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water, sanitation, hygiene & health in the Qabane Valley, Lesotho

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FOR

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WATER, SANITATION, HYGIENE AND HEALTH

IN THE QABANE VALLEY, LESOTHO

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Report on a survey carried out by Sechaba Consultants
for the Water, Supply and Sanitation Programme of
Tebellong Hospital Primary Health Care Department

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* MO = Mohales Hoek

TABLE OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

LIST OF PHOTOGRAPHS

LIST OF ACRONYMS

AFFHC	Australian Freedom From Hunger Campaign
AIDAB	Australian International Development Assistance Bureau
GOL	Government Of Lesotho
HSA	Health Service Area
HE	Health Education
HED	Health Education Division
KAP	Knowledge, Attitudes and Practices
LLB	Local Latrine Builder
MOH	Ministry Of Health
NCDC	National Curriculum Development Centre
NGO	Non-Governmental Organisation
NRSP	National Rural Sanitation Project
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
PHAL	Private Health Association of Lesotho
PHC	Primary Health Care
PO	Participant Observer
TA	Technical Assistant
USAID	United States Agency for International Development
VHP	Village Health Post
VHW	Village Health Worker
VIDP	Ventilated Improved Double Latrine
VIP	Ventilated Improved Pit Latrine
VLO	Village Liaison Officer
VWC	Village Water Committees
VWSS	Village Water Supply Section
WSSP	Water Supply Sanitation Programme

CHAPTER ONE

INTRODUCTION

BACKGROUND

This is the Final Report of the findings of a study carried out during February and March 1990 in the Qabane Valley which is located within the Tebellong Hospital's Health Service Area (HSA) and within the adminstrative District of Mohale's Hoek. It addresses the need felt by the Hospital to ascertain appropriate strategies for the Water Supply and Sanitation Programme (WSSP) which is current being undertaken as part of its overall Primary Health Care (PHC) Programme.

The scope of PHC activities was broadened in March 1989 when the WSSP was established. This initiative was the outcome of appeals made in 1985 for assistance to expand and its otherwise effective PHC Programme.

Response came from the Australian Freedom from Hunger Campaign (AFFHC). Consultations with Tebellong resulted in a proposal to focus initially on the Qabane Valley. The PHC Department considered that its Village Health Worker (VHW) activities were well established in that area - with trained and experienced VHWs in most villages and the construction of three Village Health Posts (VHPs) already underway. In addition it was thought that the need to address inherent health problems by development projects, like WSSP, was more urgent in a place like Qabane Valley - where the community is so far removed from the Hospital that the sheer difficulty of reaching it is a deterrent to those who should be seeking treatment.

At the same time, the Government's Village Water Supply Section (VWSS) office in Qacha's Nek, expressed support for any new ongoing construction programme which would tackle areas at the lower end of its own priority list. The Qabane Valley certainly satisfied that criterion.

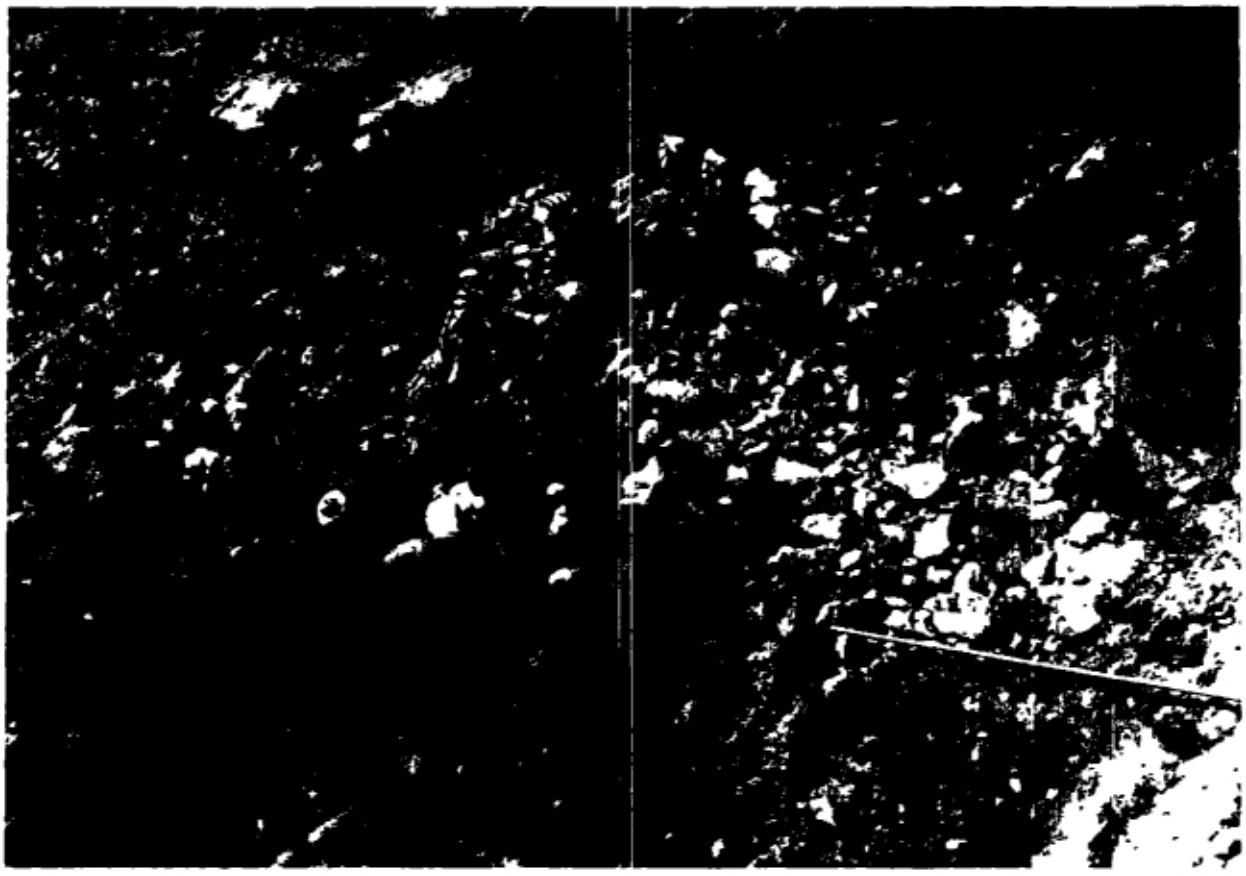
TEBELLONG HOSPITAL'S PRIMARY HEALTH CARE APPROACH

The Hospital, located in the mountainous South of the country, serves a scattered rural population living primarily in remote and inaccessible areas. The Tebellong Health Service Area (HSA) includes portions of three administrative districts - Qacha's Nek (35%), Mohale's Hoek (60%) and Quthing (5%). The HSA population is estimated at 43,000 comprising around 250 villages. The Qabane Valley lies to the North West of the Hospital in the Mohale's Hoek district.

Tebellong Hospital has been promoting PHC in the Qabane Valley for nearly fifteen years. The main agents of PHC in the area have been VHWs who have been given regular courses at the Hospital in a variety of subjects relating to both curative and preventive medicine. Selected, experienced VHWs operate a number of Village Health Posts which are visited regularly by PHC staff.

The specific objectives of the PHC department are as follows:

- to train community based VHWs;
- to provide safe water and sanitation based on community participation;
- to provide health services which include: maternal and child health; family planning and provision of essential drugs;
- to immunise against infectious diseases;
- to give effective health education.



1. Villagers excavating a storage tank

2. WSSP mason and villagers building storage tank

THE WATER SUPPLY AND SANITATION PROGRAMME

A programme outline for the WSSP was prepared in January 1988 following reports prepared in 1986 and 1987. The Programme Outline was followed by 6 months of field investigations and discussions with people of the Qabane Valley, Government of Lesotho (GOL), Private Health Association of Lesotho (PHAL) and Tebellong PHC staff which culminated in a Design Report and funding by the Australian International Development Assistance Bureau (AIDAB) early in 1989.

The WSSP operates within the Qabane Valley in an area comprising 27 villages (with approximately 5,000 people) serviced by three Village Health Posts. The WSSP, apart from simultaneously carrying out water and health education activities, has a number of distinctive features which we discuss below in turn.

Water supply and sanitation activities are being incorporated within the institutional context of a PHC programme. The construction standards of the water supply systems replicate those maintained by the Government's Village Water Supply Section except where specific consequences of the remoteness of the villages call for revisions. Full agreement on the sensibleness of any revision of standards has always been discussed with VWSS before hand.

Involvement of all communities in the planning process, construction and management of water supplies is considered essential. A basic criterion for selecting villages is that they have a trained VHW already in place. Village Water Committees (VWC) are established and the WSSP employs a Village Liaison Officer (VLO) to assist them to prepare constitutions and rules which enable them to deal with the organisational tasks which arise. Villages also contribute to a maintenance fund operated by the VWC. Photographs 1 and 2 show a tank site under excavation and a tank being built with the help of a WSSP mason.

The specific Sanitation objective of the WSSP is to assist communities with their management of waste disposal, including, of course, their most common, most offensive and most hazardous product - human faeces. The findings of this Study have been awaited before the definition or enactment of programme strategy. The Study itself is the first active stage of this component of the WSSP.

The long-term objective of the PHC's HE programme is to *effectively* communicate prescriptions for the reduction of *local* health problems. The WSSP Design Report states the intention of exploring the use of drama in the transfer of information. The first year of activities investigated the types of dramatic material and performing groups to be used. The working model now includes the following features:

- Employment of a drama groups' Animator (with a backup) who is trained through contact with established theatre groups and experienced individuals.
- Collection of source material to be the basic scripts, songs and so on, to serve as the fabric from which groups create their performance versions.
- Animation of community-based drama groups (with VHWs as core members) to rehearse chosen pieces to performance levels.
- Planned performances by the drama groups, which introduce health-related messages to specific target groups such as school children.

The activity is being supported with the animation services of the Health Promoter. The aims are as follows:

- To popularise the medium of drama amongst local community actors and audiences;
- To produce consistent performances according to previously devised play scripts;

- To highlight local health and development issues in productions;
- To expose communities in general, and school-going age children in particular, to health issues using community-based channels such as parents and VHWs.

3. Village drama-group performance

The area of focus is logistically remote and the village people have had little contact with externally assisted development activities. The programme is explicitly concerned to add to national experience and information about the implementation of such activities in remote, logistically difficult areas. Whereas implementation of the water supply component began in September 1989, activities in Health Education and Sanitation had been designed to have an investigative emphasis throughout the first year. Initial observations in the Qabane area suggested that there might be local circumstances which are at variance with those existing in other parts of Lesotho, where similar activities have already been initiated. It seemed prudent to undertake a sociological survey which might be able to isolate those features which are specific to the Qabane Valley, and so enable strategies, which would be appropriate to those features to be prescribed with confidence.

THE STUDY: DESIGN; METHODOLGY; INTERPRETATION AND REVISION PROCESSES

The Design Report of the Water Supply and Sanitation Programme (WSSP) called for a "community survey" which would provide area-specific baseline information and information on health and sanitation practices which could be used to measure the "health impact" of the programme. After much deliberation, it was agreed that, given the small size of the sample, it would not be feasible to measure the health impact of the Programme in any quantifiable way. However, it was agreed that the provision of area-specific, socio-economic data and information on people's health and sanitation practices were realistic objectives and

would be of considerable value to the Programme and the PHC department. It was noted that this information would form a baseline from which dramatic changes in hygiene and sanitation practices could be monitored.

At that point an agreement was made between the WSSP and Sechaba Consultants of Maseru, to gather and analyse data which related it to both the socio-economic conditions of Qabane Valley residents and their knowledge, attitudes and practices (KAP) regarding health and hygiene issues.

Methods

The Sechaba Consultants survey team consisted of 4 people comprising: a sociologist/anthropologist, 2 trained and experienced Participant Observers (POs) - one man and one woman - and a Health Assistant (seconded to the Study by Tebellong Hospital).

Research began with a review of relevant literature (see Bibliography). In the field, two basic methodologies were used (as described in Appendix 1). The first was participant-observation. This consists primarily of conversational interviews committed to memory and then recorded in field-notes. This method was used to gather information on the more sensitive issues pertaining to water, sanitation and hygiene practices. Interviews of this kind were conducted with individuals and key "focus groups" - such as school girls. The second method, consisting of set questions using a questionnaire, was used to gather socio-economic data and information on the least sensitive water, sanitation and hygiene practices.

Six villages in the Qabane Valley were selected for the Study - three in each of the two distinctly typical areas of settlement. Two areas visited have been called Areas A and B. These are more fully described later in the Report. It is sufficient to say that the clear contrasts, in characteristics such as accessibility and fertility, made it quite obvious that samples from both Areas should be included. The individual villages were then selected to afford different population sizes and to maximise the separating differences between them. Their local names (which often differ from those given on Government maps) are as follows:

Area A:	**Population**
Ha Makhetha	200
Ha Matsa	280
Ha Pesi	130
Area B:	
Ha Mpolokoana	300
Ha Setebatebe	250
Ha Moeti	110

In each village approximately 50% of the households were surveyed giving a total sample of 122 households not including additional conversational interviews conducted at chance meetings. Special supplementary interviews were conducted by the sociologist/ anthropologist with Village Health Workers and school teachers.

So as to place the resultant picture into a national perspective, key socio-economic indicators were selected which would enable the Qabane Valley area to be compared with other rural parts of Lesotho. In addition, the data were to be analysed in such a way as to be able to make observations about the differences between the two areas (Area A and Area B) in which the Water and Sanitation Programme is currently working.

4. VHW (centre) and women of Ha Setebatebe dancing

5. Close-up of above group

The required comparison between the Qabane Valley and other parts of Lesotho is based on data collected in 1989 during a national survey of 27 villages scattered across the major ecological zones of the country. The total sample was 497 households (see Hall and Green, 1989). As exactly the same variables were used then and the same socio-economic questions were asked in the same way, we believe that the data is comparable.

To supplement information on Tebellong's PHC capacity, questionnaires that had earlier been completed by active Village Health Workers (as part of a PHC Department exercise) were analysed. At the same time, the opportunity was taken to examine available Health Education material which is used primarily for the training of VHWs.

Structure

The report is divided into seven chapters. This brief introductory chapter is followed by one in which the detailed socio-economic findings of the Study are presented. The socio-economic conditions are compared with those elsewhere in Lesotho and details are provided about some of the fundamental differences between the upper and lower parts of the Valley.

Chapter Three gives details of our findings regarding people's attitudes and practices regarding water and disease. It examines perceptions of diarrhoea, how it can be prevented and treated. In Chapter Four we deal with the question of sanitation and hygiene and then go on, in Chapter Five, to discuss the "Question of Latrines". In Chapter Six we outline what changes we believe should be promoted through Health Education (HE) and then, in Chapter Seven, discuss what channels might best be used to convey HE messages.

The Interpretation and Revision of Findings

The primary analysis of the raw data was performed by Sechaba Consultants and assembled into a first draft form. This was considered by members of the PHC and WSSP staff individually and then during a group meeting on April 18th 1990 at Tebellong Hospital, at which it was agreed that a period be provided for commentary by group members. David Hall: Sechaba Consultants, and Michael Adams: AFFHC's Manager of the WSSP produced a Final Draft version in July 1990. This was circulated to a wider group of health-concerned people for commentary. They included senior staff members of: National Rural Sanitation Project (NRSP) and Health Education Department (HED) (under the Environmental Health Section of MOH); VWSS; PHAL; AFFHC and Tebellong Hospital itself.

Following the period of examination, a workshop was held at Tebellong to discuss the Final Draft version. Only after that were all comments finally assessed by Hall and Adams and this Report prepared for publication.

Through this lengthy process it is hoped that the contents which follow will be reviewed as having already been exposed to the parties with primary interest. However, the views expressed are those of the authors. It is not claimed that every finding was endorsed by every commentator, but it is claimed that we tried to take every suggestion into account. It is therefore very appropriate to thank all those who contributed in any way.

6. Crossing the Senqu (Orange) River at Ha Sekake

CHAPTER TWO

SOCIO-ECONOMIC CONDITIONS

A BRIEF HISTORY OF INHABITATION

The San

The Qabane Valley was originally inhabited by the San (or 'Bushmen') people. The very name 'Qabane' is derived from the San language which consists of numerous complex clicks.

The San were hunters and gatherers who lived in small clans. The life of each clan revolved around certain springs and the animals that came to drink there. These animals were considered to be the property of that particular clan and were not to be hunted by other clans (Ellenberger, 1953).

Signs of past San inhabitation are still to be found in the valley. In the course of field-work, the remnants of stone-tool workshops were discovered with many discarded tools. Overhangs along the Qabane River - known by Basotho to have paintings - were visited. The paintings have been badly vandalised (interviewees told us that people chip them out to use as "medicines") but enough remained to get a small glimpse of San life. Most clear in the paintings were large number of eland buck which must have been common in the area a century or more ago.

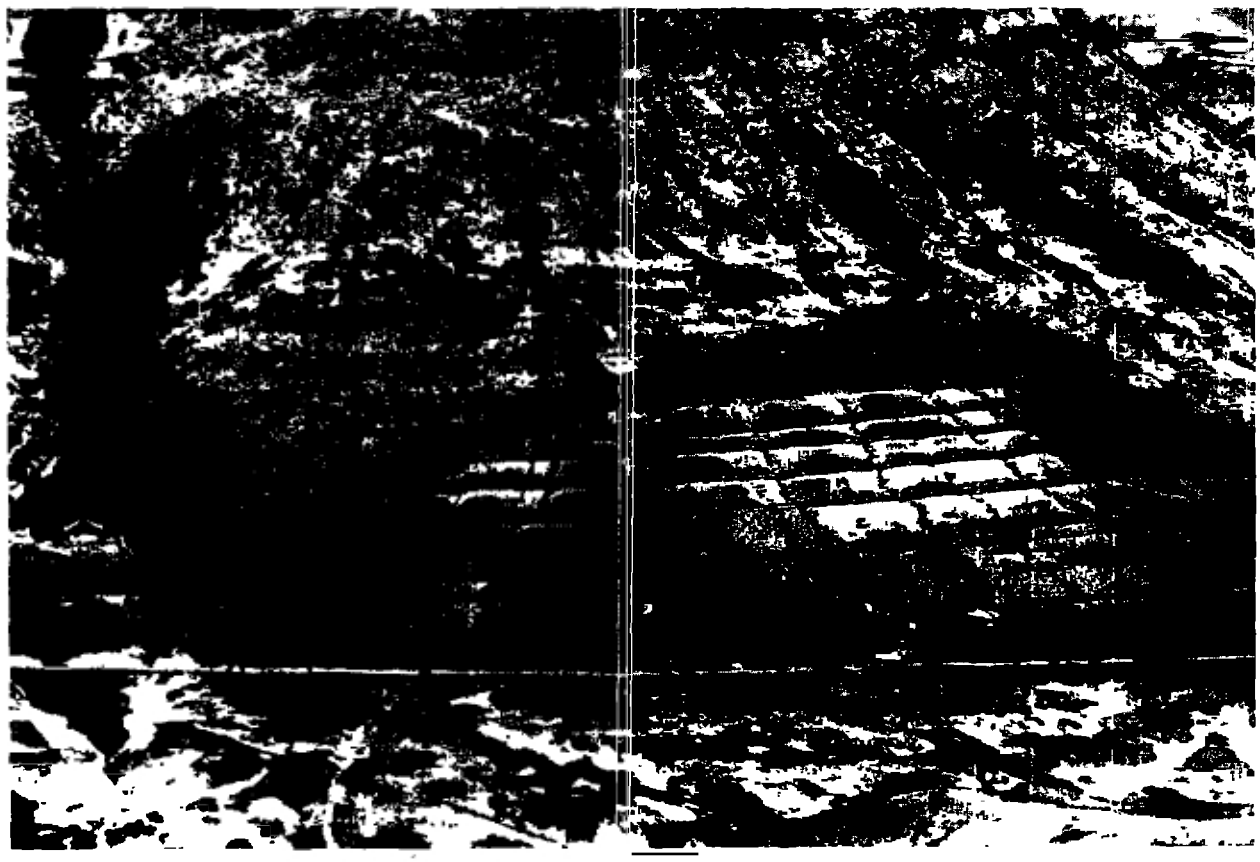
The Basotho

In the latter half of the 19th Century, the Basotho, under pressure from the Boers - who had occupied much of their original land - started to move into the high mountains which, until then, had only been inhabited by the San. Conflicts over land and livestock eventually culminated in the genocide of the San by the Basotho. Basotho first started to move into the Senqu River Valley area in the 1860s and 1870s. The move was largely a result of pressure from the east and the west of the present borders of Lesotho. The rapid settlement of these areas was noted by early missionaries and is described in detail in Germond (1967). Many of the forebears of today's Qabane inhabitants came from the Matatiele region of what is now the Transkei. Others fled from the violence of the Gun War between the Basotho and the colonial administration.

The upper reaches of the valley and the area above the basalt cliffs were, until the 1920s, used only as grazing areas. We were told that the first shepherds in the area (the grandfathers of some of the older people we interviewed) cleared the land of indigenous bush and trees with great fires. The purpose was to make them more accessible to livestock and to encourage the growth of grass. In all likelihood this practice produced short term benefits: the ash from such fires must have stimulated the rapid growth of palatable grasses. In the long term, the consequences were disastrous: once the indigenous bushes had been destroyed water could move more freely over the ground, washing away the shallow soil that was no longer held by roots.

Had the Basotho continued to keep only cattle, the valley might well have been less eroded than it is today. The introduction of sheep and goats (encouraged by the British Administration) resulted in a more rapid depletion of the environment. These "short-ones" (as the Basotho call them) tend to rip out the roots of grass as they graze, leaving the soil exposed to erosion. Old interviewees told us that in the past there had been massive herds which the land is "too tired" to maintain today. In short, the early Basotho inhabitants set in motion a process of environmental degradation resulting in rapid erosion through burning vegetation and raising large numbers of inappropriate livestock.

7. Gully erosion below the escarpment (Area B)



8. Exhausted and eroded fields in Area B

THE QABANE VALLEY: A BRIEF INTRODUCTION

The Valley can only be reached by foot or horseback from the Hospital by way of two possible routes. The most direct route takes the traveller over a high mountain pass with an altitude of 3,000 metres. Having crossed the pass, one drops steeply down into the Valley reaching the first village after about five hours.

The second route begins at the small trading town of Ha Sekake which lies on the southern side of the Senqu River. The traveller must cross the Senqu by boat at its confluence with the Qabane before beginning the long journey up the Valley. This makes the Senqu itself one of the most important geographic features affecting socio-economic conditions in the Qabane Valley area. All goods and people have to cross by rowing boat. In the rainy season floods may cut the valley off for days at a time. Charges are levied for all goods and persons crossing the river thus adding to the cost of goods and transport. The river and the difficult terrain make journeys time consuming and even dangerous. Wet weather makes paths slippery and sometimes impassable. Transport difficulties have resulted in a lack of Government services.

The lack of bridges, roads and vehicles results in a dependence on horses and donkeys for transport which are owned by 43% of households in the area. Animal transport is the fourth most lucrative source of income in the area even though animals are frequently at risk from heavy snowfalls and low temperatures.

The Qabane Valley consists of two distinct parts: the upper part lies above an escarpment of 2,300 metres. Above this escarpment there are good pastures and fertile, relatively uneroded soil which is cultivated wherever possible. In Photographs 7, the escarpment can clearly be seen with fields of maize and wheat above it.

9. Ripened fields on the upper plateau (Area A)

10. Ploughing - Area A

11. Harvesting - Area B

The lower part of the valley, by contrast, is highly eroded with poor pastures and depleted, infertile fields. These different ecologies of the two levels of the Valley have important socio-economic implications for their inhabitants. These are explored in some depth later in this chapter.

The houses in the villages in both areas are built close to each other on terraces supported by retaining walls of stones. In the upper area basalt rock is used as the building material while in the lower area the softer, more available sand-stone is used. Animal compounds (*masaka*) are built on the edge of the villages using similar materials. These sometimes have simple roofs to afford the animals shelter in the cold winters when snow is common. With the villages being crowded, and the soils being shallow, there are few gardens. Animal dung is highly valued as a fuel and is rarely used as a fertiliser.

SOCIO-ECONOMIC CONDITIONS TODAY COMPARED WITH OTHER RURAL AREAS OF LESOTHO

In this section we compare socio-economic data gathered in the sample villages with a national rural average based on identical data gathered in 27 villages in nine different districts of Lesotho. Data from these villages was found (on comparison with data from other surveys) to accurately portray a national average.

DEMOGRAPHY

Sex Ratio

The sex ratio in the Qabane Valley was found to be almost equal (49.7% males and 50.3% females) with the balance slightly in favour of females as is the case in other parts of the country . The resident population, however, is predominantly made up of females, together with children and old people. This is due to the long-term absences of many male migrant workers in South African industries.

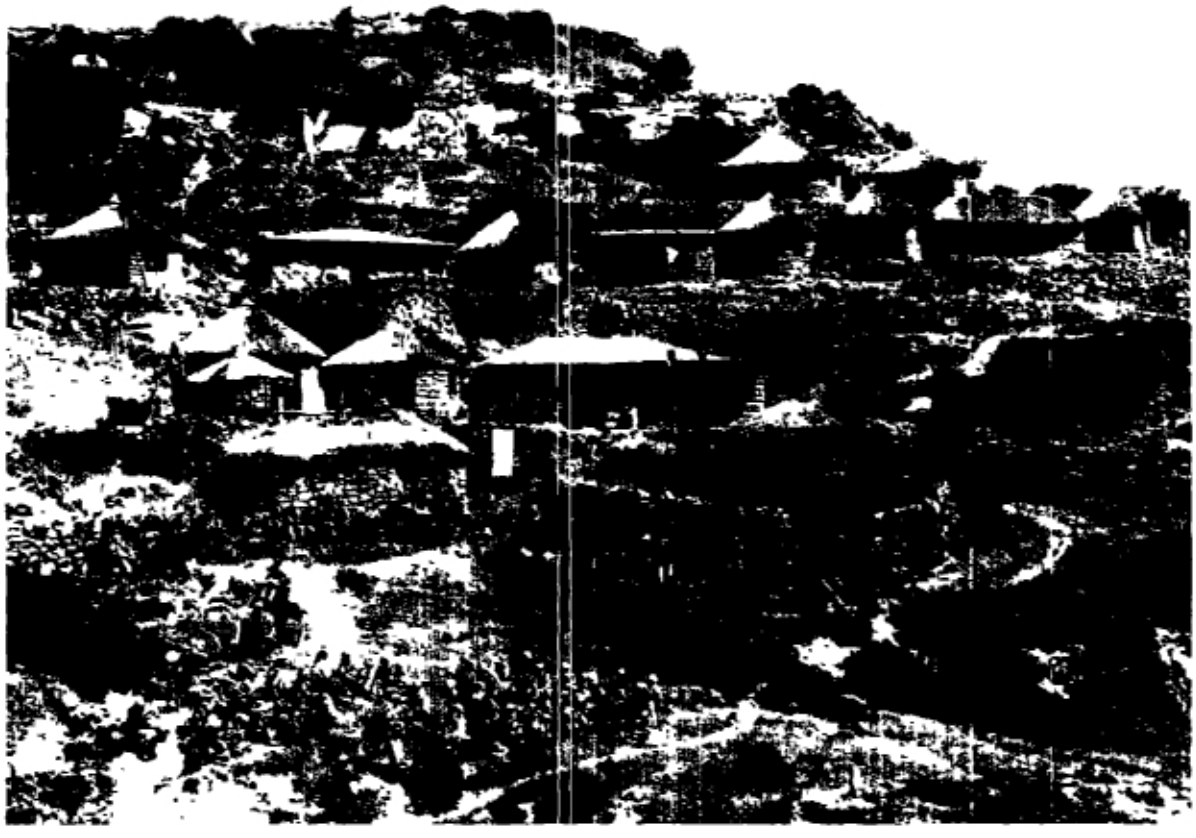
Age Distribution

The table below shows the distribution of the age of resident household members (based on a sample of 456). Overall the distribution is very similar to the national average given in the second column, but there are two interesting exceptions. There are 5.9% fewer children in the age group 6-10, and, like elsewhere in Lesotho (and indeed in Africa), more than half (51.8%) of the population is under the age of 20. This basic demographic fact has serious, immediate implications for the education system and long-term implications for Lesotho regarding employment and the availability of land, fuel and food.

TABLE 1

AGE OF HOUSEHOLD MEMBERS

AGE	QABANE	NATIONAL
1-5	15.4	16.0
6-10	9.2	15.1
11-15	13.8	12.9
16-20	13.4	9.6
21-30	14.9	14.4
31-40	9.2	11.6
41-50	9.8	7.2
51-60	8.2	6.0
61-70	2.4	4.0
Over 70	3.7	3.2



12. Sandstone housing - Area B

13. Basalt stone housing - Area A

Marital Status

Looking at local marital status, we find few differences from national results (in Table 2).

TABLE 2

MARITAL STATUS OF HOUSEHOLD MEMBERS
OVER THE AGE OF 18

STATUS	QABANE	NATIONAL
Unmarried	16.7	18.0
Married	66.1	65.3
Separated or Divorced	4.6	5.0
Widowed	12.6	11.7

Usual Place of Residence

Looking next at the usual place of residence of household members over the age of 18, we find some really significant differences as can be seen from Table 3.

TABLE 3

USUAL PLACE OF RESIDENCE OF HOUSEHOLD MEMBERS
OVER THE AGE OF 18

PLACE	QABANE	NATIONAL
Home village	82.0	73.4
Another village	-	2.7
RSA	13.8	19.7
Maseru	0.4	3.0
Other	3.7	1.1

The most striking indication from the above table is that there is a lower percentage of households in the Qabane Valley with migrant workers than there is nationally. There are significantly more household members over the age of 18 living at home and significantly fewer household members usually residing in the Republic of South Africa.

There are a number of local situations which would contribute to this result:

- the upper part of the valley (AreaA) is an exceptionally productive agricultural area where the fertile soil is used to produce both cash and subsistence crops.

- the cash earned through agriculture, produces higher investments in livestock which, in turn occupies a greater number of men who might otherwise seek employment at the mines.

- the levels of schooling in the area are considerably lower than elsewhere. Job seekers from the area stand a much poorer chance than their better educated counterparts from other parts of the country.

- the remoteness of Qabane makes it impossible for miners to make frequent, short visits home as those of the Lowlands do. Those who do go to the mines only see their families once or twice a year during their long leave. This inability to keep family contacts may decrease migration levels.

TABLE 4

OCCUPATION OF HOUSEHOLD MEMBERS OVER THE AGE OF 18

OCCUPATION	PERCENT
House/Field work	42.4
Miner	12.6
Unemployed/Seasonal work	9.2
Shepherd	8.0
Farmer	7.6
Self-employed	3.8
Other	3.3
Disabled	3.3
Other migrant	0.8
Teacher	0.4
Village Health Worker	0.4
Chief/Headman	0.4

Occupations

In keeping with the above 'residency' findings, there are significantly fewer migrant workers in the Qabane Valley than in other parts of the country. Looking at the results of a comparable survey carried out in the Ketane Valley of Mohale's Hoek district (see Green and Hall, 1989), we find that whereas in Qabane 12.6% of those over 18 years of age were classified as mine workers, in Ketane this figure was 18.7%. In a major national survey (which included urban areas) 34.4% of those over the age of 18 worked for wages (many of these would be miners). In Qabane the figure for those with waged work is 13.8%.

Those who were actively involved in house or field work make up the bulk of the working population. They are followed by miners, shepherds and then farmers (i.e. people's whose *daily* work is focused on agricultural production).

We should make it clear that the category 'unemployed' is based partly on interviewees' own self-definition and partly on the assessment of the interviewers. Many people who are unemployed for much of the year may in fact be very busy during certain seasons when they are helping to do such things as harvesting the fields for which they are paid in kind. In other words, the category does not simply refer to those who have no waged work. If it were taken to mean 'no waged work', the figure would be over 85%.

14. Donkeys heading up the Qabane Valley

Schooling

Closely linked to occupation is schooling. Here the difference between the Qabane Valley and the national average is striking - as the following table reveals:

TABLE 5

YEARS SPENT AT SCHOOL FOR HOUSEHOLD MEMBERS OVER THE AGE OF 18

YEARS	QABANE	NATIONAL
0	38.9	15.7
1	28.9	2.4
2	28.0	3.2
3	2.5	5.0
4	0.8	8.7
5	0.4	9.1
6	0.4	12.8
7	-	17.9
8	-	9.0
9	-	5.1
10	-	5.5
11	-	1.6
12	-	2.8
13	-	0.4
14	-	0.4
15	-	0.2
16	-	0.1
	Mean: 1.0	Mean: 5.4

Schools in the area most lack basic facilities and 30% of the teachers are unqualified. The failure rate for the Primary School Leaving Examination (67.3%) is one of the highest in the country (Gay et al. 1990).

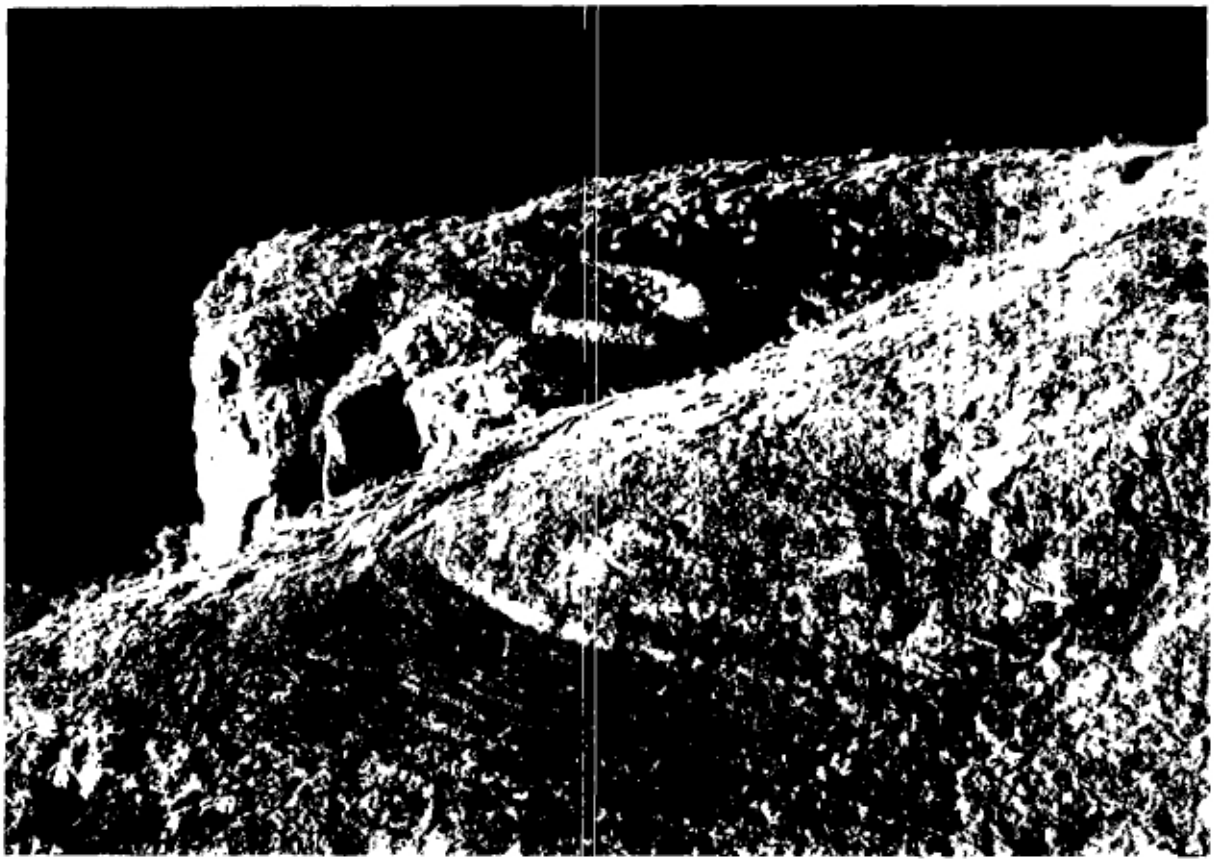
One of the reasons why the level of education is so low is that many of the children in the area do not attend school at all - which can be seen in the table below.

TABLE 6

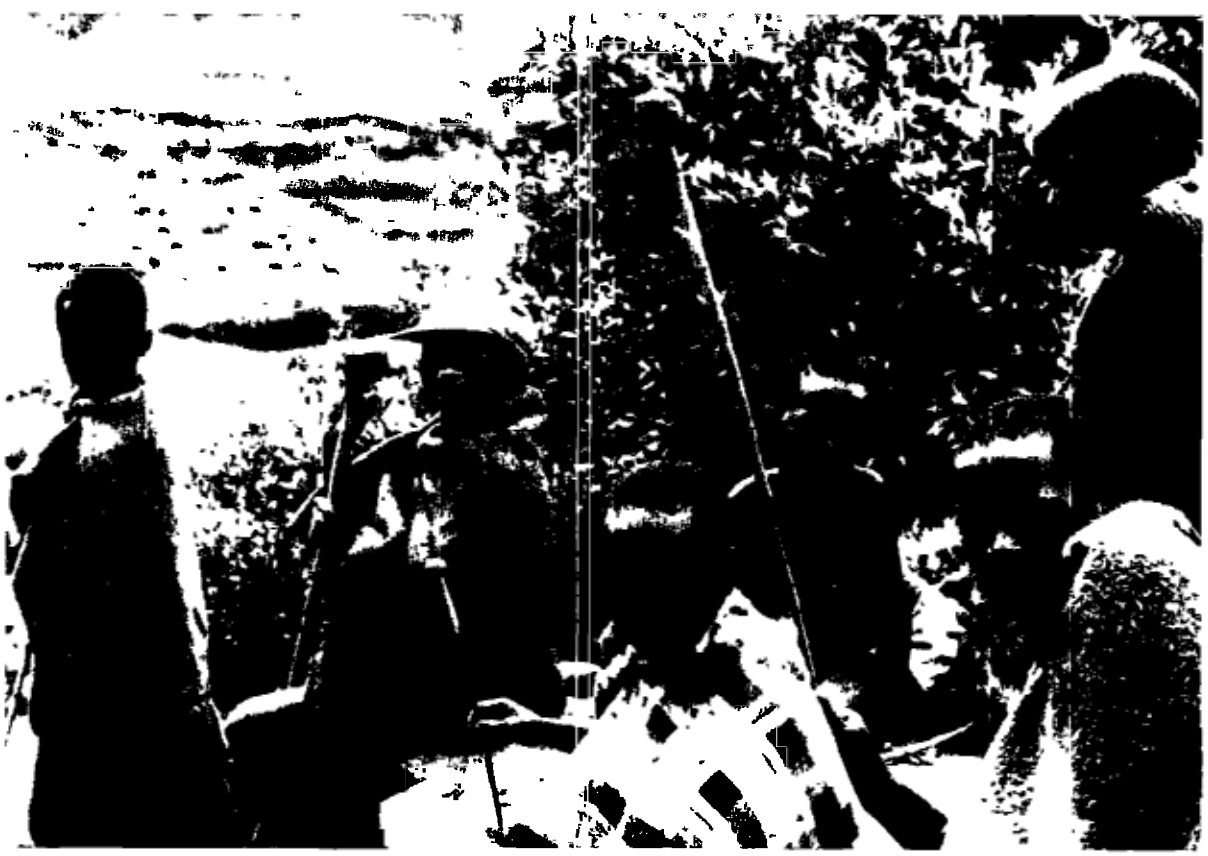
OCCUPATION OF BOYS AGED 6 - 18

OCCUPATION	QABANE	NATIONAL
At school	43.5	72.1
At home	4.3	17.4
Shepherd	52.2	10.1
Other	-	0.4

As can be seen, less than half the school age boys in the Qabane Valley, are actually attending a school. The majority spend their days herding animals. Moreover, results show that in the upper Area A where there is more livestock - the percentage of boys herding is almost twice as high as it is in the lower Area B.



15. Sheep and goat flock in Area A



16. A group of herdboys

The high percentage of boys herding is an indication of the level of importance of livestock in the economy of the Valley. As will be shown, both the percent of households owning livestock (and hence needing somebody to herd) and the actual numbers of livestock are well above the national average.

The result of having so many boys herding is that girls form a large majority in the local schools and are generally more educated than boys (an unusual situation for the 'Third World'). This is evident when Table 6 is compared with the following one:

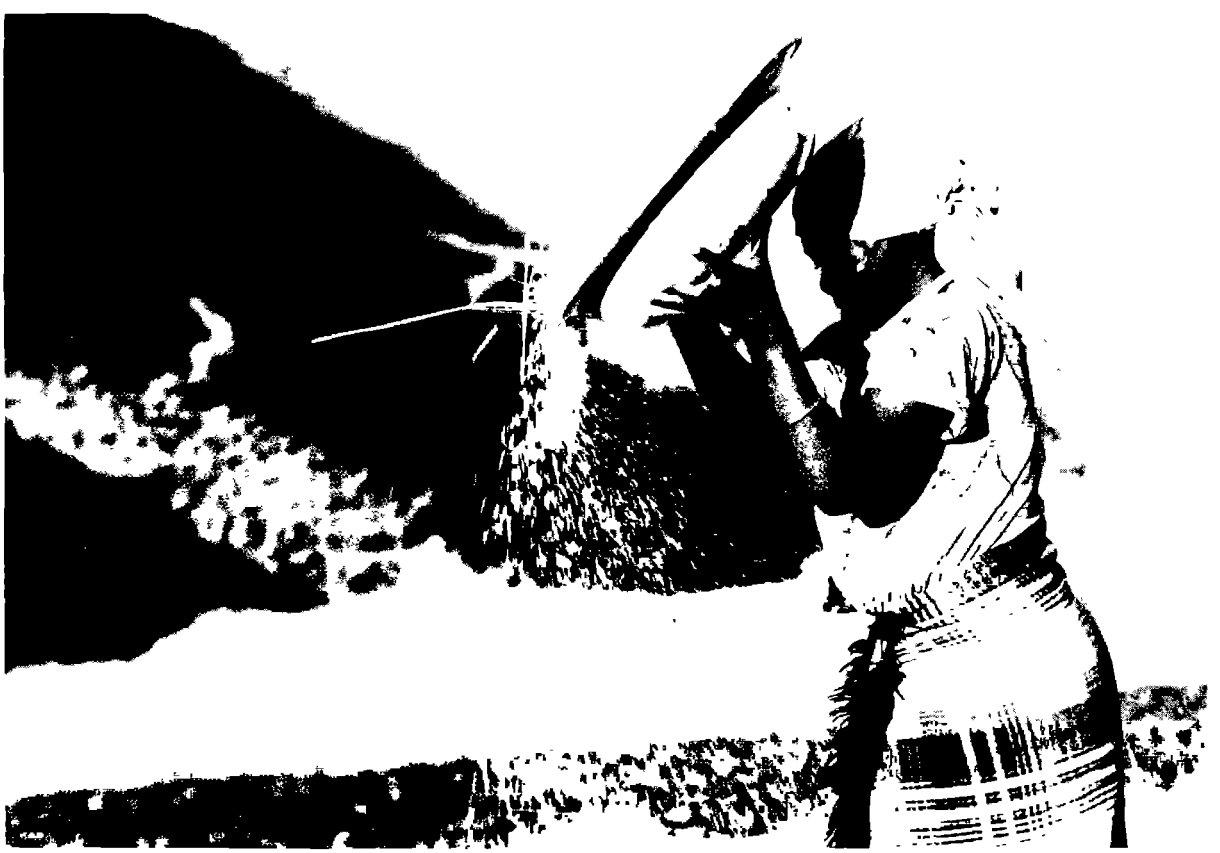
TABLE 7

OCCUPATION OF GIRLS AGED 6 - 18

OCCUPATION	QABANE	NATIONAL
At school	79.5	84.0
At home	19.3	15.3
Shepherd	-	0.2
Other	-	0.5

There are other plausible explanations as to why fewer children attend school in the Qabane Valley than nationally. There are fewer schools in the area and these are far apart. Children have to walk long distances to them which is difficult for small children as the terrain is rough. Consequently, parents tend to keep their children at home until it is felt that they can make the journey safely.

Frequently the younger girls (aged about 7 to 10) are made to stay back at home to play a crucial role minding the toddlers in the household while the mothers work at home or in the fields.



17. Winnowing

Village Associations: Formal and Informal

Interviewees were asked whether or not anyone in the household belonged to formal associations of any kind. We found that membership in such associations was extremely low with only 8% of household members over 18 years of age (compared with 55% nationally). Membership in a burial (funeral) association was most common, but still only 4.6% of the sample were members (compared with 37.2% nationally).

Perhaps formal associations are not as popular as they are elsewhere because life in the Qabane Valley retains more cohesive traditional structures such as the way in which different families work together to harvest their fields (*matsema*). Activities such as weeding (by hand held hoe) and harvesting are still carried out collectively in most parts of the valley. Villagers will work together in one family's fields until the job is finished before moving on to those of another family. In parts of the country where such traditional work teams are a thing of the past, people have come to rely more and more on mechanical aids such as cultivators which can be operated by one or two people. From a social welfare point of view the work teams system is important as it provides for the poorest of the poor (food and traditional beer are usually provided by the field owner in exchange for labour).

18. Village women taking a break during harvesting

ECONOMIC CONDITIONS

As a whole, the economic conditions of the Qabane Valley are similar to those of many other remote, mountainous parts of Lesotho. Such areas typically have lower incomes, fewer household and agricultural possessions but more fields and livestock than the Lowlands and Foothills. A recent study on poverty in Lesotho has demonstrated that the more income and possessions households have, the less likely they are to have livestock and fields (see Gay, Hall and Dedorath, 1990). The socio-economic conditions in the Qabane Valley confirm this. While households have lower incomes and fewer possessions they are considerably better off in terms of livestock and fields than those in the Lowlands. However, it must be pointed out that today, over 50% of households in the Qabane Valley have no livestock at all. In fact, there is a clear national trend towards larger numbers of livestock becoming concentrated in the hands of fewer and fewer wealthy owners (Hall and Green, 1989).

Livestock in remote areas are popular for a number of reasons:

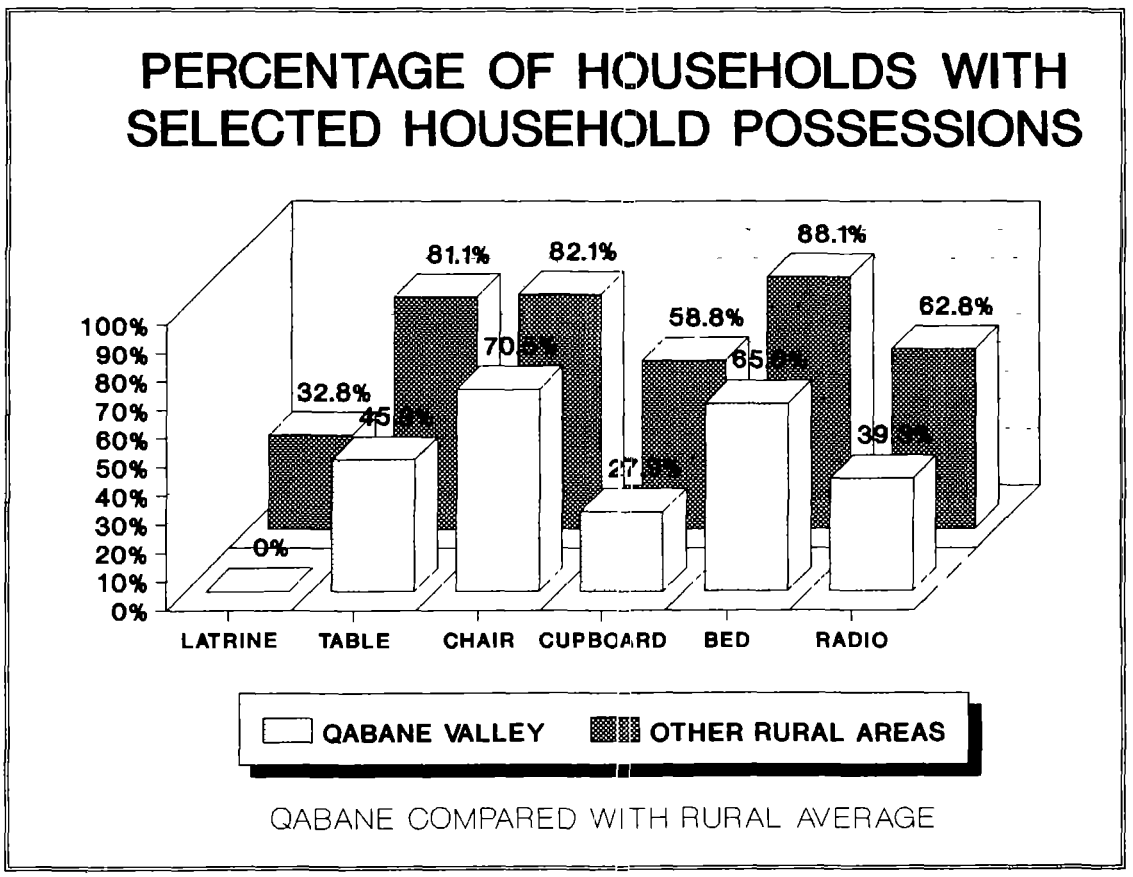
- although there is severe erosion in parts, the best pastures are still located in the mountains. These can be grazed at no cost to individual livestock owners;
- they provide traction for ploughing fields;
- they provide transport;
- they act as a 'bank'. In times of difficulty people can 'withdraw' their investment by selling the animals;
- they are slaughtered for traditional feasts (including funerals) to provide meat for all guests;
- they are still used for bride price (*lebola*) payments even though - particularly in the Lowlands - cash has largely replaced animals for this purpose;
- their dung provides an invaluable form of cooking and heating fuel and is a major ingredient in the plaster smeared on all interior housing surfaces;
- they provide milk (albeit in very small quantities);
- they provide cash income through the sale of wool and mohair.

In the mountains many people have large numbers of animals because they have inherited or earned them through the *mafisa* system (which enables someone without livestock to look after someone else's animals in return for the offspring of those animals).

A preference to invest in new livestock rather than possessions often has more to do with the difficulties of transporting furniture into the area and low cash incomes than choice.

Household Possessions

Graph 1 shows that the percentage of households having a given possession is well below the national average in all cases. This of course is not a startling discovery given the immense transport difficulties in the area. In fact, it is surprising just how many households have gone to the trouble of transporting - literally on their heads - furniture such as tables, cupboards and beds from across the far Senqu river.



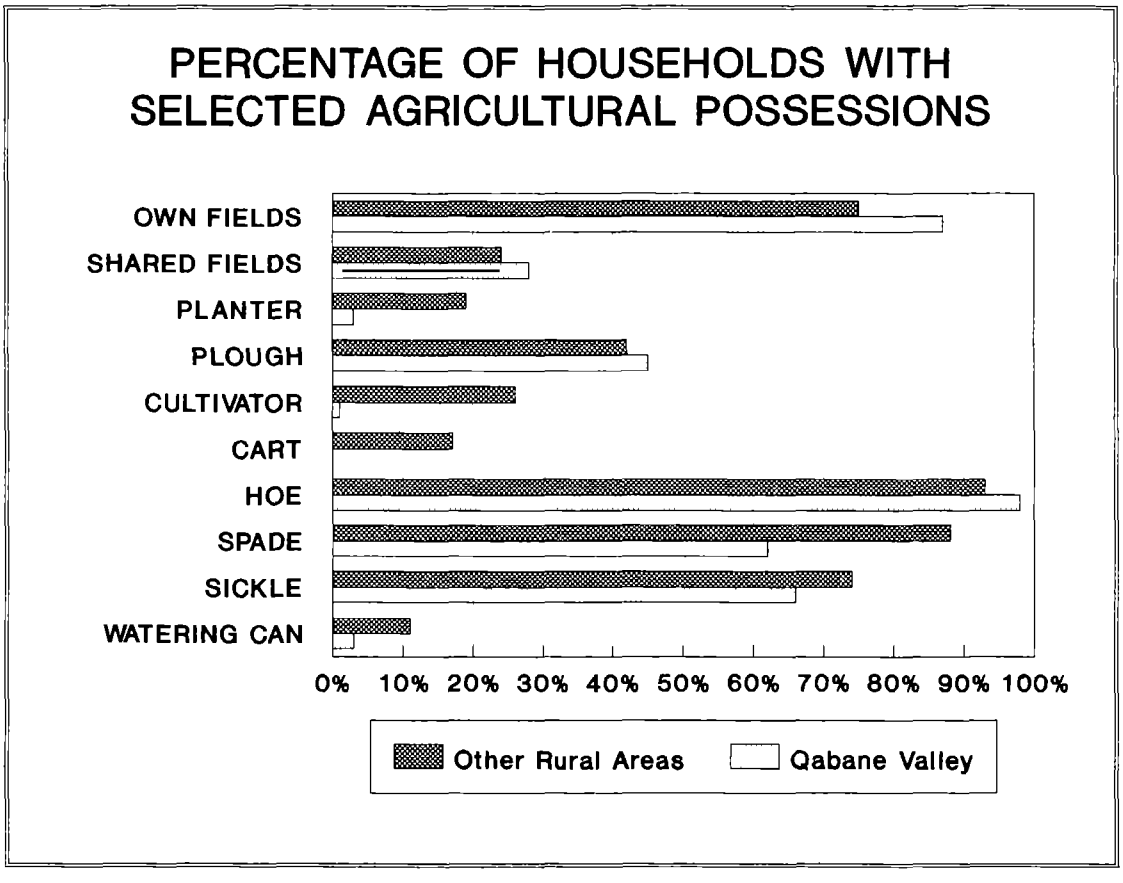
Graph 1

Just under 40% of the households have a radio. This is a reflection of the relative material poverty of the area. Radios are not heavy to transport and can be obtained for less than M50.00 in all large towns. They are usually highly desired items and their absence is rarely a matter of choice. The implications of such a very low number of radios in the area implies that it cannot simply be assumed that the majority of the residents of Qabane Valley are being exposed to the health education that is broadcast over Radio Lesotho.

The most remarkable comparison is the absolute absence of any latrines in Qabane valley (despite the fact that Tebellong PHC have included some promotional efforts in their campaign strategy to date. The question of latrines is examined in Chapter 5.

Agricultural Possessions

Looking at Graph 2 it can be seen that the Qabane Valley figures are above the national average in a number of cases but well below in others. Looking first at the items which are above average we find both 'own fields' and 'shared fields' at the top of the list. This is in accordance with the observations made above. Because we were not in a position to measure the size of fields and because the quality of fields varies considerably, these statistics on field ownership are poor indicators. A far better measure would have been the number of bags of cereal produced by each household. Unfortunately, the year preceding the study was disastrous in that an early frost caught most crops before they had properly ripened. This resulted in an exceptionally poor harvest. Only 20% of the households harvested any maize and only 7.4% harvested any sorghum. The percent harvesting wheat (25%) was somewhat higher. Clearly we cannot use the results of the 1989 harvest to compare with yields from other parts of the country.



Graph 2

What can be noted from the statistics on fields is that there are relatively few landless people (13.1%) and that exactly 50% of these are sharing fields with field owners. (Although, according to Lesotho's land tenure system, fields are not actually 'owned' but rather allocated to households for their use by the chief and the Land Allocation Committee. If any field is not ploughed for three consecutive seasons it may be reallocated to another household. If it has been properly used it can usually be passed on to the next generation.)

Table 8 compares field ownership in the Qabane Valley with a national (rural) average, and shows that distribution may be more equitable than in other parts of Lesotho.

TABLE 8

NUMBER OF FIELDS PER HOUSEHOLD (LANDLESS NOT INCLUDED)
A COMPARISON OF THE QABANE VALLEY AND OTHER RURAL AREAS

NUMBER	OTHER RURAL AREAS	QABANE VALLEY
1	45.8	33.0
2	32.9	35.8
3	18.7	25.4
4+	2.4	5.6

As can been seen, a higher percentage of households in the Qabane Valley come near the traditional Basotho ideal of 3 fields per family. There are significantly fewer families who have only one field at their disposal.

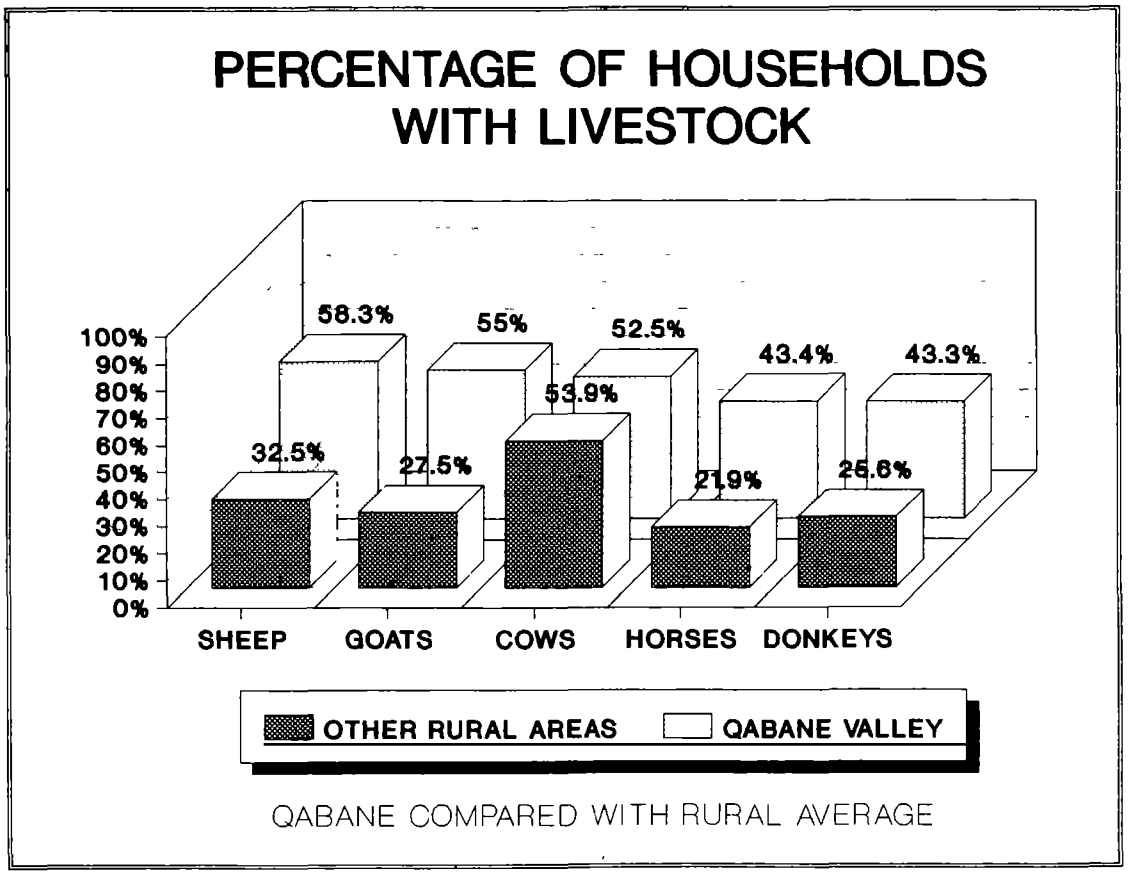
Looking again at Graph 2, we find the percentage of households owning ploughs is slightly higher that the national average. Given the high percent of households with fields this is not surprising. A plough is a basic necessity without which little would be planted. On the other hand we find that the ownership of ox-drawn planters and cultivators (used for extracting weeds between rows of crops) is well below average. These items are useful but not essential to field operations as they can be replaced by hand-tools. This is in fact what appears to be happening as the number of hoes in the area is above average with over 95% of households having at least one hoe. There are, of course, no tractors at all in the Qabane valley.

It seems a little surprising that the number of sickles is slightly below average considering the large number of households in Area A that are growing wheat, which is all harvested by hand. The low percentage could be affected by the shortages of cutting grasses in Area B. Sickles are also used throughout the summer to cut fodder (consisting of wild grains and grasses) for livestock. Given the small number of gardens in the villages, the low number of spades and watering cans is to be expected.

19. Wheat fields in Area A

Nobody in the Valley had a ox cart. While it would be possible for such a cart to move along parts of the valley floor there are too many obstacles and impassable places for it to be adopted.

Graph 3, shows the ownership of livestock in the Qabane Valley against the national average. Comparison with Graph 1 (showing household possessions), confirms the often recorded inverse relationship between household possessions and livestock ownership in Lesotho.

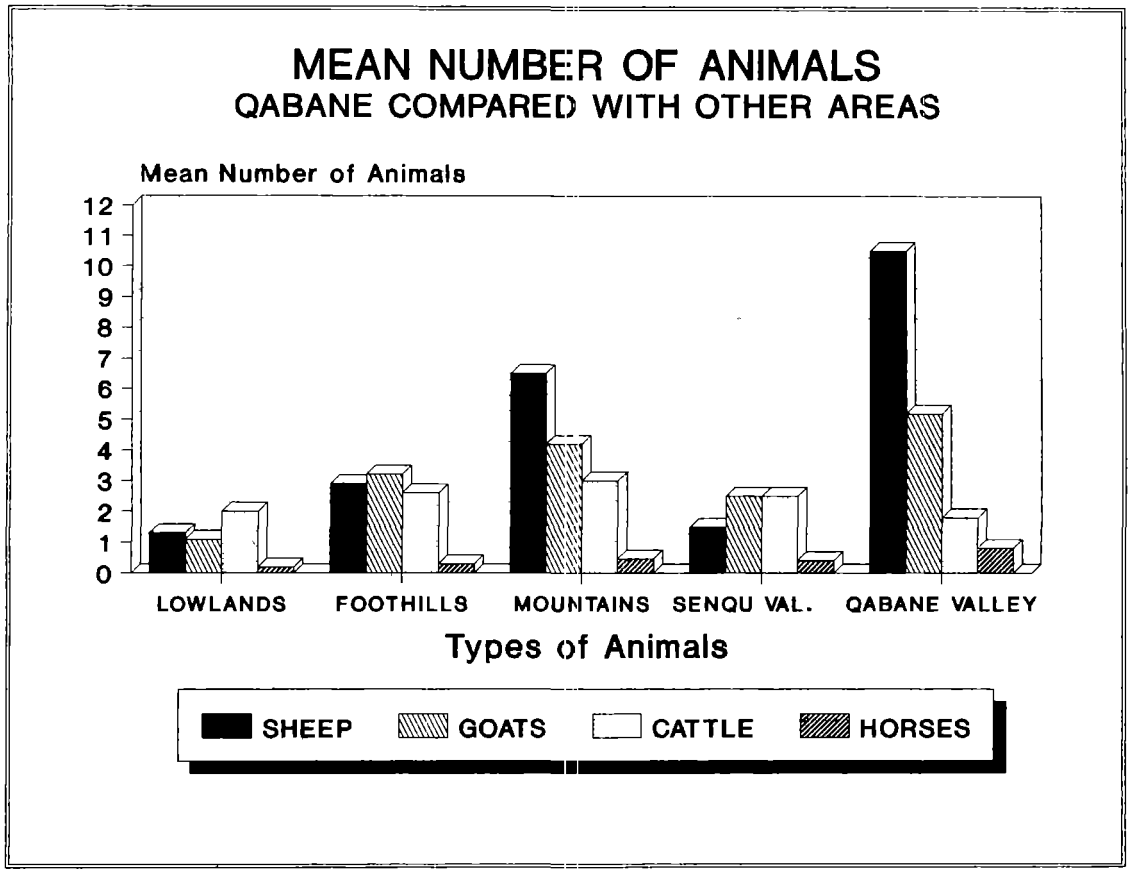


Graph 3

Except for the case of cattle, the Qabane Valley stands out ahead of the national average. Particularly striking is the high percent of households owning sheep (58.3%) and goats (55%). On the steep and often eroded slopes of the valley the small animals do better than the large, however, such stocking - levels already far exceed the sustainable capacity of the available grazing areas.

Many households have horses and donkeys these are the main local means of transport. Almost 60% of the households have to rely on borrowing or renting arrangements when ever they need them. The consequence of this is that many people with horses and donkeys are making an income from them as would taxi or bus owners in the Lowlands. In fact, there is a higher percent of people making a business out of 'transport' in the Qabane Valley than there are in our national sample.

Not only is the number of households in the Qabane Valley who own animals higher than it is nationally but the total numbers of each animal type are greater. This is clearly demonstrated in Graph 4 where the Qabane Valley is compared with other parts of the country. Here, instead of showing a national average we have broken the data up into the main ecological zones. The Graph shows the mean number of animals spread across the entire sample (i.e sum of animals divided by total number of households). The Qabane Valley means stand well above all others except in the cases of cattle where it almost identical to the mean for the Lowlands.



Graph 4

Most striking is the very high number of sheep and goats in the area. Considering this - and assuming this has been the case for many years as interviewees claim - it is not surprising that the longer grazed parts of the valley are so terribly overgrazed and eroded. All the statistics presented for the Qabane Valley show very significant area differences. The mean number of animals, for example, varies considerably according to the two different areas in which the study took place.

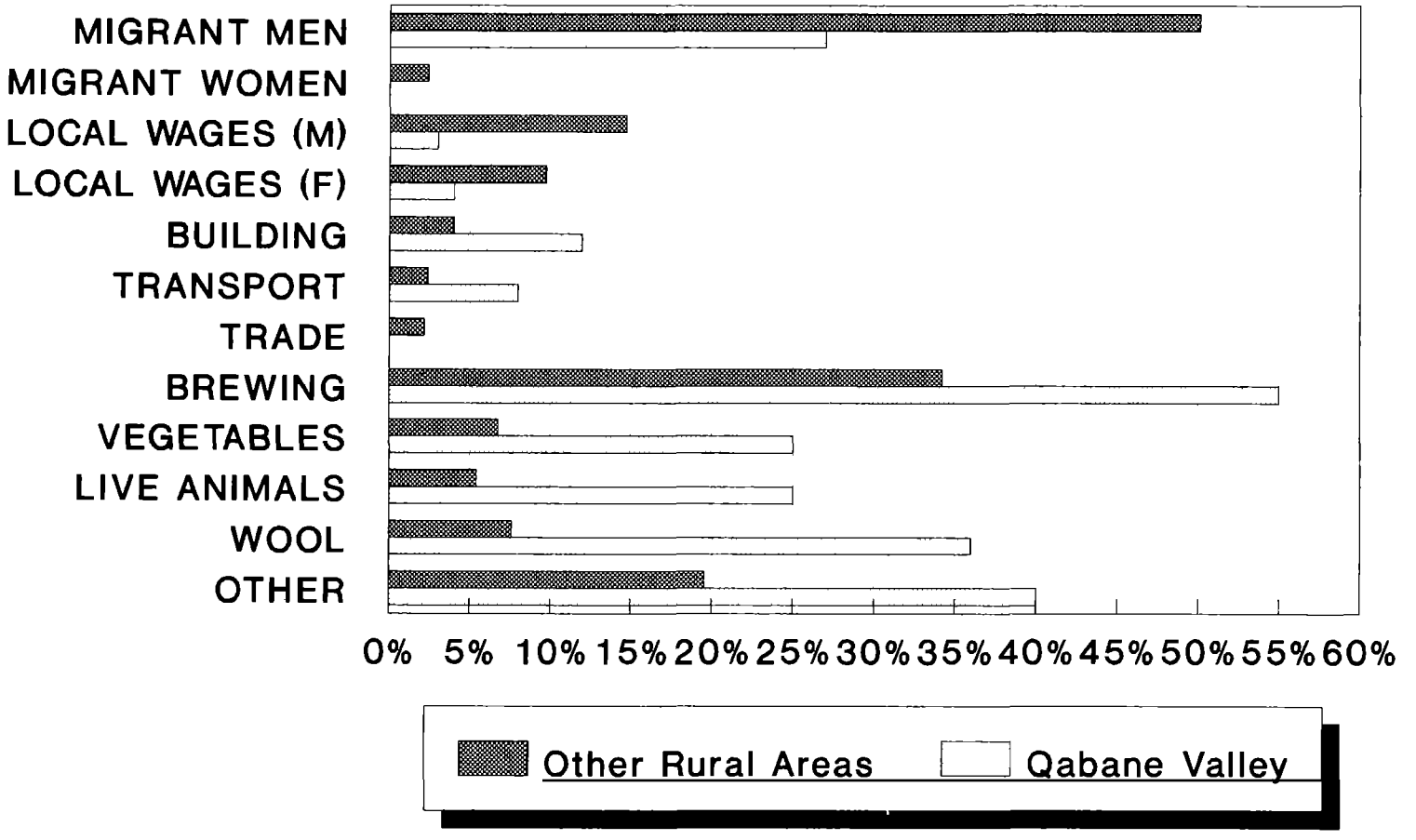
INCOME

We obtained detailed information on peoples' sources of income through the questionnaire using identical variables to those used by a number of other studies. In almost all cases we found people to be cooperative and forthcoming. The focus is on cash income. Income in kind - which clearly plays a crucial role in the local economy - was not assessed. In particular, such income includes livestock and food usually provided in exchange for labour (notably herding and field work) and services (notably the transporting of goods).

Sources of Income

People's sources of income are significantly different from the national average. Graph 5 compares the percent of households in the Qabane Valley earning some income (no matter how little) from a given source with our national sample of households scattered around the country. What is immediately striking is that there are far fewer households earning income from migrant labour. Only 12% of the households got any income from this source as opposed to 50.1% in the national sample. Similarly, far fewer men in the area earn income from "Local Wages" (2.8% versus 14.7%).

PERCENT OF HOUSEHOLDS EARNING INCOME FROM VARIOUS SOURCES



Graph 5

Equally striking is the prominent position of brewing in Graph 5. Although it is the most common source of income in the Qabane Valley the actual income earned from this activity is relatively low.

The position of 'Other' in Graph 5 is important. This refers primarily to the sale of cash crops - such as tobacco - which are grown intensely in the area and which are sold to locals and to outsiders. Tobacco is a labour intensive crop requiring picking, sorting, careful drying and even packaging before it is sold. Some people even grind it with stone, hand-held mills so that it can be sold as snuff (which is commonly used by women in Lesotho). From our conversational interviews we learned that a number of migrant workers sell Qabane Valley tobacco around the mines. The crop is frequently seen growing just in front of people's homes.

Given the high percentage of households owning sheep it is not surprising to find wool as the third most common source of income in the Qabane Valley. This is followed closely by income earned from the sale of live animals. In both cases there are almost exactly twice as many families earning income from these sources as there are nationally.

Given the distance to shops and the difficulties in transporting supplies, it is not surprising that 10.6% of the households earn some income from selling vegetables. As noted earlier, most of these vegetables are actually grown in the fields and not around the home. Those earning income from building are most traditional builders who build stone houses for other villagers in the area. Transport, as noted, refers to income earned through the use of pack animals.

Mean Amounts of Income

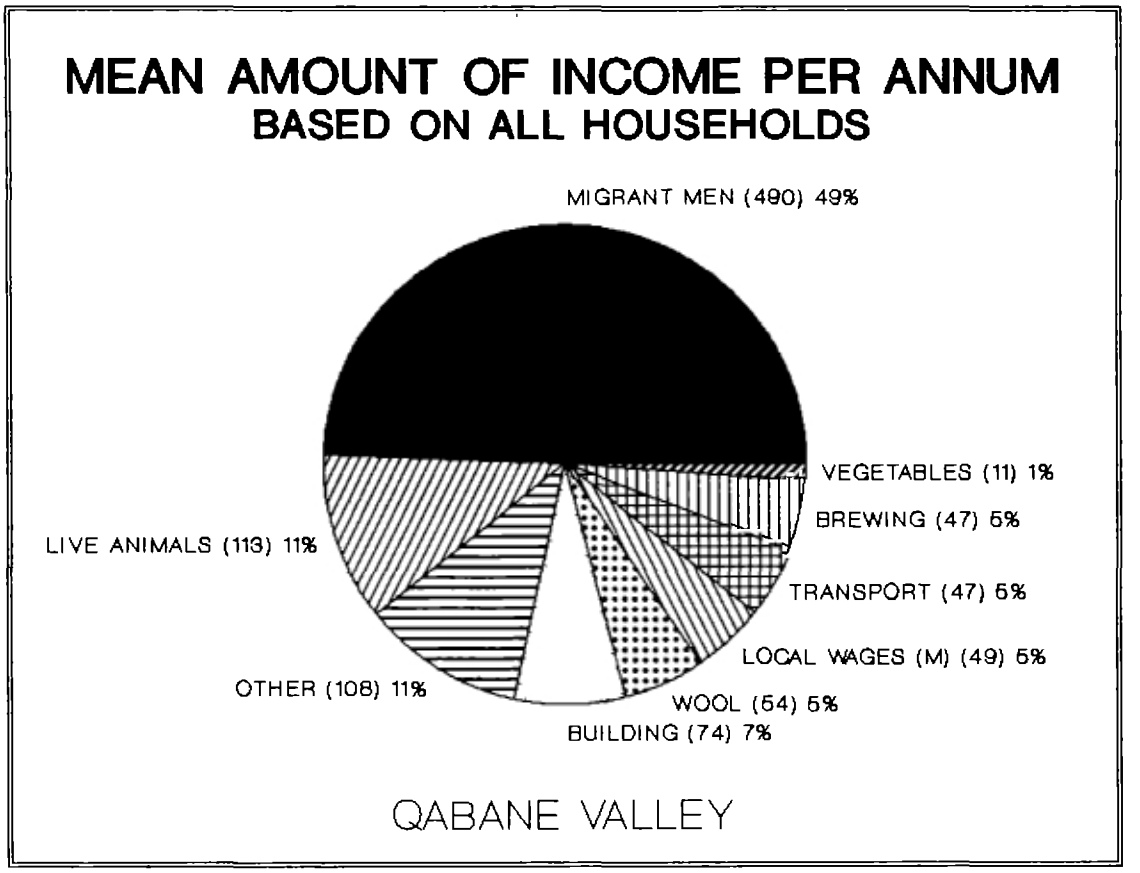
To ascertain just how much income people are getting from given sources, we divided the total sums recorded, by the number of people who stated that they earned income from a given source. This enabled us to work out, for example, how much money the average miner sends home per annum. The results of this calculation are shown in Table 9 which compares Qabane with other rurals areas.

TABLE 9

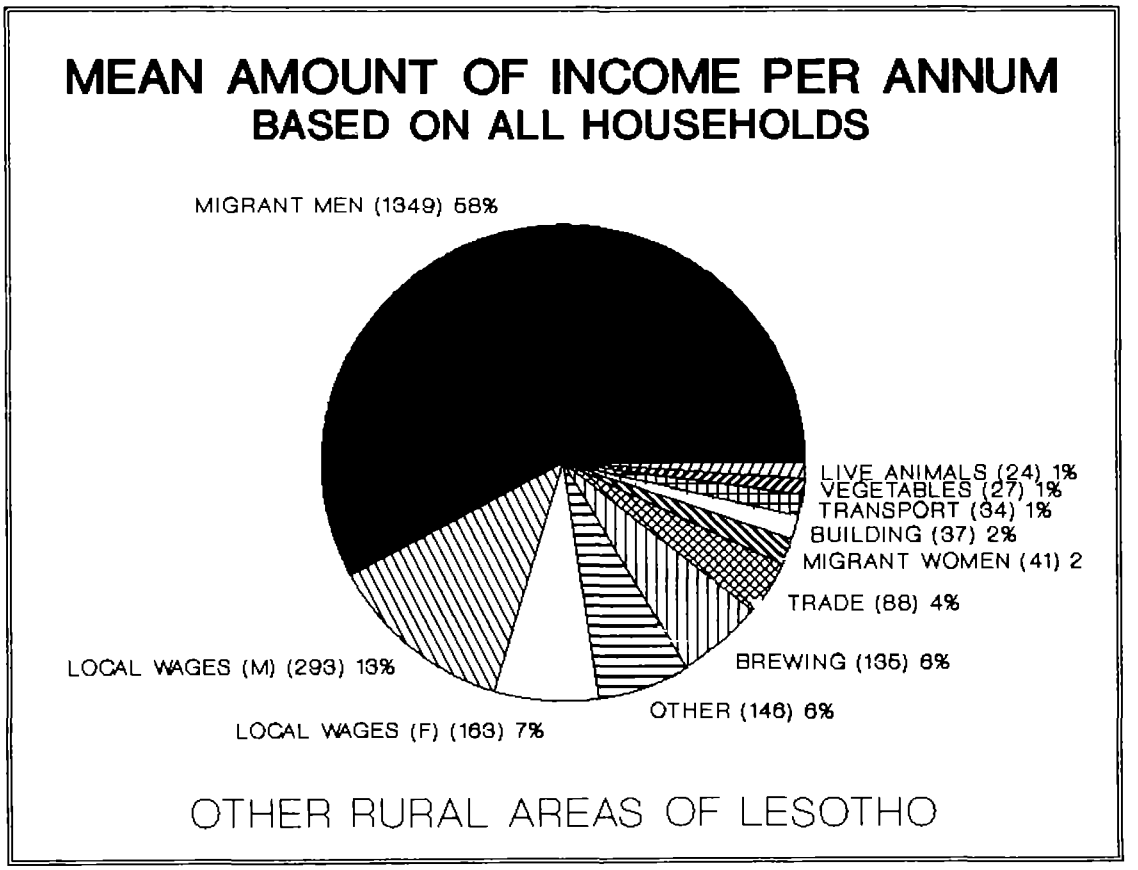
MEAN ANNUAL INCOME BASED ON HOUSEHOLDS WITH A GIVEN SOURCE (AMOUNT IN MALOTI)

SOURCE	OTHER RURAL AREAS	QABANE VALLEY
Migrant Men	2693	1812
Migrant Women	1731	-
Local Wages (Men)	2649	757
Local Wages (Women)	1697	150
Building	995	647
Transport	1445	578
Trade	4013	-
Brewing	385	87
Vegetables	406	38
Live Animals	450	446
Wool	259	150
Other	750	250

The above table reveals that people in the Qabane Valley are earning considerably less from the same sources than their counterparts around the country. This is most clear in the case of migrant men where the income for Qabane men is well below the national average. This can be accounted for by the data (given previously) regarding schooling. As noted, the majority of boys spend their school age years herding animals. They are usually illiterate and most likely earn the lowest salaries on the mines or elsewhere.



Graph 6



Graph 7

The few Qabane men who had waged work in Lesotho were earning less than a third of other men with local work around the country. With their very poor levels of education they are unlikely to get any other work other than that of labourers.

It is striking that 'Trade' does not even enter into the picture in the Qabane. Trade is dominated by Ha Sekake although there are a number of very small shops (cafes) operating in the area. Some of these small shop owners get supplies from wholesalers in Qacha's Nek and bring them over the mountains with pack animals. Those doing the transporting of these goods and the goods of other villagers are earning relatively good incomes. They fall just behind builders whose position is fourth most important in the Qabane Chart as opposed to sixth in the national chart.

The most comparable income is that earned from 'live animals' (M446 in Qabane Valley and M450 nationally). Considering the larger, mean number of animals in the Qabane Valley it is somewhat surprising that more income is not being earned from the sale of animals. This would indicate that many families are 'banking' with livestock. They are investing in livestock and are not making regular annual sales which would have been recorded as income. A sensibility to the adverse effects of growing stock numbers on the rate of environmental deterioration is unlikely to have any influence on any owner's attitudes. However the ongoing practice of slaughtering some sales and a traditional redistribution system have their effect in preventing a limitless growth of herd numbers.

Mean income from wool (and mohair) is much lower than it is elsewhere. There are a number of possible explanations: firstly, it is probable that the quality of Qabane stock is poor and that owners are consequently being offered low prices at the shearing sheds. When we asked interviewees if they were using selective breeding to improve their stock only 10.1% said "yes". Secondly, it is possible that the stock is not being shorn regularly. Shearing sheds are far from the part of the valley where the research took place. It is possible that many families are not shearing annually but are keeping the stock primarily for the purposes described above.

Having calculated a mean based on those households with a given source of income we then calculated the mean based on all the households in the sample. The results of this calculation give a better idea of the relative importance of different sources of income to the local economy as a whole. Again, we compared this with the national average as can be seen in Graphs 6 and 7.

By comparing the two graphs one gets a better sense of how local economy functions. Here the relative importance of the earnings of migrant men is clearly illustrated. Likewise it is evident that local wages play a very insignificant role (unlike nationally). After the earnings of migrant men, comes income from live animals, followed by income from 'other sources' (i.e. cash crops such as tobacco), then building, gifts - usually from grown children living elsewhere, then wool and finally local wages.

By comparing these graphs with Graph 6 (which shows what percent of households earn income from what sources) one sees that although brewing is practised by many households, its role in the local economy is a minor one. However, this does not reflect the high value of brewing in terms of labour exchange arrangements.

MAJOR DIFFERENCES BETWEEN THE UPPER AND LOWER PARTS OF THE QABANE VALLEY

So far, we have discussed the socio-economic conditions of the Qabane Valley as a whole without entering into any details regarding differences between the two areas. This is a little misleading as conditions in the two areas vary considerably (as was explained in the introduction). Here we focus on some of the most striking socio-economic differences.

Looking at the ownership of household and agricultural possessions, it is clear that the households living in the lower part of the valley are somewhat better endowed than those living in the upper part as can be seen in the following table:

TABLE 10

COMPARISON OF SELECTED POSSESSIONS
UPPER AND LOWER PARTS OF THE QABANE VALLEY

	Percent with:	
ITEM	UPPER (Area A)	LOWER (Area B)
Table	40.0	51.6
Chairs	65.0	75.8
Cupboard	21.7	33.9
Bed	64.5	66.7
Plough	46.7	61.3
Radio	41.7	37.1

The task of carrying furniture to the upper part of the valley is extemely arduours. Of all the possessions mentioned the radio is the only one which can be carried up with ease. It would seem that many households in Area A, that might have cash to spend on furnishing, are choosing to spend it on an item that is easiest to carry. It is also interesting that beds - despite their size - are a top priority with the difference between the two areas being insignificant.

Looking next at the ownership of livestock we find exactly the inverse of what is described above. In other words, where the ownership of certain household possessions is low, the ownership of livestock usually is high. This is quite clear from the table below:

TABLE 11

COMPARISON OF OWNERSHIP OF LIVESTOCK
UPPER AND LOWER PARTS OF THE QABANE VALLEY

	Mean number:	
ITEM	UPPER (Area A)	LOWER (Area B)
Horses	0.86	0.77
Cattle	2.37	1.41
Donkeys	0.81	0.77
Sheep	15.60	4.85
Goats	5.01	5.46
Chickens	5.05	5.04
Pigs	0.36	0.03

In all cases, with one small exception, Area A is better off in terms of animal wealth than Area B. Livestock owners convert their stock to small animals which ruin the range making it quite impossible for cattle to ever be reared well in the area. The most outstanding difference is that of sheep where the mean number owned in Area A is almost three time as high as in Area B. This is probably due to better grazing in Area A.

Regarding the ownership (or more correctly 'owneruse') of fields, we found the mean to be slightly higher in Area A than in Area B (1.85 and 1.79 respectively). However, again we should stress that because field size and value varies so much this statistic should not be taken as an indicator of wealth.

When it comes to income, the picture is more mixed. In many cases our sample was too small to calculate proper means for both areas. Below we present the differences we discovered for those income-related variables with over 20 cases:

TABLE 12

COMPARISON OF SELECTED MEAN INCOME
UPPER AND LOWER PARTS OF THE QABANE VALLEY

	Mean based on total sample:	
ITEM	UPPER	LOWER
Migrant men	1936.0	1643.5
Livestock sales	284.3	619.3
Building	800.0	494.2
Wool/Mohair	191.2	100.6
Chickens/Eggs	31.6	10.7
Vegetables	56.5	38.2
Brewing	85.9	88.7
Gifts	67.2	520.7
Other	433.2	191.2
Foodsale	266.6	298.1
TOTAL MEAN	1236.2	1040.0

NOTE: NATIONAL MEAN = 2,452

In the introduction we noted that Area A is, agriculturally speaking, a highly productive area with some of the best fields the research team has seen in Lesotho.

From the table on the previous page we see that this area as a whole is considerably better off than Area B - despite the fact that the households in Area B have more household possessions. More income is being generated in the area through the following activities: building, the sale of wool and mohair, the sale of poultry and eggs, the sale of vegetables and crops such as tobacco ('Other'). For some inexplicable reason even the migrant workers from Area A are earning more than those in Area B.

Households in Area B are heavily dependent on gifts and the sale of livestock. This, we believe, strengthens our argument that livestock are used as a 'bank': the better off households in Area A are hanging on to their four-legged savings; the poorer households in Area B are withdrawing these savings (by selling them) as they struggle to survive in a 'tired' environment. The other reason why households in Area B might be selling livestock is because the environment can no longer support them.

It is worth noting that slightly more income is generated in Area B through the sale of cooked foods (*stokfele*) which is usually done by groups of women in the village who take turns to cook food and sell to each other and through brewing. Both of these income generating activities are well-known survival strategies for the poor in Lesotho.

While the more fertile fields of Area A continue to offer many people in the area a secure livelihood, it can not be assumed that this will be the case fifty years from now. The soil is being eroded at an alarming speed and if urgent measures are not taken the upper part of the valley may all too soon resemble the waste land below.

20. Wheat and corn fields at harvest time - Area A

21. Ceremonial use of water

CHAPTER THREE

WATER USE AND DISEASE

WATER-RELATED DISEASES IN LESOTHO

Lesotho is fortunate in being free from many water-related diseases found in other African countries. In fact, it is the only country on the continent that has no schistosomiasis, malaria, sleeping sickness or filariasis (Feachem and others, 1978). Nevertheless, water-related diseases account for 11% of all diseases recorded at hospitals with this figure being twice as high among the under-five age group. These diseases include diarrhoeal diseases, typhoid fever, inflammatory disease of the eye, infections of the skin and infectious hepatitis. Of these, the most significant are diarrhoeal diseases and skin infections (Feachem and others, 1978).

Skin infections, being water-*washed* diseases, are closely related to hygiene and the *quantity* not *quality* of water used by individuals. Feachem discovered that such infections were "uninfluenced by the provision of an improved water supply" as these did not usually increase the volume of water people use.

Diarrhoea, being a water-*borne* disease, is influenced by quality of water which improved water supplies aim to improve. This being the case, diarrhoea was given considerable focus in the course of the Study and is discussed in this chapter.

RURAL WATER SUPPLY OBJECTIVES

The Rural Water Supply Programme is under the Village Water Supply Section (VWSS) of the Ministry of Interior, Chieftainship Affairs and Rural Development. The Section focuses on the construction of water supply systems utilizing self-help labour and eventually providing back-up for village-level managed operation and maintenance of the systems.

VWSS policy aims to provide communities with a standardised level of service to the extent which their water resources can satisfy. Minimum requirements are that:

- the walking distance for a household to the nearest collection point does not exceed 150 metres;
- the number of users per stand-pipe is not more than 150 persons. For handpumps the design figure is 75-100 persons per handpump;
- the quantity of water made available would provide 30 litres per person per day (although several investigations have indicated that quantities as low as 10 litres per person per day are used).

At present the VWSS limits itself to three types of water supply systems as follows:

a) **waterpoints** where a spring is protected by way of being dug and adequately sealed from contamination and then a storage tank with an outlet taps installed next to the spring. These systems are common in the mountains where springs may occur in close proximity but beneath village housing areas;

b) **piped systems** distributing water from reservoirs above the community which may be fed by gravity or pumping (the latter being more frequent in the Foothills and Lowlands);

c) **borehole-handpump systems** which are commonly installed in the Lowlands where adequate spring sources often cannot be found.

Despite the fact that the VWSS is now well established with offices in all districts, there are still considerable regional differences with the Lowlands being better served than the Mountains.

WATER SOURCES IN THE QABANE VALLEY

Perennial Springs

As throughout Lesotho, the pattern of springs and spring lines in the Qabane Valley closely relates to geological formations.

Every village has access to some continuous water supply by necessity. Most villages do have at least one spring which flows throughout the year into informally constructed catchment basins. Efforts are often made to protect these basins from animals. This is usually done with stones and poles. At times of low rainfall, the pattern of collection through the day needs to be adjusted and the per capita quantity reduced, to allow community needs to be fulfilled. All of the villages involved in the Study had access to such permanent sources although, in times of shortage, parts of Ha Matsa (Moreneng) rely on making visits to collect from the nearby village of Khamolane which, in turn, needs to go to a third village because of this unwelcome depletion of its resources. This situation, as would be expected, creates its own cycle of inter-village resentment.

Seasonal Springs

During periods of plentiful rains, numerous temporary sources of groundwater emerge at new points of overflow. Efforts at protection of these collection places are less common. Although the higher yields simultaneously occurring at perennial spring sites result in their greater capability to serve community needs in terms of quantities, the appearance of water at points which are more convenient for some of the population means that these seasonal sources are put to widespread use, at such times, including for drinking purposes.

Seepages

In the wetter seasons - particularly at the higher altitudes -accumulations of water leak from the sponge-like cover. Small dams created below run-off points are used to collect water which is then used for domestic but non-drinking purposes.

Rainwater Collection

The cost of galvanised iron roofing and, perhaps, the effort required to import it, has led to its being used by few people particularly at the higher altitudes. Those who do have such roofing can use it for rainwater catchment; however the types of storage containers in use only provide for 2-3 days of consumption for an average household.

The construction of domestic storage to provide an adequate supply for the duration of Lesotho's long dry season is not a feasible option, even in non-drought years.

Surface Water

In a number of villages, the yields of groundwater sources fall below minimum community needs for 2-3 months of the year. People must then resort to the use of streams or the Qabane River itself. During such dry periods the risk of contamination by animal or human faecal material may be reduced (through lack of rains to transport it into water courses) but use of surface water for drinking can never be considered as

safe with Lesotho's high livestock levels. It is quite unreasonable to expect those who do draw from streams to ensure disinfection either from boiling (because of the scarcity of fuelwoods) or by the use of chlorine (because of both ignorance of the correct application of chemicals and the obnoxious taste which results).

People's choice of what water source to use depends partly on convenience and partly on the purposes they have in mind. Water that is to be used for bathing or washing might be drawn from a nearby stream while drinking water is drawn from a more distant spring. Often water is not drawn. It is easier to carry a load of washing to a stream, where there is ample running water to rinse the clothes, than it is to carry water to the home.

Streams, especially in summer, are often used for bathing, although deep pools are carefully avoided as few Basotho know how to swim and as pools are said to be the homes of monstrous snakes. It is believed that these snakes travel from one river to another hidden in the centre of whirlwinds. The destruction caused by such winds is often attributed to these snakes which, people believe, can be controlled through witchcraft. Some say that the snakes mistake iron-roofed houses for water as they fly overhead. When they try to land in the 'water' they damage the roofs.

WATER SOURCES AND CONSUMPTION IN THE SAMPLE VILLAGES

The water supply of the different villages in which the study took place was varied. In Area A, one village (Ha Pesi) had a properly protected water supply recently completed with the help of the Programme while two villages (Moreneng-Ha Matsa and Ha Makhetha) were busy excavating their springs as the first step towards protection with the help of the Programme.

In Area B, one village (Ha Mpolokoana) was using a spring that was inadequately protected before the start of the Programme. This spring was located above the village and people were able to draw water from a pipe placed near the source. In one village (Ha Moeti), people were drawing water from either the small river near the village or a very inadequately protected spring located outside the village near the primary school. Finally, in Ha Setebatebe people were drawing water from two springs below the village - both of which were simply covered with a few poplar poles and corrugated iron sheets.

In none of the villages did the distance of water or its supply present serious problems although, in Area B, a number of interviewees complained that springs which had once flowed strongly had now dried up.

The number of litres of water used per person per day was assessed by asking interviewees how many 20-litre buckets (or the equivalent) were drawn each day for their household purposes. This figure was then divided by the number of household members.

Initial results from this calculation showed that the mean number of litres used per person for the area as a whole is 19.3 which comes very close to the World Health Organisation recommended minimum of 20 litres per person per day. Examining the results more carefully it was found that this mean had been influenced by 10 people who claimed to be using over 50 litres of water per family member (4 of the ten claimed to be using 90 litres per member). It is possible that these respondents exaggerated the amount used to please the interviewer. When we dropped these 10 cases an overall mean of 14.4 litres per person per day was obtained. This figure is close to that of 15.4 litres per person per day recorded in a major study carried out in the Lowlands (Gay, Judy., 1984). *54% of families were using 10 litres or less per day per household member.*

Daily usage appeared to vary according to the two principal areas in which the study was conducted. In the less eroded area above the cliffs (Area A) the mean number of litres used is 15.2 per person per day. In the lower, eroded area (Area B), the mean number drops to 13.7 litres.

However, the sample villages were not selected according to the yields of their springs, nor by the average household distance from a spring. This is not to say that lower daily usage infers less understanding of the need to use greater quantities of water nor differences in the willingness to collect them. In fact, the Area B villages of Ha Mpolokoana and Ha Moeti are cases with particularly severe shortages of supply.

Provision of storage facilities is part of the system design of all WSSP-built supplies. Greater daily quantities will certainly be used when buckets can be filled from a tap in a short time.

WATER COLLECTION PRACTICES

Water collection is almost exclusively the task of women and girls. Collection takes place primarily in the early morning and late afternoon. There are, in fact, taboos against collecting water after dark (which is thought to attract evil to the household).

Water is usually collected in 20-litre plastic buckets. These have become very popular in recent years and have largely replaced the zinc buckets which have the disadvantage of being heavier and of rusting. The plastic buckets often come with tight-fitting lids.

Before water is drawn, buckets are often cleaned by hand rinsing. On the rare occasions that soap is used, the cleaning takes place at home.

The most common way of drawing water from unimproved springs is with enamel basins. Interviewees explained that they like to use basins as these do not stir up the water in the way that mugs do. A basin is actually used to disperse any dust or objects. This is done with a gentle spiralling movement as it is set down on the surface of the catchment into which the spring runs.

22. Woman drawing water at unprotected spring

When a pool of water looks dirty it is sometimes emptied by rapid scooping. Drawing will continue once it has refilled and any sediment has been allowed to settle. Drawing water in this way can be extremely time consuming. Clarke (1984) found that 45% of interviewees using unimproved systems took over one hour per trip to collect water for household purposes.

Buckets are carried back to the home on the head. This is a skill that girls develop from an early age partly through practising to carry small containers during games but primarily through necessity as, from the age of about six or seven, they are expected to help draw water for the household. Young girls often have to use their hands to help stabilise water buckets on their heads.

23. Young water carriers

POST COLLECTION PRACTICES

In the early 1980s, the Ministry of Health in Botswana raised questions about the quality of water at village standpipes as research was continuing to show high levels of diarrhoea incidence, despite the dramatically improved access to piped water. A study revealed that 85% of the piped water was not contaminated but that, in almost all cases, household water was. Water contamination in the household could largely be attributed to "foreign objects" (notably calabashes and dirty fingers) being placed in the water containers (UNICEF, 1989).

Today, water is almost always stored in the same buckets that are used for collection. In the home these containers may or may not be covered. Although no real measure was taken it was apparent that the covering of water containers in the Qabane Valley is far from universal. Water is drawn from the buckets either with a basin (that is usually kept floating on the surface of the water) or with a mug kept nearby. One interviewee said she keeps a special bottleful for handwashing after anal cleansing (so she does not have to draw from the main household supply). In Chapter 4, which deals with hygiene and sanitation practices, the various precautions taken to avoid contaminating drinking water when using the same container for storing washing water are reported in detail.

The Use of Disinfectants

Approximately one quarter of the interviewees (40 people) use disinfectants of one kind or another. The most common disinfectant is Dettol which was named by 21 interviewees. Dettol is most frequently used for bathing new born infants or for children with skin rashes or sores. One person said she used it for gargling when she had sores in her mouth, another takes a drop of Dettol in water for pains in the chest. One interviewee uses Dettol (diluted in an enema) to treat diarrhoea. The Dettol is almost always highly diluted with water: interviewees use three drops or less to a basin for bathing.

Following Dettol the most frequently used disinfectant is Jik. This was mentioned by 12 people who all use it for bleaching clothes.

Besides Dettol and Jik, three other disinfectants were mentioned: Vim, used by one person for cleaning pots; Jeyes Fluid, mentioned by one person who gave no details and Madubula's Disinfectant, used by three people variously for treating rashes, removing insects from children's ears and cleaning chamber pots.

WATER USE AND PERSONAL HYGIENE

Most bathing or washing of the body takes place in the morning, partly because water is usually heated outside and this is most easily done during daylight hours. Getting the whole family washed can be time consuming and demanding on fuel. While one member of the family washes, the others wait for the next batch of water to heat up so hot water is effectively rationed with minimum quantities being used.

Clarke (1984) noted that men washed less frequently than women. Our conversational interviews and observations confirm this. Women, who constantly use water in the home, wash themselves (and their hands in particular) far more frequently than men.

Hot water for washing is a real luxury and, as a result, certain household members get less access to it than others. Typically, a mother will give priority to infants and children who are attending school. The research team was struck by the fact that children who do not attend school (either because they are too young or because they are herding) are definitely dirtier than others. Of the 11 children found to have serious skin sores or rashes most were in this category. Herdboys, in fact, set out with their animals each day at first light and before the morning water heating has been started.

A few interviewees admitted that children aged 2 to 5 are only washed once a week; 2 said they washed their children only once every 2 weeks; 3 said they only washed children of this age before travelling or going to see the doctor.

PEOPLE'S VIEWS ON THE TRANSMISSION OF DISEASES AND THE CONTAMINATION OF WATER

People's views regarding the transmission of diseases and the role of water in this were explored in open-ended interviews. This method was employed as many of the issues discussed were too complex or too sensitive to be dealt with in a set questionnaire. The result is that many of the findings cannot be quantified as a percentage of the overall sample. Nevertheless, an indication is given of how many people made a particular observation when this is possible.

From research conducted in other parts of Lesotho (Varela, 1985 and Hall and Malahleha, 1989) it is known that "the main causes of diseases admitted by the Basotho are nonmaterial or supernatural (while) a few are natural in character." (Varela, p.80) The supernatural causes can be divided into numerous categories which include: evil spirits; the spirits of the deceased; a dwarf-like creature known as a *thokolosi;* breaches of taboo; witchcraft; whirlwinds and evil air. Given the special interests of the Programme, we focussed primarily on people's understandings of the natural causes of diseases.

Awareness of Germs

> "...the awareness of living things as pathogens is almost solely limited to worms, even though they are often thought to be introduced in the body, like insects and snakes, by witchcraft." (Varela, p.87)

We found that, indeed, many people believed that diseases are spread by minute, red worms (*likokonyana*) which are visible to the naked eye and may be found in water. When people were asked if water that looks clean can be harmful in any way to the human body, 20 interviewees said: "No, as long as water looks clean it is not dangerous." The response indicates a total lack of awareness of the existence of germs amongst many interviewees.

However, it was found that most interviewees may have had some idea that diseases can be spread by agents that are invisible to the eye as 34 said that even clean-looking water could be dangerous to the body.

In discussing exactly what might be the dangerous elements, people tended to use two terms which are currently used in health circles to translate the word "germ". The first of these is *likokoana hloko* which is a fairly recent term (not appearing in the standard Southern Sesotho-English Dictionary of Paroz, 1974). *Kokoana* is used generally to refer to an insect but is also frequently used to refer to a worm or snake which enters the body through witchcraft and can only be removed by a traditional healer. The other term that is used is *lipeo tsa mafu* which translates directly as "the seeds of disease". This is also of recent origin and does not appear in Paroz.

We found considerable confusion surrounding the use of these two phrases. Many interviewees were not able to explain either what they meant or if there were any differences between the two. *Kokoana* is, in fact, a somewhat misleading description as it suggests something visible to the eye and this confusion emerged during interviews. *Lipeo tsa mafu* term comes closer to suggesting the presence of something very small, even invisible which can "grow" into something harmful and interviewees appeared to relate to the 'germ' concept more easily through that analogy.

The younger the interviewees, the more likely they were to use one of the two terms discussed above. Older people hardly ever used either and were more likely to attribute diseases to supernatural causes or to visible agents such as worms in the water. Young mothers who have attended ante-natal and under-five clinics are certainly more likely to have been exposed to concepts such as germs and the various routes of their transmission.

Awareness of Routes of Infection

In people's explanations of how diseases are spread, a key element is wind or air. Forty-five interviewees argued that wind picks up particles of dust, faeces or "other bad things" and then deposits these in unprotected springs or in uncovered water containers in the house.

A few specified that inside the air are things that come from the bad smell of faeces. One person noted that on a cold morning these "things" could even been seen rising from fresh faeces (i.e. steam) along with the smell and would then travel with the wind, spreading diseases as they go.
Significantly perhaps, the Sesotho word *moea* means both "air" and "spirit". It underlies the close association between the natural and supernatural worlds in Basotho culture. The term *moea o mobe* can thus mean "bad (destructive) wind" or be used to refer to a malevolent person (*O moea o mobe*). A similar term is used to describe a person who is 'possessed' by a spirit: *O tsoere ke moea.*

Besides the wind, there are a number of other agents that are said to have a role in spreading diseases. Most common among these are animals: 23 people argued that animals spread disease by contaminating unprotected springs. Most mentioned the danger of animals that had previously consumed human faeces depositing traces in springs as they drank. A few (3) noted that animals could contaminate springs with faeces they had trodden on with their hooves. Others (3) expressed a particular concern about horses with lung diseases (*seterefe*) contaminating spring water with their saliva or phlegm. They claimed that this resulted in the growth of dangerous red worms.

Other people who identified worms as agents of disease offered different ideas about where they might come from. Two people said that the particles of dust and faeces that were carried into springs by strong winds turned into worms on contact with the water.

27 people regarded flies as spreaders of disease. In most of these cases, it appears that people perceived flies as being physical carriers of *lipeo tsa mafu*. Germs were actually sticking to the feet of flies that had contact with faeces (or other 'dirt') and then being deposited onto uncovered food or into water. Twelve interviewees mentioned that water could be contaminated by flies falling into uncovered containers.

It might be noted that flies are definitely more prevalent in houses that are roofed with corrugated iron than in houses that are thatched. The former are considerably hotter than the latter and flies thrive on heat. Also, thatched houses have smaller windows and hence darker interiors than iron-roofed houses. It is even possible that the bright iron roofs shining in the sun actually attract the flies from a distance.

In addition to mentioning flies, 4 people mentioned other insects (lice, fleas and mosquitoes) as transmitters of diseases. It is not apparent exactly what diseases these interviewees had in mind or where they obtained their information. Lesotho is of course free from malaria so mosquitoes are more of a nuisance than a threat to health.

A number of people mentioned that springs could easily be contaminated by heavy rains. Ten believed that this occurs when faeces that have been deposited above the spring are washed down by the rain; three said that 'germs' are washed into the spring each time it rains. These attitudes are consistent with the view that water is contaminated when it is visibly dirty (as is the case after a heavy rain).
Only six people mentioned the danger of water being contaminated by unwashed hands.

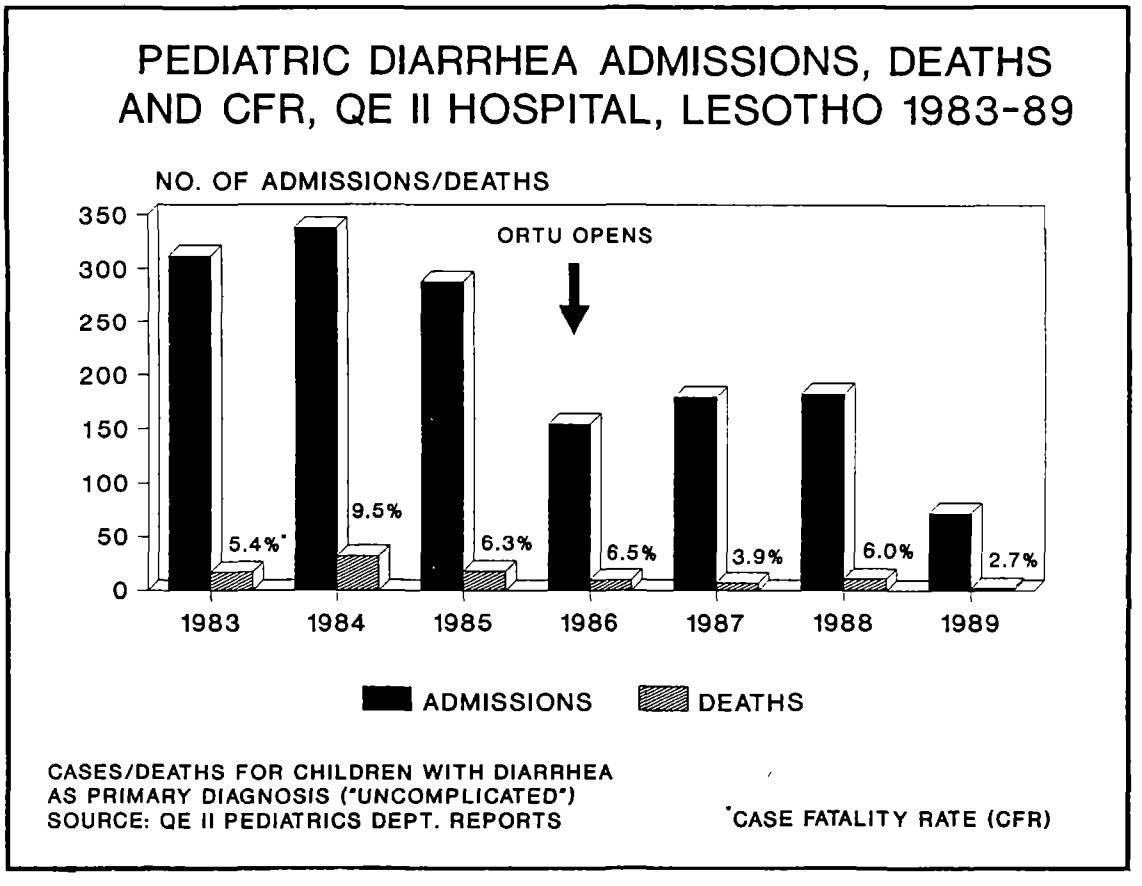
DIARRHOEA

Introduction to the Problem

Global statistics show that diarrhoea is the leading cause of child death. In 1987 alone, 5 million children under the age of 5 died from diarrhoea. It is estimated that 3.5 million of these children died from dehydration (UNICEF, 1988). Where death does not occur, it often leaves children malnourished and vulnerable to other diseases (UNICEF, 1988).

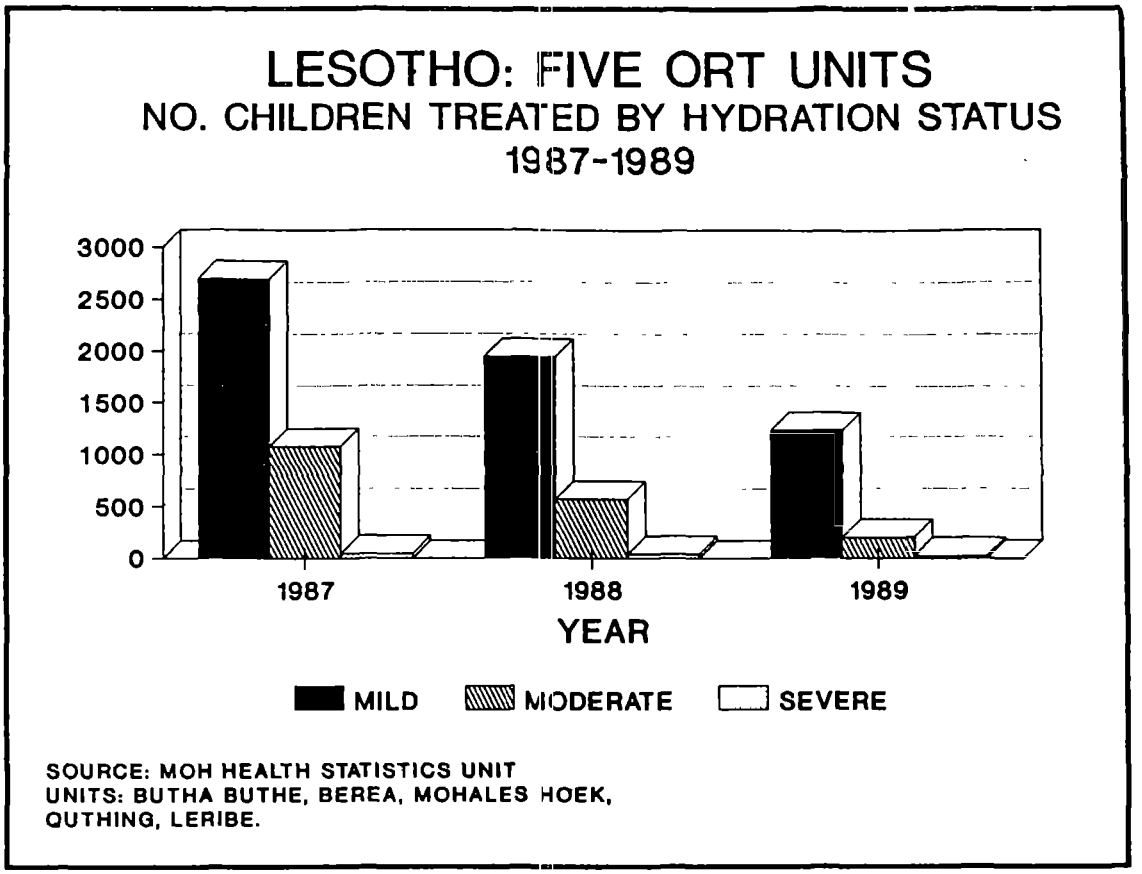
In Lesotho, data from hospitals for 1987, show that 22.8% of infant deaths and 16% of child deaths (in hospitals) were caused by diarrhoeal diseases.

The same data demonstrate that, since 1984, there has been a drop of 11% in infant deaths and 13% in child deaths caused by diarrhoeal diseases (MOH, 1988). The steady decline in cases being admitted to Queen Elizabeth II Hospital is illustrated in Graph 8 which also shows the percent of deaths. The decline is believed to be due largely to the introduction of ORT and ORT Units at hospitals. This graph shows when the Hospital's ORT Unit opened. However, the diarrhoeal diseases are still the leading cause of infant and child mortality in Lesotho.



Graph 8

Graph 9 shows the numbers of child cases of diarrhoea treated at ORT Units in five Districts, and breaks these down into degrees of severity of dehydration.



Graph 9

Tebellong Hospital itself reported 66 cases of diarrhoea with some degree of dehydration in 1988. Of these, 35 were admitted and one died (Tebellong Hospital Annual Report, 1988).

A study in Mohale's Hoek District found that 52.2% of children with diarrhoea brought to health centres were suffering from some degree of dehydration (Cousens and Poulsen, 1988). Diarrhoea in Lesotho is most likely to affect children between 6 and 18 months. This trend, noted by Tebellong staff, is confirmed in numerous other reports.

Diarrhoeal diseases in Lesotho are highly seasonal. The number of cases peaks in the rainy, hot months of January and March and falls as the temperature and rainfall figures drop in winter. This pattern is widely recognised and is clear even in the small number of cases reported by Tebellong Hospital. There is also a clear relationship between diarrhoea and malnutrition which also peaks in the pre-harvest, summer months when food stocks are at their lowest.

Cousens and Poulsen (1988) surveyed 25 randomly selected villages in Mohale's Hoek District. They found that, on average, 12% of the children had suffered from diarrhoea sometime in the 2 weeks prior to the enquiry. This figure fluctuated according to the season with a high of 24% in January and a low of 6% in May.

Feachem and others discovered that the seasonal pattern was similar in villages with improved and unimproved water systems. They noted that a similar pattern even exists amongst the black population of the city of Bloemfontein in South Africa where the water is piped and chlorinated. They concluded that the provision of piped water alone had not led to reductions in these diseases in Lesotho and went on to postulate that "most faecal-oral transmission in Lesotho is by non-water-borne routes and therefore is

susceptible to improvements in personal and domestic hygiene and excreta disposal and not to improvements in water quality *per se*" (Feachem and others, 1978).

A similar conclusion was drawn later, following a study of 545 children 1-60 months of age from 20 villages divided into two sub groups, 10 with and 10 without improved water supply. The results showed that: "Diarrhoea rates were not less, nor was child growth better in the improved villages compared with unimproved villages." It was concluded that this could be because the provision of clean water "...was not accompanied by education to increase the use of water for domestic hygiene..." (Esrey and others, 1988).

The Extent of the Problem in the Qabane Valley

47% of the interviewees said that their families, or other families they knew, had been troubled with diarrhoea at one time or another. This gave a crude indication of local perceptions of the scale of the problem. 21% of interviewees said that members of their household had been very sick with diarrhoea at some time.

Demanding only a brief period of recall, we asked interviewees how many cases of diarrhoea in the household had been "taken for treatment" since Christmas 1989 (i.e. within approximately the last 4 to 7 weeks depending on the date of the interview). The question was phrased to exclude mild cases of diarrhoea, as it could be assumed that only serious cases would be taken somewhere for treatment. Of the 122 households interviewed, 16 (13%) had taken a member somewhere for treatment.

In enquiring about "the last year" we found only a slight increase in the estimated number seeking treatment, 19 (16%). This might be due to the fact that recall over the longer period of time was poorer but it is probably an indication that cases of diarrhoea peak during the summer period referred to in the previous question.

Types of Diarrhoea

Basotho mothers' knowledge and attitudes regarding diarrhoea have been examined in some depth by Dahlberg (1987). In all, her interviewees identified eight different types of diarrhoea. Interviewees said the most serious type was *mohlala*. This type of diarrhoea differs from others when it comes to cause, preventive measures and treatment. According to Dahlberg, *mohlala* is considered to be caused by witchcraft and there are many traditional treatments against it. Some mothers said that *mohlala* is caused by a child coming into contact with a woman who has used a traditional medicine to attract men. Other types of diarrhoea were differentiated according to the colour and consistency of the stools.

In the Qabane Valley, when interviewees were asked about different types of diarrhoea (*letsollo*), almost all identified a type which they called *kholera*. Most interviewees used this term to refer to a severe case of diarrhoea resulting in red, watery stools (*le lefubelu*). Others used it as a synonym for any severe diarrhoea. Some said that *kholera* produces red, mucoid stools (*le matheke-theke*).

The frequent use of the word *kholera* may be specific to the region. All the members of the survey team were surprised to hear it so often. PHC staff at Tebellong Hospital attribute this to an outbreak of cholera in Natal in 1985, during which frequent radio broadcasts warned people of the dangers, signs and symptoms of cholera. The staff suspect that many people used this term instead of the more common Sesotho terms for diarrhoea (*letsollo* or *mohlala)* just to impress their interviewers with this newly acquired knowledge. A number of people stated that *kholera* could not be cured using ORT. One interviewee defined *kholera* as a highly contagious form of diarrhoea.

Some interviewees mentioned a severe form of diarrhoea that is said to be caused by a worm (*kokoana*) which enters the stomach. It was said that a person with this type of diarrhoea defaecates "fine white strings". The victim weakens and feels as if all bodily orifices are wide open with air passing through the body freely. It is said that the only cure for this form of diarrhoea is the plant *poho-tsehla* (phytolalla heptandra).

A number of mothers also mentioned a "harmless" form of diarrhoea that is associated with teething children. Some spoke of diarrhoea caused by the eating of too many "new foods" at the beginning of the season, especially green peaches.

Some of the older mothers mentioned a particular form of diarrhoea that afflicts infants when their faeces are disposed of in such a way that they can be eaten by dogs (this is discussed in more detail later).

One mother argued that a child will get diarrhoea if its parents are sexually active while it is still breast-feeding (Basotho custom strongly discourages sex throughout this period).

When Treatment is Thought to be Needed

Using the questionnaire we asked people to state how they recognised that a case of diarrhoea was serious enough to require treatment. From the 189 replies (some people gave more than one reply) we have compiled the following table:

TABLE 13

SIGNS OR SYMPTOMS SHOWING THAT A PERSON NEEDS TO SEEK TREATMENT FOR DIARRHOEA

	#	%
Very frequent stools	45	23.8
Watery, bloody stools	31	16.4
Loss of weight	25	13.2
Weakness	24	12.7
Painful, mucoid stools	15	7.9
Severe abdominal pains	10	5.3
Sunken eyes	10	5.3
Does not know any signs	9	4.8
Wrinkled skin	8	4.2
Loss of appetite	6	3.2
Stools with worms	2	1.1
Very red anus	2	1.1
Dizziness	1	0.5
Shivering	1	0.5

A sign not mentioned by Qabane interviewees is fever. In Mohale's Hoek, it was found that 52.8% of children brought to health centres for the treatment of diarrhoea had a fever (Daniels and Cousens, 1988). The importance of bringing children whose diarrhoea is accompanied by fever to health centres is now being stressed by the HEU of the Ministry of Health.

We found it difficult to measure precisely what interviewees meant by "frequent stools". From the conversational interviews we gained the impression that, for adults, this referred to passing stools more than 5 times a day although this point was not explored systematically. In a study of 803 cases of diarrhoea brought to health centres in Mohale's Hoek, Daniels and Cousens found that 63.4% had passed 3-5 stools in the past 24 hours; 22.7% had passed 6-9 stools and 14% had passed more than 10 stools.

Looking at the results presented in Table 14, PHC staff were encouraged to note that only 9 people said that they did not know of any signs showing that a person needs treatment (of whatever kind) for diarrhoea.

The staff also noted that many people were correctly identifying signs of dehydration - even if these were not recognised as such. These include: loss of weight, weakness, sunken eyes and wrinkled skin (35.4%). Although sunken fontanelle is actually a sign of dehydration, it is not surprising that this was not mentioned

as it is often considered to be a disease in its own right (see 'Moleli and Dahlberg, 1987 and Hall and Malahleha, 1989).

It is clear that many people are seeking treatment for diarrhoea once signs of dehydration are apparent. PHC staff, who have stressed the dangers of dehydration to people in the Qabane Valley for many years, were encouraged by these findings but noted the need for HE to continue to inform people about how to recognise, prevent and treat dehydration.

Treatment of Diarrhoea

Research conducted by various agencies over the last five years shows that while many mothers continue to use traditional remedies for diarrhoea ('Moleli and Dahlberg, 1987 and Hall and Malahleha, 1989) there has been a dramatic increase in the knowledge and use of ORT. In 1984, it was reported that only 22% of mothers in the Mohale's Hoek area knew about ORT (Clarke, 1984). By 1989, one survey estimated that 85% of cases of diarrhoea were being treated with ORT (MOH/UNICEF, 1989) although fewer than 50% of mothers were preparing the solution correctly (Moteete and others, 1989). The GOL/UNICEF target for 1989 was 65% of mothers with children under five treating diarrhoeal diseases correctly with some type of ORT.

In the Qabane Valley Survey, we began by investigating interviewees' knowledge of how diarrhoea can be treated. The following table summarises these findings:

TABLE 14

TREATMENTS FOR DIARRHOEA

	#	%
Use ORT	68	49.0
Traditional herbal infusion	32	23.0
Does not know	11	7.9
Medicine from hospital	8	5.7
Seek help from modern doctor	5	3.6
Enema with traditional herb	3	2.1
Medicine from VHW	3	2.1
Potassium permanganate	1	0.7
Medicine from shops	1	0.7
Seek help from clinic	1	0.7
Tablets (unspecified)	1	0.7
Sulphate of copper	1	0.7
Ground pieces of clay pot with water	1	0.7
Milk	1	0.7
Enema with Dettol	1	0.7
Custard powder mixed with water	1	0.7
TOTAL	139*	100.0

*Note: Some interviewees gave more than one answer.

Looking at the above table, there can be no doubt that the use of ORT for the treatment of diarrhoea is very well known. It should be noted that the sample includes many interviewees who do not have children under five in their households. We can postulate that the percent citing ORT as the best treatment for diarrhoea would be even higher amongst a sample of younger mothers with children under five. Unfortunately, our sample is too small to isolate such cases in order to demonstrate this point statistically.

The open-ended interviews suggested that the widespread knowledge of ORT is due partly to the work of the VHWs who had taught mothers how to mix the salt and sugar solutions at *lipitso* and in their homes. Many mothers learned how to mix the solution while attending pre and post-natal clinics held either at the Hospital, the Health Centres (usually Ha Sekake's) or at the monthly under-five clinics held at the Village Health Posts. The important role being played by VHWs in teaching the use of ORT stands out in contrast with findings from elsewhere in Lesotho where only 2% of the mothers said they learned of ORT from a VHW (MOH/UNICEF, 1989).

A number of interviewees (7.9%) did not know of any treatment for diarrhoea, which points to the need to continue to promote ORT as a basic component of HE.

While ORT treatment is well known, the reason for giving it is not. Some mothers apparently see ORS as a medicine that will somehow combat the disease. It is not widely understood that this is a mixture which ensures that lost essential fluids, salt and sugar are replaced while the body combats the disease itself. In fact, it is apparent from our interviews that it is not widely appreciated that diarrhoea results in dehydration.

Reviewing the above list of possible treatments, PHC staff were surprised that nobody had suggested "extra fluid" or more "breast feeding".

It is interesting that nobody mentioned the need for a child recovering from diarrhoea to get extra food for at least a week. (This need is stressed by UNICEF internationally). Within the Tebellong HSA mothers are advised to feed their children more frequently after an episode of illness, especially when a child has lost weight. The Ministry of Health has recommended that such children be given soft, sorghum porridge (*lesheleshele*). Recent research has shown that the fermented, sorghum porridge (*motoho*) has a much lower bacteria count than the unfermented porridge and is therefore safer (Sakoane and Walsh, 1988). Research is currently under way to determine to how these traditional beverages might be adapted and promoted for ORT (Gittleman, personal communication).

Many respondents (23%) believed that diarrhoea could be treated by using some kind of traditional herbal infusion. The following plants were named as being suitable for treating diarrhoea:

TABLE 15

PLANTS USED FOR THE TREATMENT OF DIARRHOEA

SESOTHO NAME	LATIN NAME	FREQUENCY
Mohalakane	Aloe Ferox	8
Poho-tsehla	Phytolacca Heptandra	3
Mofera-ngope	Withania somnifera	1
Sepa sa linoha	Albuca Trichophyla	1
Monyamali	Rhynchosia craibea	2
Khoara	Geranium caffrum	5
Mosokelo	Pellea Involuta	1
Mositsane	Elephantorhiza burchelli	1
Tsilabelo	Rhus Erosa (roots)	1

Very little has been published on the pharmacology of the above plants and it is therefore difficult to comment on how the use of such plants should be treated in HE. What is known is that some of these plants - notably *mohalakane* - cause powerful bowel movements and are sometimes used by adults as a treatment for constipation. Four interviewees regarded enemas as a remedy for diarrhoea, although such treatment would dangerously accelerate loss of body fluids. Doctors frequently see patients who have already been treated with herbal remedies that have resulted in a rapid deterioration of their condition. Some doctors believe that many plants do far more harm than good (Mans, personal communication). On the other hand, many Basotho mothers claim to succesfully treat their children with traditional herbal remedies (Hall and Malahleha, 1989).

When asked who should administer the suggested treatment, 45.9% of the interviewees said it should be a woman of the household. This reflects the high number of respondents who mentioned ORT and herbal remedies as a treatment. Significantly, 15.6% of interviewees said that the VHW should administer any treatment. This corresponds with VHW reports that more people come to them for the treatment of diarrhoea than for any other complaint with the exception of skin sores and rashes. The remaining 38.5% of interviewees felt that a doctor should administer treatment. It should be recalled that many of the respondents would have had severe diarrhoea in mind (or might have been trying to please the interviewers) when making this response.

Prevention of Diarrhoea

Internationally, it has been widely accepted that a number of different strategies need to be pursued if diarrhoea rates are to be reduced.

The study investigated the extent to which people of Qabane Valley know these strategies by asking if diarrhoea could in fact be prevented and 40.4% of interviewees said "No". The sex and level of schooling of interviewees had no significant influence on results (i.e. computer cross-tabulations showed no significant relationship between the variables).

Evidently many people see diarrhoea (and probably other diseases too) as something which strikes where it will and is quite beyond human control or influence. This view of disease emerged in a more detailed study of Basotho perceptions of health and health services (Hall and Malahleha, 1989). It is even reflected in the Sesotho language. A Sesotho speaker will say: "I am caught by a cold" (*Ke tsoere ke sefuba*), rather than: "I have caught a cold", suggesting the possibility that the speaker bears some responsibility (such as having come into contact with someone else who has a cold).

Looking at how the remaining 59.6% of interviewees thought diarrhoea could be prevented, we find the following:

TABLE 16

VIEWS ON HOW DIARRHOEA CAN BE AVOIDED OR PREVENTED

	#	%
Does not know any way	68	40.4
Protecting springs	17	11.2
Keeping food covered	15	8.8
Keeping the home clean	11	6.5
Building latrines	10	5.8
Killing flies	9	5.2
Boiling water	7	4.1
Keeping dishes clean	5	2.8
Consulting doctors*	5	2.8
Keeping one's body clean	4	2.4
Keeping water containers covered	3	1.6
Drinking clean water	2	1.2
Keeping clothes clean	2	1.2
Giving children only fresh food	2	1.2
Proper nutrition	2	1.2
Avoiding dirty food	2	1.2
Keeping a good stock of medicines	1	0.5
Taking traditional herbs	1	0.5
Taking ORS	1	0.5
Hand washing after the toilet	1	0.5

* Note: This includes traditional healers.

PHC staff considered these results to indicate that some of their basic messages (like cleanliness, personal hygiene, food handling and clean water) are getting across. They were concerned however that so many people had not known of **any** way to prevent diarrhoea.

A number of people (11.2%) suggested 'protecting of springs' as a means of preventing diarrhoea. It is surprising that this did not appear at the top of the list, considering the large number of people in the area currently working on spring protection (who have been informed by PHC staff that this will help prevent diseases).

Only 10 people suggested the building of latrines (even though this appears fourth on the list). Given the fact that the POs had discussed latrines at the opening *pitsos,* it is all the more surprising that so few people see any connection between latrines and diarrhoea prevention. In this connection, it might be noted that nobody mentioned the disposal of children's faeces as a factor that might help prevent diarrhoea.

A significant number of people see flies as having a role in spreading diarrhoea. If "keeping food covered" and "killing flies" are combined into one category, 14% of the interviewees would appear to be conscious of the dangers presented by flies. This is confirmed in the open-ended interviews where 22 interviewees mentioned flies as spreading diseases.

Programme and PHC staff have noted that the number of flies in the lower part of the valley far exceeds that in the cooler upper part. Many of the households visited in the lower part of the valley - particularly in houses with iron roofs - were overwhelmed by flies. Yet very few of the households visited kept utensils and food properly covered. Only one household was found to have fly-strips in an attempt to combat the invasion. It seemed that most people had given up the struggle.

Our results show that there were slightly more cases of diarrhoea in the lower part of the valley than the upper but our sample is much too small to be statistically relevant.

We were not in a position to gather information on the number or types of flies in the valley. One observation that was made is that the bottle-green flies that are often found on human and animal faeces outside the village are not usually found inside houses.

Very few people mentioned hand washing as a means of preventing the spread of diarrhoea. Results from open-ended interviews would support the contention that few people see a danger of drinking water being contaminated by dirty hands - whether at the spring or in the home.

PREDICTABLE RISKS IN CURRENT PRACTICES RELATING TO WATER USE

Use of Low Quantities of Water

Given the difficulties that many women and girls face in satisfying their families' water requirements, it is not surprising that the quantities of water used in many rural households in Lesotho are low. The distance from a water source is widely associated with the quantity used. In Botswana, a survey found that households living farther away from the village standpipe used significantly less water than those nearer by (UNICEF, 1988).

The use of low quantities of water has been recognised as contributing to a high prevalence of water-borne and water-related diseases (Feachem and others, 1978; Daniels and Cousens, 1988). Observations and the responses of VHWs indicated the commonness of skin infections in Qabane which would have resulted from too little water being used for personal hygiene - especially in the cases of children who do not attend school. The fact that 54% of interviewees use less than 10 litres of water per person per day indicates that many people are at risk. The protection of water sources will increase the daily quantity of water available by storing the amount previously lost as overflow.

Use of Contaminated Water

Households which are presently drawing water from unprotected springs are assumed to be at risk now. Any household will still be at risk if it chooses to **periodically** use unprotected sources for drinking supplies, but the design standards of VWSS aim to bring protected supply points to within 150m of all housing - unless a dwelling is very remote.

Collection practices at unprotected springs increase the risks as long as people do not wash their hands properly before drawing water. The risk is particularly high following anal cleansing. Very early morning is the most popular time for both of these activities.

School-age girls are often the ones who draw water for the household. From special focus group interviews with such girls (aged 7 to 19) we learned that they do not wash their hands regularly after defaecating nor do they wash their hands before drawing water. By drawing water in the unprotected springs with dirty hands they could place the village at risk.

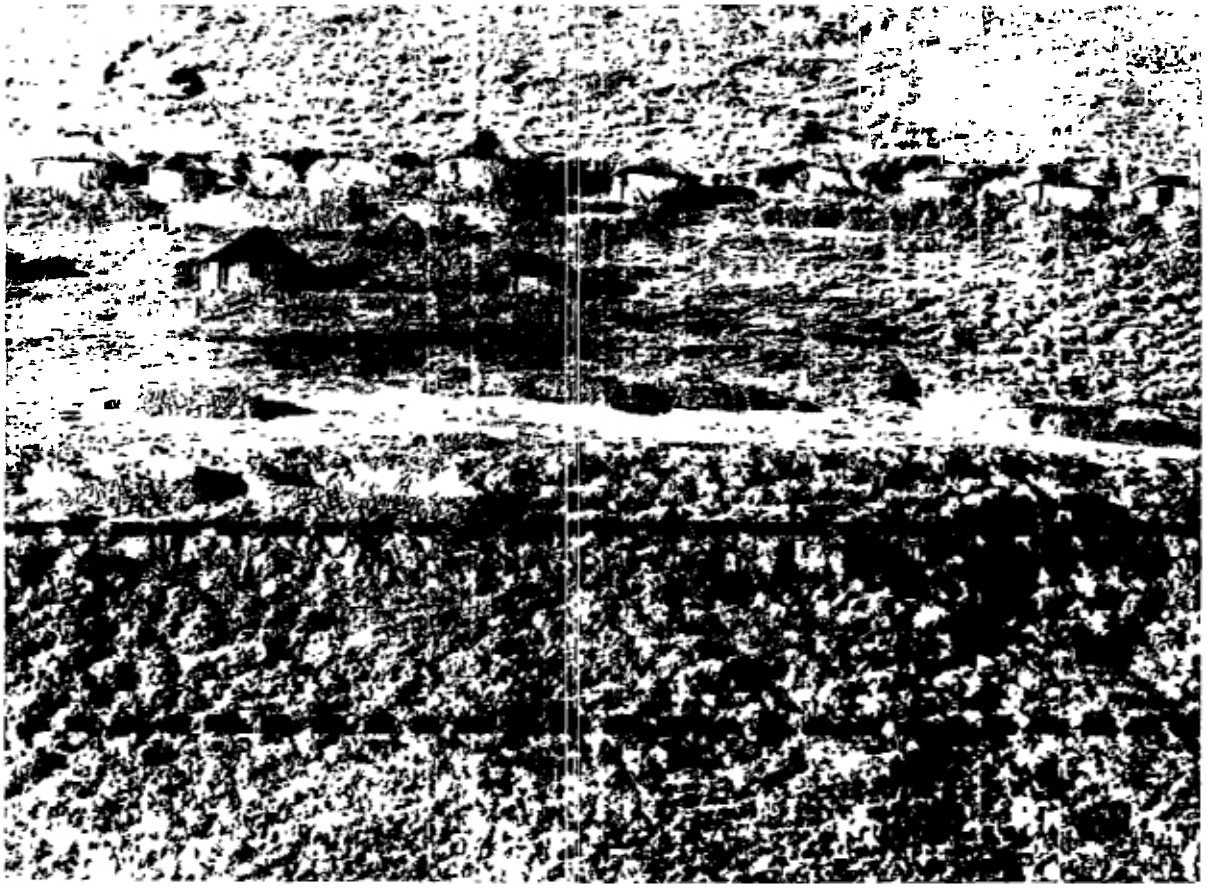
The risk of post-collection contamination is highest for households that are using buckets without lids. Girls often support lidless buckets of water on their heads with their hands up over the rim. This is a risk if their hands have not been washed. Buckets that are not covered in the home risk contamination from any source.

Drawing water in the home, with floating basins or mugs, presents a risk as long the drawer's hands have not been washed. The basins have the advantage of not having to be placed on any exposed surface. Mugs may be left on a contaminated surface but have the advantage of lessening the risk of hand-water contact.

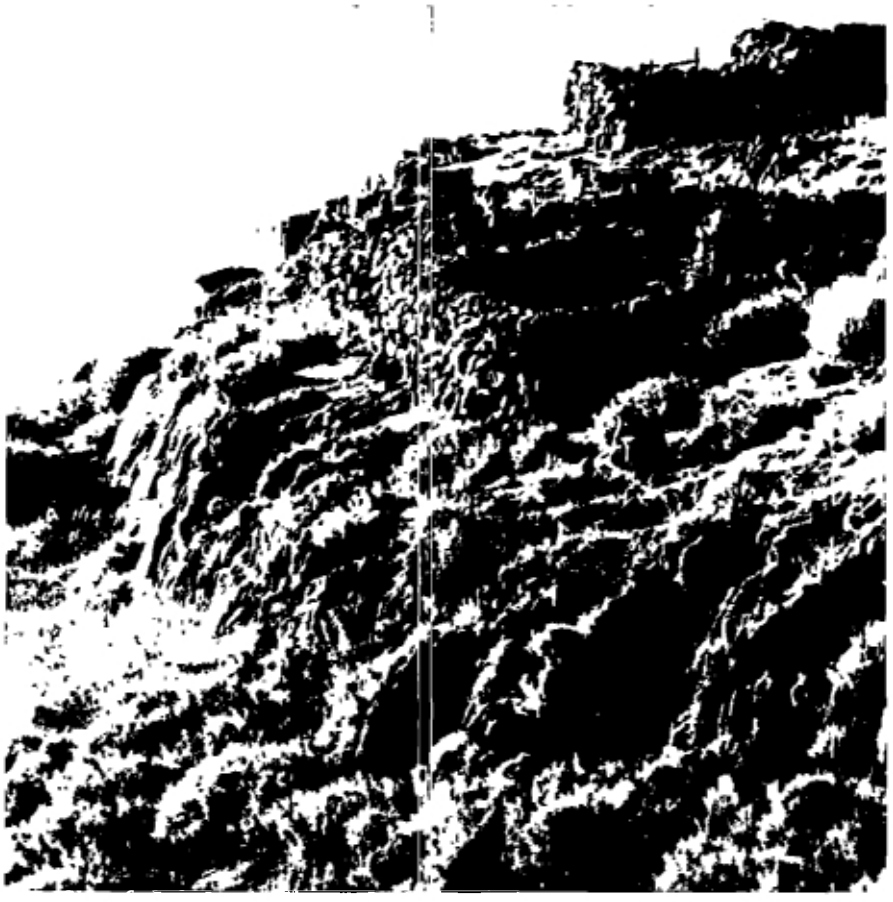
Low Knowledge of Germ Theory

A risk that needs to be taken most seriously is that as long as people have no understanding of germs, they will not understand the logic behind basic health education theory and are therefore not likely to accept messages. A high-risk group in this regard are school-age girls who are already playing an important domestic role when it comes to drawing water. Girls of this age group who were interviewed had little knowledge of *lipeo tsa mafu*, germs or ways that water can get contaminated.

A poor understanding of germs goes along with the fatalistic attitude some people developed towards disease. People who believe that diseases such as diarrhoea cannot be prevented are unlikely to change their practices and will continue to put others at risk until they are convinced otherwise.



24. Defaecation area at Ha Pesi - Area A



25. Profile of defaecation area at Ha Pesi

CHAPTER FOUR

SANITATION AND HYGIENE PRACTICES

THE DEPOSITION AND DISPOSAL OF FAECES IN THE QABANE VALLEY

In the Mountains many people are fortunate to have enough space available to them to defaecate (in relative privacy) far from housing or public view. This in itself may be considered a facility although it is not always properly utilised. Below we examine where people defaecate, why they defaecate there, what happens to their faeces and what they do once they have defaecated. Our research has revealed that the answer to these issues depends on a variety of factors including the age and health of the person in question.

The Practices of Healthy Men, Women and Older Children

Areas used for defaecation vary according to the physical setting of each village. In villages located near the top of a hill (as four of the six villages in the study are), people will go over the edge of the hill and down the other side to defaecate. In cases where the village is near a river or ravine (as two of the six villages are) people will usually go out of sight below the village where they are hidden from view. These defaecation sites are usually between approximately 100 and 500 metres away from the nearest house in the village. These areas have been marked on Photographs 24 - 27.

Only in one village (Ha Pesi) was the defaecation site closer than this to the village. In this case the village is built near the edge of a small cliff enabling people to go only a short distance (about 50 metres from the nearest house) to get out of view. As can be seen in Photograph 25, taken at Ha Pesi some people do not even bother to go below the cliff.

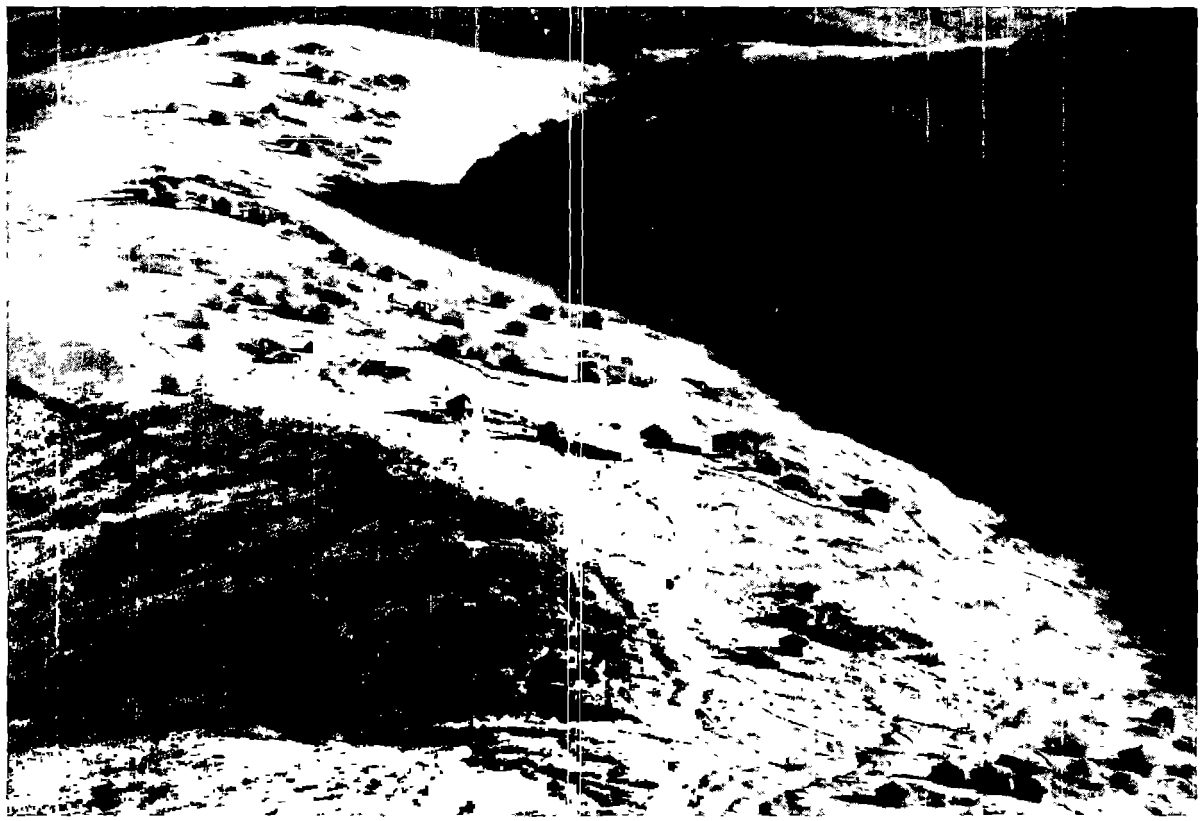
In all villages men and women use different places. This does not have anything to do with any particular taboo but is rather, according to interviewees, a matter of "respect". It is embarrassing to disturb anyone who is busy defaecating but all the more so if that person happens to be of the opposite sex. Furthermore, in Lesotho, fathers and daughters-in-law maintain exceptional distance and respect between each other: no physical contact of any kind is permitted and a daughter-in-law is not even allowed to utter her father-in-law's name. For the two to meet accidentally at a defaecation site would cause extreme discomfort and embarrassment. Hence, men and women keep to strictly defined areas well out of sight of each other.

When it comes to urinating people do not usually go far from the house. Men generally go down as far as the *kraals,* while women usually urinate behind the house. (We were told that men only urinate behind the house when they are drunk.) One interviewee noted that the practice of urinating near the house was bad only if it did not rain frequently whereby the urine near the house would start to smell.

Urinating in public is not considered to be shameful (as long as the person makes some effort to isolate him/herself. Both men and women were seen urinating in view of others during the course of the study (as is the case in other parts of the country).

Distance to defaecation sites presents various problems to particular groups of people in the village at different times. At night, most people are reluctant to make the journey up the hill or down into the ravine. Not only is the journey dangerous on a dark night when there is no moon, it also presents some unpleasant practical problems. A number of interviewees pointed out to us: "You have to be very careful that, when you want to wipe yourself, you make sure you pick up a stone and not someone else's shit." A combination of bad weather and darkness form a particularly strong deterrent to people going long distances away from the village. For children especially, the journey at night is frightening and they are the most reluctant to go out. It is therefore not surprising to find quite significant differences between the places where people defaecate during the day and during the night. These differences are summarised in the following table:

26. Defaecation area at Ha Makhetha - Area A



27. Defaecation area at Setebatebe - Area B

TABLE 17

WHERE HEALTHY PEOPLE DEFAECATE - DAY AND NIGHT

PLACE	DAY %	NIGHT %
	CHILDREN	
On the ash heap	39	38
Mountain side or slope	40	16
Donga/river/ravine	11	2
In napkins	1	1
In a chamber pot/bucket	0	21
Anywhere	6	11
Interviewee does not know	1	8
	MEN	
On the ash heap	0	0
Mountain side or slope	83	57
Donga/river/ravine	10	6
In a chamber pot/bucket	0	0
Anywhere	0	7
Interviewee does not know	7	30
	WOMEN	
On the ash heap	0	7
Mountain side or slope	83	58
Donga/river/ravine	16	9
In a chamber pot/bucket	0	1
Anywhere	0	8
Interviewee does not know	1	16

The table shows that, whilst the percent of children using mountain sides or slopes decreases at night, the overall percent of children using the ash heap hardly changes at all. Although the percent is stable the two figures probably represent different groups of children. At night, the oldest children continue to go as far as the usual defaecation sites (16% + 2%). The slightly younger children now start using the ash heap or "anywhere" near the house. Meanwhile, the youngest children, who usually use the ash heap during the day, stay inside (especially during bad weather) and use a chamber pot or bucket.

The table indicates how few children use napkins. As descibed below, the practice is confined to infants.

The table reveals an ignorance of (or a reluctance to discuss) the opposite sex's night time defaecation habits - hence the large increase in the "Interviewee does not know" category for both sexes. Setting this aside, it is evident that, at night, some adults are defaecating close to the house if the need arises. This is most clear from those women who admitted that at night they would go no further than the ash heap (7%) or "anywhere" not too far from the home (8%).

The indication that people use sites close to the home at night was discovered by observation. Faeces were found - on a number of occasions - lying within a few metres of homes in the village. Small ravines running through one village were found to have been used at night even when one of these was located just above the village spring. In another village, faeces were found in summer weeds behind one particular house. Signs of faeces were most common very early in the morning.

Healthy adults almost invariably defaecate very early in the morning. Although there do not appear to be any taboos against defaecating during the day, most people appear to prefer to make their way to the defaecation sites before dawn in accordance with the importance assigned to privacy.

The Practices of Infants and Younger Children

New born infants are invariably provided with some kind of napkin. In cases where not much cloth is available, the mother has to frequently wash what little there is for the use of the child.

As soon as a child learns to crawl (from as early as six months), it is left to go without a napkin during the day and will urinate or defaecate wherever it happens to be at the time. Very few children wear napkins except at night (or whenever the child sleeps).

Mothers soon learn to recognize when a child is about to defaecate. At first, the mother barely has enough time to lift the child off her lap and place him on a suitable place on the floor of the house or possibly outside.

As children of this age tend to urinate without any warning, blankets and other articles of clothing are frequently soaked. The majority of those who were questioned about this issue said that they would usually hang the blanket up to dry and only wash it once it was dirty and/or began to smell. Two interviewees mentioned that if the blanket was clean they would pour fresh water onto the spot where the child had urinated so as to avoid having to wash the blanket too soon. A number of interviewees pointed out that blankets would wear away if they were washed too frequently.

The faeces of a child that is only breast-feeding are not considered to be "dangerous" (when it has diarrhoea) by the vast majority of interviewees. Only 4 respondents said that infants' faeces were dangerous "from birth". The rest offered different ages (ranging from about 2 to six) but stressed that faeces become dangerous once a child starts to eat solid foods and the faeces begin to smell. This, they stressed, was the sign of danger.

As for the **cause** of faeces becoming dangerous, a few interviewees suggested the mixing of foods in the stomach. Others said that young children's faeces were not dangerous until they have suffered from serious diseases such as tuberculosis.

When an infant or a toddler defaecates on the floor in or near the house, the faeces are almost invariably handled in the following manner: the mother picks up a pieces of dung (usually dry horse dung) which is usually kept near the outside hearth where it is used as a fuel; she crumbles this over the faeces covering them almost entirely; she then picks up a piece of flat iron or tin (*lekapa*) and scoops the dung-covered faeces on to it as one would use a dust pan (this is usually done with the side of her hand); she then carries this out to the household ash heap where she casts the lot off the *lekapa* often spreading it over a wide area.

We found that very few mothers (7) buried their children's faeces. However, from some very old people, we learned that in the past (and in a very limited way today) mothers "always" used to bury the faeces of breast-feeding infants for a rather peculiar reason. They believed that if a dog ate such faeces the infant would then be inflicted by a serious case of red, foamy diarrhoea. (This view is in keeping with more widely held beliefs that one's excreta, hair, nail clippings and so on, may be used by another to inflict harm against oneself.) These old people claimed that in their youth (i.e. when they were young mothers) there was not so much diarrhoea as one finds today. They attributed this to the consistent burial of infants' faeces.

A young mother told us that one day she "tested" the idea by throwing out her child's faeces onto the ash-heap so that a dog could eat them: "Sure enough, my child soon had very bad, red diarrhoea". From then on she was very careful to bury them. This mother was an exception. The vast majority simply discard their children's faeces on the ash heap regardless of the age or health of the child. In other words, old beliefs which inspired (for whatever reason) a sanitary practice are no longer held and the message about burying children's faeces (spread by PHC staff and VHWs) has not been given an equivalent credency.

Toilet training begins between the ages of one and three depending on the parents (with almost equal numbers stating ages 1 to 3 as the start of toilet training). This consists of taking the child to the ash-heap whenever the child shows or expresses any desire to defaecate. Once the children reach the age of about five they are encouraged - often by older children - to make the distance to the usual adult defaecation sites early in the morning.

The Practices of Aged or Invalid Persons

The distance of defaecation sites from the village presents most serious problems for the old and the sick. 45 interviewees confirmed that as long as people are still able to walk they make the effort to go to the usual sites. Once the journey becomes too difficult they use the ash heap (6 interviewees) or go behind the house (2). Six interviewees said they bury the faeces of a sick person in a small hole near the house or on the ash heap. One blind person uses a hole near the house which he keeps covered with a large, flat stone. Once the hole is full he fills it with soil and digs a new one.

As soon as it becomes impossible to leave the house, sick people use pots or buckets (into which water has first been poured) to relieve themselves. The contents of this are, in the vast majority of cases (30), carried to the defaecation sites and discarded in the open. A few interviewees (7) said that they dug holes and buried the contents of the bucket on the ash heap; two said they simply threw the contents onto the ash heap.

One woman informed us that she had seen many people in the village discarding faeces from buckets on the ash heaps "for the dogs to clean up". She also said the VHW had asked people to bury such faeces but was not sure if people had followed this advice.

It is quite likely that more people than those noted above discard the faeces of aged or sick persons on the ash heaps without burial but were reluctant to admit this to the interviewers (considering that the VHW had recently asked people to bury them).

THE CRUCIAL ROLE OF ANIMALS

Given the fact that there are no latrines in the Qabane Valley and given the deposition and disposal practices outlined above it is - at first - somewhat surprising to find the villages and the defaecation sites almost free of human faeces. Investigation soon makes it clear that this cleanliness can be attributed largely to the role played by village animals - particularly the dogs.

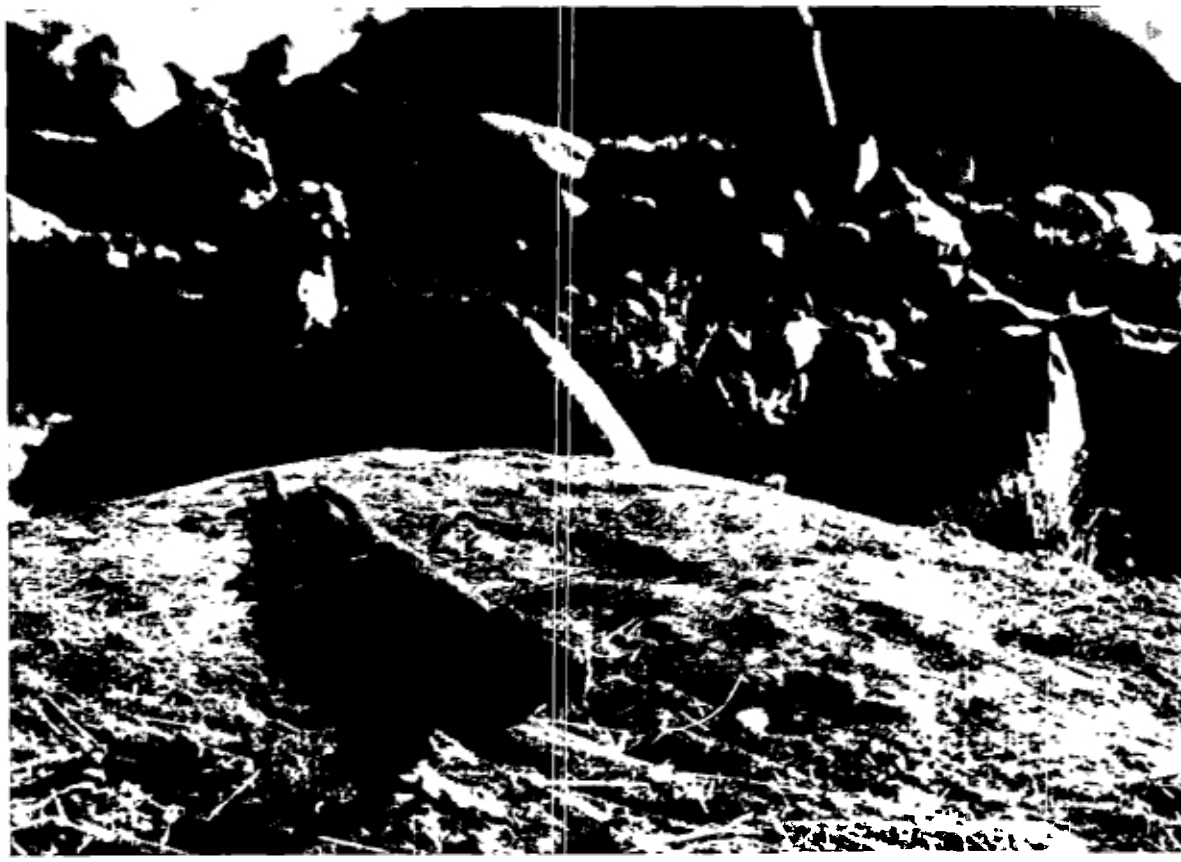
Dogs, pigs and chickens were frequently seen foraging around the adult defaecation sites and on the ash heaps. It was reported that donkeys and cows also dispose of faeces under certain conditions (the faeces must be dry). Interviewees noted that dogs often follow adults to the defaecation sites and immediately consume the faeces that is left there. Likewise, it was reported that children are often followed to ash piles where the dogs consume their faeces.

On one occasion, a young girl was seen going from the house to the ash heap. There she defaecated. Within minutes the household dog had consumed her faeces. Once the dog walked away, a pig came along and continued the cleaning operation soon to be followed by a number of chickens who picked up any remains.

In another case a mother threw the faeces of a young child on to the household ash pile that happened to be surrounded by weeds. As she cast the faeces (gathered on a flat metal sheet in the usual fashion) most of it fell on the weeds. A dog noted her action and immediately got up and went over to the ash heap. For twenty minutes the dog carefully licked the leaves of the weeds clean.

These observations and the responses of interviewees confirm that in these villages (where there are absolutely no latrines) village animals usually play a vital sanitation role.

28. Pig in village housing area



29. Chicken foraging on an ash-heap in front of a family dwelling

Dogs in particular are clearly playing a key role. They appear less fussy than certain other animals (such as donkeys) and consume faeces in any form. Staying close to the home for most of the day, they are very alert to the possibility of a feed. They soon learn to respond to certain prompts (like seeing a child go to the ash heap) and rapidly dispose of the faeces. Some interviewees argued that only desperately hungry dogs consume faeces. There is truth in this. Village dogs get pitifully little to eat and many are visibly half starved with rib cages protruding in an alarming fashion but even well-fed dogs can be found eating faeces.

Almost all interviewees acknowledged that village animals play an important role in the disposal of human faeces in and around the village. However, people had mixed views. Some felt that the animals' role was positive in that they kept the village and the defaecation sites virtually free from human faeces. Others felt that the consumption of human faeces by animals presented health hazards to the community.

When these people were asked to specify what these dangers might be, most (19) said that they feared dogs that had been consuming faeces might come into the house and contaminate utensils and uncovered food or even drink from uncovered water containers. Some (17) noted that animals that had consumed faeces might contaminate unprotected springs by leaving traces of faeces when they drank. A few (3) claimed that animals returning from the defaecation sites spread disease into the home by standing at the door-way and breathing into the house. This view is in keeping with the widespread belief that diseases are transmitted by bad smells. Two people suggested that animals presented a danger because flies which settled on a animal's mouth (that had recently eaten faeces) might then move into the home where they could contaminate food.

In the final outcome, while people may express some reservations about animals consuming human faeces, they do not try to prevent them from doing so. People do appear to believe that the benefits of a faeces-free village outweigh the perceived risks.

PERSONAL HYGIENE

Personal hygiene - especially handwashing after defaecation - is crucial if people's health situation is to improve following improved water and sanitation conditions. The current personal hygiene practices in the Qabane Valley and the predictable risks arising from some of these practices are dealt with below.

Anal Cleansing of Children

From observation and through interviews we learned that the chosen method of anal cleansing depends on the age of the child, the physical circumstances and nature of the child's stool. Most young children (aged 6 months to about 2 years) are cleaned with a piece of rag or sheep skin that is then washed. A few mothers (7) claimed that they always threw the rag away or buried it on the ash heap. The majority evidently make their rags last as long as possible by washing them after use. However, if a child passes a solid stool, which leaves little to clean, the mother will quite often simply wipe the child with her bare hand.

When a child passes very loose, messy stools, the mother might use horse dung (which is very absorbent) to clean up with. This is crumbled and then spread on the child's anus and legs to absorb moisture. More often, the mother will place the child in a basin of water to wash off all remains of faeces. The contaminated water is then cast away on the ash heap or anywhere near the house.

As the child gets older, the mother starts to make use of whatever is at hand to clean the child: weeds, stones, bits of paper and so on. These save the mother the trouble of washing bits of rag (which are often in short supply). A very common practice is to take the child and pull it across the bit of lawn commonly found in front of houses.

When children start going to the ash-heap by themselves they will use the leaves of plants which grow in summer near the heaps or, if not, stones (the most common) or wipe themselves over the lawn.

Anal Cleansing Practices of Adults

From answers to the questionnaire, we learned that most adults (76%) use stones for anal cleansing. The remainder use vegetation (15%) or paper of some kind (7%). Water is not used for anal cleansing except when bathing at home or in the rivers.

It is also apparent, from conversational interviews, that methods of anal cleansing depend on a variety of factors which often have little to do with preference but relate to such factors as the availability of cleansing material at defaecation sites. Many interviewees noted that when the ground is covered with snow they have no choice but to use paper for anal cleansing as no rocks are visible. (One interviewee said that when there was snow she would simply use her bare hand and then wash when she got home.) Others stated that in summer they usually use leaves or grass instead of rocks but, as the season changes and the plants wither, they are left with no choice other than rocks. Some said they preferred to wipe themselves over a smooth patch of grass or stone as long as the weather permitted. In short, people usually use what is available in situ with some seasonal variations and with only the very occasional use of paper.

Hand Washing

As it is difficult to confirm purely through observation the extent to which people wash their hands (especially after defaecation), we asked interviewees the following question: "When do you wash your hands?". From this particular question (which is really aimed more at knowledge than as an estimate of actual practice) we obtained the following results:

TABLE 18

WHEN INTERVIEWEES SAY THEY WASH THEIR HANDS

	#	%
Before eating/holding food	112	92
After defaecating	86	70
After getting up	25	20
Before washing dishes	4	3
After urinating	3	2
After taking snuff	2	2
After handling a sick person	1	1
After sweeping	1	1
Before going to sleep	1	1
After weeding	1	1

Note: People were given the opportunity to name as many occasions as they pleased. Hence the total number of occasions (236) is greater than the total sample.

It is clear from these results that almost everyone knew that they should wash their hands before eating. It was indeed confirmed that almost all adults do so. A similar conclusion was reached following a health education survey carried out in three districts by Clarke (1984).

70% of interviewees claimed to wash their hands after defaecating, although the actual number doing so may be much less. Clarke (1984) observed that the number of interviewees claiming to wash their hands after defaecation was "overstated". Considering this, the above results should be interpreted as a measure of knowledge and not of actual practice.

Only two interviewees told us that they did not wash their hands after defaecating. Both said that this was because they cleaned themselves by rubbing over the grass thus avoiding any chance hand contact with their faeces. Others, who use this method, stressed that they still washed their hands as the defaecating sites were

"dirty places". Many people said they washed their hands after defaecating because of custom or because they "could not imagine not doing so".

From observations and the conversational interviews it appears that maternal hand washing after disposing of children's faeces and anal cleansing is widely practised but there was no evidence to suggest that children were being encouraged to wash their hands after defaecation. It is not clear when this begins if at all. None of the local schools have latrines. Although most children will have defaecated before dawn,those who need to do so during school hours will return to class without washing their hands. This is, of course, partly because the schools do not provide the facilities for hand washing. When meal time comes, the children eat their food with their fingers, without any prior hand washing. After the meal, the children take their plates and wash them at the spring (without any soap) and then stack them ready for the next meal.

If children are not usually taught to wash their hands after defaecation it is surprising that handwashing is so widely professed amongst adults. In the case of women, handwashing may become more frequent once greater domestic and child rearing responsibilities have been assumed.

All hand washing is done in plastic or enamel basins. In the course of the interviews some interesting practices emerged regarding the drawing of water for hand washing following defaecation. Two interviewees described how they always use their left hand for anal cleansing and their right hand for drawing water so as not to contaminate the remaining water in the bucket.

As noted earlier, one interviewee described how she always keeps a plastic bottle full of water which she reserves specially for hand washing after defaecation. Some said that before going to defaecate they draw water and pour it into a basin so that on their return they do not have to touch the main storage container. Others follow the method that is promoted during VHW training: they ask another person to draw the water and pour it into a basin for them.

By far the most common method for avoiding contamination of the household reserve is to draw water with a mug while holding the handles or, less commonly, by leaving a basin floating on the surface of the water for repeated use.

Looking again at Table 18 we find 20.4% of the interviewees stating that they wash their hands "after waking". This figure is certainly considerably lower than those who actually do wash in the morning, showing that most interviewees considered the "hand washing" topic to be distinct from "washing",as was intended.

What is conspicuously absent from Table 18 is any reference to hand washing before drawing water from the spring. Some hand washing takes place at the spring especially as the water containers are often washed there - although no soap is used in the operation.

PREDICTABLE RISKS FROM CURRENT PRACTICES

Risks Arising from the Deposition of Faeces

It does not seem as if communal defaecation sites constitute a major risk for the health of a village. They are usually located a few hundred metres away from the nearest house. Most important, the human faeces deposited there are disposed of within a few hours by a variety of village animals. In some cases the risk is increased when a defaecation site is situated closer to a village (as it was found to be at Ha Pesi). What is a safe distance for a defaecation site to be from a village? There may not be relevant scientific data available to provide an answer. We could say that, the closer any defaecation site is to the village, the more thoroughly it would be foraged by dogs.

The use of alternative deposition sites at night, such as ravines running through the middle of a village or weeds near a house, does pose a threat. Even though village animals usually dispose of such faeces within a few hours, this still gives flies adequate time to discover the faeces and then to move into nearby houses. The same might be said of the deposition of children's faeces near the home - be it on the ash heap or

anywhere else. As long as these faeces remain uncovered or uneaten, a risk of fly-borne contamination remains.

Risks Arising from the Disposal of Faeces

Certain methods for the disposal of children's faeces present a considerable risk to the latrineless villages of the Qabane Valley. As noted above, the faeces are usually collected on a piece of flat iron and cast onto the ash heap within a few metres of the home. Sometimes they are scattered over a wide area - making it more difficult for animals to dispose of them quickly enough so that some flies will alight on the faeces first (particularly during the summer months). The most efficient team of village animals will still leave traces of faeces which will attract flies.

The disposal of sick or invalid people's faeces present very similar risks to those noted above unless they are buried or disposed of at distant adult defaecation sites.

Risks posed by Animals

It has already been noted that 39 interviewees believed that animals which consume human faeces might pose their own risks. While it is fairly common to see cats and chickens wandering in and out of homes around Lesotho, it is very rare to see a dog being allowed over the doorstep. This does not mean that the fear of dogs coming into contact with food or utensils is completely unfounded. Dogs do sneak into houses to forage for food. Towards the end of the study a woman was seen beating a dog ceaselessly that had gone in the house and taken a piece of maize porridge (*papa*).

The real danger (as a number of interviewees pointed out) is that of dogs eating from children's plates. As can be seen from the following photograph, children frequently eat their meals outside and may place their plates where they are in easy reach of dogs.

30. Children eating watched by dog

Any risk from dogs, and other animals drinking from unprotected springs, should be eliminated by the proper protection that the WSSP is currently ensuring. The efforts of VHWs to get springs covered with pieces of corrugated iron and poles can afford no real protection.

Risks Posed by Poor Hygiene Practices

Pieces of cloth, sheep skin or vegetation that have been used for anal cleansing and then discarded on the nearby ash-heap may be visited by flies. Wiping a child across a piece of lawn right in front of the house creates a similar risk as faecal remnants are spread over a wide area. Similarly problematic is the discarding of water contaminated with faeces (as can happen when a child with diarrhoea has been cleaned up) near the house.

The anal cleansing practices of adults may not in themselves present any serious risk. In fact the use of stones would reduce the risk of contaminating hands with faeces: stones, unlike paper, are impermeable. It is quite possible that some people who use stones or rub themselves across rocks and grass almost never come into manual contact with faeces. Some risk does exist from adults who use paper, vegetation or their own hands for anal cleansing *if* they do not wash their hands properly or if they contaminate spring or household water before washing their hands.

It seems serious when 30% of people questioned did not identify consistent washing of hands after defaecation as being of the utmost importance. The transmission of disease via contaminated food or water must be playing a major role in the local health situation - particularly when either remain uncovered during storage.

31. Child eating on the ground - Ha Pesi

CHAPTER FIVE

THE QUESTION OF LATRINES

THE DEVELOPMENT OF LESOTHO'S RURAL SANITATION PROGRAMME

In 1977 delegates assembled at the United Nations Water Conference at Mar Del Plata, Argentina, proposed that 1981-1990 be declared the "International Drinking Water Supply and Sanitation Decade". Lesotho responded to this declaration by establishing a pilot Rural Sanitation Project (RSP) which was implemented in the district of Mohale's Hoek in 1983. At the time it was estimated that only 13% of Lesotho's lowland rural population and less than 3% of the mountain population had access to sanitation facilities (Makhetha, 1988).

The RSP's Socio-cultural Unit tested eight different latrine prototypes and it was found that the Ventilated Improved Pit (VIPs) designs were most widely accepted. By 1985, VIP latrine designs had been standardised for both rural and peri-urban areas and by the end of the pilot phase (1986), over 750 of these had been built by trained local latrine builders (LLBs) against an original target of 400. In 1986, the programme became a *National* Rural Sanitation Programme (NRSP) under the Ministry of Health and it now operates in 6 of Lesotho's 10 districts.

From the outset, the RSP required that people meet the full cost of building and maintaining their latrines. Training courses are offered in rural areas at which teams of Technical Assistants (TAs) give on-site training in latrine construction to interested men and women. After training, a TA will remain in the area to provide technical supervision to the newly-trained LLBs. Health Assistants, from the Environmental Health Section of the Ministry of Health, are responsible for promoting VIP latrines and for health education (Evans and Pollard, 1988).

The principal activities of RSP's complementary health education strategy are the following:

- promoting the construction and use of VIP latrines.
- encouraging the proper use and maintenance of VIP latrines.
- promoting high standards of personal and domestic hygiene.
- promoting the proper disposal of children's faeces.

Preliminary investigations found "no cultural practices or beliefs which would prevent construction of latrines" (Clarke, 1984). 90% of respondents in one survey indicated that they would like a latrine (Clarke, 1984). In another, 99% of VIP latrine owners said they would recommend to others that they build a VIP (Matashane, 1989). The main constraint - reported by between 55% and 60% of respondents (Matashane, 1989 and Clarke, 1984 respectively) - is "lack of money". This corresponds to the conclusions reached by a NRSP consultant who estimated that 45% of rural households in the Lowlands would be able to afford latrine construction without outside assistance (J. Barker - quoted in Matjama, 1988). No indication was given of the differing abilities of lowland and mountain people to pay. Difficult terrain was never mentioned as a constraint.

By December 1989, 3164 VIP latrines had been built by NRSP-trained LLBs. While this might be considered as a success, it is apparent that, even if VIP latrines continue to be built at the present rate, much of Lesotho's rural population are unlikely to obtain a VIP in the foreseeable future. Latrine ownership varies considerably according to different regions: today, in parts of the rural Lowlands, 65% of households have latrines of one kind or another while in the Mountains the figure drops to below 10% with many areas - such as the Qabane Valley - being completely without latrines.

PHYSICAL AND ECONOMIC CONSTRAINTS TO LATRINE BUILDING IN THE MOUNTAINS

In many parts of Lesotho, notably in the more densely populated Lowlands, latrines are an indispensable part of sanitation. People living in the peri-urban parts of the country cannot walk 100 metres away from their homes to defaecate without fouling a neighbour's back-yard. People simply do not have space available to them for use as private and inoffensive defaecating sites. Fortunately, in most parts of the Lowlands, there is still adequate soil for people to dig latrine pits that are completely sub-surface. Furthermore, households are generally well spaced with plots being large enough for latrines to be built 20 metres or more from the house but to still be within the limits of the property.

As noted above, 45% of rural households in the Lowlands should be able to afford VIP latrines (Matjama, 1988). Not only do they have better incomes but the price of materials is lower. Most important, transport facilities are such that they are usually able to transport construction materials close to their homes.

Physical conditions in the Qabane Valley affect the feasibility of a sustainable VIP building programme. To begin with, in many villages there is hardly any soil left to dig pits into. The steep sides of the valley are severely eroded. The areas in and around villages are often reduced to bare rock through overgrazing, the movement of people and animals and the removal of surrounding rocks and soil for the construction of houses and terraces. The terraces support and conserve the soil in front of the houses and are in full use as walkways, crop-drying spaces and grassed socialising areas. Houses in many of the villages are built within only a few metres of each other. In such villages, it is quite impossible for each household to have its own latrine within its own site (i.e. the area allocated by the Chief to the household for residential purposes). *The majority of households do not have anywhere to locate latrines.*

32. Village of Leribe - Area B

The incomes of people in the Mountains are considerably lower than those of people in the Lowlands. Furthermore, the cost of materials is higher and people face immense difficulties especially when supplies have to be brought across a major river and up the valley such a long distance.

Despite the fact that some of these constraints were evident from the outset of the Water and Sanitation Programme, it was still considered important to investigate people's views regarding latrines and possible means of overcoming the above constraints.

VIEWS REGARDING LATRINES

General Attitudes

The question of latrines was discussed in detail with all interviewees using both the questionnaire and open-ended methods. Interviewees were first asked if they would like "...to use a latrine", the majority (89%) said "Yes".

Although reasons for wanting a latrine were not explored in the questionnaires, it appears (from conversational interviews) that convenience and privacy are key factors. Clarke (1984) found that 38% of interviewees wanted a latrine for these reasons. Similar results were obtained by Mothabeng and Hall (1989).

One interviewee mentioned that she would like a latrine because this would lessen the chances of someone picking up her faeces and using it - through witchcraft - against her.

Constraints

Those interviewees who said they would like to use a latrine were then asked why they did not have one. The results to this question are summarised in the following table:

TABLE 19

REASONS GIVEN FOR NOT YET HAVING A LATRINE

	#	%
Has no money for material	44	39
Does not see any need for one	26	23
Does not know how to build one	24	21
Has no suitable space	5	5
Building materials are too far	3	3
Has just arrived in village	2	2
Laziness (interviewee's definition)	2	2
Does not have time to build	2	2
Is disabled	2	2
Does not have husband's permission	1	1
No reason	1	1

Some interviewees may have used the "lack of money" reason as another way of saying that latrine building was not a priority for them. In the majority of cases, we believe that lack of money is a real constraint. It might be noted that the estimated real costs of building a VIP latrine in the Qabane Valley (approximately M500) is the equivalent in value to ten bags of grain or more than the mean amount earned by livestock owners per annum through the sale of livestock.

In the conversational interviews some interviewees elaborated on the constraints they faced when it comes to building latrines. Those comments,extracted from the field notes,are summarised below:

TABLE 20

OTHER PERSONAL CONSTRAINTS TO LATRINE OWNERSHIP

	#
Site is too small	16
Site is too rocky	15
Latrines smell bad	3
Site is too close to a stream	2
Latrines are a source of diseases	1
Not used to using latrines	1
Will not be able to keep it clean	1
Latrines are breeding places for flies	1
Afraid of faeces left in latrine being used for witchcraft	1

Note: No percentage is given as these results are based on conversational interviews.

It is interesting to note that many more people raised the problem of sites being too small or rocky while in conversational interviews,than during the questionnaire interview. This is possibly because it takes time to elaborate on or to illustrate such a problem (perhaps by walking outside the house). The difference illustrates the importance of conducting both types of interviews.

Location Preferences

When interviewees expressed where they would prefer to locate their household latrines the following results were obtained:

TABLE 21

WHERE PEOPLE WOULD LIKE TO LOCATE THEIR LATRINES

	%
Within the boundaries of their property	76
A place outside their property	18
Would ask the Chief to allocate them an area	4

The interviewers asked people to point out the exact places where they thought they could locate their latrines and then estimated these distances. The results of this investigation are as follows:

TABLE 22

DISTANCES AT WHICH PEOPLE WOULD LOCATE THEIR LATRINES

	%
Within approximately 10 metres of the house	42
Between 10 and 20 metres from the house	10
More than 20 metres from the house	48

People's views on the distance that a latrine should be located from the home are influenced by a number of factors including the physical constraints mentioned earlier. These are summarised in the table below:

TABLE 23

REASONS GIVEN FOR PREFERRED LOCATION OF LATRINES

	#	%
To avoid smell	38	37
There is enough soil there	20	19
Does not want it too far from house	14	13
It is the only "suitable" place	6	6
Space is very limited	6	6
Is used to going far	3	3
To be able to keep it clean	3	3
To prevent outsider using it	2	2
To prevent children getting in	2	2
To avoid flies	2	2
To be far from the kraals[1] (*masaka*)	1	1
Modern latrines no longer smell	1	1
To be within households boundary	1	1
The place is very rocky	1	1
To be within easy reach	1	1
To avoid disease	1	1

First in the list is "smell". 36.2% of respondents felt that the latrine should be located in a particular place to ensure that any smell of faeces coming from the latrine would not reach the household. This is not surprising as smell is widely associated with disease and most interviewees are convinced that they can contract diseases through inhaling bad smells.

It should be noted that very few people mentioned placing a latrine at a certain distance to avoid flies.

Although only one person included distance from kraals as a factor determining choice of latrine site, their influence must be more widespread. According to Basotho custom, women should not go near kraals unless for special purposes (such as collecting dung for smearing or burning) and then this should only be with special permission from the men of the household. This taboo has to be carefully observed especially during menstruation. The implications of this custom are that latrines cannot be located too close to kraals if female members of the household are to use them. This custom will severely constrain the choice of latrine sites in many villages where the kraal area often stretches from one side of the village to another, covering much of the area that might otherwise have been suitable for latrines.

Costs

Interviewees were asked to estimate how much they thought a latrine would cost to construct. The table on the following page gives the results:

TABLE 24

PEOPLE'S ESTIMATES OF THE COST OF LATRINES

No idea	-	54%
Less than M100	-	27%
M101 to M200	-	14%
M201 to M350	-	5%

[1] Stock-holding compounds usually built of stone.

Clearly, people are grossly underestimating the costs of a latrine. Only 5% are coming close to estimating the real costs of a proper VIP which would cost nearly M500 in the Qabane Valley if corrugated iron and timber have to be purchased for its superstructure.

Interviewers then asked how much people would be prepared to pay. Only 10% were prepared to pay more than M100 with only 3 people being willing to pay more than M200 for a latrine.

It is possible that people's views of the cost of a latrine have been influenced by a rural development project in nearby Seforong which has been subsidising VIP latrines for a number of years. Until recently, people in the Seforong area could obtain a VIP from the project for as little as M20 (Mothabeng and Hall, 1989). It is evident that lack of money is a major constraint to latrine construction in the Qabane Valley. (It is also possible that people have other priorities - such as livestock - in which they would rather invest).

One way in which costs might be kept lower would be by people constructing their own latrines. When we asked people if they would be prepared to build their own latrines, 48% said "No". The number of interviewees willing to dig their own pits was significantly higher (75%), but this would not reduce the costs by very much. A number of those who said that they could build their own also said that they would be willing to use a latrine builder (no cost mentioned) giving a total of 69% of those who want latrines being willing to use such a builder.

Material

One factor that will affect the costs of latrines is the type of building material that is used. As can be seen from Table 28, the majority of those who said they would like a latrine would also like their latrines to be built from costly, imported material.

TABLE 25

RESPONDENTS' PREFERRED CONSTRUCTION MATERIALS

	#	%
Corrugated Iron Sheets	65	38
Stones	48	27
Mud (Earth)	20	11
Cement	18	10
Wooden Rafters	18	10
Ventilation Pipe	3	2
Agave Poles	1	1

In all 60% of interviewees mentioned some kind of imported material. People have clearly been influenced by the sight of corrugated iron latrines scattered around the Lowlands. If these imported materials are used for latrine construction the costs will be high. Certain imported materials - notably the ventilation pipes (mentioned by only 3 people) and cement for casting the base - will have to be used regardless of whether or not corrugated iron sheets are used or not.

An element of cost is the time it takes for a household to fill a pit latrine. An expected site-life of 4 to 5 years is usual. When people were asked how long they thought it would take to fill the pit they responded as follows: 66% thought that their pit would be full in under 3 years; 28.3% thought it might take between 4 and 6 years to fill while the remaining 5.7% cited 10, 12 or 20 years as a filling time.

Asked if they would prefer to empty their pits or build new latrines, only 27.5% said that they would prefer to empty their latrines; 53.2% said they would build again while 13.9% said that they would dig new pits and move their latrines to those pits without having to "rebuild". (These interviewees clearly had corrugated iron structures in mind). Only 5 interviewees felt that contents of the pit could be used for anything (all mentioned manure).

Locking or Sharing of Latrines

In our questionnaire, we set aside the question of cost and asked all those who said they would like to use a latrine why they would lock it (latrines in Lesotho are frequently kept locked). While we had expected a large number of interviewees to favour keeping their latrines locked we were surprised that as many as 89% said they would lock their latrine if they had one. To be exact, 73% said that they would lock their latrines "all the time" and 16% said they would lock them "sometimes".

When asked why they would lock it, interviewees responded in the following ways (Table 26):

TABLE 26

REASONS GIVEN FOR LOCKING LATRINES

	#	%
People might use it without permission	42	55
Children might fall into it	27	35
"Obviously they should be locked"	2	3
Stop animals entering	1	1
Stop flies entering	1	1
Stop wind blowing latrine over	1	1

Note: The percent is calculated on the 74 interviewees who answered this question.

The table reveals just how many interviewees are against other people using their latrines. This attitude was confirmed when we asked interviewees who would use their latrines: 86% said only family members; when pressed on this point, 79% insisted that they would not be prepared to share their latrines with any other family.

It appears, from the conversational interviews, that there are two aspects of latrine sharing that people particularly fear. Firstly, they are concerned that others might make a mess of their latrines. Secondly, they are concerned that people from outside the family would introduce diseases. As reported, most people believe that diseases can be spread through smell and, therefore fear that, if a sick person used their latrine, they could be infected by inhaling the smell of that person's faeces.

The other important point to be noted from the table is that 35% of the respondents said that they would lock their latrines to prevent children getting in. When we asked interviewees at what age they would start allowing children to use latrines, 25% said the child should be at least 10 years old; 53% said the child should be aged between 6 and 10 and the remainder gave varying ages below the age of 6.

Communal Latrines

The question of latrines in general and of sharing latrines in particular was discussed at village meetings (*lipitso*) in all six villages, even though this was not an intended objective of the meetings. In two of the six villages (Ha Moeti and Ha Makhetha) people unanimously agreed that, given the spacial constraints imposed by the location of their villages, the shallow depth of soil and their inability to meet the costs of individual household latrines, the only solution would be to construct communal latrines in the few areas of the village where there was enough soil depth.

During meetings at these two villages people devised some ideas such as the number of latrine-units needed; the amount which each family could contribute; who would use the the latrines and how they would be maintained and managed. A vote was taken on various issues.

In Ha Makhetha the people agreed (after energetic debate) that the village would need five latrines: two for men and three for women as the women were not prepared to share with men as they claimed that men would make a mess which they would not clean up. The approximate location for these latrines was decided

upon. They agreed that each family (33 households in total) would raise M35 for the costs of construction. The resultant total of M1155 would provide an estimated 20% of the actual latrine capacity required to serve the village.

They decided that the work would be managed by an elected committee, similar to the Village Water Committee (VWC), which indicates that the idea of using a specialised committee to achieve communal development objectives has taken root. They stressed that the work on the protection of the spring should be completed before any work began on communal latrines and that they would need the guidance of an experienced latrine builder as none of them had ever built latrines before.

There was some contention about who should be responsible for cleaning the latrines. It was agreed that the women would take responsibility for the cleaning of their latrines and the men would do likewise for theirs although some women were sceptical about the men's cleaning abilities and said they would probably end up cleaning the men's latrines also. There was some discussion regarding the locking of the latrines and their use by children. The majority appeared to be in favour of keeping the latrines locked to prevent children gaining access, with each household having a copy of the key.

In the village of Ha Moeti, it was decided that there would be no harm in having men and women sharing the same latrines. They agreed that what was needed was different latrines for adults and children. Those for children would be of a special design, enabling even younger children to use them. The Village Water Committee would take responsibility for organising the collection of money, and the construction and cleaning of the latrines. Groups would be assigned to clean all the latrines for a given period of time according to rules drawn up by the Committee.

In the other four villages there was strong opposition to the idea of communal latrines. While people recognised the constraints they faced, they did not like the idea of sharing latrines. They argued that building private household latrines was the only acceptable option - even if these had to be located some distance from the household.

DISCUSSION

It has been suggested that adult defaecation sites probably present little risk to the health of a village but that there will still be cases where the faeces of adults are deposited in or close to the village. Although these faeces are usually disposed of within hours by village animals, we argued that their presence still comprises a risk as they are accessible - albeit for a relatively short time - to flies which can then move into nearby homes. The discarding of material used for the anal cleansing of children (including water) and the wiping of children across the lawn was also identified as presenting a risk.

Under ideal conditions, it is possible that latrines could help reduce some of these risks. If every person in the village used a fly-proof, VIP latrine and all the faeces of infants, children and the invalid were cast into the latrines along with material used for anal cleansing then some of the risks outlined in preceding chapters might indeed be greatly reduced.

However, conditions in the Qabane Valley are far from ideal. These conditions might be such that even the most energetic latrine building promotions would only persuade a small minority to adopt VIP latrines. These few latrines would not reduce the general risks as flies would still have access to faecal remains of the non-latrine-owning majority.

Despite the extremely demanding task of building safe latrines in the Qabane Valley, some people might do so (even if only for status or convenience) if technical guidance were provided. Further emphasis in the PHC Programme on the potential health benefits of VIP use could also persuade a larger number of people to adopt them. However, we have to now consider not only whether a latrine building programme is feasible, in view of the prevailing constraints, but also what the effectiveness of such a programme might be if those constraints could be overcome.

PROBLEMS FACING A LATRINE BUILDING PROGRAMME

In the introduction to this chapter we mentioned a number of serious constraints to latrine building in the Mountains of Lesotho. In summary they are as follows:

- non-existing or shallow soil cover;
- lack of building space due to crowded villages;
- low income levels;
- high cost of imported materials;
- the burden of transport.

From the data presented above it is apparent that all these constraints apply to the Qabane Valley.

Location

Due to the lack of soil cover and/or space in crowded villages, siting presents one of the most serious constraints to latrine building in the Qabane Valley. This problem was specified by 78% of those interviewees who discussed constraints to latrine building during conversational interviews. Technically, the provision of adequate pit capacity at sites with poor soil cover can be achieved by building up from the rock. However, the cost of such a latrine is considerably higher than that of ordinary VIP latrines - a fact which would place it well beyond the means of the majority of households in the area.

Latrine owners would face anew the problem of siting each time they had to relocate their latrines. Relocation would be made difficult if people had chosen to use local materials (the expressed preference of half the interviewees), for while stone superstructures may be less costly to build with than imported planks and corrugated iron, they cannot be picked up and carried intact to a new site.

Double-pit latrines (VIDP) solve the problem of relocation by the use of adjoining pits. When the first has been filled its contents are left to decompose while the second pit is used. After as little as one year, the first pit can safely be emptied - enabling the cycle to begin anew.

However, VIDP technology is probably not a viable option for household or communal situations when the following drawbacks to their use in remote areas are considered:

- the high initial cost of these latrines;
- the fact that only 27% of interviewees indicated that they would be prepared to empty the contents of a latrine;
- the natural inclination to retain an ageing building for as long as possible, so as to avoid having to reconstruct.

The Use of Local Materials

Given the high costs of constructing latrines with imported materials it might be argued that, by using local materials, costs could be reduced. However, considering the cost of using a trained latrine builder it is likely that most people would attempt to relocate their stone-built VIPs themselves. This would inevitably result in a lowering of standards especially as most latrines in the Qabane Valley would have to be of the above-ground 'chamber' type.

It should be remembered that local people are not familiar with the use of cement mortars, and that building-quality sand is often far away. If the chamber walls were constructed with a soil-based mortar, as local houses are, they would include some weaknesses which flies, rats and dogs would try to exploit.

Under these circumstances, the barriers between VIP contents and community populations (i.e. the walls, seat covers and fly screens) are very likely to be penetrated. This implies that widespread latrine building would signal the advent of a new, high-risk scenario.

Latrines and the Problem of Children's Faeces

One of the risks identified in the last chapter was that of the deposition of the faeces of children who are too young to go to the adult defaecation sites. To what extent could latrines help to reduce this risk?

There are places in the Lowlands (such as day-care centres) where specially designed latrines for children are to be found. Would people in the Qabane Valley be prepared to go to the expense of providing latrines primarily for the use of children? The answer to this question must be "no" - partly because of the cost and partly because adults simply do not see latrines as being places for children. This is evident from the results presented earlier which showed that 78% of the interviewees did not believe that children younger than 6 years of age should be allowed to use latrines; 35% said they would keep their latrines locked to prevent any children using them.
With perhaps 95% of the latrines being locked for one reason or another it is clear that the children who are too young to go to the adult defaecation sites would continue to use ash heaps. In other words, latrines would have little impact on this problem.

Latrines would provide a suitable place for the disposal of infants' and young children's faeces. This solution would, however, represent a high-cost method of addressing a problem that could be adequately dealt with by the successful promotion of a policy of faeces burial.

Problems Associated with Communal Latrines

The collective interest shown by 2 of the 6 villages in communal latrines (as expressed during village meetings) needs comment. Although village meetings are often dominated by men who inhibit others and prevent a democratic process from taking place, we can testify that the decisions taken at the particular meetings described above followed open discussion and free and fair voting.

However, the apparent *public* willingness of people to share latrines contradicts their *private* reservations recorded during interviews, when 79% of the interviewees stated that they would not be prepared to share *their* latrine with another family.

As noted above, people's reluctance to share latrines may be closely linked to their fear of catching diseases from the smell of someone else's faeces and to the fear that others will "mess" the latrine. The problems of keeping communal latrines clean would be hard to overcome and could cause serious disputes.

A problem that would plague communal latrines is that of locking. Most people made it clear that, in their opinion, latrines should always be locked in case children entered them. Arranging for all adults to have access to communal latrines yet excluding their children would be too complicated for practical management.

A further problem with communal latrines is that they would have to be emptied. As only 27% of interviewees indicated that they would be willing to empty their *own* family latrine, the percentage of those willing to empty a communal latrine would be considerably lower. It is likely that this undesirable task - which goes so much against people's views on faeces would itself be a source of insoluble disputes around responsibility and sooner or later cause latrines to be closed down.

During a workshop to review the draft of this Report (at Tebellong Hospital - September 29th, 1990), the Coordinator of the NRSP remarked that experience with communal latrines in Lesotho would lead him to predict severe problems for such initiatives in such remote locations - particularly in the maintenance of cooperative local management.

CONCLUSIONS

Siting Problems

One of the most serious constraints discussed above is the shortage of suitable site locations in most Qabane communities. This has numerous consequences for VIPs' or VIDPs' strategies:

- the repeated relocation of VIPs or poor maintenance of ageing VIDPs will bring about the weakening of the vital barrier between the community and the faecal contents of its VIP structures;
- it limits the potential rates of adoption;
- it makes the success of a latrine programme entirely dependent on a difficult education campaign to overcome existing attitudes to the removal of faeces from VIP or VIDP chambers (if people's reluctance to handle faeces prevents them from removing expended latrines, in years to come the villages' landscape would be littered with useless structures).

Changes in Anal Cleansing Practices

The introduction of latrines would necessitate changes in anal-cleansing practices. Stones could not be used as these would soon fill latrine pits or structures. Consequently, people would have to change to using paper. One result of this change, from an impermeable to a permeable substance, would be more widespread contamination of people's hands through anal cleansing. Given that hand washing is not universally practised this would significantly increase the risk of diseases being introduced into people's homes (30% did not even mention handwashing as a post-defaecation practice).

The Role of Animals

In the Qabane Valley's latrineless situation, it is rare for faeces to be missed by animals and even then they are eventually dealt with by the elements - washed away by rain or dried out by the sun. The problem of flies becoming major carriers of diseases from disposed faeces is greatly reduced by the beneficial presence of dogs. To find fresh or old human faeces lying close to a village is not a common experience. Even at the defaecation sites faeces do not frequently remain long - let alone accumulate.

In the opinion in the three medical authorities consulted in the course of the study, the role in village sanitation played by foraging animals - particularly dogs - does not present any significant risks for public health. A minor risk is presented by people eating the under-cooked meat of animals - notably pigs - that are known to eat human faeces. The faeces of the dogs themselves will contain the germs of some diseases, but that is regardless of whether they consume human excrement or not. Therefore, it is safe to conclude that the more serious risks which could accompany the introduction of latrines would outweigh any risks which could be posed by a continuation of the current state of affairs.

Aside from their sanitation role, dogs have a vital part to play in village life. Crops are often left to dry on terraces in front of houses and dogs guard them from intruding animals particularly during the busy harvest season when the villages are usually empty of adults.

Implications of an Unsuccessful Latrine Programme for PHC

Latrines would introduce large quantities of moist faeces right into the heart of the villages. As noted above, it is likely that the barriers between these faeces and the communities will be extremely vulnerable to penetration. If, as a result of this, diarrhoeal rates went up, there could be a serious loss of faith in VHWs and other promoters which would affect the potential impact of all PHC activities.

Implications for Health Education

The combined effect of the above conclusions would suggest that the various latrine technologies do not have positive applications in a programme which is attempting to reduce the incidence of sanitation-related health problems in the Qabane setting. In the final analysis, it is the particular environmental conditions, local attitudes and behaviours, the whole social setting and the logistical and financial constraints of most Qabane communities which, together, create a case for attempting improvements by other means. The next chapter deals with issues that bear on the ability of a health education campaign to make the impact that would satisfy PHC objectives.

33. Dog, children and crops on housing terrace

CHAPTER 6

HEALTH EDUCATION MESSAGES, TARGETS, CHANNELS, MEDIA

THE MINISTRY OF HEALTH APPROACH

Although the Government of Lesotho does not have a specific health education policy, health education is high on the list of priorities within the MOH's overall PHC approach. (The exception to this is a detailed policy for ORT.) Projects, Departments, PHAL and Government hospitals and the Ministry of Health's own Health Education Division (previously Health Education Unit) are free to develop their own priorities, methodologies and strategies under the overall objective of reducing preventive morbidity and mortality through health education to the general public. Materials are produced by a variety of agencies with no Government coordination or control.

The Ministry of Education has no written policy for health education in schools. A Health and Physical Education Syllabus has been produced by a unit in the National Curriculum Development Centre (NCDC) but, due to lack of staff and other resources it is, at present, limited to 15 primary schools. The syllabus is to be evaluated in 1990 and adjusted as necessary before being implemented nationwide if funds can be obtained (Fraser, 1990).

The Health Education Division: Structure and Objectives

The HED was started in 1972 with a staff of 2 nationals and one expatriate. Today it is staffed by 13 professionals who work with different programmes that deal with the following health related issues: sanitation, village water supply, village health workers, ante-natal clinics, family planning, breast-feeding, smoking, alcohol abuse, tuberculosis, leprosy and sexually transmitted diseases (including AIDS). The Division sits on a variety of committees which coordinate the health education activities that support these programmes. In this sense the HED is a "service organisation" helping other programmes to meet their objectives. All staff are based in Maseru from where they make field trips to the districts.

The HED has the support of USAID-funded HealthCom Project that provides institutional and technical support, staff and management training and general advice.

Methods

The HED has two full-time **radio** producers whose main task is to produce seven 15 minute programmes per week that are broadcast on Radio Lesotho. The Division also has a special programme ("Ask the Doctor") which gives listeners the opportunity to send in health-related queries.

Division staff conduct regular health talks at for nurses, health assistants and extension workers who are undergoing training. Talks are also given at schools and for the general public.

The Division produces printed health education material for different programmes. These include posters, pamphlets, stickers and booklets which serve as teaching aids for village health workers, health assistants and nurses. Most of these are produced for specific government programmes with donor funds.

Health education messages and material produced by the HED are channelled to the village level through Health Service Area hospitals, health centres and VHWs. The Division has little control over how material is used. An NGO might use them independently to facilitate the achievement of its own health related goals.

Achievements

The HED has assisted in the training of at least 1 500 village health workers with special attention being given to water supply and sanitation issues. Workshops have been held for Government extension agents in all 10 districts. The objective of these has been to develop the ability of extension agents to deliver health education messages in rural areas. Thousands of new pamphlets, posters and booklets have been produced.

Developments since 1986

Since 1986 the HED has doubled its staff despite serious constraints: three new positions have been created for AIDS counsellors and a full time illustrator has been appointed. The time allocated to radio programmes has been increased from 3 to 7 times a week. The growth in staff has been accompanied by a growth in office facilities and equipment.

The Division has worked with the Ministry of Education on the development of appropriate health education to be included in the school curriculum.

Constraints

The lack of Government policy on health education makes it difficult for the HED to coordinate health education activities in Lesotho. Material is sometimes produced by other agencies without being checked with the Division. This has resulted in unfortunate errors which could have been avoided.

On the other hand the HED sees a need to decentralise it own activities. At present this is not possible due to lack of staff. It is felt that if staff could operate at HSA level they would be able to get closer to the target groups.

The HED has adopted the HealthCom Project's approach to health education (involving a variety of media). The lack of training in managing this approach is a constraint to its proper development. Although a structural and manpower plan was presented to the Ministry it is still pending. Candidates who have received overseas training have left the Ministry when the Division has failed to absorb them.

There is a need for more office space. However, more important is the need for a proper recording studio as studio time at Radio Lesotho is extremely restricted due to high demand. The result is that radio programmes have to remain relatively simple and are, as a result, less appealing.

(Note: Information above based on Fraser, 1990 and interviews with HED staff.)

IDENTIFIED HEALTH RISKS AND PROPOSED ACTIONS

In the preceding chapters (covering issues related to water, health and sanitation in the Qabane Valley) we brought to light a number of risk factors arising from the way in which people's knowledge, attitudes and practices relate to prevailing conditions. Here we examine - in point form - changes which we believe need to take place if the existing risks are to diminish. The underlying assumption is that changes will be promoted through health education (HE). Many changes suggested below are already being encouraged by PHC staff. These have been included here along with recommendations for possible target groups. In the next chapter we discuss how that HE might best be carried out.

IDENTIFIED RISK (1)	PROPOSED ACTION
Low levels of education coupled with poor distribution of radios	**Devise appropriate HE methods**

The overall low levels of formal education attained by people in Qabane, coupled with the low ownership of radios, diminishes people's ability to receive and understand nationally broadcasted HE messages.

A HE programme must address itself to the particular problems found in the local situation, and, in addition, utilise educational methods which set health related messages in a medium which will generate popular interest without requiring the accessing skills developed by formal schooling. This suggests the use of entertaining productions such as drama which introduce new ideas into a society where communications remain largely oral and where ideas are spread rapidly through word-of-mouth.

IDENTIFIED RISK (2)	PROPOSED ACTION
Poor understanding of germs	**Teach basic germ theory**

It is vital that this basic problem be addressed. Without an understanding of germs other health education messages lose their meaning. Although the majority of interviewees appear to have some notion of "germs" many are confused or have incorrect notions regarding disease transmission. It is recommended that special attention be paid to schoolgirls who appear to be particularly ignorant in this regard.

Although this group is expected to be educated as it passes into the stage of attending ante-natal classes we consider it to be of importance for HE to reach this particular group before that time because school girls already play important domestic roles before then.

IDENTIFIED RISK (3)	PROPOSED ACTION
Fatalistic attitude to disease	**Convince people that disease can be combatted**

The fatalism which we discovered governing people's attitudes towards illnesses can justifiably be ascribed to an ignorance of the infection process. It follows that HE should be able to give people the idea that the risks of infection can be diminished.

INDENTIFIED RISK (4)	PROPOSED ACTION
Dehydration caused by diarrhoea	**Warn people of the dangers and teach people to recognise the signs**

HE should continue to stress the danger of dehydration - especially in infants. Identification of different signs of dehydration - including loss of weight, weakness, sunken eyes, wrinkled skin, dry mouth, no tears and scanty, dark yellow urine - should form part of this teaching. HE should continue to promote ORT as a means of rehydration - along with increasing liquids in general and breast feeding in particular. More emphasis should be given to the need to give extra food to a person recovering from diarrhoea. Fermented sorghum porridges should be promoted as they are known to be particularly good for this purpose.

IDENTIFIED RISK (5)	PROPOSED ACTION
Use of enemas to treat diarrhoea	**Warn people of the dangers; aim to eliminate practice**

Although only few people mentioned giving enemas as a treatment for diarrhoea, HE should aim to completely eliminate this practice.

IDENTIFIED RISK (6)	PROPOSED ACTION
Use of low quantities of water	**Encourage people to use at least 20 litres per person per day**

People's attention should be drawn to the fact that certain skin diseases that are prevalent in the area - notably scabies - are directly related to individuals using too little water for personal hygiene. The basic message should be: "Wash more often with more water". Mothers should try to ensure that all children - including those who do not attend schools - wash (or are washed) daily.

IDENTIFIED RISK (7)	PROPOSED ACTION
Use of contaminated water sources	**Warn people of the risks; discourage use of unprotected springs for drinking purposes**

People must be persuaded that even clean-looking water can be a risk if it comes from an unprotected source (this should be taught as part of germ theory). Once new water supplies are completed people should be discouraged from using other sources for drinking.

The Water Supply Programme should ensure that any alternative sources are also effectively protected if likely to be used after the principle supply system has been constructed. People should be discouraged from resorting to the use of surface water sources.

IDENTIFIED RISK (8)	PROPOSED ACTION
Contamination of water after collection	**Warn people of the risks, suggest ways of limiting post collection contamination**

This risk has been identified in many previous studies as a more serious threat to health than that of the water sources themselves being contaminated.

Handwashing before the drawing of water should be promoted vigorously especially among school-age girls. They should be warned that contamination in the home is likely if: water is drawn with unwashed hands; water containers are not kept clean and shut; mugs and bowls used for drawing are not kept clean. Hygenic handwashing methods after defaecation should be stressed. People should be encouraged to use one of the following methods: (a) Ask someone else to draw water; (b) Keep water in a bottle for handwashing; (c) Draw water with a mug.

IDENTIFIED RISK (9)	PROPOSED ACTION
Lack of handwashing amongst school children and adults	**Promote handwashing**

In Botswana parents are encouraged to buy soap for handwashing at schools. Water is provided in each classroom and children are made to wash their hands before meals, after recess or defaecation. We recommend a similar programme. In the case of adults, considering that 30% did not mention handwashing after defaecation, it is important to continue to emphasise universal practice for everybody at appropriate times.

IDENTIFIED RISK (10)	PROPOSED ACTION
Defaecation sites close to housing areas	**Advocate more distant sites**

This is not a common problem. Most adult defaecation sites are a good distance from the village. However, where this is not the case, efforts must be made to ensure that people defaecate at greater distances from the village. It is suggested that the help of village chiefs be enlisted in this undertaking (according to customary law chiefs have control over the use of the village environment).

IDENTIFIED RISK (11)	PROPOSED ACTION
The deposition and disposal of faeces in the village	**Advocate burial on ash heaps**

Whether it be the faeces of children or adults all faeces that are not deposited in the adult defecating sites should be buried. Although the surface of the ash heap can be quite hard at times this should not be considered a serious constraint as over 90% of households have either a spade or a hoe. Adults who need to defaecate at night but are unwilling to go to the usual sites should be encouraged to make use of the ash heaps on condition that the faeces are buried. Mothers should be discouraged from casting children's faeces (gathered on a piece of iron) over a wide area. Burial in summer - when flies are most numerous - should be stressed.

IDENTIFIED RISK (12)	PROPOSED ACTION
The disposal of anal cleansing material in the village	**Advocate burial on ash heaps**

The discarding of materials that have been used for anal cleansing (e.g. cloth, sheep skin, vegetation or water) in the vicinity of the household should be discouraged. Where possible these should be buried or washed immediately.

IDENTIFIED RISK (13)	PROPOSED ACTION
Anal cleansing of children on grass in front of the home	**Discourage altogether**

This is a practice that mothers should be persuaded to abandon.

IDENTIFIED RISK (14)	PROPOSED ACTION
Animals coming into contact with utensils, food and water	**Keep dogs at bay when children eat; keep dogs and chickens outdoors**

The proper protection of springs will ensure that animals no longer contaminate spring sources. People should be encouraged to keep water containers closed to prevent dogs or chickens entering the home and drinking from the containers. When children eat, dogs should be kept at bay. Otherwise animals - dogs in particular - should *not* be discouraged from playing their present role in village sanitation.

INDENTIFIED RISK (15)	PROPOSED ACTION
Flies	**Promote awareness of risks and encourage preventive measures**

If there continues to be any incidence of people using sites close to housing areas for depostion or disposal of faeces, the risk of contamination of food, water and utensils via flies will remain prevalent. HE messages must alert people to an awareness of the problem and popularise the use of covers to exclude flies. People should also be encouraged to reduce the number of flies by keeping home and surroundings clean and washing utensils soon after eating.

INDENTIFIED RISK (16)	PROPOSED ACTION
Consumption of undercooked meat of animals known to consume human faeces	**Promote thorough cooking methods**

It is common for certain parts of recently slaughtered sheep, pigs, goats and cattle to be consumed almost immediately with a minimum of preparation. To ensure that any worms transmitted through the consumption of human faeces are destroyed, meat should be thoroughly cooked.

SCHOOL CHILDREN AS A TARGET FOR HEALTH EDUCATION

Earlier we noted that school girls, from a very early age, play a crucial role in the home. They cook, they clean, they care for younger children and, most importantly, they draw their household's water. All this they do with virtually no knowledge of germs or means of contamination. Given their critical role in the home it seems vital that these young girls are taught basic HE from an early age.

The School Hygiene Situation

HE in schools is important for other reasons. It is evident that hygiene and sanitation conditions in the schools leave much to be desired. The pupils at a given school come from many different villages in the area. While at school they are in close proximity to one another, share daefecation sites, share a common spring and share food and utensils. The school environment, unless it is very well managed, provides a perfect 'pool' for the spread of diseases throughout a wide area. It is not difficult to imagine how this might take place. A child with diarrhoea comes to school from her village; she defaecates and does not wash her hands after anal cleansing; when meal time comes she eats with her hands without washing them and shares some of her food with a friend; following the meal she draws a drink of water from the spring; in doing so she contaminates the water from which children from a dozen other villages are also about to drink; she 'cleans' her plate with a splash of water and places it on a pile for the next day. The following day a child from a different village uses the same plate and so the cycle continues.

School Campaigns - their Cost Effectiveness

HE in schools is 'cost effective' in the sense that they provide a large, 'captive' audience which is regularly gathered in one place. Those who are planning a schedule of HE activities can be sure that this particular target group will be there on a given day. This is by no means the case with village *pitsos*, or even clinics held for mothers with children under five, both of which are sometimes very poorly attended.

Learning Capacity of School Groups

Young minds are usually more willing and able to accept new ideas. During the interviews it was frequently noticed that the older interviewees had the most difficulty in understanding ideas that were new to them. They were very fixed in their existing ways. If certain basic concepts (such as the existence and danger of germs) are taught at a young age there is the greatest potential of affecting the hygiene behaviour of these school girls who will be mothers within five to ten years.

School Staff Attitudes to the HE Activities

Those school teachers and principals that we met appeared enthusiastically supportive and sincere in wanting to teach HE to the children. They appeared to be aware of the hygiene and sanitation problems that schools face but feel that they lack the means to tackle them. One headmaster complained that there is very little HE in the curriculum. He said that his staff would appreciate whatever assistance and teaching aids might be available.

The PHC department of the Hospital has already held some workshops involving the staff of local schools. Such workshops can be used to upgrade the teachers own knowledge of all health related issues, to introduce them to HE materials that are availabe, to discuss ways of presenting them and generally provide opportunities for PHC and schools' staff to share knowledge and ideas. Workshops chould be held 'in the field' where practical problems (such as the physical constraints to water and sanitation improvements) could be examined in real situations. It is important that teachers become involved in the planning of HE in schools. This could help overcome some of the problems of waning interest that have been experienced in the past.

VILLAGE HEALTH WORKERS AS CHANNELS FOR HEALTH EDUCATION MESSAGES

Theoretically, VHWs should be the ideal channels for HE. They are members of village communities who have been elected to their positions by the people. They have then been given appropriate training - specifically including courses in HE issues. On completing their initial courses, they are expected to communicate what they have learned to others in their community. They are then in an ideal position to conduct HE in people's homes as the opportunities arise. When a VHW sees a water container uncovered she (they are almost all women) can provide on-the-spot advice with an informative explanation of the problem. If all this is typical, why question their suitability at all?

Previous studies have evaluated the work of VHWs in Lesotho (see Hall and Malahleha, 1989 and Makhetha, 1988). Studies in both the Lowlands and the Foothills discovered very high inactivity and drop-out rates. In fact, few VHWs were found to command real respect in their communities. One important reason for this was that people expected them to play a curative role for which they were not equipped or trained. Few interviewees ever requested assistance from VHWs. Most preferred to go straight to a clinic, hospital or private practitioner (modern or traditional).

To consider how active the VHWs are in the Qabane Valley, how they are perceived by their communities and whether or not they would make suitable agents for health education, open-ended interviews were conducted with the VHWs of all six sample villages and a questionnaire was administered (by PHC staff) to 68 VHWs who attended an evaluation at the Hospital. Although we did not go and seek out VHWs in villages that had not been chosen for the study, and although the VHWs who completed the questionnaire were all 'active', we feel that the conclusions reached below are nevertheless valid for the case of Qabane Valley.

The Characteristics of Village Health Workers in the Tebellong HSA

TABLE 27

AGES OF ACTIVE TEBELLONG VHWs

	#	%
Less than 19	2	3.1
20 to 29	10	15.6
30 to 39	18	28.1
40 to 49	21	32.8
50 to 60	13	20.3

Note: 4 VHWs did not give their ages.

53.1% of the active VHWs were over the age of 40 and only 18.7% were younger than 30. Greater age is often accompanied by considerable experience. The first courses for VHWs at the Hospital date back to 1975 - amongst the very first to be held in Lesotho. The following table gives a summary of the years of experience of the VHWs questioned:

TABLE 28

YEARS OF EXPERIENCE OF TEBELLONG VHWs

Less than 5	27	39.7
5 to 10	16	23.5
10 to 15	25	36.7

As shown, 60% of the VHWs had more than 5 years experience of whom 36.7% had been active for more than 10 years. The most experienced VHWs had completed numerous courses at the Hospital including one month of advanced training including the subjects of child birth and the prescription of basic drugs.

The Curative Role of Tebellong VHWs

VHWs in the Tebellong HSA have been assigned a supporting curative role in their communities in contrast to their counterparts in the Lowlands and the Foothills.

In the remoter parts of the Tebellong HSA, the nearest clinic or hospital can be a full day's walk away. The sick are often left with 3 choices: they can treat themselves, or they can consult a traditional healer or they can go to the VHW. Accordingly, some Tebellong VHWs have been given training in the prescribing of basic drugs and are then entitled to order and collect drugs at the Hospital. These they pay for and then sell to people in their villages. A price is set for the drugs which allows the VHWs to make a very small profit (estimated by the Hospital to be no more than about M2.50 per month). About once a month they collect their supplies which they carry on their heads back to the village (often having to contend with swollen rivers, rain, cold and even snow along the way). The drugs are all non-prescription medicinces which are commercially available in towns. Amongst the most commonly used are: multivitamins, cough mixtures, paracetamol and ointments for muscle and skin problems.

Most patients seeking assistance from a VHW will see one of those VHWs who stock some drugs. One such VHW described queues of people waiting to see her on 'busy days'. This was confirmed by interviewees in the villages who pointed out that many patients came from other villages to 'their' VHW. In conversational interviews the VHWs stressed that many of the people who come to see them are

34. Village Health Workers at Tebellong

suffering with skin diseases. The results of the questionnaire confirm that this is indeed the case. However, a wide range of problems are seen by VHWs and we include a list of problems mentioned by the 68 active VHWs who attended the evaluation at Tebellong:

TABLE 29

COMPLAINTS SEEN BY ACTIVE VILLAGE HEALTH WORKERS

Skin problem	30
Diarrhoea	22
Colds\influenza	13
Sore throat	11
Tuberculosis	11
Stomach problem	8
Headache	6
Other pain	6
Fracture	5
Fever	4
Measles	4
Pellagra	2
Leprosy	2
Epilepsy	2
Irregular menstruation	2
Syphillis	2
Burns	2
Sore ears	2
Hypertension	1
Sore eyes	1
Mumps	1
Paralysis	1
Malnutrition	1
Dental complaints	1

Of the 142 complaints listed in Table 32, the VHW referred just over one third (57) to the Hospital.

Obviously the above data must be treated with caution. It is based on the VHWs interpretation or diagnosis of the patient's complaint. We cannot affirm that 11 people with tuberculosis were seen by VHWs. All that we can say it that the VHWs thought that 11 people who came to them for help had tuberculosis (these patients would certainly be amongst the 57 referred). Nevertheless, even if the data are treated with caution they are valid enough to underline the point that we are making: VHWs in the Tebellong HSA are playing an important curative role unlike their counterparts in the less remote parts of the country. One interviewee expressed her appreciation of the VHWs particularly well: "Really their presence is something vital. In the past, when we had health problems of what ever kind, we had to go far to Tebellong or Ha Sekake. But today, we find help at all times thanks to the VHWs."

In fact, VHWs seem to be best known for their curative activities. The following table records the results from conversational interviews during which people were asked to name all the types of work that VHWs do.

TABLE 30

WHAT VHWS DO - ACCORDING TO OTHER VILLAGERS

Give medicines to the sick	27
Teach hygiene	19
Encourage cleanliness	15
Help deliver babies	15
Encourage mothers to take their children to clinics	11
Promote spring protection	7
Promote latrine construction	7
Promote rubbish pits	6
Promote dirty water pits	5
Care for the sick	3
Refer people to the Hospital	3
Give first aid	3
Teach good nutrition	3
Do not know what they do	3
Promote vegetable gardens	2
Help people who are short of money to get help at the Hospital	1
Teach ORS	1

These answers also identify the fact that VHWs are already seen as being active health educators by many people.

Complaints and Constraints that Tebellong Village Health Workers Face

The vast majority of villagers claimed to be perfectly satisfied with the work of their VHWs. Very few people had any real complaints to make. This is a vital point to take note of as it emphasises people's confidence in VHWs - which is essential if they are to be agents for HE.

In fact, a complaint made by three different interviewees was that, when VHWs are away, there is nobody to help people. This is probably an unusual problem in that most villages in the area now have more than one VHW. If anything, it illustrates the extent to which people have come to rely on VHWs and supports our overall impression that people have confidence in the capabilities of the VHWs. This impression was reinforced by an incident that took place nearby the village where one of the POs was staying. A woman lost twins in child birth. She did not call the VHW to attend to the delivery and numerous interviewees said that they were sure that the twins would have lived "if only the woman had called the VHW to help with the delivery".

The most commonly reported difficulty was that the VHWs run out of medicines too frequently. A number of interviewees (5) told stories of how they had gone to a particular VHW in the hope of getting a certain medicine only to find that the VHW had run out of supplies. It is difficult to imagine the disappointment that would arise from such an incident: a mother, battling to keep her sick child's temperature down, walks to the closest VHW with drugs only to find that she has run out of paracetamol; another, worried about her child's skin infection, undertakes the journey to the VHW's home only to discover that the right ointment is finished. Some will then set out on the much longer journey to the nearest clinic or Hospital.

Those VHWs who were qualified to stock drugs specified their difficulties in keeping adequate stocks of basic supplies. Firstly, the long and difficult journey to the Hospital can delay them. Although PHC staff conduct monthly clinics in different parts of the valley, they have stated that they are in no position to transport supplies for the VHWs. Secondly, their immediate household needs leave some VHWs without any capital to repurchase stocks when supplies run low.

The problem of lack of capital is closely related to the fact that the Hospital only allows the VHWs a very small profit margin. There have sometimes been problems between VHWs when one has borrowed money from another to buy supplies and then found it difficult to make the repayments.

Some VHWs appealed for a pack horse. They argued that this would enable them to carry more basic drugs home, thus reducing the number of journeys they would have to make to and from the Hospital. They promised that, if the Hospital purchased the horse, they would take full care of it and would work out how to share it between themselves.

It was also suggested by VHWs that they be allowed to make a greater profit on the drugs they sell in order to ensure their ability to retain enough capital for restocking.

A frequent problem, mentioned by VHWs, is lack of training. All the VHWs found the courses they had done to have been rewarding. They were all keen to attend more courses so as to learn as much as possible. Those VHWs who had not yet qualified to obtain drugs raised this as their most serious problem. They hoped that they too would soon be able to do more training in order to be able to do so.

Even the most experienced VHWs were aware that they were constantly being faced with medical problems which they were not sure how to deal with. Although VHWs can usually refer such problems to the Hospital, there are times when this is simply not possible. One VHW told of an occasion when she was called to assist in a difficult breach delivery where an arm an a leg had already emerged. A referral to the hospital was out of the question and she was left to depend on what she had learned to save the mother's life (the child's heart had already stopped beating). Fortunately, the VHW had recently returned from a month-long course at the Hospital where she had to deal with breach deliveries. Using this knowledge she was able to turn and deliver the baby - so saving the mother's life.

While the above incident is unusual and dramatic it well illustrates the type of incident that can 'make or break' a VHW. VHWs are well aware of this and want to ensure that they are adequately trained to deal with such emergencies. Courses clearly help to boost the prestige of the VHWs amongst the villlagers and this is another reason why they are much in demand. All the VHWs interviewed mentioned that the Hospital could help by providing further training. (It is interesting that the need for further training has emerged as a top priority for VHW's right across the country - see Hall and Malahleha, 1989 and Makhetha, 1988).

The Need for Support for VHWs in Health Promotion Activities

When VHWs were asked how they felt about playing a role in new HE initiatives, most of them said that the Hospital should first send PHC staff to the area to be the first to deliver the new ideas to people. They were convinced that this would ensure that people would listen to and respect the content of the messages and that they themselves would then be in a better position to remind people from time to time of what the Hospital had asked them to do. These VHWs clearly felt the need for a higher authority to refer to when talking to the people.

Some of the VHWs gave equal importance to the idea of involving their village or area chief in the initial stages of any HE campaign. They believed that the chiefs should either help to deliver the message or at least make it clear that they fully endorsed the new teachings. They felt that the authority of the chief could add weight to the message - thereby improving the chance of its acceptance. The PHC programme of the Hospital has already held a number of health-related courses for village chiefs. Of course, the programme should do everything it can to foster good relations between the chiefs and the VHWs, however their calibre varies enormously from village to village. Because of this, there is little point in actually relying on chiefs to give full backing to their local VHWs. In the course of field work, we learned of a few serious disputes with certain chiefs that had resulted in lengthy delays in construction of two particular Village Health Posts.

CONCLUSION

Overall, there is a need to involve as many actors as possible in HE with the main focus being on VHWs and teachers. Collaboration between the different actors is most important. For example, experienced VHWs can work together with teachers and parents to develop suitable approaches to HE in schools.

Given the strengths of VHWs in the Tebellong HSA we believe they should continue to play a leading role in HE. We stress the word 'continue' as VHWs have, from the outset, been carrying out HE. We do not wish to underrate the importance of this work. The fact that so many interviewees know of ORT is a clear indication of the extent to which HE has already successfully been carried out by VHW in the area.

While VHWs should be the main channel for the HE ideas outlined in this report, we believe that they can be most effective if they are given as much support as possible from the Tebellong PHC Department and the Water and Sanitation Programme.

CHAPTER SEVEN

CONCLUSIONS

The specific findings of this study are directly pertinent only to the limited area of the Qabane Valley and other remote mountainous areas of the country that share similar environmental and socio-economic conditions. If particular recommendations differ from actual strategies generally employed in other parts of Lesotho, notably the Lowlands, it is a reflection of the profound differences between Qabane Valley and those places. Such results underline the necessity of investigating specific regional features before proposing or embarking on any programme of activities. A preliminary study of the regional KAP and socio-economic background should be a more routine initial step. It would also be advisable to subject principal survey instruments to a period of pre-testing with selected groups which would include some chiefs and VHWs.

Chapter 5 ("The Question of Latrines") required its own conclusions to be reached before consideration of the scope of a health education campaign could begin. In the event it was recommended that the PHC Department does not promote latrine-building measures as a means of tackling Qabane Valley's sanitation problems. A reiteration of those conclusions which led to that recommendation would be superfluous at this point.

The role of bringing about health improvements through adjustments to current sanitation practices, without the adoption of latrines, will fall to health educators.

While the VHW is a voluntary programme and should remain so, a reasonable income from the work would be a welcome incentive for those experienced VHWs who have had all the necessary training. There is no doubt that many VHWs are poor. Perhaps ways could be explored to help such VHWs - such as a small Hospital 'tax' (perhaps 20 cents a patient) that would go into a fund for VHWs.

Whilst there are good reasons to choose VHWs as the principal channels of Health Education - because of their attested suitability and aptitudes for the role - there are no doubts that they have had little success in persuading their communities to abandon certain hazardous practices despite having been advised to do so during their training period. Even the PHC Coordinator expressed very little hope for achieving change by a continuation of current strategies. A good example would be the general disregard for repeated advice to actually bury any faeces which have been discarded on the household ash-heaps. Again there does not appear to be widespread awareness of the role of germs in disease transmission, and many people do not know of ways by which diarrhoea might be avoided.

It seems clear that health messages may be heard without significantly affecting public attitudes, in which case it could be the medium of their communication which is failing to prove effective. Dramatisation of the consequences of ignoring prevailing health risks might be necessary. Provided that the initiatives with community-based drama groups - begun as a WSSP activity - prove to be sustainable, the chances that the PHC Department can expect to make a greater impact with HE should be significantly improved.

Access to clean water sources is only one of the preconditions for better health. WSSP activities will also provide storage of previously wasted water resources, which will make greater quantities available for improved hygiene practices, although the adoption of precautions against contamination of household supplies *after* collection will remain essential. Health Education must address both collectors and users of water supplies and VHWs, or the additional 'motivator' staff recommended above, must enable a thorough and ongoing process of monitoring the everyday application of that education in village households. If behavioural adoption rates are to ever be used as indicative measurements for future assessment of PHC achievements, some thought will have to be given to devising a workable method of recording specific observations.

Chapter 6 provides a list of risks identified as arising from the consequences of particular behaviours being practised in the particular environmental and socio-economic context of the Qabane situation. These risks *can* be addressed by the PHC department of Tebellong Hospital who *can* use the newly mobilised drama-groups resources of a number of Qabane communities, *but* the department still lacks some key resources.

In particular, its staffing constraints are significant. There can be little confidence that their basic HE goals could be achieved without the addition of a fairly continuous and ardent field presence. The placement of three or four 'motivators' in the HSA could go a long way towards satisfying the expressed needs of VHWS for greater direct support at the same time as invigorating the PHC/Community dialogue.

If necessary, this Report itself could be used as an instrument in the search for a funding partner that would be interested in helping the PHC department to address specific needs such as the ones identified above.

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APPENDIX 1

PROPOSAL FOR A HEALTH AND SANITATION STUDY IN THE QABANE VALLEY FOR THE WATER SUPPLY AND SANITATION PROGRAMME AND THE PRIMARY HEALTH CARE DEPARTMENT OF TEBELLONG HOSPITAL, QACHA'S NEK, LESOTHO.

· (Final Draft - accepted as Terms of Reference in January 1990)

1. BACKGROUND AND JUSTIFICATION

The Water Supply and Sanitation Programme (WSSP) under way in the remote Qabane Valley of the Tebellong Health Service Area (HSA), has four principal objectives which are detailed in the Design Report of the Project. In summary these are: the provision of safe, reliable and convenient water systems; the installation of improved sanitation facilities; the encouragement of improved hygiene practices and to add information to national data sources.

While there is conclusive evidence that incidents of diarrhoea, amongst children under five, are most likely to decline when the installation of improved water and sanitation facilities are accompanied by improved hygiene practices, there is no detailed information available regarding such practices in rural Lesotho. This makes the design of an appropriate Health Education Programme (HEP) to encourage improved hygiene and sanitation practices difficult.

To enable the WSSP and the Tebellong PHC to fulfil its objectives and monitor changes in hygiene practices, it is clear that a community survey of the Qabane Valley is required. The following is a draft proposal of how Sechaba Consultants (Pty) Ltd. would carry out such a survey.

2. OBJECTIVES

The survey will have one main and one minor objective. The main objective of the study will be:

a) To gather in depth information on water, sanitation and hygiene practices which will enable the development of an appropriate health education and sanitation practices.

The minor objective will be:

b) To gather area-specific baseline information which will be of use to the Project staff and which might later be used in an evaluation of the Programme as a whole.

3. SPECIFIC OBJECTIVES

3.1 To gather Basic Socio-Economic Data on Households

The survey will gather some basic socio-economic data on households in the area using key variables which will be comparable with similar data gathered in other parts of Lesotho. It will be used to inform Project Staff (and other interested parties) of conditions in the area vis-a-vis the rest of the country. It will provide a baseline from which changes in conditions can be measured in the future. The data will cover such 'standard' features as:

- number, age and sex of household members;
- levels of education;
- types of occupation;
- presence of absence of members;
- household possessions;

- agricultural possessions (spades, ploughs, etc);
- number of livestock;
- bags of grain harvested.

The unit of analysis will be the household, with the exception of data pertaining to the individual; age, sex, education and occupation. The data will be collected through the use of pre-coded questionnaires. A random sample of households will be made in each village. Survey team members will be expected to spend no more than 20% of their time on the collection of such data.

3.2 To Gather Detailed Information About Water, Sanitation and Hygiene Practices

Information pertaining to people's water, sanitation and hygiene practices will be gathered primarily through participant-observation and non-structured, open-ended, conversational interviews. The approach will be primarily anthropological. The 'interview guide' which will simply help to ensure that important questions are not overlooked. Information gathered will be recorded in detailed field-notes. The POs will spend at least 80% of their time conducting such conversational interviews and recording their observations.

Important attention will be paid to practices which are believed to be associated with incidence of diarrhoea amongst children under five years of age. This will include:

- frequency of maternal bathing;
- frequency of hand washing;
- quantity of water used by household;
- disposal of children's faeces;
- treatment and storage of water;
- other issues as noted in correspondence between the Consultant and the Programme.

It is expected that data gathered on certain practices will later be used to monitor changes in sanitation practices.

3.3 To Gather Information on the Frequency of Diarrhoea and People's Perceptions of the Disease

Information on the frequency of diarrhoea amongst young children will be gathered. This will be based on mothers' recall. At the same time, people's (notably mothers') understanding of the disease - its nature, its causes and its treatment - will be recorded. The POs will do a limited number of 'case studies' in each village which will provide detailed information on the above.

3.4 To identify Clear and Specific Objectives for the Health Education Programme

The final report of the Study will make recommendations regarding what the specific objectives of the HEP should be. These recommendations will be based:

a) on the anthropological findings of the survey and

b) on the findings of other surveys (which describe specific practices which are relevant to improved health) carried out in Lesotho and abroad.

3.5 To Assess the Effectiveness of Health Education Channels

The survey will determine how active VHWs are and, more important, how they are seen by their communities. Through open-ended interviews the survey will attempt to determine what other suitable people might be used in conjunction with VHWs or, in some cases, as a possible alternative.

4. PROPOSED METHOD

4.1 Review of Literature

The first stage of the study will involve a serious review of literature. This will provide vital background information which will be used in a number of ways: it will be used to determine specific health and hygiene practices which are relevant for the improvement of the health of the population; it will be used in the training of the research team, in the development of the questionnaire and in the writing of the final report which will include an annotated bibliography.

4.2 The Questionnaire

As noted above, a questionnaire will be used to gather socio-economic data on households in the area. The questionnaire will be similar to other well-tested questionnaires which the research team has used before and will therefore not be pre-tested. It will be pre-coded and hence ready for data entry as soon as it has been completed. Competed questionnaires will be checked before by the Consultant before POs leave the village. It is possible that some of this data entry will take place in Tebellong while the study is under way, using a portable laptop computer.

4.3 Participant-Observation

As spelt out above (3.3), an anthropological approach will be used to gather data on more sensitive issues pertaining to water, sanitation and hygiene practices. POs will make extended visits to a small number of households where they will engage in open-ended conversation. The results of these conversations and the POs general observations will be committed to memory and then recorded in field-notes. These will provide a certain amount of quantitative data but will serve primarily to provide qualitative information on people's knowledge, attitudes and practices.

5. THE SAMPLE

It is proposed that the study focus on three villages in Area A and three villages in Area B. Given budgetary and time constraints it is not possible for the research team to cover all 27 villages in the Project area if the vital anthropological approach is to be maintained. It must be stressed that winning the confidence of a given household, entering into revealing conversation and recording the results in field-notes is very time-consuming. Frequent PO moves would be disruptive and would certainly result in a loss of detailed findings which come only with time. Two different areas (A and B) have been chosen as each has its own distinct ecological features which may have important implications for the study.

Within a given village, the PO will aim to get at least a 40-50% sample with the questionnaire. It is anticipated that the POs will cover no more than about 120 randomly selected households, and from any additional interviews that occur as a result of chance meetings (at the village spring, near the river, etc,.)

The POs will spend up to a week in a village before moving on to the next. In this way, it is expected 6 villages in will be covered in a period of about three weeks.

6. ANALYSIS OF RESULTS

The results from the pre-coded questionnaires will be entered for computer analysis. This analysis will be carried out using an up-to-date version of the Statistical Package for the Social Sciences (SPSS/PC+). Statistical results will be presented in attractive graph form using the computer programme called Harvard Presentation Graphics (HPG). At the same time the written field-notes will systematically be analysed. As noted above, these notes will provide both quantitative and qualitative data.

7. REPORT WRITING

Based on the analysis described above, a report will be compiled which will be divided into six major sections which will correspond to the specific objective outlined above:

- The Socio-Economic Situation of Households in the Qabane Valley;
- Water, Sanitation and Hygiene Practices;
- Knowledge, Attitudes and Practices relating to Diarrhoea and other diseases;
- Identification of objectives for Health Education and Sanitation Programme,
- Recommendations relating to the Health message: Channels;

8. STAFFING

The Sechaba Consultants research team will consist of the following:

- 1 Consultant (Team Leader)
- 2 Participant-Observers
- 1 Data Entry Assistant

The responsibilities of the staff will be as follows:

The Consultant (David Hall), an experience social anthropologist, will take overall responsibility for all the stages of work described in Appendix 1. Namely.

- a literature review, the preparation of research instruments (questionnaire, interview guide, forms);
- a preliminary logistical visit to the Qabane area to meet Chiefs and make arrangements for POs accommodation etc,;
- the training of POs (with the help of Hospital and project staff);
- the supervision of the pre-testing and revising of research instruments supervision of field work in Qabane;
- the gathering of socio-economic data on villages;
- the supervision of data entry;
- responsibility for analysis of results and for producing the final report.

The POs, all experienced field-workers, will be trained in Tebellong where they will help revise the research instruments. They will be responsible for carrying out the basic collection of data in the Qabane Valley as described above. The data entry assistant will be responsible (obviously) for data entry.

APPENDIX 2

LIST OF QUESTIONS USED FOR SESOTHO QUESTIONNAIRE

LATRINES

1. Would you like to use a latrine?
2. Why don't you have one?
3. How much do you think a latrine cost?
4. How much would you be prepared to pay?
5. If you had one, would you lock it?
   If the answer is yes, why? If the answer is no, why?
6. Who would you allow to use the latrine?
7. Would you share the latrine with another family?
8. At what age would children start using the latrine?
9. Would you build it yourself?
10. Would you dig the pit yourself?
11. Would you use a trained latrine builder?
12. What would you use to build a latrine?
13. How far/near would your latrine be from the house?
    Why? Where would you locate it?
14. Would you use it during the day? Why? Why not?
15. What would you use for anal cleansing?
16. Where would you get that material and where would you store it?
17. How long do you think it would take for your latrine fill?
18. Would you choose to empty the pit or would you build another one?
19. Do you think faeces from a from an old latrine can be used for any purpose?
    How?
20. Where do men, women and children of your family go to relieve themselves at night and during the day?
    What do you use for anal cleansing?
21. Where is the household rubbish thrown?

DIARRHOEA

1. How can diarrhoea be cured?
2. Can diarrhoea be prevented?
3. By what methods?
4. How do you see that an adult or a child with diarrhoea needs to see a doctor?
5. What can you use to stop diarrhoea?
6. Who should administer the cure?
7. Is diarrhoea a problem for your household or others in the village?
8. Have you or anyone in your family been sick with diarrhoea? Have there been any deaths in the family associated with diarrhoea?
9. How many times did you take your child for treatment for diarrhoea?
   Since last christmas
   Since last year

WATER USAGE

1. How many buckets (20 litre) of water do you draw in a day?
   In order to: drink; wash clothes; to bathe; other purposes.
2. How do you wash your dishes (i.e. hot or cold water)?
3. What do you use (i.e. detergents) to wash dishes?
4. How many times a day do you bathe you children?
5. What about adults?
6. When do you wash your hands?

7. Where do adults and children wash their hands after relieving themselves?
8. Where do you buy soap?
9. How much soap do you buy at a time?

SOCIO-ECONOMIC DATA

1. Provide information on the following:

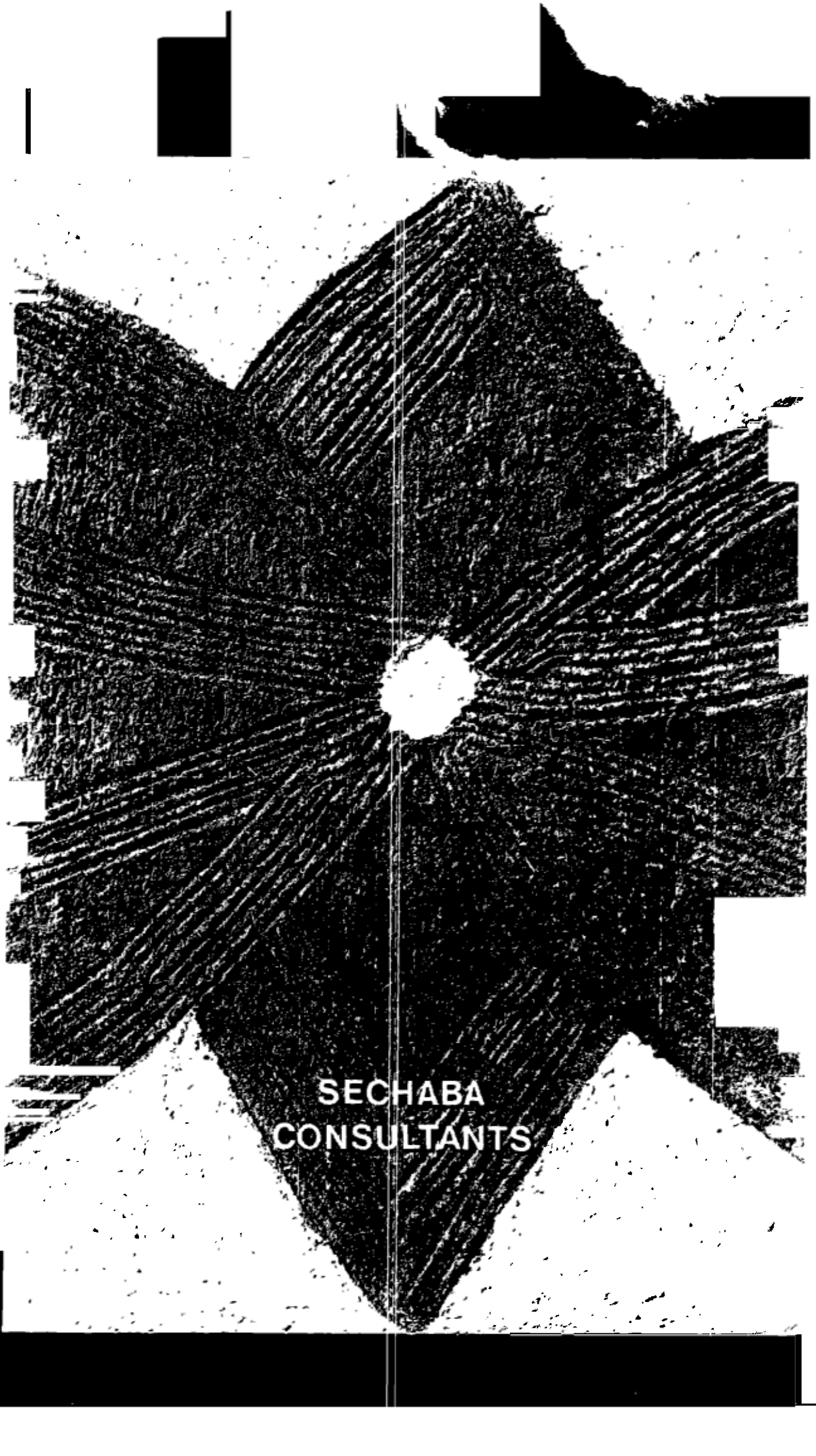
   Sex
   Age
   Marital status
   Occupation
   Education
   Place of residence
   Years of residence in village
   Membership of associations

2.

No of:	No of:	Yes/No	No of:
Own fields	Rondavels	Fenced garden	Bags of maize
Shared fields	Flats	Water tank	Bags of sorghum
Planters	No. of rooms	Latrine	Bags of wheat
Ploughs	Horses	Table	Bags of oats
Cultivators	Cows	Chair	Tins of beans
Ox-carts	Donkeys	Cupboard	Tins of peas
Hoes	Sheep	Wardrobe	
Spades	Goats	Bed	Use of: (Yes/No)
	Chickens	Radio	Fertilizer
	Pigs	Car	Insecticide
			Improved seeds
			Selective breeding
			Improved trees

SOURCES AND AMOUNT OF INCOME

Migrant Labourers
Migrant Women
Men working in Lesotho
Women working in Lesotho
Building
Transport
Ploughing
Shop/cafe
Brewing
Vegetables sales
Livestock sales
Sales of wool & mohair
Sales of chickens and eggs
Handicrafts
Food/Stokvel
Pension/Gifts
Other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