WASHE
water · sanitation · health education
in Zambia

FIRST EDITION

Options for Excreta Disposal Facilities

Supplementary Module 5a

CONTENTS

PREFACE

THE CORE TRAINING MANUALS AND SUPPLEMENTARY MODULES

The Core Training Manuals and Supplementary Modules have been produced to support the implementation of WASHE in Zambia.

WASHE

WAter **S**anitation **H**ealth **E**ducation

WASHE has been developed in Zambia over the last ten years. Learning mainly from the experiences of Western and Southern Provinces, it is now recognised to be a sustainable approach to rural water supply and sanitation.

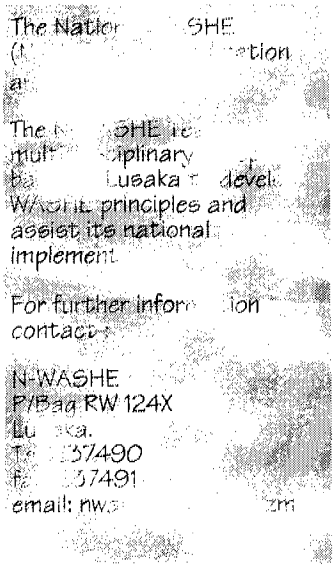
The Core Training Manuals provide the background to this development and explain its context in view of decentralisation. The Manuals are intended to provide flexible guidelines to assist the growth of WASHE primarily at district level.

The Supplementary Modules provide community management guidelines for use at all levels; national to community. The series includes technical, participatory health and hygiene education and community management titles. Each module has been written to 'stand alone' or be used as part of an overall community management approach where each title in the series complements the next. It is helpful to get to know the titles and become familiar with the contents to enable you to make informed decisions.

At the back of this module is a list of the titles that compile the Core Training Manuals and Supplementary Modules Series. Full details of the contents of each title can be found in ***The Community Management and Monitoring Unit Publications List.*** All titles are available from the CMMU.

For further information contact :

WSRSU
P/B Rw 291x
Lusaka
Tel. 226941/2
fax 226905
Email: rsu@zamnet.zm


The Natio SHE
(N tion
a
The N SHE is
mul ciplinary
ba Lusaka deve
W/ principles and
assist its national
implement
For further infor ion
contact :
N-WASHE
P/Bag RW 124X
Lu ka.
T 57490
f 57491
email: nw m

The guidelines and materials form the basis for the advocacy and training work of the National WASHE Co-ordination and Training Team (N-WASHE).

The Core Training Manuals and Supplementary Modules have been developed and written by the Community Management and Monitoring Unit (CMMU).

This is Supplementary Module 5a which examines common excreta disposal practices in Zambia and proposes a minimum standard for excreta disposal facilities at household level. It is called Options for Excreta Disposal Facilities. This module should be used together with module 5b, which is called latrine construction techniques.

WHO THE SUPPLEMENTARY MODULES ARE FOR

The Supplementary Modules are written for people who are intending to develop community management as part of their overall objective for rural water supply and sanitation. These people are likely to represent :

- district councils and D-WASHE committees
- specific line ministries
- NGOs
- Donors
- volunteer agencies
- development organisations

The individuals are likely to be :

- rural and peri urban extension officers from WASHE line ministries
- environmental health technicians
- community development workers
- community health workers
- teachers
- project personnel

The guidelines have been developed within a Zambian context but can easily be adapted to meet the needs of other developing countries.

Throughout the Core Training Manuals and the Supplementary Modules, ***the Community*** refers to a group of people with a common present or potential interest in WASHE. A single family unit is referred to as a ***household.***

By ***Community Management*** we mean : the ability of the community to have the ***responsibility, authority, accountability*** and ***control*** of the WASHE process that exists for their benefit.

The CMMU believes that community management will only become a reality if issues of gender are seen to be integral to the project cycle and participatory process. By ***gender*** in rural water supply we mean : ***the context and reality of both women's and men's lives that can together affect self determined change. Gender is not a women's issue alone.***

HOW THE SUPPLEMENTARY MODULES WERE DEVELOPED

CMMU was mandated in 1993 to address issues of long term sustainability in the rural water supply and sanitation sector. CMMU began a programme of participatory research throughout the country and it was during this time that it became evident that some regions had a greater chance of sustainability than others. The approaches being used by projects involved in the sector varied from one area to the next. Whilst projects agreed that a community management approach through participation was appropriate there was little or no standardisation. The absence of a standardised community management approach for Zambia meant that the quality of delivery and ultimate level of choice for the community was at best patchy.

In order to address this the CMMU set about collecting "best practice" ideas, knowledge and materials from around the country. It concentrated on participatory techniques, technology options and community management issues for rural water supply and sanitation. The result, through a series of consultative workshops, committees and core working groups, is the current series of supplementary modules.

ACKNOWLEDGEMENTS

Many people and organisations were involved in the development of the Core Training Manuals and Supplementary Modules. The CMMU would like to acknowledge our appreciation of all Government, donor and NGO field workers at community, extension, district, provincial and national level for their invaluable experience, ideas and opinions.

The research and development required and the production of these publications would not have been possible without considerable financial support from the European Union, NORAD and UNICEF, for which we are most grateful.

THE PRODUCTION TEAM

Dermot Carty, Team Leader

Research, Development and Drafting :

Isaac Mbewe, Rural Water Supply Engineer

Musonda Kaluba, Sociologist

Sue Coates, Training Advisor

Paul Mboshya, Sociologist

Joseph Mathe, Health Educator

Emelia Mweemba, WASHE Facilitator

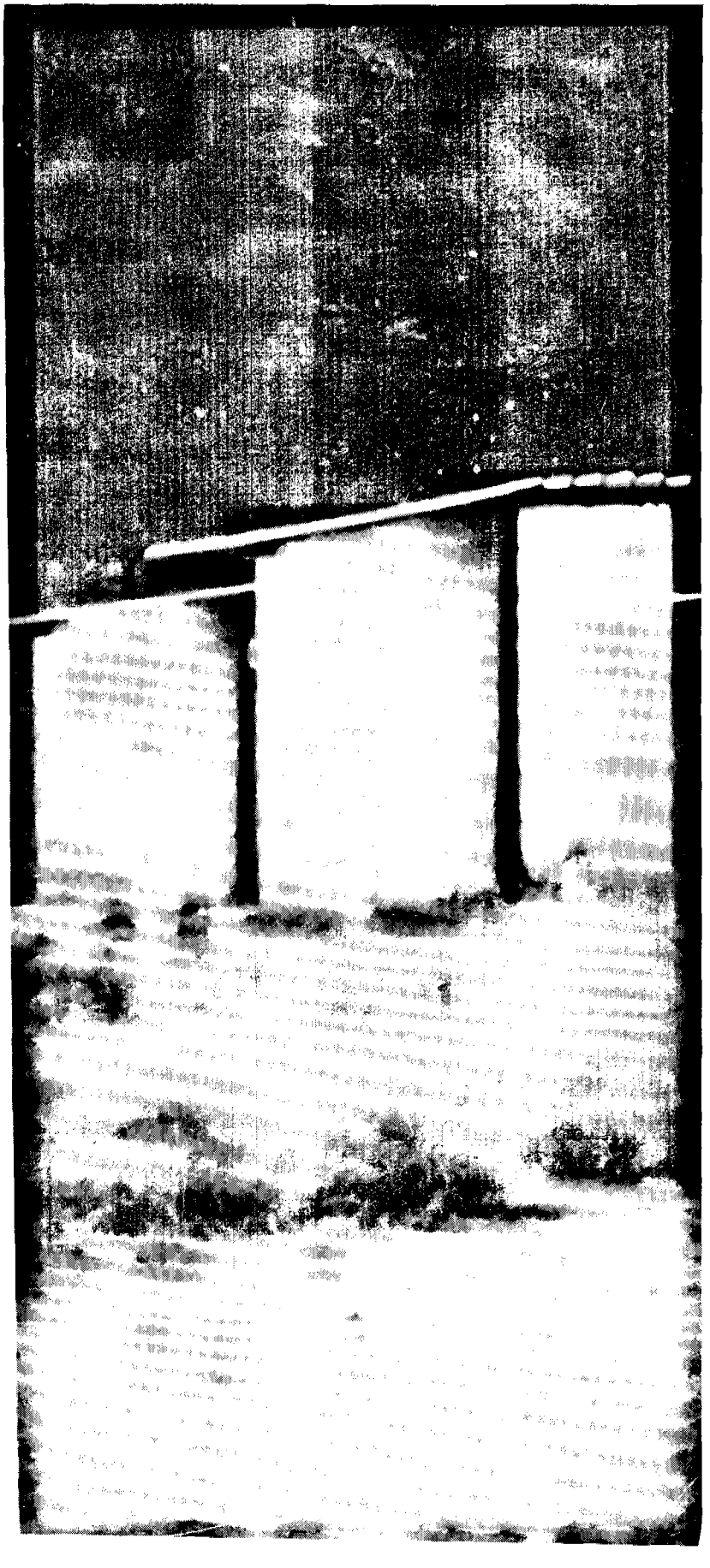
Editing Team : Dermot Carty and Sue Coates

Layout and Graphics: Davy Ng'oma, Graphic Artist

Desk Top Publishing Technicians : Fostina Mwale, Mwazida Mbewe, Samuel Bwalya and Mushuka Kamwela

Data Processing Technician : Jomo Nyirenda

Secretarial Support : Theresa Siwakwi and Felix Kajilo



Section 1

Introduction

SECTION ONE
ABOUT THIS MODULE

This supplementary module examines the importance of excreta and their disposal as part of our everyday lives. It further outlines common excreta disposal practices in Zambia and examines the advantages and disadvantages of the major methods. This Module is designed to provide basic information to help you decide what is the most appropriate practice for you and your community, but concludes that on a large scale, given the current economic situation in Zambia, an improved traditional type latrine is most likely the best option.

- Section 1 Introduction
- Section 2 Excreta and their Disposal
- Section 3 Excreta Disposal Practices in Zambia
- Section 4 Making the Right Technological Choice
- Section 5 Summary

The format is designed to help you :

- find things quickly
- work systematically through the contents
- prepare yourself for participatory activities with the community

Remember the Supplementary Modules are intended as guidelines. Your final choice of action will be based on your dialogue with the community, their needs as they perceive them and local circumstances. Community management is a dynamic process - be creative and use local expertise and the advice of local institutions wherever possible.

In the margin of each page you will find useful information and tips.

Space has also been left for your own notes.

THE APPROACH

To equip you with the knowledge and skills to :

- understand the important role and impact excreta has on our lives
- understand current practices used to dispose of excreta and their advantages and disadvantages
- understand the issues which are important in making the right technological choice for excreta disposal facilities

Notes :

Excreta and their Disposal

Section 2

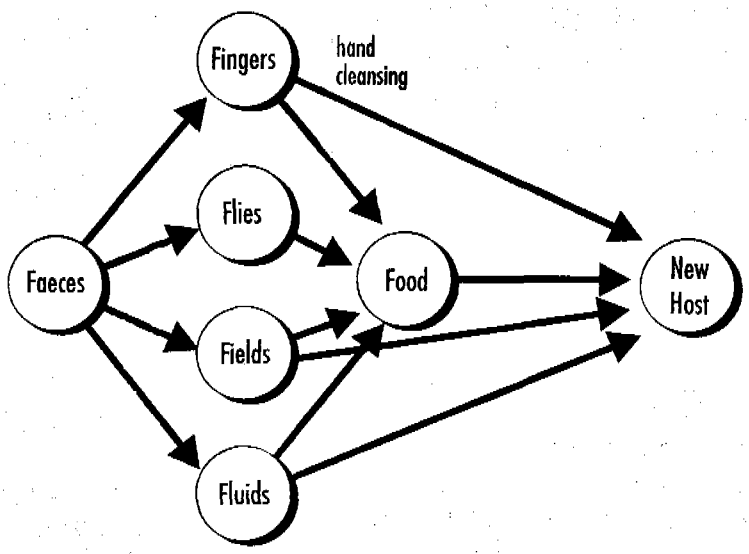
SECTION TWO
EXCRETA AND THEIR DISPOSAL

The passing and disposal of excreta is an issue all of us have to deal with on a daily basis. Yet in many countries around the world dealing with excreta, even discussing it, is very difficult. Many cultural taboos exist around excreta sometimes making the proper management of it difficult.

Why is the proper disposal of excreta so important? During defecation, a normal healthy person passes millions of harmless bacteria in their faeces. In fact these bacteria are essential for normal body functions. However a person can host a number of pathogens which cause illness and even death. These pathogens can also be passed in the faeces during defecation. If the faeces (excreta) are not disposed of properly the pathogens can be passed to another person causing that person to become ill or even die. An example of how this chain works might be:

A certain lady decides to visit her friends in the neighbouring village to help with preparations for a wedding. There are also lots of other visitors from far away villages and a great feast is prepared. Unfortunately, our lady takes food which has not been properly prepared and in doing so swallows harmful bacteria which cause diarrhoea. When she returns home she is feeling tired but prepares food for her family. However, because she is ill and tired she does not wash her hands after defecation and this results in her passing harmful bacteria to the food she is preparing. Her husband and children now swallow these bacteria and they too become ill.

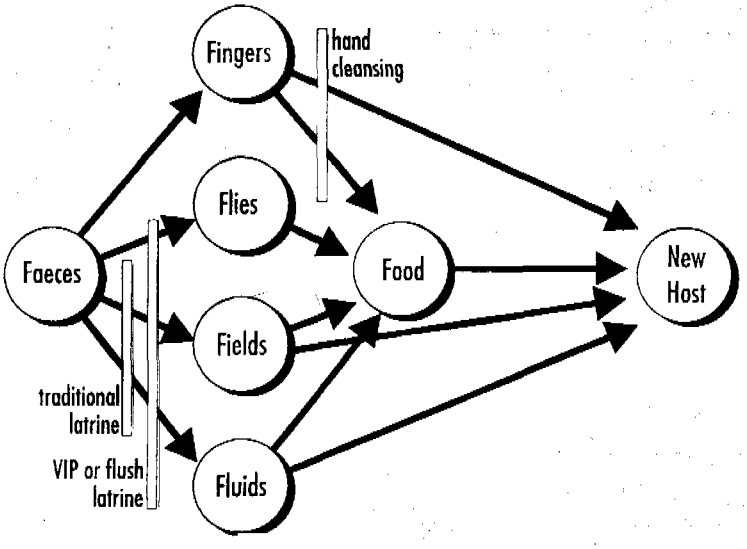
This route of disease transmission is known as the faecal-oral route i.e. from the faeces to the mouth of a new host. This transmission route is one of four routes of disease from excreta - fluids , food, flies and fingers (hands). This is graphically illustrated below in what has become known as the `F diagram', which shows transmission of disease from faeces to a new host via fluids, fields, flies or fingers, through food or directly to the host.



The 'F diagram adapted from :

Wagner and Lanoix 1958 modified by Winblad, 1993

In order to control the spread of disease, a barrier of some sort or another should be inserted between the faeces and the new host. Ideally this barrier should be as close to the faeces as possible to prevent contamination reaching the fingers, fields or food. Most types of latrines can break the fluids, food and fly transmission route. However, latrines can not prevent the contamination of hands and fingers and here the only possible barrier is appropriate hygiene behaviour, including hand cleaning after defecation or after handling excreta.



This diagram above clearly demonstrates that improvements in the quality of life and peoples health can be improved if these barriers are put in place to prevent the spread of disease. The proper management of excreta coupled with improved personal hygiene practices can have a significant impact on our everyday lives.

EXCRETA RELATED DISEASES

Let us briefly examine in more detail the classification of excreta-related diseases. As we have already seen the correct disposal of excreta is one of the best measures a community can undertake to prevent diseases. The sanitary disposal of excreta will help prevent the diseases which are caused by pathogens passed by people in faeces and urine. It will also help to prevent the spread of diseases which are transmitted by insects such as flies, cockroaches and mosquitoes which breed in excreta or polluted water.

Table 1 below divides these diseases into categories and highlights the sanitary disposal of excreta as a control measure.

For more information: adapted from small Scale sanitation; Rose Institute Bulletin No. 8 August, 1998

TABLE 1: **Classification of Excreta-related Diseases**

Category	*Disease*	*Type of pathogen*	*Dominant transmission routes*	*Major control measures*
I Faeco-oral (non-bacterial)	Poliomyelitis	V	Person-to-person contact Domestic contamination	Provision of toilets Domestic water supply Improved housing Health education
	Hepatitis A	V		
	Rotavirus diarrhoea	V		
	Amoebic dysentery	P		
	Giardiasis	P		
	Balantidiasis	P		
	Enterobiasis	H		
	Hymenolepiasis	H		
II Faeco-oral (bacterial)	Diarrhoeas and dysenteries:		Person-to-person contact Domestic contamination Water contamination Crop contamination	Provision of toilets Domestic water supply Improved housing Excreta treatment prior to land application Health education
	Campylobacter enteritis	B		
	Cholera	B		
	E. coli diarrhoea	B		
	Salmonellosis	B		
	Shigellosis	B		
	Yersiniosis	B		
	Enteric fevers:			
	Typhoid	B		
	Paratyphoid	B		
III Soil-transmitted helminths	Ascariasis (roundworm)	H	Yard contamination Ground contamination in communal defecation area Crop contamination	Provision of toilets with clean floors Excreta treatment prior to land application
	Trichuriasis	H		
	Hookworm	H		
	Stongyloidiasis	H		
IV Beef and pork tapeworms	Taeniasis	H	Yard contamination Field contamination Fodder contamination	Provision of toilets Excreta treatment prior to land application Cooking and meat inspection
V Water-based helminths	Schistosomiasis	H	Water contamination	Provision of toilets Excreta treatment prior to discharge Control of animals harbouring infection Cooking
	Clonorchiasis	H		
	Diphyllobothriasis	H		
	Fasciolopsiasis	H		
	Paragonimiasis	H		
VI Excreta-related	Filariasis (transmitted by *Culex quinquefasciatus* mosquitoes)	H	Insects breed in various faecally contaminated sites	Identification and elimination of potential breeding sites Use of mosquito netting
	Infections in Categories I-V especially I and II, which may be transmitted by flies and cockroaches	M		

This table clearly shows that the provision of toilets has a significant impact on the spread of excreta related diseases. However, it must be borne in mind that personal hygiene practices must change together with the provision of latrines to maximise impact. Quoting from the Ross Institute :

The potential impact of sanitation improvements and of improvements in personal hygiene, on the various categories of excreta-related disease, is summarised in Table 2. For most of these diseases, an improvement in excreta disposal is only one of several measures required for their control. It is essential that people of all ages use the improved toilets and keep them clean. The disposal of children's excreta is at least as important as that of adults. Studies in the past have often failed to detect beneficial effects from improved sanitation because, although latrines were built, they were not kept clean and were not used by children, or by adults when working in the fields.

TABLE 2: Potential for Control of Excreta-related Diseases by Improvements in Sanitation and Personal Hygiene

Disease category from Table 1		*Impact of sanitation alone*	*Impact of personal hygiene alone*
I	Non-bacterial faeco-oral	Negligible	Great
II	Bacterial faeco-oral	Slight to moderate	Moderate
III	Soil-transmitted helminths	Great	Negligible
IV	Beef and pork tapeworms	Great	Negligible
V	Water-based helminths	Moderate	Negligible
VI	Insect vector	Slight to moderate	Negligible

adapted from Small Scale Sanitation: Ross Institute Bulletin No. 8 August 1988.

THE IMPACT OF EXCRETA RELATED DISEASES

What impact do excreta related diseases have on our lives? Excreta related diseases occur all over the world but especially so in developing countries. This is because access to facilities is greatly reduced due largely to poverty while over crowding as can be found in most large cities also has a major impact. The most common

Mr. Banda's story

Mr. Banda lives in a village which is located about 14 km from the provincial capital. He works (peace work) in a Retail Outlet in town and earns just K1,500 per day.

A few weeks ago Mr. Banda fell ill with diarrhoea. It was a Saturday morning, his usual day off and he felt he would be better by Monday. However, his condition had deteriorated by Monday, so much so that his wife decided to take him to the hospital in town. By this time he was so weak he could not walk so his wife had to hire transport to town which cost her K2,500.00.

Upon examination the doctor decided that Mr. Banda should be admitted. He was taken to a Ward (two beds were already occupied with patients suffering from diarrhoea) and given treatment. He was kept in hospital until Wednesday when he was discharged. During this time his wife and his daughter looked after him, bringing food etc. (His daughter is 16 and could have been at school but her smaller brothers and sisters had to be cared for while her mother was at the hospital and vice versa). It also cost K2,500 to return home and Mr. Banda was too weak to go to work until the following Monday.

The money Mr. Banda had to pay from his own pocket directly amounted to:

K5,000 transport

K6,000 consultation and drugs

Mr Banda did not work for five days which cost him: 5 x K1,500 = K7,500 in lost earnings

The total direct cost was K18,500

manifestation of excreta related diseases is diarrhoea. It has been estimated that :

- the dehydration from diarrhoea kills over four million children each year in developing countries
- almost 80 percent of patients presenting to hospitals and clinics in developing countries are suffering from **preventable diarrhoeal disease**.

In Zambia it has been reported that during the period 1989 - 1992 :

- diarrhoea ranked as the third most common cause of out patient attendances for all age groups, excluding, other unspecified diseases.

Add to all of this the huge number of people who suffer from diarrhoea who do not attend clinics or hospitals for one reason or another. The scale in human suffering terms alone is huge.

To think of it another way : ignore the human suffering element and estimate cost of all this illness to the country as a whole. Costs which should be considered include:

- the cost of productive time (in the fields or in the place of work) which is lost due to illness
- the cost of time missed at school
- the cost of time spent by medical staff attending to patients
- the cost of drugs prescribed for treatment
- the cost of caring for the patient (at hospital or in the home)
- transport costs to and from hospitals or clinics
- in the case of death the cost of funerals etc.

Multiply these costs by the total number of out patient attendances in clinics and hospitals suffering from diarrhoea every year. Between 1989 and 1992 an average of almost 1.1 million people per year attended clinics for treatment.

Assume that Mr Banda's story (opposite) is typical except that he is not admitted to hospital so the drugs and consultation fees are say K1 000. In addition let us assume that the transport cost half of the amount stated say, K2 500. Then the total cost to Mr. Banda directly would have been 1 000 + 2 500 + 7 500 amounting to, in

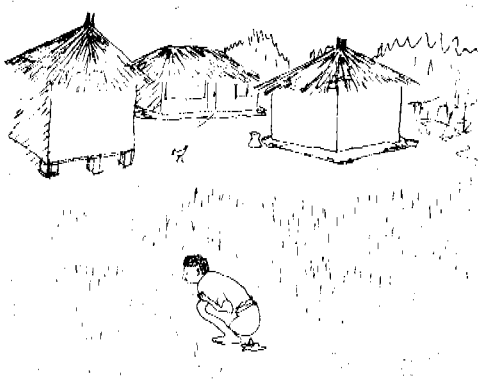
total K11 000. Remember that these costs do not include anything for care in the home, loss of time spent at school, doctor or nurses care in the hospital etc..

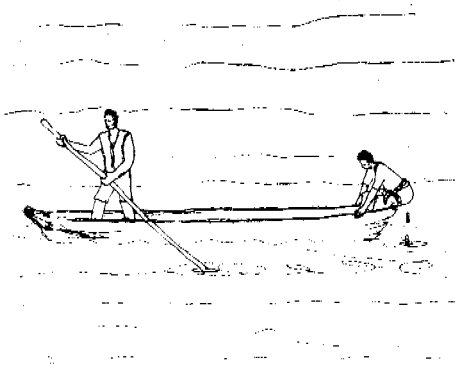
Further assume that of the 1.1 million people that attend out patient services can be reduced by one half to 550 000. The n the annual average cost to those suffering would be 550 000 X 11 000 which is approximately US$ 4.8 million. Now assume that our costs are exagerated by, say, a factor of 2 which would halve our cost to US$ 2.4 million.
US$ 2.4 million is enough :

- to construct 480 new bore holes with hand pumps, providing water to approximately 96 000 people
- run the national immunisation day for one year to immunise all all children under five in Zambia against polio
- to construct 5 new rural primary schools
- to pay the salaries of 2 500 primary school teachers for one year

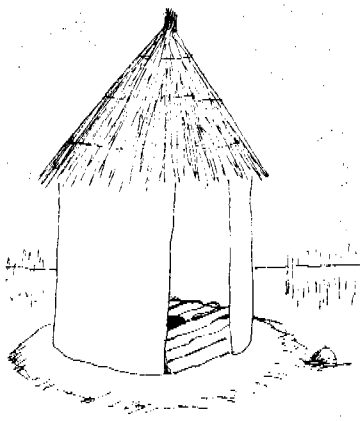
Notes :

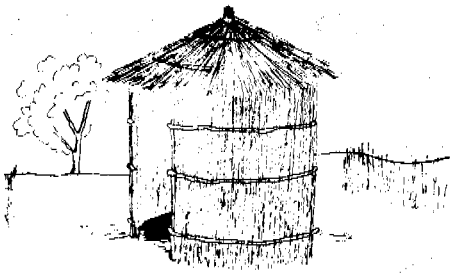
Section 3

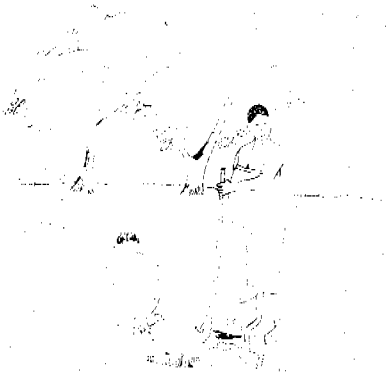


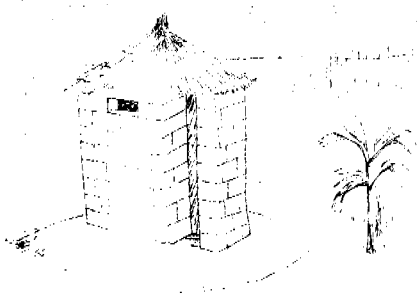


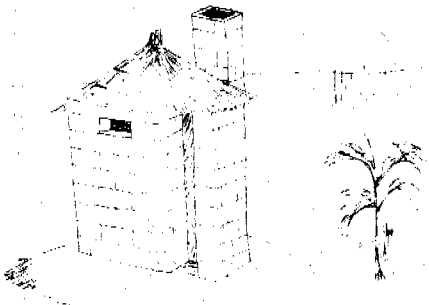
Excreta Disposal Practices in Zambia

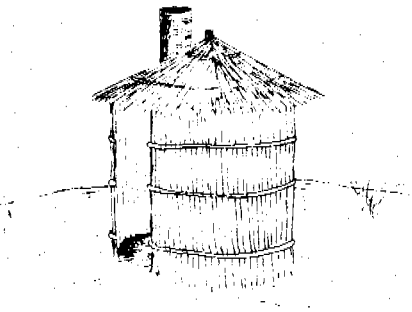












SECTION THREE

COMMON EXCRETA DISPOSAL PRACTICES IN ZAMBIA

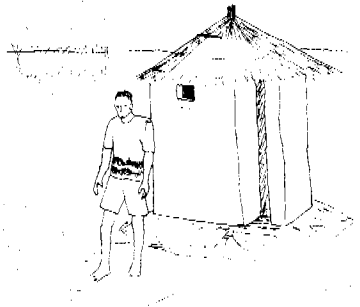
A number of excreta disposal practices have been identified in Zambia. These practices are often dictated by the population density, ground conditions and ground water levels etc. of a given location. The practices (and associated technologies) can be summarised as follows :

- traditional pit latrine
- VIP latrine
- communal latrine with urinal
- pour flush latrine
- aqua privy
- bucket latrine
- bush defecation (crude defecation)
- cat method
- river/lake defecation
- Latrines without a superstructure

These technologies can be briefly described as follows:

TRADITIONAL PIT LATRINE

The traditional pit latrine is best described as a pit which is usually excavated to a depth of about 2.5 meters. The pit is then covered with logs and plastered with earth to provide the squatting surface. The superstructure can be made of a variety of materials including grass, pole and dagga, bricks, burnt bricks and sacking etc. The most common roofing material is grass. The traditional type of pit latrine is the most common type of excreta disposal facility and is found in all areas in Zambia.

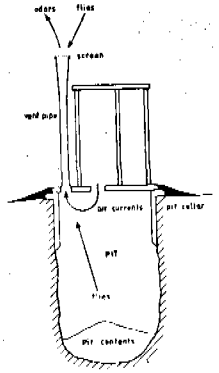


An example of a traditional latrine

VIP LATRINE

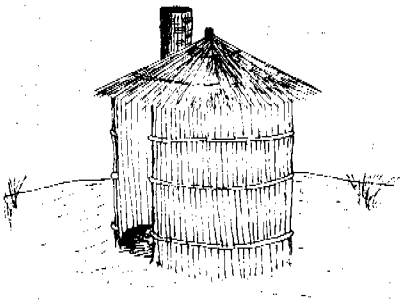
The VIP latrine or Ventilated Improved Pit latrine is, by definition, an improved pit latrine with a number of essential components for improvement. The pit itself is ventilated to reduce smell nuisance and the construction method of the vent and its arrangement within the pit contributes to the reduction of the fly nuisance.

In Western Province, there are fine examples of this type of technology which have been constructed in sandy areas using locally available materials. To prevent the pit from collapsing, woven reeds are used for lining. In the absence of clay for brick making and aggregate for concrete, grass, poles and reeds can be used to construct an acceptable standard of latrine although the structure is not as durable as other construction technologies. In other areas, the more common construction methods are similar to those of the traditional latrines using bricks or blocks with grass or metal or asbestos roofs. The construction methods for the vent pipe vary too from plastic pipe to asbestos pole and dagga or bricks. The fly screen is usually wire mesh.



Components of a VIP latrine that distinguish it from traditional latrines vis vent and fly screen

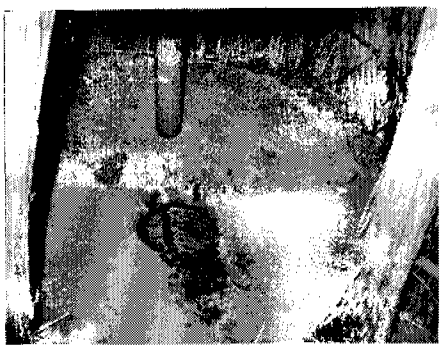
VIP latrines are found in all areas of Zambia especially in government Institutions e.g. schools, health centres and agriculture camps etc. but are not as extensive as the traditional latrine due to the perceived higher construction costs and lack of knowledge in the construction methods.



Grass VIP latrine Westrn Province

COMMUNAL LATRINE WITH URINAL

Once again, this is an adaptation of the basic pit latrine. The difference here is that an adjoining compartment for urination is constructed. This type of structure is most commonly found in peri urban areas at local bars and restaurants. The construction method allows for more than one person to use the latrine at the same time. Defecation is practised in the latrine proper while urination is in the adjoining compartment. Urine is collected in a channel and diverted towards the pit which is usually under the defecation area.



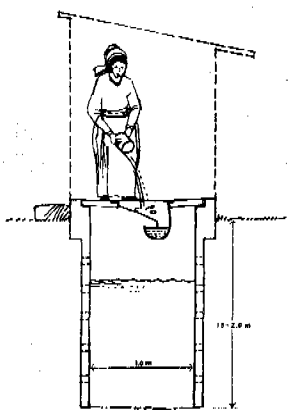
Reed lined latrine. Western Porovince

POUR FLUSH LATRINES

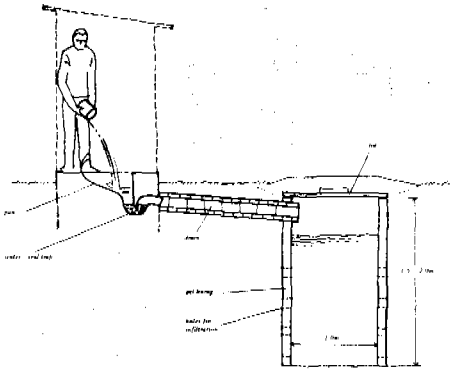
Pour flush latrines are not that common in Zambia. In recent years, Irish Aid have been promoting the use of pour flush latrines in some areas of Kasama district. This type of structure has been constructed at schools and rural health centres and more recently in rural communities. Pour flush latrines have a number of advantages over the traditional or VIP latrine (as constructed in Zambia).

The main advantages are :

- they can provide a water seal to prevent nuisance from flies and smells

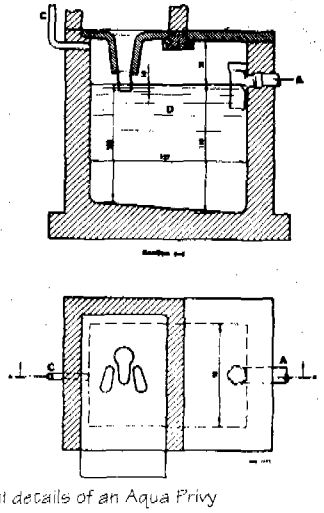


A pour flush latrine with pan and water seal trap directly above the pit. Doimentions are in metres

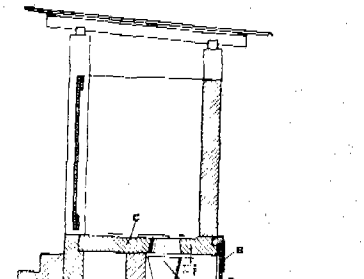


A section through a pour-flush latrine with the pit some distance away from the squatting slab. Dimensions are in metres

A section through a pour flush latrine with the pit some distance away from the squating slab. Dimentions are in metres



Typical details of an Aqua Privy



An example of a bucket latrine

- the pit can be located away from the superstructure which means that the superstructure can be built on a sounder footing. The contents of the pit can be removed and the pit re-used thus increasing the life span of the facility.

One drawback with this method in Zambia is that the re-use of latrine contents in Zambia is not culturally acceptable at present. Another drawback is that water is required for flushing the excreta into the pit.

The type of latrines currently being constructed by Irish Aid at present do not have a water seal. However, a vent is provided over the pit itself to reduce fly and smell nuisance.

AQUA PRIVY

An aqua privy can best be described as a sealed pit, usually a pit lined in concrete, into which excreta are deposited. Often, a vent is provided in a similar manner to that of the VIP latrine. It has some advantages over the unsealed pit type. Due to the fact that it is sealed it offers protection to ground water which may be used for drinking. An aqua privy is essentially a septic tank into which excreta are deposited directly. It requires regular emptying by vacuum tanker or other similar method and is therefore expensive to operate. It has been reported that aqua privies do exists in Matero in Lusaka. They are not considered to be appropriate to rural areas. Given the current economic situation in Zambia and the scarcity of resources for drugs, food and transport etc., it is doubtful whether the existing aqua privies are even appropriate.

BUCKET LATRINE

Bucket latrines are used in Chibolya and Chinika Compounds in Lusaka. In these instances, communal latrines are constructed with segregation for males and females. A bucket is placed under a toilet platform (seat) and excreta are deposited collected therein. The major drawback with this system is that the buckets have to be collected and emptied regularly (usually on a daily basis). This requires that transport and manpower is available to carry excreta to the local sewage treatment plant. Although this system is not as sophisticated as the aqua privy, it does require considerable resources and management skills and is obviously more expensive than other methods described here.

CAT METHOD OF EXCRETA DISPOSAL.

The 'cat method' of excreta disposal, so called due to the fact that it emulates the method practised by our feline friend, the cat. The use of the sanitation ladder in many areas of the country revealed that communities are quite familiar with this method although how widespread the practice is, is not known.

This method is practised by excavating a small hole in the ground. Excreta are deposited in the hole and then covered with the excavated material thus burying the contents. It is most suited to less densely populated rural areas.

The "Cat method" of excreta disposal

CRUDE DEFECATION IN RIVER, STREAM AND LAKES

Crude defecation in general can be described as defecation in any available area. Where there are large bodies of water, the practice is to defecate at the edge of the river or lake and in some instances a canoe is used and defecation is practised further away from the river bank, for example in Luapula Province.

This is a particularly poor practice as it can greatly contribute to the spread of diseases. The spread of cholera in recent years in Zambia has been much associated with fishing villages in Northern and Luapula Provinces where this practice of excreta disposal is common. It is now understood that some fish species can act as a vector for the cholera vibrio thus transporting the disease to urban areas. Collecting drinking water from these sources also greatly contributes to the spread of other diarrhoea infections.

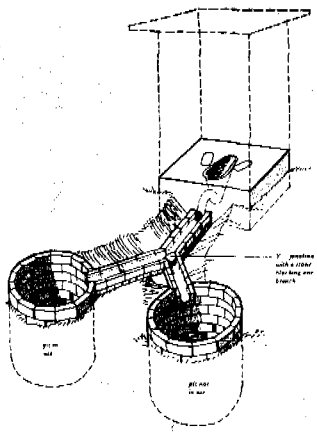
Crude defecation in rivers, lakes and streams

CRUDE DEFECATION IN THE BUSH OR BUSH METHOD

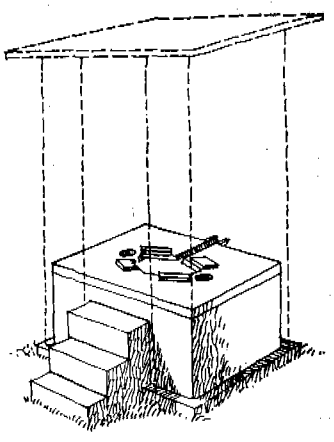
The practice of crude defecation in open bush is widespread throughout Zambia. No covering or burying of excreta is practised. In areas where population density is relatively high, a specific area of land put aside by the community to be used for defecation. Apart from the aesthetics of the practice, there is a great danger of stepping on excreta and this can contribute to the spread of helminth infections.

Crude defecation in the bush

Pit latrine without super structure



A poul flush latrine with two pits, drains and re-cetaces still to be covered



The Vietnamese compost latrine seen from the front. In areas are seasonally flooded, the latrine is built entirely above the ground and has steps leading to the squating slab

In areas where animals are kept, cattle and pigs etc., it is often felt by communities that this practice is safe in that the excreta are disposed of, eaten by these animals, pigs in particular. Once again, however, beef and pork tapeworm infections can be spread from animal to person by consuming raw infected or partially cooked meat.

PIT LATRINE WITHOUT SUPER STRUCTURE

This method of excreta disposal was identified in North-Western province. The construction of the pit and squatting slab is similar to that described for the traditional latrine but no superstructure is constructed. The pit is often located behind an ant hill and the surrounding bush provides privacy. It is not known how widespread this practice is and it was not seen outside North Western Province. It is thought that is only suitable in very low population density areas.

OTHER TECHNOLOGIES AND PRACTISES FOR EXCRETA DISPOSAL

There are other types of technology options available for excreta disposal facilities. These are adaptations of the basic pit latrine but go right through to water borne sewage systems. Many of these systems are designed to re-use the contents of the pit for fertiliser etc.

There is no culture in Zambia at present which supports the re-use of decomposed excreta or the composting of excreta. Excreta disposal in Zambia is considered as a very private thing and even attempting to discuss the matter in rural communities is extremely difficult.

For the purpose of the promotion of suitable technology options for excreta disposal in Zambia, these practices are not considered appropriate at present.

OTHER CONSIDERATIONS.

The most common use of a latrine is excreta disposal but bathing is often practised in the latrine by some user. A variety of anal cleansing materials are used and number of these methods can have a significant impact on the life of the latrine as they can contribute greatly to the mass in the pit.

- grass and leaves being the most common
- toilet paper which is more common in urban areas
- maize cobs although this tends to be seasonal
- other methods of anal cleansing includes the use of trees, mud balls, sticks and the ground.

The location of the latrine in relation to the dwelling is also considered important in the Zambian context. Informal surveys have revealed that if the latrine is located behind the house, it is far more likely that more of the family members will be prepared to use it, both male and female. This also has an impact on whether or not visitors are willing to use the facility.

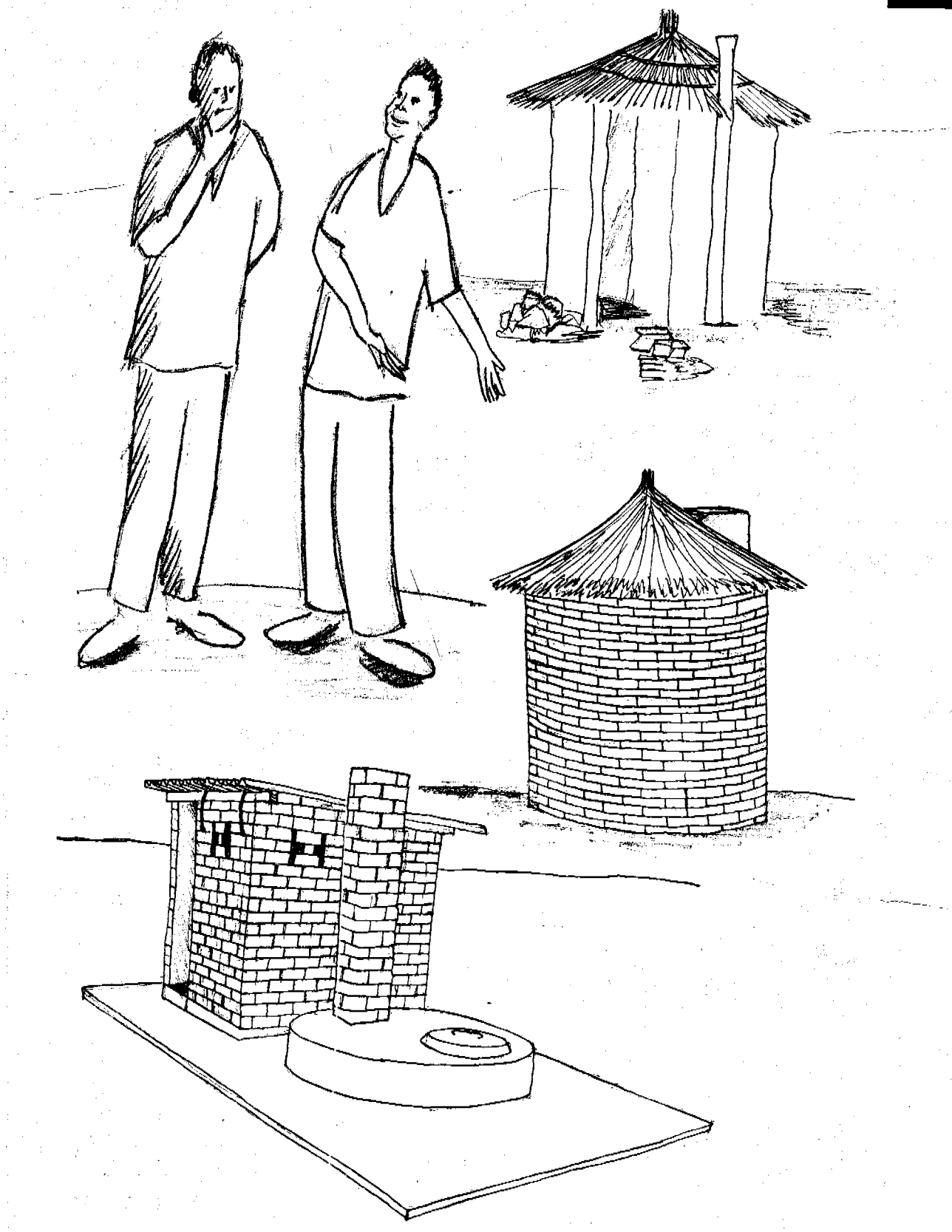
Any excreta disposal practice/facility must be culturally acceptable. Those practised at present meet this parameter but there is much room for improvement if the spread of diarrhoea and other excreta related diseases are to be reduced.

Ultimately it is desirable that each family will have access to their own latrine and that they will use it.

Notes :

Making the right Technology

Section 4



WHAT IS AN APPROPRIATE TECHNOLOGY OPTION FOR EXCRETA DISPOSAL FACILITY IN ZAMBIA?

It is clear that there exists a considerable range of excreta disposal practices and technologies in Zambia. If one considers the practice of crude defecation (in a river or stream or indeed within the village itself) as being the poorest practice and say the VIP latrine type as being the most appropriate for rural areas, one must consider that there are some interventions which fall in between these extremes which can induce improvements. An example of this might be the cat method.

Surveys conducted by CMMU indicate that while rural communities see the VIP type latrine as being the best, there exists a great information gap as how to move to that level.

THE STRATEGY ☞ The strategy therefore is to build on or improve existing practices and technologies eventually moving towards the VIP type structure.

Before technology options are selected, it is necessary to define what might be referred to as the essential components of an excreta disposal facility. A good excreta disposal facility should :

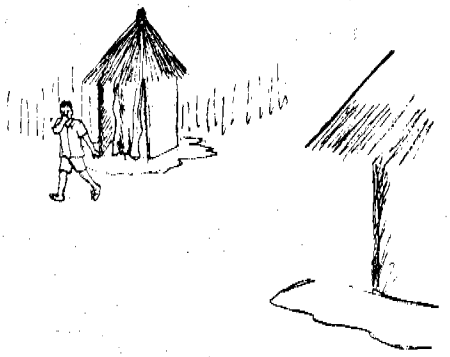
- **be private** - as excreta disposal is an extremely private matter in Zambia, the provision of privacy in any option is essential.
- **be free from smells** - smells from a latrine are very off putting and therefore should be reduced as much as possible be
- **free from flies** - surveys have revealed that rural communities have a good understanding of the role of flies in the transmission of disease. The fly nuisance must be kept to a minimum.

Privacy

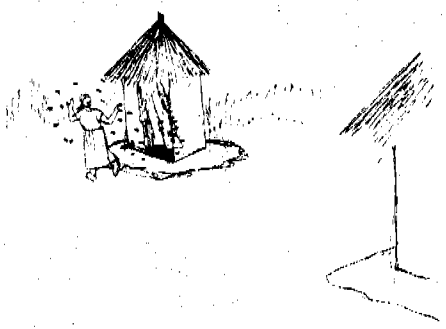
- **be safe to use** - many traditional latrines are not safe. Often, the squat hole is too big and children are afraid to use the latrine. In other cases, the timber used to cover

the pit is too small a section and springs and again, the people are afraid to use the pit

- **be big enough** - many latrines, especially those at schools, are very small and entry and dressing is difficult inside the latrine. The facility must be big enough to allow a person to enter and dress/undress comfortably
- **be easy to use** - the latrine should be constructed in a manner that it is easy to use. Apart from the size of the facility, it must be easy to use at night in particular. Every effort should be made to allow the squat hole to be easily located especially when it is dark. The inclusion of the foot rests on the slab greatly assists the users especially at night
- **be easy to clean** - cleanliness inside the facility is extremely important. Stepping into someone else's excreta is very unpleasant and off putting and therefore, a facility, should be easy to clean, particularly the squatting slab
- **be constructed from locally available materials** - importing materials such as roof sheets, conforce wire etc. can be very expensive Many local materials are available which can be used to construct an acceptable standard of excreta disposal facility.
- **be affordable** - this is self evident. If facilities are to be constructed with little or no external subsidy, they must be affordable
- **be long lasting** - a facility should be long lasting in terms of time and durability. Regular replacement of facilities is not an option and therefore, a facility should be well constructed and have enough capacity to maximise its life span
- **be culturally acceptable** - There is no point in introducing an option which is not culturally acceptable. The challenge as we see it at present is to move from current practices to improved practices with all the necessary behaviour changes that go with this move, using culturally acceptable practices/techniques



Smelly



Fly nuisance

Examining the three most common practices/technologies identified in Zambia in the context of the above parameters, the following matrix can be constructed. The capacity of each practice or technology to meet the above parameters have been ranked 'good', 'fair' and 'bad' and are indicated as G, F and B respectively in the matrix.

Technology Type/ Important Criteria	Traditional Latrines	VIP Latrines	Crude Defecation
Privacy	G	G	B
Smells	F	G	B
Flies	B	G	B
Safe	F	G	B
Size	F	G	G
Easy to use	G	G	G
Easy to clean	B	G	B
Affordable	G	B	G
Lasting	F	G	F
Culturally acceptable	G	F	G
Local materials	G	B	G

It is agreed that a more detailed analysis of the individual parameters, in terms of their importance is required. However, a very basic analysis of the matrix reveals that the VIP latrine comes closest to meeting the essential components with the traditional latrine second and the crude defecation practice ranking a poor third. This is indicated on the table below.

Type/Criteria	G	F	B
Traditional Latrines	5	4	2
VIP Latrines	8	1	2
Crude Defecation	5	1	5

SELECTING APPROPRIATE TECHNOLOGIES FOR EXCRETA DISPOSAL

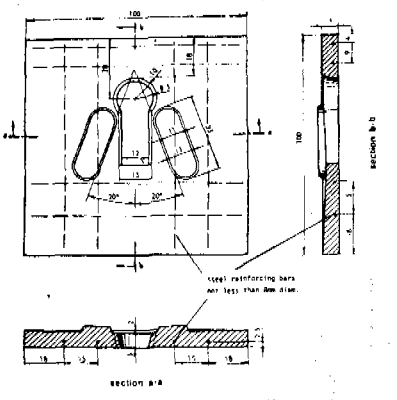
Assuming that the proposed strategy outlined above is to be adopted and that the essential component parameters are considered valid, then it is possible to select technology options for excreta disposal appropriate to Zambia.

The practice of crude defecation is most undesirable and every effort should be made to discourage its continuance. This requires considerable behaviour change and a major effort must be put into inducing this change through participatory hygiene education. It will also be necessary to supplement these efforts with information on how to move from the level of this practice to the desired practice, that is, reduce the knowledge gap in terms of construction technologies. Consideration should also be given to the provision of an enabling environment which will allow for the construction of facilities, perhaps through the provision of subsidies.

Studying the above matrix and assuming that a traditional latrine with some improvement would meet the minimum required standard, then it is possible to develop interventions to improve the traditional latrine.

Addressing the areas which ranked 'bad' or 'fair' in the traditional latrine would help to meet the essential component parameters. Those parameters which ranked 'bad' or 'fair' are as follows :

- easy to clean (bad)
- fly nuisance (bad)
- smell (fair)



Basic components of the Sanplat technology

- size (fair)
- safety (fair)
- long life (fair)

The issues of cleanliness, fly nuisance, smell nuisance and safety can be dealt with through the provision of the SANPLAT technology. The issues of size and long life can be addressed by closing the information gap regarding construction techniques. Safety can also be improved through the provision of the SANPLAT. Figure outlines the basic components of the SANPLAT technology.

Much has been written regarding this technology and this information is available from the CMMU.

The areas that rated bad for the VIP type latrine are open to much debate. Many consider that the VIP latrine is not affordable because of the cost of the vent pipe and that locally available materials are not suitable. Many innovative techniques have been developed to reduce the material costs of the VIP, particularly in Zimbabwe where the concept was elaborated. The essential component parameters can all be met by the VIP type latrine and it is believed that the construction costs can be reduced to make it more affordable to rural families.

THE CORE TRAINING MANUALS AND SUPPLEMENTARY MODULES

No TITLE/DESCRIPTION

MANUALS AVAILABLE

Manual 1 Understanding the WASHE Concept
Manual 2 WASHE in the Water Sector
Manual 3 Introducing WASHE at District Level
Manual 4 Establishing WASHE at District Level

SUPPLEMENTARY MODULES AND MANUALS AVAILABLE

1a Coverage Parameters for Rural Water Supply in Zambia
1b The Status of Rural Water Supply in Zambia
1d Partners in WASHE
5a Options for Excreta Disposal Facilities
6a Participatory Health and Hygiene Education (Theory)
6b Participatory Health and Hygiene Education (Practical)
7b Making Appointments
7c Community Mobilisation and Sensitisation
7d Conducting Community Assessment
7e Formation of a Village WASHE Committee
7f Site Selection
7g Planning for Construction and Rehabilitation
7h Community Participation During Construction
7i Village WASHE Committee Training
7j Community Problem Solving
7k Fund Raising and Management
7l Promoting Community Ownership
7mCommunity Participation in Monitoring
7n Well Completion Ceremony (Handover)
7o Community Management in Evaluation
7p Group Dynamics and Energiser Tool Kit
8 WASHE and Gender