How to Live Positively

A practical manual for facilitating community action in HIV/AIDS-affected areas

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Learning through discovery, to improve health and longevity amongst farming communities in HIV/AIDS-affected areas of Africa

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[1] Community Partnerships for Sustainable Resource Management, funded by USAID and implemented by Development Alternatives Incorporated: dai@dai.com, www.COMPASS-Malawi.com

1. INTRODUCTION

More than 42 million men, women and children were estimated to be living with HIV by the end of 2002. Almost 30 million of these people are living in sub-Saharan Africa, according to UNAIDS (2002). Whereas much attention has been focussed on prevention of infection and treatment of patients with full-blown AIDS, little has been done to address the needs of apparently healthy people who are still in the early stages of this disease. As a result, people living with HIV in developing countries can only expect to survive for a maximum of five years, compared with those living in developed countries, whose life expectancy may be more than 20 years. This reduced life expectancy is having terrible consequences on young children who are being orphaned prematurely. These orphans are severely traumatised and, without guidance from a caring adult, are likely to grow up displaying anti-social behaviour, which will increase their vulnerability to HIV/AIDS.

Furthermore, in sub-Saharan Africa, the majority of people who are affected by, or infected with, HIV/AIDS are subsistence farmers, whose agricultural skills are vital to the continued survival of traditional life throughout the continent. Women, in particular, are the guardians of household food security. With their passing go thousands of years' worth of inherited knowledge on the production of food crops in Africa's diverse and often hostile environments.

Most people who are vulnerable to HIV/AIDS in Africa are lacking in formal education, and have limited access to hospitals and clinics. This participatory training manual aims to give these people a scientific explanation of the links between diet, the environment and immunity to disease. This information can be used to raise the health consciousness of the community, reduce their susceptibility to disease and reduce the risk of opportunistic infections. By facilitating a series of inter-active discussions and group exercises, conducted in a language that farmers can understand, it is hoped that workshop participants will be able to make crucial decisions, which will lead to improved health for all members of the family and lead to improved longevity for those who are living with HIV.

1.1 Background information for trainers

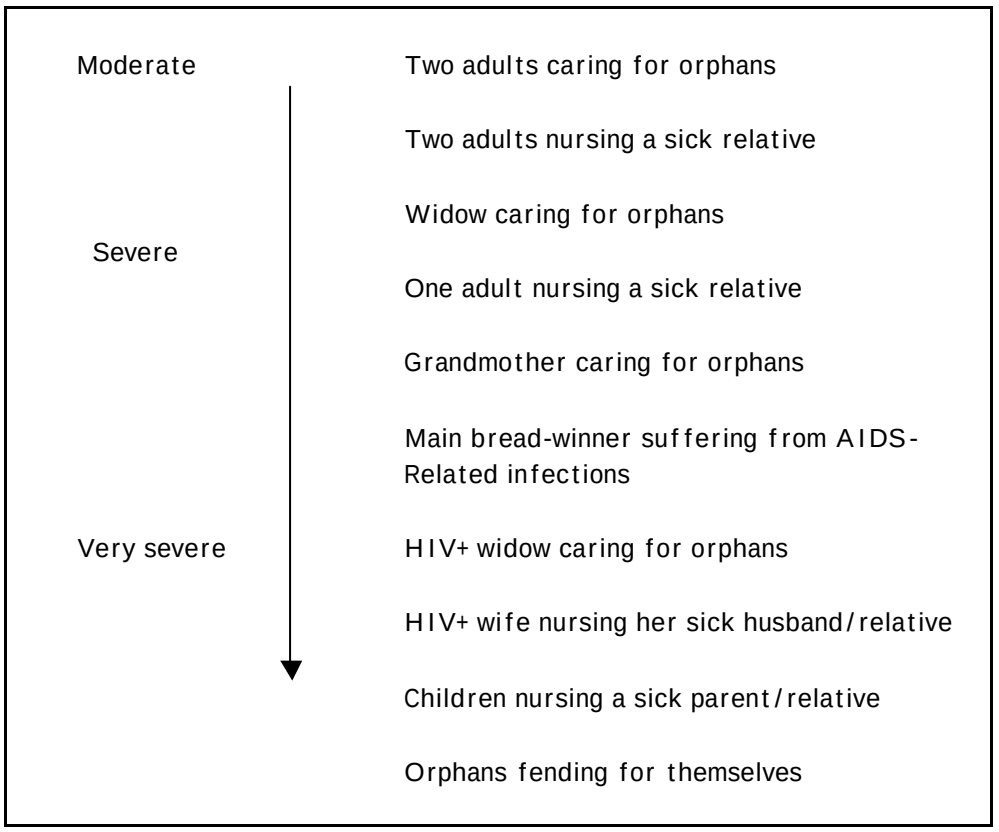
Almost everyone in sub-Saharan Africa is now either affected by or infected with HIV/AIDS:

- People are *affected* by HIV/AIDS either directly or indirectly. This could be because of the need to share household resources with orphans or someone who is dying of AIDS, or by being part of a community that is severely impacted by the pandemic.

- *Infected* people are HIV positive and in the early stages of the disease can pass it on unwittingly unless they have access to voluntary counselling and testing. These people are susceptible to opportunistic infections and will quickly develop full-blown AIDS, in the absence of basic health care, a balanced diet and emotional support. This situation puts a great strain on the household and their contribution to the well-being of the community (Gari, 2001)

In the absence of a national welfare system, the impacts of HIV/AIDS becomes increasingly severe in terms of increasing poverty and labour constraints, as time goes by. These impacts can be described as "moderate", where affected households are barely able to cope with caring for orphans or a sick relative, to "severe" where a single adult is taking responsibility for the orphans or sick relative and "very severe", where the carers are becoming sick and the surviving children begin fending for themselves (see Table 1). In Africa's rural areas, households that are severely impacted by HIV/AIDS suffer from food insecurity and extreme poverty, together with the stress associated with these conditions. Such households are no longer able to be self-reliant due to fatigue, reduced access to land, declining soil fertility, erosion of indigenous knowledge, lack of appropriate seed and an inability to generate income. Systems of good agricultural practise must be developed to address all these problems at no cost and without increasing labour requirements. By introducing the community to Positive Living it will be possible to dispel the feelings of hopelessness and fear that is prevalent in most HIV/AIDS-affected areas. Armed with the confidence that goes with Positive Living, the community will be empowered to plan and support activities to mitigate the impacts of this disease (see Table 2).

Table 1: Impacts of HIV/AIDS on African households in terms of increasing poverty and labour constraints, in the absence of a national social welfare system



Community empowerment is an on-going process, which utilises participatory methods, such as Training for Transformation and Discovery Learning and enables local people to make informed choices for positive action to solve common problems. The empowerment process begins with meetings and workshops that, ideally, involve the whole community.

Guidelines for meetings with AIDS-affected communities

It is important to remember that people who are affected or infected by HIV/AIDS have little or no time to attend meetings due to more urgent domestic chores and are unlikely to take part in activities that require commitments to additional labour or costly inputs. In order to persuade these people to get involved, you, as the facilitator, should try to provide all participants with nutritious food during the course of the meetings. This should include their children and any dependants who may be languishing sick at home. Training workshops should aim to build confidence amongst the participants, whilst providing a safe environment

in which everyone will be encouraged to speak out and share their ideas and problems. You should beware of topics that create stigma or cause blame and instead promote individual and collective responsibility towards reducing vulnerability to the disease. Exercises should be conducted amongst peer groups, such as orphaned children, young unmarried women and men, married women and men and widows, according to their vulnerability to HIV/AIDS. You may want to invite resource people from local organisations to present related topics, which may not be covered by this manual, but may be of particular interest to your community. If there is someone who is prepared to talk about Positive Living from personal experience, especially if s/he is HIV positive, it will send a powerful message of "hope" to the participants of your workshop.

Table 2: Minimum needs of households severely impacted by HIV/AIDS

Vulnerable Households	Minimum Needs	
	From within the community	From outside the community
Women caring for orphans	Emotional support, nutritious food, shared labour	Support for home-based income-generating activities
Women caring for sick relatives	Emotional support, nutritious food, shared labour	Nutrient supplements, patient care kit
Widows caring for young children	Emotional support, nutritious food, shared labour	Nutrient supplements, access to voluntary counselling and testing (VCT) support for home-based income generating activities.
Children caring for sick relatives	Emotional support, nutritious food, shared responsibility & labour	Nutrient supplements, patient care kit, free education/training
Orphans caring for siblings	Emotional support, nutritious food, shared responsibility & labour	Nutrient supplements, free education /training, AIDS prevention information

Who is Positive Living for?

Positive Living should be a way of life for everyone. Positive Living makes people less vulnerable to disease, particularly HIV/AIDS. It also helps people who are HIV positive to live longer, healthier, happier and productive lives. If you want to help the farmers in your community to overcome the fear and stigma associated with HIV/AIDS, then read on!

Information Box 1: Should people know their HIV/AIDS status before doing Positive Living?

No, this is not necessary, but if you do want to find out whether you are HIV positive or not, you should go to a clinic and have a blood test. If possible you should ask for VCT, this is Voluntary Counselling and Testing. Proper VCT clinics have well-trained staff who will be able to provide good advice, depending on the outcome of your test.

However, if you have had many sexual partners, a partner that you have ever had sex with has been unfaithful, is HIV positive or has died of AIDS then you may also be infected with the virus. If your baby is HIV positive or has died of AIDS then you are probably HIV positive. The first signs of this disease may not appear until several years after you first became infected. These signs are swollen glands (especially in the neck) facial herpes (cold sores) oral thrush, night sweats, tiredness and weight-loss. Some people are afraid to be tested or live too far away from a health clinic. In this case it is better to adopt Positive Living as a way of life so that you will remain healthy whatever your status.

Action planning for Positive Living

In areas of Africa where there is little or no government support for rural development, community action will be required to promote Positive Living amongst all vulnerable groups. This means that time should be made available at the end of each session to discuss issues that can be incorporated into a community action plan to allow participants to put into practise what they have learned during the workshop. This could include action to reduce the risk associated with some traditional practises, establishing a nutrition garden to feed orphans, writing a proposal to fund the purchase of nutrient supplements for vulnerable people or the construction of VIP toilets for everyone in the village. There is a series of simple exercises distributed throughout this manual to help with this process.

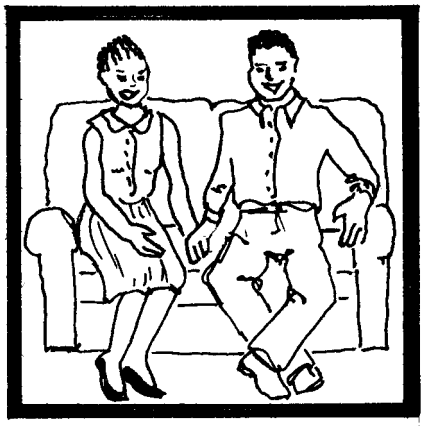
Many of the activities needed to address these issues will require the involvement of the whole community. This means that workshop participants should also discuss ways of involving the most marginalised people, including the orphans, the sick and the elderly in their action planning.

The information contained in this manual is under three main headings, namely: Reducing Vulnerability to HIV; Promoting Good Health and Preventing Disease. There are also more than 30 participatory "Discovery Learning" exercises to encourage participants to adopt a scientific approach to problem solving. When planning your workshop it is recommended that participants spend at least two days discussing each topic, including plenty of time for action planning. The afternoon of the last day should be reserved for revisiting the three action plans in order integrate future activities and plan the way forward (see Table 3).

Table 3: Suggested Workshop Timetable

DAY ONE	REDUCING VULNERABILITY TO HIV	Section 2
	Looking at vulnerability to HIV	
	Looking at ways of reducing vulnerability to HIV	
	Lunch	
	Taking responsibility	
DAY TWO	ACTION PLANNING TO REDUCE VULNERABILITY TO HIV	
	Reducing vulnerability to HIV within the family	
	Lunch	
	Reducing vulnerability to HIV within the community	
DAY THREE	PROMOTING GOOD HEALTH	Section 3
	What makes us healthy? Eating nutritious food	
	Lunch	
	Eating the right food for Positive Living	
DAY FOUR	ACTION PLANNING TO PROMOTE GOOD HEALTH	
	Calculating family nutrient requirements	
	Lunch	
	Crop planning	
DAY FIVE	PREVENTING DISEASE	Section 4
	Types of diseases	
	Lunch	
	Improving our natural defence to infectious diseases	
DAY SIX	ACTION PLANNING TO PREVENT DISEASES	
	Cleaning up the environment	
	Lunch	
	Planning the way forward	

2. REDUCING VULNERABILITY TO HIV



2.1 Assessing risk and possibilities for behaviour change

Vulnerability to HIV depends on lifestyle, gender and socio-economic status. This means that protecting people from HIV depends on more than just promoting the use of condoms. It also depends on building self-esteem amongst the most marginalised groups, to allow them to take control of their sexuality in the face of oppressive political, traditional, cultural and religious values. The following exercise will enable participants to look at their own vulnerability to HIV, according to their age and gender:

Exercise 1: Looking at vulnerability to HIV

Materials:
Flip-chart paper and felt-tip pens

Procedure:
Divide the participants into the following groups;

- Married women (including widows)
- Married men including (widowers)
- Young, unmarried women
- Young, unmarried men

Ask each group to find a secluded place where they can write down all the different reasons why they think that they are vulnerable to HIV on flip cart paper. Ask someone from each group to present the results to the rest of the participants in the following plenary session.

Facilitate discussion on the following questions:

- Are the reasons for vulnerability to HIV the same for each group?
- What are the reasons for the differences?

Vulnerability to HIV is often a result of powerlessness. Therefore it cannot be simply a matter of "everyone" taking responsibility for their own behaviour in order to protect themselves from this disease. Those who hold the power within society must first change their behaviour so that those who are powerless can also begin to take control of their own lives.

Exercise 2: Looking at ways of reducing vulnerability to HIV

Procedure:
Using the same groups: married women, married men, young unmarried women, young unmarried men, ask participants to write down ways of addressing the problems that they raised in Exercise 1 so that they can protect themselves from HIV. Ask the participants to present their findings, then facilitate discussion on the following topics;

- What are the main constraints to behaviour change?
- Are these constraints the same for each group?
- Is each group willing to take responsibility for protecting themselves from HIV?
- What are the main areas of conflict?
- Can any of these areas of conflict be resolved through negotiation?
- What solutions to these problems can be included in your action plan?

The next exercise will help participants to investigate the links between power and responsibility and thus determine where the ultimate responsibility for keeping HIV out of the family/community really lies.

Exercise 3: Taking responsibility

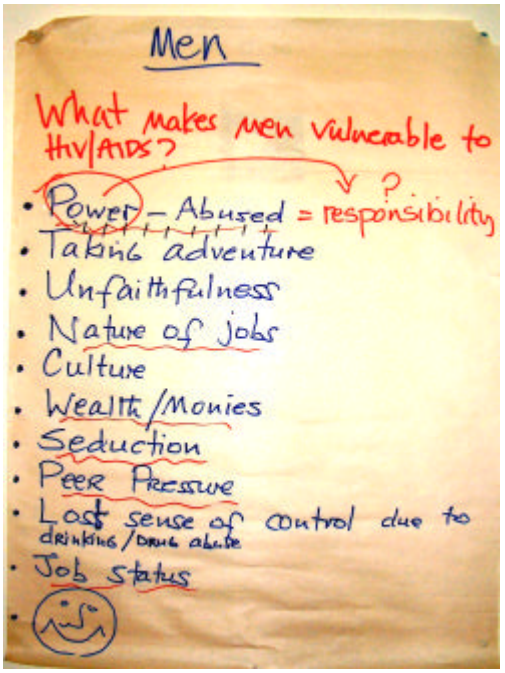
If the results from the previous exercises show that vulnerability to HIV is due to unequal power relations and wide differences in access to wealth between women and men or young and old, then facilitate discussion on ways of addressing these problems. This could involve looking at roles and responsibilities within the household and using "problem trees" to examine the causes and effects of particular problems. One way of focussing on the links between power and responsibility would be to ask participants to write down what they think the role of the "head of household" should be, on separate cards. Post these cards on the wall or other suitably visible surface, then promote discussion on who has the power to keep HIV out of the family.

If the community is open to dialogue, it may be possible to take this discussion a stage further by pointing out the inconsistencies between traditional practises and the need to take responsibility for protecting the family/community from HIV. This should help the different groups to begin negotiating changes, which could reduce the inequalities in power relations and access to wealth and thus reduce their vulnerability to HIV.

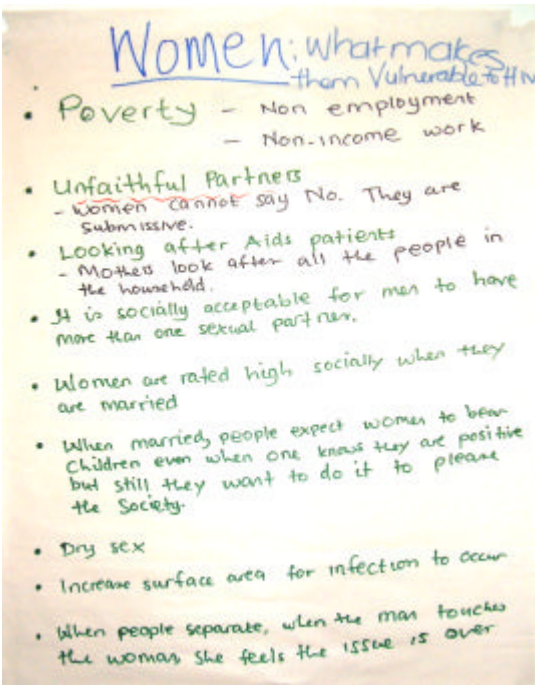
- What is the relationship between power and responsibility?
- How can we help men, women and youth take responsibility for protecting themselves and their families from HIV?
- How can we reduce conflict between these three groups?
- Put these ideas into your action plan.

Information Box 2 shows an example of the differing causes of vulnerability to HIV between married men and women in a community in Malawi and the causes and effects of the women's "powerlessness".

Information Box 2: The causes of vulnerability amongst men and women in Malawi

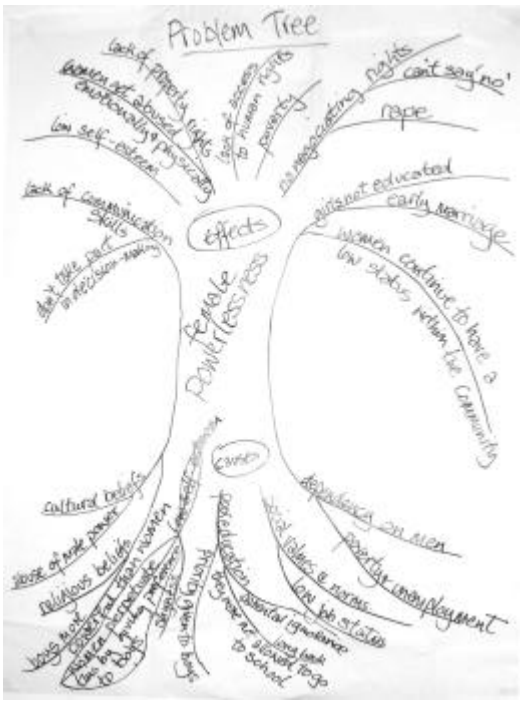


1. The men wrote down what makes them vulnerable to HIV and recognised that behaviour change was in their power



2. The women wrote down what makes them vulnerable to HIV

2. The women recognised that they were too powerless to protect themselves from HIV



3. The women analysed the causes and effects of their powerlessness

The cartoons shown below illustrate ways in which men and women may be at risk of contracting HIV and may be used to provoke discussion on this subject.

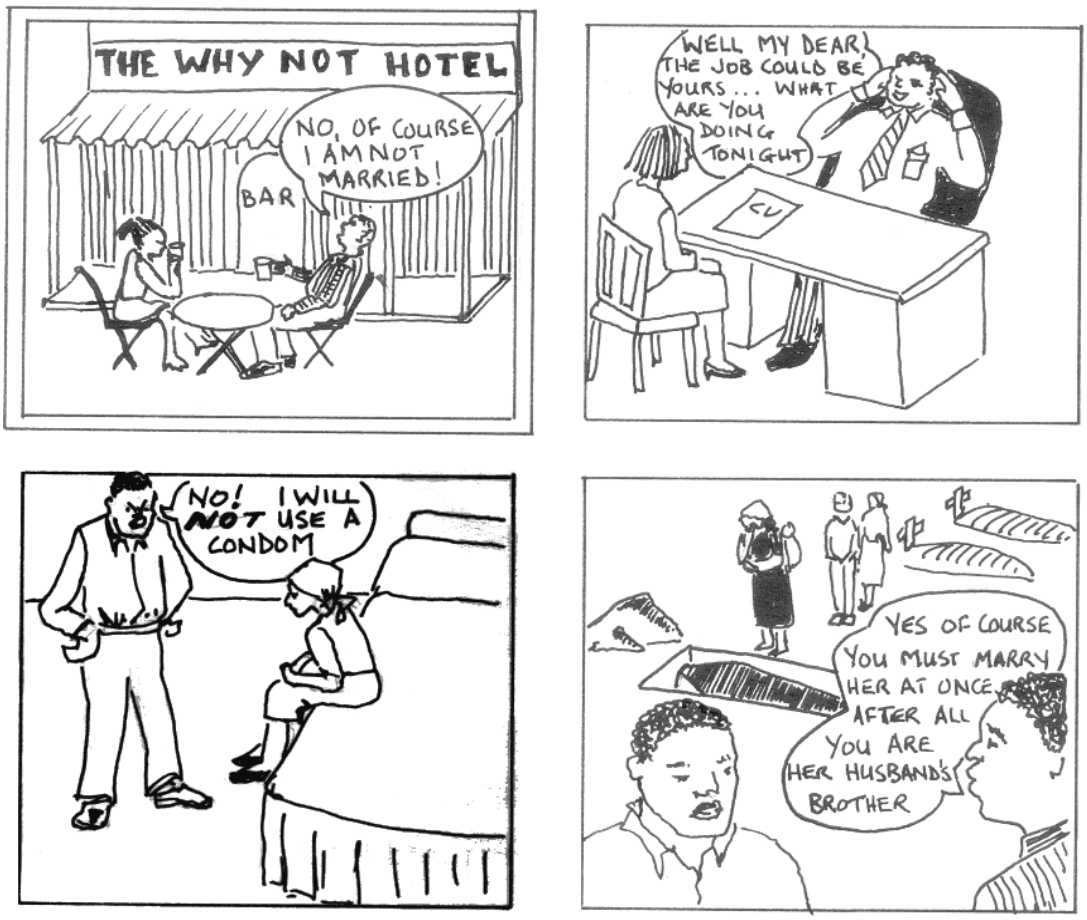


Figure 1: Who is vulnerable to HIV in these situations?

Exercise 4: Identifying possibilities for change

Ask the participants to think of ways of resolving the conflicts pictured above, without *blaming* anyone for the situation.

- What are the origins of the traditional beliefs that have created the conflicts that are pictured in these cartoons?
- Are the reasons for having these traditional beliefs still valid?
- If so, how can the traditions be modified, whilst still keeping the original values behind the belief or tradition alive?
- Put these ideas into your action plan

2.2 Action planning to reduce vulnerability to HIV

Reducing vulnerability to HIV needs to be considered at individual, family and community levels. The approach to this will depend on the ability of individuals within the family/community to accept responsibility as leaders and role models.

2.2.1 Reducing vulnerability to HIV within the family

Issues that may need to be addressed within the family are;

- The role of the head of household
- Mutual respect and faithfulness
- Sex education for children
- Condom use
- Attitudes to risky traditional practises
- Inheritance
- Conflict resolution
- Sharing food according to nutritional need (see 3.1)
- Hygiene within the household
- Responsibility for caring for the sick
- Rights and responsibilities for men, women and children

Some of these issues could be explored through role-playing and group discussions using the "Stepping-Stones" process[2]. This process enables women and men of all ages to explore their social, sexual and psychological needs, to analyse the communication blocks they face, and to practise different ways of behaving in their relationships.

[2] The Stepping Stones manual can be obtained from www.talcuk.org/ .

2.2.2 Reducing vulnerability to HIV within the community

Issues that need to be discussed in order to produce an action plan to reduce vulnerability within the community include;

- Attitudes to risky traditional practises (see Information Box 3)
- Community responsibilities in the care of orphans
- Promoting Positive Living amongst the poorest groups
- Conflict resolution
- Income generating activities to reduce inequalities between women and men.
- Rights and responsibilities for men, women and children
- Assessing the needs of vulnerable groups
- Linking with religious organisations

Information Box 3: Action planning by the community in Dedza, Malawi to change traditional practises that make them vulnerable to HIV

Risky practise	Proposed solution
Jando: Male circumcision using shared blades	Buy enough blades for everyone
Chinamwali: Young girls encouraged to "practise" having sex with experienced men	Use of drama, songs and slogans to educate the community on the dangers of casual sex
Fisi: Relatives arrange for a "surrogate" father to impregnate wife whose husband is impotent	Use of drama, songs and slogans to educate the community on the dangers of encouraging unfaithfulness or multiple sex partners
Chokolo: Relatives arrange for a widow to be "inherited" by her brother-in-law	Use of drama, songs and slogans to educate the community on the dangers of wife inheritance

Exercise 5: Making a community action plan to reduce vulnerability to HIV/AIDS

Problem	Activities planned to address the this problem	By whom?	With whom?	Planned completion date

3. PROMOTING GOOD HEALTH

3.1. What makes us healthy?

The promotion of good health is the basis for Positive Living. Our health depends on the food we eat and the environment in which we live. In the same way that farmers know that a healthy plant will be less susceptible to pests and diseases – a healthy body will also be protected from many diseases.

In order to remain healthy, human beings require clean air (including oxygen) to breath, clean water to drink, sunlight to make vitamin D and provide warmth, affection from family and friends, regular exercise and plenty of nutritious food. All these inputs, with the exception of sunshine, are manipulated to some extent by human activities. Our supply of oxygen depends on the maintenance of the world's forests by governments and communities. Clean air and water is also under government control, as pure supplies depend on the absence of pollution at national as well as local levels. Other health-giving inputs are more or less under our own control although many of them depend on supportive social interactions.

Exercise 6: What does a healthy body need?

Materials required:
Flip chart paper
Marker pens
Masking tape or reusable adhesive

Procedure:
Draw a large out-line of a happy human being on the flip-chart paper and ask group members to suggest inputs that will help to keep her/him healthy. Discuss each of these essentials in turn, then arrange them around the out-lined human, see Figure 2.

Which of these inputs are under the control of;

- the government?
- the community?
- the household?
- individuals?

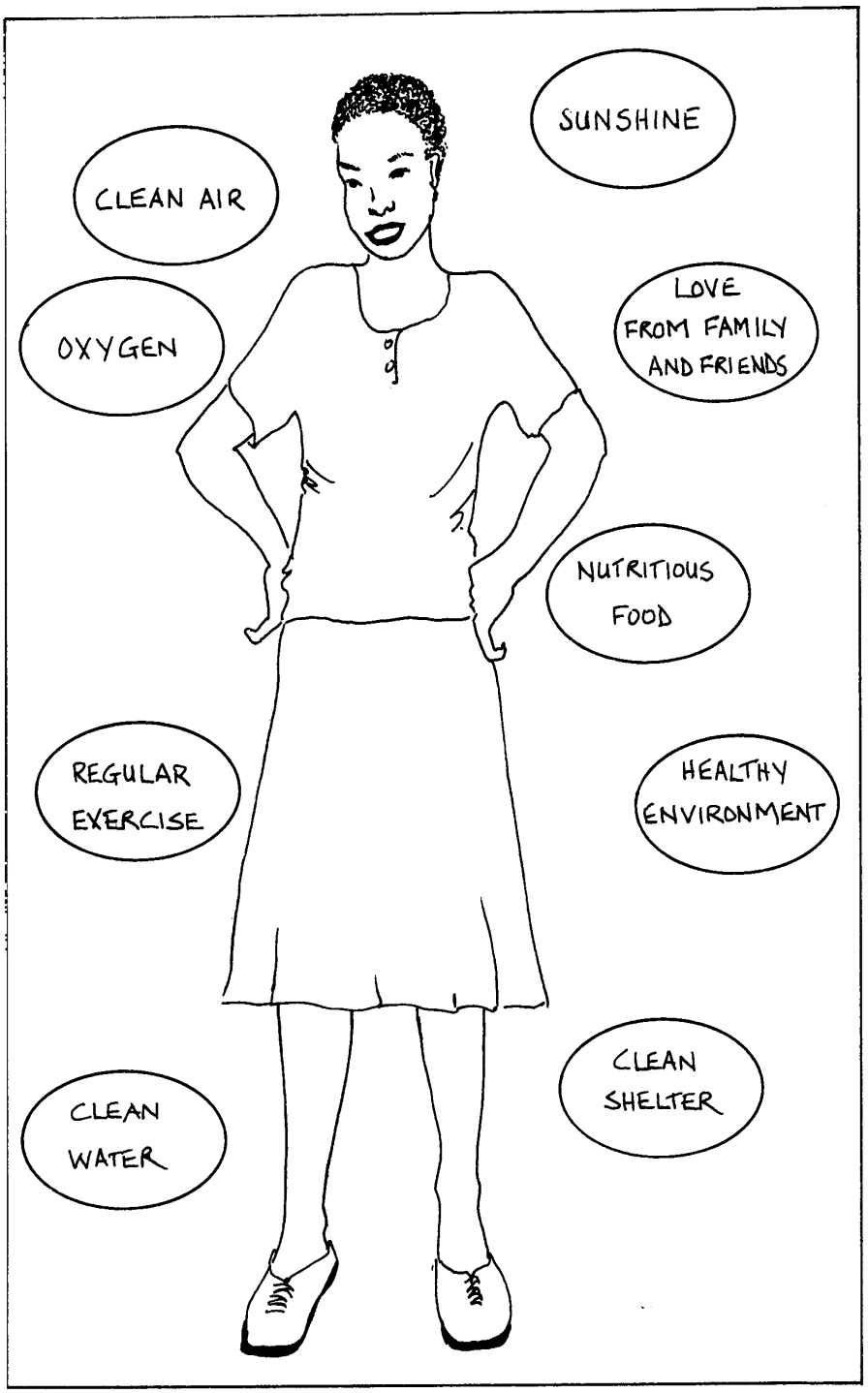
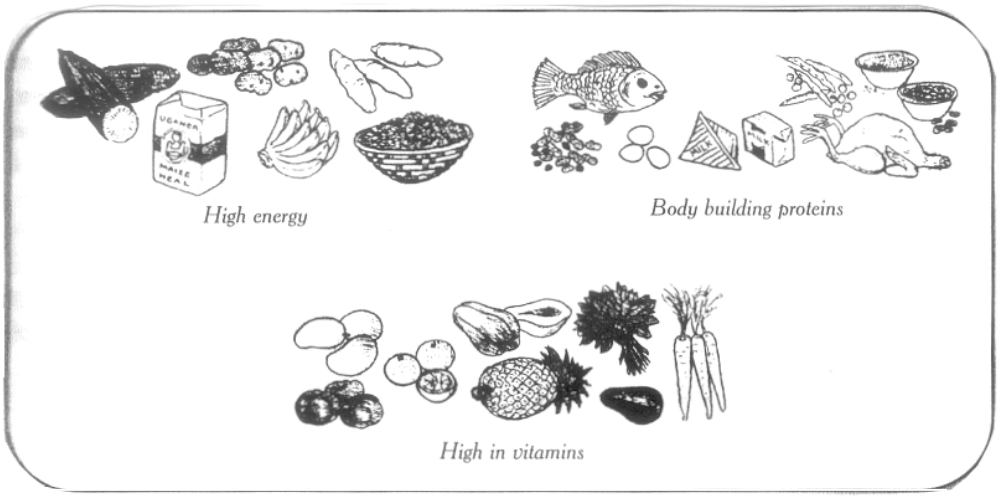


Figure 2: What does a healthy body need?

3.1.1 Eating nutritious food

Eating nutritious food is the most important input to human health and the first medicine for HIV/AIDS (Gari 2003). Farmers are in control of this vital resource. Nutritious food is food that contains all the necessary nutrients, including vitamins and minerals that are required to keep us healthy. For example, crops that contain carbohydrates provide the best source of energy, while those that contain protein provide the material for growth and repair of our bodies. Fruits and vegetables normally contain the vitamins and minerals that are essential for all our bodily functions.

Our nutritional needs can vary according to age, gender and state of health. However, food is often distributed within the family according to local tradition rather than nutritional need and this can lead to malnutrition amongst the least powerful members of the family. This problem can be explored in the following exercise.



© AIDS Africa: a continent in Crisis, H. Jackson, 2002. SAfAIDS, Harare

Exercise 7: How do we share our food?

Materials required:
Photocopies of the following pages - one for each group
Thin card
Glue
Scissors
Coloured crayons
Re-usable adhesive
Flip chart papers
Felt-tip pens

Procedure:
Stick the photocopies onto thin card, then cut them out and colour them in appropriately. Draw 6 circles (20 cm diameter) representing "plates" on each sheet of flip-chart paper and allocate each "plate" to one of the following family members;

Father
Mother (who is pregnant)
Grandmother
Auntie (who is sick)
Daughter, aged 15 years
Son, aged 5 years

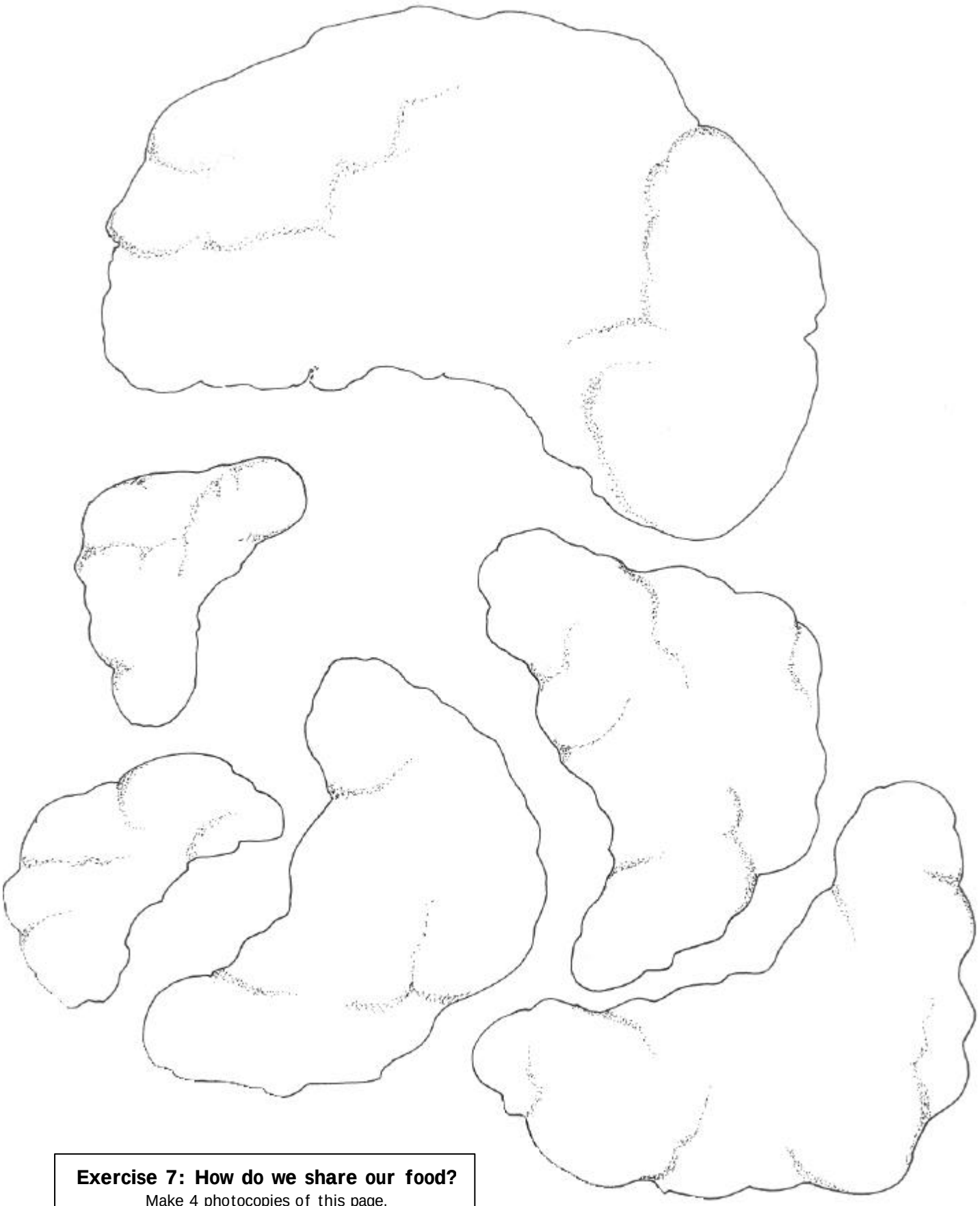
Divide the participants into the following groups;
Married/widowed men
Married/widowed women
Young unmarried adults
Children

Provide each group with the following "food";
6 chicken pieces (2 legs, 2 wings and 2 claws)
6 pieces of nsima/sadza (2 small, 3 medium and 1 large)
5 fruits (1 avocado, 1 guava, 1 mango and 2 bananas)

Ask the participants from each group to divide this "food" amongst the family members according to the way it is done at home. Ask each group to explain their actions to the rest of the participants during the plenary session.

- Who got the most food?
- Who got the most nutritious food?
- Was the food shared according to nutritional requirement or according to status, gender or age?

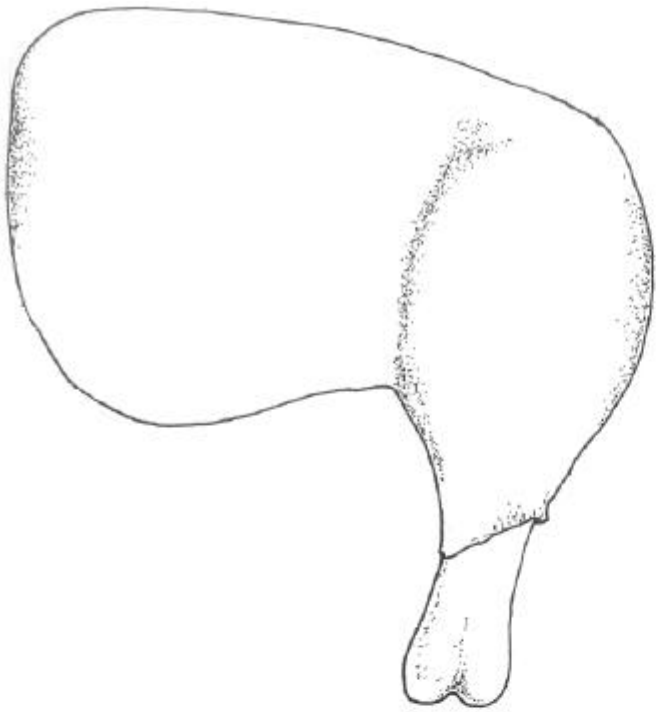
Discuss the implications of this in terms of the important nutrients plus the recommended daily intake and sources of these nutrients for Positive Living shown in Tables 4, 5 & 6.

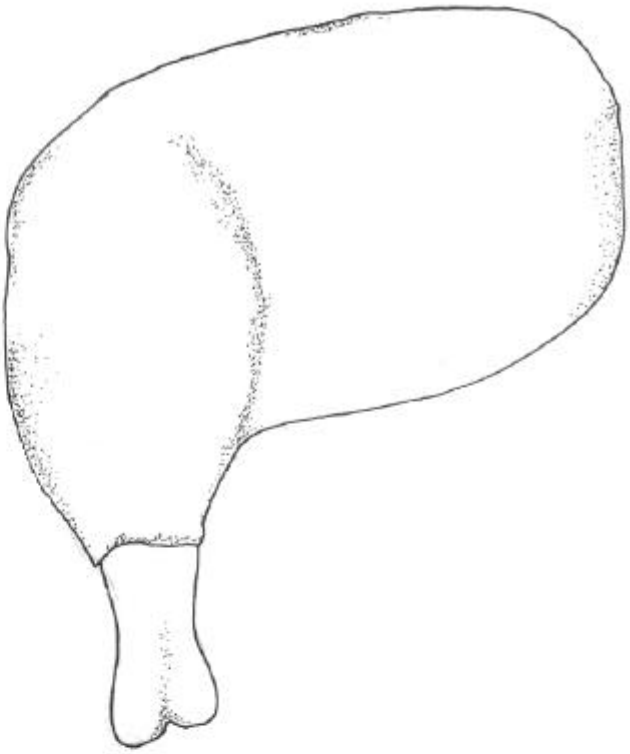


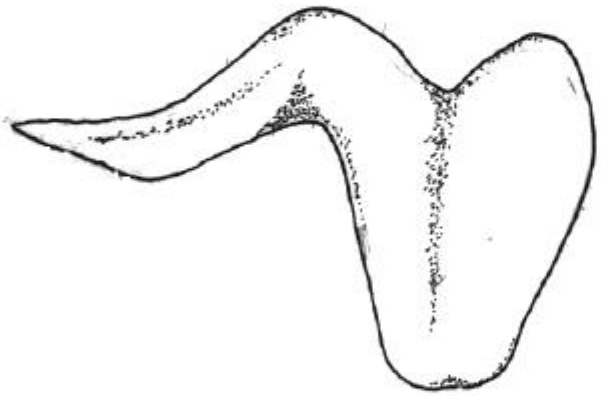
Exercise 7: How do we share our food?

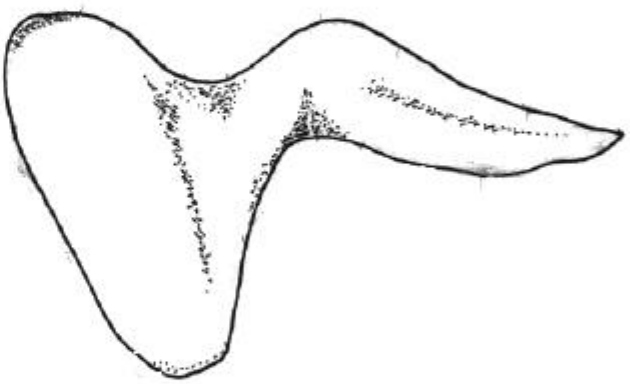
Make 4 photocopies of this page.

Cut out the 6 pieces of sadza/nsima.





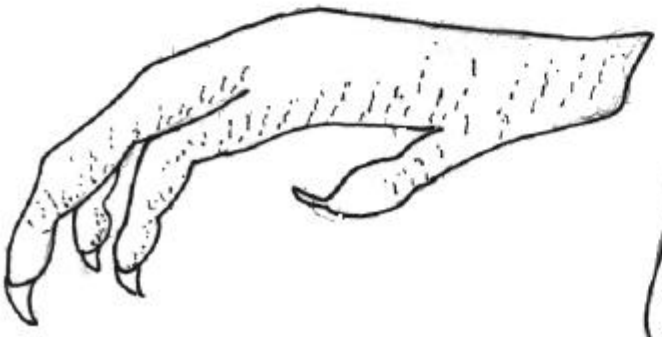


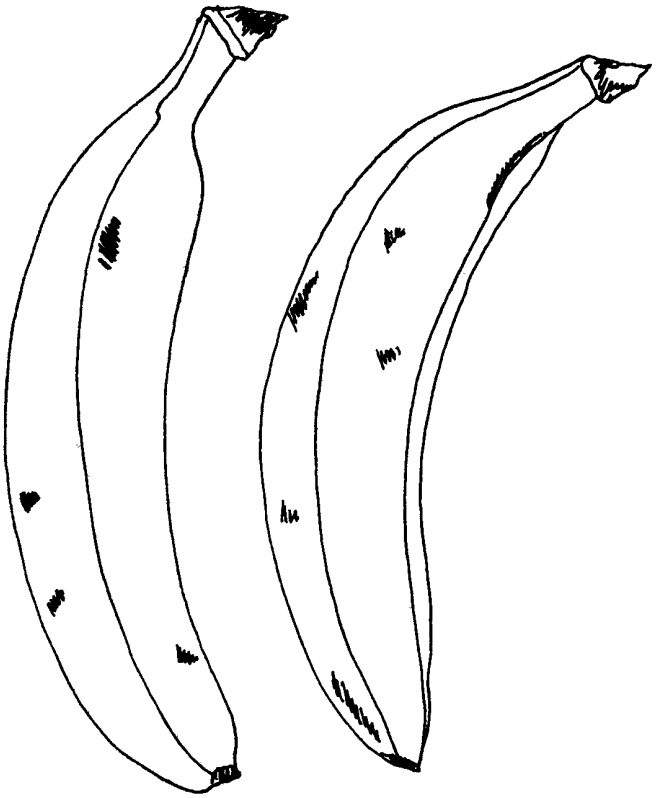


Exercise 7: How do we share our food?

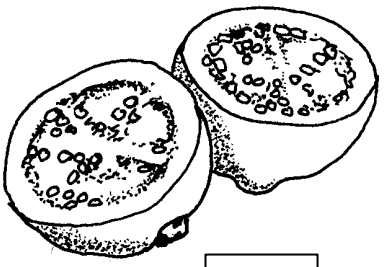
Make 4 photocopies of this page.

Colour in the 6 pieces of chicken appropriately, then cut them out.





bananas

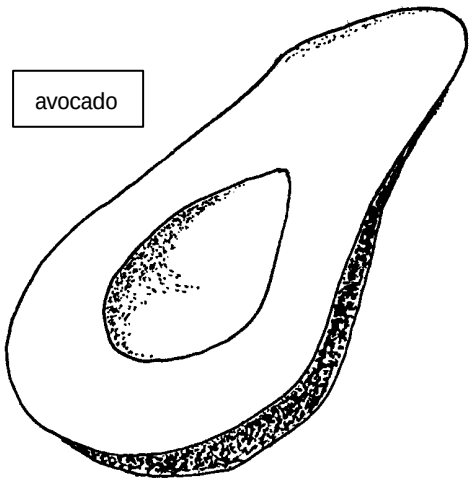


guava

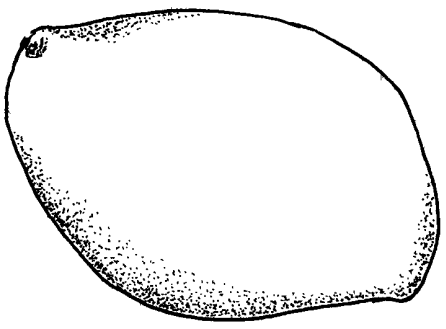
Exercise 7: How do we share our food?

Make 4 photocopies of this page.
Colour in the 6 fruits appropriately, then cut them out.

avocado



mango



3.1.2 Making sure we eat the right nutrients for Positive Living

Table 4 lists the important nutrients that we should eat every day to ensure Positive Living. These are calories, protein, calcium, iron, selenium, zinc and vitamins A, B C and E. Nutrients, such as selenium, zinc, vitamins A, C and E help to protect us from disease by increasing our immunity.

Table 4: Important Nutrients for Positive Living

Nutrient	What is it used for in the body?
Calories	Energy
Protein	Growth and repair of tissues
Calcium	Strong bones and teeth
Iron	Blood formation
Selenium	Increases immunity
Zinc	Increases immunity
Vitamin A	Healthy skin and eyes, increases immunity
Vitamin B1	Brain function and digestion
Vitamin B2	Produces energy
Vitamin B3	Brain function, reduces depression
Vitamin C	Increases immunity and fights infection
Vitamin E	Assists selenium to increase immunity

Table 5 shows the recommended minimum daily requirement for these nutrients, depending on age, gender and health status. Men and pregnant and breast-feeding women require the most calories. Pregnant or breast-feeding women and people who are sick, particularly if they are HIV positive, require increased calories as well as large amounts of vitamins and minerals. Children, especially adolescents, need high levels of calcium and iron, plus

almost as much protein as adults to ensure healthy growth. This means that food should be distributed within the household according to the differing nutritional needs of family members, rather than their gender or status.

The following exercise focuses attention on the nutritional value of each participant's normal diet:

Exercise 8: What did you eat yesterday?

Materials required:
A4 size plain paper – 1 sheet per participant
Black felt-tip pen
Coloured crayons

Procedure:
Using a felt-tip pen, draw a plate-sized circle on each sheet of paper. Ask each participant to draw a picture of the last meal that they ate at home on this "plate". They should be encouraged to use the coloured crayons to make the picture as realistic as possible.

Display all the pictures and invite the participants to discuss them in terms of their nutritional content, see Tables 4, 5 & 6.

- Which meals contained the most nutrients for Positive Living?
- Which meals contained the least nutrients?
- Which important nutrients are most commonly lacking in these meals?
- How could these meals be made more nutritious?

Table 5: Recommended daily intake of nutrients for Positive Living[3]

Person type	Calories	Protein (g)	Minerals				Vitamins					
			Calcium (g)	Iron (mg)	Selenium (µg)	Zinc (mg)	A (µg)	B1 (mg)	B2 (mg)	B5 (mg)	C (mg)	E (mg)
Man	2,500	30	0.5	9	100	15	750	1.0	1.5	16.7	30	15
Woman	2,000	25	0.5	28	100	15	750	0.9	1.3	12.4	30	15
Pregnant/breast-feeding woman	2,500	40	1.0	28	100	20	1,000	1.0	1.5	15.0	50	15
Adolescent	2,000	30	0.7	10-18	50	7	725	1.0	1.0	16.0	30	15
Child under 10	1,500	20-25	0.5	10	50	7	350	0.7	0.7	12.0	20	15
HIV+ woman	2,300	38	0.5	28	200	50	2,000	100	100	100	4,000	100
HIV+ man	2,875	45	0.5	9	200	50	2,000	100	100	100	4,000	100

[3] FAO, 1974, Piwoz & Preble, 2000, .

3.1.3 Growing the right crops for Positive Living

Table 6 shows the crops that are the sources of the most important nutrients for Positive Living in southern Africa. There are four main types of nutrients that are required by humans. These are calories, protein, vitamins and minerals. Calories can be obtained from crops that contain carbohydrates, fats and oils. Grain crops contain more than 70% carbohydrate, while sweet potato, Irish potato, cassava, taro and banana contain between 20 and 35% carbohydrate. Fat is present in some red meat, while avocado and groundnuts contain more than 20% of energy-rich oil. Protein is found in meat, eggs, fish, insects and beans.

Traditional food crops often provide the best natural sources of vitamins and minerals. For example, bambara and groundnut are rich in B vitamins; bulrush millet and cowpea leaves are rich in iron; cowpea and finger millet are rich in calcium; pumpkin, paw-paw, cowpea leaves and mango are rich in vitamin A and guava is one of the richest sources of vitamin C - at least 6 times more than that contained in oranges. However, the West Indian cherry, *Malpighia glabra,* which is native to North America, contains 40 times more vitamin C than oranges and may be found in some African countries.

Exercise 9: Sourcing planting material for marginalised crops

In some parts of Africa root and tuber crops such as cassava, taro and sweet potato, as well as some small grain crops such as sorghum and millet have been marginalised by widespread monocropping of maize.

- How can farmers obtain the planting material for these crops?
- Put these suggestions into your action plan.

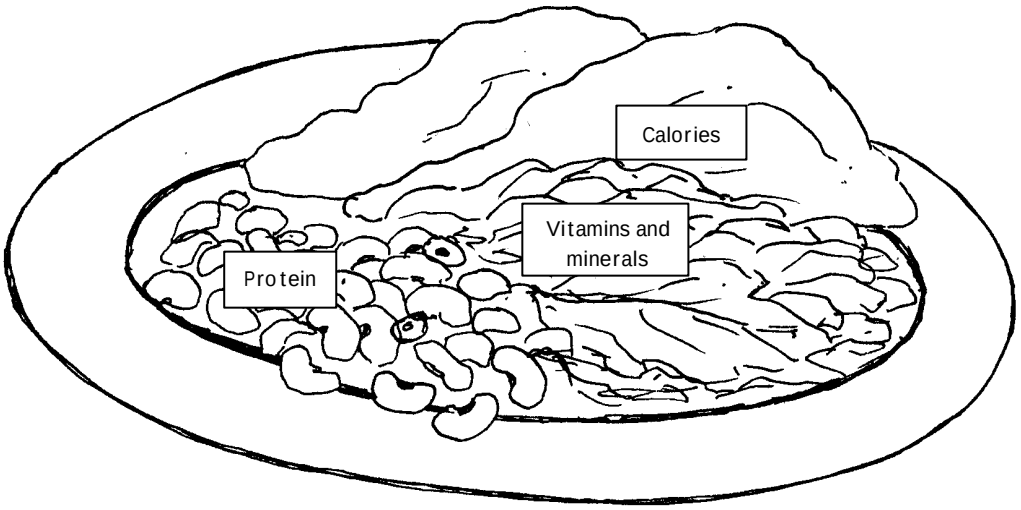
Table 6: Sources of nutrients for Positive Living in Africa

Food source	Nutrient content (richest source*)
Avocado	Oil*, calcium, iron, vitamins A, B3 and C
Baobab fruit and leaves	Vitamin C*
Bambara	Calcium, protein, iron, vitamin A and B vitamins
Banana	Carbohydra te, iron, vitamins A, B3
Bulrush millet	Carbohydrate, calcium, iron*, vitamins B and E
Cassava	Carbohydrate, calcium, iron, vitamins A and C
Citrus	Vitamins A and C
Cowpea	Protein, calcium*, iron, vitamins A and B3
Cowpea leaves	Calcium, iron*, vitamins A*, B, C and E
Eggs	Protein, vitamin A and B2*
Finger millet	Carbohydrate, calcium*, iron*, vitamin B
Fish	Protein, vitamin B3
Groundnut	Protein, oil, calcium, iron, vitamin B*
Guava	Calcium, vitamins A and C*
Insects	Protein, B vitamins
Maize, refined	Carbohydrate, calcium, iron,
Maize, whole grain	Carbohydrate, calcium, iron, vitamins A, B and E
Mango	Calcium, vitamins A* and C
Milk, yoghurt, cheese	Fat, calcium, vitamins B
Meat	Protein, fat, iron
Paw-paw	Calcium, vitamins A* and C
Pumpkin	Vitamin A*
Pumpkin leaves	Calcium, vitamin A*, C and E
Rice	Carbohydrate, B vitamins
Sorghum	Carbohydrate, calcium, iron, vitamins A and B
Sweet potato	Carbohydrate, calcium, iron, vitamins A and C

3.1.4 The need for nutrient supplements

The best way to obtain sufficient nutrients for Positive Living is to eat a traditional diet – that is, to eat the same food as your grandmother did when she was young! For example a diet consisting of *sadza/nsima* made from traditional small grain crops, such as finger millet or sorghum, steamed cowpea leaves and boiled bambara will provide all the extra nutrients that are needed by pregnant and breast-feeding mothers, see Figure 3.

Figure 3: This is what a plate of nutritious food should look like



However, people who are sick, particularly those who are HIV positive will be unable to obtain all the nutrients they need for Positive Living, even if they eat the most nutritious food that is available locally. For example, a person who is HIV positive would need to eat half a kilogram of dark green leafy vegetables and a whole kilogram of guavas in order to obtain sufficient vitamins E and C. Furthermore, it is impossible to obtain the recommended quantities of selenium and zinc from local foods because these minerals only occur in extremely low levels in most African soils and thus will be in even lower levels in the crops that grow in

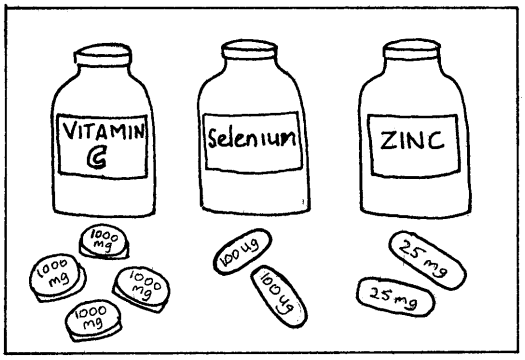


Figure 4: Recommended doses of vitamin C, selenium and zinc for people living with HIV

them. It is therefore, very important that nutrient supplements, in the form of pills containing selenium and zinc plus vitamins C and E, are provided for these people. Normally nutrient supplements have to be bought from a pharmacy. It is unlikely that poor people will be able to afford these supplements, therefore the community should seek ways of raising funds so that they can be provided free of charge to the most vulnerable groups, see Exercise 10. It should be noted that vitamins and minerals must always be taken with nutritious food, as part of a balanced diet.

Exercise 10: Who needs nutrient supplements?

Ask participants to think about the people who are most vulnerable to HIV/AIDS in their communities. These are the people who would benefit most from taking nutrient supplements on a daily basis in order to keep them healthy.

The list should include;

- Orphans
- Widows, widowers
- People who are nursing sick relatives
- Anyone who is chronically sick
- Grandmothers caring for orphans
- Patients with TB or shingles
- Anyone who suspects that they are HIV positive
- Anyone who is HIV positive

Ask participants to consider the following questions;

- How can we get these nutrition supplements?

Possible sources:
Pharmacies, local clinics and hospitals, religious organisations, local/international NGOs, WHO.

- How can we raise funds to pay for nutrient supplements?

Possibilities:
Through the implementation of community-based income generating projects.
By writing proposals to request support from local/international donors in the setting up of revolving funds.

- Write down the ideas that come out of this discussion for action planning.

It is extremely important for people who are suffering from opportunistic infections to continue eating nutritious food throughout their illness, ways of doing this are shown in Table 7.

Table 7: Ways of increasing food intake during and following common HIV/AIDS-related infections

Symptoms	Treatment
Fever and loss of appetite	Drink high-protein liquids and fruit juice Eat small portions of soft, preferred foods throughout the day Eat nutritious snacks whenever possible Drink liquids often
Sore mouth and throat	Avoid citrus fruits, tomato and spicy foods Avoid very sweet foods Drink high-energy, high-protein liquids with a straw Eat foods at room temperature or cooler Eat thick, smooth foods, such as porridge, mashed cassava, mashed carrots, mashed avocado, banana or other non-acidic vegetables and fruits
Nausea and vomiting	Eat small snacks throughout the day and avoid large meals Eat crackers, toast and other plain dry foods Avoid foods that have a strong smell Drink diluted fruit juices, boiled/sterilised water and soup Eat simple boiled foods, such as porridge, cassava, beans
Loose bowels	Eat bananas, mashed fruits, soft rice, porridge Eat smaller meals, more often Eliminate dairy foods to see if they are the cause Decrease high fat foods Don't eat foods with insoluble fibre ("roughage") Drink liquids often
Fat malabsorption/ Indigestion	Eliminate oils, butter, margarine and foods that contain or are prepared with them Eat only lean meats Eat fruit and vegetables and other low-fat foods
Severe diarrhoea	Drink liquids frequently Drink oral rehydration solution (see Exercise 28) Drink diluted juices Eat bananas, mashed fruits, soft rice, porridge
Fatigue, lethargy	Have someone pre-cook foods to avoid energy and time spent in preparation (avoid re-heating food) Eat fresh fruits, especially avocado, that don't require preparation Eat snack foods often throughout the day Drink high-energy, high-protein liquids Set aside time each day for eating

Piwoz & Preble, 2000, search for PN-ACK-673 at www.dec.org

3.1.5 Avoiding unhealthy Foods

Not all foods will make us healthy, in fact those that contain sugar, caffeine, excessive amounts of salt or alcohol can actually undermine health by increasing susceptibility to disease. Foods that contain sugar and/or caffeine should be avoided by people who are HIV positive, see Table 8.

Table 8: Unhealthy foods

Sugar, caffeine, excessive amounts of salt and alcohol are not recommended for Positive Living.

A high sugar diet causes tooth decay, can increase susceptibility to thrush and in the long-term could lead to diabetes.
Sources of sugar:
Sugar cane
Sweetened tea and coffee beverages
Sweets
Chocolate
Fizzy drinks
Tinned food
Beer

Caffeine suppresses T-cell activity in the immune system (see Section 3) reduces the up-take of some vitamins, especially B vitamins and also prevents sleep.
Sources of caffeine:
Coffee
Tea
Cola drinks
Chocolate
Some medications used for treating headache

A high salt diet leads to high blood pressure/hypertension and can cause stroke.
Sources of excess salt:
Crisps
Popcorn
Cheese
Dried fish
Tinned food

Alcohol, present in beer, wine and spirits, reduces T-cell activity, prevents the uptake of vitamins and minerals, increases depression and can lead to careless, aggressive or other antisocial behaviour thus increasing vulnerability to HIV.

3.2 Action planning for promoting good health

3.2.1 Growing the right food crops for Positive Living:

Growing food crops that contain calories

- Planning self-sufficiency in grain crops

Self-sufficiency in grain crops depends on the amount of land available and the expected yield. By consulting Table 9 and doing Exercise 11 it will be possible for farmers to calculate the minimum amount of grain that is needed to provide sufficient energy on a daily basis for everyone in their household over a period of one year.

Table 9 indicates that a household consisting of a father, a mother who is pregnant, a grandmother, an auntie who is HIV positive, a daughter of 15 and a son of five years would need at least 1,280kg of grain (or 25.6 x 50kg bags of grain) to provide them with sufficient calories to last for one year.

Table 9: Minimum annual grain requirement for a 6-person household

Person	Minimum no. of calories needed per day	Grain weight needed per year (kg)	Minimum no. of 50kg bags of grain per year
Father	2,500	250	5
Mother (pregnant)	2,500	250	5
Auntie (HIV+)	2,300	230	4.6
Grandmother	2,000	200	4
Daughter (15 yrs)	2,000	200	4
Son (5 years)	1,500	150	3
Total required	12,800	1,280	25.6

Exercise 11: Calculating the amount of grain needed for household self-sufficiency for one year

Materials required:
One self-sufficiency table, as shown below, for each participant

Household member	Minimum no. of calories needed per day	Grain weight needed per year(kg)	No. of 50kg bags of grain per year
Total required			

Procedure:
Ask participants to use the information from Table 9 to help them fill in this self-sufficiency table to show the total number of calories needed each day and the weight, plus the number of 50kg bags of grain that are needed each year, by each person in their household. These amounts should then be added together in order to show the minimum amount of grain that should be harvested to satisfy this need.

Exercise 12: Calculating the area of land that must be planted with grain crops to ensure household self-sufficiency in grain for one year

Materials required:
Completed self-sufficiency tables from Exercise 11.
One copy of the table shown below for each participant.

Procedure:
Ask the participants to use the information from their own farms to fill in this table to show the area of land under grain crops and the weight of grain that they harvested last season. They should then use the total grain weight that is required by their household, as calculated in the previous exercise, to determine the area of land that should be planted with grain crops in order to be self-sufficient in grain this coming season. This area can be calculated in acres or hectares.

Area of land under grain crops last season (acres/ha)	Weight of grain harvested last season (kg)	Yield per acre/ha (weight of grain divided by area of land)	Minimum area of land to be planted with grain crops*

*The total weight of grain required, divided by yield per acre/ha

Remember that this is only the *minimum* area of land that should be planted to grain crops. In order to guarantee self-sufficiency for one year, either the area planted or the yield should be increased to allow for the possibility of a poor harvest, see Information Box 4 below.

Information Box 4: Ways of increasing grain yields without spending money

1. Use open-pollinated varieties with good storage qualities.
2. Plant early to avoid Maize Streak Virus.
3. Rotate the crop with sunnhemp, velvet bean or some other legume, to increase soil fertility.
4. Add 2 handfuls of well-rotted compost to each planting hole, instead of fertiliser.
5. Use diluted cow urine, as top dressing.
6. Intercrop with cowpea or some other legumes to add nitrogen and reduce weeds.
7. Plant *Acacia albida* within the field to provide nitrogen and leaf litter.
8. Control stem borers by putting sand into each maize funnel to suffocate these pests.
9. Control other pests with sprays made of neem, *Tephrosia* etc.
10. Save seed from the most productive plants.
11. Protect the stored grain with wood ash.

Pouring sand into a maize funnel

- Planning self-sufficiency in root and tuber crops

Root and tuber crops, such as cassava, sweet potato and taro are good sources of carbohydrate for people who have limited access to labour and inputs. However, it should be remembered that, weight for weight, fresh cassava, sweet potato and taro contain only half as much carbohydrate as grain crops. By doing the exercise below participants will be able to calculate the area of land needed for root and tuber crops.

Exercise 13: Calculating the area of land needed for root and tuber crops

Materials required:
One copy of the table shown below for each participant.

Ask the participants to calculate the amount of land that should be planted to root and tuber crops for self-sufficiency in these crops;

Crop	Yield per acre/ha	Amount required	Area of land to be planted*
Cassava			
Sweet potato			
Taro			

* Amount required, divided by yield per acre/ha

- What is the total number of calories that will be provided by these crops? (total weight of root and tuber crops divided by 50%)

Growing food crops that contain vitamins and minerals

- Intercropping with nutritious food crops

Intercropping with legumes and other spreading plants can improve soil fertility, reduce weed problems, conserve moisture and enhance food and nutrition security, see Table 10.

Table 10: Nutritious Intercrops for Positive Living

Crop		Nutrients
English name	**Latin name**	
Bambara	*Voandzeia subterranea*	Protein, iron, vitamin B1
Cowpea	*Vigna unguiculata*	Protein, calcium, vitamin B3
Pigeon pea	*Cajanus cajan*	Protein, vitamin B1
Pumpkin	*Cucurbita maxima*	Vitamin A
Okra	*Hibiscus esculenta*	B vitamins

- Planning a nutrition orchard

A nutrition orchard provides the best long-term source of nutrition for households affected by HIV/AIDS as, once it is established, it has minimal labour requirements. Fast-maturing trees are the most appropriate, although the time taken for some slower-growing trees to reach maturity can be reduced through the planting of truncheons and grafting improved varieties onto established rootstock, see Table 11 and Figure 5. Participants can begin planning their own nutrition orchards by doing Exercise 14.

Table 11: Tree Crops for Positive Living

Tree/vine		Important nutrient	No. of years to first fruits
English name	**Latin name**		
Banana	*Musa spp.*	Vitamin B	1
Mulberry	*Morus nigra*	Vitamin C	1
Oyster nut/fluted pumpkin	*Telfairia occidentalis*	Protein	1
Paw-paw	*Carica papaya*	Vitamin A	1
Pigeon pea	*Cajanus cajan*	Protein, iron	1
Tree tomato	*Cymphomandra betacea*	Vitamin C	2
West Indian cherry	*Malpihia biflora*	Vitamin C	2
Guava	*Psidium guajava*	Vitamin C	2 – 3
Citrus	*Citrus spp.*	Vitamin C	4 – 6
Mango	*Mangifera indica*	Vitamin A	5 – 7
Avocado	*Persea americana*	Vitamin A, oil	7 – 10

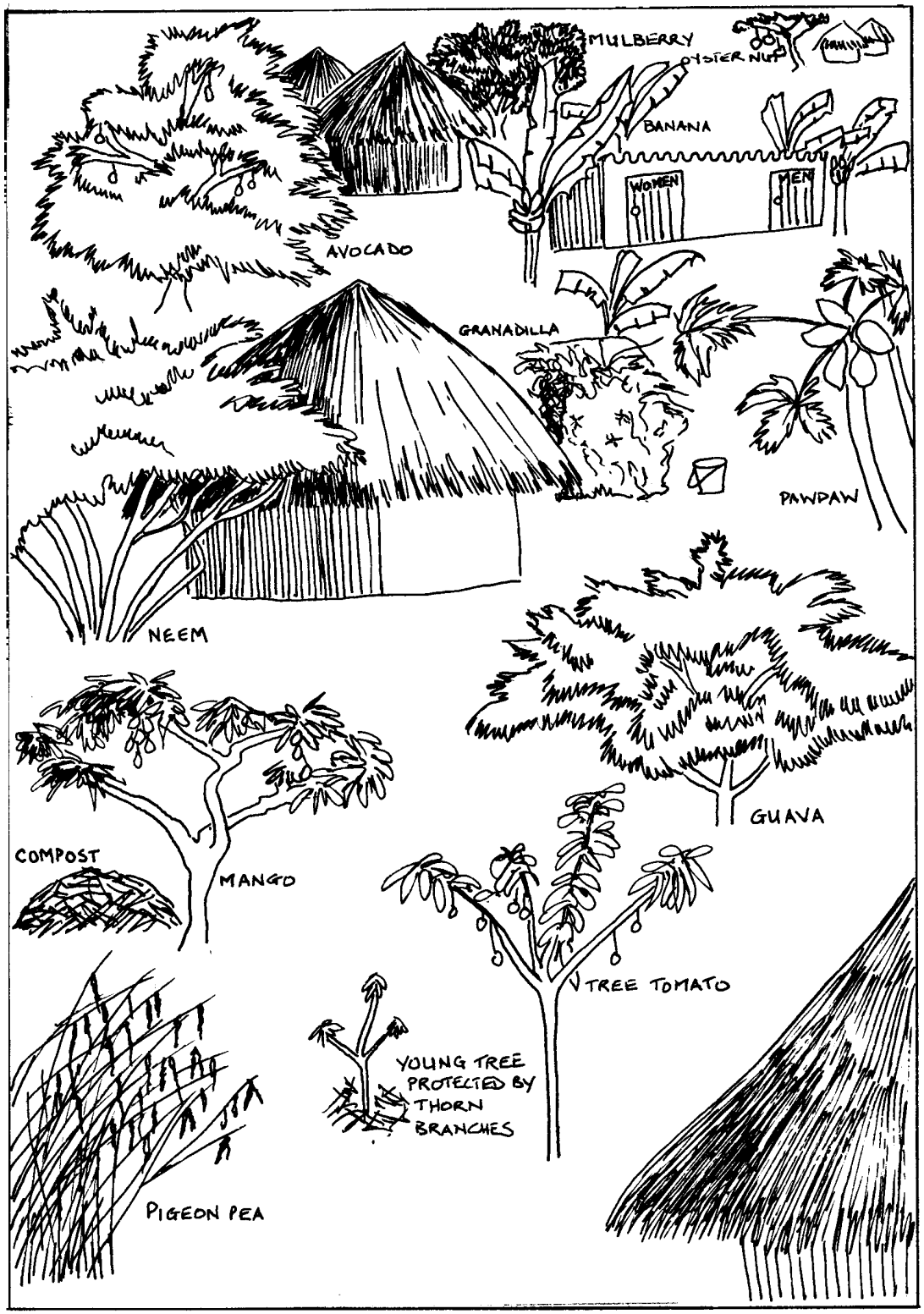


Figure 5: Planning a nutrition orchard

Exercise 14: Planning a nutrition orchard

Materials required:
Flip chart papers
Coloured felt-tip pens

Procedure:
Ask each participant to draw a plan of her/his homestead on the flip chart paper and mark the areas where trees could be planted. They should also consider the following questions;

- Which tree types will provide all the vitamins needed for Positive Living?
- How many of each tree type will be needed to provide sufficient vitamins for everyone in the household throughout the year?
- When is the best time to plant these trees?
- Where will the you get the trees from?
- Where will the compost come from?
- How will the young trees be protected from pests such as termites and goats?

- Planning a nutrition garden

Nutrition gardening can be done individually or collectively to provide nutrition for orphans and other people affected by HIV/AIDS. By following Exercise 15, participants can begin the process of planning a sustainable nutrition garden.

Exercise 15: Planning a nutrition garden

Materials required:
Flip chart paper
Coloured felt-tip pens

Procedure:
Ask each participant to draw a plan of her/his garden on flip-chart paper. They should also refer to Information Box 5 and consider the following issues:

- Daily requirements of vitamins and minerals for everyone in their household (see Tables 5 & 6)
- Seed sources for nutritious vegetable crops
- Live fencing material to keep out goats and other livestock
- Water source
- Compost source
- Green manure crops
- Crop rotation
- Natural pest management

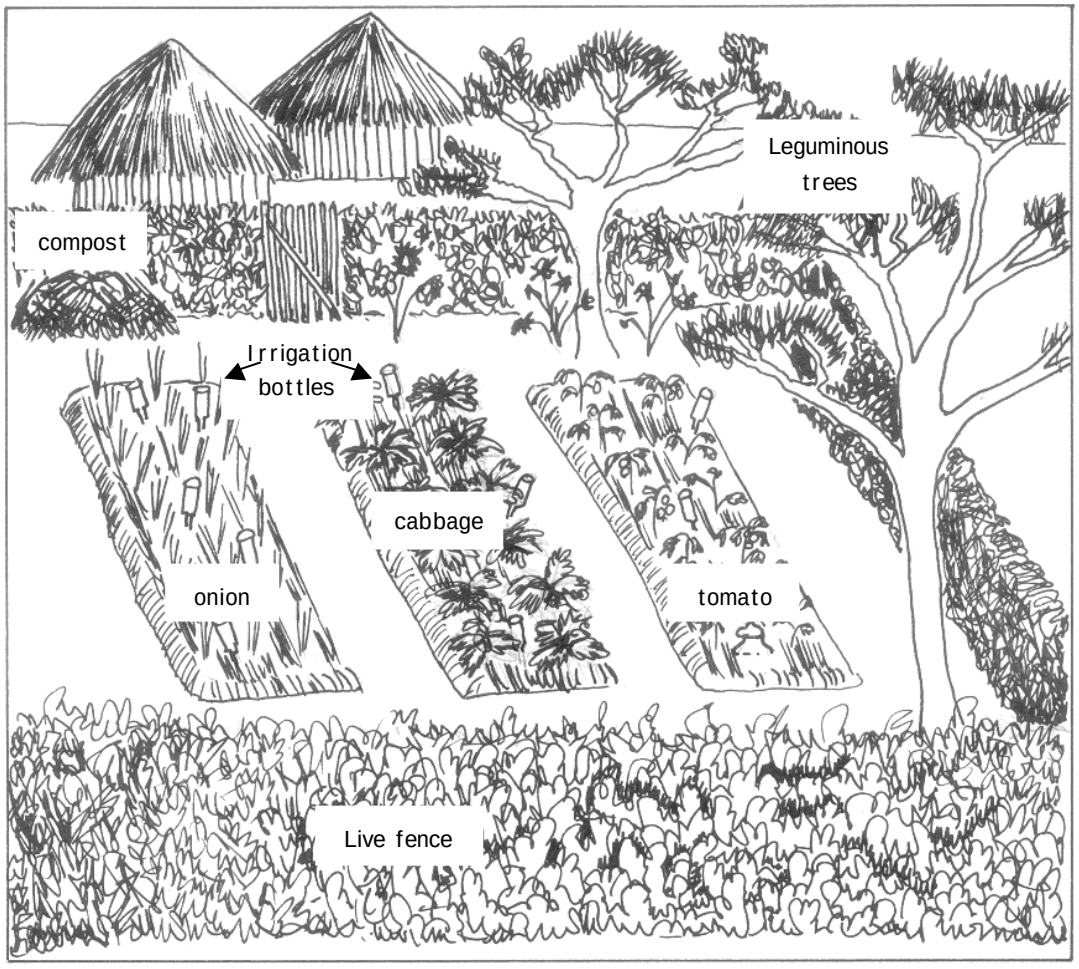


Figure 6: Planning a nutrition garden

Information Box 5: Ways of improving productivity in a nutrition garden without spending money

1. Choose a site close to a water source.
2. Plant a live fence of Jatropha, etc. to exclude goats and other livestock.
3. Raise seedlings in soil that has previously been dried in the sun to kill off pests.
4. Increase soil fertility by using composted household waste, leaf litter, manure (especially chicken manure) cattle urine and green manure crops such as sunnhemp.
5. Choose indigenous crops, especially dark green leafy vegetables to avoid pest problems.
6. Conserve moisture by mulching with grass and leaves.
7. Provide moisture through water-filled, bottles inverted directly into the soil and by sinking covered, water-filled, clay pots into the ground.
8. Encourage predatory wasps by planting yellow flowering plants, e.g. mustard
9. Control leaf pests by spot spraying with *Tephrosia,* neem, chilli, garlic, etc.
10. Control soil pests, such as nematodes by rotating nematode-tolerant, green leafy brassicas (e.g. cabbage) with onions or other nematode-resistant monocotyledonous crops, followed by other nematode-susceptible dicotyledonous crops (e.g. tomatoes, carrots or beans).

Small-scale livestock will not only provide a useful source of protein for food and nutrition security, but can also be used to improve the productivity of the farming system. For example, chickens and guinea fowl can be used to clear weeds and insect pests from nutrition gardens and orchards, while at the same time providing nitrogen-rich manure. The excrement from ducks will improve the nutrient content of pond-water, leading to improved aquatic plant and fish growth. Raised shelters for pigeons and rabbits will prevent them from being eaten by predators and allow for easy harvesting of their manure. While bees will improve the pollination of many fruit trees and guard against intruders, see Table 12.

Table 12:
Benefits of integrating small-scale livestock into low risk farming

Creatures	Product	Other benefits
Bees	Honey, wax	Pollination, security
Chickens	Eggs, meat	Weed and insect pest control, manure
Ducks	Eggs, meat, feathers	Improved pond-water fertility, snail control
Guinea fowl	Eggs, meat, feathers	Weed and insect pest control, manure
Pigeons	Eggs, meat	Manure
Rabbits	Meat, fur	Manure

3.2.2 Finding out how many vulnerable people live in your community

Before you can begin providing vital interventions such as food aid, youth training, home-based care and nutrient supplements for the most vulnerable people in your community it will be necessary to collect base-line data. The form shown in Exercise 16 can be used for this activity. Once all the forms have been completed for each village the total numbers for each vulnerable group can be calculated. This type of survey may take several weeks to complete so it should be included it in your action plan.

Exercise 16: Conducting a base-line survey to determine the number of households affected by HIV/AIDS in your area.

Materials required:
One photocopy of the data sheet below for each village, plus one extra copy for the combined, overall totals.

Procedure:
Ask the participants to conduct a survey of all the households in each village in their area, using the photocopied data sheets. When they are complete, add up the combined totals for each line of information and write these totals on the extra data sheet. Use this information to help raise funds for the vulnerable people in your community.

Date of data collection _____
Project name _____
Name of data collector _____
District _____ Village _____
Distance from nearest clinic _____ km

Total no. of households	
No. of households containing orphans	
No. of orphans under 5 years	
No. of orphans between 5 and 10 years	
No. of orphans between 11 and 16 years	
Total no. of orphans	
No. of widows caring for orphans	
No. of widowers caring for orphans	
No. of grandmothers caring for orphans	
No. of child-headed households	
No. of orphans in primary school	
No. of orphans in secondary school	
No. of households with someone who has been sick for 6 months or more	
No. of registered TB cases	
Total no. of deaths of people below 50 years of age in the past year	

Exercise 17: Making an Action Plan to Promote Good Health within the Community.

Problem	Activities planned to address this problem	By whom?	With whom?	Planned completion date

4. PREVENTING DISEASE

Some people still blame witchcraft for bringing sickness and disease into their community. However, most people now accept that there may also be scientific causes of disease.

Exercise 18: What are the underlying causes of disease?

Ask participants to list what they consider to be the underlying causes of disease according to their tradition and culture. Write down each suggested cause on flip chart paper and discuss the implications of each in turn.

- Is witchcraft still being blamed for causing disease in your community?
- How can this fear be overcome?
- Why is there more sickness and premature death in Africa than there is in developed countries?
- What can the government do to reduce disease in your community?

4.1 The scientists' view of the underlying causes of disease

Scientists have discovered that there are three main types of human diseases, these are *deficiency* diseases, *physiological* diseases and *infectious* diseases.

4.1.1 Deficiency diseases

Deficiency diseases are caused through malnutrition. Examples of these are pellagra, anaemia, goitre and night blindness, etc. These diseases all have local names so you can insert these in Table 13. These diseases usually disappear once the missing vitamins or nutrients are put back into the diet, although there may be long-term damage to the immune system and other vital organs.

Table 13: Deficiency Diseases - Symptoms and Causes

Local name	Disease	Symptoms	Missing nutrient	Best Source
	Scurvy	Bleeding gums, delayed wound healing	Vitamin C	Guavas, baobab, West Indian cherry
	Xerophthalmia	Night blindness	Vitamin A	Mangoes, pumpkin
	Anaemia	Extreme tiredness	Iron	Green leafy vegetables, red meat
	Goiture	Extreme tiredness, swelling in neck	Iodine	Fortified salt
	Beriberi	Extreme tiredness, swollen, numb legs	Vitamin B1	Maize/rice husks
	Angular stomatosis and cheilosis	Sore cracked lips, swollen tongue	Vitamin B2	Groundnuts, eggs
	Kwashiorkor	Muscle wasting, swelling, reddish hair	Protein	Meat, fish, eggs, beans, groundnuts
	Pellagra	Cracked, dry skin, stomach pain, diarrhoea	Vitamin B3	Maize and rice husks

4.1.2 Physiological diseases

These diseases can be caused by pollution and anti-social/unhealthy habits such as smoking, alcohol and drug abuse or eating too much sugar, salt or fat. *Physiological* diseases cause a breakdown in bodily structures and functions and include diabetes, heart disease, high blood pressure/stroke and cancer. (Fill in the local names for these diseases in Table 14). Special drugs may be used to control some of these diseases, but it is difficult to cure them.

Table 14: Physiological Diseases - Causes and Prevention

Local name	Scientific name	Cause	Prevention
	Alcoholism, liver sclerosis	Alcohol abuse	Drink no more than 5 glasses of beer (or other alcoholic beverage) per week
	High blood pressure/stroke	Excess salt, stress	Reduce salt intake, reduce stress
	Diabetes (late onset)	Excess sugar	Reduce/eliminate sugar from the diet
	Heart disease	High fat diet	Reduce/eliminate fat from the diet, take regular exercise
	Lung cancer	Smoking tobacco	Don't start/stop smoking
	Tooth decay	Excess sugar and fizzy drinks	Reduce/eliminate sugar and fizzy drinks

4.1.3 Infectious diseases

These diseases are caused by tiny microbes. There are four types of microbe that can cause infectious disease; these are viruses, bacteria, fungi and parasites. Most of these microbes are too small to see with the naked eye, however some microbes, such as parasitic worms and fungal spores can be seen through a magnifying glass. A powerful microscope is needed to see bacteria and viruses, see Information Box 6. Microbes breed in dirty, moist, unhygienic places and are passed from one person to another through exposure to faeces, mucous, spit or other bodily secretions, particularly in enclosed, over-crowded conditions, such as dormitories and minibuses.

Many diseases in Africa are caused by poor environmental conditions, such as unclean water, bad housing and lack of sanitation. We should remember that before 1950, people living in Europe used to suffer from all the same diseases, such as cholera, typhoid and TB[4] that people in Africa do to today. The disappearance of these diseases did not only depend on doctors and nurses and on the invention of new drugs, but most importantly on the provision of good housing, clean water, and hygienic sanitation for the whole population. This means that people who want to do Positive Living must begin by identifying the health hazards in their own environment and then help mobilise their community to eliminate them. Ask participants to help you complete Table 15 by writing down the local names for these diseases.

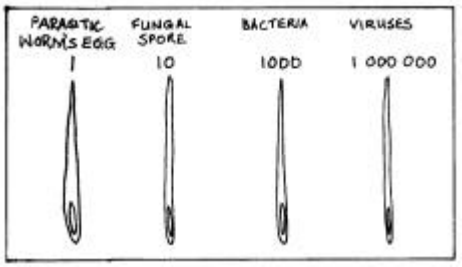
Information Box 6: The comparative sizes of microbes that cause disease

Parasitic worm Fungal spore Bacterium Virus

They are all too small to be seen by the naked eye.

- How many microbes can fit on the tip of a needle?

Answer:
One parasitic worm's egg
Or ten fungal spores
Or one thousand bacteria
Or more than one million viruses



[4] Although not HIV/AIDS as it did not exist then.

Table 15: Infectious Diseases - Causes and Prevention

Infectious Diseases		Microbes responsible	Infection method	Prevention
Local name	Scientific name			
	Cholera	Virus	Contaminated water	Boil or sterilise drinking water
	Typhoid	Bacteria	Contamination by faeces/flies	Wash hands with soap after visiting the toilet
	Malaria	Parasite	Bite from infected mosquito	Drain breeding sites, use nets and repellent
	Bilharzia	Parasite	Paddling/swimming near infected water snails	Avoid urinating in rivers and lakes, prevent over-fishing to reduce the snail population
	HIV	Virus	Unprotected sex, direct blood to blood contact with an infected person.	Abstinence, faithfulness, use of condom, use of gloves when treating open wounds
	Ascaris	Parasitic worms	Contamination from faeces	Wash hands with soap after visiting the toilet. Prevent children from eating things from the ground. Prevent close contact with dogs and other livestock
	Flu	Virus	Contact with infected person, e.g. when sneezing	Strengthen the immune system by eating plenty of fresh fruit and vegetables
	Ring worm	Fungus	Contact with infected person, e.g. sharing combs	Keep hair and skin clean, avoid sharing combs
	Tuberculosis	Bacteria	Contact with infected person, e.g. when coughing	Avoid over-crowed places, get plenty of fresh air
	Meningitis	Virus	Contact with infected person	Avoid overcrowded, unventilated places

Diseases that are caused by bacteria can normally be cured by antibiotics such as penicillin. There are also effective medications to treat diseases caused by fungi and parasites. Unfortunately, there is currently no cure for those that are caused by viruses, although diseases such as polio, measles, hepatitis and meningitis can be prevented by vaccination/immunisation.

Exercise 19 demonstrates how infectious diseases such as cholera are spread:

Exercise 19: Demonstrating how microbes are spread

Materials required:
A bag containing 0.25 kg fine, white flour to represent a bag full of microbes. (Each flour grain is about the same size as a fungal spore)

Procedure:
Ask a participant to dip his/her right hand into the flour until it is completely covered. S/he should first shake off the excess flour, then shake hands with six other participants.

- Has the flour (microbes) transferred to the hands of the other people?
- What happens if these people now shake hands with six more people?
- Discuss the results of this exercise in terms of what happens when someone does not wash his/her hands with soap after visiting the toilet.

Exercise 20: Demonstrating how mosquitoes spread malaria

Materials required:
A syringe or drinking straw
5 transparent drinking glasses/jars
A cup of strong, black coffee (without milk or sugar)
Clean water
Labels for the glasses as follows: "person infected with malaria" x 5, "healthy person" x 4

Procedure:
Fill the first glass with coffee and place it on a table with the label "person infected with malaria". Fill the other 4 glasses with water and place them alongside the first glass, each labelled "healthy person". Using the syringe or straw to represent a mosquito, suck up some of the coffee or "blood" from the "person infected with malaria" and squirt it into the first glass labelled "healthy person". Give this glass a new label: "person infected with malaria". Now suck up some of the blood from this newly infected person and squirt it into the next glass labelled "healthy person". Again give this glass the new label: "person infected with malaria". Repeat this process until all the blood of all 4 "healthy people" has become "infected with malaria".

- What happened to the blood of the healthy people after the mosquito fed on a person infected with malaria?
- How can we protect ourselves from malaria a) at household level b) at community level?
- Which other insects transmit disease to a) humans b) animals c) plants?
- How can we reduce the incidence of these diseases?

Note that HIV cannot be transmitted by mosquitoes.

Exercise 21 will help participants understand why it is important to boil drinking water.

Exercise 21: Observing microbes in water

Materials required:
Magnifying glasses
Several clean glasses or jam-jars
Facilities for boiling water

Procedure:
Collect water from several different sources, e.g. the local river, bore-hole, pond, irrigation channel and pour it into clearly labelled glasses or jars. Ask participants to view the water in each glass/jar through a magnifying glass and describe what they can see.

- What colour is the water?
- Does the water contain soil particles?
- Does the water contain debris?
- Did you see any microbes moving around in the water?
- Which diseases are spread in untreated water?
- Would you like to drink this water?

Now heat the water and boil it for 3 minutes, then ask participants to observe it again.

- What has happened to the microbes?
- Would you like to drink this water?

Health hazards may be found both within and outside the home. The following exercises will help participants to identify some of the most common health hazards.

Exercise 22: Spotting health hazards in the village

Provide one photocopy of Figure 7, which appears in two halves on the following pages, for each group. Ask each group to describe each of the 19 health hazards shown in the picture, then present their findings to the whole group.

Potential hazards:

1. Man urinating in the river.
2. Cattle going to bathe in the river that is used for drinking by the community.
3. Woman collecting contaminated water from the river.
4. Using old pesticide containers for drinking water.
5. Woman inhaling dust whilst winnowing grain that has been stored with pesticides.
6. Woman inhaling smoke whilst cooking.
7. Dog sniffing faeces.
8. Baby being given a fizzy drink.
9. Woman washing her hands *without soap*, in a communal bowl.
10. Child defecating in public.
11. Man inhaling asbestos dust whilst sawing asbestos roofing material.
12. Man with leaking knapsack spray.
13. Young woman chatting to a man who is drunk.
14. Man drinking too much beer.
15. Man smoking.
16. Woman pouring pesticide into a milk container.
17. Pesticides being stored in the bedroom.
18. Pots left out in the open to catch rainwater.
19. Food left on the ground, uncovered.

- Which diseases may be caused by these health hazards?
- Which of these health hazards occur in your village?
- Why are children more susceptible to disease than adults?
- What can be done to eliminate these health hazards?
- Put the suggestions into your action plan.

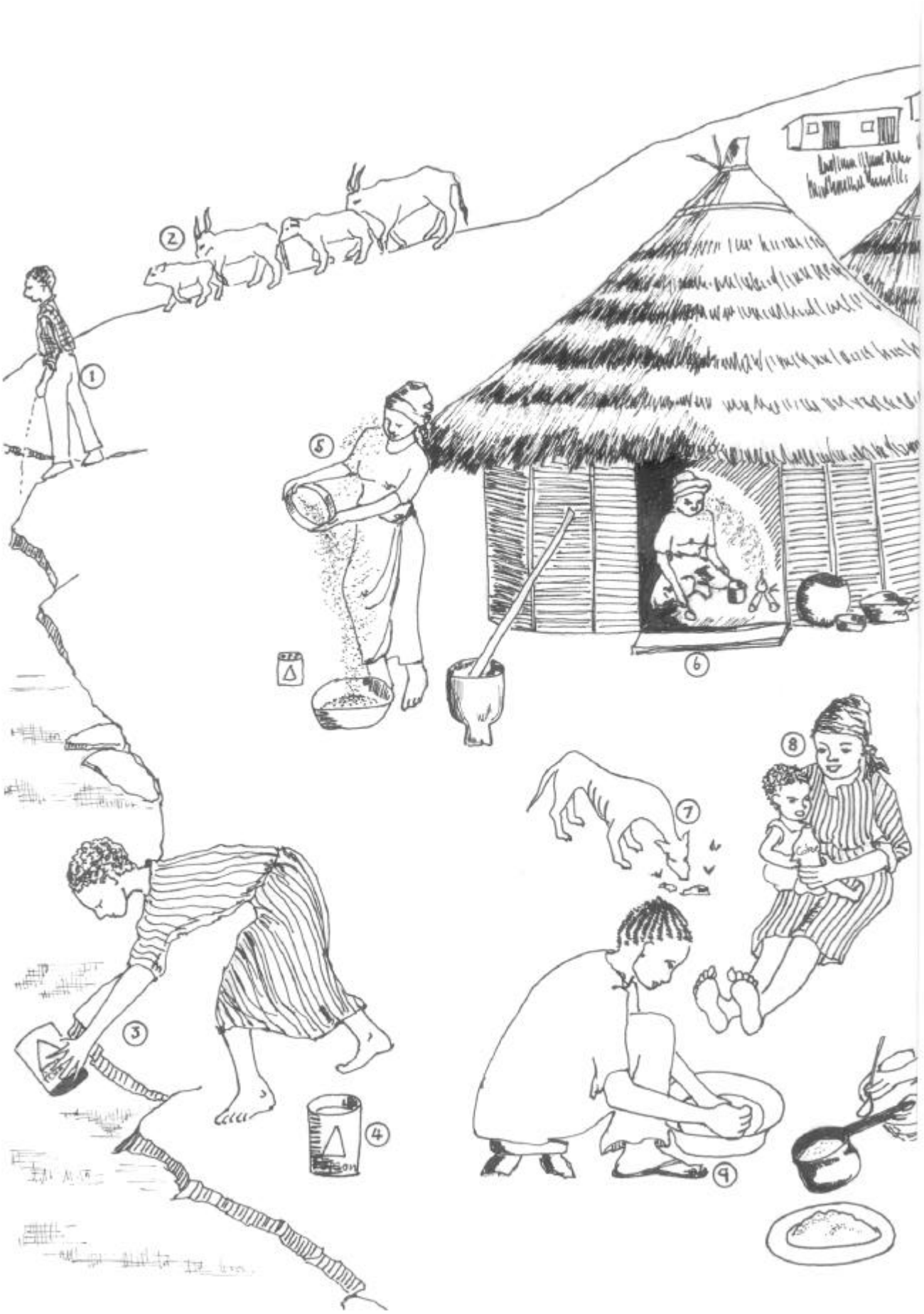

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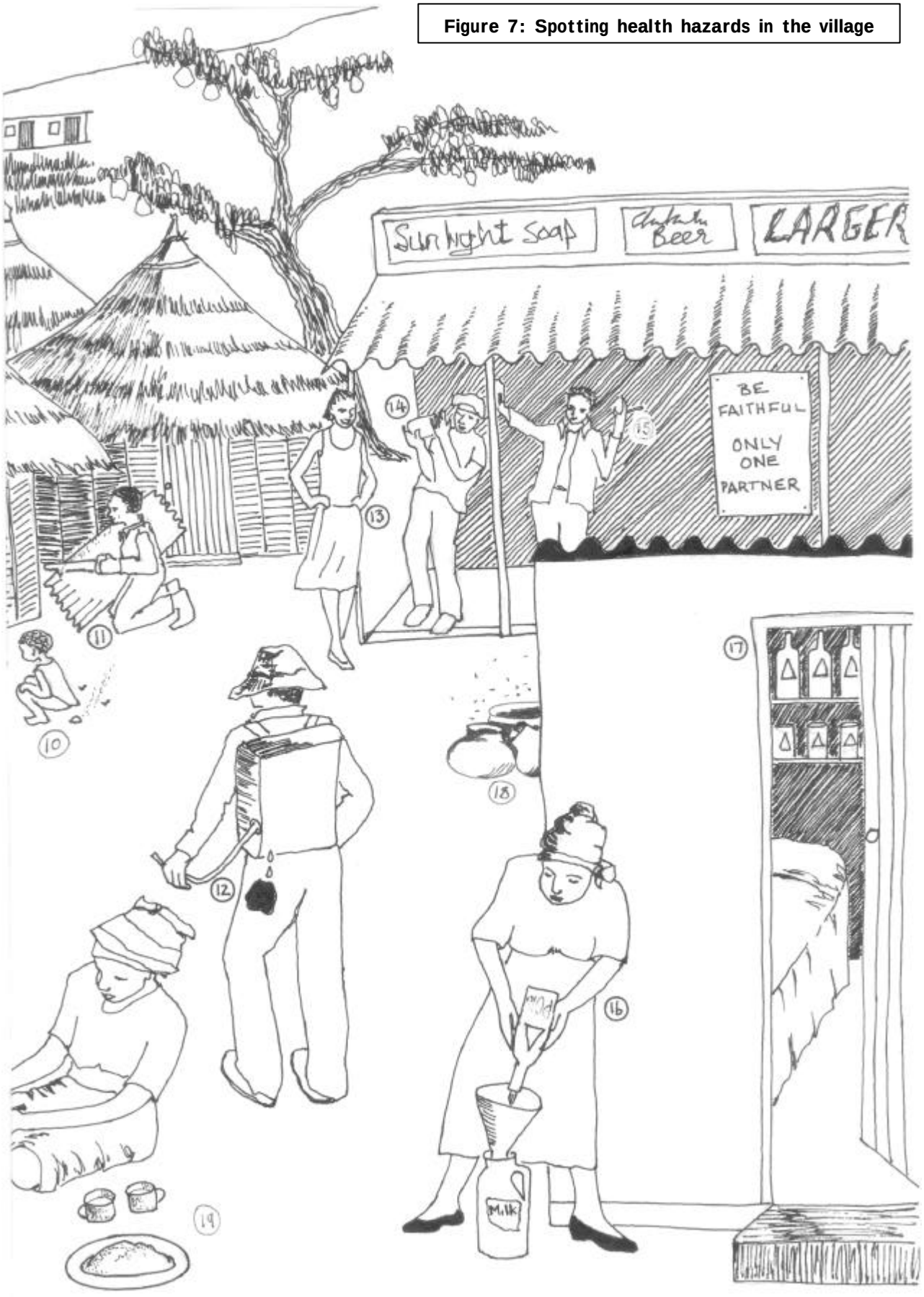
Figure 7: Spotting health hazards in the village



Exercise 23: Surveying your community for health hazards

Materials required:
Paper, pens and clipboards

Procedure:
Select 3 or more homesteads where the occupiers are willing to be inspected for health hazards. Ask one group of participants to visit each household and then answer the following questions;

1. Is the yard swept clean?
2. Is there a toilet?
3. Is the toilet clean?
4. Are there facilities for washing hands with soap after visiting the toilet?
5. Are there any bathing facilities?
6. Are the bathing facilities clean?
7. Where is the water source for bathing?
8. Where is the water source for drinking?
9. Is the drinking water source protected?
10. Are there places where mosquitoes can breed?
11. Are flies a problem here?
12. Is the kitchen large and well ventilated?
13. Is there a door on the kitchen to keep out dogs and other animals?
14. Are there any animals kept close to the house?
15. Where are the pesticides stored?
16. How big are the bedrooms and how many people sleep in them?
17. Do they use mosquito nets?
18. Are the rooms clean, tidy and well ventilated?
19. How often is the bedding washed?
20. How often are the clothes washed?
21. Where are these items washed?
22. Do they use soap/soap substitute?
23. When was the last time any of the children who live in this homestead had any of the following illnesses; diarrhoea, vomiting, malaria, scabies or ringworm?
24. Is anyone who lives in this homestead sick at the moment?
25. What illnesses do they have?
26. Suggest the underlying causes of these illnesses.
27. What are the most serious health hazards in and around this homestead?
28. Suggest methods of overcoming these health hazards.
29. Which of these methods can be implemented in individual households?
30. Which of these methods needs the support of the whole community?
31. Which of these methods should be included in the Action Plan?

4.2 Ways of improving our natural defence to infectious disease.

4.2.1 The role of T-cells in promoting immunity

Our ability to defend ourselves against infectious disease depends on the strength of our *immunity.* Strong immunity depends on a properly functioning immune system. This is present in the body as an internal network of tiny tubes that connect with the blood system. However, these tubes are not filled with blood but with a transparent fluid called *lymph*. The tubes of the immune system also connect to the thymus gland, which is situated in the chest, see Figure 9 and compare it with Figure 10, which shows the blood system. The thymus gland is responsible for making special cells that act like soldiers and kill off harmful bacteria, fungi and viruses that enter the blood stream, by engulfing or "eating" them, Figure 8. These special cells are stored in small swellings or nodes, which are present at intervals along these tiny tubes in the groin, neck, armpits and main body. One of the most important of these "soldiers" is the *T-cell*[5]. Healthy people normally have between 900 and 1,600 T-cells in each millilitre of blood.

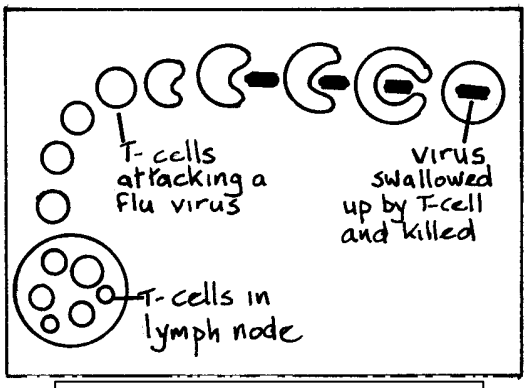


Figure 8: T-cells killing a virus

4.2.2 The underlying causes of infectious disease

Most human diseases are caused by the poor conditions that result from poverty and lack of education: Poor nutrition, pollution and drug abuse may cause a decline in T-cell production, while poor hygiene and untreated water will cause a build up of microbes, such as parasites, fungi, bacteria and viruses that cause disease.

[5] Doctors measure the numbers of T-cells in our blood by counting marker cells known as CD4 cells

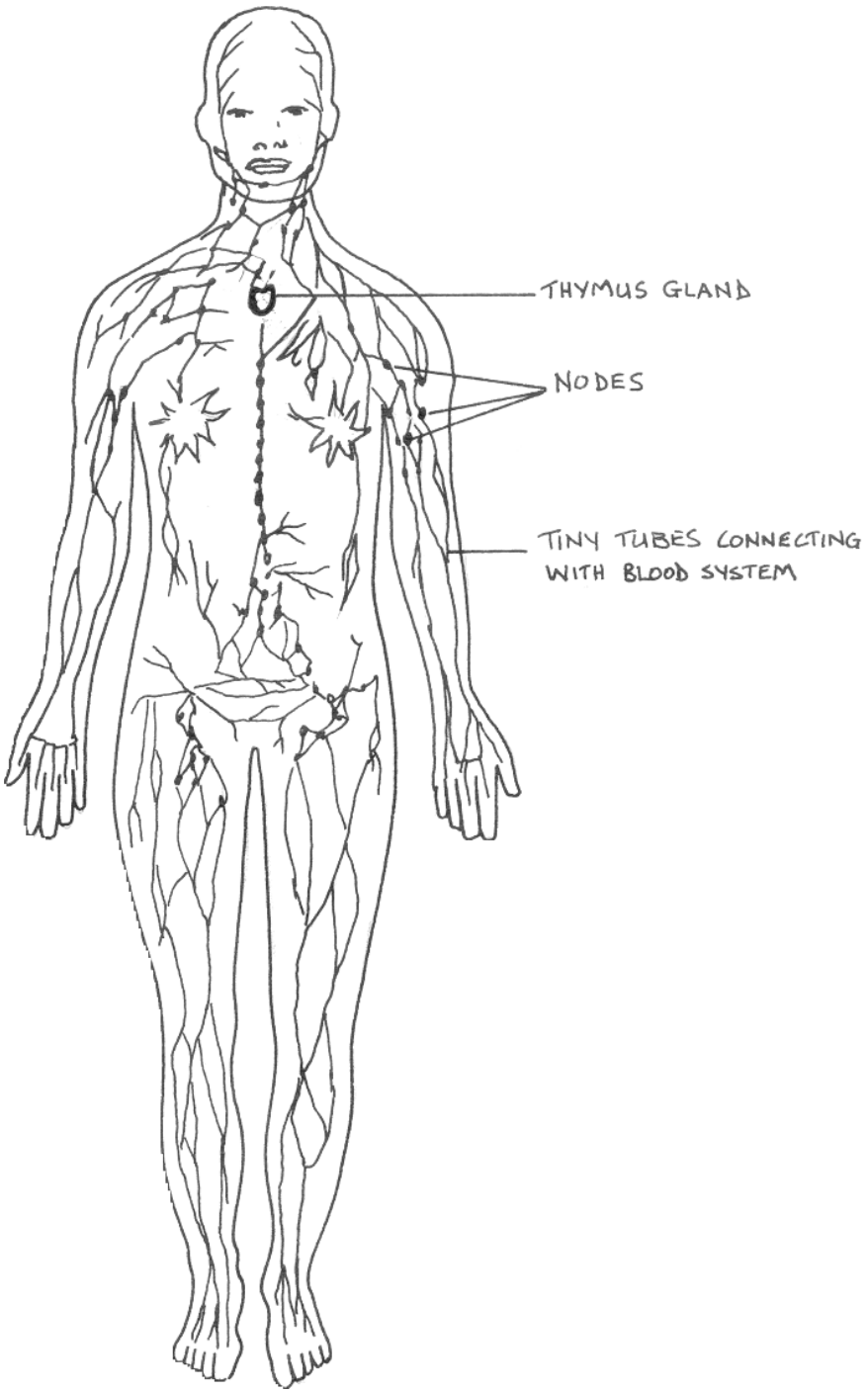


Figure 9: The human immune system

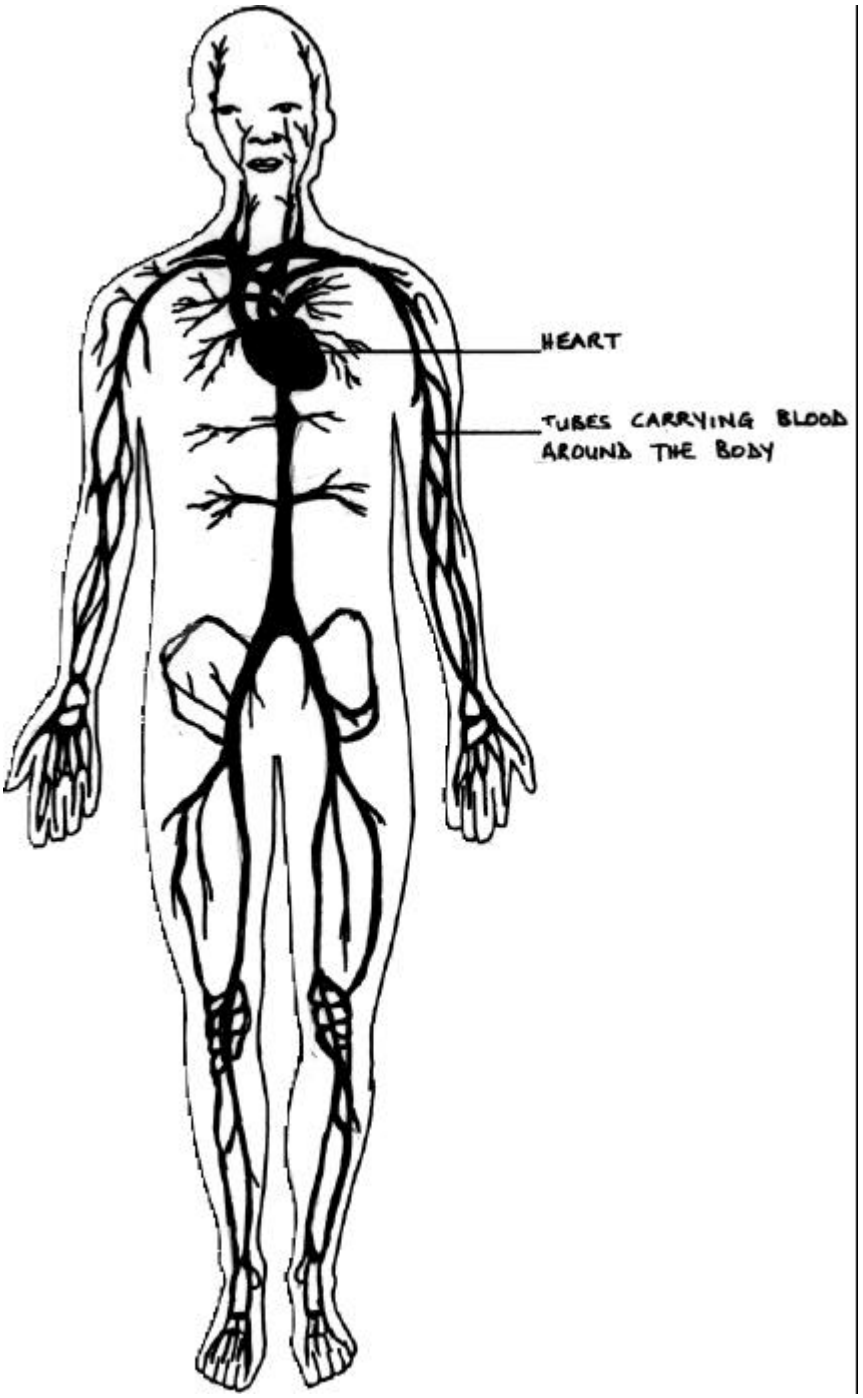


Figure 10: The human blood system

Therefore there are two underlying causes of infectious disease:

1. **A decline in T-cell production due to poor nutrition, exposure to pollution and anti-social habits.**

2. **A build-up of microbes in the environment due to poor hygiene, unclean water and overcrowding.**

Why do T-cells decline?

T-cells decline when malnutrition prevents the intake of essential vitamins and minerals, especially selenium, zinc and vitamin C. Hard physical labour can also slow down the production of T-cells. Air pollution caused by dust from smoke or asbestos[6] can result in serious lung disease and this can also reduce T-cell production. Burning plastic also causes pollution by releasing carcinogens (cancer-forming agents) into the atmosphere. Some pesticides kill off T-cells directly when they are absorbed into the body through the skin, inhaled into the lungs or even consumed with food that has been stored with these chemicals. Farmers are particularly at risk from this type of poisoning.

Information Box 7

What is HIV?
Human Immunodeficiency Virus

What is AIDS?
Acquired Immune Deficiency Syndrome

Understanding the meaning of these words:
"Acquired" = something that you "get"
"Immune" = resistant
"Deficiency" = lacking
"Syndrome" = disease

The impact of HIV on T-cells

The Human Immunodeficiency Virus, which is known as HIV (see Information Box 7 and Figure 11) kills off T-cells. The rate at which T-cells are lost depends on the ability of the thymus gland to make more. The ability to make more T-cells depends on the health of the patient. The patient's health can be improved by eating nutritious food, getting plenty of rest and reducing stress. People who are HIV

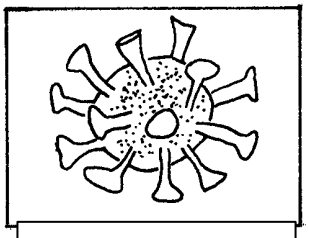


Figure 11: HIV virus (x 1 billion)

[6] For example, in some parts of Africa corrugated asbestos is used as a roofing material. This substance releases a highly toxic, cancer-causing dust when it is sawn into sections.

positive must also avoid substances that reduce T-cell production and live in an environment that does not allow the build-up of disease-causing microbes.

Why do microbes build up?

Poor hygiene provides a breeding ground for viruses, bacteria, fungi and parasites that cause diseases such as cold sores, dysentery, typhoid, ringworm and scabies. Unclean water causes the build up of bacteria and parasites that cause diseases such as cholera and malaria. Overcrowding (for example, in small unventilated bedrooms and buses) can lead to the rapid transfer of viruses and bacteria that cause TB, meningitis and flu from one person to another; while unprotected sex can transmit a range of microbes that cause diseases that include genital herpes, gonorrhoea, syphilis and HIV/AIDS, see Figure 12.

When someone with declining T-cells eats poor food and lives in an unhealthy environment s/he is bound to get sick. The flow chart in Figure 12 shows the most common underlying causes of disease in Africa.

The HIV virus is unique because it is a microbe that kills off T-cells directly.

Encourage participants to play the Survival Game, described in Exercise 24, in order to learn more about what makes each of us susceptible to disease.

Exercise 24: The Survival Game.

Materials:
1 photocopy of Figure 12: "The Underlying Causes of Infectious Disease", for each participant
6 cards, each measuring approx. 25 x 10 cm
felt tip pen
re-usable adhesive
coin

Procedure:
Copy the following the captions, 1 and 2 onto either side of each card;

1. EATS PLENTY OF FRUIT AND VEGETABLES EVERY DAY (HEADS)
2. EATS ONLY PLAIN RICE AND DRINKS BEER EVERY DAY (TAILS)

1. GROWS CROPS ORGANICALLY (HEADS)
2. SPRAYS PESTICIDES (TAILS)

1. FAITHFUL TO HIS WIFE/HER HUSBAND (HEADS)
2. MARRIED, BUT ALSO HAS A GIRL/BOYFRIEND FRIEND (TAILS)

1. HAS A VIP TOILET AND HAND-WASHING FACILITIES (HEADS)
2. HAS A LATRINE WITHOUT HAND-WASHING FACILITIES (TAILS)

1. DRINKS WATER OBTAINED FROM A BOREHOLE (HEADS)
2. DRINKS WATER OBTAINED FROM A RIVER (TAILS)

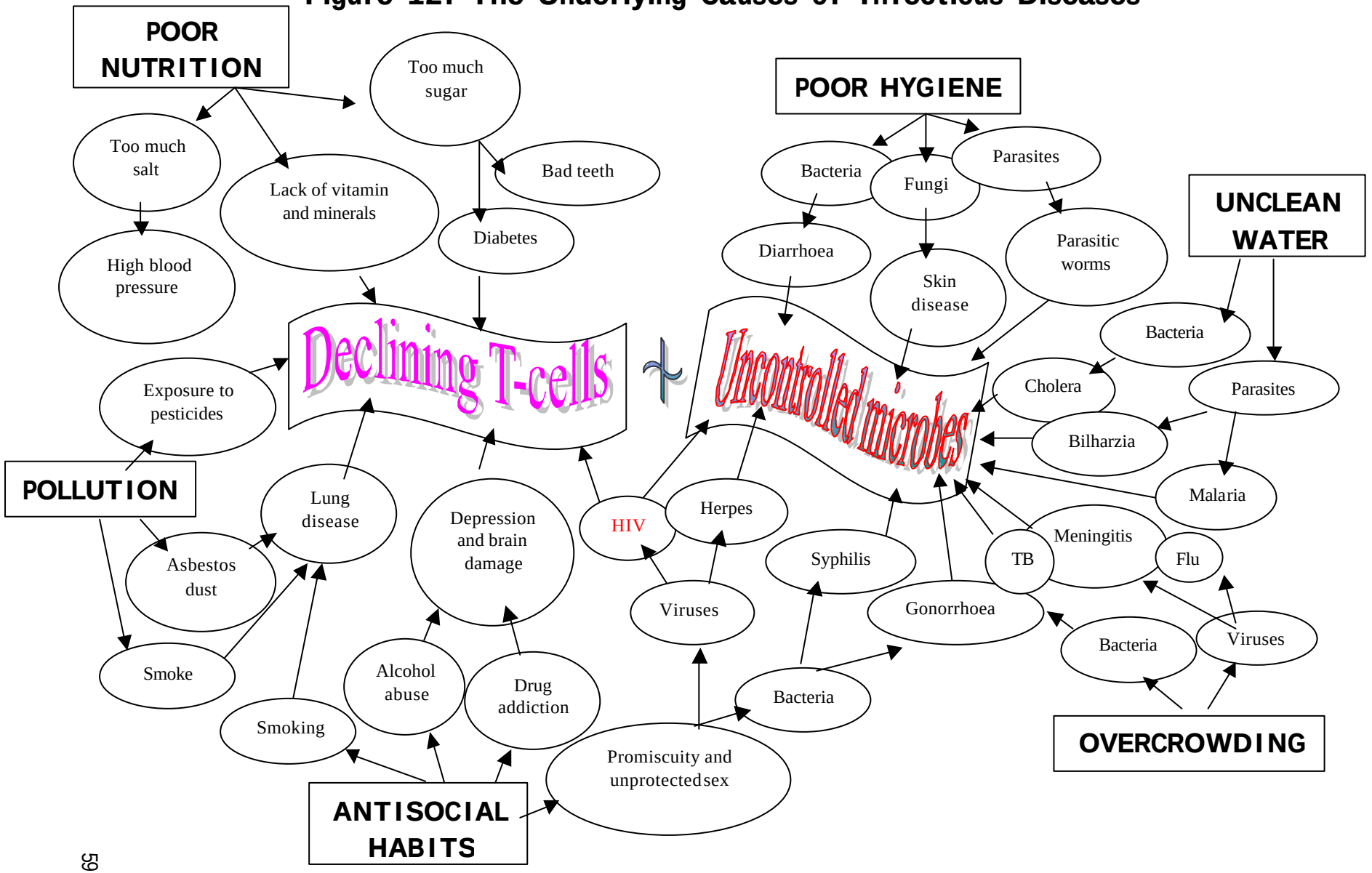
1. HAS A LARGE BEDROOM AND A MOSQUITO NET (HEADS)
2. TRAVELS TO WORK IN A CROWDED MINI-BUS EVERY DAY (TAILS)

Ask one of the participants to toss the coin and call out whether it lands on "heads" or "tails". Give this participant the first card and ask her/him to stick it on the wall or other display area showing the side that corresponds to the way that the coin fell, i.e. "heads" or "tails". Repeat this procedure until all the cards are displayed according to chance, as determined by the coin. Now ask the other participants to look at the cards that are displayed and then at Figure 11.

- Are this person's T-cells in decline?
- Are the microbes in this person's environment under control?
- Will this person get sick?
- Which diseases is this person susceptible to?

Repeat this exercise with two or three other people and discuss the results in terms of common health hazards in everyday life

Figure 12: The Underlying Causes of Infectious Diseases



4.2.3 Why do people who are HIV positive get sick?

Exercise 25: Which diseases affect AIDS patients?

Ask participants to tell you the names of all the diseases that affect AIDS patients and write them down on flip-chart paper. These are called *opportunistic infections*.

- Why do AIDS patients get so many opportunistic infections?
- How can we protect them from these infections?

The diseases that affect AIDS patients are called "opportunistic infections". This is because they take the "opportunity" to infect people whose immunity is weakened due to the loss of T-cells. This means people who are HIV positive only get sick once the AIDS virus is able to kill off more T-cells than are being made in the thymus gland. The rate at which this happens depends on the lifestyle of the person concerned. People who are HIV positive, suffer from malnutrition and live in an unhealthy environment are likely to loose their T-cells much more quickly than those who are HIV positive, but are practising Positive Living by eating nutritious food and living in a clean and healthy environment.

If T-cell levels fall below 500 per ml of blood, weight-loss and some treatable opportunistic infections may occur. Once the level of T-cells falls below 200 per ml of blood full-blown AIDS begins and the patient is no longer able to defend him/herself from disease. This means that death due to one or more incurable opportunistic infections is likely to follow, Table 16. However, this table also tells us that if HIV positive people are able to keep their T-cell levels above 500 per ml of blood through Positive Living then they will be able to avoid serious infection for many years to come.

Table 16: Impact of Declining T-cells on Vulnerability to Infection and Life Expectancy

No. of T-cells per ml of blood	Vulnerability to opportunistic infections	Life expectancy (yrs)
More than 900	Low	More than 15
More than 500	Moderate	More than 5
Less than 200	High	Less than 5

Fortunately, it is never too late to begin Positive Living: By improving the health of someone who is HIV positive, his/her immune system can be

strengthened, T-cells will increase and remain above 200 per ml of blood for a much longer time. This means that instead of developing AIDS within 3-5 years, as now happens in poor parts of Africa, an HIV positive person can live a full and productive life for at least 15-20 years. And with improved access to drugs in the future, this time could be considerably lengthened.

4.2.4 Ways of increasing T-cells

- **Use of anti-retroviral drugs for people who are HIV positive**

These are drugs that kill HIV and keep the viruses at a low level allowing the thymus to make more T-cells. Some of the drugs can also prevent mother to child transmission of HIV. There are several drugs that can do this and in some countries these are freely available in clinics and hospitals. Doctors normally wait until the numbers of T-cells have fallen below 350 per ml of blood before prescribing these drugs because of possible unpleasant side-effects.

- **Taking nutrient supplements**

Nutrients such as vitamins A, C and E and the minerals selenium and zinc have been shown to protect T-cells and increase immunity. People who are living with HIV need extra amounts of these important vitamins and minerals. Unfortunately, diet alone will not meet this need and vulnerable people should be given nutrient supplements. Ways of doing this should be discussed during you action planning (see 3.1.4).

- **Adopting healthy habits**

Support from family and friends is crucial to the elimination of harmful, anti-social habits such as smoking, alcohol or drug abuse. Guidance from family, community leaders and representatives of faith-based organisations should be sought in order to resolve conflicts, reduce vulnerability to HIV and build hope for the future.

- **Cleaning up the environment**

Pollutants should be eliminated from the soil, air, water and food in order to protect our T-cells and increase immunity. Farmers can avoid using

pesticides by practising farming and storage methods that depend on natural, non-chemical methods of pest management[7]. Asbestos and other poisons should be eliminated and exposure to smoke in a confined space, should be minimised by building large, tall, well-ventilated kitchens. Waste plastic should be re-cycled or buried in a pit, rather than burned.

4.2.5 Ways of controlling microbes

• Improving hygiene

This means ensuring that every household has a clean toilet (see Information Box 9) with facilities close by for washing hands with soap or a soap substitute. Each household should also have private bathing facilities, allowing family members to bathe on a daily basis. The run off could be used to irrigate trees and vegetables that have been planted around the homestead. All clothes and bedcovers should be washed regularly with soap, particularly if they are being used by people who are suffering from sickness or diarrhoea. Animals (and humans) should not be allowed to foul areas where children play or where food is prepared. Hand washing *with soap* should become a ritual that is practised before every meal. Table 17 gives a list of plants that have leaves, roots or pods that can be used as substitutes

Table 17: Sources of Natural Soap

Local name	Latin name	Part used
	Albizzia versicolor	Roots
	Ceratotheca sesamoides	Leaves
	Dolichos trinervatus	Roots
	Lagenaria sp.	Fruits
	Piliostigma angolense	Un-ripe pods
	Phytolacca dodecandra	Berries
	Sesamum angolense	Leaves

[7] Botanical sprays made from neem, tephrosia and chilli peppers can be used to control many insect pests and wood ash provides a good natural grain protectant.

for soap. You need to fill in the local names for these plants, before checking that they are available in your locality.

It is extremely important to practise good hygiene whilst preparing food in order to protect children and people who are HIV positive from food poisoning. There are now many orphaned babies and toddlers in some parts of Africa and it is also vital to give these children nutritious food that has been prepared in a hygienic way. Exercise 26 will help participants learn how to observe the rules for hygiene and food safety whilst making a nutritious weaning food for young orphans. Grandmothers can help with this exercise.

Exercise 26: Making weaning food hygienically

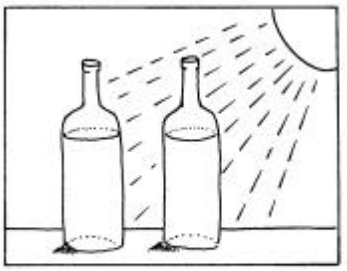
Procedure:
Ask a local grandmother to give details of a type of weaning food that she used to make for her children. Collect the ingredients for making this food and ask the participants to prepare it whilst obeying the rules for hygiene and food safety shown in Information Box 8. Feed the prepared food to one or more of the participants' babies.

Discussion:
- Did the participants correctly follow all the rules for hygiene and food safety?
- What were the problems that they encountered?
- What did the food taste like?
- Did the baby like it?

Information Box 8: Rules for hygiene and food safety for Positive Living

- Always wash hands with soap before food preparation and eating, and after visiting the toilet
- Keep all food preparation surfaces clean and use clean utensils to prepare and serve food
- Cook food thoroughly
- Avoid contact between raw foodstuffs and cooked foods
- Serve foods immediately after preparation and avoid storing cooked food
- Wash raw fruits and vegetables in boiled/sterilised water before serving
- Use only water that is boiled or sterilised for drinking
- Use clean cups and bowls and never use bottles for feeding babies
- Protect foods from insects, rodents and other animals
- Store non-perishable foodstuffs in a safe place (separate from, pesticides, disinfecting agents or other toxic chemicals).

• Making Drinking Water Safe



All drinking water should be obtained from protected wells. Water obtained from any other natural source should be filtered and either boiled or sterilised. This is particularly important for people who are HIV positive.

Drinking water should be stored in a cool place in covered clay pots, or clean plastic or metal containers that have never been filled with pesticide or any other poison. Ask participants to do Exercise 27 to learn out how to sterilise water with sunlight.

Exercise 27: Sterilising water with sunlight

Materials required:
Clean, clear plastic or glass bottles with screw tops – one for each participant. (Do not use scratched bottles.)
Clean, cotton cloth, approximately 0.5 diameter
Large sieve or colander
Clean jug
Clean bucket

Procedure:
1. Fill the jug with water.
2. Place the cloth inside the sieve or colander, hold the colander over the bucket and pour the water through it. This will filter out any large particles.
3. Pour the water back into the jug, then carefully pour it into the bottle until it is three-quarters full.
4. Screw the top onto the bottle and shake the contents until there are air bubbles in the water.
5. Now fill the bottle completely with clean, clear water and replace the top.
6. Place the bottle in direct sunlight, preferably on a black surface, for at least 6 hours, 2 days if it is cloudy.
7. Store the bottles, unopened in a cool place until required.

Sterilised water can also be used for making an oral re-hydration drink, which should be administered to adults and children whenever they have diarrhoea. An easy way of making this drink is described in Exercise 28.

Exercise 28: Preparing an oral re-hydration drink from sterilised water

Materials required:
Sterilised water (boiled or treated with sunlight)
Salt
Sugar
Teaspoons
Clean, 1 litre bottles

Procedure:
Add half a teaspoon of salt and 8 teaspoons of sugar to 1 litre of sterilised water. Screw down the top and shake well.

- One litre of oral re-hydration drink per day is sufficient for a young child with diarrhoea.
- An adult with diarrhoea will need 1.5 to 3 litres of oral rehydration drink each day.

• Using herbal remedies to reduce infection

There are many herbal remedies that are effective in reducing infection. These remedies can supplement medicines that are obtained from the clinic and in many cases may be the only treatment available to poor communities. Many of the herbs can be grown around the homestead or in the garden, then dried to be used as required, when they can be easily processed into teas or tinctures. Many of the remedies can relieve opportunistic infections, such as thrush, cold sores, shingles, fevers, coughs and colds. Examples are given in Table 18. Encourage participants to do Exercise 29 in order to try out some of these remedies.

Table 18: Uses of herbal remedies

Target ailment	Herbal remedy	Preparation method	Application method/Dose
Chronic cough, halitosis, gum sores	Mint, *Mentha spp.*	Add 5-10 fresh leaves to a 200ml cup of boiling water and leave for 2-3 minutes	Drink with honey up to 3 times per day
Diarrhoea/ headache Fever, colds, rashes, scabies, lice	Worm-wood *Artemisia afra* Fever tea, *Lippia javanica*	Add 2-3 fresh leaves to ½ cup (100ml) of boiled water and leave for 2-3 minutes Add a handful of tender leaves to boiling water	Drink the tea Strain and add honey to the tea and drink twice a day
Fever, diarrhoea, infections	Baobab, *Adansonia digitata*	Mix fruit pulp with sterilised water	Drink as often as required
Fever	Rosemary *Rosemary officinale*	To a cup of boiling water add 5-10 fresh leaves, and leave for 2-3 minutes	Drink the tea without sugar
Indigestion, nausea, lower back pain, rheumatism, itching	Ginger, *Zingiber officinale*	Add a teaspoon of finely sliced ginger to a cup of boiling water and leave for 2-3 minutes	Drink the tea first thing in the morning
Nausea, poor appetite, depression (AIDS-related)	Hashish, *Cannabis sativa*	Dry the leaves and flowers. (THIS PRACTISE MAY BE ILLEGAL IN YOUR COUNTRY)	Inhale the smoke from a pipe-full of burning hashish when required
Parasitic worms, weight loss	Pumpkin seeds	Roast 1kg of pumpkin seeds, remove the seed coats and pound to a powder. Add two tablespoons of the powder to boiling water. Simmer for 5 minutes	Serve with any side dish e.g. vegetables or fish.
Parasitic worms, weight-loss	Whey	Separate whey from sour milk	Drink 3 cups (600ml) per day
Shingles, chronic sores, burns	*Aloe vera*	Squeeze out and collect the juice from fresh leaves	Drop juice directly onto blisters and let it air-dry, twice each day
Sores, esp. genital sores	Thyme, *Thymus*	Add a handful of leaves to a 200ml cup of boiling water. Leave for 2-3 minutes	Drink strained tea, or use it as a mouth of body wash
Sores, ulcers, syphilis	Sausage tree *Kigelia africana*	Dry and pound the large fruits into a powder	Use as a dressing on the affected parts
Sores (genital) thrush	Garlic oil *Allium sativum*	Peel ten cloves and slice them into small pieces. Add garlic pieces to 100ml of cooking oil	Rub the garlic oil onto the affected areas

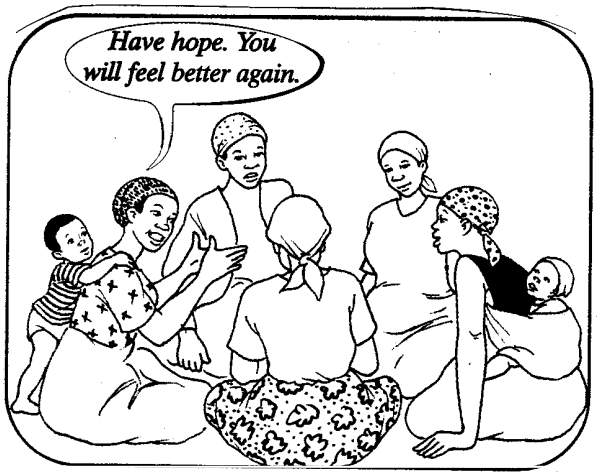
Some of the information provided above was obtained from a Network of African People Living with HIV/AIDS (NAP+) publication; Food for people living with H.I.V.\ AIDS, Institute for Traditional Medicine, Common alternative therapies, HIV support: proposed treatments for HIV " the Natural Pharmacist". Also consult Home Based Care Herbal Treatment Guideline, National AIDS Control Programme, Malawi.

Exercise 29: Preparing herbal remedies

Materials required:
Sharp knife
Small pestle and mortar or stone grinder
Chopping board
Clean screw-top bottles and jars
Herbs, e.g. aloe vera, garlic, mint, ginger, pumpkin seeds
Boiling water
Cooking oil

Procedure:
Consult Table 18 and follow the preparation method for each herbal remedy. Administer the remedies to any volunteers amongst the participants.

- Did the remedies relieve any of the volunteers' symptoms?
- Which remedies were the most effective?



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4.3 Action planning for cleaning up the environment to prevent diseases

4.3.1 Improving hygiene

- **Protecting the drinking water source from contamination**

Wells and boreholes should be covered to exclude sunlight and discourage the growth of aquatic weeds that could act as a food source for microbes. The area around the water source should be fenced with thorny bushes to prevent livestock and other animals from entering. The responsibility for keeping drinking water safe lies with all those who use it.

- **Constructing improved latrines**

In order to prevent contamination, latrine toilets must be sited more than 50m from the nearest well or borehole. The pit should be dug to a depth of at least 3m, such that the bottom of the pit remains above the level of the water table. The "ventilated improved pit" (VIP) latrine has a vertical ventilation pipe that is inserted into the pit. This is designed to promote the flow of air down through the squat hole and out through the top of the pipe, thus removing odours and flies from the latrine, see Information Box 9.

Exercise 30 will teach participants how to make a VIP latrine, however you will need access to the Internet so that you can download the detailed instructions for this.

Exercise 30: Making a VIP Toilet

Materials required:
Instructions downloaded from www.wateraid.org.uk/site/in_depth/technology_notes/303.asp
Spades
Cement
Sand
Metal rods for re-inforcing the concrete
Plastic pipe (minimum diameter 100mm)
Mosquito netting for fly screen

Information Box 9

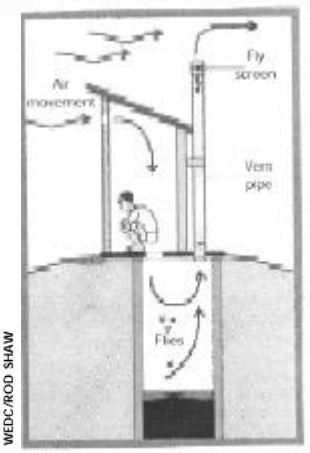
The design of the VIP latrine

The VIP latrine is similar to a conventional pit latrine, but has an offset pit that permits the installation of a vertical ventilation pipe (or structure) beside the latrine superstructure.

The design of the VIP latrine causes air to flow down into the latrine pit through the latrine squat hole and up out of the ventilation pipe, thus removing odours from the latrine. Flies are always attracted by the smell from latrines, but in a VIP latrine they are attracted to the top of the vent-pipe rather than to the latrine squat hole. There they are prevented from entering the vent-pipe by a fly screen fixed across the top of it.

Some flies inevitably find their way into the latrine pit by other routes, and may breed in there. However, flies are attracted to light, and the VIP design makes use of this fact to get rid of them. The interior of a VIP latrine is always kept semi-dark, so that the flies inside the pit are drawn towards the light at the top of the vent pipe, where the screen traps them and they fall back into the pit or die.

The effectiveness of this fly control was demonstrated by an experiment in Zimbabwe, which compared the number of flies found in an unvented pit latrine to that found in an otherwise identical VIP latrine. Over a three-month period in 1975, an average of 179 flies per day were caught in the unvented latrine, compared to only 2 flies per day in the VIP latrine. [2]



Information taken from VIP Latrines in Zimbabwe: From Local Innovation to Global Solution, by Andy Robinson, 2002: **www.wsp.org/pdfs/af_bg_zim.pdf**

Facilities for hand washing should always be installed beside the toilet; e.g. a pot filled with clean water that is changed each day.

• Preventing unhygienic, anti-social behaviour

Anti-social habits such as urinating/defecating in the bush or waterways, or spitting in public should be discouraged in order to prevent the transmission of typhoid, TB, bilharzia, parasitic worms and other infectious diseases, see Table 15.

4.3.2 Getting rid of health hazards

• Safe disposal of hazardous materials

Hazardous materials, such as plastic, asbestos, unused pesticides and empty pesticide containers should be buried at a communal site, far away from the water source and in a place which cannot be interfered with by either children or livestock.

• Eliminating mosquito-breeding areas

Mosquito larvae provide good food for fish, this means that ponds and streams should well stocked with these creatures and over-fishing should be discouraged. The numbers of malaria-carrying mosquitoes can also be significantly reduced by filling in shallow ponds and puddles close to human settlements and by ensuring that pots and other containers are not left out in the open to collect water during the rainy season. The need to do this can be easily demonstrated in the following exercise, which is best done during the rainy season.

Exercise 31: Observing mosquito larvae in stagnant water

Materials required:
Jars that have been left outside, filled with rainwater for one week.
Magnifying glasses

Procedure:
Pour a little of the water into several glass jars and ask the participants to view the contents through the magnifying glasses.

- Can you spot the mosquito larvae? (They are transparent wriggley creatures that rise to the surface to breathe every now and again.)
- Where did they come from?
- How long has the water been standing in the jar outside?
- How many mosquito larvae do you estimate are in the jar?
- How can we prevent these larvae from turning into mosquitoes?
- How can we prevent mosquitoes from breeding in future?

• Eliminating water snails that carry bilharzia

Water snails can be killed by a natural chemical known as saponin. An Ethiopian scientist discovered that this chemical is contained in the green, unripe berries of endod, the soapberry bush (*Phytolacca dodecandra)*[8]. The endod plant is known as gopo in Shona. Endod berries must be soaked in water to release the saponin and then applied to stretches of affected water 2-3 times a year, especially during the dry season, as demonstrated in Exercise 32.

Exercise 32: Using Endod to kill water snails

Materials required:
Measuring stick
Bucket
Litre measure
At least 5 kg of endod berries

Procedure:
Count the number of snails present in 1 metre stretches, at intervals along the side of the affected river or lake. Use sticks to mark the areas where the snails have been counted.

Measure the depth of the stagnant river or lake in three or more places. Multiply the average depth by the length of the section of water to be treated, to find the volume. Crush the endod berries and soak them in a bucket of water overnight. Next morning apply the suspension of crushed berries and water at intervals, along the edge of the river/lake, at a rate of 5 kg per 50 litres of water. Take care to avoid getting juice from the crushed berries into the mouth or eyes.

- Check the number of dead snails after 8 hours.
- What percentage of snails died?
- What happened to the fish?
- Under what conditions could this method be used to control water snails in future?

Fish and ducks will also reduce the number of water snails. This means that fishing should be controlled and ducks and other fowl encouraged to feed in ponds and lakes. The community is responsible for ensuring that rivers and lakes are managed sustainably and are free from human excrement.

8 For more information go to www.dfh.dk/endod/indexuk.htm

4.3.3 Making the most of your natural resources

- **Conserving trees and other natural resources**

Indigenous trees are an important natural resource and have a range of important uses. Exercise 33 provides an opportunity for participants to reflect on the value of trees and may encourage them to come up with a strategy for conserving them.

Other natural resources that need to be conserved because of their contribution to the local economy include grazing areas, indigenous herbs, edible insects, shells and wildlife.

Exercise 32: What is the value of trees?

Materials required:
Pens and paper

Procedure:
Ask the participants to each make a list of all the different uses of indigenous trees.

- Who has come up with the most uses for trees?
- How many uses are there?
- What types of trees do we need in our environment – what function do they have?
- Which important trees are currently missing from our environment?
- How can we replace them?
- How can we conserve our trees and forests in future?
- How can we prevent tree cutting?
- Who is responsible for conserving trees?

Include these suggestions in your action plan.

Exercise 33: Making an Action Plan to clean up the environment

Problem	Activities planned to address the this problem	By whom?	With whom?	Completion date

5. SUMMING UP

5.1 Ten Rules for Positive Living

Ten rules for Positive Living are listed in Information Box 10. The most important of these ten rules is the one that urges us to seek help and support from friends and family. Without this support it will be impossible to follow the other nine rules. This means that there is a continuing need for a strong social network of men and women who can provide emotional support to all those who are affected or infected by HIV/AIDS (see Table 2 at the beginning of this manual).

Information Box 10: Ten Rules for Positive Living

1. Eat nutritious, pesticide-free food
2. Reduce the amount of sugar and caffeine in your diet
3. Reduce stress and get plenty of sleep
4. Take regular exercise but try to reduce the amount of hard physical labour
5. Drink boiled/sterilised water
6. Improve personal hygiene: keep your body and clothes clean using soap and water
7. Practise safe sex with a willing, faithful, adult partner
8. Give up smoking, alcohol and other drugs
9. Clean up your environment
10. Seek help and support from friends and family

By implementing all three community-based action plans - to reduce vulnerability to HIV, promote good health and clean up the environment to prevent disease, the whole community can be mobilised to Live Positively, and thus increase its resilience to the impacts of HIV/AIDS. We hope that the following true story, described in Information Box 11, will give you the inspiration that you need for this task [9].

[9] See Positive Health by Orr, N.M: Neil_orr@yebo.co.za or drp@mweb.co.za

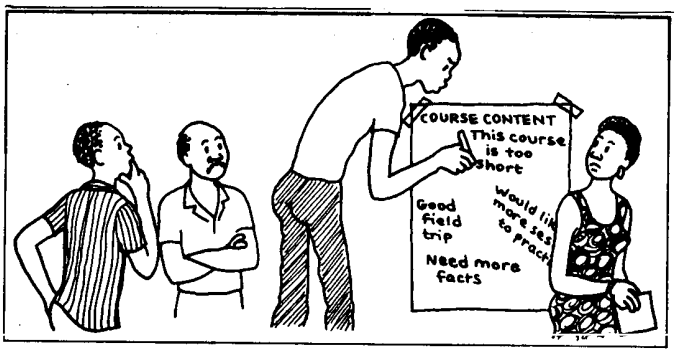
Information Box 11: How Mavis created hope

When Mavis found out that she was HIV-positive, she was shocked. The doctor said that she would probably live for five to eight years more. But a little voice inside her said "Wait a minute! Is this a fact? Maybe not,,,"

The first thing that she did when she got home was to eat an avocado, then she planted the pip in the ground. She said to the avocado pip: "Your name is *Hope*. I will water you every day and one day I will eat your fruit". With this action, she had created hope that she could see every day.

Mavis is still healthy and well. Just as she took action to create hope, so she has taken action to eat well, learn what she can do to stay healthy and she says that she is happier than she has been for a long time. She continues her studies, as she says she wants to help other people one day with her skills and knowledge.

5.2 Assessing the impact of your workshop



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The best way of assessing the impact of your workshop is to do a follow up survey amongst the ex-participants in three to six month's time. Suggestions for questions that could be included in this survey are contained in Information Box 12. You may want to modify these questions or include additional questions to make the survey more specific to your locality. The results of this survey can be used to improve the format of future workshops. The most crucial indicators of successful impact include an increased willingness to go for voluntary counselling and testing, the ability of people to freely admit their HIV status without fear of being stigmatised and increased community involvement in orphan and invalid care. However, it is not advisable to ask questions relating to sensitive indicators directly, but to find ways of encouraging people to volunteer the information in their own time. When this happens you can be assured that the vulnerable people in your community have gained the confidence they need to Live Positively!

Information Box 12: Some questions to include in your follow-up survey

- What changes have been made to protect your family from HIV?
- What are the major conflicts and how have they been resolved?
- Which religious organisation has provided the most positive support in promoting behaviour change in your community?
- Which new crops are you growing to improve nutrition within your family?
- Does anyone in your family need nutrient supplements?
- Are they receiving them? If not, why?
- Have you conducted a base-line survey?
- What were the results?
- What are the most serious health hazards in your environment?
- How have you dealt with these problems?
- What is the biggest change that you, yourself have made since the Positive Living workshop?
- What is the biggest change that you have noticed within the community since the Positive Living workshop?

6. USEFUL RESOURCES FOR TRAINERS

6.1 Web-sites

- AIDS Alliance, UK: Supporting community action on AIDS in developing countries www.aidsalliance.org
- AIDS and Africa: for comprehensive, up-to-date information on HIV/AIDS in Africa, www.aidsandafrica.com
- AIDS Consortium, UK: Consortium on AIDS and International Development, www.aidsconsortium.org.uk
- ANNEA: AIDS NGOs Network in East Africa, www.annea.org.tz
- CABI Bioscience, Nairobi & UK: www.cabi-bioscience.org
- Global Fund to fight AIDS, TB and malaria: www.globalfundatm.org
- Metropolitan, South Africa: www.redribbon.co.za
- SAfAIDS: Southern Africa AIDS Information Dissemination Service www.safaids.org.zw
- TALC: Teaching Aids at low cost www.talcuk.org

6.2 References and useful publications

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Jackson, H. 2002. AIDS Africa: Continent in Crisis. This is a comprehensive overview of prevention, care and mitigation, essential reading for policy-makers, planners, programme managers and professionals in health and human development. Order from: SAfAIDS, P O Box A509, Avondale, Harare, Zimbabwe or info@safaids.org.zw

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