

M A L I
Cultural Heritage

**SAFEGUARDING OF THE THREE PRINCIPAL MOSQUES
OF TIMBUKTU**

DJINGAREIBER

SANKORE

SIDI YAHIA

Report on the state of conservation

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INTRODUCTION

- 1 - The terms of reference of the mission entrusted to the consultant were to:
"Establish a report on the state of conservation of the three mosques of the city of Timbuktu inscribed on the list of World Heritage in Danger.
- 2 - This mission follows upon the one carried out in 1990, based on the report entitled "The safeguard of the three great mosques, and the major cemeteries and mausoleums of Timbuktu" - UNESCO, September 1990.
The consultant mission was carried out from 9 to 17 May 1994, in the presence of Mrs. Galia SAOUMA FORERO, who is responsible within the World Heritage Centre, for overseeing optimum application of the Convention in Africa.
- 3 - This mission, which falls within the framework of the new cultural policy adopted by the Government of the Third Republic of Mali, also had as objective the relaunching of activities to safeguard the cultural properties inscribed on the List of World Heritage in Danger, in cooperation with the competent national authorities.
- 4 - To assist the Minister of Culture in his functions to preserve and enhance the cultural heritage of the national sites of Timbuktu, Djenné and Bandiagara inscribed on the World Heritage List, three cultural missions were created by decree No. 93-203P/RM of 11 June 1993,
Thus, in 1993, the Government of the Republic of Mali created a Cultural Mission and took short-term measures to safeguard and protect the heritage of Timbuktu.

The Cultural Mission will attempt to harmonize the actions between the national services and the provincial or municipal authorities.
Its main role will be to create and provide direction to a coordinating committee which will liaise with the different partners and actors engaged in action in the city of Timbuktu.
- 5 - The objectives of the Cultural Mission of Timbuktu, which were defined in accordance with the directives of the cultural policy of Mali, will give priority to the preservation of national cultural identity and the promotion of national cultural heritage. Following these directives, the Chief of Mission prepared an action plan which gives priority to the restoration and safeguard of the three mosques inscribed on the List of World Heritage in Danger, as well as the restoration of the former urban fabric of Timbuktu.
- 6 - Each cultural mission is composed of a team of civil servants and other State agents residing on national sites inscribed on the World Heritage List.

The Cultural Mission is headed by a Chief of Mission nominated by decree of the Prime Minister upon the proposal of the Minister for Culture.

Under the latter's authority, he is responsible for coordinating, directing and monitoring the activities of the Cultural Mission.

The Chief of Mission responsible for assisting the Minister in the safeguarding and dynamic management of the cultural heritage of Timbuktu, is Mr. Ali Ould Sidi.

- 7 - Generally, the lack of financial assistance and coordination to implement a coherent programme of maintenance and restoration have unfortunately continued to contribute to the degradation of the major buildings of Timbuktu.

VISIT OF THE THREE PRINCIPAL MOSQUES

Report on the state of degradation

Problems encountered

- 8 - Most of the problems encountered are common to the three mosques. The architectural structures of the buildings have suffered considerably from the bad weather and through the unskilful use of the material employed -- "banco" or mud. The main inconvenience of mud constructions is the rapid degradation of this material in rainy conditions.
- The best and most effective strategy consists in diverting water from the vulnerable parts of the building. The most fragile points, and the most exposed to water damage, are the base and the top of the walls. Other weak points are the acroterium of the terraces, the gargoyles, skylights, and elements made of several different materials (lintels of wood and earth, for example). These are the areas which should be carefully supervised and maintained on a regular basis.
- 9 - At Sankoré and Djingareiber, the base of the walls is damaged by water spurting from the gargoyles and trickling along the base of the walls. Water seeps in through cracks caused by the lack of precautions taken during the annual renovation work.
- 10 - Unfortunately, it appears that good "building knowhow" is being eclipsed by the desire to reinforce the buildings by adding more layers to the material, thus increasing the thickness of the walls and terraces.
- 11 - Rain and wind causes decomposition of the material: the earth becomes waterlogged, its cohesion is weakened, and eroded materials form mounds of detritus at the base of the walls which are havens for soluble salts and various excrements favouring the development of parasitic flora and efflorescences.

- 12 - Localized degradations appear at the junction of the openings and the earthen walls: water flows and seeps between the wood frame and the earth.
- 13 - Faulty anchoring of the gargoyles, which can be obstructed by an accumulation of earth, encourage the penetration of water through the terrace to the inside the building, and the poorly drained terraces encourage the retention of water and humidity.
- 14 - The acroterium which are not protected by an overhanging roof, and are cracked or covered by a damaged coating, favour the trickling and infiltration of water. The cracked terraces and the hastily applied coverings, also encourage infiltration.
- 15 - Poorly lain flooring can considerably weaken or destabilise the structure of the mosque. At Sankore, for example, faulty anchoring and insufficient extension of the supporting beams have encouraged degradation and rupture of the materials. The major handicap is the weight of the earthen floors which transfer loads to the wood already rendered fragile by termites and the passing of years. The supporting beams of the minaret of the mosque of Djingareiber date from the construction of the building; it is henceforth impossible to replace them because of the superposition of the different layers of earth. These are nearly 0.70 metres thick.
- 16 - Poor distribution of the supporting beams and the smaller logs (golettes) in the repair work of the veranda located at the south entrance of the mosque of Sidi Yahia was noted. It is important to ensure that good quality wood is chosen and that the distances between the beams are reduced in order to obtain an even distribution of loads to the walls. A good structure for the terrace consists of wooden beams of large diameter (supporting beams) covered by small logs (golettes) evenly distributed and interlocking. Braided tresses are interposed between this support and the earth so that the earth will not become pulverulent. These floors weigh up to 300 kg/m².

Results of the observations

- 17 - Every year, following serious atmospheric disturbances caused by the rainy seasons, the Management Committee of each of the three mosques launches a vast campaign to renovate the mosques.
- 18 - The work is carried out just before winter, in August. The appeal is launched by the Imman for the collection of material (mud, baobab flour, shea butter...) or money, three months before the work begins.

- 19 - This vast annual building project mobilizes the entire community evolving around the mosque. Everyone is invited to participate, under the responsibility of a team of builders, in this big collective festival to restore the mosques.
- 20 - The implementation of this operation, undertaken voluntarily in contagious jubilation, poses certain problems of organization and training in the respect of traditional techniques of construction. In former times, the builders of Timbuktu were able to discover the necessary techniques to give maximum durability to their buildings with local means. Many of these skills have been forgotten. Either they were not understood by today's technicians and were eliminated by default; or they simply were not noted and thus were not retained. The result of this situation is that the technology of the mud constructions of Timbuktu is partially degraded. Moreover, what was a valid solution yesterday may not be applicable today because the social or climatic situations have changed (difficulty of obtaining a supply of mud and wood because of drought and increasing desertification).
- 21 - Nevertheless, there are many solutions to construction problems relating to the very nature of the earth. These solutions should enable us to take rapid, pertinent and economic decisions and to make the mud constructions more durable and sturdier.
- 22 - The characteristics of numerous types of earth can be improved thanks to the addition of additives or stabilizers. But for each type of earth there is a certain variety of stabilizer which is better suited. These stabilizers can be employed inside the walls as well as on the surface. The most well-known and practical methods of stabilization are: compacting the earth by compression, reinforcing it with fibres, or adding cement, lime or asphalt. Confronted with a stabilization problem, it is essential to choose with care a product or technique amongst the multitude of possibilities, many of which should not even be considered because they are ineffective or too costly.

SAFEGUARDING MEANS AND METHODS

The problem of specialists

- 23 - The restoration of the principal mosques of Timbuktu is subject to a certain number of rules which derive basically from a concern to maintain the harmony and atmosphere of the urban landscape of the Old City.
- 24 - The perpetuation and development of restoration techniques does not depend solely on a collective will and effort. The disorganization of the annual work sites for the renovation of the mosques raises concrete problems that effort alone, however sincere, cannot resolve.

- 25 - Training of one or several specialists should be envisaged by an architect and a technician responsible for supervising interdisciplinary teams.
- 26 - Moreover, the Cultural Mission of Timbuktu should consider a public information programme on basic problems such as upkeep and maintenance. It must also be noted that, without a specialized interdisciplinary team, all interventions are bound to fail.
- 27 - In the light of observations made, it is of the utmost urgency to achieve a better correlation between the capacities of the voluntary restoration teams and their means of intervention on the site.
- 28 - The lack of qualifications and poor organization of the workers can also be observed, resulting in approximations and all-purpose solutions, but no real comprehension of the problems.
- 29 - It is the task of the Cultural Mission to continue the information campaigns to increase public awareness. In this perspective, it was proposed that Mr Ali Ould Sidi undertake this UNESCO mission to launch a pedagogical operation aimed at promoting the annual work sites to renovate the mosques. He will be responsible, in 1994, for the preparation of a document illustrated with photographs and providing details on the types of tasks and how they are organized in the seasonal maintenance work of the three mosques inscribed on the World Heritage List. This document will be the indispensable reference for the preparation of a pilot work site which will be inaugurated during the 1995 seasonal work. Mr Ali Ould Sidi, accompanied by a researcher and a photographer, will be responsible for producing a documented report in collaboration with the masons and the persons in charge of the mosques. He will also produce an exhibition of photographs depicting all the preparatory and operational phases of the work. The complete package will be used for an itinerant exhibition with a sound recording produced from different oral traditions concerning the art of earthen constructions in Timbuktu.
- 30 - In this paper we attempt to highlight the degradation problems by emphasizing their causes and effects. But, above all, this operation will help to preserve the spirit of a great collective seasonal feast. This experience will bring to the notice of the general public the tools and means of conservation according to a methodology which takes account of the traditional structures, customs and their limitations, whilst making use of technological progress.

CONCLUSION

- 31 - As a first step, we will undertake a pilot experience in a limited area on all three mosques, to see what can be achieved with a restricted operation.
- 32 - To successfully implement the programme outlined above, and in order to follow-up and coordinate the work on the three mosques, we would recommend recruiting a freelance architect.
- 33 - At the time of our visits and discussions with the persons in charge of the mosques, the management committees of the mosques and the Artisans' Cooperative, the name of Mr Baba Alpha Ismaël CISSE was mentioned on many occasions. Mr Cissé is an urban architect, born in Timbuktu. He is very familiar with the city and its inhabitants and is able to respond to the needs of the seasonal freelance builders, masons, management committees of the mosques and the administrations concerned. He will be the direct interlocutor for the Cultural Mission of Timbuktu.
- 34 - Nevertheless, specialization of the architect should be envisaged or completed, especially with regard to the knowledge and application of new techniques for enriching, stabilizing and using the earth. Contracts could be given to ICCROM and the training centre C.R.A. Terre in Grenoble.
- 35 - A task which will quickly follow from the first one will require the architect to control the urban plan of the city of Timbuktu in collaboration with the Cultural Mission of Timbuktu.
- 36 - The architect will be requested to check whether the prescriptions of the urban plan are respected on the site, especially in the vicinity of the buildings inscribed on the World Heritage List.
- 37 - If the urban plan does not contain explicit regulations, the architect will carry out an analysis of the urban fabric (close to the mosques) which has a bearing on the state of conservation of the building; he will determine interesting elements for demolition to be foreseen, areas to be cleared, existing elements which can be reused.
- 38 - The analysis will culminate in the preparation of a technical handbook indicating the steps to be taken for restoration, reconstruction and demolition. Particular attention should be given to the link between the old centre and the contemporary part of the city, taking account of the following points: sanitation problems, traffic (attention to the planned "City Gates"), general health conditions, and the harmonious integration of new projects. Finally, the proportions, size and the nature of the materials should in no way be prejudicial to the horizontal urban profile, typical of Timbuktu.