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Conservation of World Heritage Cultural and Natural Properties

Shibam (Yemen)

A report has been received of the mission fielded at the beginning of October 1993 by Dr. Hadi Eckert (Socioeconomist) and Mr. Jacques Feiner (Architect and Urban Planner). The purpose of the mission was to assess the extensive damage caused to the buildings in this area by exceptional floods. The report is supported with a comprehensive selection of colour photographic evidence.

The report also acknowledges the full cooperation by the local Shibam branch of GOPHCY and the technical competence of the local team.

Inventory and physical condition of residential buildings

The bases of the criteria for this survey were (a) the size of the buildings - small, middle or large (ground floor combined to the height); and (b) the exterior appearance of the buildings and their conditions (bad, medium, good or restored) (see Table below). There are also plots where only ruins and debris remain from the totally collapsed residential buildings.

Bldg. Condition	<u>Building Size</u>			total	%
	small	medium	large		
ruin				33	8,0
bad	66	54	24	144	33,0
middle	55	75	23	153	35,0
good	10	35	11	56	13,0
restored	8	20	19	47	11,0
Together	139	148	77	433	100,0

The report points out that about 100 residential units (25%) are empty for the time being of which about one-third have been restored during the last seven years. These are mainly large houses belonging to immigrants who spend their holidays at home. The remaining two-thirds of the empty houses are small and medium-sized in a bad state of preservation.

Awkaf-housing

Awkaf-Housing (formerly used as religious institutions) have now become a place of public administration and thus considered to be a kind of social housing, favouring low rents for low-income households. Through the Shibam GOPHCY team, a contact with the Awkaf Authority was made, who confirmed that they hold 48 buildings of which two units are completely ruined and two other (belonging to the category of bad building conditions) are in an extremely critical state. About 35 Awkaf-Houses (most of them small and medium sized) need to be restored and 11 (good conditions or restored) do not need any restoration. However, Awkaf-Houses are, generally, more densely occupied than private houses - as many as 10 to 12 persons per house.

Religious Buildings

The five mosques, including the Great Mosque, are in good physical condition (behind the Great Mosque, however, the hammam has not yet been restored). The overall features of the restoration contradict the traditional architectural shape of the City.

Public Buildings

The Old City Gate (which also accommodates the Police Station) is in good physical condition.

The northern wing of the Sultan's palace has been recently restored and accommodates the offices of the local branch of GOPHCY.

The southern wing of the Sultan's palace is under restoration the cost of which will be assumed by the local branch of GOPHCY.

The City Wall has been restored and reinforced to protect against flood damage.

Bait Jarhum is close to ruin and the cost of partial rebuilding and total restoration is estimated at US\$30,000. With the lack of local expertise and financial support, sponsor/funds need to be found.

Madrasat al Amdadi is totally collapsed and currently reconstruction works are being carried out with the financial support of a local private sponsor.

Urban water supply and sewerage system

The present water supply and the sewerage system are highly unsatisfactory due to the fact that the pipes are too small and badly laid out, resulting in constant floods in the streets and service courtyards. Shibam is built on mud and the long-term impact of water infiltration is disastrous, creates bad sanitary conditions (WC, bathroom and kitchen), resulting at times in abandonment of the building. There are at least 33 entirely collapsed buildings.

Restoration Project of a selected Shibami House

The consultants propose to undertake one (1) pilot restoration project of Shibami house, so as to be able to estimate in detail the costs and to develop appropriate design, restoration and adaptation techniques.

Estimated costs of this pilot project are in the order of US\$ 9,500.00, and the duration of the work involved would be five months.

The field survey shows that there are about 300 houses which need to be consolidated and/or restored (144 in bad condition and 153 in middle condition). Based on an average cost of the pilot project \$9,500.00 (the price range variance of between US\$8,000 for a small house to US\$22,000 for a large house - under the category of 'bad condition'), the cost of total consolidation/restoration is evaluated at US\$2,948,000. The prices do not include consultant, adviser or expatriated architect.

Summary and conclusions

The restoration campaign can be carried out in two steps:

144 houses in bad condition are in urgent need of restoration as a priority, and therefore, global operation has to be started immediately.

153 buildings are in less urgent need and, therefore, the global operation can be started in the next two to three years. Here, however, urgent check-up of roof and foundation conditions, water supply, sewerage system and sanitary installations is recommended.

Financial support can be sought from various sources:

- For Awkaf-houses, there appears to be possibility of public funding.
- Private owners need to be motivated with public incentives.
- Study, test and propose credit lines at local, regional, national, public and private levels.

The consultants propose in close co-operation with local GOPHCY team, that the safeguarding action need to address, as a first priority, the question of the improvement of the urban infrastructure and particularly the urban water supply and sewerage system. The protection of the foundations of the houses against water infiltration should be the second priority by paving the house borders and impermeablisation of the ground floors.

The last priority should be to keep water generally away from Shibam's mud ground. This can be achieved by paving the streets. This last step of overall protection against water damage should be preceded by the construction of waterproof service channels which carry the whole technical infrastructure.