



1989 Technical Review Summary
by *Laszlo Mester de Parajd*

668 & 1052.MOR
S.O.S. Village & Farm
Aït Ourir, Morocco



Architect
Charles Boccara & Elie Mouyal
Marrakech, Morocco

Client
S.O.S. Kinderdorf
Marrakech, Morocco

Completed
February 1984

I. Introduction

The Aït Ourir SOS Children's Village and Village Farm are the result of a co-operation between the Moroccan Ministry for Social Affairs and a private association, the International Organisation of SOS Children's Villages.

This organisation ensures the welfare of over 30'000 children looked after in 233 SOS Children's Villages throughout the world, thanks to the funds collected from private benefactors.

All these children's villages, wherever they are located on the four continents, share the same aim as the Aït Ourir village, i.e., to provide care and education for orphans in a family atmosphere, in their religion and culture, and in a spirit of tolerance and respect for the religious beliefs and culture of others.

II. Context

a. Historical Background

- 1949 The Austrian Association of SOS Children's Villages is founded by Hermann Gmeiner.
Start of construction of the first village at Imst in the Tyrol.
- 1959 There are twenty SOS Children's Villages throughout Europe.
- 1963 The SOS Children's Villages association becomes active in the developing countries.
- 1964 The "International Federation of SOS Children's Villages" is founded and will later become a member of the "International Union for Child Welfare" of ICVA and affiliated to UNESCO.
- 1980 First contacts with Morocco with a view to founding an SOS Children's Village in this country. An agreement is signed.
- 1981 The architect, Charles Boccara, begins work on the plans of the village.
- 1982 The architect finishes work on the plans.
Mr. Jules Ebrhard, the representative of the International Children's Village Association arrives in Morocco to supervise the construction of the Aït Ourir Children's Village.
Commencement of construction (August).
- 1984 End of construction (February).
- 1984 Occupation of the buildings (May).
Several attempts are made to build a shelter and hen-house in earth. All these early attempts fail.
Architect Elie Mouyal is contacted.
The programme for a shelter and a hen-house becomes a programme for a small farm, then for a farm with housing for an unmarried farmer.
- 1984 Elie Mouyal starts work on the plans (November).
- 1985 Commencement of construction (January).
End of design work (February).
- 1986 End of construction (February).
Occupation of buildings (March).
Constituent Meeting of the Moroccan SOS Villages Association (December 18).
- 1989 There are 233 SOS Children's Villages throughout the world.

b. *Local Architectural Character*

There are three types of architecture in Aït Ourir:

Traditional Architecture

In its original state, there is practically no trace of this type of architecture left in Aït Ourir. The town has considerably expanded and modern buildings have replaced former traditional dwellings. The traces that do remain, however, show the similarity with traditional buildings found in other villages a few miles away, towards Ouarzazate, along the road climbing the foothills of the Atlas.

These villages present a fine traditional architecture, with very clear, simple lines, blending perfectly with the environment.

The materials used are:

- earth: used in the form of sun-baked bricks or as pisé
- stone: with earth pointing.

These different building materials and techniques are found side by side in the same village, sometimes even in the same dwelling.

The roof terraces are always flat roofs made of earth on beams and wooden ceilings.

Modern Imported Architecture

This is the type of architecture found world-wide: concrete building with flat roof. It is now the most common type of architecture in Aït Ourir.

Modern Architecture Inspired by Traditional Moroccan Architecture

Over the past ten years, there has been a growing tendency to seek architectural inspiration in traditional Moroccan dwellings. This new architecture that calls on conventional modern building materials (concrete structural work, cement block infill, concrete flat roof), incorporates among a whole range of traditional features: horseshoe or perfect arches, *mashrabiyyas*, wrought iron grilles, mosaics, wood carvings, etc.

Remark

Independently from what is being done at Aït Ourir at the present time, a French organisation, Rexcoop, has built a small one-storey building in pisé near the main road. This building is full of cracks and serves as a deterrent to anyone who would have the slightest inclination to use pisé construction in the region.

c. *Climatic Conditions*

Located 34 kilometres from Marrakesh, Aït Ourir has almost the same climate as the latter town.

Situation

Latitude:	31°35' north
Longitude:	7°35' west
Altitude:	650 m

Temperature

Month	J	F	M	A	M	J	J	A	S	O	N	D
Maximum	18.0	20.0	23.0	26.0	29.0	33.0	38.0	38.0	33.0	28.0	23.0	18.0
Minimum	5.0	7.0	09.0	11.0	14.0	17.0	20.0	20.0	18.0	14.0	10.0	06.0
Average	11.5	13.5	16.0	18.5	21.5	25.0	29.0	29.0	25.5	21.0	16.5	12.0

With temperature extremes of 0°C in January and 45° C in August.

Rainfall

- Annual rainfall from 250 to 300 mm.
- Autumn rains with peak rainfall in November.
- Spring rains with peak rainfall in March.

Winds

Prevailing north-western wind, light but frequent.

Infrequent hot wind from the south, but very strong and sometimes sand-laden.

d. Immediate Surroundings of the SOS Village

The SOS village is located near the main road that runs through Aït Ourir, about 1 kilometre from the town centre. It is situated in a rural area with scattered buildings. A river, the Oued Zat, flows about 1'500 m. from the site.

In the background are the snow-capped peaks of the Atlas mountain range, with some summits rising over 4'000 m.

The town of Aït Ourir is located in a relatively rich farmland and has a population of about 20'000.

e. Topography of the Project Site

The SOS village is built on almost flat land, sloping very gently towards the Oued Zat. Taking the main road from the town centre, the route runs alongside the SOS village before reaching the first foothills of the Atlas after a few kilometres.

Here the straight road from Marrakesh begins to wind as it goes up the increasingly steep slopes leading to the Tichka pass on the way to Ouarzazate.

III. Description

a. Conditions Giving Rise to the Programme

The general programme of the Aït Ourir SOS village is identical to that of all the SOS villages throughout the world.

A more detailed programme, adapted to local conditions in Morocco, was elaborated during the various meetings of the representatives of the International Children's Village Association with the representatives of the Moroccan Ministry for Social Affairs.

b. General Objectives

The objective of the project is to re-create the conditions of family life for orphans or for children deprived of parental care.

An SOS family consists of up to 6 or 8 children, of both sexes and all ages. Each family lives in its own house. The head of the family is the SOS mother. She gives the children the affection and security they need for a healthy development. An SOS children's village is made up of 10 to 20 houses placed under the general management of the village Director. He acts as a consultant to the SOS mothers and is also the father figure in the children's upbringing and education. The children of the SOS village go to the state schools to prepare them for their future integration in normal social life.

In addition to the education given by the state schools, in the village itself the children get a training in various crafts: woodwork, metalwork, mechanics, sewing; or arts, such as photography; or in farming and cattle rearing - which called for the building of the farm.

c. Functional Requirements

The Ait Ourir SOS village comprises:

- an entrance with gate-keeper lodge
- a car-park
- a sports field
- a bakery
- an administrative building with reception hall, study, library, infirmary and shop
- a house for guests, aunts and staff
- a playground
- a kindergarden
- a building for utilities and workshops
- 10 family houses
- a maintenance workshop
- a vegetable garden
- an irrigation reservoir (usable as a swimming pool)
- two pumping stations
- a borehole in service
- a farm with housing for one farmer
- an alfalfa field
- a shed
- a shelter for vehicles
- a shelter for donkeys.

d. Building data

The village comprises a number of independent buildings linked by well-kept paths.

10 family houses

- Ground floor: 3 rooms
1 central patio (now being roofed)
1 entrance hall
1 corridor
1 WC
1 kitchen with laundry room
1 bathroom.
- First floor: 1 staircase
1 toilet WC
2 showers
2 rooms with verandas
1 roofed terrace (for four out of ten houses).
- Total floor area: 193 sq m
(183 sq m for the houses without roofed terrace)
- Open-air area: 16 sq m

Director's house

- Ground floor: 2 rooms
1 patio
1 roofed gallery giving onto the patio
1 lounge
1 bathroom
1 kitchen with laundry room
1 cloakroom with WC
1 entrance hall with corridor.
- First floor: 1 staircase
1 toilet WC unit
2 showers
2 rooms with verandas
1 corridor.
- Total floor area: 170 sq m
- Open-air area: 16 sq m

House for staff

- 5 rooms
1 central patio, roofed
1 lounge
1 bathroom
1 kitchen with laundry room
1 cloakroom with WC
1 entrance hall with corridor.
- Total floor area: 263 sq m

Gate-keeper's lodge

- Total floor area: 12 sq m

Administrative building

	1 entrance with open-air patio
	1 gallery around the patio
	1 reception hall
	1 Director's office
	1 accountant's office
	1 toilet WC unit
	1 infirmary with lavatories and showers
	1 meeting room
	1 archive room
	1 secretariat.
Total floor area:	220 sq m
Open-air area:	16 sq m

Bakery

	1 access way to bread oven
	1 access way to store-room
	1 store-room
	1 bread oven.
Total floor area:	107 sq m

Building for utilities/workshops

	2 entrance porches
	1 open-air patio
	1 gallery around patio
	1 garage
	1 linen room
	1 ironing room
	1 workshop
	1 store-room
	1 sewing room
	1 toilet unit.
Total floor area:	477 sq m
Open-air area:	325 sq m

Kindergarten

	1 entrance
	1 covered patio with gallery all around
	1 teachers' office
	1 toilet unit for teachers
	2 store-rooms for equipment
	2 toilet units with showers and WC, girls/boys
	4 play/activity rooms
	1 terrace with garden.
Total floor area:	400 sq m

Farm

	Barn (6 bays)
	Cow-shed (4 bays)
	Calf shed (1 dome)
	Hen-house (4 bays)
	Sheep-pen (1 dome)
	Poultry yard
	Loft
	Farm yard.
Total floor area:	384 sq m

Farmer's house

	Lounge
	Living room/bedroom
	Bathroom
	Kitchen
	Small yard
	Patio and gallery.
Total floor area:	103 sq m

Workshops/Shed

	Woodwork workshop
	Shed
	Central hall.
Total floor area:	105 sq m

Recapitulation

Total site area:	6 hectares
Total ground floor area:	3'696 sq m
Total combined floor area:	4'690 sq m (not including patios being roofed).

e. Evolution of Design Concepts

Children's Village

The most striking feature of the architecture of the village is the impression of security it imparts:

- solidity of the thick granite walls
- massive, even bulky, forms
- strict, orderly and simple layout of the plan
- closely knit pattern for the children's living quarters.

The use that is made of certain traditional decorative motifs, such as:

- ceilings in tataoui (eucalyptus logs placed at 40 cm intervals, covered with branches laid in geometrical patterns)
- wrought iron grilles
- carved doors
- traditional columns and arches breaks the severity of this architecture and makes it more welcoming.

Two design errors must be noted with respect to the handling of physical data:

- the open patios, within the houses, prevent the buildings from acting as thermal regulators through the thermal inertia of their stone walls. Work is now under way to cover these patios;
- sound insulation was a major problem in the kindergarten. This has been partly solved by installing a tent under the ceiling.

Village Farm

A deliberate choice was made to copy the traditional layout of farms near by that are built around a large courtyard and closed from the surrounding countryside.

The farm is pleasant to look at and seems to have a rational and functional design, but its essential quality lies in the way it has been built. In fact it illustrates the full range of traditional earth building techniques combined with the techniques re-discovered by Hassan Fathy.

f. Structure, Materials, Technology

Children's Village

- Foundations: in local stone.
- External walls: loadbearing walls in local rough hewn pink granite embedded in coloured cement mortar.
- Partition walls: traditional burnt earth bricks.
- Interior facings: cement rendering, traditional *tadelakt* rendering (dyed whitewash, rubbed with local soft soap and smoothed with a pebble), locally produced glazed terra cotta tiles.
- Floor coverings: glazed terra cotta tiles, smoothed cement screed.
- Ceilings: depending on the place: ceramic hollow-tile floors, traditional *tataoui* ceiling (eucalyptus logs placed at 40cm intervals, covered with coloured sticks laid in geometric patterns).
- Roofing: sloping roof with glazed tiles, flat roof with multi-layer damp-proofing.
- Ironwork: locally produced ware.
- Plumbing: locally produced ware.
- Boiler room: imported equipment.

Village Farm

- Foundations: partly pebbles from the River Zat, partly limestone rocks from the region (quarry 10 km from the site).
- Walls:
 - external walls, lower part: 50cm thick pisé, made in shutters of 0.75x2.5 m to x3 m, depending on formwork. Protection where needed in burnt clay;
 - external walls, upper part: traditional burnt bricks;
 - interior walls and arches in rammed earth blocks of 15x20x30 cm with an addition of 3.5% cement. Blocks embedded in earth-cum-lime mortar.
- Wall facings: in some places, coloured, mixed lime and cement rendering; in other places, bare stonework or bare pisé.
- Floor coverings: smooth cement screed; tamped earth stabilised with 3.5% cement; local stone slab flooring.
- Roofing: vaults and domes in earth blocks using the Hassan Fathy technique. External protection with lime mortar.
- Woodwork: use of recycled wood.

Children's Village

- Structural work

Although the stone used is of local origin, the technique resembles western building technology rather than traditional building methods.

Concrete hollow-tile floors and roofs on concrete beams are also products of imported technology.

- Other building trades

On the contrary, the non-structural work displays a whole range of traditional building methods:

- ceilings in *tataoui*
- wrought iron grilles for the windows
- wooden doors
- glazed terra cotta tiles
- interior walls faced with *tadelakt*.

Village Farm

Pisé is a traditional regional building technique. However, although traditional local dwellings were built in pisé, the use of rammed earth blocks with an addition of cement constitutes a new development in masonry technology.

The same is true for the roofing technique. Traditionally, in that region, earth roofs are supported on wooden beams. Here the domes and vaults in earth blocks use roofing techniques of Egyptian origin, re-discovered by Hassan Fathy and developed by various European organisations.

Materials

- Traditional local materials:

- different kinds of stones found locally: granite, limestone, river pebbles
- natural earth from the site or collected a few kilometres from the site
- burnt clay
- glazed terra cotta
- wood for the ceilings or woodwork.

- Locally produced modern materials:

- cement
- formwork
- modern tiles
- bathroom fittings
- plumbing
- metalwork
- light fittings
- furniture.

- Modern imported materials:

- heating apparatus
- water heater
- electrical equipment
- kitchen equipment
- equipment for the workshops
- telephone.

Labour force

100% local.

Professionals

- Architects

- Children's Village

Charles Boccara, a French architect of Tunisian origin, architect DPLG.

- Village Farm

Elie Mouyal, a Moroccan architect DPLG.

- Contractors

- Village

Entreprise Marocaine de l'Atlas, a Moroccan firm.

- Village Farm

Moroccan masons supervised by Elie Mouyal with a Moroccan site foreman: Hadj Mimoun.

IV. Construction Schedule and Costs

a. History of the Project

1981 Architect Charles Boccara starts work on the plans of the SOS Village.

1982 End of architects' work on the plans.

Commencement of construction (August).

1984 End of construction (February).

Occupation of the buildings.

Architect Elie Mouyal starts work on the plans of the village farm.

1985 Commencement of construction of the farm (January).

End of design work for the farm (February).

1986 End of farm construction (February).

Occupation of the buildings (March).

b. Total Cost and Main Source of Finance

Children's Village

Overall cost: MDH 10'500'000, i.e., US\$ 1'166'666

Cost per sq m: MDH 1'970, i.e., US\$ 219

Financing: 100% private funds (International Children's Village Association).

c. Comparative Cost

Children's Village

The choice of stone was not determined by the cost factor but by the factor of solidity.

The same project would have been more economical if materials such as cement blocks or burnt bricks had been used for the buildings.

Village Farm

Here again, cost was not a determining factor in the project as the desire to contribute to research in the field of local building materials. It would no doubt have been possible to build cheaper sheds for the animals by using conventional modern building materials. However, from an aesthetic and educational standpoint, the choice made is the right one.

d. Qualitative Analysis of Costs

Children's Village

The breakdown of the total cost of MDH 10'500'000 is as follows:

- land:	offered by the province
- infrastructure:	MDH 2'000'000
- labour:	MDH 4'800'000
- materials:	MDH 3'400'000
- professional fees:	MDH 300'000
- i.e., a cost per sq m	MDH 1'970

Village Farm

The breakdown of the total cost of MDH 327'226 is as follows:

- land:	offered by the province
- infrastructure:	MDH 80'359
- labour:	MDH 156'867
- materials:	MDH 86'000
- professional fees:	MDH 22'000
- i.e., a cost per sq m	MDH 614

Maintenance Costs (Heating, Cooling, etc.)

A survey of the population of the SOS Village is a good way to get an idea of maintenance costs:

Children's Village

- Total number of SOS children	75 (41 boys and 34 girls)
- SOS children of school age	29
- SOS children not yet circumcised	8
- SOS mothers	10
- SOS aunts	4
- Permanent staff	9 and 1 member of Peace Corps
- Day staff	4

SOS Kindergarten

- SOS children	27
- Children from outside	55
- Kindergarten	4

SOS Farm

- Permanent staff	1 and 1 member of Peace Corps
- Day staff	7

- Permanent staff paid by National Solidarity Fund 4.

It is obvious that these represent very high operating costs and the maintenance cost per day and per child must be really considerable.

This is certainly the reason why neither the Director of the Village nor the spokesman for the International Children's Village Association in Morocco would mention any figure.

As the Association depends entirely on the donations from private benefactors, they are concerned that publishing these figures would affect the generosity of the benefactors.

V. Technical Assessment

a. Functional Assessments (Use)

The exemplary maintenance of cleanliness of the premises, the tidiness of the site, illustrate the care that has been taken of every detail. Everything is run perfectly, if anything, too perfectly. The spokesman in Morocco for the International Children's Village Association expressed his concern that the children were being brought up in almost too perfect material conditions. There is a risk that when they grow up, these children will not have been prepared for the struggles of daily life, compared with people who, from childhood, have been faced with material difficulties, experienced hunger, and have learnt, from an early age, to fend for themselves.

b. Climatic Performance, Lighting, Ventilation and Acoustics

No comment is required with respect to lighting and ventilation.

As for climatic performance, the problem of the patios in the family houses has already been mentioned. Work is in progress to cover these internal patios.

The problem of the acoustics of the large hall in the kindergarten has been partly solved by placing a tent acting as a false ceiling.

c. Choice of Materials; Level of Technology

The choice of materials and building techniques is well adapted to the problem at hand, given that low-cost building was not the prime concern.

The use of stone for the village was a good choice imparting an impression of solidity and lasting security intended by those in charge of the project.

For the farm, the use of pisé was perhaps a way for those in charge to justify themselves vis-à-vis the benefactors.

d. *Ageing and Maintenance Problem*

Children's Village

Defective waterproofing of the flat roofs has been the cause of some minor problems of water infiltration.

Inadequate treatment of the *tataoui* ceilings in some areas has resulted in damage by termites.

Village Farm

Some cracks which led to water infiltration appeared in the roof in the first two years. Yearly maintenance seems to be necessary to keep the building in sound condition.

e. *Design features: Massing and Volume, Articulation of Spaces, Integration into Site*

Children's Village

The buildings have simple lines and are completely detached from each other, but arranged in a strict octagonal pattern. Only the family houses are grouped to form part of a lane.

All the buildings are built around a central patio, open or covered. The general impression of severity of most of the buildings, viewed from the exterior is redeemed by certain traditional ornamental features: columns, arches, *tataoui* ceilings.

Village Farm

The buildings are laid out around a rectangular courtyard with several entrances: a main entrance through a large porch opening in the middle of one of the long sides of the rectangle; a small opening in one of the corners; a small gate on the other long side of the rectangle.

The farmer's house is adjacent to the cow-sheds but has an independent entrance.

VI. Users

a. *Description of Those Who Use or Benefit From the Project*

The Children

The 75 children, 41 boys and 34 girls, belong to different age groups. The 29 children who go to school and the 27 children who attend the kindergarten are those who benefit from the facilities. These children are of different origins and the reason for their living in the village are also very different.

The Village Staff

The role of the mothers is of prime importance and they are selected according to very strict criteria. They become personally very attached to the children and, in addition, many factors encourage them to stay in the village, in particular, the payment of a high salary.

The departure of a village mother would in fact be a disaster for young orphans who have already been deprived of their natural mother.

b. *Response to Project*

The Children

Materially speaking, the children are provided with all they need, and the care they receive also seems to satisfy affective needs. However, despite the steps taken to help them integrate in society, their school friends seem to consider that they live a privileged life. It will not be possible to evaluate the results of this system of looking after poor children, until many years have gone by.

The Village Staff

As a general rule the wages offered to the staff are an incentive and the place and working conditions are pleasant. Above all, the mothers can derive real satisfaction in bringing up these children.

VII. Persons Involved

a. *Contracting Authority - Developer*

Jules Ebrhard, representing the International Children's Village Association in Morocco. He supervised the Aït Ourir SOS Village construction.

Design

Charles Boccara: architect DPLG, author of the Children's Village for part of the project.
Elie Mouyal: architect DPLG, author of the Village Farm for part of the project.

b. *Construction Work*

Entreprise Marocaine de l'Atlas, a firm of general contractors (Children's Village).
Bahssein Houcine, chief craftsman for the tataoui ceilings (Children's Village).
Elie Mouyal, architect DPLG, supervised the work of the masons (Village Farm).
Hadj Mimoun, Site Foreman (Village Farm).

Lazlo Mester de Parajd

Saint Cloud, 16 April 1989