

AUTHORITY FOR THE PRESERVATION
OF MOENJODARO
CULTURE AND SPORTS DIVISION

**A BRIEF REPORT ON
UNDP PROJECT
PREPARED FOR THE 14TH IOC MEETING
AND
TPR Meeting**
(Addendum to 2nd PPKR)

**INTERNATIONAL SUPPORT FOR THE
PRESERVATION AND DEVELOPMENT
OF THE ARCHAEOLOGICAL SITE OF
MOENJODARO**

NATIONAL PROJECT COORDINATOR

28 November, 1993

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THE PROJECT

In January, 1991, a three year agreement (1991-94) was signed between Government of Pakistan, UNDP and UNESCO for Preservation of Moenjodaro Project siming at (i) Institution building to enhance the Government capacity to preserve the existing Moenjodaro Site, (ii) Strengthening the Archaeology Department's Conservation Laboratory at Moenjodaro, (iii) Survey, Research, Documentation for Conservation works, (iv) to create and improve the linkages between the preservation of Cultural heritage, Tourism, Education and (v) Preparation of Promotional Plan including, Conservation brochures, slides, films, books, stickers, posters, Seminars, Workshop, Symposium etc. During the execution of the Project (vi) Technical assistance in the form of International Consultancy.

For the above project the Government of Pakistan provided local manpower and funds amounting to Rs.11.7 million while the through UNESCO has provided funds, in foreign exchange, amounting to US\$ **0.59** million for the equipment, survey and research and International Consultants.

As further aid, and to supplement the ongoing UNDP Project fee Moenjodaro, the Japanese Trust Fund in cooperation with UTS5CC also provided funds amounting to US\$ **0.33** million for equipment, survey, research, documentation, Symposium/Workshop tad international consultancy. Thus the total funds under .TIP and JTF Projects now amounts to US\$ **0.934-** million.

PROGRESS UNDER UNDP PROJECT ENDING NOVEMBER,1993.

The progress achieved under the project on each item work as per its objective under the work plan (Annexure-I) given below:-

Item-I s Institution Building in the Department of Archaeology and Authority for the Preservation of Moenjodaro.

Prior to the UNDP Project, a small Cell of the Department Archaeology existed at the site of Moenjodaro which looked after the physical work of Conservation at site, s Cell comprising 27 employees and headed by a Junior Engineer has now been strengthened as provided in the UNDP Project and is now headed by a full fledged Director in -19 and comprises over 50 Senior and Junior employees, Recruitment for this Cell has been made by the Authority for the Preservation of Moenjodaro under its rules and regulation, s Cell now called MCC has employed Engineers, Architects, mists, Conservators and others.

Item-II : Technical Training.

The training programme (Annexure-II) arranged by the Authority for the Preservation of Moenjodaro in consultation h the UNESCO and its consultants include the following:-

- Group Training as imparted under International Symposium and Workshop.
- Local Training (on the job)
- Foreign Training and study visits.

Under Group training one International Symposium workshop were held in February, 1992 which was largely d by International and local experts and participants, d Workshop was held in February-March 1993 (Annex-II) as attended by local participants from the Archaeology Department and Authority for the Preservation of Moenjodaro outside agencies such as Universities, KDA, PWD and Railway etc.

Three engineers were sent abroad, one to ICCROM Italy for a four month training and two Aachen University, Germany for a 3 month University Course. Two of the trainees working in be posted at Moenjodaro urgently.

The two week study visit of two senior officers of the Authority for the Preservation of Moenjodaro to Indonesia and Sri Lanka was completed in July, 1993.

Item-III: Research, experimentation and surveys

Under the advice of UNESCO Consultants, work is in progress on various technical aspects of the conservation, a collection on documentation, soil moisture, temperature studies, water quality etc. is being continued, investigations relating to geotechnical and other studies planned, and the work is behind the schedule.

Item-IV: Improvement and Modernization of Laboratory

The existing Laboratory of the Archaeology Department has been enlarged and equipped with the latest equipment procured under the UNDP Project from UNESCO. The major part of the equipment received from UNESCO has been installed and put in use. Various experiments suggested by the consultants are being carried out in the Laboratory. An order for a second list of equipment has also been placed.

A brief report on Laboratory work is attached as Annex=III. The laboratory works are much behind the schedule.

Item-V: Documentation work.

The work on documentation of the existing structures is in progress and the photographic and other architectural of the existing monuments are being documented on formats designed by the Consultants. The progress is slow.

Item-VI: Cultural Tourism.

The Ministry has recently formed a Committee to look into specific aspects of Cultural Tourism under an integrated approach to promote and publicize Moenjodaro Project. The committee consisting of members from the Cultural Tourism, Authority for the Preservation of Moenjodaro and Dr. N.B.Baloch held a meeting on 03-07-1993- Under Contract from UNESCO, Dr. W.S. Logan visited Pakistan from 13-31 July, 1993. He the site and met officers of the Authority for the Preservation of Moenjodaro, Archaeology, WAPDA,

Irrigation, Secretary Culture, and UNDP Islamabad. His report is expected by November, 1993.

FINANCIAL ASPECTS

The UNDP Project has been approved at a cost of Rs.27 million including the local components of Rs.11.7 million to be met from the provision Rs.23.67 of conservation works under the Plan for Moenjodaro, The fund now left for physical execution of conservation work therefore reduces to about Rs.12 million. The over all progress of UNDP Project.

A. Local Component:

Item

i) Physical progress From January, 1992 To November, 1993	Progress% achieved.	Remaining % Work.
	30%	70%
ii) Financial (Provision Rs.11.7 million)	40%	65%

B. Foreign Component:

(Provision 0.59 million US\$) 40% 60%

INTERNATIONAL CONSULTANT.

The project has been served very beneficially by the following since February, 1992:-

1. Dr. Professor Michael Jansen
2. Mr. Richard Hughes
3. Dr. W.S Logan

In addition the project has also been benefitted by Dr. Hideo Noguchi who has provided continuous link between Authority for the Preservation of Moenjodaro and the UNESCO/UNDP.

V. MEETING WITH UNDP.

The project held two meetings with UNDP as under:-

- 1st PPER meeting held on 1.3.1993 in Karachi between Government of Pakistan/UNDP/UNESCO/APM/Archaeology.
- Progress Review Meeting held on 30-9-1993 in Moenjodaro APM/UNDP/UNESCO/Archaeology.

**SUMMARY ON WORKSHOP ON CONSERVATION
EXPERIMENTATION AND DATA COLLECTION MOENJODARO**

(15 February to 15 March 1993)

Within the frame work of the international safeguarding campaign for Moenjodaro, and especially the UNESCO/UNDP project PAK/89/032 entitled "International support for the preservation and development of Moenjodaro(as well as its complementary UNESCO/Japan Trust Fund(JTF) project 536/PAK/71), two consultants both for 1-month) and H. Nocuchi, UNESCO. Division of Physical Heritage, carried out a joint mission. Assistance of the international specialists was provided for one month on-site training Workshop in the field of 1) archaeological documentation, 2) conservation experiments, laboratory tests and data collection, and 3) archaeological site management.

The participants, in total 22, and 8 observers, were selected from the Moenjodaro Conservation Cell (KCC) DAK and other associated institutions. Their professional cell backgrounds were mainly archaeology and architectural conservation, but some others were from the field of engineering and urban development.

The training during the workshop consisted of i) a series of lectures on scientific principles and ii) on-site work including the initial experiment on emergency rescue measures on the heavily damaged walls (in total 250 meters of walls out of 50,000 meters existing walls).

The Steps to be followed and experimented were given to the participants, on which on-site work will be carried out during the period up to the next Workshop, which should take place in September/October, 1993. **Several** forms especially for the archaeological documentation. Conservation and Laboratory tests were prepared in sufficient number of copies. The lectures and site works were documented in video tapes, and the existing bibliography together **basic** reading materials whose reorganized, so that the staff could study the documentation and conservation individually and collectively.

After the completion of the present workshop, the staff meet regularly (once every week, two weeks and a month) in order to exchange experiences gained during the field works, so that the structural documentation and conservation experiments could be evaluated. A report of these meetings will be essential not only for regular monitoring but also for further evaluation By the International Consultative Committee for the Moenjodaro campaign. Moreover, a general plan was made for continuing national training for junior staff craftsmen's and workers, the training of which will be considered with the above-mentioned regular staff meetings Thus, it is hoped that the concrete results of the Present Workshop could be sustained by the staff engaged in the project activities concerned.

Regarding the archaeological site management, a brief lecture was given in order to have an overall view on a wide issues related to not only the management of the site as a whole entity (for instance development of physical facilities and tourism, education and communications), but also project management. Since this subject, which is also inter-departmental, should naturally be taken up at the management level, it is suggested that this issue will be addressed.

Moreover, in order to prepare an outline for the updated master plan for Moenjodaro, a short term international consultant mission will be organized during the first half of this year, so that an overall site plan, which is an important project component could be covered in line with other technical issues, like the archaeological documentation, conservation and data collection/analysis.

National news covered this Workshop, and a German TV filming team, in response to the UNESCO PROMOTION NETWORK, was making a 45 minutes programme entitled "Mystery of Moenjodaro", also documented a part of the Workshop.

MOENJODARO PROMOTION CCKPAIGN

INFORMAL WORKING SESSION (28 February, 1993)

PURPOSE: Within the framework of the UNESCO Promotion work for Moenjodaro, an informal working session has been organized in order to stimulate interest of experts and to work out a draft for an action plan, a strategy and guidelines for the promotional and fund-raising activities in Pakistan.

PARTICIPANTS: The participants, are from the Department of Archaeology and Museums, the Government of Sindh (Departments of Information and Culture (, from the media (news-papers, magazines, Radio and T.V.), from travel agencies, advertisement agencies, hotels, etc.

EXPECTED OUTPUT: To create amongst the experts the interest furtherance of the "Save Moenjodaro" Campaign particularly:

- To prepare a strategy, an action plan and guidelines for a promotion campaign in general.
- To advise especially' in the production of promotional materials, pamphlets, posters, post cards, brochures, books, TV films, video cassettes etc.

LABORATORY WORK

MONITORING OF GROUND WATER-TABLE:

WASIL is regularly recording the fortnightly readings of the piezometers to monitor the ground water-table. Previously normal measuring tape was used for taking the readings but with effect from June, 1993 the latest Audio water level indicator is used. This has removed any doubt of inaccuracy. The instrument has been provided under the UNDP Project. The WASIL has kept the ground water-table record upto-date.

SUB-SOIL INVESTIGATIONS

2.1 Boring of Auger-holes

Nine (9) auger-holes are made every month with Agri Auger for sub-soil investigations which include grain-size distribution, determination of moisture content, T.D.S, PH and quantitative analysis of soluble salts in the soil profile. The boring of auger-holes was started¹ in March and since then it is done from 15th - 18th of every month. From May to August 6 soil samples have been collected for further investigations.

1 Determination of moisture contents, T.D.S. & PH

The moisture contents, T.P.S. and PH of all soil samples collected upto the month of August have been determined.

2 Grain-size distribution

The grain-size distribution in none of the samples has been carried out due to non-availability of trained personnel.

2.4 Quantitative analysis

The quantitative analysis of the soluble salts in the soil samples has partially begun. The analysis is being done on Spectrophotometer DR 2000. The direct reading Spectrophotometer DR 2000 has been provided by UNDP and it was not in use

due to lack of working knowledge. Spectrophotometer was retained at National Museum of Pakistan Conservation Laboratory where Mr. Muhammad Toseef ul-Hassan, Assistant Archaeological Chemist has put the instrument into operation after a detailed study and discussions with the experts of various scientific organizations. As per discussions with the International Consultant Mr. Richard Hughes during the International Workshop at Moenjodaro (15 February - 15 March), Sulphates (SO_4^{2-}), Chlorides (Cl^-), Carbonates (CO_3^{2-}), Nitrate (NO_3^-), Nitrite (NO_2^-), Calcium, Sodium and Mg constituents were to be determined in the soil samples. The chemicals supplied with the Spectrophotometer were limited to the testing of Sulphates, Nitrates and Nitrites only. For testing other ionic components a list of chemicals was prepared and submitted to the UNDP Coordinator for making arrangements. The matter is still in pending. The analysis of 23 soil samples which were brought from Moenjodaro is in progress at Conservation Laboratory, National Museum of Pakistan, and Karachi. The results of the 5 samples analyzed so far are given at Annexure. At the moment 3 samples are analyzed in a day and it will raise to 5 samples per day saturated aquans extracts of the soil samples analyzed so far have been retained for the determination of other ionic constituents.

these may be available shortly.

ANNEXURE-V

UNESCO SUBCONTRACTS EXECUTED BY
NATIONAL PROJECT CO-ORDINATOR

NUMBER	ITEM	STATUS
1. UNDP/PAK/89/031		
(i) 390.171.2 US\$ 10000	Study tour to Indonesia and Sri Lanka (June, 1993) Report submitted to UNESCO	Completed
(ii) 390.119.1/2 US\$ 41000	International Symposium February, 1992 on Moenjodaro Report submitted to UNESCO	Completed
(iii) 390.184.2 US\$ 35000	a) February/March, 1993 workshop Report under preparation b) Another workshop planned	Completed
II. JTF 536/PAK/71		
(i) 395.045.1 US\$ 46000	Workshop on Conservation in Moenjodaro Report submitted to UNESCO	Completed

AREAS NEEDING ATTENTION

-Follow up action

The follow up actions Suggested during International Symposium and National Workshop on Conservation, need to be initiated.

-Water and soil Laboratory i

- The Senior Chemist is not in position.
- The equipment is not in full use.
- The research work needed for the Chemistry of salts is untouched.
- Physical and chemical analysis of bricks is not initiated.

The Laboratory is not fully renovated even after the approval of PCI.

- Physical execution

- Cost effective methods not in sight.
- Evaluation of other techniques not initiated.
- Review of past techniques not made

- Foreign Training

Out of the three trainees sent abroad for training only one Architectural Engineer Miss Naseem Jalbani is in Moenjodaro. The other two M/S Shakeel Hassan and Ilyas Bhatti are working in Karachi.

WORKING PAPER

ON

INTERNATIONAL MOENJODARO CONSERVATION WEATHER STATION (IMC-WS)

In UNESCO technical report FIT536-PAK71 the consultant defined the need to monitor a broad range of climatic parameters at Moenjodaro. Both macro and micro climatic variables are required so their significance on causing, promoting, and maintaining archaeological decay processes can be studied.

Since initial discussions took place the subject has been pursued with the aim of setting in place an appropriate weather station. Particular concerns have been:

1. The number of fixed stations
2. Installation security
3. Maintenance of equipment
4. Collection of raw data
5. Data interpretation
6. Integration of data with a range of researches, experiments and site works.

At the moment, and for the foreseeable future, concerns 2 to 5 are not within the capabilities of MCC and its laboratory staff. Improving laboratory training and field officer capability will make the data of increasing value and use ability (concern 6).

In order to overcome concerns 1 to 5 it has been proposed that a sophisticated weather station be established in conjunction with Pakistan Meteorological Organization at the International Moenjodaro Airport.

This is now felt to be a better option than having such a station, or two less sophisticated ones, on site. It is felt that site installations even with guards would quickly disappear and with no one able to use or maintain the equipment's. (Simple wire thermocouples were recently stolen less than 24 hours after installation in DKG area.)

The following would form the basis of the working arrangement:

1. UNDP project funds to provide the weather station equipment and Technical installation/training. All technical equipment would be bought from Casella London Ltd and be compatible to the whole National weather station network in operation in Pakistan. Monitoring parameters would include:
 - Air pressure Rainfall
 - Wind speed and direction
 - Air temperature RH
 - Soil surface temp
 - Exposed wall surface temp Shaded wall surface temp Soil surface m/c
 - River water level

UNESCO/UNDP would also guarantee to provide:

- Solar panel for safe full-time electricity supply
- DCP satellite transmitter to Karachi
- Free data to Pakistan Meteorological Organization and the World Network.

2. Pakistan Meteorological Organization will provide to the APM the following:

- Permanent site at the airport
 - All maintenance Site monitoring
- Local instrument mast and its installation
Computer data collection, interpretation, and full presentation to UNESCO/UNDP requirements
Loaning of occasionally required climatic equipment for use on site for:
 Wind, speed and direction Temperature
 max-min RH
 Rainfall

The arrangement would be agreed to in a formal contract and would stand for a ten year period before renegotiation.

The contract would be set in place by Mr. Justice Shaikh and the installation programed determined by Mr. Shamsi (NPC). The data presentation and interpretation would be specified by the consultant.

Casella UK Ltd are presently preparing a quotation to UNESCO/UNDP and will be submitted to the consultant during the second week of November 1993.