WASHE
water · sanitation · health education
in Zambia

SECOND EDITION

Participatory Health and Hygiene Education

Supplementary Module 6a

RSU/N-WASHE May, 2000

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 as a sustainable approach to rural water supply and sanitation. The government has adopted this as a strategy towards implementation of rural water supply programmes.

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 include 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 comprise the Core Training Manuals and Supplementary Modules Series. Full details of the contents of each title can be found in ***The Water Sector Reform Support Unit Publications List.*** All titles are available from the RSU.

For further information contact :

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The National WASHE (N-WASHE) Co-ordination and Training Team is a multi disciplinary group, based in Lusaka to develop WASHE principles and assist the national implementation.

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The guidelines and materials form the basis for the advocacy and training programme of the National WASHE Co-ordination and Training Team (N-WASHE), which is the implementing Unit of the RSU.

The Core Training Manuals and Supplementary Modules were developed and written by the Community Management and Monitoring Unit (CMMU). This edition is produced by the RSU

This is Supplementary Module 6a and is called Participatory Health and Hygiene Education (Theory) it is written to support supplementary module 6b which describes the actual facilitation of participatory health and hygiene education activities.

WHO THE SUPPLEMENTARY MODULES ARE FOR

The Supplementary Modules 6a - 6b are written for people who intend to promote health and hygiene education 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 Supplementary Modules, the ***Community*** refers to a group of people with a common or potential interest in WASHE. A single family unit is refered 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 RSU 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 and sanitation 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 woman's issue alone.***

See Supplementary Module 8a - WASHE and Gender

HOW THE SUPPLEMENTARY MODULES 6a - 6b WERE DEVELOPED

CMMU was mandated in 1993 to look at issues of long term sustainability in the rural water 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 better chance of sustainability than others. While many projects were advocating a community management approach, few links were being made between community health and water or sanitation. The absence of an overall approach to issues of community health and well being related to water and sanitation meant that the development of participatory health and hygiene education 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 tools and techniques that were being used for the promotion of health and hygiene messages and those that could be developed to support a community management approach. The RSU which has taken over the activities of CMMU further recognises the need to continue with the promotion of WASHE. The district level training of the WASHE concept is being undertaken by the N-WASHE Training and Co-ordination Team.

The result, through a series of consultative workshops and extensive participatory research, is the current series of supplementary modules, 6a and 6b.

Related Supplementary Modules include :

- the Community Management Series 7a - 7p
- Options for Excreta Disposal Facilities 5a
- Latrine Construction Techniques 5b
- WASHE and Gender 8a

ACKNOWLEDGEMENTS

Many people and organisations were involved in the development of the Core Training Manuals and Supplementary Modules. The RSU would like to thank the communities in Mansa, Mongu, Kasama, Solwezi and Southern Province for their input and constructive criticism during the elaboration of the methods, tools and techniques that are described in these modules. Additionally, we 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.

Special thanks to the members of staff of the former CMMU for the research and development done to produce these modules.

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 Core Training Manuals and Supplementary Modules were developed entirely within the RSU/N-WASHE

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Section 1

INTRODUCTION

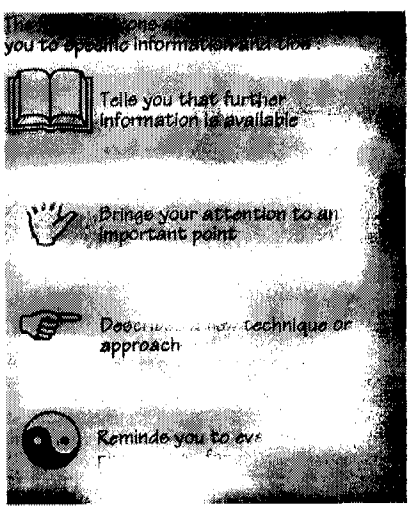
ABOUT THIS MODULE

This module presents background information about the effects of poor health and hygiene practices and action points for community based health and hygiene education. It should be used together with Supplementary Module 6b which provides guidelines on how to facilitate participatory health and hygiene materials with communities.

- Section 1 Introduction
- Section 2 Common diseases related to poor water and sanitation
- Section 3 List of areas of focus and preventive measures for water and sanitation related disease
- Section 4 Summary of classification of water and sanitation related diseases

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. Final choice of action will be based on your dialogue with the community, their needs as they perceive them and local circumstances.

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:

- to understand the transmission routes of water and sanitation related diseases
- actively assist communities to reduce water and sanitation related diseases through participatory education

OVERALL OBJECTIVES OF THIS MODULE

The CMMU was mandated to look at issues of long term sustainability in the rural water supply and sanitation sector. The development of participatory health and hygiene methods, materials and tools was part of the process.

The CMMU believed that a participatory approach to community health and hygiene education and sensitisation is an effective way to promote community health and well being.

THE PARTICIPATORY HEALTH AND HYGIENE EDUCATION PROCESS

The CMMU advocated for community participation in health and well being promotion in the context of rural water supply and sanitation. A community is more willing and able to be involved in the community management of its resources and facilities if it is (a) healthy and (b) able to see and understand the links between its health and water and sanitation practices, and (c) able to take action by putting barriers in place that will reduce the risk of disease transmission.

Community participation in the context of participatory health and hygiene education means community involvement in the learning process that aims to induce change in behaviour or attitude

See Supplementary Modules 7a - 7p - Community Management

In rural water supply and sanitation the long term aim of government is to see programmes that are "community based" and it is in this context that the CMMU developed Supplementary Modules 6a and 6b to complement a community management approach to the sustainability of rural water supply and sanitation for health.

Community management means the community has the responsibility, authority, accountability and control over their development

Community management cannot become a reality if poor health and well being stops the community from participating in the process

Community health and well being are directly linked to safe, adequate water supply and sanitation practices. One cannot exist without the other. The CMMU hoped that the community with its partners in WASHE will be encouraged to take responsibility for their own health and well being through the use of these modules.

By well being we mean :

- that the community is content socially and able to participate in community life fully. Good health contributes to this.

DEVELOPMENT OF THE PARTICIPATORY METHODS AND TOOLS

In November 1995 the CMMU initiated the formation of a *core group of actors* that are involved in rural water supply and sanitation projects in Zambia. The group, as part of its task, looked at compiling and drafting the community management modules (Supplementary Modules 7a -7p) and participatory health and hygiene education in the context of water supply and sanitation. Using their own invaluable experiences, materials, methods and tools and those of their partners, the group agreed upon the ones that should be recommended as the most appropriate for use with rural communities in Zambia.

The methods and tools that have been included in Supplementary Module 6b are the ones that have been tried and tested in the field. The CMMU believed that there were probably many other effective participatory methods, tools and materials being used in Zambia or regionally. If you are finding success with a particular tool or material that is not included please let us know.

For details on how to contact the RSU see page i

INTEGRATING PARTICIPATORY HEALTH AND HYGIENE EDUCATION

Community management is a process and if facilitated effectively will develop a true sense of ownership and continued development for community gain and benefit. As we have stressed, participatory health and hygiene education complements and assists the community management process.

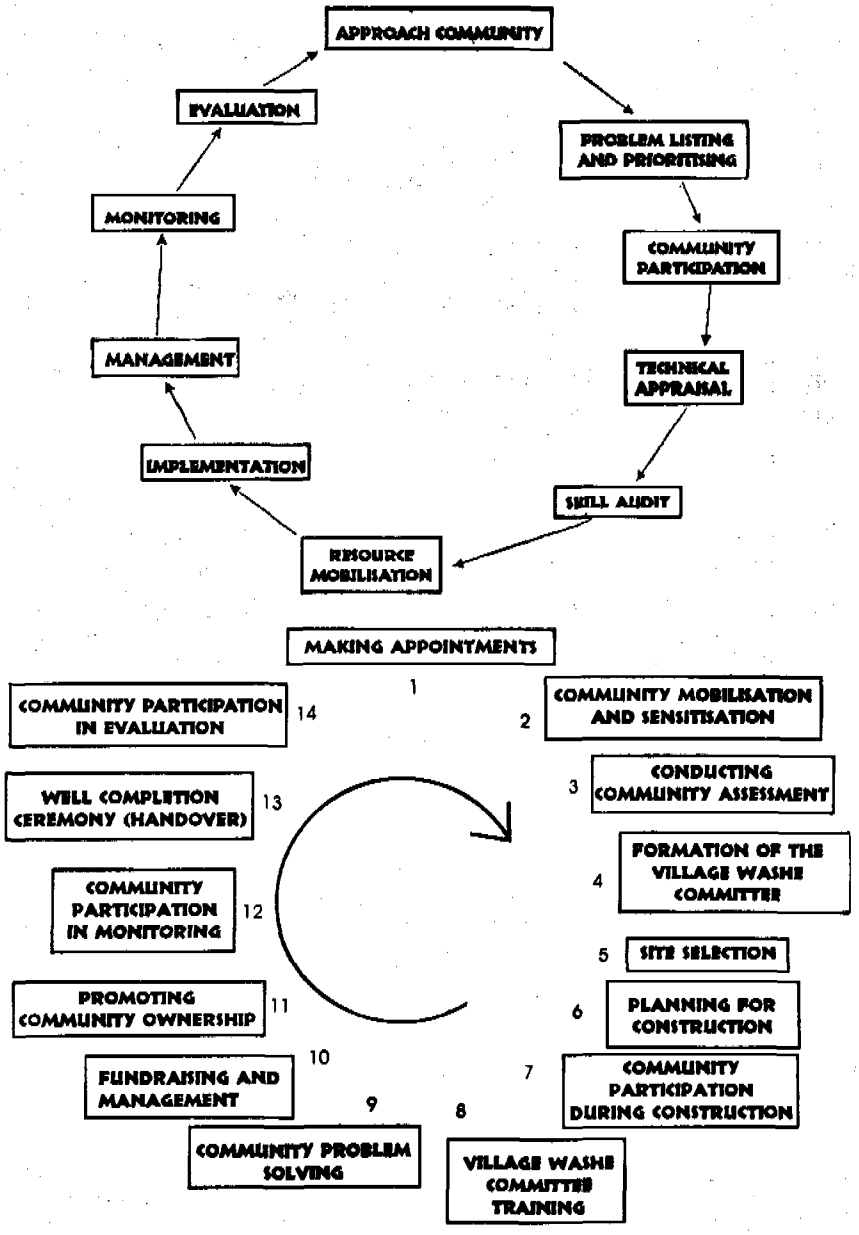
The CMMU and its partners developed participatory techniques that relate to the project cycle for community management in rural water supply. This project cycle, in 14 stages, has been adapted from the standard project cycle that is widely used in participatory community development projects throughout Zambia.

The project cycle, which is shown on the following page, integrates participatory health and hygiene education as part of its development process.

See Supplementary Module 6b, which describes how to facilitate participatory health and hygiene education

For example, community mobilisation and sensitisation is Stage 2 of the project cycle for rural water supply and is facilitated through the use of various participatory health and hygiene tools, including the **water ladder**. The water ladder is described in Module 6b.

We suggest that you become familiar with the community management approach and the project cycle so that your work with the community does not become isolated and detached from efforts to address the problems of supplying sustainable, safe, adequate water and sanitation facilities in partnership with the community.



PROJECT CYCLE FOR COMMUNITY MANAGEMENT IN RURAL WATER SUPPLY

PROJECT CYCLE - HIGHLIGHTING THE STAGES WHERE PARTICIPATORY HEALTH AND HYGIENE METHODS AND TOOLS ARE USED

The basic philosophy behind the WASHE concept is that water, sanitation and health and hygiene education **must** be integrated in order to induce improvement in people's health and well being. The provision of safe water alone may not necessarily bring about this improvement.

It could be, therefore, argued that the project cycle for sanitation, health and hygiene education should be developed in the same manner as that of rural water supply. However, many of the stages in the project cycle for water supply are common to potential sanitation, health and hygiene process. For example, making appointments, community mobilisation and sensitisation, conducting community assessment, and so on. Many of the tools used at these stages in the project cycle for water supply are the same.

Therefore, participatory health and hygiene activities build on and complement the activities in the project cycle for rural water supply.

The stages at which participatory health and hygiene education activities are integrated as part of the WASHE process will depend on the specific situation but should at all times take into account the community's capacity (availability of time) to undertake all the exercises.

FACILITATION ☞

It is intended that the reader becomes **the facilitator** of the process of inducing behaviour change for better health. That means that the information acquired from this module becomes **shared knowledge** between the reader and the community so that community based decision making becomes a reality. **Remember, this module should be used with Supplementary Module 6b if the information is to be used effectively.**

Section 2

COMMON DISEASES RELATED TO POOR WATER AND SANITATION

SECTION TWO

HOW COMMON DISEASES RELATED TO POOR WATER AND SANITATION ARE TRANSMITTED

By the end of this section you will have :

- a basic understanding of the most common water and sanitation related diseases, their cause and effect
- an overview of how those diseases affect communities
- an understanding of the importance of the WASHE approach

Sanitation :
is the process of collection, treatment and disposal of human excreta and domestic waste in a safe, hygienic manner (behaviour) which is affordable and sustainable..

Many of the diseases which affect rural and peri-urban communities in Zambia are linked to poverty and inadequate water supply and sanitation. The most common diseases which severely affect the community are :

- cholera
- diarrhoea
- dysentery
- typhoid
- scabies
- poliomyelitis
- infectious hepatitis A
- ascaris - round worms
- hook worms - anklostomiasis
- tapeworms
- bilharzía (schistosomiasis)
- malaria
- trachoma
- louse-borne infections

These diseases obviously make people very ill, but they also have a long term effect on the well being of the whole community. A person who is suffering from a disease related to water or sanitation is not able to :

- contribute effectively to community and household decision making

- work as hard as they would normally do
- care for others
- take on additional responsibilities
- fulfil their normal tasks or duties adequately
- participate in community work, e.g. building of a health centre

Women and children are particularly at risk of disease and often do not recover as quickly as they should . Some reasons for this include :

- the dependency on women and children to undertake community/household tasks
- inadequate diets and malnutrition
- existing and ongoing health problems faced by women
- family planning, child spacing and care for children

The WASHE approach links the importance of safe, adequate water supply and sanitation directly to the promotion of a healthy community. The WASHE approach focuses on community led health and hygiene education related to water and sanitation. The emphasis on health and hygiene education is important because without a change in practice and attitude the regularity of a disease affecting a community in a detrimental way will continue to increase. Dealing with the hardware issues related to sustainable rural water and sanitation is only part of the challenge, we must also tackle health and hygiene practices in order to effect change.

The term 'hardware' is usually used to describe physical infrastructure such as latrines, wells,houses, etc.

The term 'software' is usually used to describe community management ideas, philosophies, behaviour, etc.

So WASHE is important because it promotes :

- an understanding of how common water and sanitation diseases can be avoided
- a basic understanding of why people become sick
- prevention of disease for healthy communities through linking health directly to the provision of water supply and sanitation facilities

Making sure a community stays healthy is about helping people to understand how and why common diseases and illnesses are related to water and sanitation practices and hygiene.

COMMON DISEASES RELATED TO POOR WATER AND SANITATION

THE TRANSMISSION AND CONTROL OF DIARRHOEAL DISEASES AND ENTERIC FEVERS (Typhoid, Paratyphoid)

Diarrhoeal diseases are, when combined with malnutrition, a major cause of childhood diseases and death throughout the developing world. They are the most important group of water and excreta-related infections.

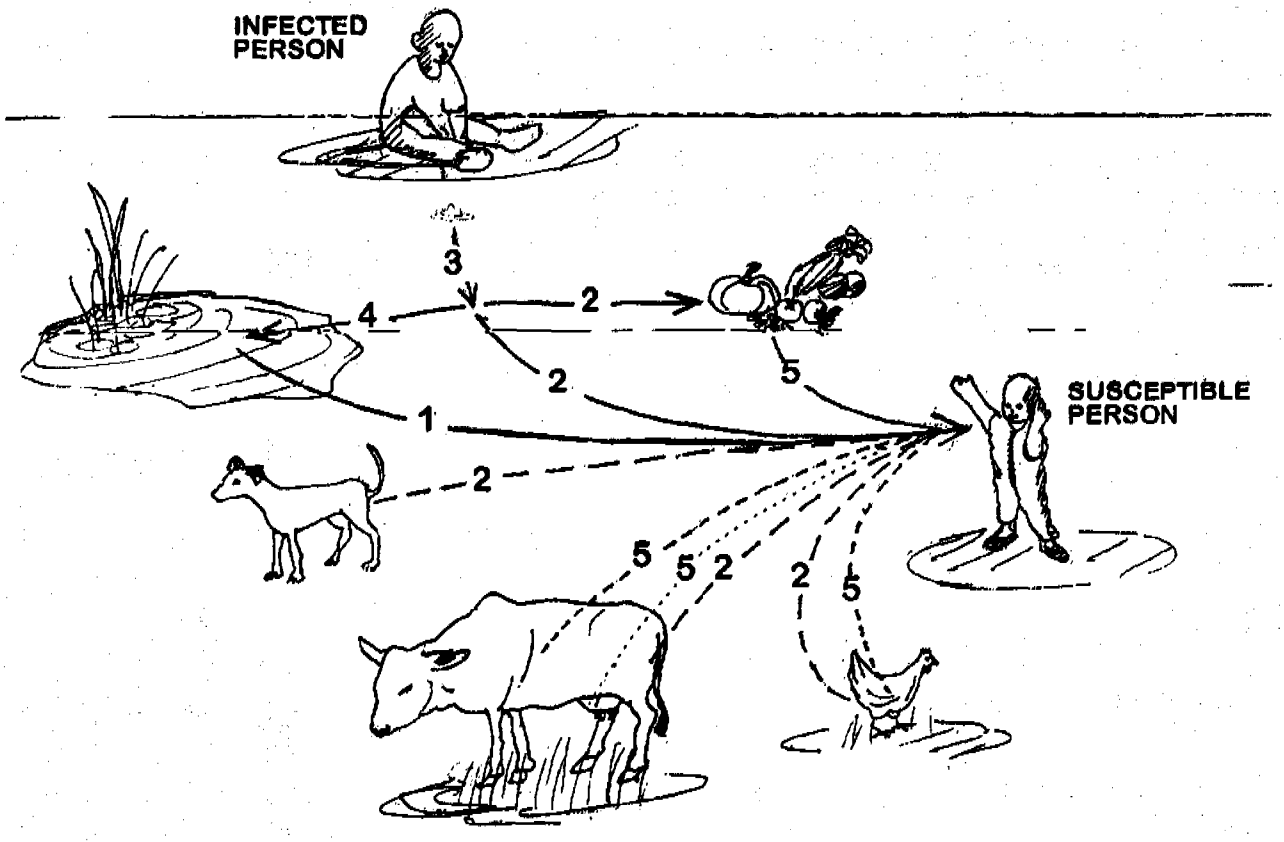
WATER-BORNE DISEASE :

Disease transmission which occure when the pathogen is in water which is drank by a person or animal who may then become infected, e.g. cholera, typhoid

WATER WASHED DISEASE :

Diseases caused by infecting agents spread by contact with or ingestion of water, e.g. scabies, trachoma

Diarrhoeal diseases are caused by a variety of excreted viruses, bacteria and protozoa. In all cases transmission is faecal-oral and both water-borne and water-washed modes of transmission occur. It may be true that, in conditions of extreme poverty, water-washed transmission (e.g. person to person via fingers, food, utensils, etc.) is the dominant mode.



The diagram on the previous page represents the major transmission routes for diarrhoeal diseases and enteric fevers (typhoid and paratyphoid). It is possible to get diarrhoea if a person consumes milk or meat which is contaminated, and also if animal faeces get into contact with food and water utensils.

Examples from the diagram

- a person could get diarrhoea if he/she drank water contaminated with excreta from an infected person

The common diarrhoeal diseases which occur in Zambia include the following :

- dysentery
- cholera
- typhoid and paratyphoid fevers
- diarrhoea

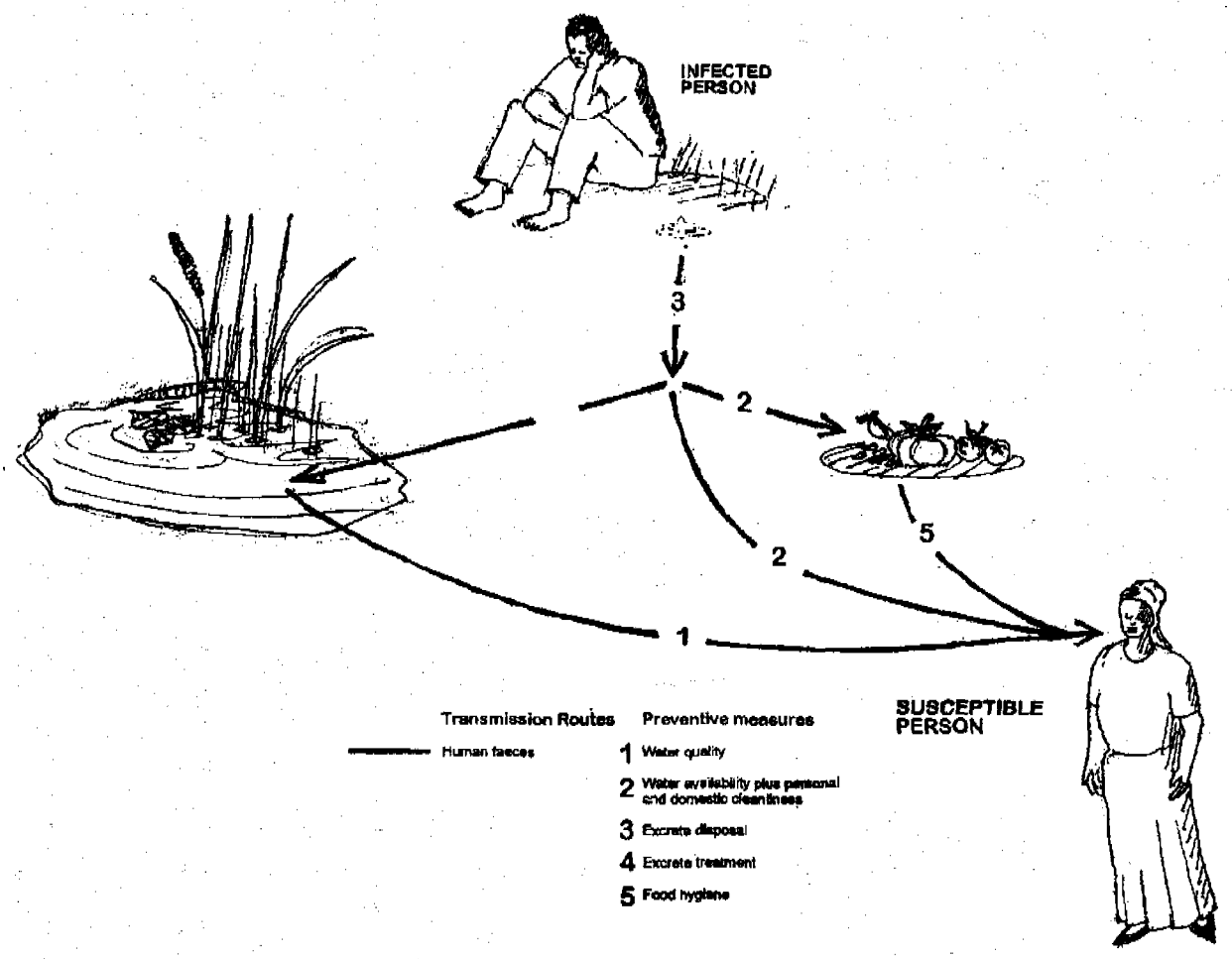
DIARRHOEA IN ZAMBIA is the :

- third most common cause of out-patient attendance for all age groups
- fifth major cause of hospital admissions under one (1992)
- second major cause of hospital deaths in 1991
- sixth major cause of death in children 1 - 14 years

THE TRANSMISSION AND CONTROL OF POLIO AND HEPATITIS A VIRUSES

Poliomyelitis (Polio) and hepatitis A are entirely different infections, but they have several epidemiological features in common. Transmission is faecal-oral. Infective doses are probably low and infection usually confers long lasting immunity.

Water-borne transmission occurs, but is probably of limited importance compared to person to person transmission. Prevention of polio is achieved by immunisation.



The above diagram represents the major transmission routes for polio virus and hepatitis A virus.

An example of how the polio virus is spread from an infected person

If infected excreta germs contaminate food and a person consumes the infected food he/she will get polio.

Polio is not very common in Zambia. However, in 1996 two suspected cases of polio were traced, which prompted the Ministry of Health to conduct mass immunisation country wide. This programme continued to be conducted between June and August, 1996.

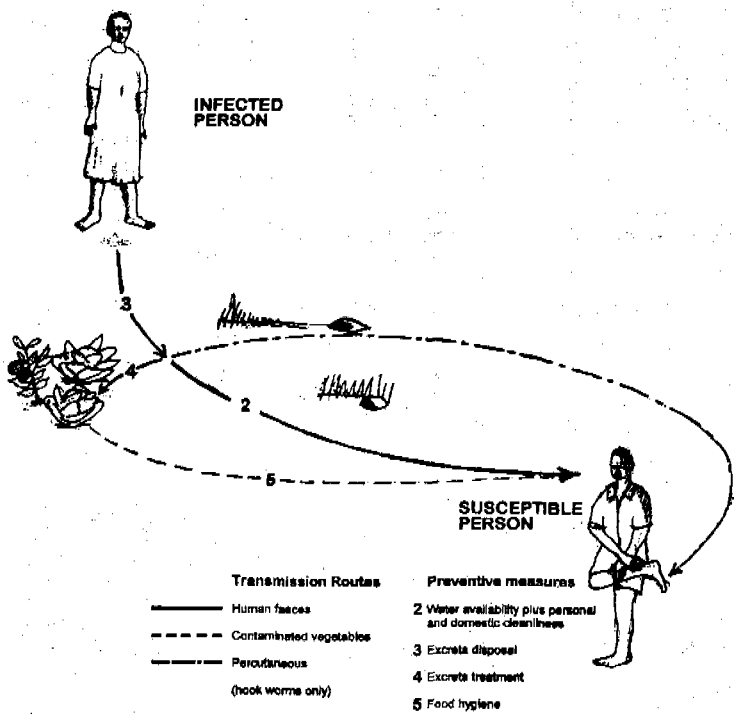
THE TRANSMISSION AND CONTRCL OF ASCARIS, TRICHINELLA SPIRALIS AND HOOK WORMS

Worms with no intermediate host

Several excreted helminths which infect man have no obligatory intermediate host. The adult worms live in the human intestine and the eggs or larvae are passed in the faeces (or if not actually in faeces, then at least via the anus). The eggs of ascaris and trichuris must remain in suitable environment (usually warm, moist soil) 1- 6 weeks before they become infectious.

The term 'helminth' is a generic term used to describe any of various parasitic worms such as ascaris, trichinella, spiralis and hookworms

Re-infection is then oral, by ingesting food or dirt containing contaminated eggs. The eggs of the hookworms also develop in warm moist soil. After one week or more infective larvae are formed which cause re-infection by penetrating the unbroken skin, usually of the foot.



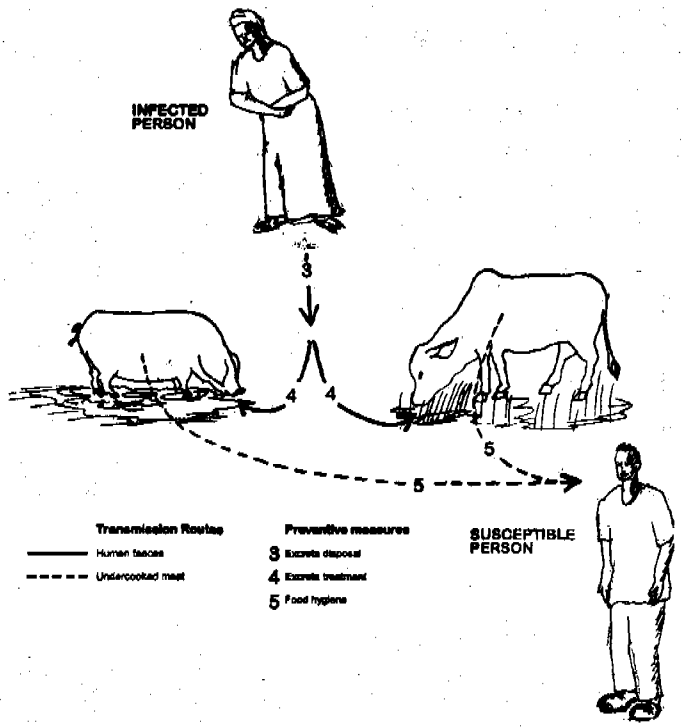
The diagram above shows the transmission routes for these intestinal worms.

In Zambia worm infections are very common where standards of sanitation and personal hygiene are very poor. People who walk bare foot on ground which has been polluted with infected excreta are likely to get hook worm infection.

THE TRANSMISSION AND CONTROL OF PORK AND BEEF TAPE WORMS

Worms with intermediate stages in pigs or cows

The beef and pork tape worms (Teania saginata and T solium) are parasites with life cycles which are theoretically easy to interrupt through the correct management of human faeces. The adult worms live only in the intestine of humans. Eggs, often contained in worm segments, are passed through the anus usually in the faeces. The eggs must be eaten by a cow or pig (T. Saginata and T. Solium, respectively) following which they hatch and form encysted larvae in the muscle, tongue, liver or any other site. Humans are re-infected by eating inadequately cooked beef or pork containing cysts.



The above diagram describes how tapeworms are transmitted.

In Zambia tape worm infection is common in areas where sanitation and personal hygiene standards are poor. Health centres in Zambia have reported high numbers of cases of helminth infections in catchment areas where there is inadequate meat and food inspection facilities.

THE TRANSMISSION AND CONTROL OF WORMS WITH AQUATIC INTERMEDIATE HOSTS

Schistosomiasis is another name for bilharzia

These worms infect humans only after having passed through developmental stages in one or more aquatic hosts (in other words they are "water-based"). Many of them are not of great public health importance. However, among them are infections like schistosomiasis, which is of major public health importance in many countries, including Zambia. These worm infections may be grouped into :

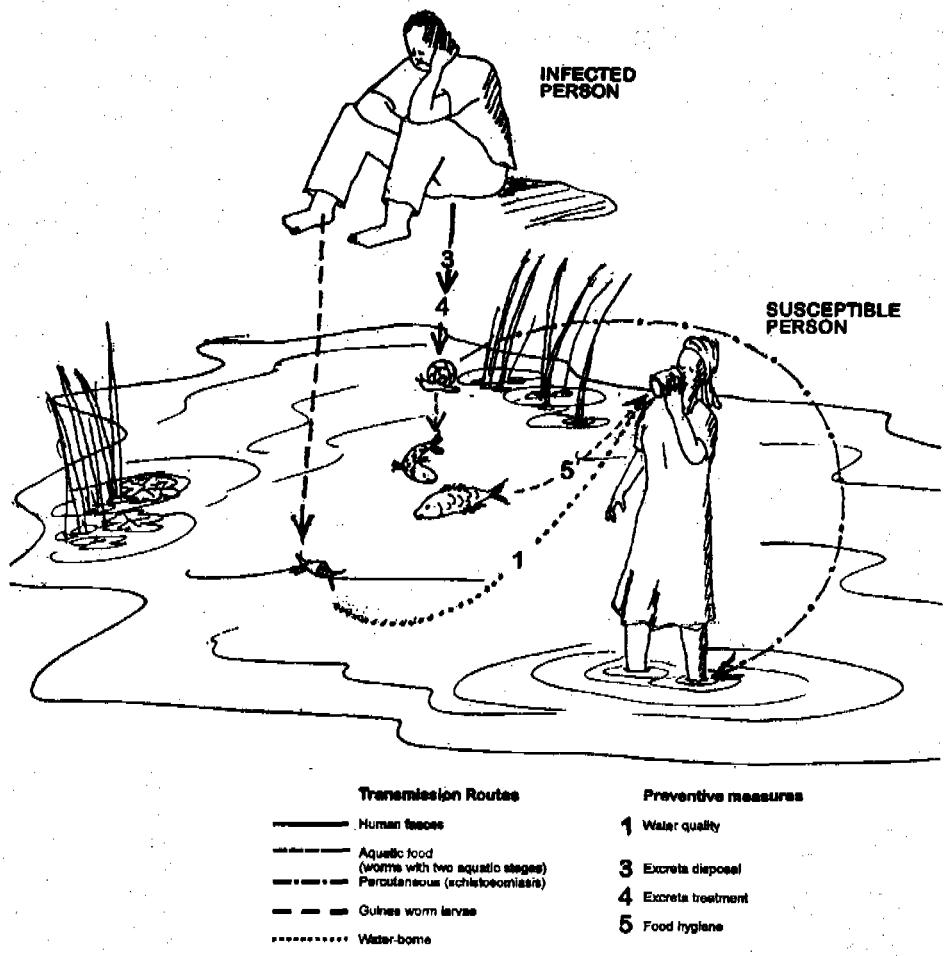
Perculaneously means penetrating the skin.

- those re-infecting percutaneously
- those re-infecting only by water-borne routes and those re-infecting via fish or water plants

It is bilharzia only which falls into a percutaneous transmission route.

Control rests upon a combination of reducing water contact by providing alternative sites for bathing and laundry, keeping urine and faeces out of ponds, canals, streams, attacking the snails by physical, biological or chemical means and mass treatment of the community to prevent excretion of viable eggs.

The other worm having an aquatic intermediate host for which re-infection is always water-borne is the guinea worm (Dracunculus medinensis). If guinea worm larvae is ingested a person gets the infection. Guinea worm is a unique water related infection in that it can be eradicated solely by simple improvement of community water supply.



The above diagram describes the transmission of both bilharzia and guinea worm infections, including the control measures.

For more information see :

Bulletin of Health Statistics 1989 - 1992 (Major Health Trends) (1982 - 1992)

Bilharzia is prevalent in all provinces of Zambia. Many people get infected with bilharzia, especially school children who like swimming in rivers and people who rely on fishing activities. Eastern Province recorded the highest number of cases in 1992 and Lusaka was second.

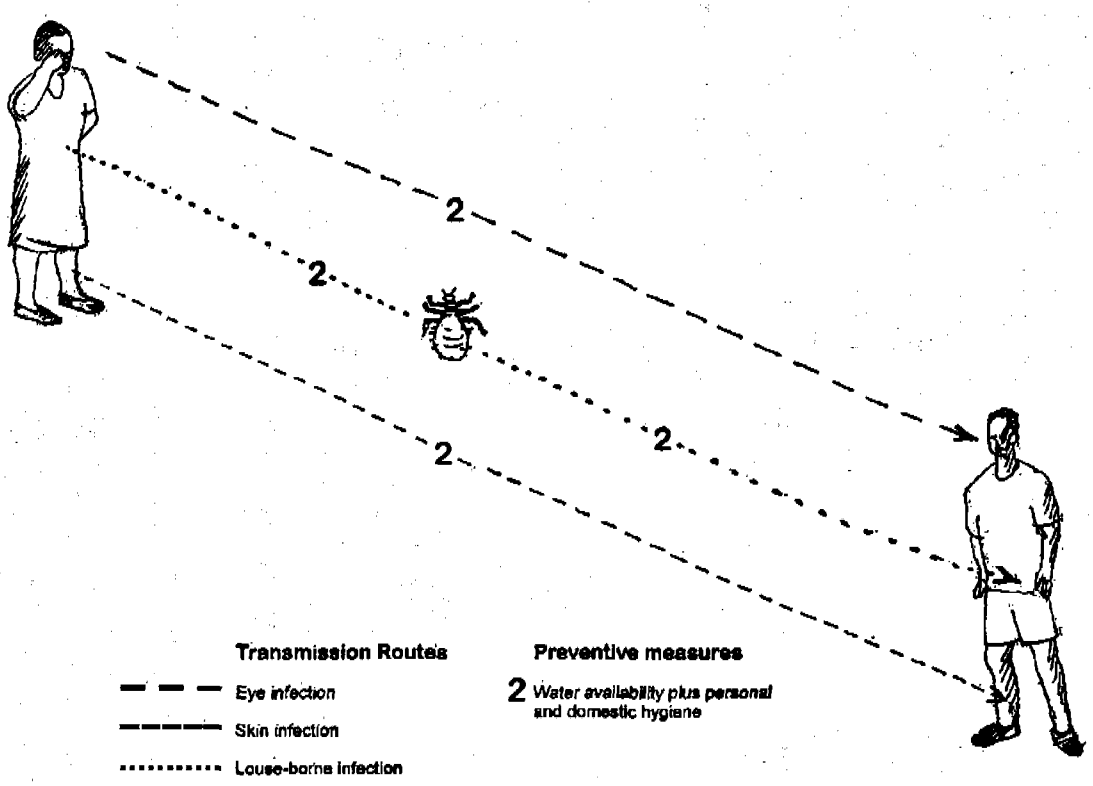
Guinea worm infection is not common in Zambia.

THE TRANSMISSION AND CONTROL OF SKIN, EYE AND LOUSE-BORNE INFECTIONS

A mixed group of infections exists which are not excreta related and are not waterborne but are transmitted in conditions of poor personal cleanliness.

Skin infections are extremely common and varied in the tropics. Transmission of skin infections is by close contact; skin to skin or via clothes or bed linen. Scabies is an important example of this.

Eye infection is a major public health problem in nearly all developing countries. The most serious common infection is trachoma. Trachoma often leads to impaired vision and sometimes to blindness. Transmission is by direct eye to eye transfer of infective discharge by fingers, clothing or flies.



Louse-borne typhus is a severe disease transmitted from human to human by body louse. The disease occurs in poor, crowded communities, with poor personal and domestic hygiene practices.

The above diagram describes how scabies, trachoma and louse-borne infections are transmitted.

In 1990 there was an outbreak of trachoma in most parts of Zambia. People nicknamed the disease "Chongwe". The disease occurs mainly in the hot season.

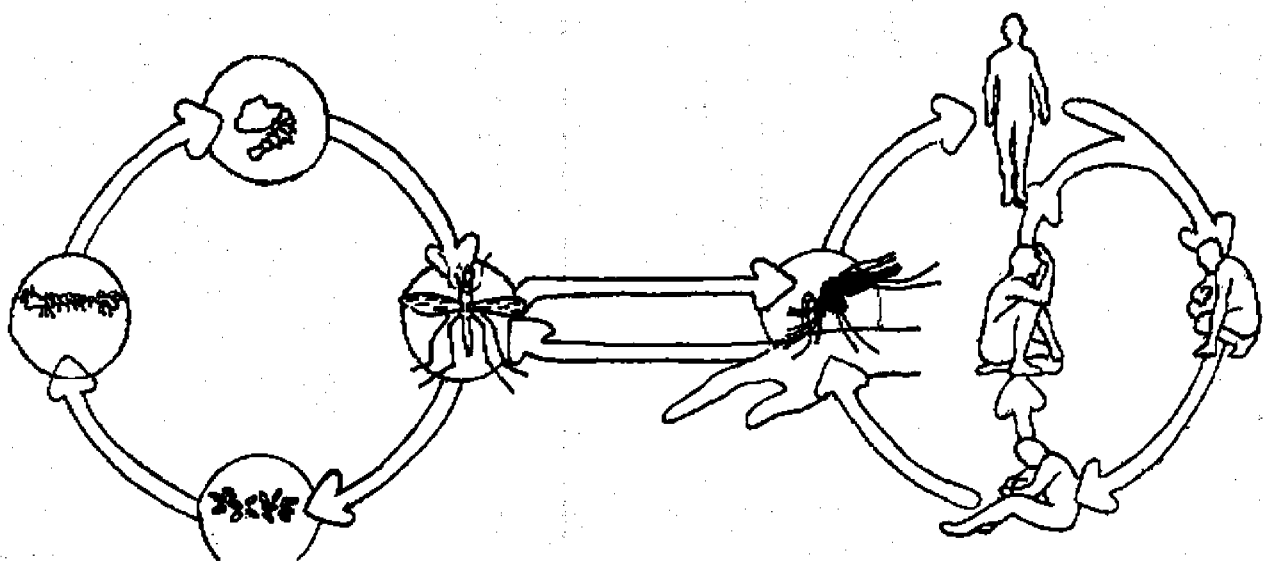
INFECTION TRANSMITTED BY WATER-RELATED INSECTS

Malaria is transmitted through the bite of an infected mosquito.

Water related diseaae :

Diseaae transmitted by insects which live close to water, e.g. malaria

The disease is common in most parts of Zambia and occurs very much in the rainy season. The disease remains one of the greatest causes of illness and death in developing countries. In Zambia, malaria is rated the number one major cause of deaths in clinics and hospitals. Many factors may influence these trends, including disease virulence, increase in chloroquine resistance, decline in community prophylaxis.

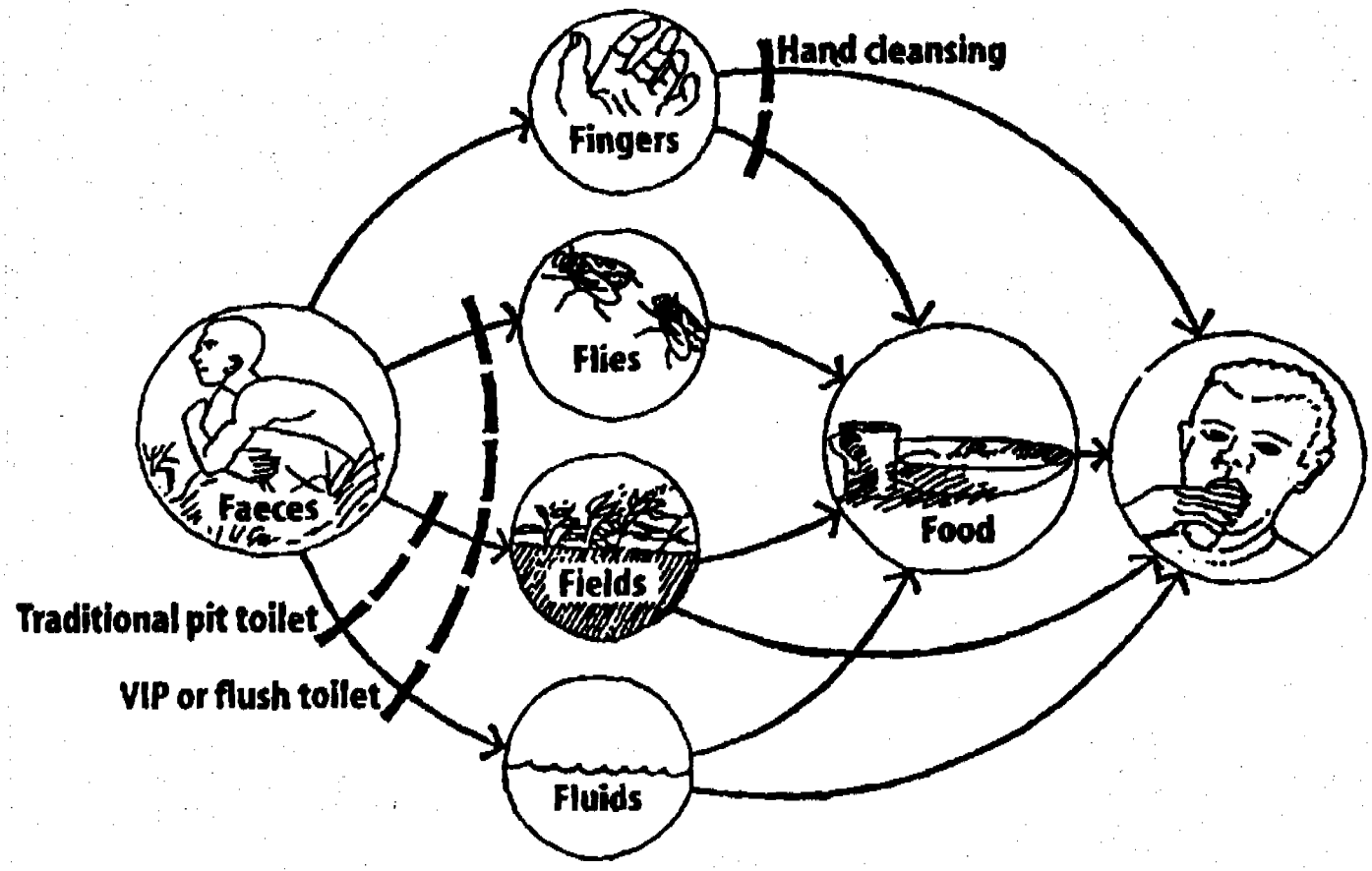


The above diagram shows the breeding site of a mosquito.

Notes :

Section 3

LIST OF AREAS OF FOCUS AND PREVENTIVE MEASURES FOR WATER AND SANITATION RELATED DISEASES



SECTION THREE

LIST OF AREAS OF FOCUS AND PREVENTIVE MEASURES FOR WATER AND SANITATION RELATED DISEASES

By the end of this section you will have :

- a basic understanding of the main areas of focus for health and hygiene education in the community
- a basic understanding of how water and sanitation related disease can be prevented

This section gives a summary of the area of focus for health and hygiene education. Measures which should be applied in order to prevent water and sanitation related diseases have been included.

The area of focus for health and hygiene education include the following :

- excreta disposal
- safe water supply
- refuse disposal
- waste water disposal and drainage
- food hygiene
- personal and domestic hygiene practices

The above areas form major hygiene education topics for disease prevention. The transmission routes for these diseases have already been discussed in the previous section, Section Two. Below is a summary of the preventive measures for water and sanitation related diseases :

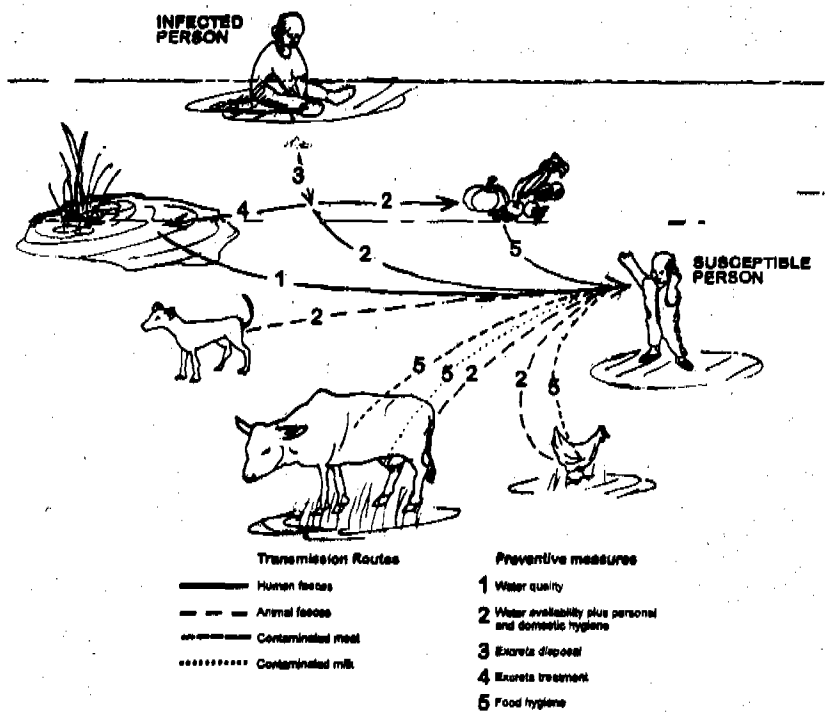
- control measures for diarrhoeal diseases
- control of polio and hepatitis A viruses
- control of helminth infections
- control of beef tapeworm infections
- control of infections which require an intermediate host for their transmission
- control of skin infections
- control of infections which are related to water

The following diagrams show the preventive measures that can be taken against common diseases described previously.

DIAGRAM A : **CONTROL MEASURES OF DIARRHOEAL DISEASES**

Diarrhoeal diseases can be prevented by applying the following measures as shown in the diagram below by barrier :

Barrier - measures applied to prevent disease from infected person to a susceptible person



These measures include :

1. Water quality - (safe, adequate water) : water quality must be protected from every form of pollution, and it must be adequate supply.

2. Water availability plus personal and domestic cleanliness - (e.g. hand washing practices) :- hands should be washed after defacation and before preparing food. Vegetables and fruits should be throughly washed before cooking and being consumed. Also practise proper personal hygiene.

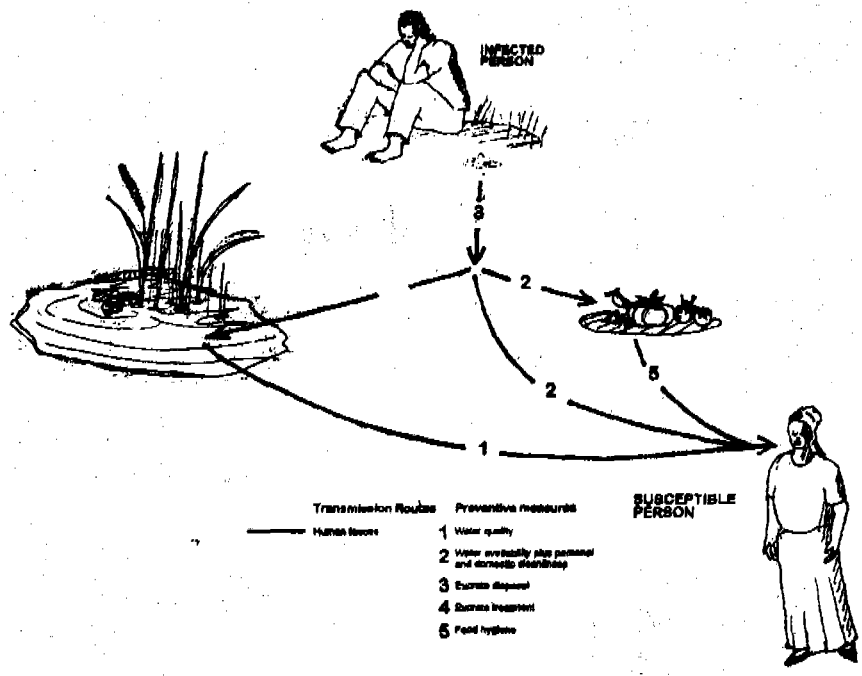
3. Excreta disposal - (proper disposal of excreta using latrines) : excreta very easily contaminates the environment and, therefore, the latrine should always be used.

4. Excreta treatment - (depositing excreta into a pit and allowing it to decompose and re-using it for manure e.t.c.) This practice is not common in Zambia. However, some people use treated excreta for manure for their orchards and flower beds. The practice has been observed in urban areas. (If latrines are not readily available feaces should always be covered).

5. Food Hygiene : (provision of safe food, e.g. inspection of meat/ pork including other food products) : food should be well cooked, covered before its consumed, utensils kept and handled hygienically.

DIAGRAM B : CONTROL OF POLIO AND HEPATITIS A VIRUSES

Polio and hepatitis A viral infections can be prevented by applying the following measures as shown on the diagram below :



These measures include :

1. Water quality. - (safe, adequate water)

2. Water availability plus personal and domestic cleanliness. - (e.g. hand washing practices)

3. Excreta disposal - (proper disposal of excreta using latrines)

4. Excreta treatment - (depositing excreta into a pit and allowing it to decompose and re-using it for manure e.t.c.) This practice is not common in Zambia. However, some people use treated excreta for manure for their orchards and flower beds. The practice has been observed in urban areas.

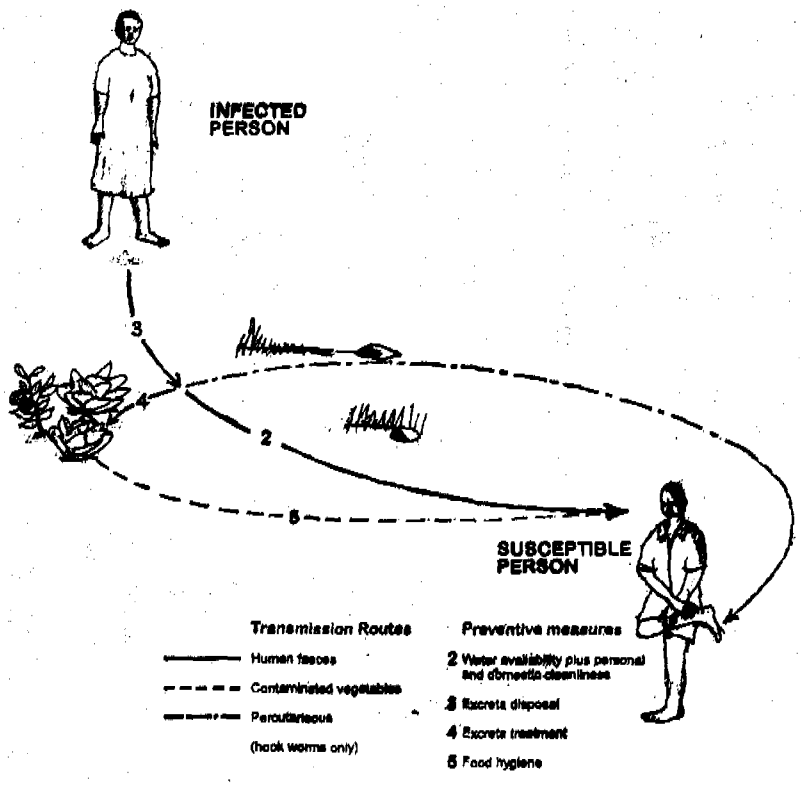
Refer to previous measures.

5. Food Hygiene : (provision of safe food, e.g. inspection of meat/ pork including other food products.

6. Immunisation is important for poliomyelitis prevention. There is a national wide polio immunication campaign throughout the country.

DIAGRAM C : **CONTROL OF HELMINTH INFECTIONS - ROUND WORM (ASCARIS LUMBRICOIDES) AND HOOKWORMS (ANKLOSTOMIASIS)**

Worm infection can be prevented by applying the following measures as shown on the diagram below by barrier :



These measures include :

1. Water quality (safe, adequate water)

2. Water availability plus personal and domestic cleanliness, e.g. hand washing practices

3. Excreta disposal (proper disposal of excreta using latrines)

Refer to page 23 for measures

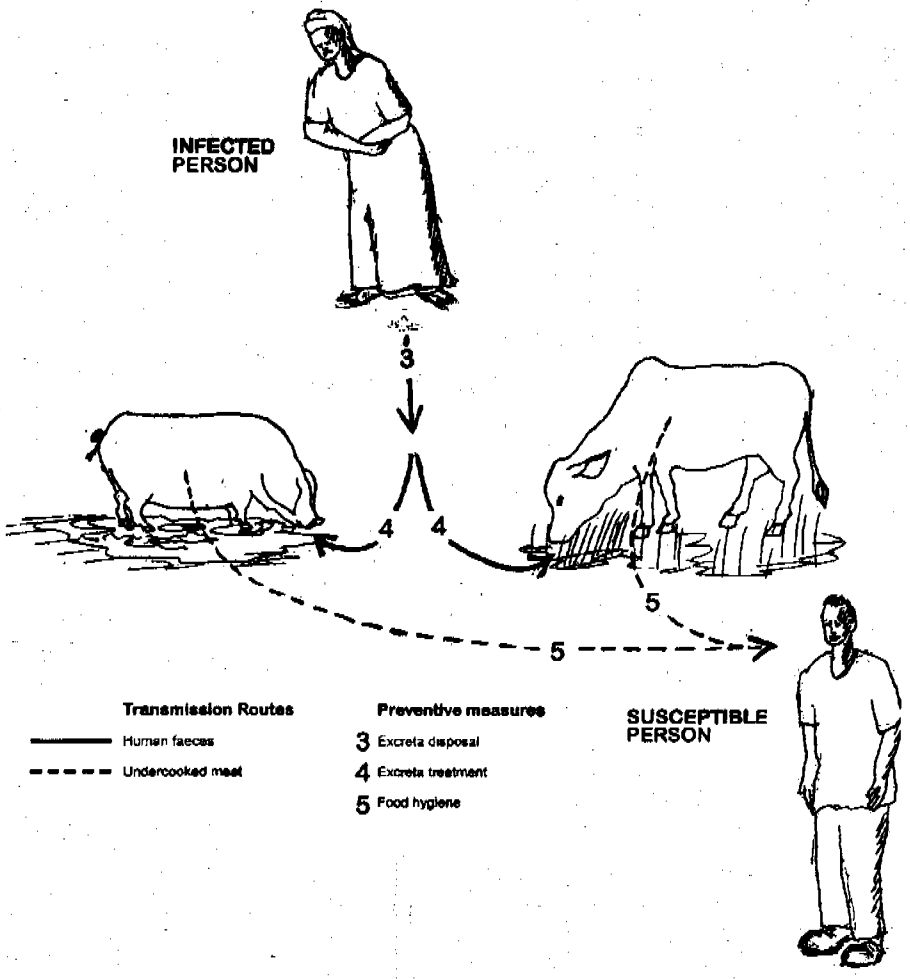
4. Excreta treatment (re-use of treated excreta as manure)

5. Food hygiene (provision of safe food, e.g. proper cooking of vegetables)

N.B. For both round worm and hook worm infection treatment is available. So all infected persons must be treated.

DIAGRAM D : **CONTROL OF BEEF/PORK TAPE WORM INFECTIONS**

Worm infection from beef and pork can be prevented by applying the following measures as shown in the diagram below by barriers which are numbered :



These measures include :

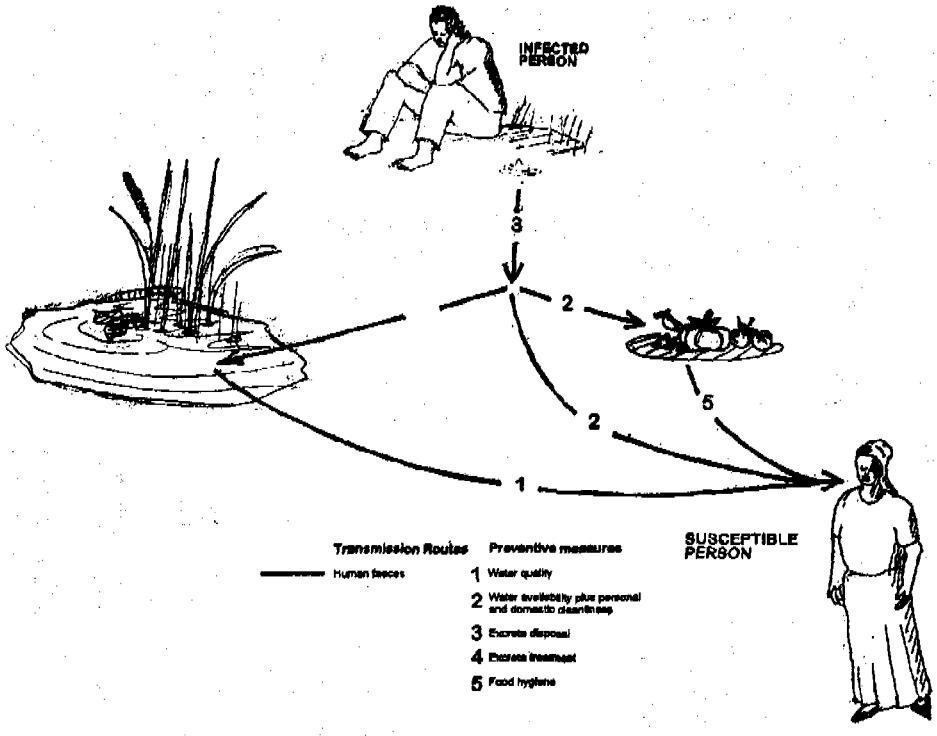
1. Excreta disposal (proper disposal of excreta using pit latrines)

2. Excreta treatment (re-use of treated excreta as manure) -this practice can be dangerous, especially if treated excreta is used as manure for vegetable gardens since other bacteria may not die during the treatment process, meaning that those who eat raw vegetables are at risk of being infected.

3. Food hygiene (provision of safe food, e.g. inspection of meat /pork before consumption, including adequate cooking).

DIAGRAM E : **CONTROL MEASURES OF WORMS WITH AQUATIC INTERMEDIATE HOSTS - GUINEA WORM (DRACUNCULUS MEDENENSI) AND BILHARZIA (SCHISTOSOMIASIS)**

Guinea worm and bilharzia infections can be prevented by applying the following preventive measures as shown in the diagram below by barrier :



These measures include :

1. Water quality (safe, adequate water)

2. Excreta disposal (proper disposal of excreta using pit latrines)

3. Excreta treatment (re-use of treated excreta as manure)

4. Food hygiene (provision of safe food, Cooking of food adequately, e.g. fish).

Refer to page 23 for measures

N.B. Other measures include treatment of infected persons and

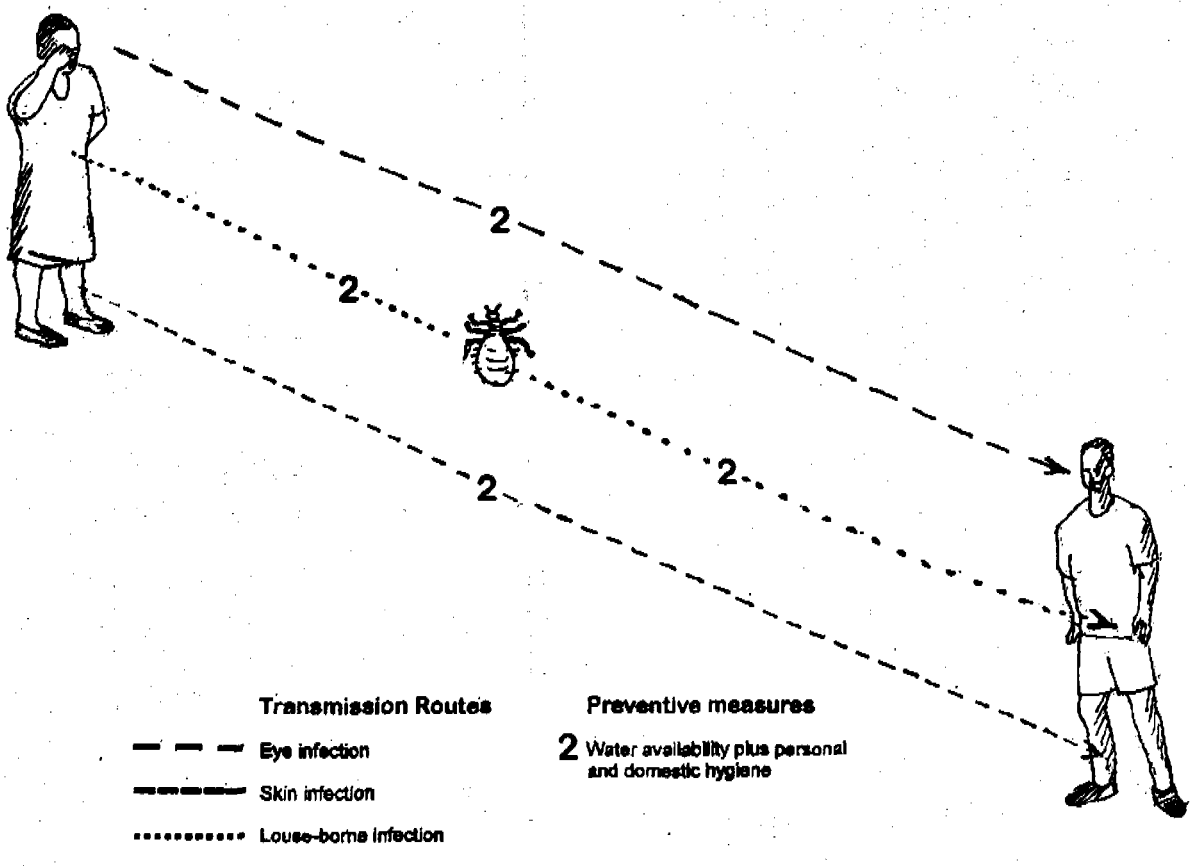
- elimination of the schistosomiasis snail, by putting chemicals in the water and the draining of swamps, ponds

INFECTION TRANSMITTED BY WATER RELATED IINSECTS - MALARIA

Malaria can be prevented by applying the following measures :

- control of adult mosquitoes by spraying with insecticide.
- use of larvicides (chemical) to kill the larvae
- wearing soaks and long sleeves particularly in the early evening and using repellents
- treatment of cases of malaria
- prevent stagnation of water near households
- pour litte oil in the stagnant water to prevent larvae breeding

DIAGRAM F : **CONTROL OF SKIN, EYE AND LOUSE-BORNE INFECTIONS (SCABIES, TRACHOMA AND LICE)**



Common infections can be prevented by applying the following preventive measures as shown on the diagram below by barrier :

The measures include :

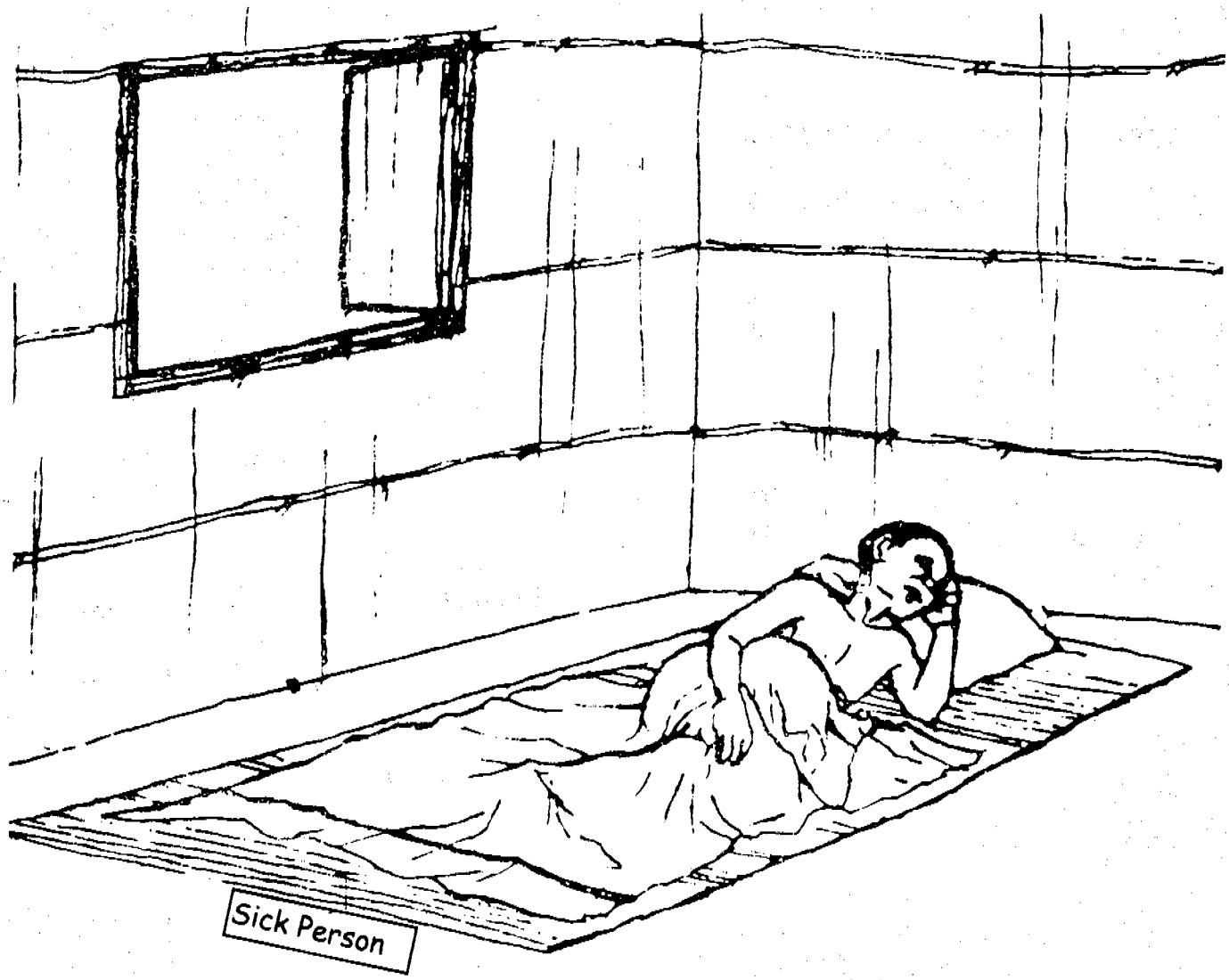
1. Water quality (safe, adequate water)

2. Water availability plus personal and domestic cleanliness e.g. adequate water for hand washing practices and bathing

N. B. Treatment of infected persons should be done, including avoidance in the sharing of clothing

SUMMARY OF THE CLASSIFICATION OF WATER AND SANITATION RELATED DISEASES

Section 4



SECTION FOUR

SUMMARY OF THE CLASSIFICATION OF WATER AND SANITATION RELATED DISEASES

By the end of this section you will have :

- a basic understanding of how diseases are classified (grouped)
- a basic understanding of how water and sanitation related diseases can be prevented by applying various interventions

This section gives a summary of how water and sanitation related diseases are classified or grouped. The section also gives details of how these diseases can be prevented. Three tables have sections as follows :

TABLE 1

GROUP	DISEASES
Disease transmitted by water (water-borne diseases) Water acts only as a passive vehicle for the infecting agent All of these diseases depend also on poor sanitation	Cholera Typhoid Bacillary dysentery Infectious hepatitis Leptospirosis Giardiasis Gastro enteritis
Disease due to lack of water (water-washed diseases) Lack of adequate quantity of water and poor personal hygiene create conditions favourable for their spread. The intestinal infections in these groups also depend on lack of proper human waste disposal	Scabies Skin sepsis and ulcers Yaws Leprosy Lice and typhus Trachoma Conjunctivitis Bacillary dysentery Amoebic dysentery Salmonellosis Enterrovirus diarrhoea Parathyroid fever Ascariasis Trichuriasis Whipworm (Enterobius Hookworm (Ankylostoma) Shigellosis

Disease caused by infecting agents	Schistosomaisis bilharzia (urinary and rectal)
Spread by contact with or ingestion of water Dracunculosis (guinea worm) (water-based diseases) An essential part of the life cycle of the infecting agent takes place in an aquatic animal. Some are also affected by waste disposal	Philariosis Oncholersosis Thread worm
Diseases transmitted by insects which live close to water (water-related vectors) mosquito infections are spread by mosquitoes, flies, insects that breed in water or bite near it	Yellow fever Dengue + dengue Haemorrhagic fever West-Nile and Rift Valley fever Malaria Arbovirus Bancroftian Malaria (diarrhoea) Onchocerciasis
Disease caused by infecting agents. Mostly colochisis contracted by eating uncooked fish and other food Fasciolopsiasis (Faecal-disposal of diseases)	Diapyllobothrisis Paragonimiasis

***Unusual for domestic water of affect these**

Source

Saunders, J.; warford

Village water supply : Economics and policy in the developing World.

Published for the World Bank by John Hopkins University Press. Baltimore 1976.

TABLE 2

PREVENTION OF TRANSMISSION OF WES-RELATED DISEASES

DISEASES	Safe Drinking water	Safe Excreta disposal	Personal and Domestic Hygiene*	Food Hygiene*	Water-waste Disposal/ Drainage
Diarrhoeas	••	•••	•••	•••	-
Poliomyelitis and Hepatitis A	•	••	•••	••	-
Worm Infections	•	•••	•••		
Ascaris Trichuris	-	•••	•		
Hook worm	-	••	•••		
Pinworm, Dwarf Tapeworm	-	•••	•		
Other Tape worms	-	•••	•••		
Schistosomiasis	•••	-	-		
Guinea Worm					
Skin Infections	-	-	•••	-	-
Eye Infections	-	•	•••	-	•
Insect Transmitted Diseases	-	-	-	-	•
Malaria	-	-	•**	-	••
Urban Yellow Fever, Dengue	-	•••	-	-	•••
Bancroftian Filariasis					

Importance of Preventing Disease Transmission

••• High •• Medium • Low to Negligible

*Personal and Domestic Hygiene and Food Hygiene often requires the use of more water

**Vector breeds in water containers

TABLE 3

The four mechanisms of water-related infection transmission and the preventive strategies appropriate to each mechanism

Transmission mechanism	Preventive strategy
Water-borne	Improve quality of drinking water. Prevent casual use of other unimproved sources
Water-washed	Increase water quality used, improve accessibility and reliability of domestic water supply improve hygiene
Water-base	Decrease need for contact with infected water Control snail populations Reduce contamination of surface waters by excreta
Water-related insect vector	Improve surface water management Destroy breeding sites of insects Decrease need to visit breeding sites Use mosquito netting

THE CORE TRAINING MANUALS AND SUPPLEMENTARY MODULES

No TITLE/DESCRIPTION

MANUALS AVAILABLE

Manual 1 Understanding the WASHE Concept
Manual 3 Introducing WASHE at District Level
Manual 4 Establishing WASHE at District Level

SUPPLEMENTARY MODULES 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
7m Community Participation in Monitoring
7n Well Completion Ceremony (Handover)
7o Community Management in Evaluation
7p Group Dynamics and Energiser Tool Kit
8a WASHE and Gender