4. Public Building

Building of Schools and other Public Building in Selseleh, Western Iran.

by

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PUBLIC BUILDING, SELELEH. WESTERN IRAN.

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This case study summarises some of the experiences in public building in the Selseleh region of Luristan, Iran. A variety of public buildings programmes are discussed; schools, baths, village centres. Each situation presented different conditions and problems, which had to be resolved according to the specific context within which each project was located. The building projects all relied upon public participation, and all were seen as an educational process, where the community could learn to meet their own building needs and take on a degree of responsibility for their community requirements.

DEVELOPMENT WORKSHOP

The Development Workshop is a team of architects, planners and researchers from a number of countries who work collectively on the development of indigenous building and planning methods in the Third World. Projects have been undertaken in African, Middle Eastern and Asian countries. Members of the Workshop believe that appropriate solutions to human settlement problems can be developed from indigenous methods which have evolved from and remain in the hands of Third World communities. The Workshop works in the field of rural and urban human settlements. The development of small scale construction industries, technical training and local participation are integral to the Workshop's approach.

John Norton is a founder member of Development Workshop.

THE SELSELEH INTEGRATED DEVELOPMENT PROJECT (S.I.D.P.)

The S.I.D.P. was set up as an experimental project to investigate and apply a policy of rural development based upon a concept of 'endogenous' or internalised development. This aimed for the improvement of living conditions within the project area through active participation of the community and by the use of local resources. The S.I.D.P. worked on the development of Health, agriculture and education and building, as well as the infra structure and creation of new job opportunities.

An essential part of the programme was the training of 90 'Front line Workers' in the fields of health, agriculture and education. Specific training was also conducted for other activities in the area. The trainees later took on the task of assisting the villagers in meeting their basic health, education, agriculture and building needs. The S.I.D.P. was based in 400 km^2 of the Selseleh Region of Luristan, western Iran. This is a high basin ringed by the Zagros Mountains.

The Development Workshop were the Architects and Planners for the S.I.D.P. from 1975-78.

PUBLIC BUILDING

Building of Schools and other Public Building in Selseleh, Western Iran.

1 Introduction

The practical conclusion to the research, training and small scale industry programmes, is the channelling of the resulting increased understanding, expertise and material resources into the physical process of meeting the building needs of village communities and small town neighbourhoods. This is also an extension of the training programme, both in terms of passing on the skills that the builders have acquired to those members of the community who will participate in the building process, and in becoming involved in the decision making process of what sort of facility or building is required by the community.

The overall process of public building is in this context educational as well as practical. The examples given in this paper were all done as part of the work of the Selseleh Integrated Development Project (S.I.D.P.), Luristan Iran. * (Fig. 1)

In the Selseleh project area there was a shortage of almost every type of facility: schools, public baths, clinics, water supply, roads etc. Establishing these facilities in the region formed an essential part of the practical work of the S.I.D.P. However, to ensure their future success and proper functioning, such facilities cannot be introduced into a community without the participation of the people who will use them. This participation must be at all stages of a proposed building programme, but most of all at the decision making stage. They are the people who know best what is needed in their community, and in several cases we found that

* See S.I.D.P. introduction.

Fig 1

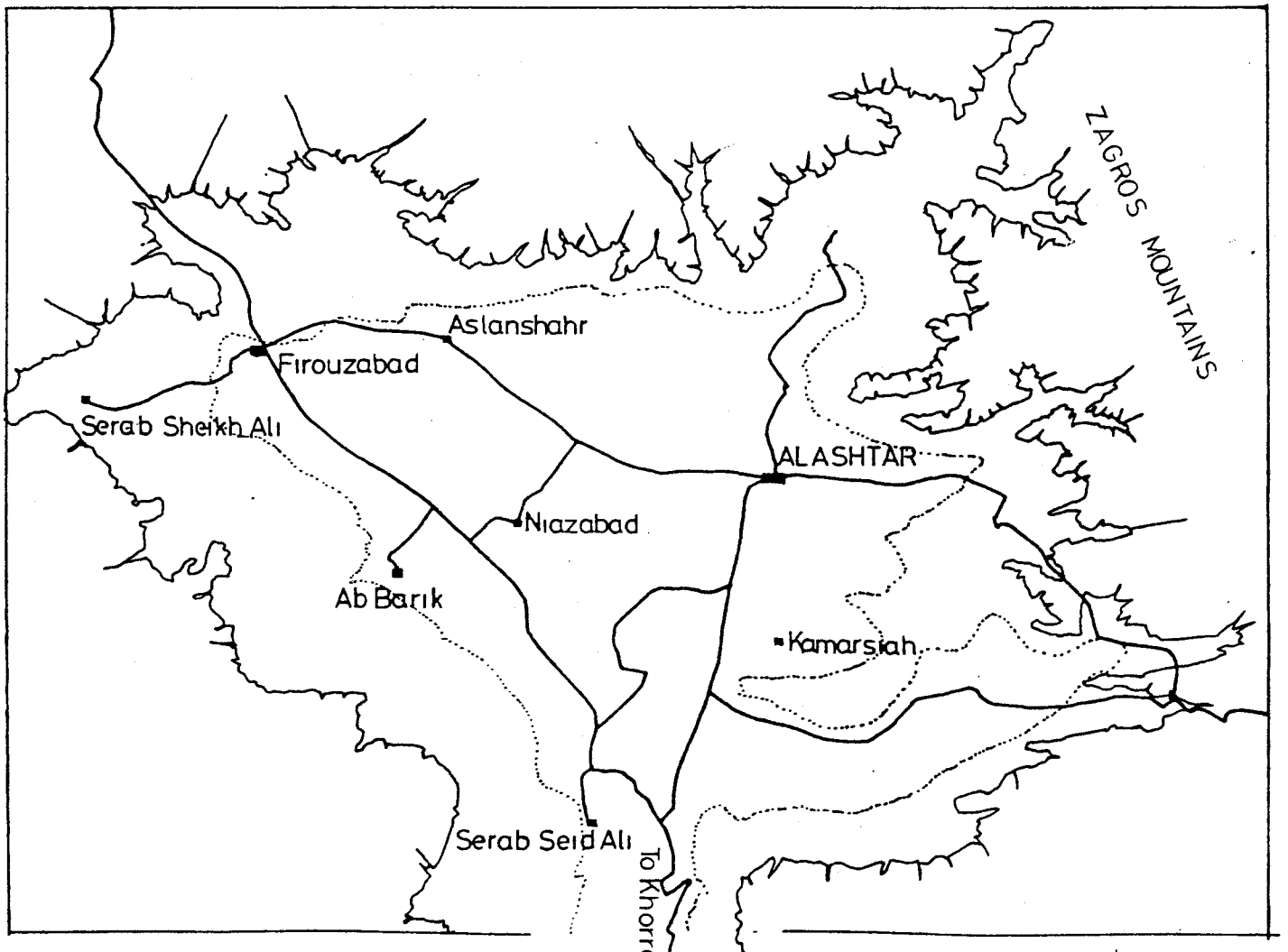


Fig 2 THE SELSELEH BASIN

the required facility was different from what we had expected. At the same time, people recognised that there were certain buildings which were more difficult for the village to complete than others. (i.e. in building a public bath, the mechanical servicing is often beyond a village's current capabilities.)

In the village of Niazabad, (Fig. 2) the S.I.D.P. organised and built a public bath at the request of, and with the active participation of, the villagers. The building was too complex for them to complete on their own, and would have placed a large burden on the village resources. In the two years that followed the completion of this bath the village independently built a school and were then starting on a Mosque. The process of building the bath had helped to reinstate their confidence to undertake such schemes and to counter their belief that the Government would and could provide such facilities to every village.

Much of the communication between the village communities and the S.I.D.P. took place through the 90 trained 'Front line workers', who, as members of both, could reflect the needs of the village and the role that the S.I.D.P. could play. Through this process, these same people learnt how to approach the Government for assistance and to know what was available, and, through their activities in the village, gained the trust of the villagers as people who could and would actively help in resolving village problems and needs.

Some of the difficulties that the villages faced could be resolved by providing information; on the one hand about what they could reasonably expect from the Government (and the S.I.D.P.); and at the same time, how they

could organise themselves to make better use of these and their own resources..

For example, the Government of Iran at that time (1976/7) would provide up to 50% matching funds to supplement money collected by a community for a specific project. Many people were unaware of this or how to go about acquiring these funds. On the other hand, some form of organisation was needed if the funds were to be used to the best advantage of the village. The use of government funds had normally dictated that the required building was designed in centralised offices and that the building was erected by a recognised contractor (usually city based). In almost all cases this resulted in costs being high and the building itself not being suited to the specific needs and location of the village. The villagers did not participate in the process nor were any local resources used. Furthermore, the villagers invariably regarded the finished product as being the responsibility of the Government and were rarely prepared to participate in its upkeep and running. In instances where the building ceased to function properly, often through lack of maintenance, it sometimes stood idle for years, even though the skill and equipment was often available in the area for repairs. To resolve this situation further stretched the capability of the Government, which, faced with national shortages of public facilities, were even less capable of providing them.

The understanding that the people of the region gained about their role in developing the area had to be supported by the training programmes: builders; health, education and agriculture workers; producing teams who would be able to help the villagers practically meet their needs: and by the stimulation and development of the uses of local resources.

The case studies for the Builders Training Programme *1 and the stimulation of small scale building industries *2 formed only a part of the overall process. Through this process, the incentive to develop the region could be matched by an increasing capability to do so.

2 School building

The few schools that existed in the region prior to the setting up of the S.I.D.P. were either in extremely poor repair (usually the Government built schools) or based in small dark rooms. It is worth noting that many of the problems in the schools derived as much from the school furniture as from the buildings themselves. The standard form of school seating and desks were in bench form, with each child leaning back against the desk behind. This produced an extremely cramped seating arrangement, since one could not space the desks and benches further apart. Efforts were made to alleviate this situation and introduce more suitable and flexible furniture.

The arrangement of classrooms and the elements within them were also poor. Common conditions included: small windows, sometimes reduced in size during the winter to keep the heat in. The level of lighting was invariably low, making it hard for the children to see what they were doing. In the villages there was no electricity. The ventilation of these classrooms was often very poor. Windows were positioned so that light was often directed disadvantageously at the children, so that they were writing in the shadow, of their own hands or could not see the blackboard because of direct sunlight shining into their eyes. The orientation of classrooms often meant that sun and heat came into the classroom during the hotter periods of the year, whilst not allowing either in winter, (i.e. classrooms facing east

*1 Reference title: NORTON. J. Builders Workshop. Yazd, Central Iran. Case study for UNESCO, 1980, Unpublished.

*2 NORTON. J: Stimulation and improvement or establishment of locally based materials or elements production. Case study for UNESCO, 1980, Unpublished.

and west).

Sanitary arrangements were poor (sometimes almost non-existant). There was no provision for recreation during periods of the year when rain and snow restricted outdoor play.

School building in the area depended largely upon the likelihood of getting a teacher to live in a rural community. This difficulty tended to focus schools upon the larger communities where transport and facilities were better. This was not an ideal arrangement since the children were then forced to walk considerable distances to school. Across the Selseleh plain there are numerous rivers and streams, which in many cases meant that the distance to be walked was increased by not being able to cross to a nearby school.

A major aspect of the S.I.D.P. programme was to establish a comprehensive network of roads connecting the villages to each other and to the regional centre, Alashtar. This network allowed the regional planning of facilities to develop upon groups of villages, who could share common facilities within easy reach. It would have been both physically impossible and impractical to attempt to provide facilities in every settlement. Moreover, many of the settlements were little more than extended family groupings, and sometimes numbered only a few houses.

The shortage of teachers was alleviated by the training programmes run by the S.I.D.P., which produced people in the villages capable of teaching at primary school level and of running adult literacy classes.

To meet the demand for schools and other public buildings, within the limitations of the funds and resources available, it was essential that local resources,skills and manpower was used.

3 School Building

3.1 Kaka-Reza

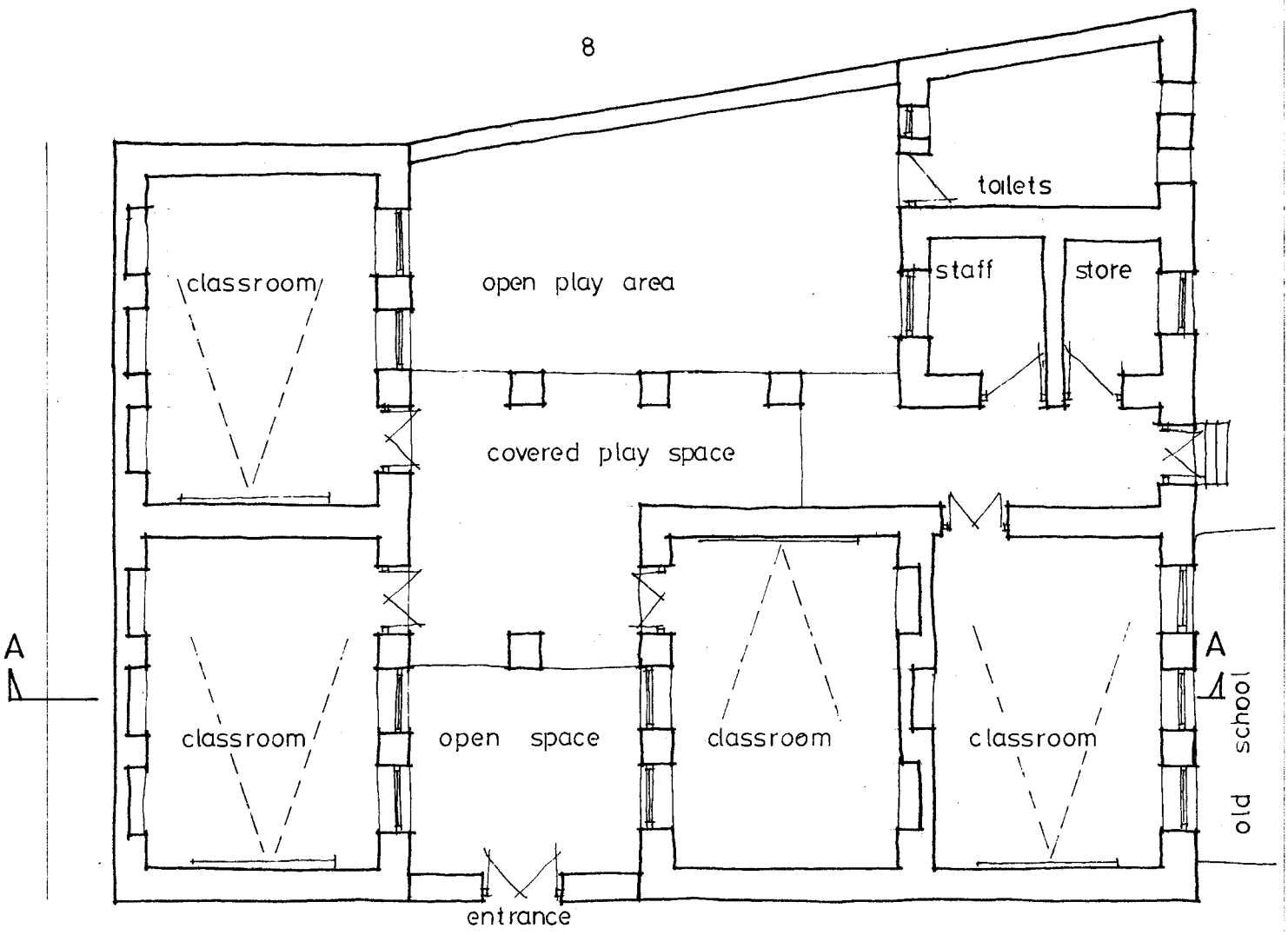
The school building in Kaka Reza (Fig. 2) illustrates some of the possibilities that occur when the people in the community are involved in the process and local resources are used.

The villagers of Kaka Reza asked the S.I.D.P. to assist them in building a new school. The village had already organised funds for the building, with some of the money coming from the Ministry of Education. (It was in fact unusual to find villages that had organised this.) The costing of the building had been to allow enough to replace two existing classrooms with two new ones. This allowed nothing for the growth of the village, nor the provision of additional facilities; storage, sheltered play space etc. The school was therefore redesigned so that there would be four classrooms, a teacher's office, a store room, lavatories and covered and open play areas for summer and winter use. (Fig 3) The additional space at the original cost was made possible by using local stone for the walls and timber for the roofs instead of concrete and steel as had originally been intended, and by using local labour and builders from the region. Some families who had not been able to donate money were in this way also able to contribute valuably to the scheme.

3.2 Ab Barik

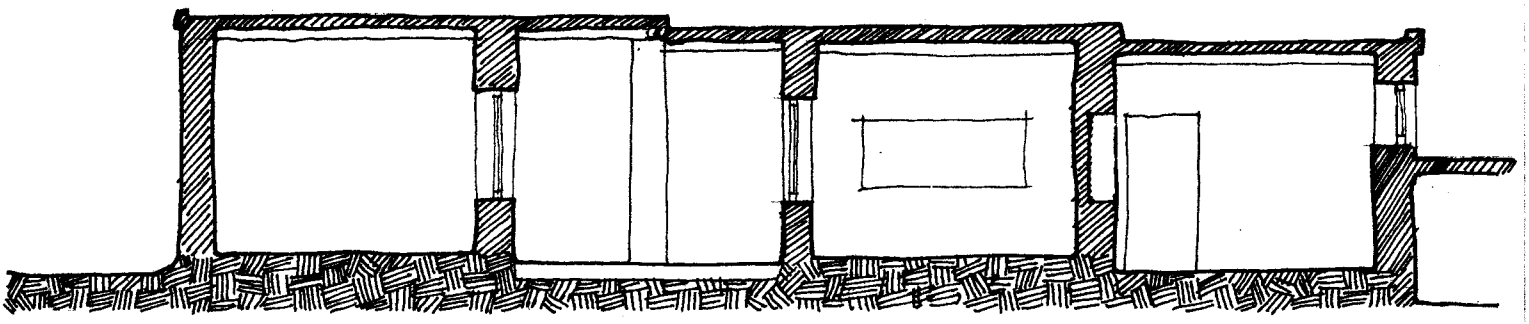
The building of a new school in Ab Barik (Fig. 2) was also started to replace an existing school, but in this case the village was not seriously involved at the beginning. A number of problems developed.

The village had an existing small primary school in its centre. It was overcrowded and poorly lit. In winter



PLAN

Fig 3 PRIMARY SCHOOL AT KAKA REZA



SECTION A-A

metres

0 1 2 3 4 5

the one classroom was heated by a large oil fired heater placed in the middle of the room which obscured the view between teacher and pupils. The fumes given off by this heater were noticeable even during a short visit to the classroom. The windows were sealed up to keep the heat in.

As part of a national programme, a group of students came to the area for their summer vacation, with the task of involving themselves in local activities. These students, mostly from Tehran, undertook to build a new school in the village of Ab Barik. They requested that land should be donated for this scheme. The village itself is situated on a small hill. The land donated was down on the flat land below the village. A start was made on the building, and then the students returned to their colleges. The building work came to a standstill, and the people from the village came to the S.I.D.P. and requested that the S.I.D.P. should finish what had been started.

During the first visit to the site, a number of problems were noted, and because parts of the building were relatively advanced, some problems were beyond rectification.

The land that had been donated was unusable for any other purpose, and explained why it had been given. This in itself reflected the attitude that the village had had to the building when it was started; they were not involved in the building and therefore had little desire to give valuable land. The building had been positioned almost directly in the route of a flood path.(Fig. 4) The whole area showed signs of regular flooding during the rainy season. The orientation of the building and its windows was towards the east, which was unfavourable because of the build up of heat during the morning in the summer,

whilst not permitting low winter sunshine to penetrate and warm the rooms in winter, when the sun is further south in the sky.

The villagers themselves orientated their buildings to face south whenever possible, to assist in keeping them cool in summer and warm in winter. Equally, they would not have built on a piece of land which they knew was liable to flood.

To rectify the situation, a channel was dug to ensure that any flash flooding water would pass safely beyond the site. It was possible, because some of the building work already done was of poor quality, to move the orientation of the building round to the south, whilst retaining part of the walls already built. A pit at the rear of the building was filled in, since otherwise it would have weakened the foundations.

The villagers were encouraged to participate in the building work, whilst the S.I.D.P. provided two trained builders.

The new school was developed upon the same principles that applied to local houses. A covered area at the front of the building provided shade in summer, helping to keep the classrooms cool but allowed sun to shine in underneath the projecting roof into the classrooms in winter. (Fig. 5) This same space was used for recreation in winter. The classrooms were organised so that the occupants would sit with light coming from the left hand side. A chimney for the heater was built into the wall of each room; in the old school the chimney was a metal pipe free standing in the room, dictating the poor position of the heater. In addition to the main

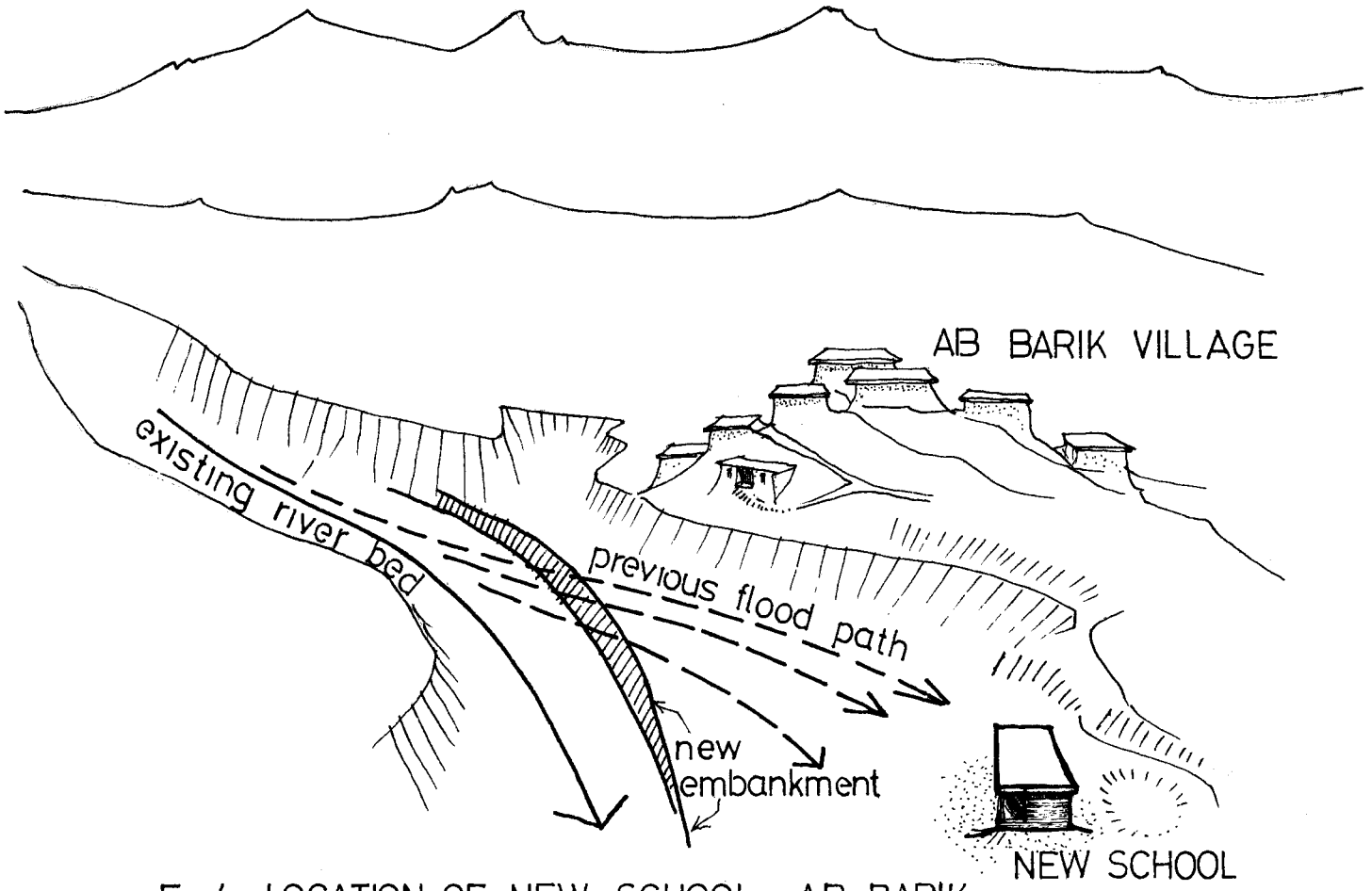


Fig4 LOCATION OF NEW SCHOOL - AB BARIK
All existing building safe on high ground

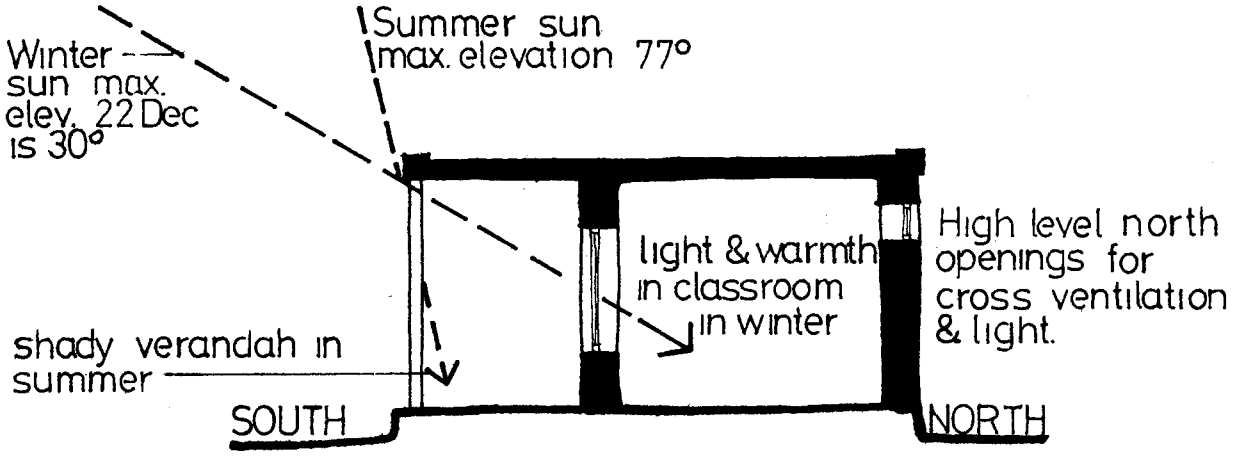
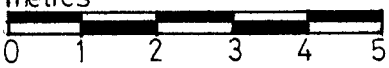


Fig 5 SCHEMATIC SECTION - AB BARIK SCHOOL



south facing windows, small high level windows were included on the north facing wall to permit cross ventilation and provide additional light. (Fig. 5)

The finished school was simple, but some of the original problems had been overcome. They could have been easily avoided in the first place if consideration had been paid to the local conditions and to the existing knowledge and dwellings in the village.

3.3 Kindergarten. Alashtar

In all the schools built by the S.I.D.P. the process of building was used whenever possible for training. In addition to this, most of the public building work was designed so that they would have a relevance to the housing problems faced in the area, and that people in the area could use techniques and ideas introduced through the public buildings to improve their housing.

The Kindergarten in Alashtar (Fig. 2) was an example of this approach. It was felt that, because the children in this school were of a highly impressionable age, it was essential that this building should demonstrate a range of building solutions which would be useful and appropriate to the overall building needs in the area, and unlike many of the public buildings in Alashtar, not reinforce the rejection of the available building methods by only using materials and elements brought into the area from the city.

The kindergarten (Fig. 6) required two large teaching spaces, both approximately 7 metres by 7 metres. The local method of roofing used timber beams to support a flat mud roof. These beams effectively limited the width of rooms to 3.5 metres. In every case that a larger space

KINDERGARTEN PLAN, ALASHTAR

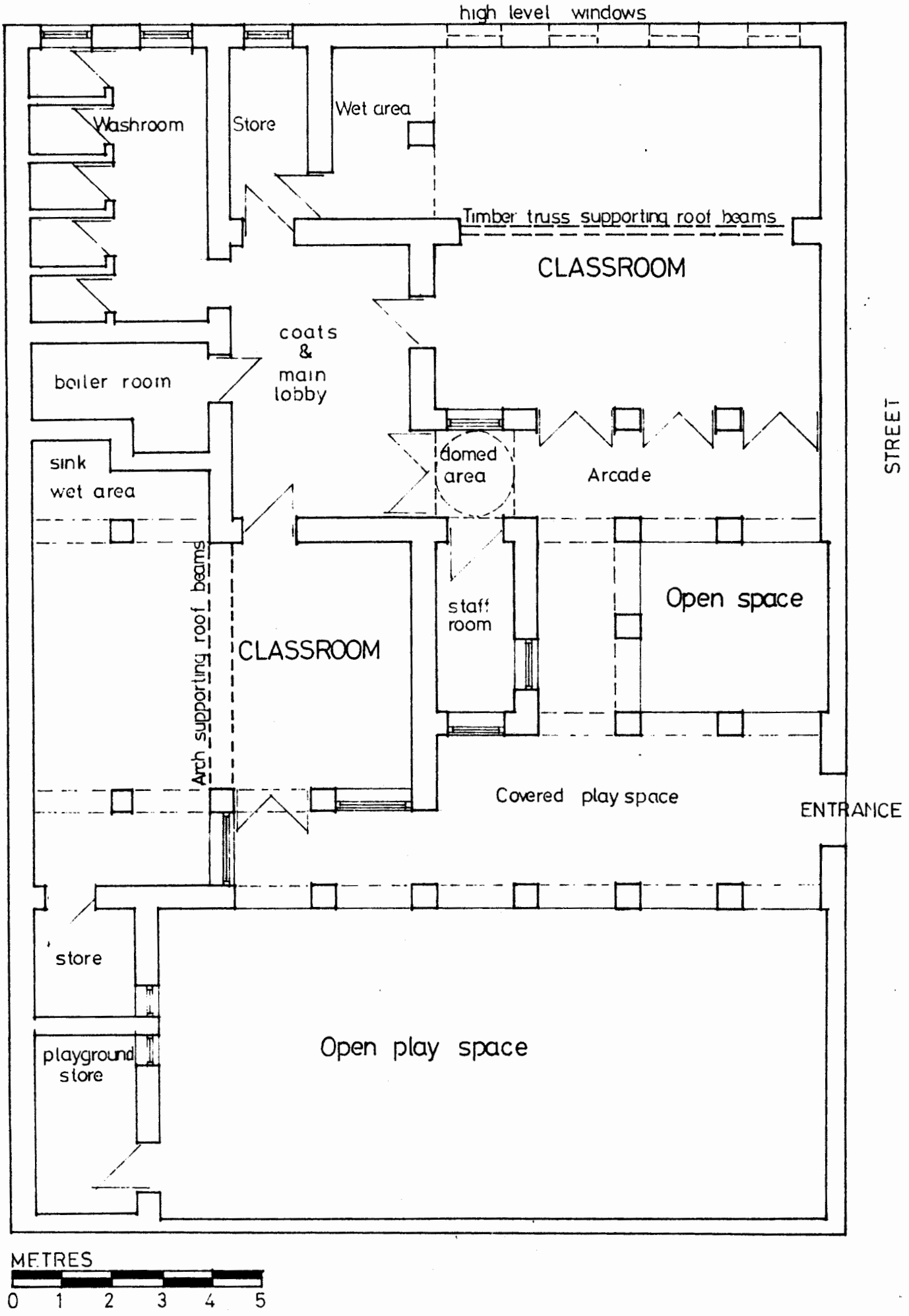
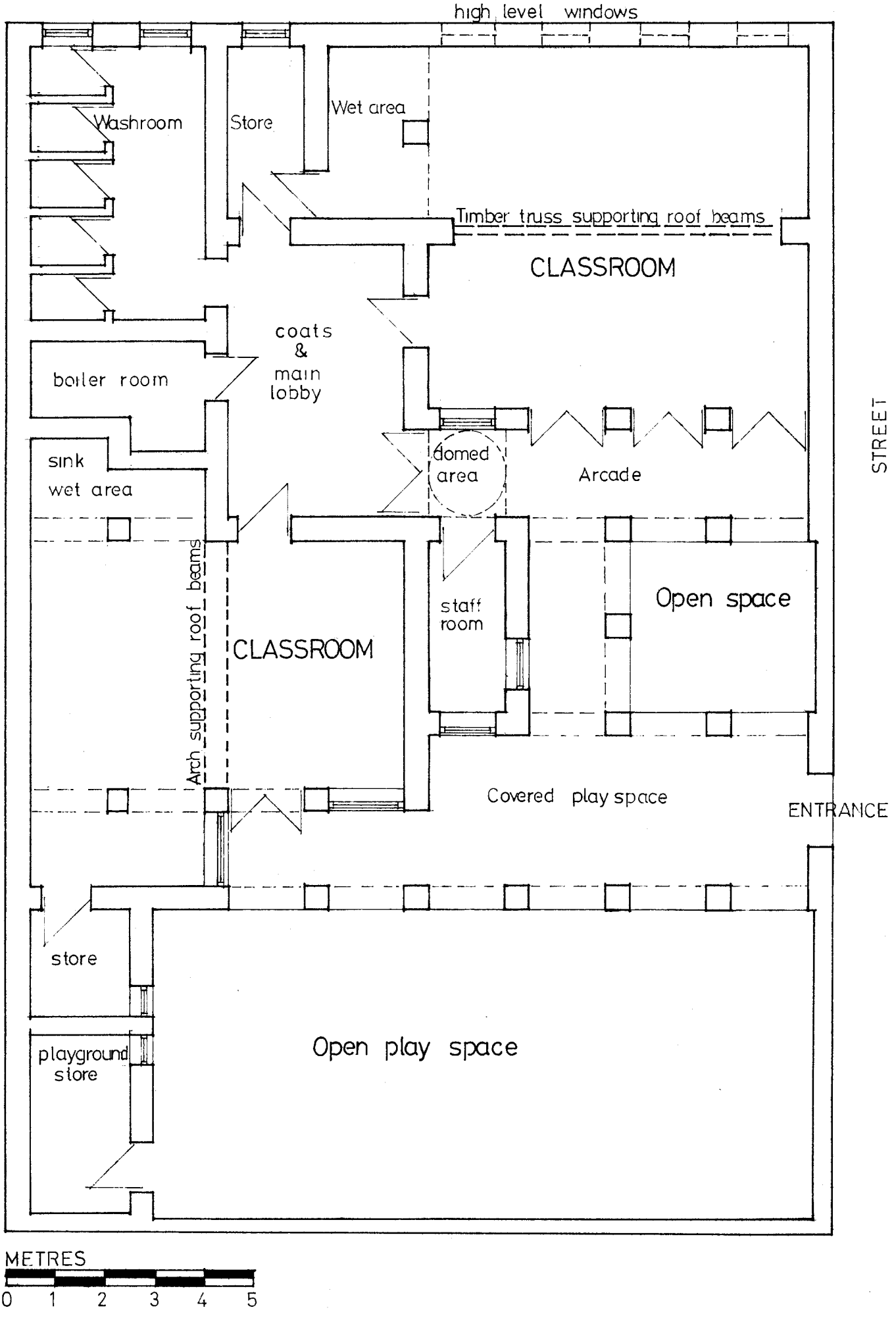


Fig 6 KINDERGARTEN PLAN, ALASHTAR



had been required, steel beams and jack arches had been used for the roof, often using a steel truss to support longer spans. This was an obvious restriction on the use of local materials. To overcome this each of the classrooms used a different method to permit the large roof area to be covered by local materials. The middle of one of the classrooms was spanned by a large 6.5 metre wide brick arch, which supported the timber beams spanning across to the extrenal walls of the room. This arch was the largest to be built in the area, and demonstrated another use that arches could be put to. Previously arches had only been used to span across window and door openings. The other classroom used a timber truss to support the beams. The truss was made in the local wood working shop.

The open spaces within the kindergarten contained covered arcades which provided playspace in the winter. These arcades used a combination of arches and timber beams to support the flat roof.

Low level windows openings were spanned by arches, high level openings, for light and cross ventilation, used timber lintels, connected to ring beams (the latter as an earthquake resistant precaution.)

A small space in the centre of the building, forming the entrance to the teacher's office and cloakroom, was, at the suggestion of the builders, covered with a raised dome, positioned over small openings which let light in and allowed hot air to escape in the summer. The internal construction of the dome was left exposed so that one could see the materials and how they had been used.

The finished building demonstrated a variety of building

solutions, some applicable for larger spaces, some at a domestic scale. All of the building used locally available materials.

At the same time that the kindergarten was built, three houses for teachers were built nearby, using the same principles. Each house demonstrated different techniques. In the following building season, a number of dwellings were built privately in the area and made use of the methods used in these buildings.

It is important in public building, that, where possible, the new construction should stand as a model relevant to local domestic building needs. Too often, official building is at variance with the techniques available to the public.

4 Village centres

Becuase of the size of the community and the availability of teachers, in a number of settlements it was not practical to build schools: Instead, village centres were developed. These had an educational role covering more than primary education, and were established as the bases out of which the trained health, agriculture and educaton workers could operate. The buildings combined specialised space with mulitpurpose space, and were consequently used intensively all year round. A variety of these centres were built, not all of them as single unified buildings (i.e. a cluster comprising of a small clinic and school). However, most confirmed to a basic pattern developed for the area, which could be built with different materials depending on the specific location.

Each centre was usually made up of the following spaces (Fig. 7): Accomodation for one of the three trained

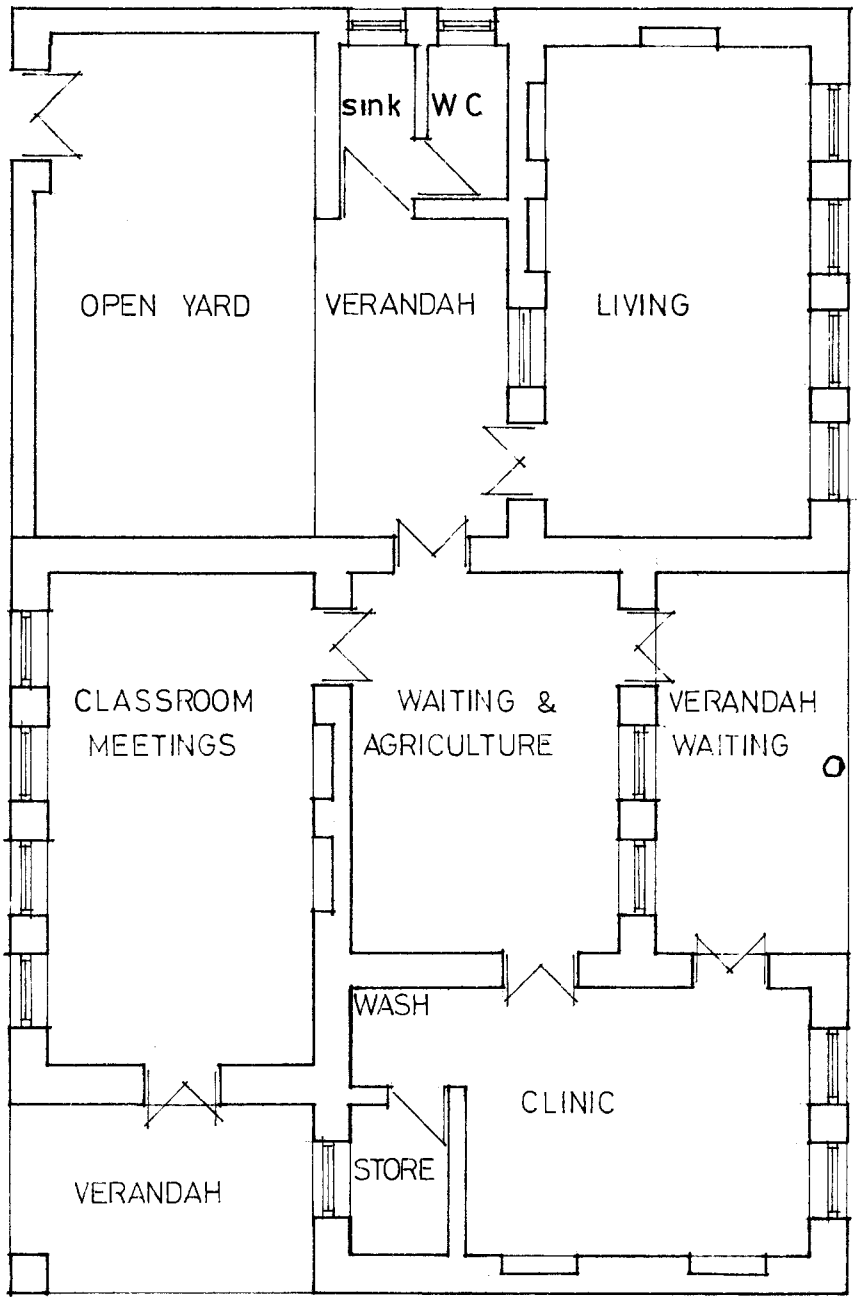


Fig 7 VILLAGE CENTRE
with accomodation

'Font line workers', who would therefore be available in emergencies and could look after the building; connected to the accommodation, was a private courtyard and w.c. and washing facilities. At the centre of the building was a large room, opening onto a verandah at the front of the building and used as a waiting room when the clinic was open, and also as the room where the agricultural worker could dispense seed and implements as available. Adjacent to this space was a one room clinic with washing area and medical store. This was the only specialised space in the building. To the rear of the building, with separate access as well as access from the waiting room, was the classroom. used during the day for child education and in the early evenings for adult literacy classes. The classroom was also used for discussions and meetings.

In some of these centres, depending on the activities of the community, an agricultural store was added. In others, the accomodation was omitted and additional space provided for teaching/assistance. In those cases the 'Front line workers' lived nearby in their own house. (Fig. 8)

Whilst containing certain specialised spaces, these centres were essentially developed from the local style of housing. In all cases, the community participated in the building process, and the variations in design reflected the differences in local situations. In some cases, a particular space was omitted where the villagers felt that a room was already available for that specific activity nearby in the village. One of the main advantages of these centres was the process of exposing individuals to different activities relating directly to their lives. Academic education became more directly related to events, conditions and needs in the community.

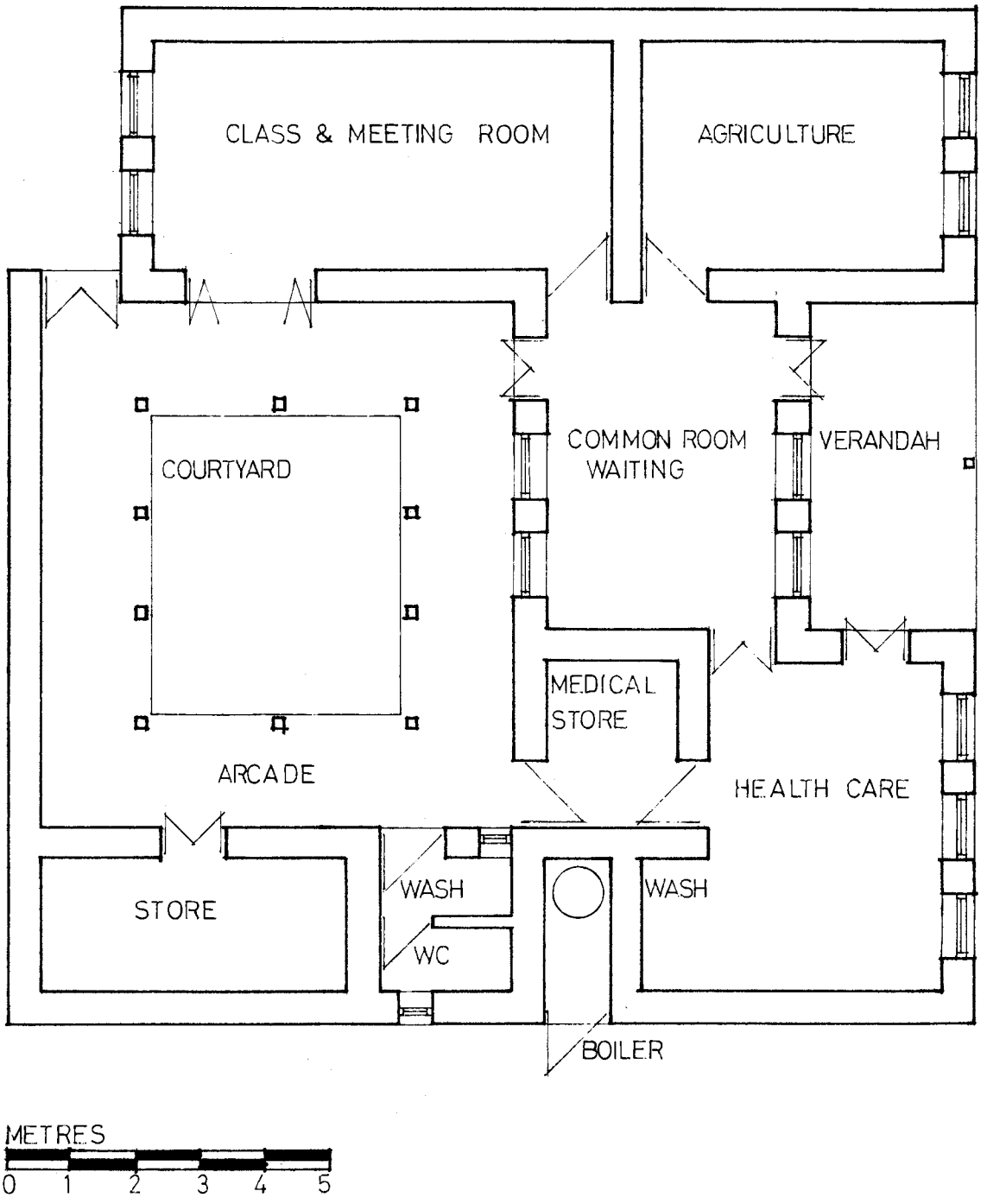


Fig 8 VILLAGE CENTRE
no accomodation ; includes agricultural room / store

5 Water supply and Public Bath building in Serab Seid Ali

Many of the settlements in the Selseleh Region had no facilities at all. The process of organising the public facilities in Serab Seid Ali (Fig 2.) was characteristic of other villages in the area. In this village the S.I.D.P. assisted in the provision of a water supply and a public bath. The choice of facilities was made by the village. However, the public bath (Hamam) is traditionally not purely a place for washing but is directly related to the health of the village. In the past, medical assistance was found in the public bath, provided by the village barber. The public bath also provided a warm convivial atmosphere for meeting and talking, and hence played an essential social role in village life, particularly for the women.

In the spring of 1979 the 'front line worker' from Serab Seid Ali came to the S.I.D.P. staff and requested that the village water supply should be improved. At the time water was carried by hand from a spring 1 km distant from the village. The labour involved was considerable, but additionally sheep and goats were polluting the water at the source. The amount of water coming from the spring was considerable but nearly all of it flowed unused into the river at the bottom of the valley (Fig. 9).

We visited the village to get a clearer understanding of the situation and by talking to the villagers, found out what was really needed and what resources were available. This village was extremely poor, situated on marginal agricultural land on the hillsides where little more than subsistance was possible. The majority of able bodied men had moved away to Tehran or Isfahan where the job opportunities were better. In effect the village was made

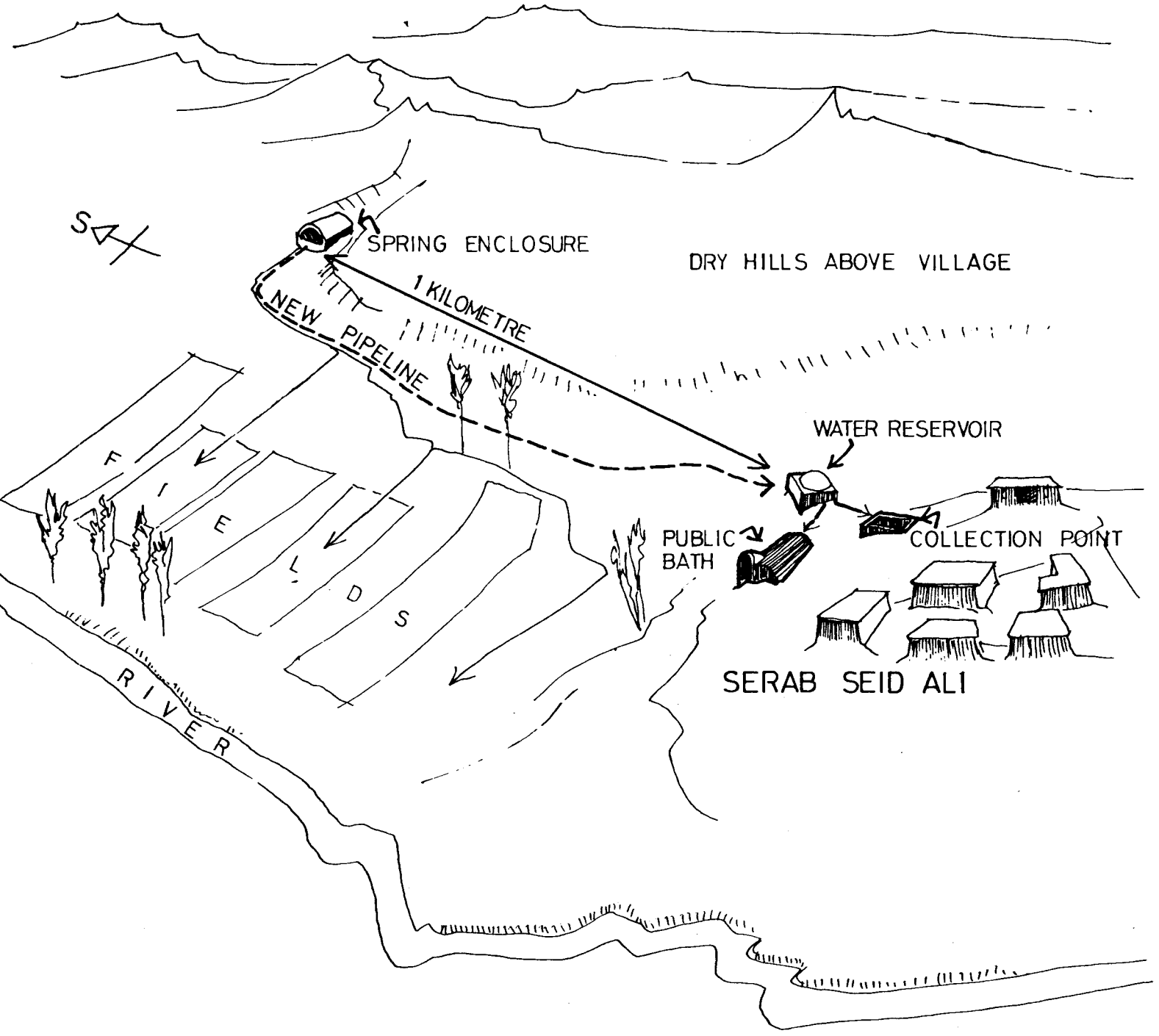


Fig 9 DIAGRAMMATIC LOCATION OF NEW FACILITIES IN SERAB SEID ALI

up of women, children and old men, who received money from the men working in the cities. There was practically no cash available for donation towards any public activity. We explained to the villagers that there had to be some sort of contribution from them if they expected to get assistance from the S.I.D.P.

It was necessary to find out who would be available or capable of working on a building project, and in basic labouring jobs, since this contribution by the village could help to offset some of the costs of any work undertaken, and be taken as payment in kind. Furthermore, in order to get assistance from the project, and through them, the Government programme, it was felt that a more wide ranging programme should be attempted, incorporating more than piping water to the village. In this way the village could contribute more in labour and materials, and there would be more money available in terms of matching funds from the Governemtn.

We asked the village to select what sort of facilities they would like, if the resources were obtainable, and what order of preference did they give to these facilities. The villagers collectively decided that the most immediate need was for a public bath house. This choice had advantages; the building was directly linked to the water supply project, and represented a possible source of income and prestige to the village, since people from neighbouring villages could come and use the bath, and help to pay for its upkeep. The village already had access to a rudimentary primary school in a neighbouring village. Five old men and two boys volunteered to work on the scheme. No one else was available. The S.I.D.P. agreed to provide the skills required, and those materials not readily available near the village.

Practically, the first step was to enclose the spring sufficiently enough to provide a head of water for supplying the pipe, and to stop animals contaminating the water before it was piped. At the same time, water had to continue to supply the fields below. Only a small part would be taken to the village. A simple stone shelter was built round the spring, with a vaulted brick roof. At the lower end was a low wall acting as a dam, through which a pipe passed into the reservoir behind. Any water not taken into the pipe flowed over the top of the wall and was channelled down into the fields below for irrigation. Below the wall the pipe was laid in the side of the existing water source, to save excavation. Only when it approached the village did it deviate from this route. Because the route the pipe had to follow was not straight, plastic pipe was used, which was also cheap and simple to assemble. No heavy equipment was required. The pipe was buried to protect it from the sun. At the village end, a small 3 metre square reservoir was built of stone, collected locally, with a domed roof, using brick brought from one of the new local kilns. The reservoir was needed if both drinking water and bathing water could be drawn off at the same time. One pipe fed from the reservoir to a water collection point and dish/clothes washing area. Another pipe fed the bath, built slightly down the hillside from the reservoir. The bath house itself was built dug into the hillside, so that the minimum of walling material would be required to support the roof, the bath would not lose heat to the cooler outside air in winter and water required only gravity to carry it through the bath. The hot water boiler room was built above the main bathing room. The bath also incorporated a public lavatory. (Fig. 10)

Because the vilage was poor, the building was orientated to allow the use of solar collectors on the roof, so that

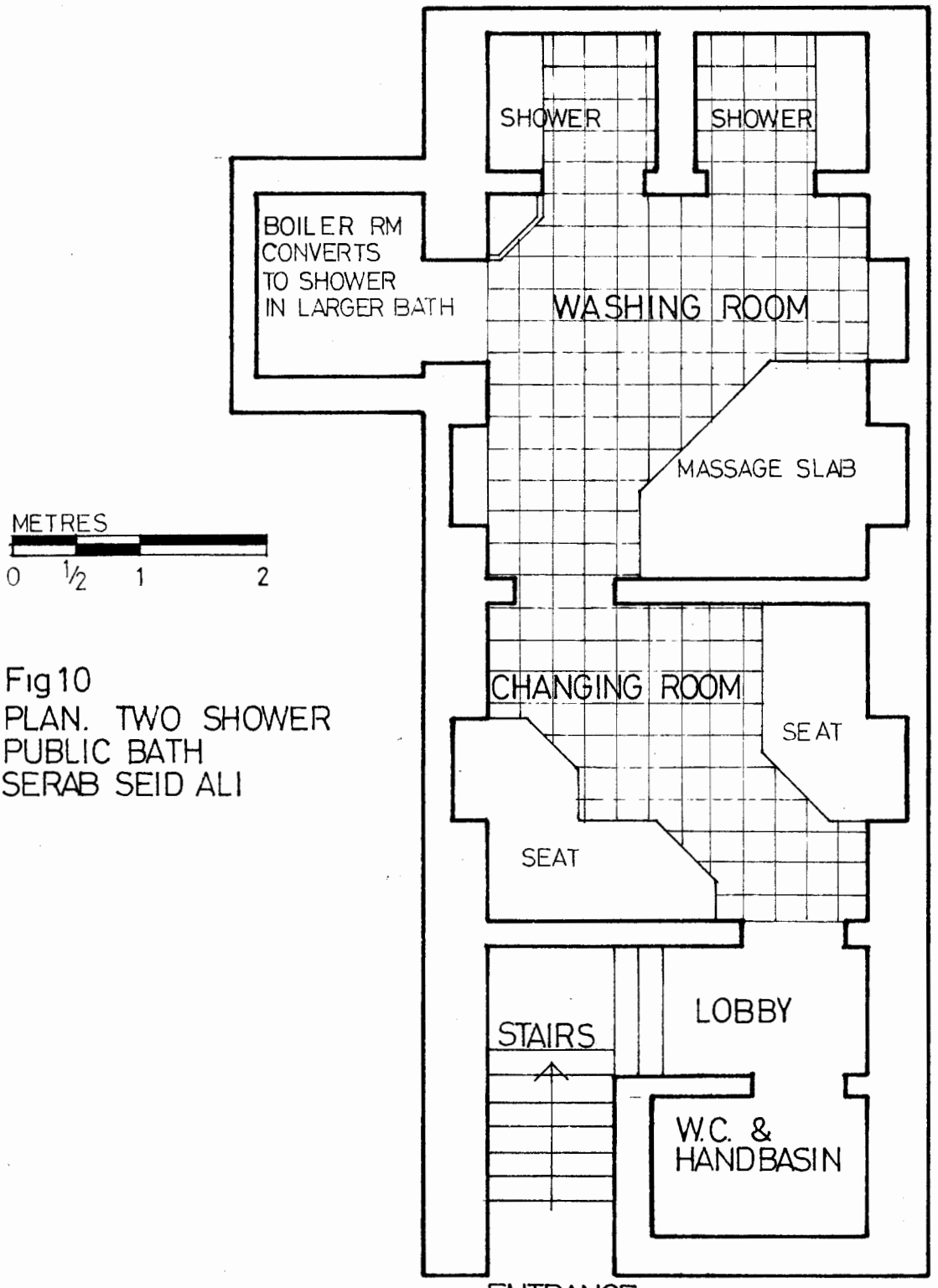
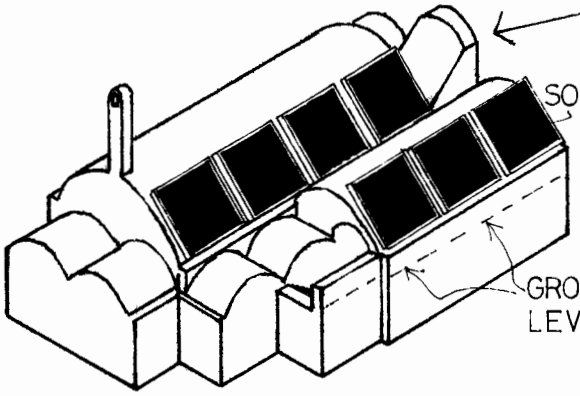


Fig 10
PLAN. TWO SHOWER
PUBLIC BATH
SERAB SEID ALI



ISOMETRIC OF EXPANDED PUBLIC BATH WITH SOLAR COLLECTORS

the water could be heated by solar energy for up to 6 - 7 months of the year and reduce fuel costs.

The whole of this programme was completed at extremely low financial cost. All of the labour, including the excavation for the bath, came from the village. This would otherwise have greatly increased the expense of the building. Many of the materials came from nearby; sand was delivered by tractor and trailor from a river 3 kms away; line came from a kiln 6 kms away, and was used for the mortar; most of the stone was collected locally; very little cement was used, except where bitumen was being applied as a damp proof course in the buildings. The bricks used on the roofs were produced in local kilns.

In the process of building the bath, trainee builders were employed to gain experience in the process, and the team developed from this village moved on to build a similar bath in another village in the area, but this time with much less supervision.

In financial terms, the amount of labour expended on the work would have made the scheme prohibitively expensive, but labour was the main resource that the village could offer and had the time to do so, especially during off seasons when not required by agriculture. The villagers now run the bath independantly, operating it on the days that they choose. They recognise that these facilities are there primarily through their own effort, and are consequently their responsibility.