

Node Training Material

October 2005

**1. Agriculture: Conservation Farming discussion
(15 mins)**

**2. Tree planting: Land for trees & transplanting
preparation (30 mins)**

**3. HIV/AIDS: Food for sick people
(30 mins)**

**4. Animal Husbandry – Chicken keeping
(45 mins)**

**5. Sustainable Development: Deforestation
(30 mins)**

**6. TIST Program Participation: Recent program results
(5 mins)**

7. Notices (5 mins)



1. Agriculture

Conservation Farming Discussion



Time: 15 minutes

Method: Discussion



Split the participants into groups of 6-10 people. Ask each group to imagine what it would be like to have double their crop yield at the next harvest. What difference would it make to their income? Diet? Family life? Confidence? Encourage the groups to come up with a detailed description of how things could be.

- Let the groups discuss for 5 minutes. Then ask each group to explain the scenario with specific ideas of how things would be different.
- After the groups have shared their ideas, remind people that it is possible to improve their yields by using conservation farming. The yield often more than doubles!
- Ask a group who has tried conservation farming to share its experiences again.
- Follow-up with participants to see if any small groups have started digging holes yet, and if so, what ideas they had to organize their group to work efficiently together.

- Ask for two groups to volunteer to have demonstration plots. These plots do not have to be a whole acre, but just enough to see if conservation farming really does make a difference or not. Ask them to have the conservation farming next to the fields using traditional farming. They should give updates at each node meeting to describe any differences between the two farming areas (e.g. is there a difference between soil texture / moisture / crop growth rate / final yield?).
- If anyone is still uncertain of how to dig their holes, go over the instructions as detailed in the August and September training notes.



2. Tree Planting

Land to plant trees



Time: 15 minutes

Method: Group work



Ask the participants to go back into their groups again. Encourage people to come up with ideas of places where they can plant trees. How can groups get more land for tree planting?



The following items are ideas only. Remember that many places will require groups to write a letter to the person in charge, as well as a written agreement.

- Around homesteads / religious institutions / schools / government institutions / hospitals / recreational areas.
- On road-sides.
- On riverbanks and watersheds.
- On open areas like on mountains or hillsides.
- In agro-forestry farming systems.
- In forests and protected areas.
- On eroded areas.
- On farm boundaries.



When the groups have given their feedback, ask people to share which ideas were new to them. Ask groups to discuss which action steps their own small groups can take to obtain new land for planting trees.

Preparing seedlings for transplanting (Hardening Off)



Time: 15 minutes

Method: Interactive lecture

Seedlings will need to be planted out when the rains come next month. It is important this month to make sure that seedlings will be ready to be moved from the nursery and planted in the field.



Ask the participants how conditions in the nursery are different to the conditions where the seedling will be planted. How should group members prepare their seedlings for transplanting?



Seedlings first need to be prepared for the harsher conditions of the field. If seedlings have been properly looked after in a nursery, they may have received more water and shade than they will have once they have been planted.

Gradually reduce the watering and expose the seedlings to full sunlight during this month.



How do groups choose which seedlings are ready for transplanting? What are the characteristics of a seedling that is ready?



As a general guide (remembering different species have different characteristics) good seedlings for planting out have the following characteristics:

- The shoot should be twice the length of the roots or the pot.
- The stem should be strong and woody.
- The seedlings should have many thin roots in addition to the main roots.

☆ Next month we will look at how to transplant the seedlings. Groups can now start digging holes of 30cm diameter and 30cm depth if they have many seedlings to transplant.



3. HIV & AIDS

Food for sick people



Time: 30 minutes

Method: Lecture

The following information is about what food to give people who are ill (especially those with AIDS).

Nutrition for long time patients

In many cases of AIDS a long-term patient can lose a lot of weight and children may fail to grow normally. Chronic diarrhoea is often a problem, along with many other illness as we learnt last month. Patients therefore need to be fed the right, nutritious food to make them as strong as possible. Good nutrition includes food which:

1: Provide energy to the body

Foods in this category are sources of carbohydrates and include:

- Ugali (stiff porridge made from maize) and thinner porridge made out of maize, sorghum, millet, finger millet or cassava.
- Rice.
- Sweet potatoes or Irish potatoes.

Note that oils and fats, in moderation, provide energy and double the heat to the body as well as adding taste to the food.

2: Are used for body building (Proteins)

e.g.

- Meat (beef, chicken, goat, mutton, duck, guinea fowl).
- Fish (sardines, tilapia, Nile perch, mud fish).
- Eggs.
- Milk.
- Legumes (beans, cowpeas, green grams, peas).
- Ground nuts.

3: Are sources of Vitamins

Many vitamins, especially Vitamin A, are available in enough quantities from:

- Green vegetables (amaranth, cowpea leaves, okra, cassava leaves).
- Fruits, especially those with a yellow colour (oranges, pawpaws, mangoes, ripe bananas, guavas)

Drink

- Sick people need to drink a lot of water. Drinking water should be boiled for at least 10 minutes, cooled and stored in a clean, covered container.
- If the patient has chronic diarrhoea you can make a simple rehydration drink to help replace the fluids the patient has lost. Dissolve six teaspoons of sugar and half a teaspoon of salt in one litre of clean water. Add fruit juice to make it taste better. More details on food for people with diarrhoea can be found in the table used in last month's teaching.



Remember the basic hygiene principles we learnt about last month. If you are preparing food for someone who is ill make a special effort to ensure your hands are clean, food is washed and cooked properly, and that eating utensils are thoroughly cleaned and dried.



Divide the participants into groups.

- Ask people to discuss what local food they can use for healthy meals. Ask them to design a list of what food and drink they could try to give patients during the day.
- How do people prepare their drinking water? Is it safe? What steps can be taken to ensure drinking water is as clean as possible?



4. Animal Husbandry - Chicken Keeping



Time: 45 minutes

Method: Lecture

Trainers, go through the following material but allow participants to contribute their knowledge too. Remind people this is only the very basic information, and local livestock experts and vets should be consulted.

Keeping chickens and ducks



It is not a good practice to allow chickens, ducks and other birds to freely wander around the community to feed and drink whatever they can find.



Providing shelter, food and clean water to these birds will result in more meat and eggs.

Traditional ways of keeping birds

Many people in the community may keep birds but with limited good results. This can be because:

- Birds are not fed well, but are left to pick up what food they can find on the roads, and to drink dirty water.
- They are not provided with shelter (housing) and can become the victims of cold, rain and predators.
- The types of birds (breeds) kept in the community are small birds or those which do not lay large numbers of eggs.

Better ways of keeping chickens

You can improve the amount of meat and eggs you get from birds by:

- Keeping better breeds (types) of birds which are bigger and lay more eggs.
- Improving the quality of the birds you have by mating them with better quality males.
- Provide housing for birds and good feed and water.

You should try to find out which breeds are available and try to obtain birds which are bigger, produce more meat, and which lay more eggs. There are several ways of introducing better quality birds into the community's flocks:

- Buy male birds of the better breed to mate with females you have.
- Buy day old chicks from the better breed and rear them.
- Buy some good quality birds at 2 to 3 months of age.

The quality of eggs

Eggs should be kept in a cool place. An egg produced by a female bird kept without a male is called a non fertile egg and will keep fresh for a long time. Eggs from a female kept with a male bird are alive and the young chick will start to grow in them if they are kept in a warm place.

Eggs should be cleaned before they are sold or used. Wipe them with a damp cloth but never wash them in warm water. If eggs are placed in a container of cool clean water, bad eggs which cannot be eaten will float to the top of the water. Good eggs stay at the bottom. When you use eggs, the condition of the yolk (yellow) and the white of the egg, tells you how good the egg is.

Vaccination and veterinary aid for chickens

You should talk to your local veterinary officer and discover what diseases occur in the birds in your area. He will be able to tell you what can be done to prevent disease and obtain any vaccines which you can then use to protect birds against these infections.

Housing for chickens

- If birds are allowed to wander around freely, disease can spread quickly through all the birds kept in the community.
- Keeping birds in a closed area and providing them with shelter is the first step towards improving them.
- A covered shelter (house) will give chickens and ducks protection from wind, rain and predators.
- The spread of disease can be stopped.

How many birds should be kept in a house

There must be enough space to hold all the birds plus the feed and water containers (troughs). If too many birds are kept together they will start to peck (bite) each other. Young birds will need less space than older birds and perches must be provided for chickens to roost on at night.



- 50 chickens can be kept in 16 square metres (4m × 4m).
- 1 metre of perch must be provided for every 5 adult chickens.

Suitable housing for chickens should be:

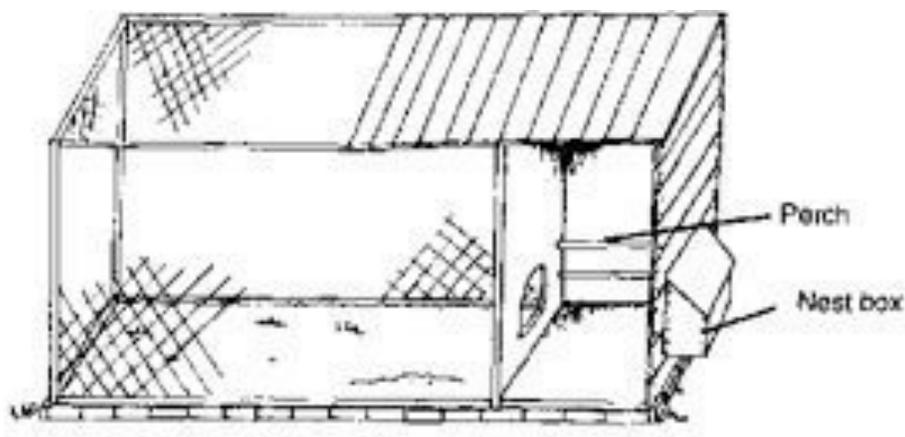
- Built on high ground close to the home of the owner so that he/she can keep an eye on it.
- The house should be 2 metres high and it is better if the first 50 cm of the walls are brick, stone or concrete while the rest is wood and mesh wire, corrugated iron sheeting or any other suitable materials. Small houses can be made from wood and mesh wire.

Runs for birds (fenced areas)

Every house will need a run for the birds to be able to exercise in, pick up grass, insects etc. The run must be fenced around with wire or other suitable material and if possible should be shaded by some trees. Part can be covered to allow birds to use it on rainy days. 50 chickens require 500 square metres of run (20m x 25m).

Nesting boxes (for laying eggs)

Nesting boxes are boxes in which the hen can lay her eggs. You can make them from wood, baskets or pottery. Line them with straw or hay as a nest. Wooden boxes can be built on to the side of the house and opened from the outside to remove the eggs.



Feeding chickens

In order to get good meat and egg production from birds they must be given good feed containing necessary nutrients. If birds are allowed to wander freely and eat whatever they can find they will not grow properly, will produce little meat and few eggs.

Like other animals, birds require carbohydrates, proteins, fats, minerals and vitamins in their feed. At different times of their life birds will require rations that contain different amounts of carbohydrates, proteins, fats, minerals and vitamins:

- From hatching (1 day old) to 3 months of age, birds will need feed which contains large amounts of protein for body growth.
- When birds are laying eggs minerals are important in producing good eggs.
- Birds kept for meat will need a lot of protein in their feed.

Feed materials for birds

Carbohydrates are found in grains which can be fed whole or ground as meal. Birds can be given corn, rice, maize, barley, oats, sorghum, finger and bulrush millet, or bran from rice or other grains.

Cake from the processing of groundnuts, cottonseed or dates can also provide carbohydrate and protein.

Protein: Soya bean meal contains proteins. Animal products such as fish meal, milk powder and dried blood also contain proteins and can be fed to birds. Birds must not be given too much animal protein.

Fats are found in cottonseed, groundnuts and sunflowers.

Minerals are in bone meal (ground bone) egg shells and old seashells which can be ground and added to the feed.

Vitamins may be supplied by adding green plants to the feed.

Your waste food can be fed to birds if it is cut up and boiled. It can then be mixed with meal and fed to the birds.

Water: Birds need clean fresh water at all times. Every 4 chickens will need 1 litre of water every day and this will double as the weather becomes hotter.

Rations

Age of Bird	Whole & Ground grain	Cake (Plant or animal)	Protein	Minerals
Up to 8 weeks	7 parts	2 parts	1 part	0.25 parts
8-12 weeks	8 parts	1.5 parts	1 part	0.25 parts
Laying	8 parts	1.5 parts	0.25 parts	0.5 parts

The ration should be thoroughly mixed and then water added until it becomes crumbly (like grain) before feeding it to chickens.

For chickens whole grain can be scattered over the run encouraging birds to scratch as they feed and so take in minerals from the soil.

Always clean out unused feed daily. Green vegetables can be hung up in the run to encourage the birds to show an interest and not peck at each other.

Problems caused by poor feed

Birds lacking a particular nutrient can show signs of:

- Poor health
- Leg problems
- Poor feathering
- Egg production drops
- Eggs have thin shells
- Birds easily get infections

Seek advice from local experts.

The broody hen

When the female bird sits on her eggs in a nest to incubate them she is brooding. Natural incubation or brooding is the simplest way of hatching a small number of eggs. A broody hen (chicken) will incubate her own eggs or those of another hen or a duck. A hen can incubate 12 to 15 chicken eggs or can be used to incubate up to 10 duck eggs.

Broody hens may refuse to leave the eggs to eat or drink. They can suffer from external parasites (e.g. mites, fleas). Care must be taken to feed the hen and treat her for parasites.

The broody hen should be kept in a nesting box. Take her off the nest for 20 minutes each day to give her feed and drink.

Brooder (for keeping very young birds)

If you buy young birds, or hatch them in an incubator, you will need to keep them in a brooder for a few weeks. You can buy a brooder or make your own.

Brooders have a source of heat to replace the heat that the young would have from their mother. In the brooder they are protected from animals and the weather.

A simple brooder is made from a heavy box or basket and a hurricane lamp (kerosene lamp) as the source of heat. A 1 metre square box will make a brooder for 25 baby birds. The lamp is surrounded with wire mesh to stop the birds from touching it. Troughs (containers) for feed and water must be placed in the brooder and the birds can be kept in it until they are 4 weeks old.

Cleaning

Chickens will clean their feathers daily with soil or sand (a dust bath). A shallow box containing sand and ashes (left from a fire) will be used by birds and helps to keep the feathers clean and free of infections

If birds are infected with external parasites it will be necessary to thoroughly clean out cages and houses. All bedding and dirt must be removed and any equipment should be thoroughly scrubbed with soap and hot water.



5. Sustainable Development

Deforestation



Time: 30 minutes

Method: Teaching and group work

Context: Forests and woodlands cover about a third of the world's land surface. They regulate climate, protect water resources, provide forest products (e.g. timber, medicine, fruit etc) worth billions of dollars and support millions of plant and animal species. Yet they are being destroyed at a rate of 20 million hectares per year. Half of the world's population depends on these forests for fuel, yet roughly 100 million people do not have enough fuel for minimal energy requirements.

Ask the participants to identify where the nearest forests are. Discuss the following questions with the group.



Are people cutting down trees in the forests? If so, why? Are more trees being cut down than are being planted? How much longer do people think their forests will survive for?



Definition of deforestation: The removal of trees and other woody vegetation cover.

Major causes:

- ⊕ Deforestation occurs when vegetation is cleared for activities and uses such as: Firewood, brick making, fish smoking, tobacco curing, construction, urbanization.
- ⊕ Much of deforestation results from a lack of awareness of the full value of trees.
- ⊕ In some cases, the value of trees may be known but poverty forces people to clear the trees.



Split people into new groups and ask them to discuss what they think the consequences of deforestation are in their area.



Consequences

- ✗ **Soil erosion:** lack of tree cover and root binding exposes soil to erosion.
- ✗ **Lack of forest resources:** removing trees destroys habitats, reduces biodiversity, removes food and medicinal resources, and increases competition for construction materials. People will have to walk further for firewood, and if forest products are being bought, prices will rise.
- ✗ **Lack of other environmental benefits of trees:** trees act as a windbreak, retain moisture, add oxygen to the air, and add nutrients to soil. Hence without trees the local climate will become drier with increased risk of flooding, wind erosion, decreasing soil fertility and diminished air quality.



What do people think their small groups can do to prevent deforestation?



Solutions ideas:

- ✓ Establish tree nurseries and distribute or sell seedlings to the community.
- ✓ Use energy-saving cook stoves which use less firewood and charcoal.
- ✓ Use alternative sources of energy and fuel where possible (e.g. heating from the sun, sawdust, coffee and risk husks, grass, weeds, crop wastes, animal waste).
- ✓ Carry out tree planting activities. Become a successful, effective TIST group!
- ✓ Encourage agro-forestry or the use of woodlots.



6. TIST Program Participation

Recent Program Results



Time: 5 minutes

Method: Reminder

- ◆ Give groups the latest TIST statistics. This can be found in the HMM that has been brought to the node meeting by the TIST staff.
- ◆ Explain that fewer groups than expected have been attending nodes meetings. Encourage people to explain to other groups that nodes are important for receiving training as well as receiving statements and vouchers.
- ◆ Many groups are still submitting highly inaccurate information on their SGMR forms. This goes against the TIST values of honesty and accuracy and cheats everyone involved. Remind groups they must count their trees one-by-one and write that accurate number on their SGMRs.

7. Notices: Remember to make sure everybody knows where and when the next node meeting is.

Node Training Material

November 2005

- 1. Agriculture: Conservation Farming Reminder (5mins)**
- 2. Agriculture: Farming in steep areas (20mins)**
- 3. Tree-planting: Transplanting (20mins)**
- 4. HIV & AIDS: Stigma, discrimination and counselling (45mins)**
- 5. Water harvesting (30mins)**
- 6. Sustainable development: Water pollution (20mins)**
- 7. TIST Program Participation: Best Small Groups (10 mins)**
- 8. Notices (5 mins)**



1. Agriculture

Conservation Farming Reminder



Time: 5 minutes

Method: Reminder

Remind participants that they should have started digging their conservation farming holes before the rains come this month. However, it is not too late if the small groups organize themselves to work hard together over the next few weeks.

If people need reminding about the technique, please review the August and September material.

Follow-up with the groups who volunteered to have demonstration plots: how has the work started?

2. Farming in steep areas



Time: 20 minutes

Method: Interactive lecture



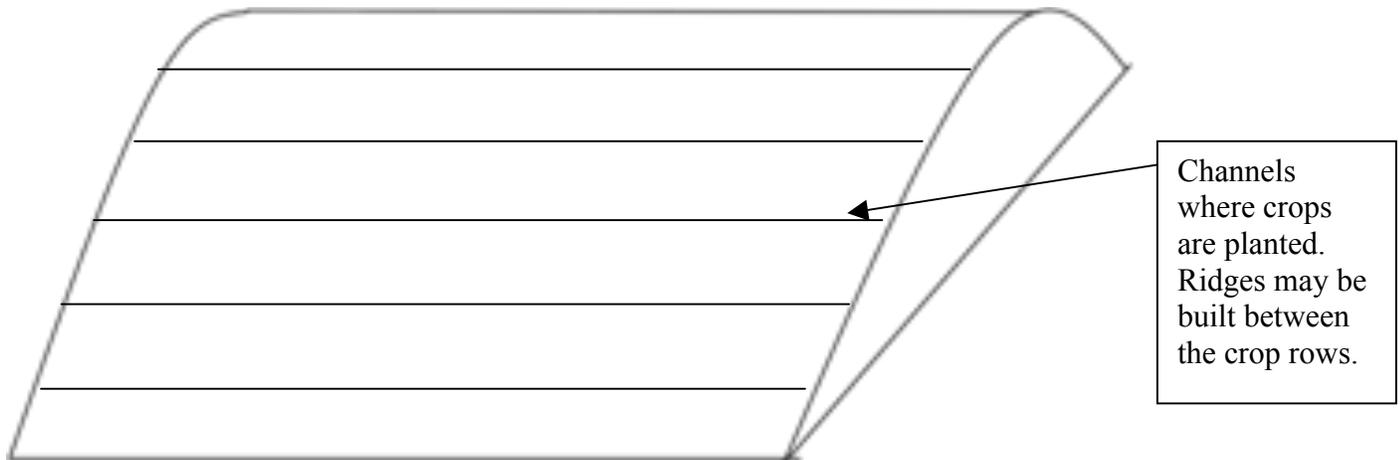
Split the participants into groups. Some areas where TIST works have steep hills that need to be farmed (e.g. Bumila, Tubugwe, Lupeta, Makutupa, Matomodo, Wotta, Idilo). Ask the groups to discuss what methods have been used to farm on steep areas successfully.

Below are some ideas the trainers had at the last TOT seminar. Review them, and add to them if there are new ideas.

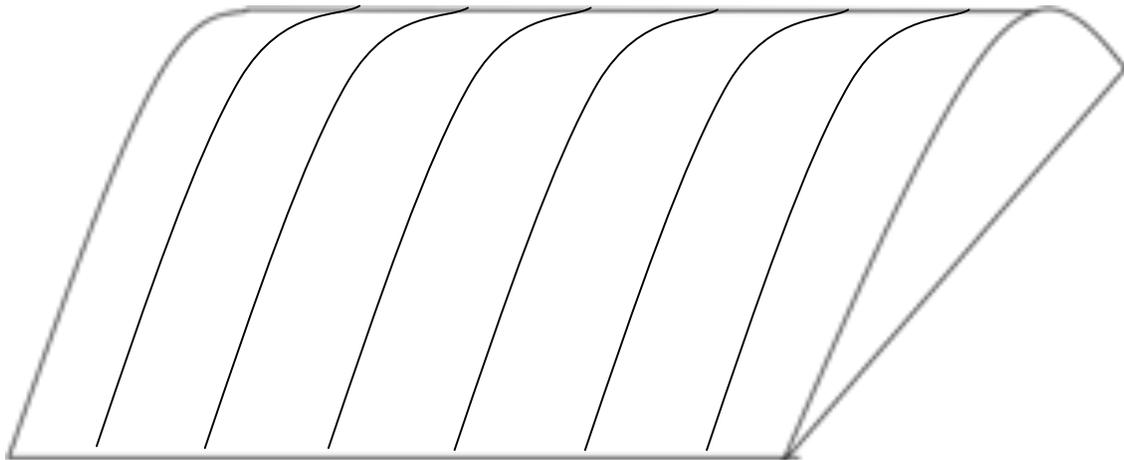


Contour Ploughing

- ✓ *This is where farmers follow the natural contours of the hill. In the first example the farmer has ploughed in the direction of the contour. Any water will be slowed down as it moves downhill by the ploughing channels. Some farmers build small ridges in-between the channels to trap water and slow down its movement, allowing it time to sink into the soil.*

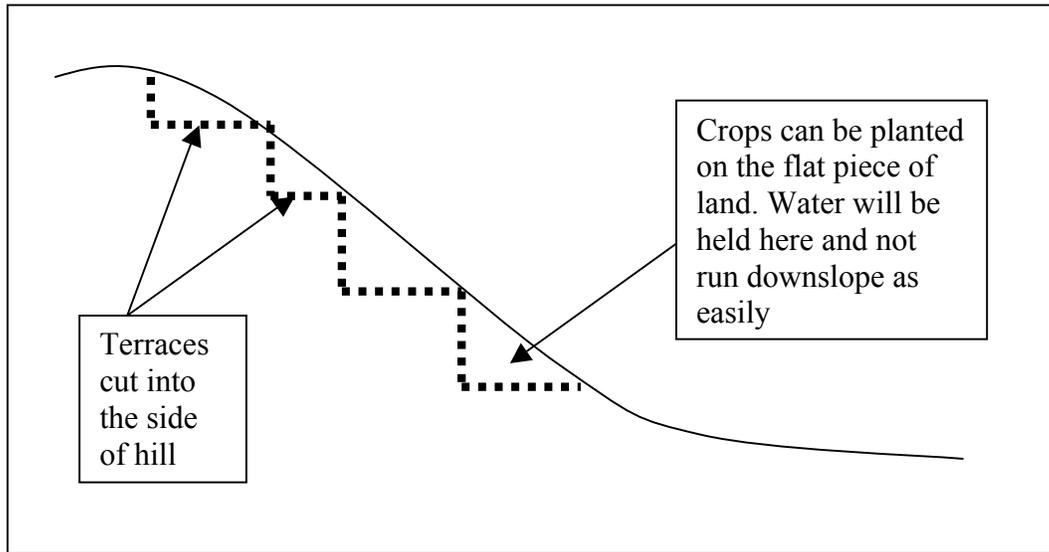


- ✗ *In the second example the farmer has not followed the contours and has plowed vertically across the hill, instead of horizontally across it. Any water on the hill will easily flow down the slope, causing more soil erosion and damage to the crops.*

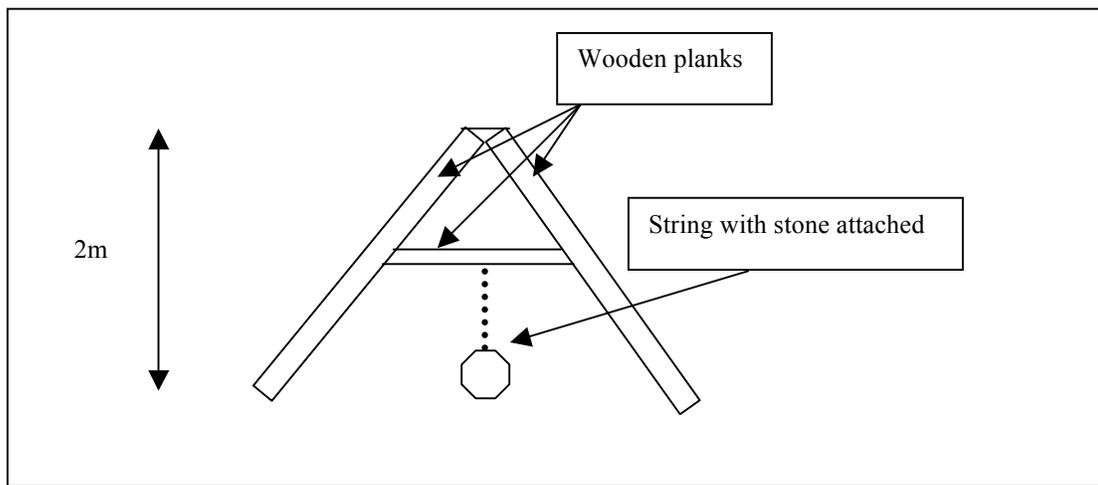


Terracing

This process refers to cutting steps into a hillside to produce terraces – areas of flat land. The water will be slowed down by the flat land and be able to sink into the soil.

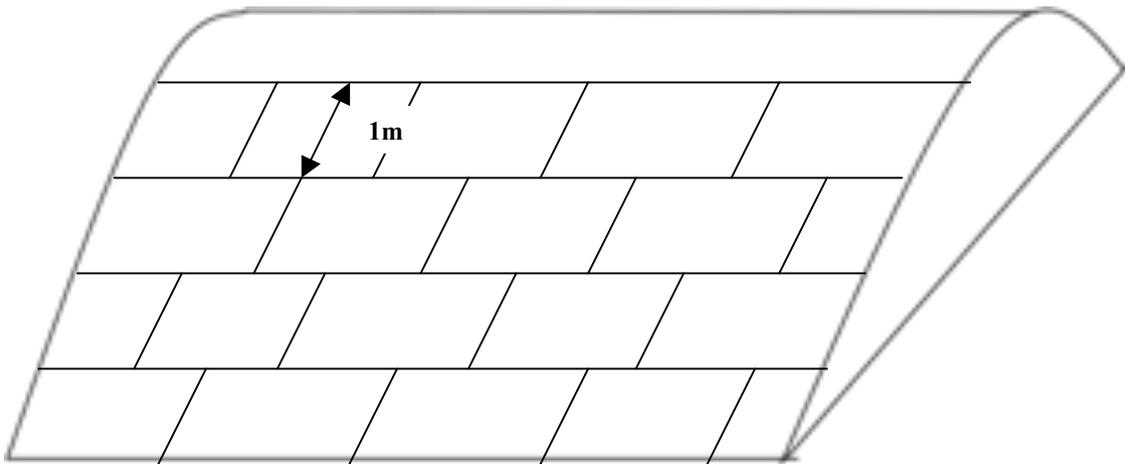


To make sure the terraces are completely flat your group can make a simple A-Frame. The frame can be made out of wooden planks. The height should be 2m. Across the middle of the frame, at a height of 1m, attach a horizontal piece of wood. Ensure this is completely horizontal. Attach a piece of string with a stone fixed to the bottom to the middle of this piece of wood. To test if land is flat, place the A-frame on the ground. The middle piece of wood should be exactly horizontal, and the string exactly vertical (at an angle of 90 degrees to each other).



Box contours

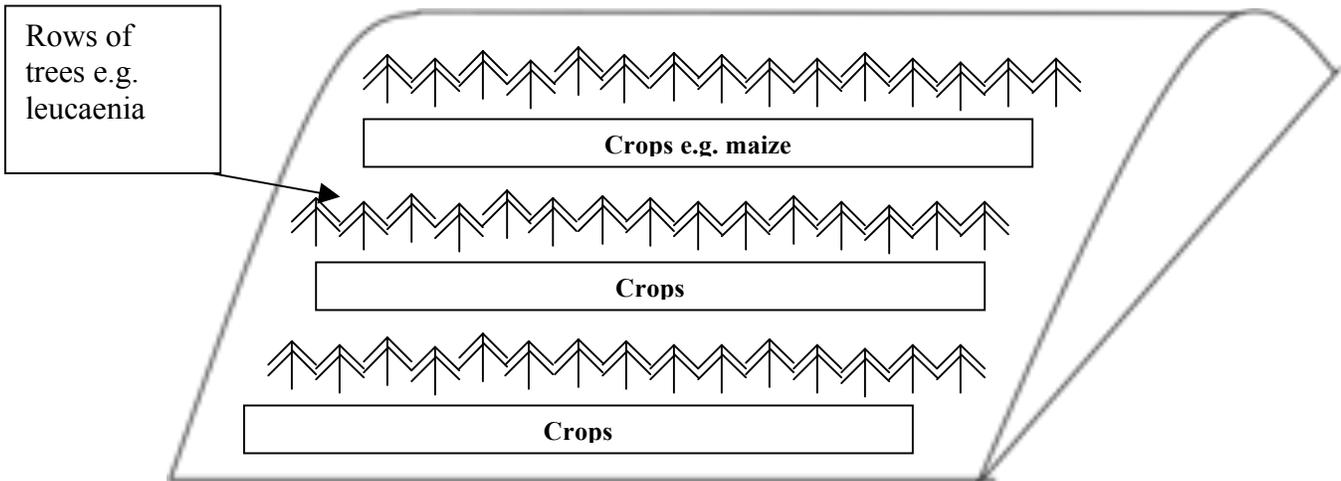
Here channels are dug, similar to in contour ploughing. But these channels are specifically for diverting water down the hill in a way which will slow it down, giving maximum infiltration time and minimum soil erosion. The channels are made in the form of a grid with 1m spacing.



Intercropping on slopes

Instead of using ridges or channels to slow down water on slopes, rows of trees can be used. The trees not only form a natural barrier to water, but provide benefits to the soil, neighbouring crops and environment when chosen correctly.

Some farmers have planted rows of trees (moringa, yellow cassia, leucaenia, bead tree) in-between rows of maize (using the conservation farming technique). Spacing in-between tree rows varies according to species and best practices discovered. Spacing between yellow cassia rows can be 8m, whilst 3m is fine for most other tree rows. Some farmers plant rows of cassava instead of trees.



3. Tree Planting

Transplanting



Time: 20 minutes

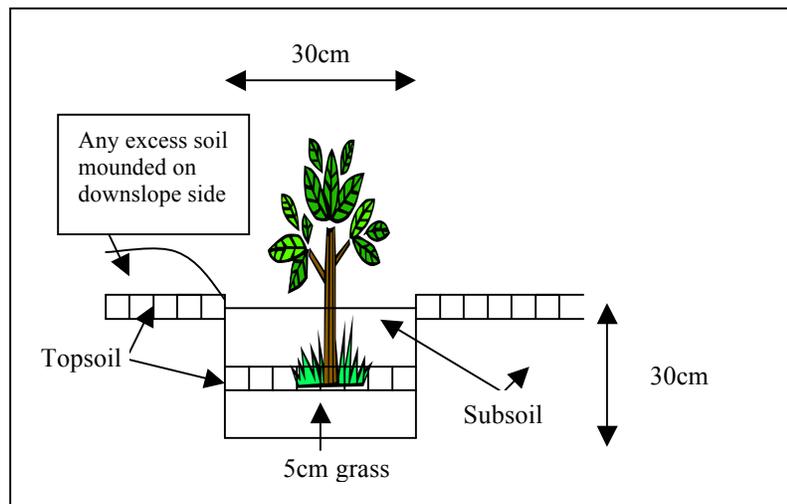
Method: Group discussion



Back in the groups, ask people to discuss what best practices they know for transplanting seedlings into the field. Below is one example of a best practice that can be discussed. Bring feedback to the next training session.



- ⊕ Transport the seedlings in an upright position
- ⊕ Mark out a circle with a diameter of 30cm in the field
- ⊕ Remove the topsoil and place in a pile
- ⊕ Remove the next soil layer to a depth of 30cm and place in a separate pile
- ⊕ Put in a 5cm layer of grass (dry grass in rainy season, fresh grass in dry season), (called *mulching*). Some groups add manure as well.
- ⊕ Remove the seedling from the polythene bag. Do not break the earth-balls around the roots.
- ⊕ Place the seedling in the hole
- ⊕ Replace the topsoil first, then the second soil layer.
- ⊕ Some groups do not fill the hole completely, but leave a gap of a few cm. This helps the rainwater enter the hole and infiltrate the soil.
- ⊕ Any remaining soil can be placed in a mound on the downhill side of the seedling. This will help trap any rainwater and divert it into the hole.
- ⊕ Water the seedling.





4. HIV & AIDS

Stigma, discrimination and counselling



Time: 45 minutes

Method: Group work and mini-lecture

Explain to the participants that last month we looked at how to look after the physical needs of people with AIDS by giving them nutritious food. We also have to look after their emotional and spiritual needs.



Divide the participants into new groups. Ask each group to discuss what each of the following institutions say about people with AIDS. Give each group a different institution to discuss and then feedback to the whole group.

- ⊕ The church / religious institution
- ⊕ School teachers
- ⊕ Doctors and nurses
- ⊕ The Government

- ⇒ Discuss whether the views of these people were positive or negative. What are the effects of these views on people with AIDS – do they build up or damage?
- ⇒ Then ask the large group if someone can define what discrimination is. (*Idea: discrimination is treating someone differently than yourself because of a characteristic he or she possesses. Sometimes people treat another person badly if he or she is of a different class, religion, gender, nationality etc.*)

⇒ Do we see discrimination against people with AIDS in our community? Our institutions? Our neighbours? Ourselves? What does discrimination do to people?
Ask the groups to discuss this for 5 minutes.



Ask each group to discuss one of the following statements:

- 'AIDS is a punishment from God for sinful people'.
- 'Everyone who has AIDS deserves it'
- 'It is always the man's fault'
- 'It is always the woman's fault'

Trainers, ensure the following basic principles get covered:

- *Treat people the way we would like to be treated.*
- *None of us are immune to catching AIDS*
- *Not everyone who gets AIDS catches it because they have done something wrong. Besides, even if it was our own fault, how will guilt and blame help us live positively with this disease?*
- *We always like to blame other people for our problems. Blaming doesn't help us move on and overcome the challenges of living with AIDS. Often we have to admit it was our own mistake, or to choose to forgive others so that we can start to look to what is ahead.*

⇒ How should we treat people with AIDS? What steps can small groups take to ensure that discrimination is reduced in the community?



Groups can organize AIDS awareness days, including testimonies from people with AIDS. Groups could partner with other groups or churches to help give home-based care to patients or orphans.



Ask for two groups of six people to prepare a drama. The first group should pretend to treat a patient very badly, to demonstrate discrimination and the effects it has. The second group should demonstrate what it means to lovingly care for a patient. Discuss the dramas in the big group – how did discrimination make the patient feel? What was the difference when someone was treated well?

→ What do participants think ‘counselling’ is? How can it help people with AIDS?
Ask groups to discuss for 5 minutes.



Counselling means listening to someone and giving them helpful advice and hope. It is true that some issues need trained counselors. However, all of us can help by taking time to listen to patients, putting ourselves in their position, and giving words of comfort and practical help.

The purpose of counseling is to:

- ⊕ Assist someone to understand the problems facing him/her
- ⊕ Help find ways of overcoming those problems
- ⊕ Making good or correct decisions concerning the problems at hand.

The responsibility of the counselor is to sit with the concerned and to **listen**. Listen to their questions; discuss their problems, hear about their feelings and fears of what has happened to them. Give them correct and useful information depending on their needs; and give them hope and strength. Remember it is fine if we do not know all the answers! Answer as best you can and get help from other people when you need it.



Ask each group to discuss to discuss a scenario as follows.

Imagine you are counseling an AIDS patient. What would your words of comfort and advice be to:

1. A patient who has just tested HIV positive.
2. A patient who is scared of death.
3. A patient who wants to continue having sex.

5. Rainwater Harvesting



Time: 30 minutes

Method: Interactive Lecture



Ask participants if they know what rainwater harvesting is.



Rainwater harvesting is the collection of raindrops. In most cases, a roof is used for this purpose. The rainwater then flows through the gutters, into a collection tank.

The collected water can be used for small scale irrigation (of vegetable gardens etc.), clothes washing, bathing and after treatment also for drinking and food preparation.

Such techniques are highly valuable in areas of low rainfall.



Ask anyone who uses rainwater harvest to explain to the node meeting how it is done.



This is an area where TIST group members need to share their best practices. The TIST Office does not have a model it is recommending and wants to hear from small group members. Trainers, please bring feedback to the next training session. Below are some ideas of how to get started:

Required materials

- An area that will catch the rain is needed (a catchment area). A roof made of galvanized iron or corrugated sheets is ideal. Grass roofs can also work, but the water is not as clean.
- Some people attach coarse wire mesh on their roof. This helps stop debris from running down the roof with the water and into the storage system.
- Gutters: These are channels all around the edge of a sloping roof that collect the rainwater. They can be rectangular or semi-circular and can be made using bent metal sheets, semi-circular PVC material or bamboo split in two.
- Gutters need to be wide enough so that the water does not overflow during rainfall.
- The gutters should be firmly attached to the house so they do not collapse when filled with water.
- Pipes are needed that carry the water from the gutters to the storage tank.
- Storage tank: e.g. 5000 litre tank.

- Some people make the water pass through a filter before being used (e.g. a container filled with coarse gravel and sand).

See if one small group will volunteer to try rainwater harvesting. They can act as a demonstration project and can give feedback and best practices to the node meeting at regular intervals.



6. Sustainable Development

Water pollution



Time: 20 minutes

Method: Mini lecture



Ask the participants what they think causes water pollution in their communities.



Causes

- ⊕ Discharge of untreated industrial waste and sewage
- ⊕ Careless human action around water points (rivers, wells, boreholes)
 - Poor drainage
 - Bathing and washing at the water source
 - Children playing at the water source
 - Defecating and urinating near and around the water source

- Cracked cover slab at boreholes or wells
- ⊕ Lack of latrines in rural areas. Rain water can wash human waste into water sources.



What are some of the consequences of water pollution participants have seen in their area?



Consequences

- ✗ Disruption to plant and animal life through direct poisoning or eutrophication (when nitrogen-based fertilizers are washed into water, causing increased plant growth and subsequent loss of oxygen and death for aquatic animals)
- ✗ Spread of disease when polluted water is used for cooking, washing and drinking (intestinal worms, skin diseases, cholera, diarrhoea).



Divide the participants into groups and ask them to think of specific action steps small groups can take to reduce water pollution.



Solutions

- ✓ Encourage people to avoid throwing rubbish and pouring wastewater into water bodies.
- ✓ Plant trees along the banks of rivers and lakes to stop soil from entering water bodies.
- ✓ Avoid growing crops too close to a river, lake or well (to avoid fertilizer reaching the water sources).
- ✓ Do not allow people to build too close to riverbanks.
- ✓ Manage boreholes and wells properly:
 - Do not allow people to wash near the pump
 - Keep rubbish away from the pump
 - Fence the water source to prevent animals from contaminating the water
 - Ensure pit latrines are at least 50m away
 - Make sure there is adequate drainage. Create channels to drain away water, ending in a soak pit (a hole filled with stones where water can drain away).
 - Repair all cracks on the cover slab as soon as they occur
 - Clean the area regularly.



7. TIST Program Participation

Best Small Groups



Time: 10 minutes

Method: Reminder

Remind the node meeting about the new requirements, benefits and responsibilities of TIST Best Small Groups.

Best Small Groups

Checklist:

	Criteria
✓	3000 or more live trees more than one year old in the ground.
✓	2000 seedlings in one or more nurseries, or recently transplanted seedlings.
✓	1 acre of Conservation Farming per group member
✓	Group members are following TIST Small Group Best Practices such as meeting once a week, rotating leadership, using kujengana etc.
✓	Submitted 5 out of the past 6 SGMRs.
✓	Open bank account
✓	Signed GHG contract
✓	Submitted ideas for improving the TIST program in the past two months
✓	Have other group activities apart form tree planting
✓	Recruited and trained two new groups.

Benefits

- Best small groups will help plan the way forward for TIST in Tanzania
- They will receive advanced training
- They will be certified to recruit, train and count trees for up to ten existing or new groups
- They will be eligible for the opportunity to have first use of new technologies or best practices identified.
- They will be featured in the HMM.
- They will be the groups chosen to go to new areas and countries to expand the program.
- When there are enough best small groups in the area they will be the ones that establish the office for the area
- They will receive a best small group T-shirt.
- They will receive more money based on their own success and the success of the groups they recruit. They will receive a bonus of 10% of what each small group that they mentor receives for their trees.

Responsibilities:

- To provide accurate counting of the trees and conservation farming of their daughter groups.
- To provide very good training for their daughter groups.
- To guarantee the accuracy of the SGMRs of their daughter groups.

8. Notices

Remember to make sure everybody knows where and when the next node meeting is.

Node Training Material

December 2005

- 1. Agriculture: Conservation Farming Reminder (5mins)**
- 2. Agriculture: Local Tips (20mins)**
- 3. Tree-planting: Transplanting reminder (10mins)**
- 4. HIV & AIDS: Care for terminally sick & How TIST can help those with AIDS (30mins)**
- 5. Hygiene & Sanitation (30mins)**
- 6. Sustainable development: Waste Management & What is Sustainable Development? (35 mins)**
- 7. TIST Program Participation: Program Requirements (5 mins)**
- 8. Notices (5 mins)**



1. Agriculture

Conservation Farming Reminder



Time: 5 minutes

Method: Reminder

Remind participants that they should have started digging their conservation farming holes before the rains come this month. However, it is not too late if the small groups organize themselves to work hard together over the next few weeks.

If people need reminding about the technique, please review the August and September material.

Follow-up with the groups who volunteered to have demonstration plots: how has the work started?

2. Local Agriculture Tips



Time: 20 minutes

Method: Interactive lecture

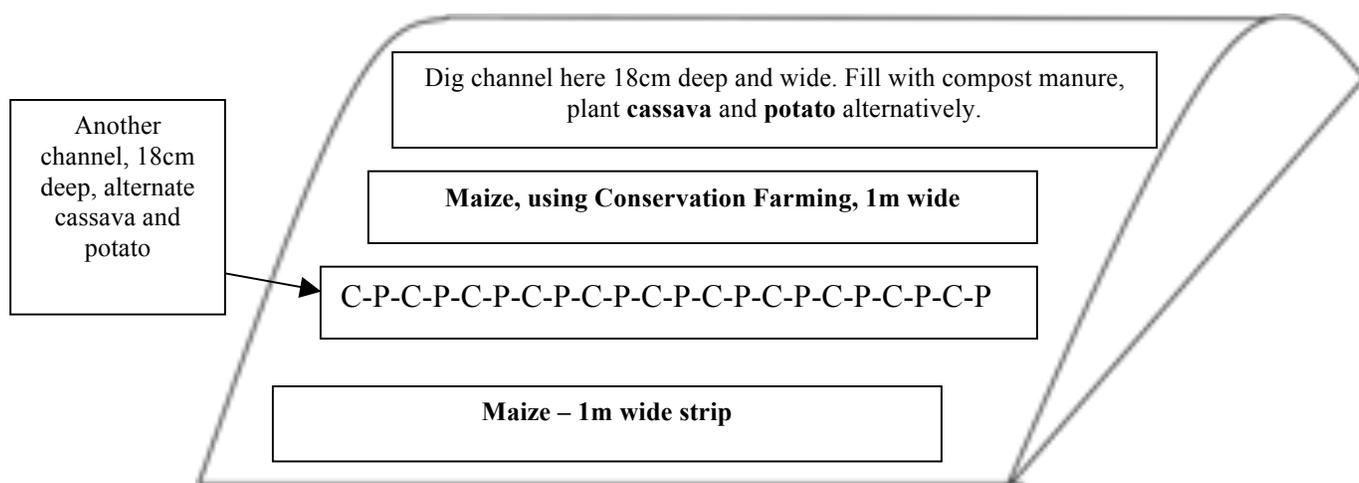
The following ideas were given by trainers about successful ways of inter-cropping and crop rotating. Discuss the ideas with the node participants, and get any new ideas from them.

Intercropping Ideas

In Idilo some groups have tried the following technique, which is especially good for slopes.

1. For the first row dig a trench 18cm deep and 18cm wide.
2. Fill this trench with compost manure.
3. Plant cassava and potato alternatively.
4. For the next row plant a one-metre strip of maize using conservation farming holes.
5. Another row of cassava and potato.
6. Another row of maize etc.

This technique uses much of what we have learnt in the nodes: it involves using intercropping, it uses compost manure and also conservation farming. Encourage participants to try it!



- Try alternating rows of maize with rows of trees. Small groups have tried alternating a 3m strip of maize with a row of moringa / yellow cassia / leucaenia / bead tree (mlonge, mjohro, mlusina, mmelia) trees.

- Small groups particularly recommend maize planted with moringa.
- Rows of sorghum can be planted inbetween rows of moringa or leucaenia.
- Experiment with the spacing to see what works best, and let TIST know the results.

Crop Rotation Ideas

- Try planting maize and groundnuts together in year 1 and in year 2 plant sorghum.
- Or try planting groundnuts in year 1 and then a mixture of legumes, sunflower and/or potatoes in year 2.
- Try leaving land fallow for a whole year, then using it for 3-5 years before leaving fallow again. This will give the land a chance to replenish its soil nutrients.

Trainers, keep bringing in more ideas and experiences!



3. Tree Planting

Transplanting



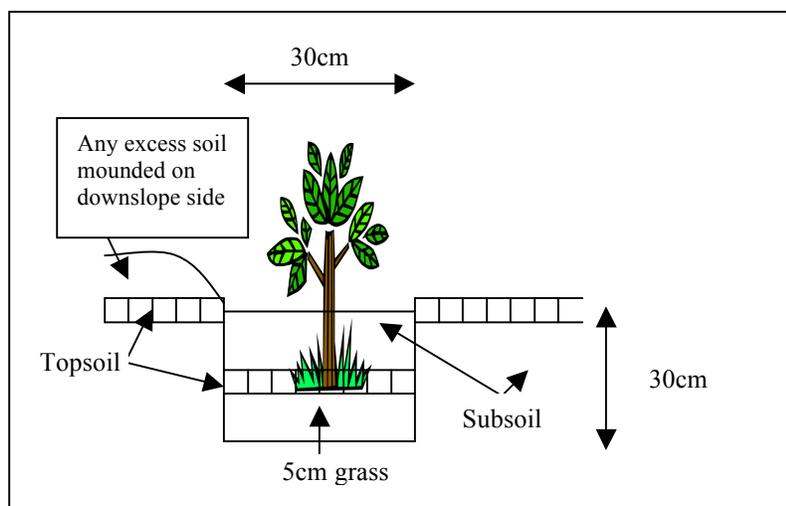
Time: 10 minutes

Method: Reminder



Ask the participants if any group has started to transplant their seedlings. Get their advice and feedback. If some groups have not started yet, go over the details again:

- ⊕ Transport the seedlings in an upright position
- ⊕ Mark out a circle with a diameter of 30cm in the field
- ⊕ Remove the topsoil and place in a pile
- ⊕ Remove the next soil layer to a depth of 30cm and place in a separate pile
- ⊕ Put in a 5cm layer of grass (dry grass in rainy season, fresh grass in dry season), (called *mulching*). Some groups add manure as well.
- ⊕ Remove the seedling from the polythene bag. Do not break the earth-balls around the roots.
- ⊕ Place the seedling in the hole
- ⊕ Replace the topsoil first, then the second soil layer.
- ⊕ Some groups do not fill the hole completely, but leave a gap of a few cm. This helps the rainwater enter the hole and infiltrate the soil.
- ⊕ Any remaining soil can be placed in a mound on the downhill side of the seedling. This will help trap any rainwater and divert it into the hole.
- ⊕ Water the seedling.





4. HIV & AIDS

Caring for the terminally sick



Time: 20 minutes

Method: Group work



Divide the participants into groups. Ask them to discuss the special needs of patients who are terminally ill. What should caregivers bear in mind when looking after such patients?



Care for terminally sick patients

When it has become evident that the AIDS patient is in the last days of life, it is important that all the concerned (patient, family and friends) should be prepared to accept the imminent death and know how to continue with life after the patient has died.

The patient and caregivers should be directed to do the following:

- The patient should sit or be made to sleep where he / she is not going to be disturbed.
- Reduce pain as much as possible.
- Keep the patient and surroundings clean all the time.

- The patient should be asked what he / she needs and these should be fulfilled as much as possible.
- Continue to listen to the patient. Listen to their thoughts, feelings, worries and hopes. Speak words of comfort and wise counsel. Try to help the patient understand what he / she is feeling.
- If the patient wants, he / she should be assisted in his / her funeral arrangements and in preparing the will.
- Pray with and for the patient if the patient desires.

How TIST can help people with AIDS



Time: 10 minutes

Method: Group work



Back in the groups ask participants to discuss how TIST can help those with AIDS.



- Whilst the patients are still strong they have the ability to participate in TIST activities. They can help with the nursery, transplanting seedlings and conservation farming. Therefore a patient does not have to start feeling unproductive as soon as they hear about their status – they can still do useful work with long-term results.
- When patients plant trees they are making a long-term investment. Those trees, provided they stay alive, will continue to be paid for by TIST. Hence the patient can feel he/she is making a contribution to the future of his/her family. This is in contrast to patients often feeling that they are useless and worried that they have not made provision for their family after their death.
- Not only will the patient's family get the payment from TIST for the trees, but they will receive all the benefits of the trees themselves, which is worth far more! There will be the benefits of shade, medicine, fruit, firewood, fodder etc.
- Being involved in a TIST small group helps form a sense of community and belonging. The hope is that friendships will be strengthened so that other group members will help to look after the patient during times of sickness.

- Patients can pass on the training they have received from TIST to their family and friends. This training can make a difference in people's lives that goes beyond the lifetime of the patient.

5. Hygiene & Sanitation



Time: 30 minutes

Method: Group work

A. Hand-washing



Split the node participants into new groups. Ask groups to discuss for 5 minutes the following questions:

- i. When do people wash their hands during the day? E.g. Before cooking? Before or after eating? After using the latrine? When are the most important times to wash hands?
- ii. What do people use to wash their hands? E.g. Just water or soap and water?
- iii. Do you think hand-washing is a good practice? If so, why?



Make sure that the participants know the reason why hand-washing is a good idea. Throughout the day our hands get dirty and have germs on them. Germs can enter our bodies and make us sick. It is important to wash our hands thoroughly with soap and water to kill the germs and stop us getting sick. Especially important times of the day to wash hands include before preparing food, after using the latrine and before eating.

If we do not wash our hands well our family may get diseases like diarrhoea more often.



Ask for two groups to prepare a quick drama. The first group should demonstrate a family where hand-washing is not practiced. They get ill often with stomach problems. The second group should demonstrate a

family that is healthy because they wash their hands properly at all the important times.



Ask the large group whether their homes or local institutions (churches, schools) have hand-washing facilities.

Then put people back into their groups to come up with ideas of simple hand-washing facilities.

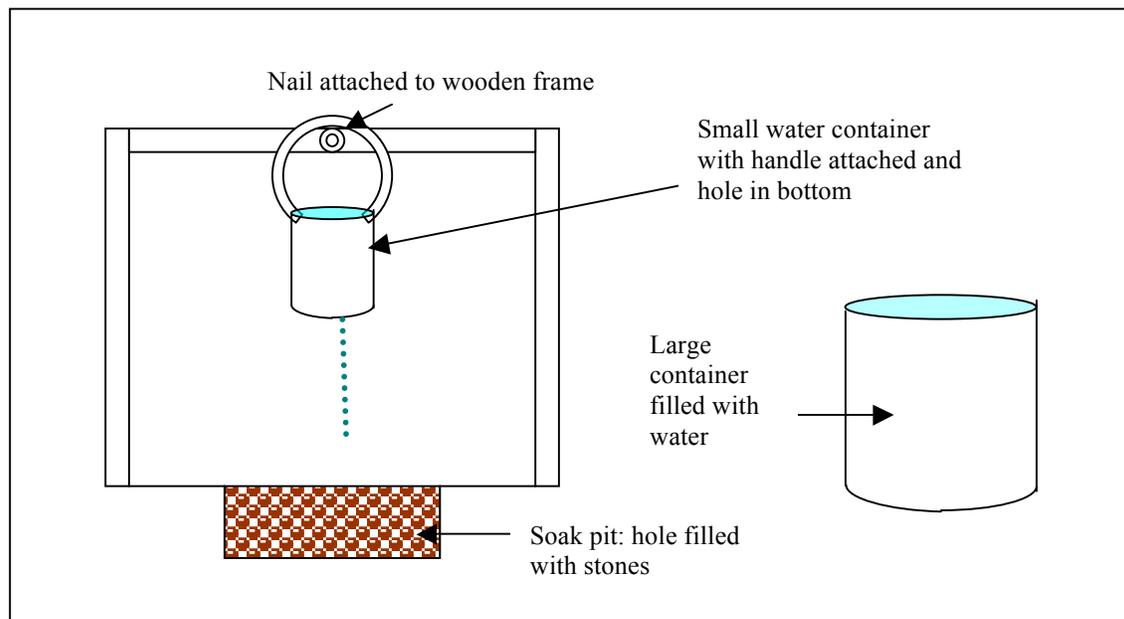


The simplest facility is just to have a small jerry can filled with water placed outside latrines. Soap should also be provided. However, this method is not ideal as people have to touch the jerry can before and after washing their hands which can still spread germs.

An alternative hand-washing facility can be made like this:

1. Make a simple wooden frame with a nail in the middle for a peg.
2. Make a soak pit for the waste water by digging a hole around the frame and filling it with stones. This will let the waste water drain away into the soil.
3. Get one big open container (a barrel or cut-open jerry-can) and fill it with water.
4. Find a smaller open container, like a cut-open water bottle.
5. Make a small hole in the bottom of this container and fix a handle to it.
6. Dip the small container into the larger one to fill it with water.
7. Hand the small container on the peg so that the water starts to drip through the hole like a tap.
8. Wash your hands with soap.

The advantage of this system is that you only touch the small container once to fill it with water. After washing your hands there is no need to touch the container again, and using a small container means you will not waste much water.





Encourage the small groups to make action plans to equip their homes and community with simple hand-washing facilities.

B. Drying utensils



Ask participants if they dry their cooking and eating utensils after washing them.



Explain to participants that drying utensils is the best practice because left-over water can hold germs. Encourage groups to use a clean cloth to dry utensils, or to make a simple drying rack out of wood to let utensils dry in the sun. Encourage any person who already does this to explain how to do it.

C. Mosquito and rodent control



Back in the small groups ask how participants can look after their homes to reduce the presence of mosquitoes and rats.



- Clear your compound of any unwanted bushes or grasses.
- Stagnant water provides breeding ground for mosquitoes – drain away any stagnant water near your compound.
- Clear away any leftover food over-night.
- Keep rubbish outside the house in a covered container or rubbish pit.
- Sweep your house and compound daily.
- Remember to use mosquito nets when possible



6. Sustainable Development

Waste Management



Time: 20 minutes

Method: Group work



Ask the big group how they would define 'waste' or 'rubbish'.



Definition of waste: waste is any material that is a by-product of human activity and may not have any immediate value. This includes

- Human excreta/waste
- Domestic rubbish like left-over food
- Waste paper
- Polythene bags
- Scrap metal, old batteries (dry cells)
- Sewage sludge etc.



What causes rubbish problems in your community?



Causes

Waste is inevitable but is made more problematic by:

- ⊕ Wasteful / inefficient use of resources
- ⊕ Lack of methods for reusing waste
- ⊕ Lack of waste disposal sites (latrines, rubbish pits)
- ⊕ Lack of knowledge about the dangers of poor waste management



Ask people what some of the consequences of poor waste management are.



- ✗ Ugly littering of fields and compounds, loss of beauty of the area
- ✗ Pollution of water, air and soil
- ✗ Disease outbreaks
- ✗ Blockage of drainage channels
- ✗ Toxic poisoning and fumes from old batteries



What can your small group do to help the problem?



Solutions

- ✓ **Reduction:** minimize generation of waste.
- ✓ **Reusing:** use materials again where possible (e.g. plastic bags)
- ✓ **Composting:** Save organic waste (left-over food and fodder) as a natural fertilizer for use in gardening
- ✓ **Dig a rubbish pit in your compound.** Remember only to burn paper and card. Do not burn batteries as they may explode – put them into the pit latrine.

Sustainable Development



Time: 15 minutes

Method: Lecture

Definition of sustainable development:

'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. (WCED, 1987).

- This means that sustainable development aims to increase the quality of life whilst making sure that the environment is able to continually supply the natural resources and services required *i.e.*
 - i. Resources should not be removed faster than they can be renewed.
 - ii. Waste products from resources should not be produced faster than the environment can safely absorb them (e.g. forests absorbing the carbon dioxide from burning fossil fuels).

Common characteristics of sustainable development

Although there is not one single definition of sustainable development (the idea continually evolves), there are some constant underlying principles.

1. **Concern for equity and fairness.** This means protecting the rights of the poor and marginalized, and also considering the welfare of future generations.
 - Each nation should be able to develop in keeping with its own cultural and social values without preventing other nations from doing the same. Hence no country should participate in activities that destroy the quality of environmental resources in other countries.
 - Future generations are not able to speak for themselves, yet if development is to be sustainable then it must consider their interests and rights.
2. **Long-term view.** This requires thinking about the consequences of actions beyond the present day. When an activity threatens to harm the environment or human health in the long run (even if the threat can not be scientifically proven yet) then precautionary measures should be taken to prevent future damage. This is called the *precautionary principle*. Some people have said that a sustainable world could be realistic if each generation properly considered the interests of the next generation (*i.e.* considering impacts over the next 50 years).

3. **Systems thinking.** This means understanding that there is one Earth with finite resources, and that all our actions operate within this larger system. The environment, society and economy all interact in time and space. The consequences of decisions made in one part of the world can quickly affect other parts.

Conclusion: Sustainable development presents a set of values that seek to safeguard our future. There is no single plan to be followed; it is up to each country and community to decide how the principles can best be implemented in their region.

Sustainable development clearly involves understanding our environment, problems and solutions. It is only when the environment is fully considered and appreciated that social and economic development can take place in a sustainable way. We have looked at different environmental problems in your community throughout the node training. You have helped identify ways to overcome the problems in your small groups.

Continue to look after your environment for yourselves and your children so that you can improve your lives in ways that our earth can support.

- What is your definition of ‘development’?
- What role does managing the environment play in your definition?
- Have previous generations handed you a sustainable world?
- Do you think you will be able to pass on a sustainable world to your children? How?



7. TIST Program Participation

TIST Program Requirements



Time: 5 minutes

Method: Reminder

Remind the participants of the following TIST program requirements:

- Have at least 1000 trees per group per year.
- One acre of conservation farming per group member.
- Submit small group monthly reports as often as possible (three consecutive SGMRs are required for a voucher)
- Small groups should sign the GHG contract.
- Remember to meet in your small group as often as possible.

8. Notices

Remember to make sure everybody knows where and when the next node meeting is.