

**Water, Sanitation, Health and Hygiene Studies Project
Aga Khan Health Service
Northern Areas and Chitral**

STEADY
INTEGRATED MULTI-PREFERENCE CENTRE
FOR COMMUNITY WATER SUPPLY AND
SANITATION (IRCI)

**WATER, SANITATION, HYGIENE
AND HEALTH**

POSITION PAPER 3: BALTISTAN

by:

Jeanet van de Korput
Muneeba
Altaf Hussain
Michael Langendijk

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ABBREVIATIONS

ABWA	All Baltistan Women Association
ADP	Annual Development Plan
AKHS	Aga Khan Health Service
AKRSP	Aga Khan Rural Support Programme
BHEF	Baltistan health and Education Foundation
CBS	Community Based Services Programme
DHO	District Health Officer
LBRDD	Local Bodies & Rural Development Department
LHV	Lady Health Visitor
MCHP	Maternity & Child Health Project
NAs	Northern Areas
NAPWD	Northern Areas Public Works Department
NGO	Non-Governmental Organisation
OXFAM	NGO from U.K.
PC-1	Project proposal
SAP	Social Action Programme
SWAB	Social Welfare Association Baltistan
TBA	Trained Birth Attendant
UC	Union Council
VIB	Ventilated Improved Balti-latrine
VO	Village Organisation
WIDP	Women Integrated Development Programme
WO	Women Organisation
WSHHS	Water, Sanitation, Hygiene & Health Studies Project
WSS	Wheat Salt Solution
XEN	Executive Engineer

GLOSSARY

Akhund	Religious leader
Chaksa	Balti-latrine
Chudong	Water pit
Chu-migran	Water spirit
Churong	Basket
Dahi Tanzeem	Village Council
Damdarud	Whispering prayer
Gaye	Big round water container
Gonga bonga	People who are cretin
Jin	Male fairy
Khobushley	Local herb for worms
Lota	Small water container
Magrib	Evening prayer
Markaz	Administrative unit used by LBRDD to indicate a sub-division
Maulana	Religious leader
Nullah	Water stream
Parri	Female fairy
Purdah	Seclusion
Sheikh	Religious leader
Shelmik	Local herb for diarrhoea
Shoto	Local herb for diarrhoea
Som	Local herb for diarrhoea
Strin	Worms
Taviz	Amulet
Teharat	Anal cleansing with water
Tumphro	Herb for diarrhoea
Zera	Cumin seed used for fever

INTRODUCTION

Field visits

In autumn 1993 a team of the WSHHS Project worked in Baltistan for a first appraisal of the water and sanitation situation. The team consisted of Muneeba, Altaf Hussain and Jeanet van de Korput, project anthropologists and Nabar Khan, driver. The team undertook a two week field visit to Skardu district¹ (Rondu, Shigar and Kharmang valleys) and in Ghanche district (Hushe, Saltoro, Chorbot and Talley valleys).

In each of the seven valleys one to three villages were visited and interviews were held with notables, teachers and common village men and women. In Skardu and Khaplu towns the team had meetings with AKRSP staff and various departments involved with sanitation, water and health such as LBRDD, NAPWD, SWAB and the District Headquarters Hospital.

Compared to Chitral and Gilgit regions, the water and sanitation situation in Baltistan appears to be more uniform and therefore a single position paper has been prepared covering the whole region. Specific information about the villages and local variations have been recorded in 'village profiles' for the recorded.

This report is mainly based on the first appraisal visit. However, as there were delays in finalizing the report, additional data has been added based on later study visits².

Objectives of the first appraisal

- To establish contacts with various institutions and departments working in the sanitation, water, health and health education sector.
- To increase understanding of local sanitation systems, and the water and health situation with emphasis on the villagers' perspective.
- To identify similarities and local variation in the sanitation, water and hygiene situation in the different parts of Skardu and Ghanche districts.
- To develop ideas for specific research for the engineers, microbiologists and the anthropologists.

¹. Gultary tehsil is excluded from this study because entry is very difficult and partly restricted. It is situated south of the Deosai plains near the Indian border.

² Additional indepth reports are in preparation, these include Issue paper 4 'Community Participation in Rural Water Supply Schemes' and Issue Paper 7 'Domestic hygiene and the development of health messages', both partly based on Baltistan Issue paper 8 will focus solely on the Balti-latrines.

Methodology

Before the first visit to Baltistan individuals at AKRSP and AKHS in Gilgit were contacted, who provided us with basic information about the region. In Skardu we were informed by field staff in more detail about the different valleys, their accessibility and infrastructure. Based on this information we prepared a work plan to cover several villages in each valley.

The methodology of the anthropological team included open ended interviews for which guidelines were prepared, observation during house visits and village walks. All interviews were written up and additional information was recorded in village profiles³.

In most of the villages we met with English or Urdu speaking villagers. Two team members focused on key person interviews with headmasters, teachers, lumbardars, politically active people and religious leaders. One female member primarily held interviews with village women, often with the help of a local woman to translate from Balti into Urdu. After most of the interviews the team made transect walks and observed the sanitation and water situation in the neighbourhood and if possible inside houses. On our return journeys and in the evenings we discussed and compared the data in order to cross check information.

In Skardu town and in Khaplu the team contacted several departments working on sanitation, water and health and had interviews with the concerned people. It turned out to be difficult and rather time consuming to obtain data and reliable figures about health figures, sanitation projects or piped rural water supply schemes.

About this position paper

This position paper starts with some general information and a map of Baltistan in chapter 1. In chapter 2 we briefly introduce the various Baltistan based institutions and their working methods as far as they are related to sanitation, water and health. In the third chapter we describe the most common sanitation option in Baltistan; the Balti-latrines and an improved model. Other sanitation systems are described in chapter 4. Chapter 5 includes more detailed information about UNICEF and other organisations that are specifically involved with sanitation improvements. In chapter 6 we turn to water by describing the available water sources, domestic water management and the various organisations implementing piped water supply schemes. Local ideas and perceptions related to illness, water and sanitation are reported in chapter 7. Health education efforts are discussed in chapter 8. Finally recommendations for further research and development are presented.

³ In later visits also village mapping, participatory health education and in-depth domestic observations were used as research techniques

CHAPTER 1 GENERAL INFORMATION ON BALTISTAN

Geographical and natural characteristics

Baltistan is situated at the North-eastern border of Northern Areas of Pakistan. The area is geographically divided by the Indus river. North of the Indus lies the Karakoram range of mountains with over 100 peaks higher than 7000 meters. South of the Indus lies the Deosai Plateau, a dry area which is almost uninhabited. There are about 280 villages in Baltistan. They are mainly located in the valleys along the Indus river and its tributary rivers.

The climate in Baltistan varies according to the altitude. Skardu is one of the lowest settlements at an altitude of 7,000 feet. During summer the temperature can rise up to 43°C and in winter the temperatures will fall below -20°C in some areas. In winter many areas are snow covered for at least a part of the winter and are not easily accessible. In many of these areas the severe cold leads to frozen and broken pipes of piped water supply schemes and of pour- flush latrines if they are available.

Political situation

From 1840 till 1947 the region was part of the state of Jummoo and Kashmir and ruled its Maharajah. Nowadays the region is part of the disputed territory with India and is governed from the Ministry of Kashmir Affairs (KANA) in Islamabad. The U.N. cease fire line, incorporating the Siachin glacier forms Baltistan's semi-circular North-East to south-east border. Foreigners are restricted from going into the area about 20 kilometer from the cease fire line. The North of Baltistan borders onto China.

Baltistan has two districts, Skardu and Ghanche. The former contains Shigar, Kharmang and Skardu sub-division. Ghanche district is smaller and consists of Khaplu and Mashabroom sub-division.

Socio-cultural background

Most of the people in Skardu and Ghanche districts speak the Balti language. In some villages of Rondu valley, Skardu town and Kharmang valley people speak Shina. The majority of people in Rondu valley, upper part of Shigar valley and Kharmang belong to the Shia sect of Islam. In Ghanche district the inhabitants of Khaplu, Hushe, Chorbot and upper Talley valley are mainly Noor-Bakhshi. In the other areas (lower Shigar, Saltoro and lower Talley valley) the population belong to Shia, Sunni, Noor-Bakhshi, Al-e-Haddees and Hamdani sects of Islam. In villages the majority of people live in extended families.

Economy

Agriculture, horticulture and livestock provide a basic income to most households. The majority of villagers are small landholders. Usually both men and women are involved in agricultural tasks. Villagers cultivate wheat as a single crop or barley with millet, buckwheat or maize for animal fodder as a double crop. In upper Shigar and other high villages only one main crop can be harvested. Fruit production is important and becomes a cash crop, also potatoe marketing becomes more important. Animal husbandry is integrated with agriculture as animals produce manure for gardens and fields, beside giving diary products, meat, hair and wool. A majority of people are partly relying on a cash income from labour, service or business for their subsistence.

Facilities

The road from Gilgit to Skardu and further east until Kharmang is metalled. Presently some work takes place on the road to Khaplu. Skardu, Shigar, Mehdiabad and Khaplu are four relatively well developed small towns. Characteristic for these centers is that running water and electricity is available in most of the houses, the literacy rate is higher and the number of wage earners is larger.

The government is running primary, middle and high schools in many villages. There is no special emphasis on girls schools like the Aga Khan Education Service does in Gilgit and Chitral region. AKES have presently not implemented their programme in Baltistan. The NGOs SWAB and the MARAFIE organisation have set up a small number of girls schools.

Government health services have established a number of Hospitals, Health Units, First Aid Posts and Dispensaries. These health services and their location are mentioned in Annex 2. Not all facilities seem to be well equipped or staffed. For example in the Khaplu District Headquarters Hospital there are no female doctors working. Since 1988 Aga Khan Health Services have had one health centre in Skardu town. The programme is now waiting for funds to start with the introduction of a PHC-programme in four tehsils of Skardu District.

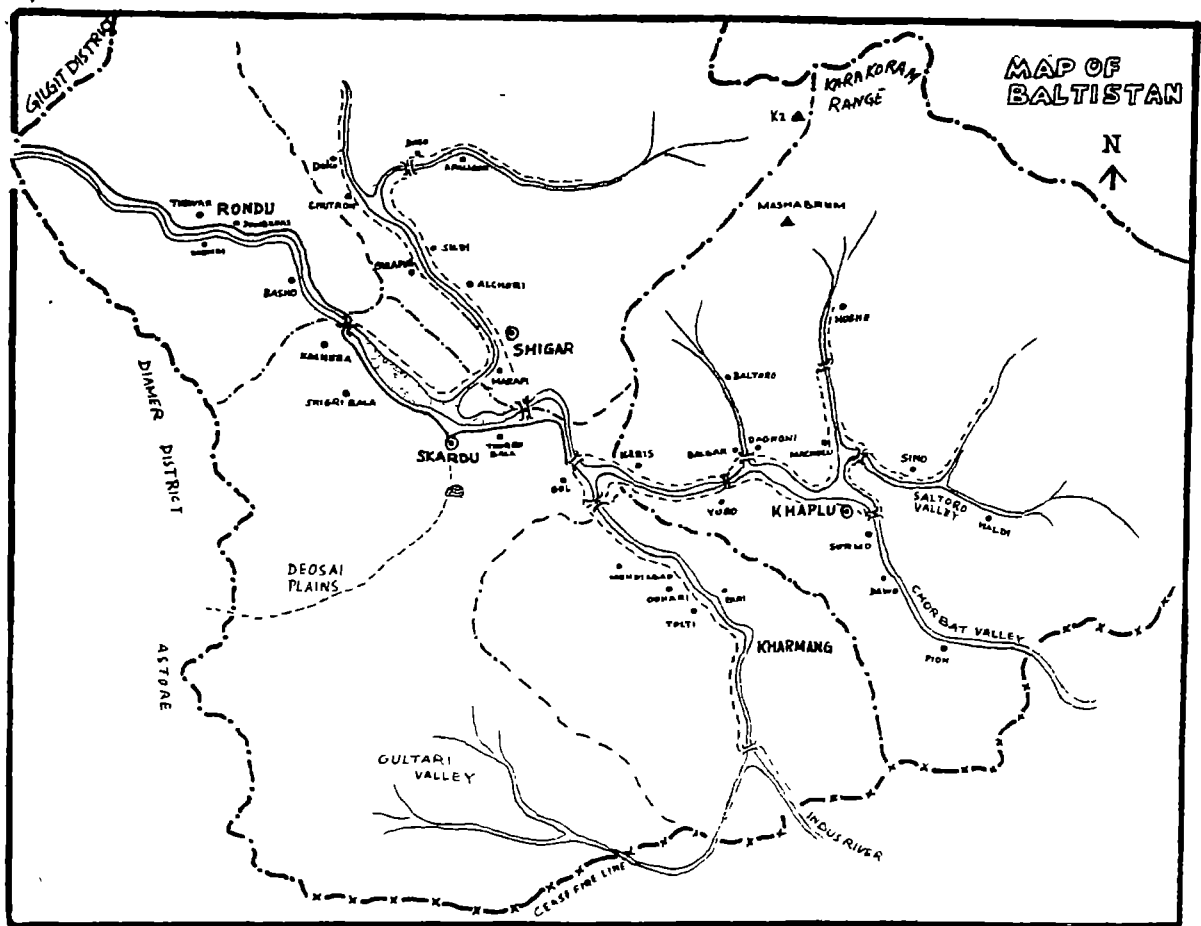


Figure 1. Map of Baltistan

CHAPTER 2 ORGANISATIONS INVOLVED WITH SANITATION, WATER AND HEALTH

A number of organisations in Baltistan are directly or indirectly involved with water, sanitation and health. For the WSHHS Project these organisations are relevant because:

- people of these organisations have knowledge and experience that might be helpful to the Project;
- with some of these organisations the Project can cooperate during our research;
- a future water and sanitation implementation project might cooperate with one or more of these organisations.

2.1 Organisations working in Baltistan

AKHS (Aga Khan Health Service). AKHS is providing basic health services focusing on women and children through a health center in Skardu town. AKHS is considering to initiate a community based Primary Health Care programme in Baltistan.

AKRSP (Aga Khan Rural Support Programme). This rural development agency started its programme in Baltistan in 1986. To date they have fostered over 600 VOs and 124 WO's, particularly in Skardu district. Male and female Social Organizers and Field coordinators support these organisations. AKRSP was not directly involved in water and sanitation⁴ until it started to cooperate with LBRDD on the implementation of SAP water supply schemes.

ABWA (All Baltistan Women Association). This organisation provided charity services to women and was promoting short term health interventions in the 1980s. Due to shortage of human and financial resources it has been unable to sustain a long-term health programme. As a consequence of the departure of the president of ABWA it is not clear what direction the organisation will take in the future.

BHEF (Baltistan Health and Education Foundation). The main activity of this NGO is the Rehman Clinic in Skardu, which has staff and equipment for diagnostic work. Health training and a school health programme are part of the activities. The leading person is Dr.Nasima, who is Islamabad based. Since 1989 this organisation has met with allegations related to the (mis-)use of resources and high level support.

LBRDD (Local Bodies and Rural Development Department). This department is responsible for small development projects on village level such as link roads, bridges and channels. Part of the Government's annual development funds is allocated to LBRDD. The identification and selection of projects is decided by the Union Council members, District Council and the administration in Gilgit. LBRDD has two offices in Baltistan, in Skardu and in Khaplu. UNICEF allocates funds for rural water and sanitation, mainly in the form of pipes and pour- flush commodes through LBRDD. In October 1994 LBRDD will start with the implementation of SAP rural water supply schemes in cooperation with AKRSP and the WSHHS Project.

⁴. AKRSP has only assisted the implementation of a water and sanitation project in VO Askole with the financial support of a foreign individual.



MARAFIE Foundation. This charity foundation is based in Karachi and works with funds from Kuwait. Beside a director the local staff consists of a liaison officer and a part time engineer. With MARAFIE funds mosques, schools in Rondou and Shigar and a hospital in Kharmang were constructed. Furthermore financial assistance were provided for the education of young men and for TBA training for some women. Recently MARAFIE introduced pour-flush systems in the Kharmang valley. They have plans to work on the improvement of the traditional Balti-latrines, possibly in cooperation with the WSHHS Project.

MCHP (Maternity and Child Health Project) is part of a national network of maternity clinics. In Skardu and Hussainabad health centres are operating by local and downcountry staff; a female doctor, two LHVs, a TBA and trainees. MCHP is led by Mrs. Gauhar.

NAPWD (Northern Areas Public Works Department). NAPWD is implementing schools, electricity, roads, bridges, government buildings and water supply schemes. PWD is focused on urban areas and on towns and tends to construct large schemes. Finance is provided by the government under the ADP (annual development plan). For realizing schemes PWD follows the proposals from the Northern Area Council. Most of the programmes are executed by contractors.

NGOs (Non-Governmental Organisations). Until 1994 more than 60 NGOs have been officially registered in Baltistan. The majority are welfare organisations who have included improvement of health as an objective. However most of these organisations only work for a very small group of people or only for a single muhallah or village.

SWAB (Social Welfare Association Baltistan). SWAB started eight years ago as a charity organisation focused on health care and women education in Skardu. Nowadays a network of volunteers extends the reach of the NGO (since 1990) beyond Skardu town. In 1990 they registered officially and started with classes for girls, school construction, vocational training (eg. typing), assistance of hospital patients and an ambulance service. It also does some work in health education. In cooperation with LBRDD and UNICEF they have experimented with distribution of pour-flush commodes.

UNICEF This UN agency is based in Islamabad and has no field office in Baltistan. UNICEF has been providing water pipes and pour-flushes through LBRDD to several villages during the last decade. In 1988 UNICEF in cooperation with the Planning and Development Cell of the Government has set up the Womens Integrated Development Programme (WIDP), based in Gilgit, to which it also provides pour-flush commodes for its Baltistan programme.

VOs and WOs (Village and Womens Organisations). AKRSP started in 1986 with participatory village organisations for men and women in Baltistan. Until December 1993 601 VOs and 124 WOs have been established. Other agencies are encouraged to work through these VOs and WOs.

CHAPTER 3

THE BALTI-LATRINE

The word for latrine in the Balti language is Chaksa, but people will normally not use this term when they go to relieve themselves. They will use the more indirect expression "Zgo kha", which means "I will go to the door" or "I will go outside". Everybody knows the word Chaksa but educated people consider it as slightly vulgar jargon. Therefore in this position paper instead of Chaksa the term Balti-latrine or local latrine is used.

3.1 The domestic Balti-latrine

i) The construction of the Balti-latrine

Every household in Baltistan has its own Balti-latrine. This system is a traditional type of compost latrine which is built inside, attached to or outside the house (see figure 2 and 3). The location of the Balti-latrine depends on the available land and the preference of the household. In areas with severe snow fall in winters the latrine is built inside the house. In cases of shortage of land the latrines are usually built attached to the house. But when land is available people prefer to built the Balti-latrine in their court yard.

The direction of the latrine or the holes inside are often North-South. In some villages like Sino and Doko, we found that in the construction the villagers had taken the wind direction into account. They locate the emptying hole in such a way that the wind carry away any bad smells.

The latrine consists of two parts. A lower portion or pit is constructed at ground level and is almost always located next to the cattle shed. This portion has a small opening or door. The upper portion or superstructure is built immediately on top of the pit and is used for defaecation. Although all Balti-latrines have an upper and lower part, the actual construction varies considerably and in fact every Balti-latrine looks different.

Variation in appearance seem to be related to size, available materials and location or possible other determinants. The size of the Balti-latrine depends on the number of household members, the number of animals and the available space. The construction materials depend on local availability. Stones, reed, wood and cloth are often used in the Balti-latrine. The location has also an effect on the choice of materials and the quality of the construction. If the latrine is built inside the house the walls are made of stone plastered with mud and it is usually provided with a proper roof. If the Balti-latrine is attached to, or separate from the house there is often no roof (see figure 2 and 3). In this case jute bags, branches or stone walls, typically only three feet high, might be used to provide some privacy.

ii) The holes of the latrine

The floor of the upper portion is usually made with wooden poles covered with mud plaster. In the floor several rectangular holes are made in the North-South direction. The number of holes can vary from one to nine. This number depends on the size of the latrine, the bigger the Balti-latrine the more holes are constructed.



The main reason people gave for having several holes is to spread the contents equally into the pit below. Villagers told us that they first look through the holes in the latrine and choose the hole where the pile underneath is the lowest.

A second reason women gave for having several holes is their custom to use the Balti-latrine together. Particularly in dark and before going to sleep, the women take all the children to the latrine at the same time. Male informants told us that using the latrine jointly is a custom of the past. Yet women told us that men sometimes also jointly use the Balti-latrine. It seems that with outsiders men and to a lesser extent women, feel somewhat embarrassed to admit about this practice.

iii) The use pattern of the Balti-latrine

On the floor of the superstructure of the Balti-latrine lies a heap of dry soil or silt which is collected from the channels and ponds or from the field. The soil is sometimes mixed with small straw pieces. In some villages also dried animal dung mixed with sand is used. People use the soil or silt as a cleaning material after defaecation. The one or two handfuls used will fall in the hole on top of the faeces. However this will not cover the faeces completely, but it helps reduce the smell. Once, twice a week or once a month the people will throw extra soil or silt into the pit on the faeces.

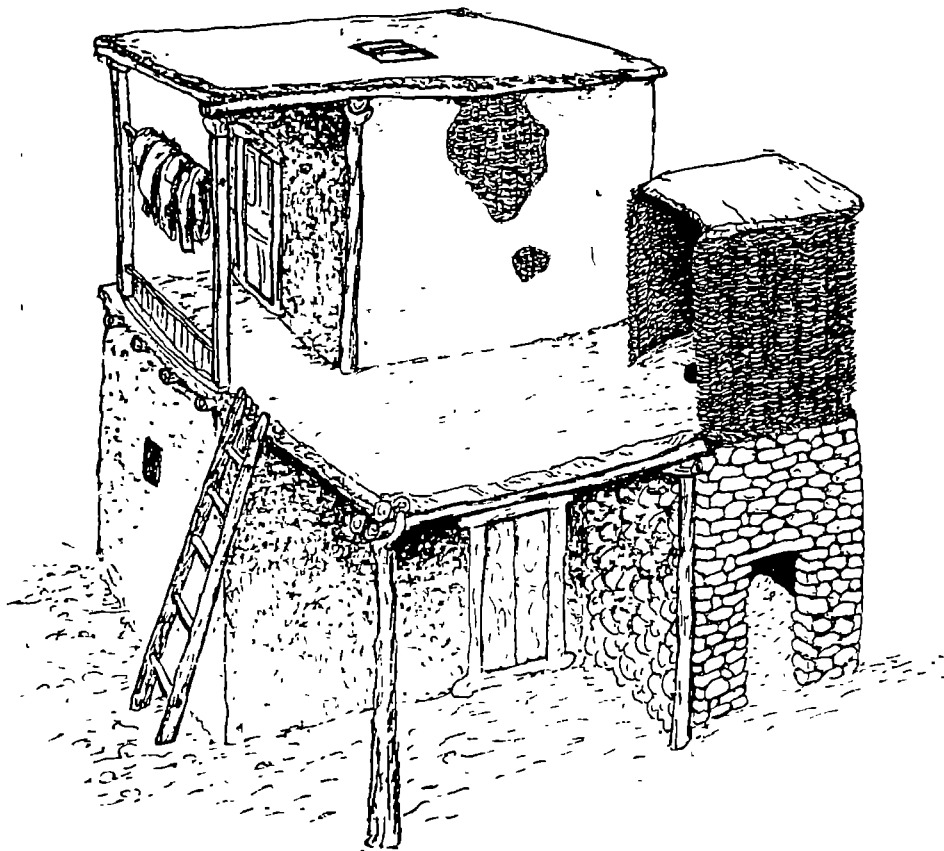


Figure 2. A Balti-latrine attached to a house



Most of the people believe that the use of water makes the compost wet and more smelly. In some areas therefore people use a separate place for anal cleansing with water, for example the cattle shed, a place near the channel or in a bathroom if that is available. An other and interesting possibility was observed in for example Alchori, Doko and Sino. In these villages several people had made a separate place inside their Balti-latrine for abluion. A drain was used to direct the waste water into an open space outside the latrine or into a waste water channel.

In villages near Skardu and in Rondu villagers use water for anal cleansing above the hole. Here separate abluion places are not common. The pit contents of these Balti-latrines were observed to be wet and often smelly compared with those who use to perform anal cleansing with water in separate abluion places.

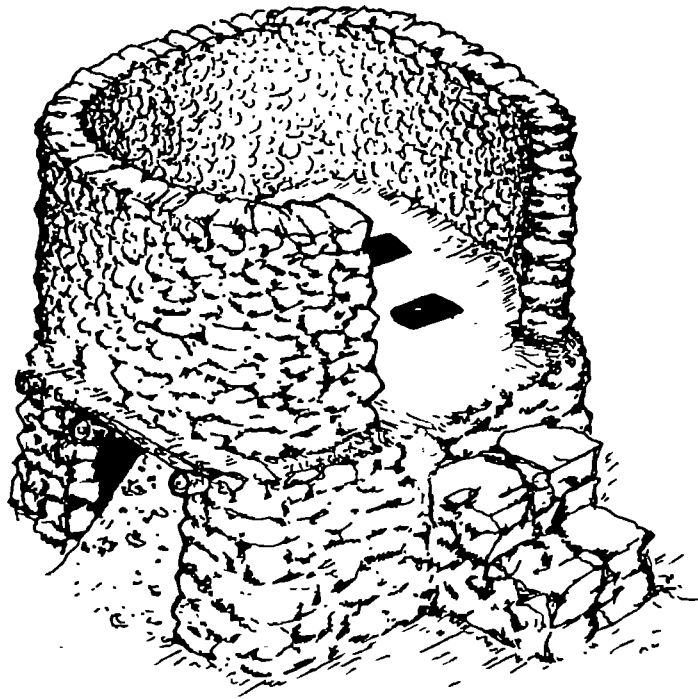


Figure 3. A Balti-latrine constructed separate from the house

iv) The management of the pit contents

Each week or month people throw soil into the pit of their latrine with a shovel, a basket or just with their foot. The faeces are totally covered which reduces the smell and increases the amount of compost. Beside the soil, villagers add cattle dung, sweeping from the compound, certain types of bushes and sometimes also chaff and dry leafs into the pits. This mixture gives a good compost. Ash is rarely used in the latrine, as it is associated with super-natural beings and with food, as explained in chapter 7



Only in very few cases have we heard that people stir the pit contents in order to improve the composting process. In most areas people reacted in disbelief or with giggling as they could not imagine others bother to stir. Practically it seems to be difficult to stir because contents were often observed to be compact. Cases have been noted where the pit contents are leveled in order to produce a relatively uniform mass without lumps or large voids.

v) **Emptying of the pit content**

When the Balti-latrine becomes full, it is emptied through a hole or door which is made in the lower portion. Emptying is done when necessary, most commonly once or twice, but sometimes up to six times per year. Emptying is carried out especially in November (after harvesting when the fields are empty), and in February-March (before sowing and ploughing).

Emptying the Balti-latrine is considered as a low-status task. Usually male household members empty the latrine. Where possible the latrine owners will ask gonga-bonga or labourers to empty the latrine. Gonga-bonga are cretin⁵ and have a low status in the community. In return for their labour work they will usually get three meals and some money. Sometimes a gift, often a piece of cloth, is given or some work is done in return in the labourers households. Other labourers will be paid a normal daily pay, around fifty rupees. In some areas, particularly Kharmang, it is becoming difficult to find labourers for this work.

Men remove the compost from the pit with a shovel and put it on a heap near the cattle shed. From there the compost is transported to the fields in baskets, wheelbarrows, on donkeys or tractors. Usually transport is a task for men or labourers but in Khaplu also women do this work. In Khaplu area carrying baskets is seen as a low status job. Therefore women transport the compost in baskets while men mainly use wheelbarrows or donkeys.

If the Balti-latrine is emptied before winter the compost is put in big heaps near the house or on the fields. In some cases people cover the heap with mud to avoid it being interfered with cattle or other animals, or to protect the quality of the manure against the cold. Before sowing and ploughing, in March or April, the women spread the compost on the fields. The compost that is emptied from the latrine in spring is spread directly on the field. Women spread the human compost with their hands, small wooden shovels or with a wooden fork.

vi) **Problems people face with the Balti-latrine**

Villagers were hard pressed to find any serious problem with the Balti-latrine. A problem some people mentioned was the emptying of the latrine. Some people try to hire labour but if labourers are not available, like in Alchori and Kharmang, the owners consider it a problem. The labour scarcity resulted in an interesting behavioural change in Kharmang. A man from this area said that 15 years ago labour for emptying was easily available.

⁵. The main cause of cretinism is iodine deficiency which is common in the region



"At that time we used water for anal cleansing. But nowadays it is very difficult to find a labourer who will empty a Balti-latrine. Therefore we don't use water anymore. In this way the latrine contents will be drier and less smelly and dirty and we can wait longer for it to be emptied by labourers".

Smell and flies were generally not mentioned as a problem by villagers only after asking specially for the disadvantages of the Balti-latrine. One possible explanation is that in some areas, particularly those with a dry pit content people indeed do not have such a problem. A second explanation for not mentioning smell or flies is that people have been using these latrines for generations and that they are accustomed to accepting the situation as it is. Flies and smell might be there but people do not mention it as a problem, but as long as improvements are not tenable or not known to people it is natural not to complain. In case of smell the people usually add more soil or animal dung to stop the smell.

3.2 Communal Balti-latrines:

Communal Balti-latrines are very common in Baltistan. In more than 75% of the villages communal latrines are present near mosques, flour-mills and alongside agricultural fields. Often the communal latrines have a more simple construction, similar to figure 3. They are smaller than most domestic Balti-latrines and often do not have a roof. Nevertheless we once observed a big communal latrine with nine holes.

The incentive to construct a communal latrine is that the owner has the right over the use of the compost. As one villager expressed a bit jealously:

"The people who build more than one latrine in the village are just greedy for compost".

The owner of the latrine is responsible for keeping it clean and for providing soil as cleansing material. It is in the owners interest to provide a respectable latrine for it will attract more users. We observed that all the communal latrines looked clean and neat. This is remarkable if we compare this with other types of communal latrines such as pour-flush systems in schools in Gilgit district. Only in very rare cases such communal flush-latrines are clean or even functioning. In contrast to the communal Chukan which is a dying tradition in Hunza, the communal Balti-latrine is still very common. For example in Khaplu town ten communal latrines belonging to different owners are constructed near the mosque.

3.3 The improved Balti-latrines

i) UNICEF improved Balti-latrine

In 1983-1985 UNICEF constructed two improved latrines on a trial basis in Thorgo Bala. LBRDD provided technical assistance and Mr. Chit Chial Wan from UNICEF supervised the work. The improved Balti-latrine is a compost latrine which consists of two compartments with an upper and lower portion and which has in each compartment a hole. The idea of this improved model is to reduce the health risks of using the human faeces as fertilizer. After using one pit for 6 months, the pit has to be closed and the second pit will be used for the following 6 months. After this, the



contents of the first pit are assumed to be properly composted and may be emptied and the pit put into use again while the second will be closed for a half a year. Both compartments have a small door towards the cattle shed. For construction, stones, wood and mud have been used. The whole structure cost between 12.000 and 15.000 rupees.

Two of these improved Balti-latrines were completed. One was meant for communal use and has been built near the roadside on the land of a lumbaradar. The second latrine was meant for individual use and has been constructed in a small street next to the house of a ex-Union Council member. He and the lumbaradar were responsible for providing soil inside and adding different organic materials to the lower portion of the latrine.



Figure 4. The improved Balti-latrine in Thorgo Bala

In the first year the first compartment of the communal latrine was used from April to September. After properly closing that compartment the people used the second from October to March. But in March, instead of only emptying the first pit which had been closed for 6 months, they emptied both pits. In this way the fresh excreta from the second pit was put on heaps by mistake.



This meant that the basic objective of the twin pit compost latrine i.e. reducing the health risk by allowing proper retention time, was not met. Currently only one compartment of the communal latrine is under use. It is not safe to enter the second compartment due to a damaged wall, clearly visible in the photograph (figure 4). This improved Balti-latrine therefore functions as a traditional Balti-latrine nowadays.

The other individual latrine is not in use anymore. According to the owner the latrine was ruined by rain. We observed that there was no proper roof and just one wall. In his new house the ex-UC member has built a new traditional Balti-latrine. He explained that the improved Balti-latrine is more expensive than a Balti-latrine. He said:

"Previously UNICEF provided skilled labour and money for transportation and shaping the stones but now it was all on my account and so I built it without two compartments".

ii) The ventilated improved Balti-latrine (VIB-latrine) of Dr. Hassan Khan

A second experiment is the Ventilated Improved Balti-latrine designed by the District Health Officer of Khaplu, Dr. Hassan Khan. He is convinced of the idea that the Balti-latrine is the most appropriate system for Baltistan but that there is a need for an improved model. His objective is to develop a more respectable system for both rich and poor people that reduces the health risks involved in the conventional latrine. His 'new' model is a relatively large size twin pit compost latrine with two ventilation pipes. Construction was started in 1993 in the courtyard of his residence in Shigar.

Dr. Hassan Khan used a number of criteria in the design and construction of his model:

- use of the compost is essential;
- no water needed, no freezing of water;
- hygienic and free of flies;
- safe disposal of human faeces;
- acceptable cost.

The VIB-latrine consists of a lower structure with two compartments or twin-pits and a superstructure consisting of one compartment. The two pits are divided by a wall which supports the floor of the superstructure and joins one of the outer side walls. Where the division wall doesn't touch the outer wall, an opening is made which enables a person to enter into both pits for emptying purposes. This is an interesting simplification compared with the UNICEF design which needs two doors.

The superstructure has four walls made of stone. At one side an opening is made for the door. The floor is made of wood and concrete plastered with mud. In this floor four holes have been made, two above each pit. The holes are 1 foot long and 8 inch wide. At this moment all the holes are in use but when the latrine is completed two of them will be closed

According to Dr. Hassan Khan the holes are a bit too big related to the width of the vent pipes (6 inches). Therefore he planned to make a conical shaped form of about 6 inches diameter inside the holes to regulate the wind flowing into the pit. He would also like to do experiments with different



lengths and widths of vent pipes and is ready to cooperate with the WSHHS Project. In two corners inside the latrine, holes are made for installing the vent pipes. The pipes and the roof still have to be finished. In the wall opposite to the door a window is made that provides some dim light into the latrine superstructure.

Dr. Hassan Khan says that it is unacceptable for people to go inside a dark latrine because they will be scared to step in the hole. The members of his household used to do anal cleansing, teharat, near a small pond beside the latrine. Sometimes they also use water inside the latrine. Dr. Hassan Khan thinks that it doesn't matter that the compost will get a bit wet, he said: "After half a year the liquid has soaked away and the compost will be dry".



CHAPTER 4 OTHER SANITATION SYSTEMS

After our visit we concluded that the Balti-latrine is present in almost every house and therefore the most common sanitary option in Baltistan. Elsewhere it has been reported that 95% of the people use the Balti-latrine (CBS 1990:107⁶). Three other sanitation systems are present in Baltistan: the open system, pit latrines and pour-flush latrines. Efforts of development agencies to improve the sanitation situation in Baltistan have mainly been focused on the introduction of the flush-latrines. The only examples of interventions that used a modified Balti-latrine were mentioned in chapter 3. In this chapter other sanitation systems are discussed.

4.1 Open systems

Unlike other regions like Gilgit and Chitral, relieving in the open fields is uncommon in Baltistan. Only 5% of men in Baltistan are reported to use open fields against 72% of men in Gilgit (CBS 1990:107). If Balti men are working in the field they usually can find a communal latrine nearby, whereas in Gilgit villagers have no other choice than to use the open fields. The use of cattle sheds for sanitation purposes is not practiced by women in Baltistan (reported to be used by 11% of the women in Gilgit, Ibid.:107). The cattle sheds will only be used for the purpose of anal cleansing with water.

4.2 Pit latrines

In Hushe in Ghanche, a pit latrine has been built for trekkers. The latrine is constructed with a roof, walls and a good door. The pit is about 5 x 5 feet square, the depth could not be confirmed. The users relieve themselves without covering the faeces with soil which creates an unbearable smell inside. The number of pit latrines that have been built on other trekker routes could not be verified.

In other parts of Baltistan the team did not identify any pit latrines that have been built and used by the villagers themselves. For the villagers the use of a pit latrine will not have many advantages over the existing Balti-latrine. Possibly the site of a pit latrine will be smaller than the Balti-latrine but emptying will be more difficult as the pit is below ground.

4.3 The pour-flush latrine:

i) Presence of pour-flush latrines

In towns like Skardu, Shigar and Khaplu both pour-flush and tank-flush systems are present in many houses. Although it is common in towns to have a pour-flush latrine, most of the people have this disposal system in addition to their conventional Balti-latrine. The reason for this is that people have agricultural land for which they need the compost. A man from Mehdiabad said that he used his flush system as temporary solution in winter when it is difficult to go outside because of snow.

⁶. Government of Pakistan, Northern Areas Administration, 1990, Third Party Evaluation of Community Basic Services (CBS) Programme. Prepared by PEPAC consultants



The presence of the pour-flush latrine is not normal in the villages. In a village where we heard that some had been installed by villagers, a women told us:

"I have only heard about this 'Pakistani' latrine but I have never seen one in my life".

In 8 of the 21 villages we have visited in the initial study, the pour-flush latrine was not present and in 10 villages only a few (one or two) had been constructed. In the three other villages, latrines were introduced by UNICEF and MARAFIE. These villages are Mehdiabad and Pari in Kharmang and Balgar in the Talley-valley.

The team confirmed that the majority of pour-flush latrines are only installed for (mainly summer) guests. 82% of the latrine owners in a CBS study said they also use a place other than the flush (CBS 1990:101). About 30% of owners of a pour-flush in Baltistan used their flush regularly, against over 70% of the owners in Gilgit. We only heard of two families who demolished their Balti-latrine after installing the pour-flush. The other people keep their Balti-latrine next to the pour-flush latrine. It should be added that a study of the CBS programme found that there is a strong correlation between income level and use of latrines (CBS 1990: 103-4).

ii) **Reasons why villagers do not adopt or use the pour-flush latrine**

We found a number of reasons why people do not adopt or use the pour-flush latrine. Generally people prefer the Balti-latrine because they want to use its compost on their fields. The Balti-latrine is cheap to construct, whereas the construction costs of a pour-flush are high. Another reason why the pour-flush is not popular is the fear some people have that the septic tank or soakage pit will fill up quickly. Finally it was noted that some villagers do not like the sight of their own excreta in the commode. Chapter 7 has a section on some other ideas of villagers with regard to pour-flush latrines.

iii) **Shopkeepers selling commodes**

Skardu is the main and almost only bazaar where pour-flush and tank-flush systems are sold. There are seven shops where people can buy various commodes and accessories for the flush systems. One of the shopkeepers said that apart from selling to contractors and to the army, he sells between 20-25 flush systems per month. According to shopkeepers the prices range from Rs200 for a simple commode up to Rs3,000 for a luxury commode with tank.

The shopkeepers say they can make a distinction between the people from villages in Khaplu, Skardu and Kharmang and those who belong to other villages. The former prefer to buy a commode with an attached water tank as they have a water supply system with household connection in their villages. The other people prefer to buy the pour-flush or 'lota'-system.

A full set for the installment of a pour-flush consist of five items; a commode, P-trap (syphon), vent pipe, flush pipe and a T-piece. For people who have a household connection they will often buy a tank-flush system and therefore need a sixth item, a water tank.



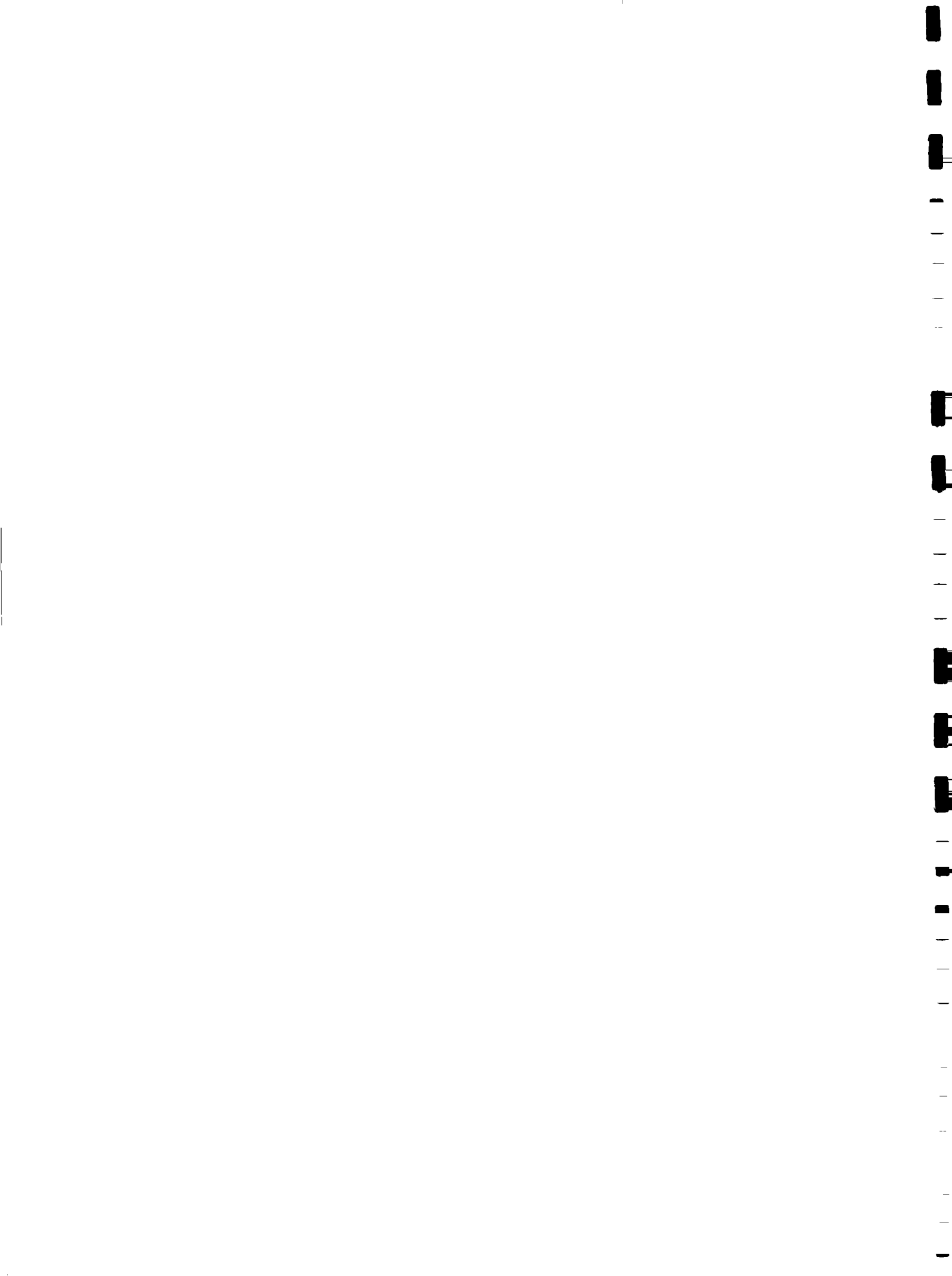
iv) Septic tanks and soak pits

Three different types of soak pit and septic tanks were identified in Baltistan.

1. The twin soak pit. The depth of the two pits is between 6 and 8 feet and the diameter 4 to 6 feet. Whenever the first pit fills up the owner will redirect the connection of the flush pipe to the second pit. Depending on the pit size and number of users, people expect that the pit will fill up in two to three years. They say that after some time the compost becomes dry and then hire labour to empty the pit.
2. The single soak pit is more common in the villages although it is also used in Skardu town. The pit is lined with stones. Some people said that it will fill up in two to three years. Thereafter they will close the pit and construct a new one. Others have the idea that it will work as a septic tank and that the tank will not fill up quickly.
3. An other type in Skardu was mentioned by the president of SWAB. It is a septic tank constructed above the ground covered with cemented slabs. Within the tank there are two or three portions. In the last compartment liquids will accumulate. When it is filled up it is possible to open a valve and let the waste water flow through a pipe into the fields.

v) Freezing problem and its remedy

The biggest problem people have with the flush system is a blocked syphon due to frost. For some people this is a good reason to keep their Balti-latrines next to the pour-flush latrine. To overcome the freezing problem people use four methods. The first is to pour hot water in the commode, an easy yet temporary solution in severe winters. Those in possession of a tank-flush system have another solution. They fix the valve in the water tank in such a way that a small quantity of water keeps flowing from the tank into the squatting pan. The water runs continuously and doesn't get frozen. A third method, particularly common in Skardu town, is the use of kerosene lamps to keep the bathroom slightly warm. Finally some people utilize flame guns to melt the ice. It is said that due to the use of these flame guns many people have black commodes and black walls in their bathrooms!



CHAPTER 5 AGENCIES WORKING ON IMPROVED SANITATION

UNICEF and to a lesser extent MARAFIE (see also chapter 2) are providing funds to improve the sanitary situation in Baltistan. Except the single trial with an improved Balti-latrines in Thorgo Bala by UNICEF, this effort is aiming at the introduction of pour-flush latrines.

5.1 UNICEF

Between 1983 and 1987 UNICEF donated 150 demonstration latrines and 700 commodes under the CBS programme. After experiments with public demonstration latrines near mosques and schools that were not completely satisfactory, their policy changed to one of only distributing pour-flush latrines to individuals. Nowadays UNICEF works with various organisations, one is LBRDD. The last few years LBRDD distributed about 160 sets (commode, 10 feet flush pipe and 1 bag cement) in Skardu and 110 sets in Ghanche district.

After the CBS programme UNICEF initiated the Women Integrated Programme in cooperation with the NAs Planning and Development Cell, in November 1988. In this programme the women are organized in 'cooperative societies' in which they get trained for example in embroidery, sewing, cooking and cultivation of vegetables. In Baltistan 10 of these organisations are registered in Mehdiabad, Khaplu, Shigar and Balgar. Before the womens cooperative societies are formed, the villagers have to set up a village council (Dahi Tanzeem) consisting of a president and other members. One of their tasks is to support and supervise the womens co-op societies. In practice these village councils are not very active.

Up to 1992 the WIDP distributed 49 pour-flush sets to inhabitants of Skardu. Furthermore the WIDP provided 78 sets through ABWA and 39 sets through the Womens Welfare Society, also in Skardu town. Furthermore they distributed about 800 units in Shigar, Mehdiabad, Khaplu and Daghoni (200 in each village). The system for distributing the sets is not fixed. In some villages the sets have been supplied directly to the male members of the community. In other cases, such as Mehdiabad the commodes have been issued to members of the womens co-op society (see box on next page).

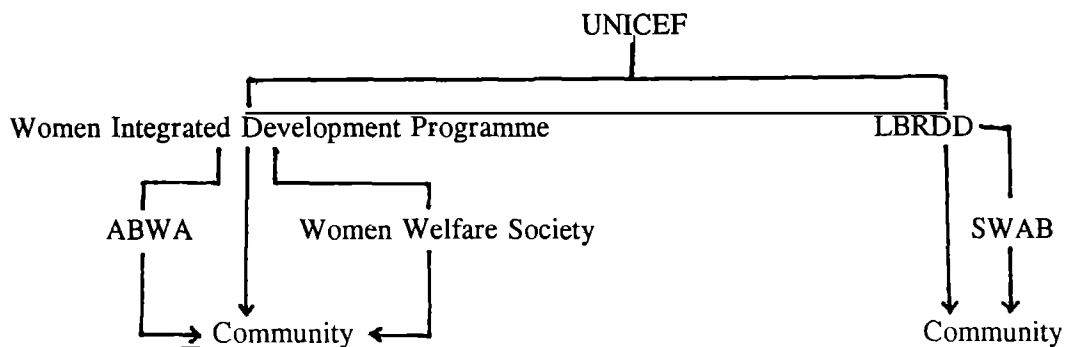


Figure 5. Organisations cooperating with UNICEF in pour-flush latrines introduction.



The introduction of pour-flush latrines in Mehdiabad (Kharmang) BOX 1

In Mehdiabad in total 194 sets of pour-flush latrines have been distributed over the last five to six years through four womens cooperative societies of the UNICEF Women Integrated Development Programme (WIDP). Each set, comprising of a commode, 10 feet of pipe and one bag of cement, was distributed to the female members. For each set 50 rupees was charged. Rs15 was taken by the Women Integrated Project as transportation charges and the other Rs35 was deposited in the account of the womens co-op societies.

A person from LBRDD gave some training to the men on how to construct the pit and install the latrine. Some people dug their pits down to the ground water level (18 feet deep). These villagers said that the groundwater will carry away the waste water and the pit will never fill up.

We visited nine of the latrines in Mehdiabad and found that people had made them into complete bathrooms with wash basin, shower and flush tank. According to the women the complete construction cost was between 10-12.000 rupees. Therefore it seems that the economically better off build these latrines. Villagers estimated that out of the 194, eighty to ninety households have completely installed the latrine.

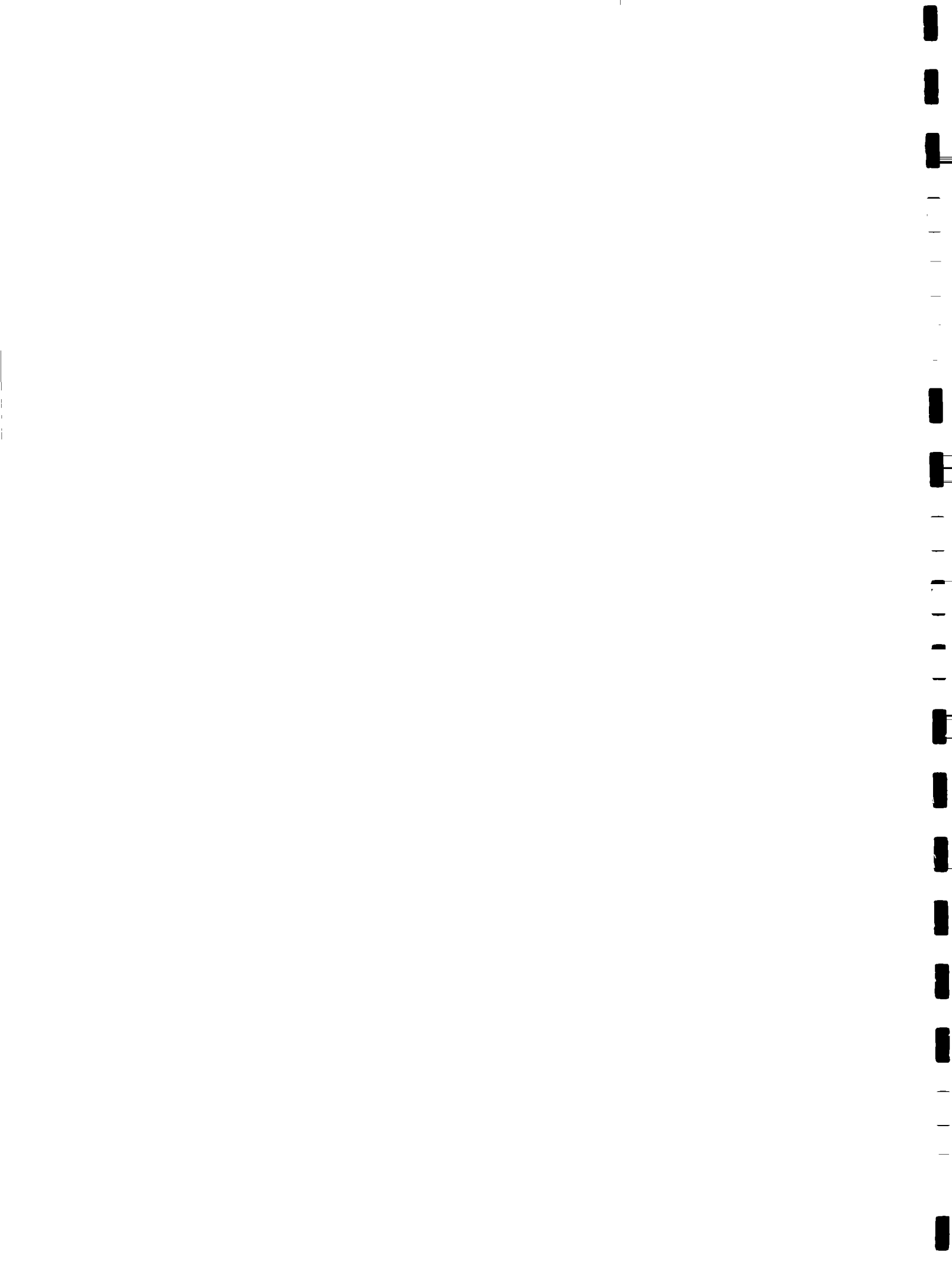
There are two main reasons why several people in Mehdiabad are adopting the latrine. A lot of people in this village are working in government departments or other services both in and away from Baltistan. They started installing pour-flush latrines for their guests from the cities. Nowadays people feel ashamed when they cannot offer a pour-flush latrine to guests. Also other people in the village, who do not have so many guests feel obliged to have a pour-flush system; having a pour-flush becomes a status symbol (see also chapter 7).

A second important reason for pour-flush adoption is the fact that people in Mehdiabad do not like to empty their Balti-latrine. They will always hire labour for this work and as labour is getting short the pour-flush is a good option. One man said:

"We can wait for ten years but we will never empty the Chaksa ourselves. Getting labour is very difficult nowadays but with the presence of the flush system it's easier to wait."

SWAB is another organisation that received commodes from UNICEF and LBRDD for implementation in the villages. In return for this SWAB had to find 60 girls from Baltistan who were interested in the TBA-training from UNICEF. After SWAB had provided the list with interested girls to LBRDD (of which they never heard anything again) they visited two villages, Manthol and Kachura. By contacting active VO-members SWAB identified persons who were interested in implementing the pour-flush latrine and could afford the expenditure of construction. In cooperation with LBRDD it was decided to provide 40 commodes to these persons.

Later SWAB realized that the flush-latrines have disadvantages. Many people face problems of maintenance and have problems of freezing during winter. Also they found the flush system unsuccessful because most of the time they are reserved for guests. Therefore SWAB stopped implementing flush systems and does not collaborate with LBRDD anymore.



5.2 MARAFIE Foundation

MARAFIE has recently introduced a communal pour-flush system in the village of Pari in Kharmang valley. Previously the male villagers of Pari bathed in the river or water channels and the women used the cattle sheds. To improve this situation the active members of the village constructed some communal bathrooms near the water channels. After the village got a water supply scheme, the villagers preferred to have the communal bathrooms nearer to the village.

A few villagers contacted MARAFIE Foundation and got 1 lakh rupees for a bathroom project. They planned to install 10 bathrooms, two in each muhallah, one for males and one for females. An elder man of the village, who said that the communal bathrooms in Mehdiabad town were dirty with human faeces, suggested including latrines as well. The villagers then decided to build a combination of communal latrines and bathrooms, separate for men and women. Some of the men were familiar with the system but most of the villagers, especially women didn't know how to use it. In the beginning they hesitated but now they are using it for bathing, urinating and sometimes washing clothes. For defaecation people prefer to use their own Balti-latrines as they greatly value their compost.

Technical assistance was made available to villagers for the construction of the combined bathroom. Two or three plumbers from Karachi and a local mason assisted the people. Wood and stones were locally available and the cement, pipe and the commodes were purchased out of the fund. To avoid the freezing problem they constructed the front of the latrine facing towards the sun i.e South/South-East.

Nobody in particular is responsible for the repair and maintenance of these bathroom cum latrines. Until now the womens compartment got blocked a few times. The reason for this was that children used them without care and perhaps because some of the neighbours who did not like the bath-latrines tried to sabotage it. Once or twice the plumber repaired it but now the women repair it themselves.



6.1 Water sources and their management

In most of the villages in Baltistan people use a variety of conventional water sources for domestic consumption. In some cases piped water supply systems are available. The choice of villagers to use a particular source of water depends on availability and seasonal variations.

i) Sub-channel

In every village water channels are constructed in order to transport water to the village. Usually the main channels are fed by nullah water. These channels further divide into smaller sub-channels that lead into the inhabited area. In summers the most common source of domestic water are these open sub-channels. In some cases villagers walk over some distance to fetch water from a main channel, before it enters the village. This water is considered cleaner as contamination from human activity is less likely and its water flows faster.

In mid-winter the villagers usually close the channel. The reason is that channels get frozen during the night, and subsequently the ice blocks the channel and water can overflow onto the path. This subsequently can cause damage to houses and or cause accidents when people slip on the ice. We heard the dramatic story of a women who tumbled and got a miscarriage.

ii) Nullah

In most of the villages nullah water is the main source for the channels in summer. Between November and February most channels are closed, at least during the night time. In these months the inhabitants of muhallahs situated near the nullah will draw water from it directly. For example most muhallahs in Balgar and the whole village of Baltoro draw water from the nullah in winter

ii) Traditional water pit or chudong

The use of traditional pits for drinking and cooking water is less common in Baltistan than it is in many areas of Gilgit region. In the few villages where the water pits, called chudong, are present they are shared by inhabitants of muhallahs. Sometimes more than 20 households use one water pit. The private water pit that is common in Gilgit and Chitral is very unusual in Baltistan. Particularly in the summer the chudong is not much used, because water from other sources is available. In some villages, however, where water is very turbid the chudong is used to settle the water. Unlike other regions the water from pit is often taken from the top. See figure 5 for a picture of the water pit.

In winter storing and using the water from the chudong is more common. In Shigri Bala and Machulu for example the villagers fill the water pit every week. On an unspecified day the channels are opened for some hours to bring fresh water to the water pit. During the rest of the week all the inhabitants of that particular muhallah will use water from the same chudong.



Water ponds are also used in some villages. The water is stored in ponds for irrigation purposes and for watering the cattle. In a few incidental cases people use the ponds for drinking purpose. The ponds are also used as a method to accumulate silt. This material is used for anal cleansing in the Balti-latrines.



Figure 6. Woman collecting water from the water pit.

iv) River

In villages that do not have a nearby nullah nor any other source, people will have to resort to river water for drinking. Particularly during the winter when many villages face a shortage of water the river is often the only source available. For example the villagers of Dawo, although situated high above the river, have to go down to collect their water because a lack of alternative sources. The villagers said that a trip takes 60 to 70 minutes. Likewise in the upper muhallahs of the village Gulapur the trip for collection takes 40 to 50 minutes.

vi) Spring

Where possible springs are a favoured source to fetch drinking water. Also in rural water supply schemes springs will be preferred, although technically or financially (if the spring is far away) it is not always possible to use the spring. In some villages, like Yuchong, the spring feeds into the channels as it is the main source of irrigation and drinking water.

In winters most springs are warmer than nullah water and are less likely to freeze. In Hushe for example all the villagers go to the spring between November and February. The source is far from the village and the foot track is difficult for carrying the water containers. It was again reported that some women got miscarriages because they fell down on a slippery track to the spring.



There is a hot spring in the village Chutron (Shigar valley). The villagers use this spring for washing and cooking but not for drinking because it is too warm. It is said that the spring has medicinal qualities and men and women bath in it. Recently three small bathing pools; for men, women and for washing clothes, have been constructed near the source of the spring.

6.2 Domestic water collection

In Baltistan domestic water collection is generally a task which is assigned to women. In summer the women take water from the nearest water source that is considered clean. They use small open containers like cooking pots, buckets, Dalda tin cans, lotas and sometimes gerry cans. The women carry the containers in their hands, on their shoulder or on their backs, sometimes with the use of a basket. Carrying water on the head is not common

Only in cases of illness, when sources are far away or during heavy snow fall in winter will men collect the domestic water. If during winter the water is collected from distant sources the men often use a donkey or the churong to carry the gerry cans or big round tin container, called gaye.

This gaye is very common in villages for transport during winter. At other times in the year this container is used for storing water. Furthermore people use gerry cans, cooking pans, iron water barrels and plastic water drums for water storage inside the house.

6.3 Water supply schemes

In the Baltistan region NAPWD and LBRDD (assisted by UNICEF) are the main departments providing piped water facilities for the communities.

i) Northern Areas Public Works Department

In the last couple of years NAPWD has implemented 19 water supply schemes. According to figures that were collected at the Skardu and Gilgit office, in theory these water supply schemes cover a population of 48,599 people. The executive engineer added that none of these schemes have treatment systems though in some cases sedimentation tanks were constructed to reduce turbidity.

The NAPWD schemes are executed according the following process:

- 1) The identification of a scheme goes through the Northern Area Council members (MNACs). They may propose a water supply scheme in a Council meeting.
- 2) The Council has to approve the scheme.
- 3) After the approval of the proposed scheme, the NAPWD sends a survey team to assess the feasibility of the scheme.
- 4) A technical PC-1 report is prepared under the supervision of the executive engineer (XEN). Subsequently NAPWD prepares a second report, the PC-2, which is sent to the Northern Areas Administrator for approval.
- 5) After the approval of the Administrator the proposal must be discussed in the meeting for the Annual Development Plan (ADP). In this meeting the Development Commissioner, NA Council Members and NAPWD representatives will participate.



- 6) When the proposed scheme is approved in the ADP meeting, a public tender procedure will be started.
- 7) The NAPWD officials evaluate the capacity of contractors, their working skills and rates and then choose a contractor for construction. A contract is then formulated according to the NAPWD regulations.

After this process of identification, design, approval and allocation the actual construction is done by contractors. The contractors will work according to the technical design as prepared in the PC-1. The engineers and overseers of NAPWD monitor the work and based on their reports, payments are made by installment to the contractor. NAPWD normally provides communal stand posts to the village.

For operation and maintenance of the scheme NAPWD will appoint local staff, normally including a chowkidar, a plumber, and in some cases a helper and supervisor. They will look after daily operation and smaller managerial and technical problems. The chowkidar controls the tank, the inlet of water and the authority to open or close the outlet. In some villages it was reported that the chowkidar is misusing his authority to manipulate the villagers and/or NAPWD. Chowkidars are mostly not appointed for their skills but because the tank is built on their land. The chowkidar is also supposed to clean the tank and do small repairs on the tank if needed.

The plumber is responsible for all the work on the pipes and taps. Sometimes they get some training on the job, but normally no official course is organized. The only tools the plumber gets is a basic tool kit. Normally the plumbers have some spare taps and pipe connections but they lack an adequate supply to cope with any serious maintenance problems.

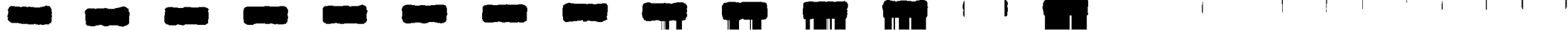
In case of major break-downs in the water supply system, for example due to a landslide, it might take considerable time before the scheme is repaired, sometimes more than a year. In the first place local staff lack resources, skills and perhaps also incentive to do the repair. Second, if major repairs are required, new funds will have to be allocated through the ADP funds, which again requires a lengthy administrative process.

ii) **Local Bodies and Rural Development Department (LBRDD)**

Until 1990, LBRDD implemented 34 water supply schemes in Skardu district and 21 schemes in Ghanche district. According to the figures which were collected at the LBRDD office in Gilgit these water supply schemes theoretically serve 28,037 individuals.

LBRDD has one office in each district, with an assistant director as administrative head and a district engineer (assistant executive engineer) for technical designs.

In each sub-division, also called markaz, a team is responsible for development activities. Khaplu office has two teams (for Khaplu and Mashabroom markaz), Skardu three teams (for Shigar, Kharmang and Skardu markaz). Each team consists of a programme manager, a development officer and a sub-engineer. In each of the about 40 Union Councils the UC secretary is on LBRDD's payroll.



For the implementation of water supply schemes LBRDD has been working with a tripartite system⁷. LBRDD provides technical assistance and bears the expenses for transportation of the construction materials, UNICEF donates water pipes and cement and the community provides un-skilled labour and is supposed to take the responsibility for operation and maintenance of the scheme.

Initially the members of Union and District Council propose a water supply scheme for a community. If the scheme is shortlisted the LBRDD sub-engineer will do a technical survey. Based on this the district engineer will design the scheme, including estimation of pipe lengths and diameters, transport costs and costs of accessories. If the scheme is approved in a District Council meeting the estimate and a budget are sent to the UNICEF office in Islamabad.

UNICEF normally accepts the projects without visiting the sites. If a written approval is received at the district office the project manager or the development officer will go to the village to form a project committee. Usually the committee consist of two to four members, including the UC member and lumbaradar, which LBRDD considers as elected representatives of the village.

This committee is made responsible for organising the community, suggesting sites for communal stand posts and for supervising the water supply construction. Ideally after completion of the scheme the committee will be responsible for operation and maintenance and to inform LBRDD of minor and major problems with the scheme. In practice, however, project committees cease to exist after completion of schemes.

iii) Performance of water supply schemes

In a forthcoming report on community participation and rural water supply schemes, the implementation phase, maintenance and overall performance of schemes will be discussed in more detail. In this regard we will limit ourselves to some common issues arising from rural water supply implementation.

In those villages where piped water is available people often do not abandon to use water channels for domestic purposes. In some cases this was explained because water was insufficient to provide water regularly or with enough pressure. In other cases the water supply scheme is not working due to technical problems. Villagers also told that although piped water was available in abundance they still preferred to drink channel water. The reasons for this were that water was available at a more convenient site and piped water was not considered cleaner than channel water. The slightly higher temperature does not inhibit the use of piped water as much as it does in Chitral (see chapter 7.2).

In three out of 11 villages the schemes provide adequate water to the villagers and no significant problems were reported. In other villagers a number of common technical and managerial problems were noted. In five cases the villagers did not perform any maintenance on the system. Due to relatively small damages (mainly broken or blocked pipes) water was only provided to some of the muhallahs.

⁷. Under the SAP implementation programme (1994-1998) funding of pipes will come from government budget. Furthermore AKRSP will work alongside LBRDD to enhance social organisation and community participation.



In three villages the water supply schemes were totally out of order. The scheme in Hushe was built in 1986 by LBRDD. After two days of being in operation, the water tank burst due to excessive water pressure. One villager said that the ground condition was very difficult and for this reason the tank foundations were not dug deep enough. So far the tank has not been repaired. In Baltoro the water tank was destroyed in a heavy rain flood. For this reason the water supply scheme is out of order for the last 18 months. In Dawo the system was constructed by LBRDD in 1986-7 but it does not work for the last two years. Villagers say that the pipe was of low quality and that there was no proper maintenance arrangement. So when some pipes burst during the winter, and some others were destroyed by land slides, nobody repaired the system.



CHAPTER 7 KNOWLEDGE, BELIEFS, ATTITUDES AND PRACTICES CONCERNING WATER, SANITATION AND HEALTH

In the previous chapters some local practices related to water and sanitation were described. In this chapter further data are presented about what is known in the literature as KAP, knowledge, attitude and practice. We have added to this local beliefs such as norms and values, perceptions and Islamic articles of faith related to sanitation, water, health and hygiene. It should be added that what people believe does not automatically mean that people always observe or act upon such concepts. The actual effect of such beliefs on people's actions depends on the situation and their will be a big difference between educated-uneducated, men-women, young-old etcetera. Yet for the development of appropriate and realistic sanitation options and health education messages it is important to incorporate, link up with or at least be aware of, these socio-cultural aspects of community life.

7.1 Knowledge, attitudes, beliefs and practices related to sanitation.

i) Evil spirits and the Balti-latrine

The male and female fairies, Jin and Parri are believed to live in dirty and frightening places. When people defaecate or urinate under a big tree, in a grave yard or in uninhabited houses it is thought that possession of Jin or Parri can occur.

It is a very common idea that these evil spirits live in dirty places like the Balti-latrines. According to some women this is the reason why they and their children are afraid to go to the latrine alone in the night. They prefer to be accompanied by other women, and/or children. People who do not believe in spirits say that they are simply afraid of the dark and going together feels more secure.

When the Balti-latrine is built separate from the house generally no roof is constructed. In villages like Thorgo Bala, Balgar, Dassu or Sino, people do not build the roof partly because they believe the Jin and Parri might occupy latrines with roofs. They also think that when they construct a roof the smell of the compost will concentrate inside the latrine and might attract the spirits.

With regard to the idea of trying to improve compost latrines it is important to know that a part of the population believe that ash is one of the foods of Jin and Parri. Considering that these spirits might already be attracted by the dirty, smelly places it would go against common sense to throw ash in the latrine. The use of ash in vegetable gardens on the other hand is not considered an invitation to the spirits.

ii) Beliefs of and attitudes towards the pour-flush system

It is a common perception of villagers that the pour-flush latrine is expensive and a luxury device for rich people. However many people said that they would like to have one, but then only for guests.

In the village Pari one informant told the story of a man who started to construct a latrine after a visit of some Karachi guests. One of their children had to relieve himself but didn't want to use the Balti-latrine. The owner felt so ashamed that he constructed a pour-flush latrine. Another informant in Gohari said that as his outside guests only come in the summer the pour-flush can be used by them. He maintains the Balti-latrine as their year round latrine for the household members and local guests who do not appreciate the pour-flush



The reasons for adopting the pour-flush are:

- it is good for guests from outside;
- labour for emptying the Balti-latrine is not available;
- it is a status symbol and a visible sign of progress.

The reasons for preferring the conventional Balti-latrine are:

- its compost is highly valued;
- chemical fertilizer is expensive and in the long term is not considered good for soil quality;
- some people do not like to see their own faeces in the commode;
- pour-flushes require extra effort to collect water;
- pour-flushes can freeze and need extra effort to keep open in winter;
- pour-flushes are relatively expensive and are perceived as something for rich people;
- it is preferred by local guests;
- septic tanks and soak pits are considered to fill up quickly.

iii) Beliefs and attitudes with regard to septic tanks

In Gilgit and Chitral regions the villagers have a concept that worms, bacteria or other creatures live in the septic tank that 'eat' the contents. It is also thought that the septic tank will not fill up quickly. But in Baltistan such ideas were not articulated. As there is no concept of creatures in the tank that eat the solid waste, villagers fear that tanks will fill up quickly. Many people mentioned that they expect their septic tank to be full in about three years time, whereas in Gilgit and Chitral people expect 10-15 or even up to a 100 years! Therefore in Baltistan owners of a pour-flush latrine think they either have to dig a new pit or have to empty the old one frequently.

iv) Some beliefs and practices related to the faeces of young children

In some areas like Thorgo Bala, Shigri Bala and Dassu people make a distinction between the pollution of faeces of baby boys and baby girls (up to the age when the child start solid foods). If clothing is soiled by a baby boy's faeces it is considered as less polluted. The women wash the dirty clothes of a baby boy two times with only water while clothing polluted by a baby girl has to be washed three times with soap. In Pari, Machulu and Baltoro people do not make this distinction.

In almost all the areas that have been visited in Baltistan, mothers keep their children in sheep or goat dung nappies up to six months or sometimes up to two years. These nappies are made of sheep skin or gunny bag. They dry, fry and grind the dung, put it in the skin or cloth and tie it round the child's loins. In Machulu women said that the nappies keep the legs firm and during winter they save the legs and feet from becoming swollen. One mother put into words what we also noted in other areas:

"We practice this to keep the child warm and to save ourselves from having to attend again and again to our urinating and defaecating child".



7.2 Knowledge, attitudes, beliefs and practices related to water

The quality of water is perceived as a mix of taste, colour and temperature. Although cold water is preferred for drinking, it seems that peoples preference is not as strong as it is in Chitral. Chitrali people do not drink from taps in the summer because its water is warmer than water taken directly from the channels. This attitude was not found in Baltistan, perhaps because piped water doesn't warm up as much as it does in Chitral.

Where water pits are available they are used in the first place as a storage, secondly as a place for settling the water and finally for keeping the water cool. In Chitral keeping water cool was the most important reason for using the traditional pit in the summers.

In most of the areas visited, people apparently don't have any problems with their drinking water except the turbidity during the summer season. Spring water is in particular perceived as very clean and digestible. But in a few villages like Doko, Shigri Bala and Machulu, women mentioned that the water was not clean. They said that their drinking water is dirty because the people of the upper muhallahs wash their clothes and utensils in the same water. They also said that sometimes cattle drink water in the main channels and pollute the water with their faeces. In Doko the women also mentioned worms in the water during the summer season.

Generally people do not realise that water that looks clean does not necessarily mean that it is safe for drinking. Most of the villagers are not familiar with germs and therefore do not make the link between drinking water and disease.

All over Baltistan collecting water is the responsibility of women. In some villages like Pari in Kharmang dealing with water is actually considered as shameful for men. For this reason women also have the responsibility for irrigation of the fields.

In many areas in Baltistan people believe that a spirit who is called chu-mi or in some areas chu-migran, lives in the lakes or in the water. The chu-mi is a male spirit who on rare occasions comes out of the water and sits in the sun. When people come near the water he disappears under the surface. No one claimed to have seen a chu-mi. Although most people do not think he is dangerous, in some areas we heard that such a kind of water spirit had attacked persons near water sources and that they had fallen into the water and become handicapped.

It is an Islamic concept that defaecating in water (both running water or standing still) is strictly prohibited. In one village it was a sin to defaecate in water making the offender liable to becoming possessed by an evil spirit. This is not a general cultural concept because it is not held in all villages.

7.3 Knowledge,attitude,beliefs and practices related to health and hygiene

i) Common illnesses

Like the other regions of Chitral and Gilgit diarrhoea and worms are very common during summer. Also skin diseases were mentioned as being very common all year round. In winter Acute Respiratory Infection (ARI) and body joint pains occur regularly. Goiter seems to be a more severe problem than in the other regions, particularly in Shigar valley. High blood pressure is very common among adults.



ii) The causes of diarrhoea and worms

Villagers do not believe that drinking water can be a cause of diarrhoea. In all the villages visited it was mentioned that diarrhoea among babies and infants is caused by mothers carrying baskets with heavy loads on the shoulders in the sunshine. It is believed that mothers who carry heavy loads in the heat become weak. Their weakness will effect their milk and therefore causes diarrhoea among babies and breast feeding infants. The incidence of diarrhoea is also connected with evil eye and possession of Jin or Parri⁸. Most people however think that diarrhoea comes from eating fruits or from over eating.

Compared to understanding the causes of diarrhoea it seems that more villagers realise that worms (strin) and skin diseases are related to dirty water. Women in Machulu and Shigri Bala for example said that these diseases come from the water. However even if people realise that diseases can be spread by water, they are not always in a position, or willing to improve their situation. A woman from Doko said:

"Once two female tourists came to our village. They told us that there are worms in our water and we should filter the water before drinking. We know this as well but we do not have much time for these things. Besides we can only filter the water which we can store but our children are used to drinking water directly from the channels. So filtering is not much use. But we are suffering with many stomach diseases like diarrhoea and worms due to this water".

Children eating mud was mentioned as another reason for worms in the stomach. It is said by people that during the winter stomach pains are more common. Because of the cold, they think that the worms move around more inside the abdomen and this is causing the pain.

iii) Treatment of diseases through traditional healers and taviz.

For diseases associated with spirits and the evil eye, people seek treatment from religious persons; Sheikhs, Maulanas or Akhund, who can work as traditional healers. They make taviz (amulet with Koranic text) or perform Damdarud (whispering prayers) for sick people and they often order the sacrifice of a goat, sheep or chicken. Sometimes they ask the patient to follow a lot of precautions which are generally more strictly followed by women.

Common examples of precautions that were mentioned are:

- do not eat beef, goat meat or tomatoes;
- do not enter a house where a child has been born, or a person has died, until seven days have passed;
- do not eat anything from the hands of women who are menstruating.

⁸. Another belief is the spirit 'sofian'. When a woman gives birth to a child, a knife, ax or pistol is kept near her pillow to protect her and the new born child from this spirit. After evening prayer (magrib) no outsiders will visit her room. She will eat with separate utensils. These precautions are observed for forty days after the birth of the child.

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In Baltistan we observed that almost every small child has a taviz to protect it from the evil eye. Mothers believe that their child can be effected by the look from someone's evil eye, which can cause a disease like diarrhoea.

iv) Other treatments

Besides consulting the traditional healers mothers may also try themselves to cure the children from the evil eye. They will bring some soil on which the suspected person was standing. Then she will pass the soil around the child's head for three to seven times and there after she will throw the soil in the direction of the suspected person.

Mothers also use some home remedies for diarrhoea. These are herbs which are boiled in water and then given to the patient. Three different types of herbs called shoto, som, and shalmik are used. Another herb which is said to stop diarrhoea quickly is tumphro, which is ground up and given with salt and cold water. Zera is used if a person has fever. To treat worms, people grind a herb called khobushley which the patient drinks with milk. The medicine is very bitter and it will kill or oust the worms.

In case a child has diarrhoea mothers do not encourage their children to drink or eat. In some cases we heard that mothers actually stop giving any kind of liquid food, a practice which is also common in the other regions.

Different types of allopathic medicine are also used by the villagers. People get these medicines in dispensaries or hospitals or buy them in medical stores in the nearby town. The medicines are very often used on a self-prescription basis.



CHAPTER 8 HEALTH EDUCATION AND COMMUNICATION STRATEGIES

In this chapter organisations are introduced who are or may become involved in Health Education. Subsequently a start is made with a discussion on possible communication strategies.

8.1 Agencies working in the field of health education

i) Government doctors, LHVs and dispensers:

Government doctors, dispensers and LHVs do not work in a field team structure like AKHS has developed in Gilgit and Chitral. They work full-time in hospitals or dispensaries and normally do not go out into the field. Their emphasis is on curing rather than on health education and prevention.

A hospital doctor said that patients' health problems are explained to them but she added that there was very limited time to do this properly. She has an average time of less than 5 minutes per patient. Besides the lack of time, the government doctors don't have any incentive and are also not trained in giving health education. Moreover the government health facilities lack health education materials. A hospital doctor said that they weren't very familiar with communication materials and some doctors had never seen any materials before.

ii) LHVs of the Aga Khan Health Service

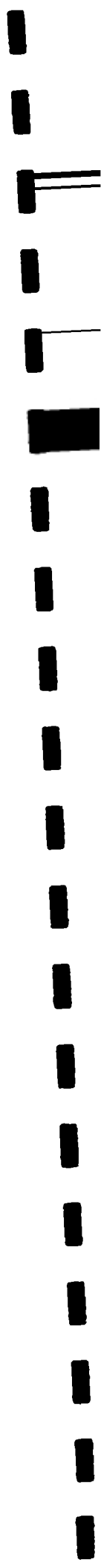
AKHS put more emphasis on health education. Currently the AKHS has only one health centre with two LHVs in Skardu town. In the health centre, during house visits and their monthly vaccination days LHVs give health education, mainly to people in Skardu. They use the following methods: i) demonstration, for example how to prepare Nimkol and the WSS preparation; ii) use of handmade flipcharts to tell about prenatal and postnatal care, diarrhoea etcetera, iii) verbal explanation, for example by giving short lectures in which they explain about personal and environmental hygiene.

To draw attention to the facilities of the health centre, the LHVs organized a small 'show' to which they invited different families in Skardu. The show contained a drama in which they conveyed a message about the preparation of Nimkol, a dialogue between two young girls about vaccination and a lecture about personal and environmental hygiene. Finally they explained why the people have to come to the health centre.

The LHVs in Skardu said that although the people are interested and listen to them, they are not sure if the people take their advice seriously too. Until now the LHVs have not spent much time in the field and they admit that they cannot check whether any behavioural changes take place.

iii) TBA trained by UNICEF and OXFAM

UNICEF has trained some girls to become trained birth attendant (TBA), as part of their Women Integrated Development Programme. Young women from communities were identified through LBRDD and SWAB for getting the TBA training. The girls mostly did not have any prior experience with deliveries and during the training they mainly received verbal instruction. In 1992 OXFAM funded a TBA-training organized by the Rehman clinic. Local girls were given theoretical as well practical training.



After their training the TBAs are supposed to work in their respective communities. Besides their work in attending births it seems they face severe problems in giving health education. A TBA from Kharmang told:

"We tell the women to wash themselves, to keep the children clean and to keep the house clean. But they don't cooperate. They don't have confidence in us because we are too young. The women also tell us that it is impossible to wash themselves during winter because it is too cold, and during summer they say that there is no time due to the huge workload".

The age factor is one reason why their health education efforts might not be effective. After the TBA-training there is only once or twice a follow-up and there is no local organisation or place where they can go back to for practical help or advice. Without this support their motivation diminishes quickly.

iv) **Social Welfare Association Baltistan**

The director of SWAB, Mohammad Parvi, told us about the experience they had with a programme on drug abuse. A variety of communication media was chosen to increase the effect of a campaign against the misuse of drugs. They used a chart showing a man being attacked by a snake, a symbol for the bad effect of narcotics. During field testing the people could describe the picture but they didn't get the message which was symbolic and too difficult to understand. Other elements of the programme on drugs was a debate between different people, a walk through Skardu town, a drama and poems on the radio. They also encouraged religious leaders to use the theme in their Friday prayers.

During an outbreak of gastro-enteritis during the summer of 1994, SWAB prepared an information leaflet which was distributed amongst doctors, dispensers, some teachers and volunteers of SWAB.

v) **Other NGOs**

At the moment it is impossible to assess the potential of three other health related NGOs, ABWA, BHEF (Rehman clinic) and MCHP in health education.

vi) **Religious leaders**

Dr. Hassan Khan, the present District Health Officer (DHO) of Skardu district, is of the opinion that most donors are not well orientated on the situation in Baltistan and use the wrong people for health education. He favours to involve religious leaders in health education related activities:

"UNICEF always has workshops with political appointed people like Union Council members or members of District Council. But these people are not the opinion leaders. They are often not popular in the community and therefore are not truly representatives. The opinion leaders of the community are the religious leaders. They are the most influential people in the community and without their support we cannot achieve anything".



8.2 Communication strategies

Many villagers have not been exposed to communication materials related to health education. To increase the chance that health messages will achieve the desired effect the use of multiple media is very important in the future. If people don't get the messages through one media they might do so through another. Moreover to hear or see the same messages reinforced through different media is thought to increase the impact of that message dramatically. The SWAB campaign is an example of a multi-media campaign.

Before developing health education materials the target group of the intervention should be decided. Looking at the situation in Baltistan it seems that, like other areas of the country, older men and women can be a very important target group. These people make a lot of the household decisions and when they change their habits, other household members might follow. Yet to establish behavioural changes in this target group is also thought to be the most difficult. Women, children, men, VO and WO members, masons and shopkeepers can be potential target groups for specific messages. Doctors, LHVs, AKRSP field staff, teachers, religious leaders and VO/WO activists are an intermediary target group. Some of the more promising media that can be used in communicating messages are:

i) Interpersonal communication

The importance of religious leaders and their informal talks and Friday prayers has been mentioned already. Doctors and LHVs have used lectures as a way to communicate health messages. Also AKRSP field staff mainly use this method to inform VO and WO members. Evidence from elsewhere indicates that a more active approach, where the learner becomes more involved, is more effective.

In Baltistan the epic, was and to a certain extent still is an oral narrative tradition. Particularly during the long winter nights older men tell long stories. One of the most famous is the epic of Kesar. On Radio Pakistan an epic has been broadcasted in series every week. To introduce an epic that incorporates elements of health education will need a thorough study and a skillful writer. It might be an idea to make a long story with a hero and heroine who are concerned with their environmental and personal health and hygiene. Supernatural elements must be part of it to make the story more interesting.

ii) Graphic material

So far there is little experience with the preparation with posters, flipcharts etcetera in Baltistan. AKRSP have used graphic material for some of their training but these are related to mainly agricultural issues. SWAB produced a leaflet and Rehman clinic produced an information leaflet with the help of a design office in Islamabad.

Villagers have had some exposure to posters during election campaigns. Some of the women we interviewed said it is very difficult to understand posters. They said that someone has to explain what is in the picture before they can understand it.



iii) Radio

According to the station director of Radio Pakistan, the number of households with radios is very high, even up to 100%. This might be true for semi urban villages but we doubt whether radio coverage is that high in rural villages. Beside, most of the programmes are in Urdu. The only programme in Balti is broadcast at a time which is not very suitable for village people, after the last evening prayer. There is a local belief, related to purdah, that women should not listen to the radio. Female students and women working in Skardu do listen but in rural areas women usually do not. If a man is listening to the radio and a Balti song starts the volume will be turned down or women will be expected to leave the room.

Radio has been used during the SWAB campaign. As the station director seems to be receptive to new and interesting ideas for the radio there may be possibilities for trying out some experiments. For example the radio drama which the WSHHS Project is developing for Gilgit can be translated and broadcasted⁹.

iv) VCR, advertisements and social marketing approach.

In Gilgit and Chitral there is some experience with showing videos to villagers. These videos are produced by AKF in Karachi. As AKHS is not working in Baltistan there is no experience yet with the impact of messages given through this channel. The SWAB director thinks it is one of the better media because it can be self-explanatory. Dr. Hassan Khan on the other hand thinks it is not an appropriate media for Baltistan. Before we can say anything concrete we probably have to experiment ourselves. We should however keep in mind that the message should be simple and repeated because as a woman told us:

"This t.v. is a new thing, pictures are coming and going... I think it will be difficult for us to understand and remember."

As far as we could assess there is no experience with disseminating messages through written commercial advertisements, or by using certain social marketing approaches like promoting messages through the wrappings of everyday products, plastic bags or other use items. Although these are interesting channels we have to keep in mind that the education level in Baltistan is lower compared to Gilgit and Chitral. Understanding of written and even picture language might therefore pose a problem for certain target groups.

⁹. In September 1994 two radio drama programmes were broadcasted by Radio Pakistan Gilgit. A start was made to produce the same in Balti, but as no cases of cholera were confirmed in Baltistan after mid September authorities did not support the idea and the effort was discontinued.



CHAPTER 9

RECOMMENDATIONS

9.1 Recommendations with regard to the Social Science staff:

1. Indepth domestic studies

It is proposed to work for 4-5 days in a village focusing on domestic hygiene behaviour, water use patterns (transport, storage, water consumption) and Balti-latrines management. A mix of research techniques should be used including group discussions, observation, participatory appraisal techniques and accompanied village walks.

Suggested area: Shigri Bala and Alchori in Skardu district and Machulo and Surmo in Ghanche district.

Time frame: Spring and summer 1994, four to five days for fieldwork per village.

Preparation: Guidelines, questionnaires and observation sheets.

2. Indepth research of the Balti-latrines

Additional to the work on the Balti-latrines during the indepth domestic studies it is suggested to do a study in a multi-disciplinary team of engineers, microbiologists and social science staff.

Issues to be included in the study are:

- Technical observations of the latrine;
- Latrine and compost management;
- Identification of locally felt problems with the Balti-latrines and interest in any improvements;
- Involvement of villagers in developing small improvements to the Balti-latrines, for example: improved management, summer time fly and smell control, emptying and proper decomposition;
- Socio-technical feasibility of an improved Balti or twin-pit compost latrine and its management;
- Assessment of villagers' interest and willingness to participate in construction and experimentation.

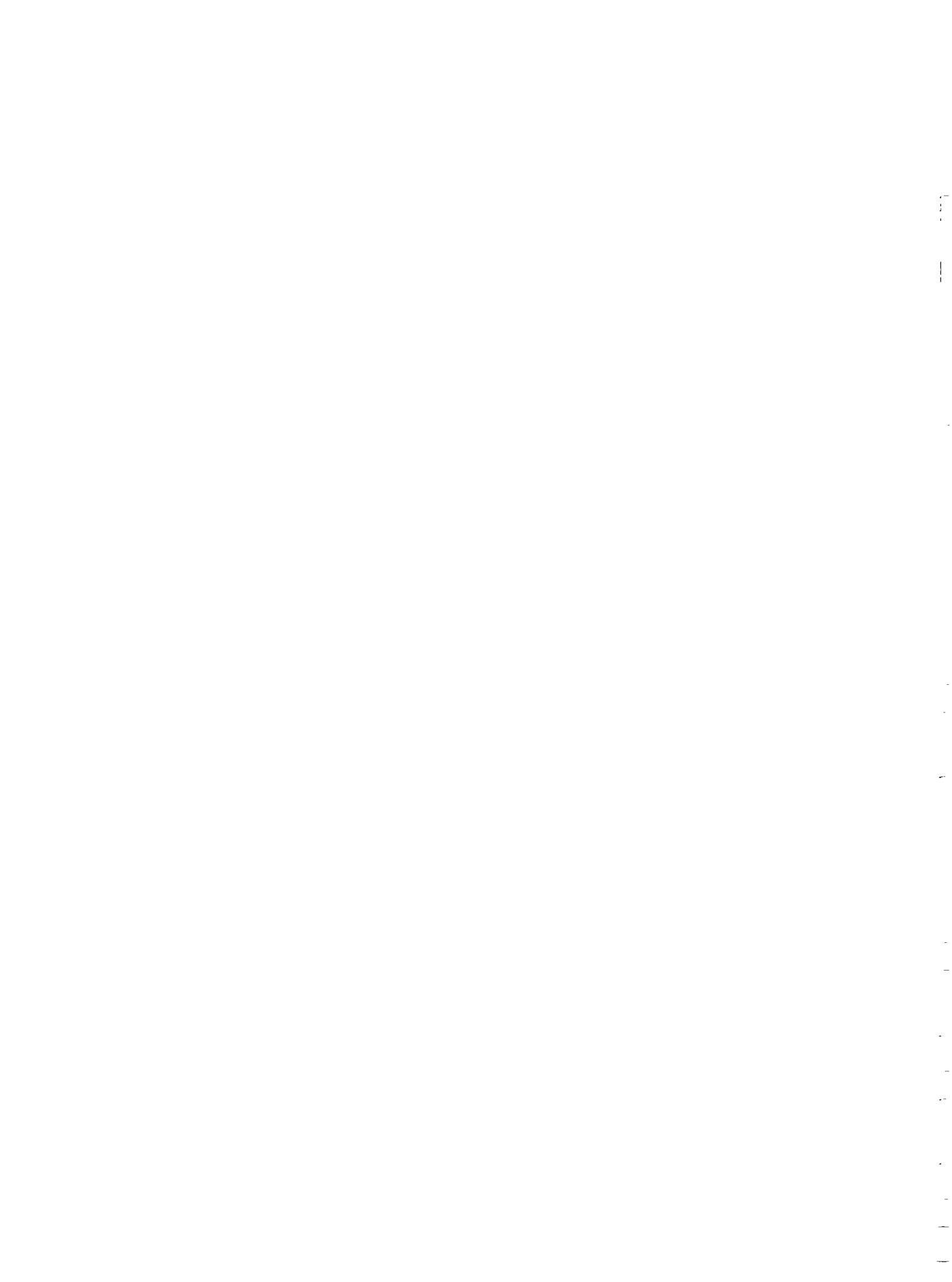
Suggested area: A selection should be made of villages in single and double cropping areas, in the various valleys.

Time frame: Winter and spring 1994.

Preparation: Interview guidelines, observation sheets, questionnaires.

3. Community participation in rural water supply implementation

It is recommended to make a study of water supply schemes to identify bottlenecks and strong points of the implementation process. The aim is to learn how the involvement of villagers can be enhanced for future water supply and sanitation implementation projects. It is proposed to incorporate three different categories of communities in the study:



- i) Villages where a water supply scheme is under construction;
- ii) Villages where the water supply scheme is completed and in working order;
- iii) Villages where the scheme is completed but out of order.

Suggested area: Six villages to be identified with the help of LBRDD.

Time frame: Spring 1994, three days field visit per village.

Preparation: Questionnaire and guidelines.

4. Development of communication strategies

It is recommended that, after incorporating the results of the indepth domestic studies, hygiene problems should be prioritized, hypotheses formulated and health messages developed.

Different health education methods might be tested to communicate these messages. In the first place emphasis should be placed on the use of participatory health education methods. With the help of the Project artist, locally appropriate materials for this method should be developed, tested and introduced. It is suggested that the appropriateness and feasibility of other methods should be tried, for example the use of posters, radio, video and the so-called epic narratives.

Finally make a start with formulating ideas for a health education strategy, keeping in mind that in Baltistan no trained field healthworkers are present like those in the areas covered by the AKHS PHC programme.

5. Testing of participatory appraisal techniques

It is recommended to work on the development of two participatory techniques and test them in the field:

- Participatory research and planning exercise called 'village mapping'. This exercise can be used to assess the involvement of villagers in RWSS implementation in an existing scheme. Village mapping can also be used to involve and motivate villagers in the designing of future RWSS. Experimentation should take place with both male and female groups
- Participatory health education exercises that can be included are the three pile sorting card, story with a gap and the story cards. After developing locally appropriate materials, testing should incorporate AKRSP WID staff and WO activists.

Suggested area: For village mapping choose two villages in both districts; for health education methods choice of villages will depend on AKRSP.

Time frame: Spring 1994.

Preparations: Modify village mapping models for Baltistan circumstances. Complete area specific set of health education material.



9.2 Recommendations with regard to the Engineering staff:

1. Study of the domestic Balti-latrine

Given the widely acclaimed preference for the Bali-latrine, a starting point for this study is a technical assessment of the existing Balti-latrine, present in almost every household.

Technical issues that need to be addressed include location, orientation, construction material, wind direction, pit sizes and costs.

Where possible the research on existing Balti-latrines should be done in cooperation with the social scientists and the microbiologists.

2. Experimentation with modifications to the Balti-latrine

Together with the social science staff, and villagers problems and constraints of the Balti-latrine should be identified. This assessment will facilitate the development of possible improvements and modifications aimed at reducing the health risks and increasing the convenience for the users. The social, technical and economic feasibility of modifications will have to be tested.

A suggested detail where improvement could possibly be made concerns a separate ablution place, and measures for diminishing the fly and smell problem.

a. Ablution place for anal cleansing

It is suggested to experiment with the development of a convenient and economical washing place for anal cleansing inside the Balti-latrine. As mentioned in chapter 3 the waste water was often not properly disposed of. It is also suggested to design and test soak pits for proper disposal of the waste water.

Suggested area: Latrines with a separate washing place were identified in Thowar, Alchori, Shigri Bala, Thorgo Bala Doko, Sino, Mehdiabad and Mantoka

Time frame: 1994 and 1995.

b. Fly and smell problems

Experiments are proposed on airflow inside the latrine and the effect of brightness on fly control. The airflow and brightness can be tested under different circumstances and should look at the effect of:

- different sizes of pipes: diameter and height above roof;
- different sizes and number of the holes;
- use of conical shapes under the holes;
- covers for the holes;
- the presence or absence of a window, and its position and size.



Suggested area: These trials would seem to be most practical in villages where the Balti-latrines are well constructed, i.e. with a roof and a door, like in Doko. Different sizes of pipe could be tried on the same latrine(s) to minimize the effect of variables.

Time frame: 1994 and 1995.

3. Experiments with the twin pit compost latrine

As a preparation for the field testing of a twin pit compost latrine it is suggested to study, besides the conventional Balti-latrine, the UNICEF improved model and the Ventilated Improved Balti-latrine (VIB) of DHO Dr. Hassan Khan. The latter declared that he is ready to share information and to accept advice and assistance of the WSHHS Project engineer. After learning about the strong points and the limitations of the above mentioned Balti-latrines we will be able to build a system that has something to offer over the conventional type.

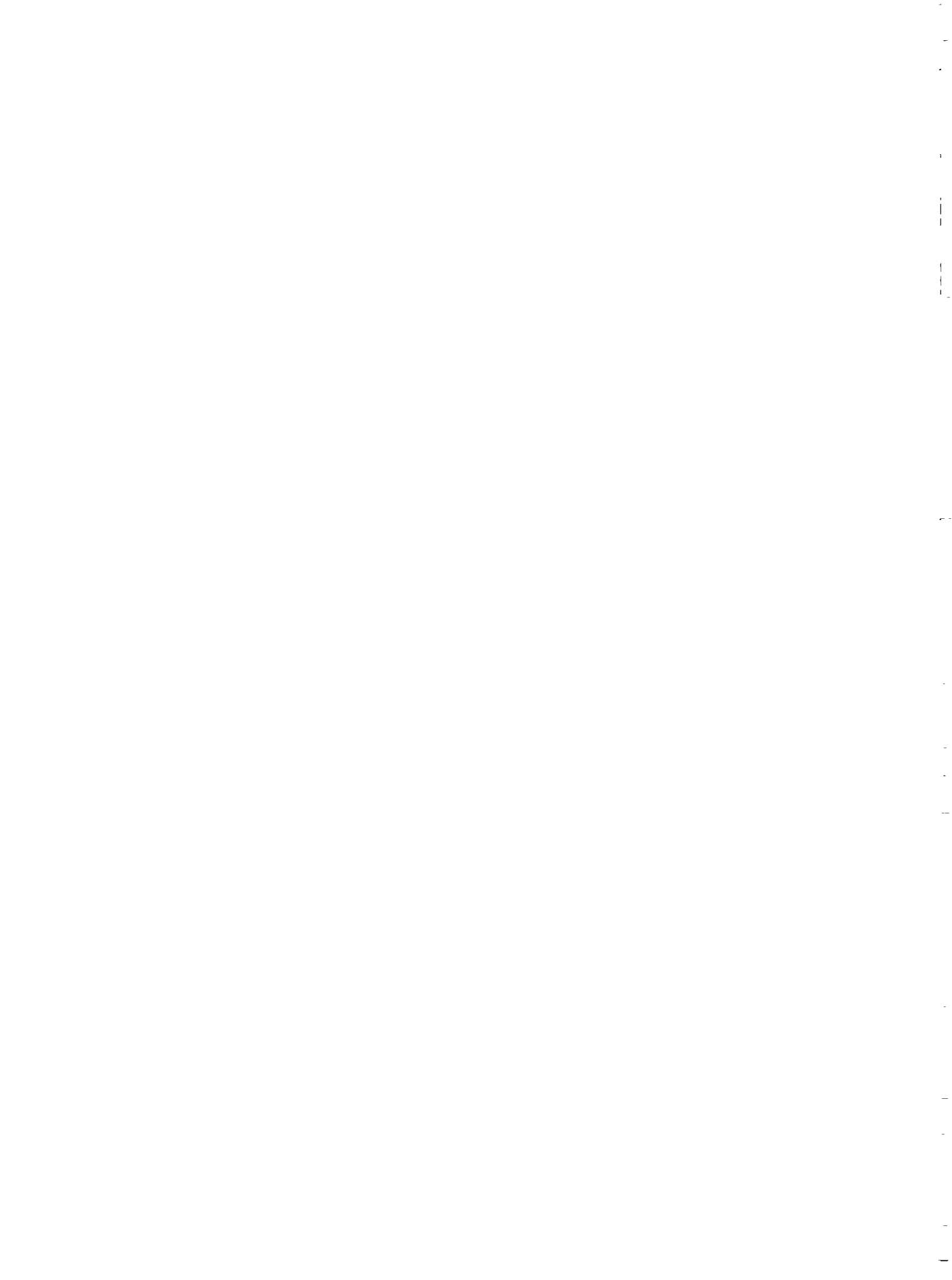
Before finalizing a design it should be decided for what target group the improved Balti-latrine is intended. The majority of the population in Baltistan has limited financial resources and therefore any new system should be relatively cheap. If we opt to build for the smaller segment of society that are economically better-off, then other refinements like comfort may be considered.

4. Pour-flush latrines

For several reasons put forward in the main text the pour-flush system is at present not an appropriate sanitation option in the rural areas of Baltistan. Most of the people living in villages want the pour-flush latrine but only for their guests. Therefore it seems that the introduction of pour-flushes should not be given priority in Baltistan.

However some activities with regard to pour-flush latrines are suggested. These include:

- The design used for the commode, soakpit or septic tank should be verified and possible improvements can be suggested;
- Shopkeepers, masons and contractors can be used as informants. At a later stage these people might be possible intermediaries who can give new construction information to their clients and other interested villagers;
- Consider the development of a set of construction guidelines or booklets for the twin-pit pour-flush latrine;
- Test ways to overcome freezing of the pour-flush latrine, for example the effect of using a lid on the commode, or testing the commode that was specially designed by Mr.Chit Chial Wan of UNICEF in order to avoid freezing of the water seal.



9.3 Recommendations with regard to the Microbiology staff:

1. Compost testing

It is assumed that health risks are involved in the use of the Balti-latrines and in emptying, transporting and spreading the contents of the pit. It is advised to study how big these risks are and identify particular trouble spots where practical steps may be taken. This study will take the number and viability of *Ascaris* eggs as the indicator for health hazard. As in the water quality tests an "acceptable" norm should be established.

The 'ascaris egg-count test' will look at the effect of time and temperature on destroying the ascaris eggs. Moisture content and pH will be other useful parameters to be tested, being key indicators of the decomposition process. For reliable results the tests should be repeated under different circumstances. It is suggested to take the following variables into account:

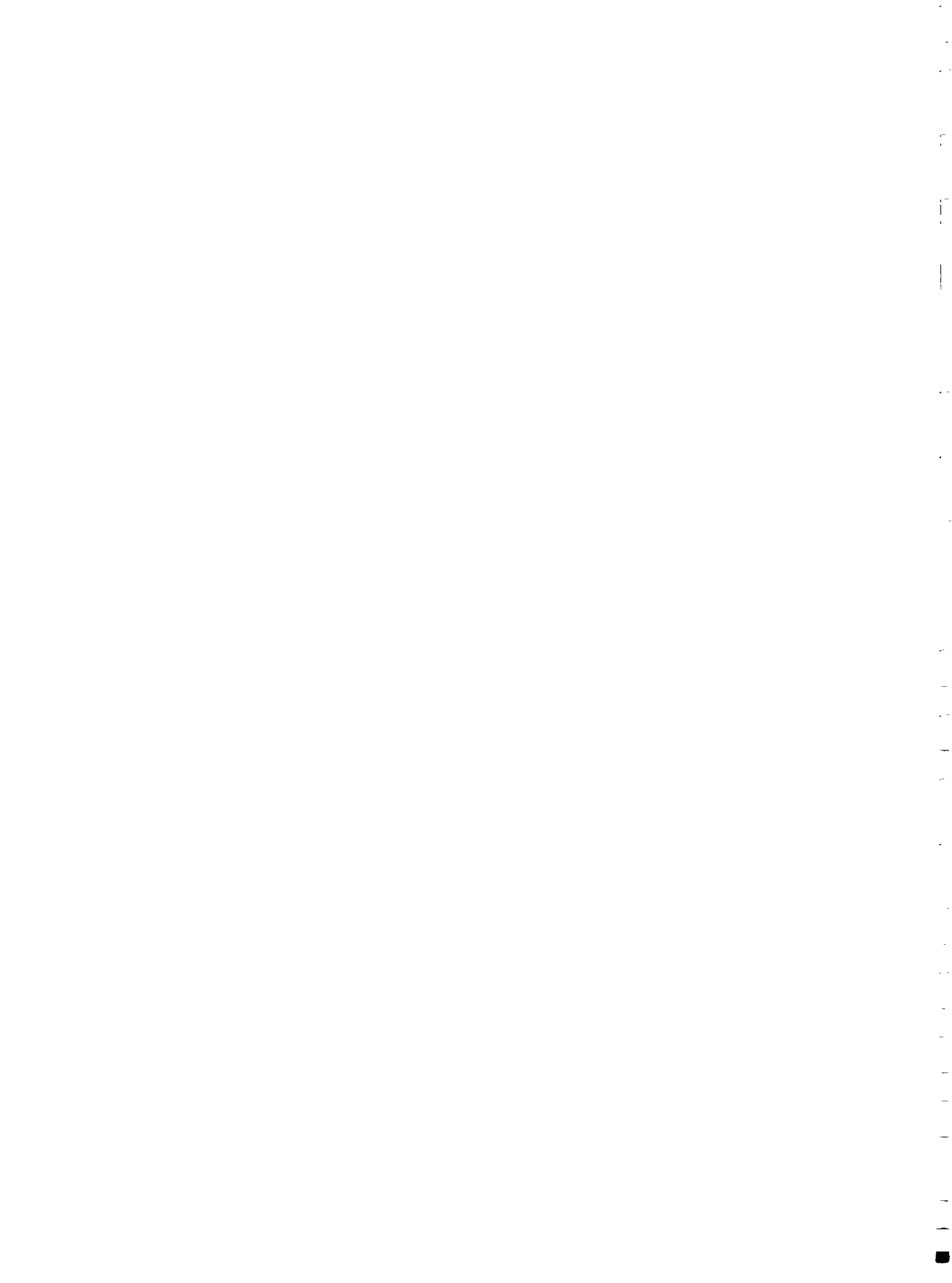
- A vital distinction should be made between latrines in which people have or have not used water i.e. wet and dry compost;
- Ideally tests should be taken at six different stages of the process;
 - stool samples of the users;
 - from the contents of the pit (superficial, middle and lower layers);
 - at the time of emptying the pit contents;
 - from the heap in the field after a few days;
 - from the field at the time of spreading,
 - from the field after spreading;
 - from the field and channel at the time of the first irrigation.
- Make a distinction on heaps in the field that are uncovered and those heaps that are covered;
- Some tests should be done on different mixtures of compost. It has been said for example that a mix including goat and sheep dung will increase the temperature of the compost;
- Tests should be done in different seasons; it is proposed to take samples in December/January, March/April and October/November.

Suggested area: Villages within workable distance from office, between Skardu and Khaplu, for example Gowari and Yugo.

Preparation: A manual for 'Ascaris egg count test', and determination of their viability. Practical method for assessment of moisture content and pH.

2. Water testing of water pits

Besides the usual seasonal sampling it is suggested to include water quality testing of water pits (chudong) in winter. Where available these pits are particularly used during the cold season. Usually the inhabitants of one muhallah make use of one communal water pit. In some cases water can only be replenished every ten to fifteen days because of water shortage. Contamination of drinking water from these pits is likely.



Suggested area: Machulu, Shigri Bala and Balgar.

Time frame: Winter 1994-95.

3. Inventory of springs

It is recommended to do a study to the quality and quantity of springs and take water samples of the sources identified for potential use in LBRDD/SAP rural water supply schemes.

Suggested area: Villages selected under the Social Action Programme.

Time frame: October 1994 -



ANNEX 1 PERSONS CONSULTED DURING THE FIELDWORK

Rondu-subdistrict:

Syed Abbas	Headmaster, high school Thowar
Syed Tahir Hussain	Medical Officer, Dambudas
Syed Mohsin Shah	Lower Divisional Clark, Mendi
Abida	Village woman, Mendi

Skardu:

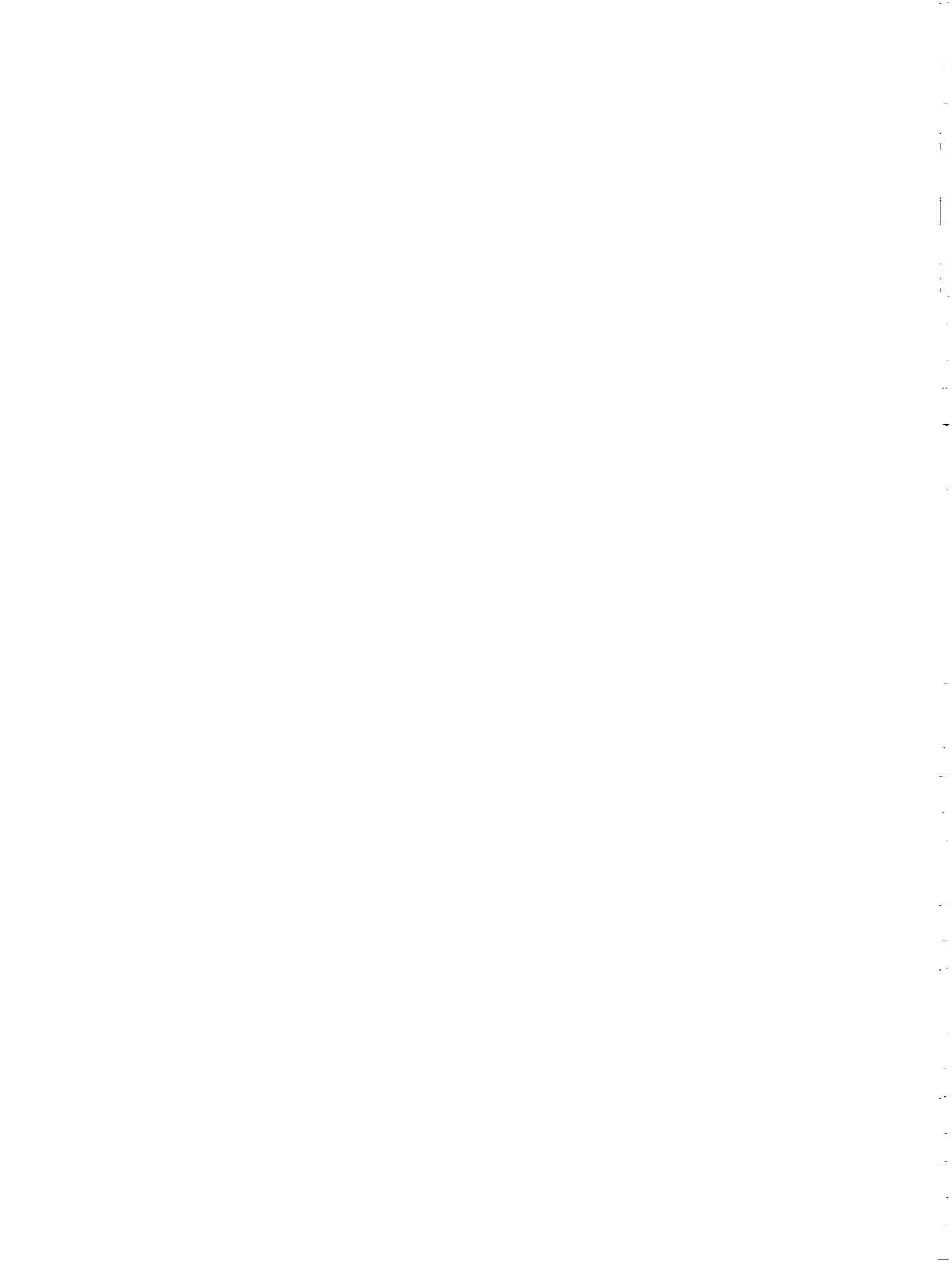
Mr. Darjat	R.P.O. AKRSP, Skardu
Ali Madad Shah	Ex-Chairman AKHS-unit, Skardu
Kulsoom Wazir Farman	WID-section, AKRSP
Ms. Amina	LHV, health center Skardu
Mohammad Ali	Shopkeeper, Skardu
Sadjad	Shopkeeper, Skardu
Mrs. Mussarat Jabeen	Doctor in DHQ-Hospital, Skardu
Gulam Abbas Shigri	General secretary PPP, Skardu
Talib Hussain	inhabitant of Skardu
G.M. Parvi	President of SWAB, Skardu
Syed Baqir Shah	Social Welfare Officer, Skardu
Akhund Mohammad Yusuf	Mullah, Thorgo Bala
Zareena Tabbasum	Social Welfare Officer, Skardu
Haji Mohammad	Notable, Shigri Bala
Kifayat Ali	Liaison Officer MARAFIE Foundation,
Mohammad Ali	Regional Accountant, Skardu
Syed Tahira Tahir	President Woman Welfare Society, Skardu

Shigar valley:

Mohammad Naseem	Headmaster, Alchori
Abdul Rahman	Lumbardar, Alchori
Yelbo	Village woman, Alchori
Haji Hussain	Village man, Apalagon
Sheikh Mohammad Hashim	VO-manager, Dassu
Zakir Hussain	VO-member, Dassu
Mirza Hussain	Lumbardar, Doko
Mustafa Ali	Teacher, Doko
Sheer Mohammad	Village woman, Doko
Syed Nawaz Hussain	Teacher, high school Gulabpur
mr. Ali	Member of Union Council, Gulabpur
Dr. Hassan Khan	District Health Officer, Khaplu (presently DHO Skardu)

Kharmang valley:

Ahmad Hussain	Teacher and VO Manager, Menthoka
Fazal Abbas	Secretary rural council, Mehdiabad
Trained Birth Attendants	Mehdiabad
Nargis	Village woman, Pari
Sheikh Mohammad Ali	Mullah and regional advisor AKRSP, Pari



Khaplu:

Syed Ali
Abdul Rahim
Seyd Abar Kashmiri
Mr. Mubarak

Social Organiser AKRSP, Khaplu
Headmaster Boys High school, Khaplu
Project Manager LBRDD, Khaplu (presently Assistant Director)
Assistant Director LBRDD, Khaplu

Hushe valley:

Mohammad Aslam
Kalsoom
Fachu Gulam
Maryam

A village man, Hushe
A village woman
Union Council member, Machulo
Village woman, Machulo

Saltoro valley:

Gulam Mohammad
Zahida

Headmaster primary school, Sino
Village woman, Sino

Chorbot valley:

Ali Mosa
Raja Ali
Rozi
Syed Mumtaz

Tourist guide, Pion
Lumbardar, Dawo
Village woman, Dawo
Student, Siksa

Talley valley:

Mohammad and Ibrahim
mrs.
mr.
Shakoora Ali
Kaneez Fatima

Contractor and UC member, Baltoro
Village women, Baltoro
Headmaster high school, Balgar
Chairman Union Council, Balgar
Secretary of UNICEF-WO



ANNEX 2 GOVERNMENT HEALTH FACILITIES IN SKARDU AND GHANCHE

SKARDU DISTRICT

Subdistrict Rondu:

1 Hospital	Thowar pain (20 beds)
5 Dispensaries	(Stak, Talu, Shot, Harpoh and Baghicha)
8 First aid posts	(Shingus, Tiriko, Lashithang, Thowar Bala, Gangi, Talo Broq, Tormik and Chari.

Subdistrict Skardu:

1 Hospital	Skardu
7 dispensaries	(Kowardu, Qumra, Basho, Kachura, Gamba Skardu, Hussainabad, Thorgo Paeen
3 first aid posts:	(Chunda, Shagari Calan, Gayul)

Subdistrict Ghaltary:

5 dispensaries	(Shakhma, Gainal/Matyal, Gultari, Gole, Sermik)
2 first aid posts	(Duro, Shilla)

Subdistrict Shigar:

10 dispensaries	(Gulabpur, Wazirpur, Chutron, Sesko, Askoli, Hoto, Dasso, Alchory, Churka, Nar)
5 first aid posts	(Bisil, Sadar, Kashmal, Hashopi, Kothang)

Sub-district Kharmang:

2 hospitals	Sarling (20 beds), Tolti (20 beds)
9 dispensaries	(Tolti Broq, Manthokha, Ghandus, Baghicha, Pari, Olding, Hamzigound, Ganokh, Gangani)
9 first aid post	(Dapa, Sando, Thang, Kharmang, Engut, Torghon, Zezethang, Braasil, Bilargo)

GHANCHE DISTRICT

Khaplu district:

3 hospitals	Khaplu (20 beds), Daghoni (10 beds), Siksa (10 beds)
1 basic health unit	Barah
10 dispensaries	(Kharfaq, Thally, Saling, Frano, Piun, Partuk, Dawo, Kuro, Keris and Ghowar (A-class)
13 first aid posts	(Khaplu Paeen, Chowar, Kharkooh, Garbikhoar Ghowary, Gone, Yogo, Kunis, Bordas Thally, Baltoro Thally, Harikon, Thogmos, Kuwas, Gharbochong)

Subdistrict Mashabroom:

8 dispensaries	(Surmo, Thagus (A-class), Pharwa, Dumsum, Kondus, Saltoro, Machulu, Hushe)
5 first aid posts	(Kanday, Khany, Haldi, Khorkundu, Ghursay)

