

The Makli Complex known as the greatest Muslim necropolis provides a detail and complete framework for master plan determining and implementing a coherent set of appropriate actions to preserve and manage this world heritage site. The aim of the Project proposal is to ensure that the

cultural heritage significance of Makli Hill Monuments is not compromised, and that the values for which the site was listed in the World Heritage list are not lost. It is intended to serve primarily as a working on emergency first aid on short term document for preservation and conservation efforts on the site. It also required cooperation at all levels of government and concerned department of their roles and responsibilities, as well as providing a format for increased community and voluntary involvement in caring for the site.

The single most important aim of conservation is to retain the cultural significance or authenticity of a place, the aesthetic, historic, scientific, social or spiritual value for present or feature generations. Given that values can change in nature and perception, the assessment of values should be reviewed at stages, listing further values and broadening the focus for protection of all significant values.

All interventions should be reversible and based on a strategy of minimum intervention. The original elements to be safe guarded included those occurred with the passage of time and changes in historical circumstance. These accumulated changes have themselves become part of the historical character and material substance of the site. This Material substances represents the intrinsic values of the cultural resource it is the bearer of historical testimonies and of associated cultural value, both past and present.

The importance retaining original fabric and its inherent values can be recognized.

Although there are many ancient buildings whose state of repair suggests at first sight a renewal, it should never be forgotten that their historical value is gone when their authenticity is destroyed, and that our first duty is not to renew them but to preserve them. Broken or half decayed work is of infinitely more value than the smartest and most perfect new work.

There is a need for setting of priorities for conservation action in order to ensure efficient an effective investment of time and money. Work should be carried out on the basis of need as assessed by analysis of severity of the conservation situation.

The aim of prioritization is:

(i) To identify the significant elements of each structure and also buildings a whole which are in critical condition and required emergency first aid action.

(ii) To identify serious situation which are progressively deteriorating and required preventive conservation action should be taken in the short term.

(iii) To identity ongoing situation in need of study and or longer term conservation.

The complete conservation and preservation of Maki Complex required huge amount and time. In view of the conservation work are divided on priority actions plan.

1- Emergency work: Immediate action to stop irretrievable harm to the historic property.

2-	Stabilization work:	To provide structural stability and further degradation of structure.
3-	Preventive conservation/ maintenance:	To provide protections to vulnerable areas of historic property.
4-	Conservation work:	The repair and preserve the historic property without removing the original evidence.

Action Plan

The theoretical frame work vision of the master plan of Makli Hill Monuments drawn from the principal's various of international charters which than into consideration the following;

- Maintaining the authenticity of the site.
- Safeguarding all original remnants as a priority.
- All decision making based in full documentation and research.
- Conservation and management planning to be sustainable.
- Tourism to support conservation and to meet tourism needs.

Based on the above consideration, the identified issues and proposed strategies an action plan is presented. The action plan is designed to achieve a short and long term vision meeting international standards.

Short Term Vision

In the short term or the first five years:

- To identify structures in need of emergency action and to design and implement first aid measures.
- To take all steps necessary to arrest further degradation of the monument.
- To put in place standard operating procedures for basic tasks carried out as part of conservation and management of Makli hill Monuments.
- To involve a wide range of stakeholders in decision making and frame that decision making in a context of national and international standards of best practice.
- To address those environmental issues which can be addressed using existing mechanisms and start to formulate new approaches for solving problems which required new partnerships and initiatives.
- To put in place monitoring and maintenance systems as the basis of good conservation management.
- To set a design standard for information display and signage, to put basis first step display in place and provide map, broachers and other service of information for visitors.

- To create a mechanism for community and youth to participate in the conservation programme.
- To develop a mechanism for ensuring well looked after and clean premises and grounds.

Longer term Vision

In the longer term:

To achieve the highest standard of conservation work of all remaining historical elements of the site, in order to preserve the cultural significance and authenticity of the site for coming generations.

- To develop a historic, efficient and practicable management strategy for the site.
- To upgrade the environment in and award the world heritage site.
- To enhance the visitors enjoyment and understanding of the architecture and further research and understanding of the history and significance of the site within its contemporary context.

It is envisioned that within a period of 5 years emergency and stabilization work should be completed as per the conservation priority.

In order to achieve this target, it is imperative that the Steering Committee ensures appropriate funding to initiate the emergency and stabilization works.

Conservation works demand extensive care sensitivity and expert input all level. The available departmental technical experts and officers of Southern Circle of Archaeology should be executed and provide this assistance and often expert consultants would also be required to supervise the quality and procedures of works.

GOVERNMENT OF PAKISTAN
PLANNING COMMISSION.
(Revised) PC-1 FORM
(SOCIAL SECTOR)

01	Name of Project	Establishment of Directorate of Archaeology (Conservation Wing), Exploration and Excavation Branch and Protection, Preservation, Promotion and Development of World Heritage Site of Makli Hill Monuments, Thatto.
02	Location	Makli Hill Monuments, District Thatto.
03	Authorities responsible for	
i.	Sponsoring	Culture Department, Government of Sindh
ii.	Execution	a) Project Director/Directorate of Archaeology & Museums Sindh along with Conservation Wing. b) Director, Exploration and Excavation Branch, Karachi. c) Engineering Wing of Culture Department in National Museum of Pakistan and PDMI and EC.
iii.	Operation & Maintenance	Directorate of Archaeology & Museums Sindh
iv.	Concerned Federal Ministry	N/A
04	Plan Provision	The Project is not included in the current five year plan. In view of urgency and existing condition of the sites and monuments due to weather effects and human vandalism it is our primary responsibilities to protect this glorious World Heritage site from further decay and save for coming generation. An assessment of the existing physical condition. Prioritize conservation action including identification of immediate and emergency actions keeping principal of conservation and preservation charters in view.
05	Project objectives and its relationship with Sectoral objectives	The proposed project i.e. Establishment of Directorate of Archaeology (Conservation Wing) , Exploration and Excavation Branch at Makli Thatto and Preventive Conservation Preservation and Development of Monuments and Sites) is directly as well as indirectly the part of the all development culture heritage in Sindh which aimed the conservation of culture property and will attempt to conform the full pattern economic and social development of the sector .The contribution of this project is proposed to preserve the archaeological relics for posterity. This project is also the part of the other sanctioned projects of the Department of Archaeology in Sindh Province which are: ➢ Documentation of the Monuments and Archaeological Sites in Lower Sindh Districts. ➢ Protection, Preservation and Promotion of Protected Archaeological Sites and Monuments of Central Sindh (Vicholo). ➢ Protection, Preservation and Promotion of Protected Archaeological Sites and Monuments of Upper Sindh (Utar). ➢ Protection, Preservation and Promotion of Protected Archaeological Sites and Monuments of Lower Sindh (Lar). ➢ Protection, Preservation, Promotion and Development of World Heritage Site Mohenjo Daro.

		➢ Protection, Preservation, Promotion and Development of Bhambhore Site at Gharo, District Thatta. ➢ Establishment and strengthening of Conservation wing of Directorate of Archaeology and Museums Sindh, Culture Department. To create access to and between the various historic and cultural sites for educational, aesthetic, recreational and scientific purpose, analyzing the underlying causes of the many problems affecting the monuments. Another objective which is aimed at fulfilling is to prepare a comprehensive document record of the tombs. The benefit of this objective will stretch much beyond and will enable the high standard of up keep of the monument. Preventive conservation, restoration of effected portion of the monuments due to heavy rains and to save them from further deterioration and collapse. The project will prolong the life of the monuments and protect/preserve them for coming generation The project is also meant to preserve the unique specimen of the building art of the Muslim period, which is decaying at such fast speed now. Besides, the threats of encroachment are to be checked.. One of the main objectives of the project is to bring back it in original glory and presence piece of our cultural heritage in a befitting manner so as to attract the tourists/visitors both from home and abroad, which will not only enhance the national prestige but also serve as a vehicle for developing lasting relationships between the people of Sindh, Pakistan and other communities/ people.	
06	Description justification, technical parameters	**Annexure (A) Attached**	
07	Capital Cost estimates	**Capital:** a. Establishment of Conservation Wing and Exploration and Excavation Branch at Makli Thatto. b. Protection, Preservation, Promotion and Development of World Heritage Site at Makli Thatto. **REVENUE:** a. Conservation Wing and Protection, Preservation, Promotion and Development of World Heritage Site at Makli Thatto. b. Salary of Staff c. Extra Remuneration for additional duty **TOTAL**	80.373 Million. 219.058 Million 34.982 Million 22.230 Million <u>4.563 Million</u> **<u>361.206 Million</u>**
i.	Date of Estimation	April-2011	

ii.	Building	Analysis of Rate based on the previous executed work at sites and as per prevailing market rates of material and labour.
iii.	Furniture & Equipments	Estimate/BOQ and procurement detail will be prepared before execution of work

YEAR-WISE COMPONENT FINANCIAL PHASING

Item	Unit	1st year 2011-2012	2nd Year 2012-2013	3rd Year 2013-2014	4th Year 2014-2015	Total
i. Establishment of Conservation Wing, Exploration and Excavation Branch at Makli, Thatto. ii. Protection, preservation, promotion and Development of World Heritage site at Makli, Thatto. iii. Revenue components		**21.622**	**160.218**	**94.160**	**85.206**	**361.206**

Detail of Capital component Attached Annexure-B,C &D
Detail of Revenue component Attached Annexure-E, F & G

ANNUAL PHASING (IN MILLION)

FOUR YEAR	1st Year 2011-2012	2nd Year 2012-2013	3rd Year 2013-2014	4th Year 2014-2015	Total
	21.622	**160.218**	**94.160**	**85.206**	**361.206**
Detail Attached					
Additional amount would be met out through re-appropriation					

08	Annual Operating and Maintenance after completion of project	The Monuments and sites will be maintained by the Directorate of Archaeology and Museums, Culture Department Government of Sindh through regular budget and existing conservation staff.
09	Demand and Supply Analysis	Not Applicable
10	Financial Plan and mode of financing	Government of Sindh through its ADP
11	Project Benefits and Analysis	
i.	Financial	Preservation and Restoration of the Sites and Monuments will attract more tourists both from within Pakistan and abroad to these places which will in turn benefit to the generate revenue.
ii.	Social benefits with indicators	The overall objectives of the Project will integrate community involvement with a view to creating sustainable Cultural Tourism at these cultural centers. Integrally linked to these is the aim that poverty reduction should result from both conservation and cultural tourism activities. The project will attract more tourists to the place which will in turn benefit the local community engaged in hotel, transport and handicrafts business and develop local economics.
iii.	Employment Generation (Direct & Indirect)	Preservation and Restoration of the effected Antiquities are most important to the image of the glorious Cultural Heritage. The well preserved and restored Cultural jewels will attract

		more tourists. The local craftsman and large number labour will be engaged for the work.
iv.	Environment Impact	Well preserved sites and monuments will attract the visitors both local and abroad.
v.	Impact of delay on Project cost and ability	If the project is delayed due to any reason the sites and monuments will more suffered and decayed considerably as well as the cost of the special skilled craftsman and special nature of material will definitely increased.
12	Implementation plan of the scheme	The project will be completed in Four financial years i.e. 2011-2012, 2012-2013, 2013-2014 and 2014-2015.
13	Management structure and manpower requirement including specialized skill designing execution and operational phases	The Project will be manage and executed through the existing Engineering staff of the Directorate of Archaeology and Museums Sindh along with the Conservation Wing and collaboration of PDMI & E CELL of Culture Department, Government of Sindh and technical staff appointed on contract basis (Annexure attached).
14	Additional Projects/decisions required to maximize Socio-Economic Benefits from the Proposed Project.	The proposed project prepared on short term and in emergency basis to restore the effected by heavy rain portion of sites and monuments to avoid and save from further decay. The medium and long term proposals/projects for complete documentation, preservation and restoration of Cultural jewels located in Sindh Province is essentially need to be prepared to prolong the life of these rich cultural heritage for coming generation and increase tourists both local and abroad.
It is Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for preparation of PC-1 for Social Sector Projects.		

RECURRING EXPENDITURE AND STAFF REQUIRED FOR ANNUAL OPERATING AND MAINTENANCE FOR FIVE YEARS

S. No 1	**DESCRIPTION** 2	**No**	**Salary Per Month**	**Per one Year**	**Per Five Year**	**Total**
1.	Provision for purchasing of POL and other equipments for regular maintenance to keep the site in presentable condition.		-	1,200,000	6,000,000	6.00
2.	Conservation Foreman	6 No	10000 x 6 = 60,000	720,000	3,600,000	3.600
3.	Chowkidar/ Site Attendant	20	7000x 20 = 140,000	1,680,000	8,400,000	8.400
	Total					**18.00**

CAPITAL COMPONENT **Annexure-B**

FIRST AID ESTIMATE AND OBJECTIVE JUSTIFICATION

Rs. In Million

S.No.	Description of items	Quantity	Unit	Rate	Amount
1-	Provision for detail Survey including Plan Table, Counter and Topographic Survey. The condition survey is also necessary to chalk out the emergency measures adopted. The Documentation of each and every part of the monuments and site is also necessary to record the condition of the monuments before commencement of work. That an assessment of appropriate level (S) of conservation be carried out in advance of any conservation decision making. The assessment should base on authentic information and full documentation. The amount proposed for the item is already very limited. The items of work will be implemented on the following line of action. One of the fundamental management tasks at a World Heritage site is to fully document the site using a verity of media and methods, including maps, plans, architectural details, photographs, film and text. Custodian must also record in detail every intervention into the fabric and form of the site, documenting it again in a series of before and after presentations. Comprehensive recording and documentation are pre-requisites of any program aiming to preserve the universal value of World Heritage sites and to retain its authenticity. Full documentation of the style, construction, materials and condition of all built elements of the site will form the baseline to assess comparative significance of built elements, buildings as a whole, and historical assemblages. This understanding of the status and needs of the site and the identification of authentic elements which must be preserved will form the design of the overall conservation strategy in a number of ways; in setting priorities of conservation works, in the design of specific conservation works and in planning future documentation and research directions. Documentation must be done with full and must meet international standards. Following system will followed. 1. **Base line survey**: Detail recording of each element of every building/structure; graphic records including plans, elevations, sections, and photos. 2. **Dossiers of Histories of intervention**: Copies of all reports, publications and documents describing past intervention to each building/structure. 3. **Condition Survey Catalogue**: will be				

	conduct preliminary information regarding the condition of each element is included in the Baseline Survey Folio, which is useful in assessing the conservation needs of each element on the micro level. However, in order of comprehensive conservation strategies to be formulated, it is important to develop broad information regarding primary, secondary and decorative elements. This survey systematically takes up each structure, its subdivisions and each part of every building/structure. 4. **Documentation Catalogue**: Plan and Photo; name, location, classification, status, use, condition and significance; cross references to other documents; history and date if known; check points for monitoring and maintenance and recommendations for remedial action needed with indicative costs. 5. **Topographic Survey**: Traverse control by electronic distance measurement instruments, survey will be conduct on scale 1:1000 by total station. This survey will be pointed out the all man made and natural features existing on the ground like graves, tress, mound monuments, tomb, vegetation, benches, road and track etc, complete, digital satellite image will be collected. **The above mention works with fully justification is essentially required to documents the whole 912 Acres protected area with scientifically and internationally standard.** Topographic Survey , base line survey condition survey and Documentation, compile of reports etc.				

		912 Acres	P.Acre	9868/-	**9.000** **9.000**
2.	Provision for preparation of detail Master Plan according to the set principals of International Charters as the site is included in the World Heritage Site.				**10.000**
3.	Detail Study of this greatest necropolis is required to identity "serious situation" which are progressively deteriorating and required preventive conservation action in the short term for that purpose environmental study impact, assessment of salt action, wind pressure and thermal action on the structure. The work will be executed through national but international fame reputed firm	Job	--	--	**5.000**
4.	Provision for holding of International Seminar's at Makli Hill Monuments, Thatto for awareness to safeguarding of this precious complex of Monuments of World Heritage Site.	L.S	-	-	**5.000**
5.	Provision for Training of Technical Staff from the International and National experts by Scientific method to protect and preserve the Cultural Jewels at Makli, Thatto.	L.S	-	-	**3.000**
	BASIC INFRASTRUCTURE				
4.	Indication and description of boards to print information for identity the monuments and provide proper guidance to the visitors. The board will also be fixed at National Highway at different locations etc. including facilities to the visitors. a) Main board with G.I Pipe 2 ½" dia Size 2x1 6'x 4' = 48 Sft Pena flex board 2x1 8'x6' = 96 Sft @ Rs.1042 Per Sft Direction board 2" dia G.I Pipe 12x1 4' x 3' = 144 Sft Indication and Notice board 1 ½ " dia 30x1 1 ½' x 2' = 90 Sft b) Information broachers/leaflets for visitors.	48 Sft 96 Sft 144 Sft 90 Sft L.S.	P.Sft P.Sft P.Sft P.Sft	561.54 P.Sft 1042/- P. Sft 685.58 P Sft 1384 P.Sft	0.0269 0.100 0.0987 0.125 0.650 **1.000**
5.	Provision for water supply is very essential issue to provide drinking facility to the visitors. Water				

	is also required during the conservation and preservation as well as development work at site. There is a acute shortage water at Makli. For this purpose boring tube well and lying of G.I pipes are essentially required.(construction of reservoirs and payment to be paid to the WASA for water supply)	02 No.	P.No	2.50 P.No.	**5.00**
6.	Construction of approach paths by demarcating proper route leading to various groups of monuments.	15600 Rft.	P.Rft	641.00	**10.00**
	Conservation				
7.	Makli Hill Monuments is a place of greatest attraction, as it has been placed on World Heritage list of UNESC. Hundreds and thousands visitors admiring the aesthetic urge and get solace and inspiration from the saints. At the same time they love to enjoy the beautiful atmosphere that prevails in the city of the dead. With the passage of time and due to heavy rains flow of saline winds and other climatic conditions prevailing throughout the year the condition of the graves and mausoleums has deteriorated to the extent that even the stone boulders with their plaster and lime stone slabs. Brick tile, plain and glazed tiles have deteriorated and broken and need reassembling to save them from further deterioration. It would be better to take immediate remedial measures, without any further loss of time. Elements of high cultural significance in poor condition which are rapidly worsening and there is an immanent danger of loss of those qualities/ feature with basis of significance, Immediate action required which will substantially improve the situation in both environmental and conservation terms. The aim of prioritization is to identity the significant elements of each structure and also buildings as a whole which are in "critical condition and require emergency action". And to identify "serious Situations" which are progressively deterioration and required preventive conservation action in the short term.				
	Priority Action				
Short term	Emergency Work Ist Step	Immediate action to stop irretrievable harm to the historic property.			
	Stabilization Work Ist step	Provide structural stability and further degradation of structure.			
Mid term	Preventive Conservation and Maintenance 2^{nd} Step	To provide protection to vulnerable area of historic property.			
Long	Conservation Work 2^{nd} step	To repair and preserve the historic property without			

term		removing the original evidence.			
	To implement the immediate emergency action on the mausoleums, and structures on short term, mid term and long term basis. The following emergency work for stabilization, restoration and preservation of serious structure will be attended on **1st phase and short term basis**.				
	i. Kankar lime pointing to open jointed masonry (1 ½" to 2" on average after cleaning of joints.	1972 Sft	% Sft	6360.00	0.125
	ii. County brick masonry with Ist class special size tiles with special care to ensure the proper and efficient bond etc, complete.	9000 Cft	% Cft	27699.00	2.493
	iii. Kankar lime plaster with lime chiroli mortar with very care fully including compaction with wooden thapies etc, complete.	10000 Sft	% Sft	13332.75	1.333
	iv. Water tightening of top of the fortification wall by laying two courses of 1st class brick tiles etc, complete.	20000 Sft	% Sft	18025.75	3.605
	v. Rough chisel dressing of lime stone in required size.	2000 Sft	P.Sft	438.25	0.877
	vi. Fine chisel dressing	2000 Sft	P.Sft	608.15	1.216
	vii. Fine carving and tracery work in floral and geometrical design to adjoining structure and pattern as per original.	2000 Sft	P.Sft	6417.00	12.834
	viii. Provision for fixing of glazed kashi tiles in floral design with lime mortar as per original.	6300 Sft	P.Sft	864.00	5.443
	ix. Dismantling and removing down the dressed and carved stone slabs of detached/dislodged/bulged out/partly collapsed/loose stone graves laid in lime mortar with great care to avoid any sort of damage including stacking of the same at site of work. This also includes proper numbering of each and every stone member of such stone graves before they dismantled.	4000 Cft	% Cft	1106.25	0.0443
	x. Re-assembling of detached/dislodged/budged out/fallen/partly collapsed and loose stone graves with old original dressed and craved stone slabs laid in lime mortar, similar to the original, the visible surface of the joints should be treated with same matching colour.				
	xi. Up-Gradation and repair of Kashi workshop and purchasing of material for preparation of kashi tiles.				
	xii. Materials and labour's are required to				

	consolidate the loose stone and loose kashi tiles at their original place with very care fully to avoid any intervention and damaged. **MATERIAL** Chiroli White Lime Surkhi powder Jute Special Size brick tiles Stone **LABOUR:** Ist Class Mason/stone carver Cooly Bhishti **Total**	8000 Cft L.S 3000 Begs 2000 Mnd 6000 Cft 1000 Kg 100,000 Nos. 800 Cft 900 Nos 1800 Nos 900 Nos	% Cft - P.Beg P.Mds % Cft P.Kg %o Nos P.Cft P.No P.No P.No	10087.00 - 800.00 400.00 6000.00 300.00 15000.00 500.00 800.00 450.00 450.00	0.807 0.400 2.400 0.800 0.360 0.300 1.500 0.400 0.720 0.810 <u>0.405</u> **36.872**
8.	**CONSTRUCTION OF BOUNDRY WALL:** The complex of monuments at Makli covers an area more than 10 sq KM their condition is further worsened by encroachments at various corners by people residing there and government, protected area are using for cultivation purpose. Besides, the provincial government building offices and residences. The pet animals in scores are seen roaming in the graveyard day and night causing destruction of the lime stone graves. Due to such an action boulders are seen spreading in the entire area. To prevent all such entries, it is very necessary to provide enclosures wall with iron grill, which would control the entry of unwanted elements in the complex. Provide at some portion .Boundary wall with stone and at				

	some portion will fence to control unwanted traffic and animal for security purpose. i. Providing and laying coursed rubble masonry in cement mortar 1:6 in foundation plinth and basement including the scaffolding charges. ii. Wire net mesh fencing with iron pipe at the edge of the hill including painting etc, complete. Size 10' x 6'	198270 Cft 2870 Nos	P.% Cft P.No	27329.5 P.% Cft 10,000 P.No	54.186 <u>28.70</u> **<u>82.886</u>**
9.	**TOURIST FACILITIES:** Providing Tourist facilities at site cafeteria/ public toilets are need to be constructed in phases. In view of Ist emergency aid and on short emergency basis, the most essential building will construct. 1. public Toilets 3 sets 2. Cafeteria	 900 Sft 1500 Sft	 P.Sft P.Sft	 1000 1200	 0.900 <u>1.800</u> **<u>2.700</u>**
10.	The existing building i.e. office block, rest house residence of office/ officials are in very dilapidated condition due to non attention, lack of maintenance etc. The existing building are needs to repair renovate and up gradation for prolong their life and use.	--	--	--	**2.00**
11.	Provision for short roots shaded tress and seasonal plantation along with the approach paths and around the cafeteria, visitor pavilions and public toilets to provide natural shades to the visitors specially in hot season. The landscaping plan will be design through a Horticulturist according to the site requirements.	L.S	-	-	**20.000**
				Total	**192.458**
12.	2% contingencies	--	--	--	**3.849**
				Total	**196.307**
13.	6.5% escalation Charges per annum	--	--	--	**20.583**
				Total	**216.890**
14.	1% T.P.M				**2.168**
	Net Total Rs in Million				**219.058**

REVENUE COMPONENT **Annexure-**

FIRST AID ESTIMATE AND OBJECTIVE JUSTIFICATION

Rs. In Million

S.No.	Description of items	Quantity	Unit	Rate	Amount
1.	**DOCUMENTATION:** One of the fundamental management tasks at world heritage site is to fully document the site using a verity of media and methods including map, plans architectural details, photographs film and text. Custodian must also record in detail every intervention into the fabric and form of the site. In order to make record of the cultural heritage and undertake positive research and also prepare more authentic and comprehensive documentation. It is imperative to encourage the use of modern equipment and sophisticated gadgets. to achieve this target necessary modern and a latest digital cameras, drawing survey equipments,(Theodlite) materials, and GPS etc, are required Purchasing will be done on emergency first aid and on short term basis. Digital Camera with accessories. GPS with accessories. Theodlite with accessories.	2 Nos 1 No 1 No	P.No P.No P.No	0.200 0.200 0.400	**0.400** **0.200** **0.400** **1.000**
2.	The area of Makli Complex is spread on over 10 sq KM. In the absence of proper means for mobility, great difficulties are faced together with loss of time causing undue delay etc. when works on consolidation/ preservation carried out material and laborers are required to be in time at the spot, such unnecessary department and delay in completion of the project in due time. As such it is most necessary to provide proper vehicles to meet the requirement and make the area accessible to the officers and staff in addition to workers. Keeping in view the harsh summers				

	and hostile monsoon season, it is of utmost importance that all vehicles have air conditioning facilities to enhance the on site working there. Motor cycle and Toyota Vigo Champ Suzuki Jimni Jeep 4x4 JLDX M/T Honda Motor Cycle 70 CC Suzuki Swift 1.3 DLX Insurance and Registration of vehicles POL for vehicles for Four Year	 1 Nos 1 No 4 Nos 1 No L.S L.S	 P.No P.No P.No P.No - -	 3.500 2.300 0.070 1.300 - -	 3.500 2.300 0.280 1.300 0.725 <u>5.000</u> **<u>13.105</u>**
3.	Supply of Articles and Tools for Conservation. Mixer Machine for mixing of lime and chiroli. Scaffolding pipe with clamps in different sizes. Ladder and planks Moveable scaffolding upto 20' height	 2 No L.S L.S 2 Nos	 P.No - - P.No	 0.300 - - 0.250	 **0.600** **0.600** **0.300** **<u>0.500</u>** **2.000**
4.	Staffs required implementing the projects and watch and ward staff.	--	--	--	**22.230**
5.	Extra remuneration for additional duty for officers/officials of the Department.	-	-	-	**4.563**
				Total	**42.898**

SECRETARY to
GOVERNMENT OF SINDH
CULTURE DEPARTMENT

Karachi the 21st May, 2012

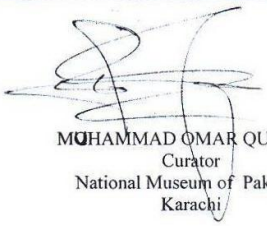
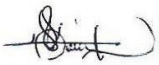
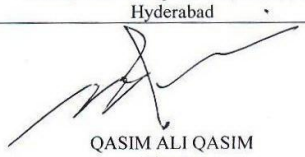
TO WHOM IT MAY CONCERN

This is to certify that PC-I for Protection, Preservation, Promotion, Development, of World Heritage Site of Makli Hill Monuments, Thatto and Establishment of Directorate of Archaeology (Conservation Wing) and Excavation and Exploration Branch with a total cost of amounting to Rs. **361.206 Million** has been approved by the Government of Sindh.

The first installment of the sanctioned amount will be released in July 2012.

21/05/2012

(ABDUL AZIZ UQAILI)
Secretary to Government of Sindh

PREPARED BY	 MUHAMMAD OMAR QURESHI Curator National Museum of Pakistan Karachi  MUHAMMAD TANWEER Assistant Archaeological Engineer Directorate of Archaeology and Museums Sindh, Culture Department, Pucca Fort Hyderabad
CHECKED BY	 QASIM ALI QASIM Director Directorate of Archaeology & Museums Exploration and Excavation Branch Karachi  SYED ASHFAQUE HUSSAIN MUSAVI Additional Secretary Culture Department
APPROVED BY	 ABDUL AZIZ UQAILI SECRETARY CULTURE DEPARTMENT GOVERNMENT OF SINDH

05.10.2010
Dipl.-Ing. Georgios Toubekis
Jan Militzer M.A. (Geography)

RWTHacdc
RWTH Aachen Center for Documentation and Conservation

0 0,25 0,5 1 Kilometers

Projection: UMT 42N (WGS84)

UNESO Wold Heritage Site Makli Hills

Scale = 1:10.000

UNESCO/ICOMOS joint Reactive Monitoring Mission to the Historical Monuments of Thatta, Pakistan
5 May - 10 May 2012

Photographic records

120510 Makli entry situation

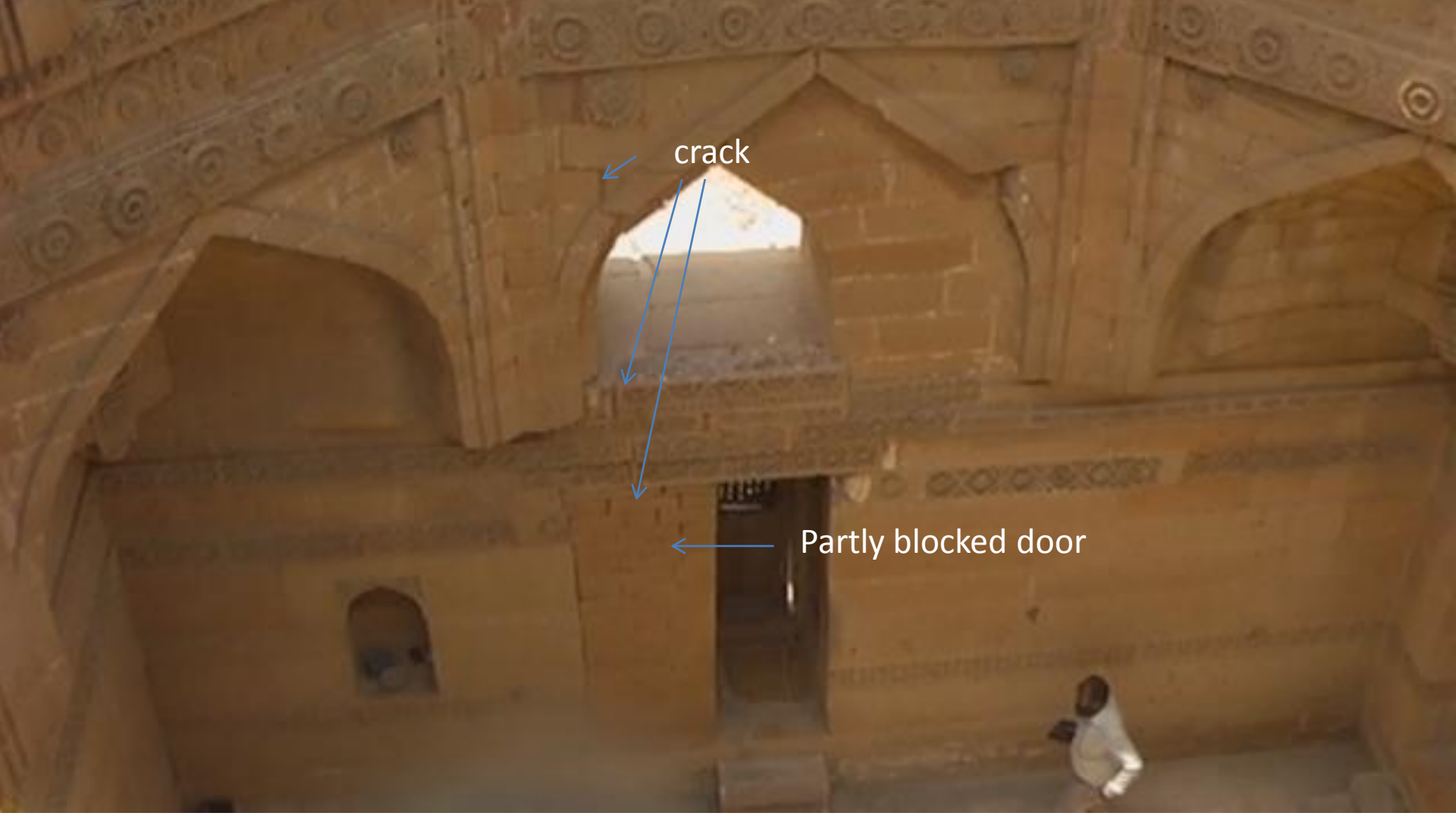
120510 a Tarkhan period monument

120510 a badly destroyed monument

120510 Roof cracks in the Jam Nizzamuddion tomb

120510 separating cracks of consolidation platform, Jam Nizzam du Din

120510 Structural deterioration mosque near Jam Nizzamuddion



120510 Vertical crack souther inside Jam Nizzamuddin

120510 Consolidation project Heritage Foundation