Topic 2: Understanding the Impact of Food Choices

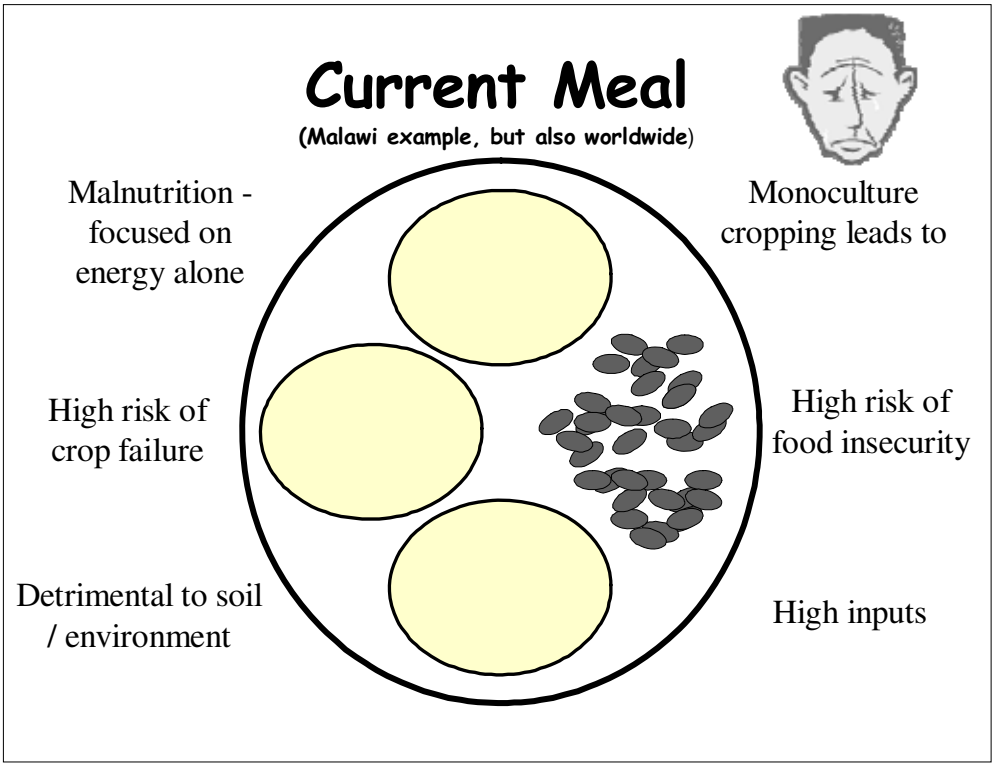
☑ Current meal

What did you (or the group you are talking with) eat for your last meal? What about the meal before that? In most cases, the answer will be *nsima* and *ndiwo*. How much *nsima* was on the plate? A mountain! How much *ndiwo*? Very little. There are several problems with choosing to eat this way. Firstly, this diet is unable to provide our bodies with all the nutrients that it needs for health, growth and energy. The diet might meet energy needs and make us feel full, but other forms of malnutrition are high in Malawi, mostly because of this eating pattern.

Next, if you choose to eat this way, a farmer must raise the plants and animals to supply it to you – this is true whether you buy or raise your own food. The natural diversity has to be cleared away to make room for mostly one food, maize, and another area cleared to provide the '*ndiwo'*. These monocultures are very risky – if the one crop that is raised is attacked by a disease, or an insect, or the weather is not favorable for that item, then the crop or animal suffers, resulting in a poor food supply. This puts households at a high risk for food insecurity.

Another harmful effect of monocultures is the impact on the environment. The soil becomes exhausted of its nutrients. The insects and diseases love these conditions and can easily attack the plant that is growing there. This leads to high use of 'inputs' to fight the insects and diseases and to possibly provide the plants and animals with 'treatments' in the form of fertilizer, antibiotics, or other chemicals.

It also means high labour and time input for the farmer that is raising the foods.



Source: Permaculture Nutrition Manual 2004 edition, Stacia & Kristof Nordin, nordin@eomw.net
Full page handout available in appendix

Cycle of Dependency

Unfortunately, the current lifestyle in Malawi is not strengthening the Cycle of Better Living; it is essentially doing the opposite. The method which people are using to produce maize is destroying the environment and many people are caught in a 'Cycle of Dependency' which they are finding it difficult to break away from. This dependency is a relatively recent change in Malawi's history:

- Change from a variety of traditional foods – Diets have evolved with humans and Malawi is no exception. Maize was first brought to Malawi with the Portuguese in about the 1790's and it took quite a long time for it to catch on as a food, probably around 1910. So just about 100 years ago, people in Malawi were eating primarily from the indigenous food supply: millets, sorghums, roots (like yam), vegetables, fruits, nuts, beans, oil seeds, animals, and insects. These foods were found at all different times in the year, not just during one harvest month. Ask some of the elders around you what foods were there back then, what life was like, and how many years people were living back then.
- Maize takes over – After maize was introduced it took about 120 years to take over. Why did people change? Maize was probably encouraged because of its higher yield compared to the millets, sorghums, and roots, but the maize was not as well-adapted to Malawi's climate and insect population as the traditional foods, so it was more susceptible to failure. In addition maize is not as high in nutrients as the millets and sorghums. Another reason it may have been encouraged is because it is what the foreign influences knew how to grow. Others might have wanted to copy the so-called "developed" countries instead of the "lower status" stigma that were given to the local foods. Whatever the reason, the governments during that time put policies and programmes in place favouring maize and established penalties if the policies were not followed.

- Hybrids and fertilizer – As people cleared more land of local plants, trees and animals (which were traditional foods, medicines and other needs) to make space for maize, they exhausted the land. In answer to this, seeds were changed (to hybrids) to be able to grow in the poor conditions humans created and chemical fertilizers were imported. At first the government paid part of the price for these new inputs so that people could afford to buy them, but eventually the government could not afford it so the inputs became too expensive for people to afford.

- Selling food and resources for money – To get the money for inputs, people sell their crops and animals – the very items that they spent so much time, money and energy to raise! Each year the soil becomes more unhealthy, so each year the farmer tries to buy even more fertilizer and seed.

- Loss of knowledge about local options – While people became so focused on maize, many lost the knowledge of other options for agriculture and eating. Most people are unsure how to care for the soil and do not know the foods around them or how to use them.
- Cycle of Dependency – As people lose knowledge of alternatives to the system of hybrid seed and fertilizer, they are stuck in the cycle of high input farming – a cycle of dependency. This cycle is producing the 'current meal' and affecting our health, the health of our environment, our social interactions, our self-esteem, and our economy.

This Cycle of Dependency can start being broken immediately by putting into practice the Cycle of Better Living which will be covered on the next pages. As the Cycle of Better Living strengthens, we can move away from chemicals, high labour and other high inputs.

As we move through the topics in this model, we will discuss small, simple steps that can be used to help us break this Cycle of Dependency in more detail.

1.) New Crop, Maize: Farmers are encouraged to abandon traditional food sources for higher yielding hybrids such as maize.

2.) Change in diet: Maize takes over as the crop of choice. Early yields, as promised, are extremely high.

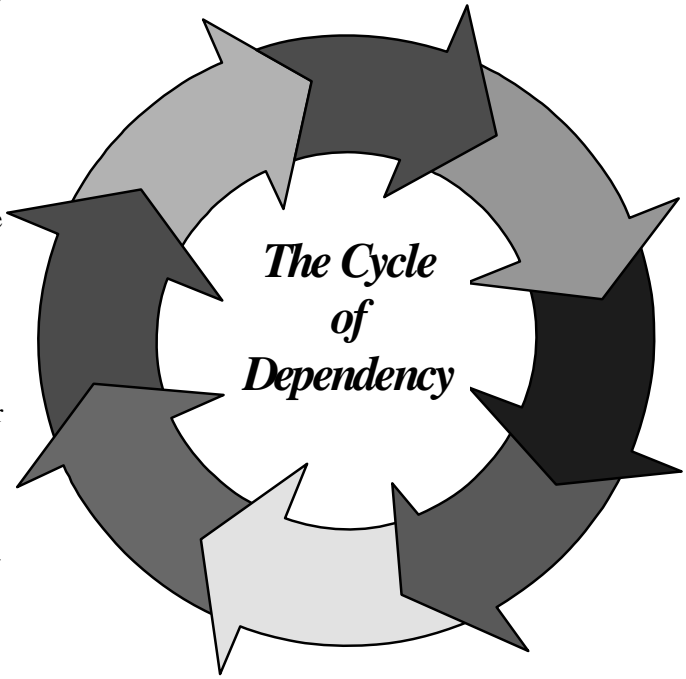
3.) Money Required: The higher yields, however, carry a price. Hybrid seeds are not self-replicating and therefore need to be repurchased each year. Maximum growth is encouraged through the use of expensive chemical fertilizers.

4.) Soil Destroyed Successive maize crops on the same soil combined with the "slash and burn" method of preparing for each year's planting begins to take its toll. As less organic matter is added back into the nature cycle, more chemical fertilizer is needed to maintain the yields.

5.) More fertilizer, less money: Local farmers are forced to sell off more and more of their yields in order to cover the costs of the increased demand for artificial fertilizer and new seed. Less food ends up being saved each year as more ends up being sold.

6.) Dependent on Inputs Farmers end up caught in a "cycle of dependency" where each year they are dependent on buying seed and chemical fertilizer to ensure a harvest. Many find that they can barely afford to produce enough maize to meet both their food needs and their expenses.

7.) Forgotten alternatives Over reliance on a single crop causes susceptibility to drought, pestilence, crop disease, and a poor diet—which in turn increases vulnerability to malnutrition and human diseases. As this dependency grows, alternatives disappear. The knowledge of indigenous plants that had once been used or grown as food crops slowly fades out of memory, and people become locked even deeper into this detrimental cycle.



Source: Permaculture Nutrition training manual, draft 2003, Stacia & Kristof Nordin, nordin@eomw.net
Full page handout available in appendix

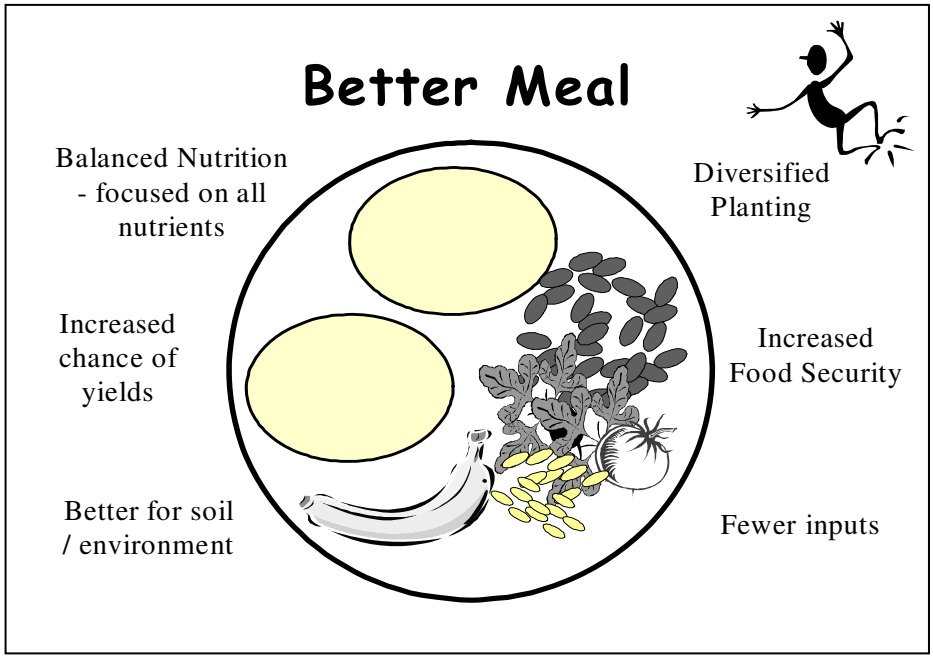
☑ Better Meal

There is a better choice than the current meal and the problems that come along with it! This better meal is the *same total amount of food* as the current meal. A better meal has a balance of different foods on the plate, and the foods change from time to time to include a wide variety of different foods. The main differences are:

1. There is *less nsima* or other 'staple' on the plate than the current meal has. And, instead of choosing maize *nsima* every meal, other grains, starchy roots or starchy fruits are included. There still may be *nsima* on the plate at every meal, but it will be made from different foods.
2. The *ndiwo* (vegetables or beans or nuts or animal foods) and *fruits* on the plate are increased, and the type of ndiwo and fruit changes from time to time to include a wide variety of different choices. These *ndiwo* provide more nutrients than the staple foods, making the nutrient content of the meals higher with less bulk.

The benefits of this meal are that it provides all the nutrients a person needs and it supports a farmer to produce a wide variety of different foods. This diversified planting and raising animals in an integrated way helps each part of the farmer's designs to support each other, to balance the insects, to naturally prevent diseases, and to be ready for any type of weather. There is an increased chance of harvesting many different foods *all year long*. Even if the maize does poorly, there will be legumes, animals, fruits, root crops, oilseeds, just as a few examples, that will do well. This can improve the food supply during the whole year.

Growing a variety of foods is also better for the environment, helping to create healthy plants and animals and taking away the need for chemical treatments and other high input treatments. Other inputs such as labour and water also decrease over time as the soil, plants and animals become healthy again.



Source: Permaculture Nutrition Manual 2004 edition, Stacia & Kristof Nordin, nordin@eomw.net
Full page handout available in appendix

Cycle of Better Living

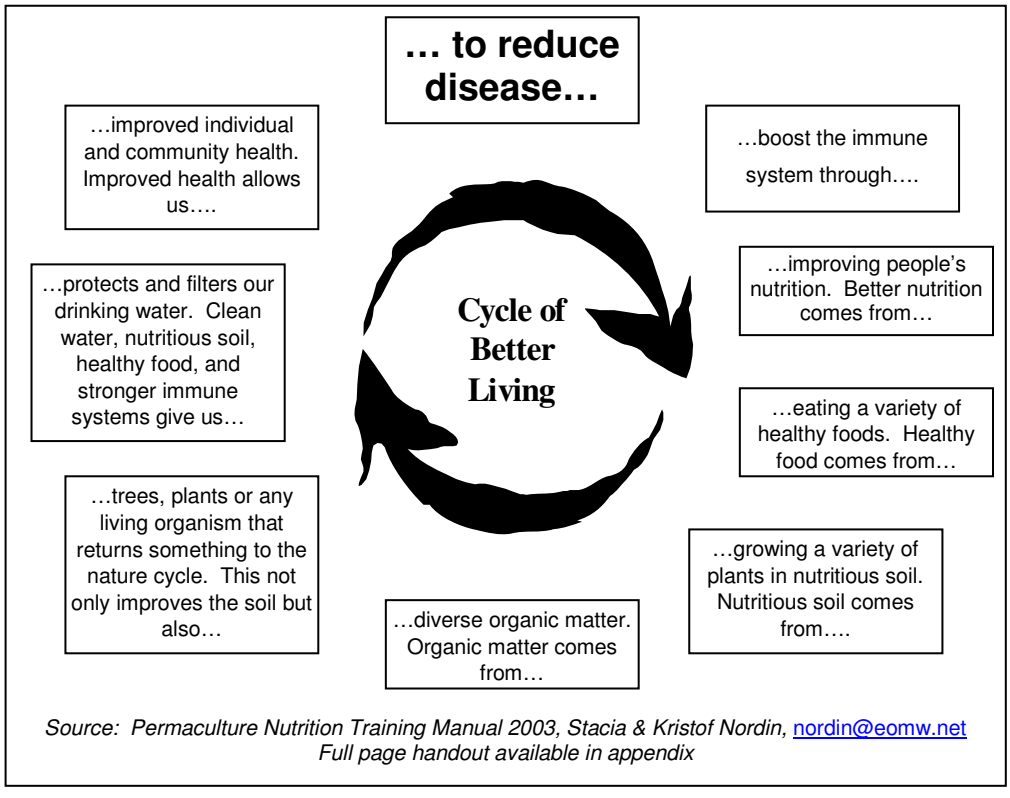
Another way to look at this better meal is through a Cycle of Better Living related to health and the environment. If we want to improve our health and our quality of living, we need to start seeing how everything is connected to everything else. This is what is meant by the saying,

"No problem or solution stands on its own"

When we look at the following cycle we will see that every part of it needs to be nourished and strengthened to achieve a healthy life.

- ✓ To prevent and fight diseases our bodies must have a strong immune system. Our immune systems work inside us like an army to keep out diseases and to fight off any disease that do make it inside.
- ✓ Part of strengthening the immune system is to provide the body with good nutrition. We also need clean air, exercise, rest, work, etc. to strengthen the immune system.
- ✓ Good nutrition requires a diverse variety of healthy foods.
- ✓ Healthy foods require nutritious soils in order to grow.
- ✓ Nutritious soils require diverse organic matter (the soil's 'diet').
- ✓ Diverse organic matter comes from having a wide variety of trees, plants, and animal life.
- ✓ When the soil is healthy it also protects, filters and purifies our water.
- ✓ Clean water and organically-rich soil lead to a healthy environment that provides us with nutritious foods and healthier living.

Healthier living means longer, stronger, quality lives with which we can dedicate towards strengthening this cycle even further! Each of these topics will be covered in this manual and we will share specific ideas for strengthening this cycle.



Source: Permaculture Nutrition Training Manual 2003, Stacia & Kristof Nordin, nordin@eomw.net
Full page handout available in appendix

Teaching about the Current Meal and Better Meal

- **Posters**: When using the model to teach others, it is helpful to have a poster with a picture of the current meal on one side of the page and a picture of the better meal on the other. Before showing the picture to the group, discuss with them about their current way of eating. After they tell you what they usually eat, ask if it looks similar to the picture you drew. Discuss the problems with the current meal, then show the picture of what we are aiming for. This Current Meal / Better Meal poster should go up on a wall so you can use it throughout your teaching sessions.
- **Discuss with a Flip chart or blackboard:** This is helpful, but not required for guiding discussions about the 2 cycles. The facilitator can ask leading questions for each point and as the participant give the answers, write key works around the cycles. Most people know this information, the facilitator can help make the connections and draw out lessons.
- **Meals and Snacks**: This is a good time to discuss the menu for the workshop or sessions. Be sure that the foods you serve are delicious, and then describe the meals and snacks with excitement (not over-excitement as they may think you are trying to fool them!).
- **Menu Hints:** There are menu ideas and recipes in the appendix of this manual to help guide you. In workshops, make the menu changes slowly throughout the week (or whatever timeframe you have).

Hint 1 - Start close to what people know: I generally start with a meal similar to what people are used to, but with a few small changes such as: 2 *chipande* of *nsima* made with a mixture of *mgaiwa* and *ufa woyera*, 1 *chipande* of beans with lots of herbs and flavours, half a *chipande* of lightly cooked greens and 1 fruit. If the reaction is ok, I then reduce the number of times maize is served each day and increase the variety more and more.

Hint 2 - Serve a favourite item with a new item: Another hint I use is to always serve a favourite food when a strange food is served – an example of this would be to serve grilled chicken with unpeeled fried potatoes, and a raw vegetable salad. People tend to love chicken, but aren't too sure about potato skins and raw vegetables. (This meal is an example of getting the most nutrients from your foods through edible skins and raw foods). The idea is to wean people onto the Better Meal, not to scare them off! There are a lot of other creative menu plans, including a few examples in the appendix. Try them yourself and have fun with it!

- **One Experience with the Cycle of Dependency:** One of the model reviewers, Katie Greenwood, wrote that in her experience, Malawian subsistence farmers are often aware of the changes that have taken place in regards to the Cycle of Dependency. She draws on the history-based approach to describe the changes in agriculture, and have found people respond well to it. She tries to bring people to their own conclusions by asking leading questions. One leading question she often uses to begin is asking older people in the group how agriculture has changed since the time they were children. She was very surprised how well most people could identify the progression and consequences of chemical fertilizer use. She also emphasizes in her discussions that this is not only a Malawian problem, but in fact it is exported from "developed" countries largely for their own benefit. And the high input agriculture and diet is causing problems there, too!

☑ Nature Cycle

Before talking about how to raise and eat our food, it is important to understand the soil, water, plants, trees, animals and insects around us. To do this we need to understand the Nature Cycle – this is how the earth has continued for thousands of years to maintain its own health.

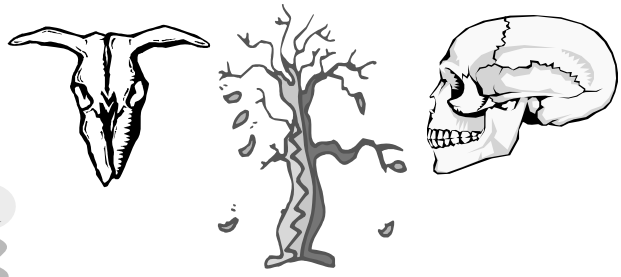
- Death: Everything in Nature dies. When it dies what happens to it? Think of a leaf or anything else that has died and dropped to the ground.
- Decomposition: It may be eaten by animals or insects (such as termites or earthworms) and made into manure, or it may be crushed under someone's foot or paw. After it is crushed up, it mixes with chemicals in the soil made by very small animals (micro-organisms).
- Nutrients: The nutrients from the leaf are now in the soil. Some nutrients can be used by the plants, other nutrients need to be changed before the plants and trees can use them.
- Sun, Water, Air: Nutrients mix with water, air, sun and/or other chemicals so that the roots of plants and trees can use the nutrients to grow.
- Plant & Tree Growth: When the plants have the nutrients, sun, water, and air they need, they can grow. Each species needs different amounts of nutrient, sun, water, and air.
- Use of Plants & Trees: Animals (such as humans) and insects use the plants and trees so that they can grow. Animals eat the plants and then another animal (such as a human) may eat the animal. Some animals and insects eat plants, others eat animals, and others eat both plants and animals. While the animals and insects are living they leave their manure and other waste (such as feathers, hair or fingernails) to feed the soil.
- Death: After some time, plants, trees, animals and insects die, all at different times. When each of them die they strengthen the soil. **This happens over and over and (repeat!).**

Now think about things around you that don't die – such as human made plastics and chemicals, what happens to these items when they enter the nature cycle? These items will block the cycle instead of assisting it. More will be said on waste in the Soil Health Topic.

Teaching about the Nature Cycle

- **Go Outside!** The best way to use the nature cycle is to go outside and look at it! Take a walk, look at things dying and living; at decomposition; at the effects of sun, water and air; at plants and trees growing; and at things using the plants and trees. Talk about non-organic trash and what happens to the nature cycle when plastics and chemicals are used.
- **Link to Religion:** Many people in Malawi quickly connect the Nature Cycle to their religious beliefs, such as creation, and bringing up this connection may catch the attention of many. This may not be appropriate in some cases, be sure to know something about your audience!
- **Posters / Flip Chart / Blackboard:** The following page shows an example of what the nature cycle looks like. This can be drawn with pictures and titles in the local language.

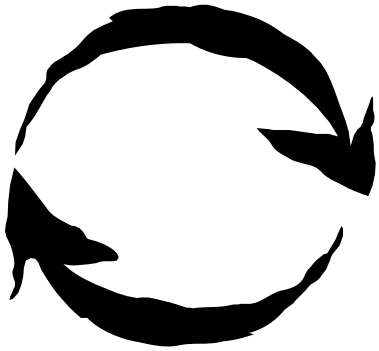
The Nature Cycle

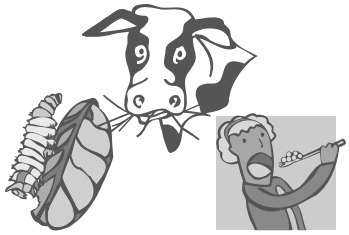


DEATH
All things in nature eventually die. This process of death is not the end of the cycle, it is only the beginning. Without death there would be no life. Humans are not exempt from this cycle, we are part of it.

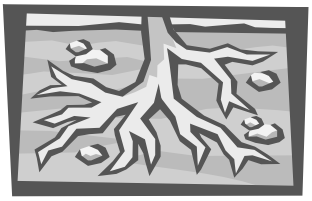
LIFE
As the cycle of nature is strengthened, life begins to sustain and renew itself. As life passes on to death, it not only continues the cycle, but enriches and nurtures it.

DECOMPOSITION
When organic matter dies, insects, animals and micro-organisms break it down into smaller parts. This decomposition releases nutrients into the soil.





PLANT USE
All living things use plants and trees for food, shelter, fuel, building supplies, medicines and more! Plants give nutrients back to the rest of the nature cycle.



NUTRIENTS
As decomposition releases nutrients they are changed into a form that can be used by plants. The plants absorb these nutrients through their root systems.

PLANT GROWTH
The healthier that the cycle of nature is, the healthier the plants will become. This allows them grow up strong, fight off pests and disease, and produce offspring with these same traits.

SUN, WATER, AIR
Some of the nutrients must combine with other things before they can be used. Plants use nature's gifts of sun, water, and air to convert their nutrients into energy. This energy allows plants to grow.

Source: Permaculture Nutrition Training Manual, Draft 2003. Kristof & Stacia Nordin nordin@eomw.net
Full page handout also available in appendix

☑ Testing your understanding of the impact of food choices

1. What is the Current Diet? How does it impact health, food security and environment?
2. What is the Cycle of Dependency and what are 3 ways it can be broken?
3. What are the main differences between the Current Meal and Better Meal?
4. What is the Cycle of Better Living and what are 3 ways it can be strengthened?
5. What is the Nature Cycle? What are 3 ways we can affect it positively and negatively?

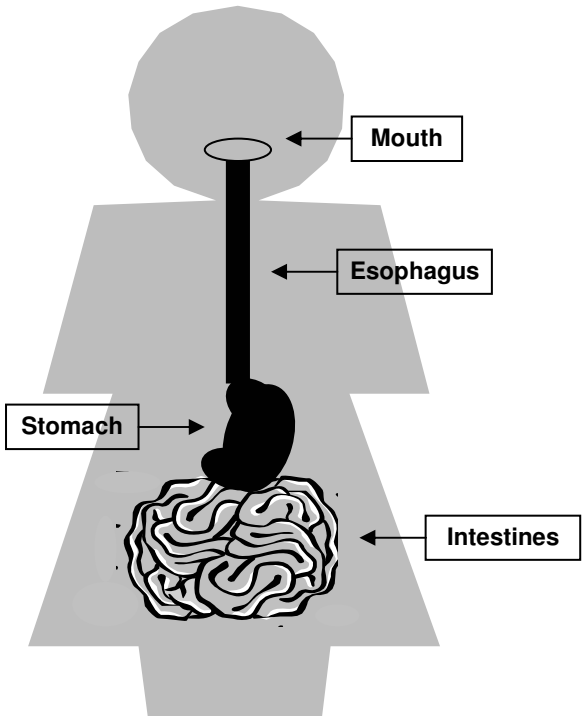
Topic 3: Diet Diversity

☑ Understanding Nutrition

Nutrition means "how any living organism changes and uses food for life". Anything that is living has its own specific nutrition needs—plants have their own nutrition needs, as do trees, animals, insects, and humans. Each of these living things satisfies their nutrition needs by using food and drink from other parts of the nature cycle. For example, plants mainly eat parts of the nature cycle that are decomposing, but there are also plants that eat insects. Animals eat both plants and smaller animals, but some animals eat just plants and others eat just animals. Even as humans we differ in what we eat, some of us eat just plants while others prefer both plants and animals.

It is from this food and drink that we get nutrients, the part of the food that the organism *must* have for life and health. So, when we have "Good Nutrition" it means that the foods and drinks you are eating are providing you with the nutrients you need for life and health. With poor nutrition our bodies have poor health, and with extremely poor nutrition, eventual death (and back to the nature cycle!).

Digestion: How our body changes food to nutrients



Source: Permaculture Nutrition Manual, draft 2003.
Similar hand drawn poster available in appendix

Before our body can use foods and drinks it must change them so that they can enter our body, it does this through digestion to break down the food to smaller parts, then uses absorption so the nutrients can enter the body.

- → Mouth: When you give your body food the first thing you have to do is chew. This is the first part of digestion, and if we chew well, it makes the rest of the digestion process much easier.
- → Esophagus: After the food or drink leaves our mouths, it enters our esophagus for swallowing. Both chewing and swallowing takes energy, which is one reason we give soft, easy to swallow foods to people who are sick.
- → Stomach: the food mixes with liquids and

enzymes, which are chemicals that break down the food to very small pieces. These enzymes are sometimes part of the foods that we eat and they can also be made by the body. Now the food and drink is all mixed up and you can't even tell what it was to begin with! Now it is nutrients and other things and they are ready to be absorbed or removed from the body.

- Absorption is how nutrients enter inside the body so that they can be used, which takes place mainly in the intestines. Some substances don't enter the body but instead continue on through the digestive system and leave at the end of the intestines. The nutrients that are absorbed pass through the wall of the intestines and enter the body's blood stream.
- Blood: The blood carries the nutrients to where they are needed in the body, or if they aren't needed right away, the body will store them for later use. Some nutrients are stored very well in the body, but others are not and need to be a part of our daily diet, such as water.

Teaching about digestion

- **Poster:** A visual aid showing the key parts of the digestive system is helpful (mouth, esophagus, stomach, and intestines). You can also appropriately point to the own parts of your body to emphasize the areas that you are talking about
- **Connections**: Many connections can be made to digestion and absorption:

(1) You can connect to the way the soil works to chew organic matter and uses chemicals to breakdown the nutrients and the way plants absorb nutrients into their roots. You may wish to do this once you get to the section on soil instead of now, but you can mention that later there will be a connection to the soil.

(2) You can connect to disease prevention explaining that healthy intestines can prevent harmful bacteria from entering into the body. Healthy intestines are made by eating all the nutrients your body needs.

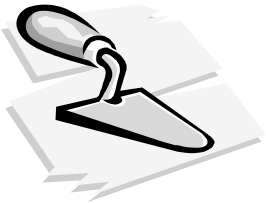
(3) You can talk about enzymes and can connect to the fact that eating raw plant foods provides enzymes for easier digestion (lemons are one food that is hailed in positive living manuals) - cooking plant foods destroys the enzymes.

(4) You can connect to times of illness and the importance of eating foods that are easy to swallow, digest and absorb.

6 Nutrient Groups

We now know of almost 50 nutrients that the human body must have to sustain life, although scientists are still finding and naming other substances in foods and drinks that can improve human health. One of the easiest ways to teach about the nutrients is to describe the nutrients in 6 groups instead of naming all of them individually. A simple way to learn about each nutrient group is to relate it to a home and the things that are used to keep that home in order:

To build a home in Malawi we first start with the *bricks*. Just like bricks build our home, **proteins** work to build the walls of all the structures in our body. Proteins are used to build hair, skin, muscles, etc. Just like bricks are made of many ingredients, protein is also made up of smaller parts, there are 8 types of protein that we must eat as adults; babies have 1 more they must have and it is found in breast milk.



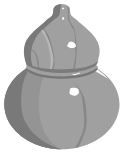
The **minerals** are required in many areas of our bodies where they join or connect parts of our body together. Just like *mud* connects the bricks our homes, minerals connect bones, blood, and other parts of our bodies. There are at least 14 different minerals that our bodies must have.

The **carbohydrates** are what our body burns for its daily fuel needs, much like *firewood* in Malawi that we burn on a daily basis for cooking and heating water. Carbohydrates give us energy for living, working, playing, thinking, etc. There are 2 types of carbohydrates commonly referred to as 'starch' and 'sugars'.

The **fats** in our body are also burned for energy, but they give more fuel than the carbohydrates and they are easy for our bodies to store for later use. This is much like *paraffin*—it is stored easily in our house and we burn it less often for fuel. There are 3 types of fat that we must eat, all come from plant sources.

The **vitamins** are important for protecting our body from intruders that are trying to cause disease or sickness in our bodies. This can be likened to a *watchdog*, which protects our home from unwanted guests. There are at least 16 vitamins that our bodies need for protection.

The last of the nutrients, but probably the most important as we would die very quickly without it, is water. **Water** has many cleaning jobs in the body, similar to the way that we use *water for cleaning* in our homes. Drinking water is forgotten in many food and nutrition programmes, and this is something that needs to change!



Nutrients are not the only thing that keeps our bodies healthy, strong and energetic, there are also other parts of our foods and drinks that work to fight against disease, such as medicines and fibers. **Fiber** is found only in plant foods and assists our bodies in removing waste and disease. It works with water in our bodies to sweep away waste much like a *broom* works in our homes to sweep away dust and other debris.

All these nutrients work together for 3 main purposes:

1. to **build** the body,
2. to give the body **energy**, and
3. to **protect and heal** the body from diseases.

It is important to remember that all the nutrients need each other to work properly. Eating a diverse diet that includes a wide variety of foods can provide all the nutrients that we need. In the next section we will look at how we can plan our diets to make sure we get everything that we need.

Teaching about Nutrients

- **Poster**: A creative poster showing a village that highlights the bricks, mud, firewood, paraffin, watchdog, water, and a broom is helpful for this lesson. Keep the poster up as you will refer back to it all the time.
- **Foods or pictures of foods:** Showing foods for each of the nutrient groups as you talk about them may help people to remember the nutrients.
- **Stress that foods are *mixtures* of nutrients:** Many people have a misconception that a food supplies one nutrient. By bringing foods into the session, you can also reinforce that foods are actually mixtures of many nutrients. When you are talking about protein you might use groundnuts as an example, and then when you move onto minerals, you will use groundnuts again, as you will again when talking about fats and vitamins! If you used ufa woyera (highly process maize flour) or other processed staple as an example, you can stress that it only supplies carbohydrate, without giving us other nutrients.
- **Reinforcement at meals and snacks:** Ask people what they are eating for nutrients over and over again. Use helpful hints if they aren't sure what the nutrients are, such as asking about the taste or feel of the food (generally a 'tart' or 'sour' taste indicates the vitamin C; another example is the 'feel' of fat in your mouth). There is a handout in this manual on food groups and nutrients that uses this approach. Just be careful not to go overboard with repetition or people might get irritated with you!
- **Technical figures:** For those that want more technical information about the nutrients in the current and better meal pictures, see the appendix. Both meals in the chart include 2 cups of food, but look at how many more nutrients are in the Better meal! This can also be shown in a chart or picture format, such as the Permaculture Nutrition training manual uses or the Ministry of Agriculture 6 Food Group Posters.

☑ Planning a better diet using Food Groups

Diet: Why Do We Eat the Way We Do?

The way we eat is called a diet. Diet comes from a Latin word that means 'way of life' and that is just what a diet is, the pattern of meals and snacks that a person typically eats and drinks.

We all have our own patterns of eating. What went into you learning your diet? The answers are numerous! Your parent's (or other caregiver's) choice of foods and when they made them available to you probably started your diet. Then, as you grew older and had more control over eating, other people and conditions influenced the diet that you chose—your community, culture, religion, friends, school, work, the foods that you had available because of season or cost—they can all affect the way you eat.

Because of all these reasons and more, each of us has our own diet. Many times people say they choose the foods and drinks just because they like or dislike that food. This is true in part, but taste is something that is learned and can change over time. We can each make changes in our diets so that it can provide us with good nutrition!

As was discussed in the 'Current Meal' discussion, often in Malawi a meal isn't a meal without nsima and ndiwo! The nsima is usually made from maize, and the ndiwo is usually greens or beans.

But there are also many foods and drinks that people consider as just snacks—cassava, sweet potatoes, green maize, minerals (sodas), fruits, ground nuts, breads, chikondamoyo, mandasi, chips, etc.—the list is quite extensive. What about these snacks? They are also foods and drinks. Some of them provide us with many nutrients and others very few, and that's just how our body sees it, it doesn't know that you've just fed it a meal or a snack, it just knows if you've given it any nutrients or not. Nutrients are vital for our bodies, so that it can do its work in maintaining our lives and keeping us healthy.

Diet

Parents, Religion, Taste, Money, Culture, Season, Time to Prepare, (…keep listing!)

↓

Meals & Snacks

Meals: Nsima & Ndiwo

Snacks: Scones, Breads, Nuts, Cassava, Chips, Crisps, Roasted Maize, Sweet Potato, Minerals (Fanta), Chikondamoyo, Popcorn, (…keep listing!)

↓

Food & Drink

↓

Nutrients!

Source: This may have been adapted originally from VSO's How to Group a Balanced Diet.
See Resources in Appendix

Nutrients are the most important part of food for your body!

Teaching about Diets

- **Diet discussion on a board:** Write diet on a blank board, then ask for a definition and then give the real one. Ask how people learned their diet and write down all the answers given. Say again that the definition of diet is a set of Meals and Snacks and write those words on the board. Ask what foods are a meal and list the foods given. Ask what foods are snacks and keep prompting for more! The list of foods considered a meal will probably be short, and the list of snacks will be quite long. Finally refer back to information they learned about digestion and remind them that whatever we have eaten is broken down into nutrients and this is what the body is most interested in for building, energy, and health.
- **Stress small diet changes:** An important part of changing our diets is understanding that taste is learned and can be changed over time. Stress that change doesn't take place overnight and that small steps toward a better diet are encouraged. One example of this is replacing nsima with another staple (rice, cassava, potatoes, yams, etc) at one meal to start with, then slowly increasing other staples until you have more variety. Another would be to add one more food group to your meals, then slowly add more food groups until you have at least 5 food groups every day.

The Food Groups

Nutritionists created food groups to help people select a healthy diet. We also use the food groups as a tool to teach others about good nutrition and meal planning. Each country around the world makes their own food group model depending on their culture and the nutritional needs of the people in their country. Food groups are just a guide to choosing a healthy diet, don't worry too much about getting a few foods in the wrong group, the most important thing to remember is that **variety is the key to good nutrition**.

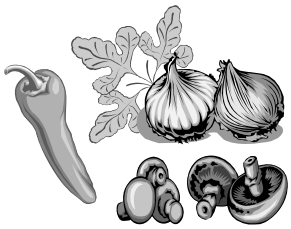
Malawi is now using a 6 Food Group model where as previously in Malawi we used only 3 food groups. The main reason for this change is to help people get more variety in their diets. The model which is included in this book is based upon the groups released by the Ministry of Agriculture in 2001. Each Agricultural Development Division (ADD) or Extension Planning Area (EPA) should have posters, a flip chart, and a community nutrition book.

It is helpful to start with what most people know for food groups and then to build from there. Most people in Malawi still know the 3 food groups, which were Protective Foods, Building Foods and Energy Foods. The new 6 Food groups just split each of these food groups into two groups as is show in this table.

Old Groups	Malawi 6 Food Groups
Protective	Vegetables
	Fruits
Building	Legumes & Nuts
	Animal Foods
Energy	Staples
	Fats and Oils

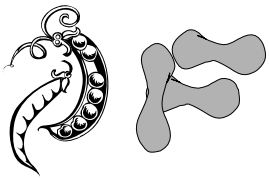
The foods in each of the 6 food groups are grouped together by the *nutrients* in the food. They are not grouped by how the food grows! For example, you will find some foods that grow in the form of a fruit but are actually a part of the vegetable or fat group. The *nutrients determine which food group* that the food will belong to. Almost all foods are a mixture of nutrients, but there are usually one or two nutrients that the food is really high in:

1. **Vegetables** – The foods in the vegetable group are primarily made up of *vitamins, minerals, and water*. Vegetables have very little of the energy nutrients, which is one thing that sets them apart from the fruits food group. Vegetables also contain fibre and many medicinal properties, especially in the herbs we use for flavor. Vegetables can include leaf crops, fungi, some root crops, and some fruit crops.

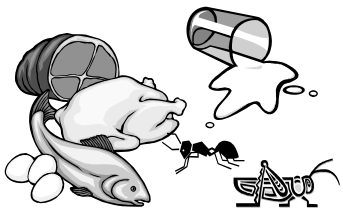


2. **Fruits** – The foods in the fruit group contain mostly *carbohydrates, vitamins & water*. All fruits grow as fruit crops, but all fruit crops are *not* part of fruit food group – some are put into the vegetables, legumes, or fats food groups. Fruits have an added benefit of fibre and other medicinal properties.

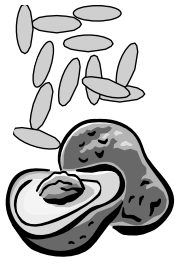
3. **Legumes & Nuts** – These are mostly *protein & carbohydrate*, but soybeans and nuts also contain a lot of fat, too. Legumes are seeds that are enclosed in a pod and may be root crops or fruit crops. Legumes are also useful for many vitamins, minerals and fibre.



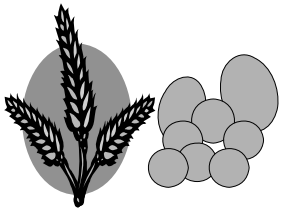
4. **Animal Foods** – The foods in this group contain *protein & fat*. Many of the foods in this group are also good sources of vitamins and minerals. All of the foods in this group are of animal origin including eggs, milk products, fish, and insects. Although this is a food group, nutritionally it is not necessary to include this food group as part of a healthy diet. Many vegetarians omit this food group.



5. **Fats** – The main nutrient is *fat* in the fats food group. Fats are easily identified by the way the food feels in your mouth when you eat it; they often feel smooth & creamy, like butter. Fats can come from oilseed crops, from animals such as lard or butter, and even some fruit crops. Oils can also be pressed out of a variety of different seeds from the other food groups.

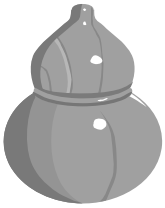


6. **Staples** – Staple foods include foods that are high in *carbohydrate*. There are many other nutrients that we can get from the staple foods group depending upon how we process the staple foods before we eat them. For example, whole grain maize flour (mgaiwa) has many more nutrients than white maize flour (ufa woyera). Staple foods include cereal grains, starchy roots, and starchy fruits.



There are some foods that do not fit into these food groups, two examples are:

- ➞ foods made from processed sugars (minerals, candy, sobo, cakes, etc.)
- ➞ drinking water.



Nutritionists generally recommend that people choose very little food that is made with processed sugar. Water, on the other hand, is a very important part of a healthy diet and it needs to be included every day in our diets.

Malawi Food Guide: The 6 Food Groups

This is a hand drawn and computer enhanced version of the Malawi Food Guide Poster. The real posters are available from the Ministry of Agriculture, Food & Nutrition Unit, Lilongwe, Area 4 at the Agricultural Communications Branch. Phone +265 (0) 1755522

Muzidya chakudya chamagulu onse tsiku lilionse kuti mukhale ndi thanzi

Chakudya Chokhutitsa

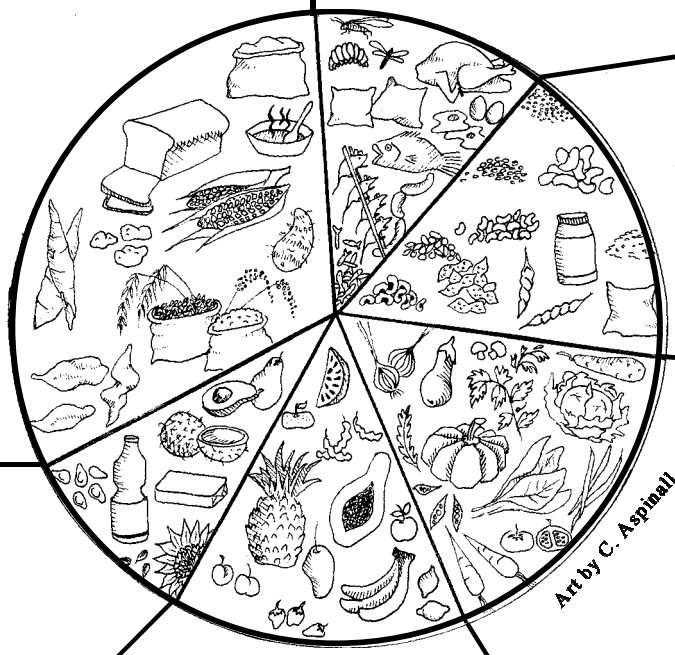
Buye, Mbatata, Nthochi osakwima
Chilazi Mpama,
Chinangwa, Coco
Magombo,
Mapila, Chinaka,
Mawere,
Mchewere,
Kachewere,
Kanjedza
Chinkhoma,
Chikolwa,
Chimanga,
Tirigu,
Mpunga, etc.

Zachokera Nyama

Chambiko, Mbewa, Ngumbi, Nyama, Nsomba, Mkaka, Mazira, Magazi, etc.

Nyemba & Mtedza

Khungudzu,
Chimbamba,
Mbula, Mtedza,
Nzama, Khobwe,
Nandolo, Kabaifa,
Kalongonda, etc.



Masamba

Msaka, Mlozi,
Chisoso, Bononge,
Maungu, Adyo,
Mabilinganya, Luni,
Zikanyanga, Chipwete,
Msaka, Zumba, Chewe,
Limanda, Kholowa,
Nkhwani, Mlambe masamba,
Mbilidzongwe, Mtambe,
Njerenjedza, Anyezi, Bowa,
Tsabola, Kambuzi, etc.

Zamafuta

Mbewu a maungu,
bononge,
kayimbe, etc.
Mafuta ophikira a
mbewu osiyanasiyana
Mpendedzuwa,
Mapeyala,
Nkoko, etc.

Zipatso

Bwemba, Masawo, Jamu, Mposa,
Matowo, Chinanzi, Mchisu, Mavwende,
Kayime, Chidede, Mkhyu, Nthudja,
Mvilo, Mbula, etc.

Artwork by C. Aspinall. Computer layout and design by S. Nordin.

Full page handout available in appendix.

Teaching the Food Groups

- **Posters**: Use the official Malawi Food Guide posters from the Ministry of Agriculture. One is included on the following page as an example of what it looks like. In the future it would be helpful to get a high quality handout of this, either in a photocopy or higher input color copies, to increase awareness of the food guide. The version of the poster used in this manual is a good start. It is a great take home reminder of the food and nutrition security discussions.
- **Foods and drinks**: Having examples for each of the food groups helps people remember what foods go into what groups. As you describe the groups, you can have a pile of foods that you put into food groups using handwritten titles. Show how much an adult should eat in one day from each of the food groups.
- **Connect Food Groups to Nutrients:** People tend to confuse the 6 groups of *nutrients* with the 6 groups of *foods*. Usually when you ask people what food group a food belongs to, they will name a nutrient instead of the food group. Repetition, practice and gentle reminders are helpful for people to remember. When I talk about the food groups I always ask, "What nutrients are in that group?" For example, pumpkin leaves are in the Vegetable food group. Vegetables have vitamins and minerals.
- **Reminders at Meals and Snacks**: All your meeting's menu should be based on the 6 food group model. You can put up a menu board or paper with the names of the 6 food groups and have the participants write the meals and snacks in the proper food group. There is a sample menu template in this manual that can assist you with this. By the end of the day, all 6 food groups should be filled in with foods.
- **Activity idea – Practice putting foods into groups / meals**: After the participants have listened to your description of the food groups, have a table full of foods that the participants have to sort into the 6 food groups. If you already did this during the presentation, put all the foods back into a pile and have them do it again to see how well they do on their own. This could be done with pictures of foods, food packages, real foods, clay food models if you had them made, or a combination of all of them. This could be made into a game as a competition. Now have people practice putting meals and snacks together for a whole day's meals for themselves.
- **Activity idea: Example Wako:** This is a common children's game in Malawi. Have the group stand in a circle and clap in a steady rhythm. As the song is sung, each person will have to fill in a correct food name that no one else has mentioned without missing a beat or they are out!

  * The leader will say: Everybody mention, *(name a food group - such as Staple Foods),*
  * For Example, For Example Wako, For Example Wako, *(name a food in that food group - buye*),
  * Wako, For Example Wako, *(next person name a food from that food group - mapira),*
  * Wako, For Example Wako, (*etc*.)
  * Go around the circle at least once, then start a new food group.
- **Activity idea Nyama! Nyama! (Meat! Meat!):** This is another popular game and I use it as an icebreaker mid-way through any very technical talk that needs to be broken up! Have the group stand in a circle and one person calls out "Nyama Nyama" then names an animal while jumping. If that animal is considered a food, the group responds by jumping and saying 'Nyama!", if that animal is not considered a food, the group remains quiet. The facilitator should jump at every Edible animal such as dog, cat, snake, spiders – many cultures eat these as a regular part of their diet and the facilitator should explain about those cultures. The facilitator should explain the lesson that there are many foods in the food supply that we could be eating, and that cultural definitions of what is 'food' should be challenged and changed.

Summary of the Malawi Food Guide: The 6 Food Groups

Food Group *(approximate adult servings per day)*	**Main Nutrients** *(other nutrients and helpful properties)*	**Examples of Foods:**
Vegetables *(3 mitanda)*	**Vitamins & Minerals** *(Protein, Carbohydrate & Fiber)*	→ **Greens**: Bononwe, Chisoso, Luni → **Fruits**: Pumpkin, Tomatoes, Peppers, → **Roots**: Onion, garlic → **Mushrooms** → **Flowers**: Pumpkin flowers
Fruits *(3 mitanda)*	**Carbohydrate & Vitamins** *(Water & Fiber)*	Sweet or tangy fruits that are often eaten raw: → **Fruits** *(except for ones in the fat group or the vegetable group):* Papaya, Guava, Lemon, Tangerine, Banana, *Mchisu*, Grenedilla → **Honey & Sugar Cane? (These provide vitamins and carbohydrate)**
Legumes & Nuts *(1 mitanda)*	**Protein & Carbohydrate** *(Minerals, Vitamins, Fiber, Fat)*	Legumes are seeds in a pod: → **Beans & Peas**: Hyacinth bean (Khungudzu), Grounbeans (*Nzama*), Soybeans, Pigeon pea (*Nandolo*), Peas (*Nsawawa*), Mucuna (*Kalongonda*) → **Nuts**: Mtedza
Food from Animals *(None to 1 chipande)*	**Protein & Fat** *(Minerals & Vitamins)*	→ **Flesh, Blood**: Mice, Chicken, Pigeon, Pig, Goat, Fish, *Ngumbi* (termites), Caterpillars → **Eggs** → **Milk & Milk Products**: Milk, Chambiko, Cheese
Fats & Oils *(3 tablesoons oilseeds or 3 tsp. oil each day)*	**Fat** *(Minerals, Vitamins, Protein)*	Foods that feel "fatty" in your mouth: → **Oilseeds:** Pumpkin seed, Sesame seed, Sunflower seeds, Cooking Oils → **Fruits**: Avocado pear, Coconut flesh → **Animal Fats**: Butter, Lard
Staples *(5 mitanda)*	**Carbohydrate** *(Protein, Minerals, Vitamins)*	Seeds without a pod and starchy roots: → **Grains**: Rice, Wheat, Sorghum, Millet, Maize → **Starchy Roots**: Yams (*Chilazi, viyao*), Sweet Potatoes, Irish Potatoes, Cassava

** Source: Permaculture Nutrition training manual, Draft 2003, Stacia & Kristof Nordin, nordin@eomw.net*

Full page handout available in appendix.

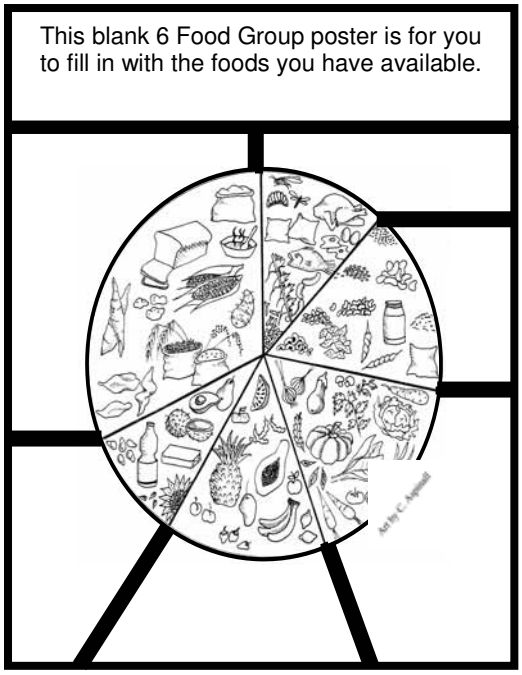
Today's Menu Plan:

Food Groups:	**Fruit**	**Veg**	**Legume / Nut**	**Animal Food**	**Staple**	**Fat**	**Other**
7.00 am Breakfast							
10.00 am Break							
12.00 noon Lunch							
3.00 pm Break							
6.00 pm Supper							

** Source: Permaculture Nutrition training manual, Draft 2003, Stacia & Kristof Nordin, nordin@eomw.net*
Full page handout available in appendix.

☑ Assess ALL foods available using Food Groups

What foods are available in Malawi to meet our needs using the Malawi Food Groups? You can practice using the food groups by listing the foods that you have available and deciding what food group they belong to. As you are doing this, try to include as many of the local or indigenous foods as you can. To take this exercise a step further you can divide the calendar year into seasons and check off when each food is available. When you are done with this exercise you will be able to see if you are able to have a healthy diet all year round. If there are gaps during any of the seasons you can begin by filling them in with foods that you can get and establish around your home.



Full page handout available in appendix.

You can do this exercise for yourself or with a group. It can be done on paper, on a flip chart, a black board, or on the ground. This exercise can take a lot of time with a big group, so only try to list 5 or 6 foods for each food group to begin with. If you are starting a project with a community you will want to create a complete listing of *all* the food resources that are available in every season. Here is a short example to get you going using only 3 foods for each food group:

Food Group	Foods	Hot & Wet Dec – Mar	Cool & Moist Apr – Jul	Hot & Dry Aug – Nov
1. Vegetables	Amaranth	X	X	
	Limanda (Hibiscus)	X	X	
	Cassava leaves	X	X	X
2. Fruits	Papaya	X	X	X
	Mbula fruit	X		X
	Mango	X		
3. Legumes	Cow Pea		X	
	Kamumpanda (lima bean)		X	X
	Mtedza Groundnut	X	X	
4. Animal Foods	Chicken Eggs	X	X	X
	Fish	X		X
	Termites	X		X
5. Staples	Green Banana	X	X	X
	Yams	X	X	X
	Millet		X	
6. Fats & Oils	Sunflower Seeds		X	X
	Pumpkin Seeds		X	X
	Avocado Pear	X		

** Source: Permaculture Nutrition training manual, Draft 2003, Stacia & Kristof Nordin, nordin@eomw.net*
Full page handout available in appendix.

Teaching about Food Assessments

- **Small Group Activity:** Assign one food group to each small group, depending on the size of your group. Have each group list as many (or set a number) foods as they can for their food group and when that food is available. * As the groups are listing foods for each food group, walk around the room and continually encourage them to list foods that are found locally. If you have a group with people from different districts just estimate when the food is usually available – don't get caught up too long on any one food, it is only an example! * After completing this exercise, discuss what you have come up with. If you don't know a food that is named and you have time to do so, have them describe it (how it grows, its color, its taste, etc.), usually you can tell what food group it belongs to using the explanations given in this chapter for each food group. * Does the list show that you can have a healthy diet all year long? If not, what foods could we add from the local resources that would fill in the missing spaces? What strategies could be used to extend the seasons, such as irrigation, food preservation, increased diversification, etc.?
- **Dried Display:** The Permaculture Nutrition project uses a dried food display that includes about 150 foods and product ideas for the 6 food groups. This display has a huge impact on the people that have seen it – they are amazed seeing all the foods available – much more so than just seeing the words on paper. It stimulates discussion about what the foods are and how they are used. It is best to have the food display set up but to keep it covered until after the presentation on food group and completing the small group activity.
- **Idea from a facilitator: Use a blank food guide**: Katie was working in Livingstonia and writes: I draw the food wheel on a blackboard, then I have participants list foods and I draw them as we don't have a poster. Following your lead, I try to emphasize that it's possible for a person to get foods from all 5/6 groups even without money. For each group I ask what foods we can eat without money. I talk about the high nutritional value of some of these foods (e.g. bononguwe). I link these free foods to nature's (or God's, depending on the group) gift to us!

☑ Access to foods available: Revive Local Food Resources!

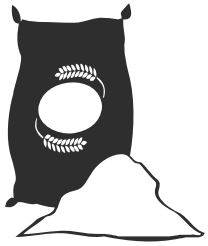
Every one of us has a right to food and nutrition security. This statement is supported worldwide as shown by many of the conventions that countries have signed onto in recent years. How do we make this 'right to food' a reality? First let's look at a bit of food history.

What is Happening to the Local Foods in Malawi?

As we said previously, many of the foods that we find in Malawi now are not the ones that were here a about a hundred years ago. The Portuguese introduced maize to Malawi in about 1800, but it actually is native to the Americas; Mangos were brought over from India; Cassava began in the Americas; Cabbage may have come to us from Asia. When people traveled, they brought their own foods with them, and then when they returned home they brought new foods back to their own country. As people began traveling further and further, foods also traveled longer distances.

Malawi has its own native foods, although many of these foods are becoming harder to find. In the previous exercise, you probably took enough time to list 5-10 foods for each group, but how many foods are actually available to us in Malawi? Take a look at the list of foods in the appendix. Not all these foods are native to Malawi, but many of them are. This list shows that there are almost 600 plant foods in Malawi including 46 Fats, 146 Fruits, 28 Legumes & Nuts, 283 Vegetables, and 52 Staples. In addition to plant foods, there are at least 22 different types of animals/insects that contribute meat, eggs and milk to the Animal Foods group.
So why are people complaining that they are hungry? What has happened to the wide variety of foods that Malawi used to have? It can help to starting thinking about and answering these questions through a brainstorm followed by a discussion of the answers. A few possible reasons for this are:

- **Maize as Food** – When people think of food today in Malawi, they think of maize. The push for maize began around 1900. Other forms of food were ignored to focus solely on maize. At first Malawians resisted the change, but eventually maize took over. Questions to ask include: Why did this happen? Why does it continue today? Think back to our discussion about the Cycle of Dependency.

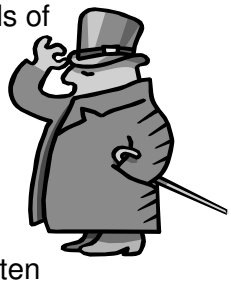


- **Food (maize) Aid** – In the past, people knew of a wide variety of plant and animals that could be eaten in every season. If the weather during any one season created a low supply of one food, there were other foods available that thrived. People knew which of these plants were poisonous and which were edible. But these days if rainfall is inadequate in order to get a good maize yield then maize is brought in to make up for the shortfall. This system is allowing people to remain dependent upon maize to fill their stomachs and people aren't concerned about finding the local plants and animals that used to provide them with a variety of different nutrients.

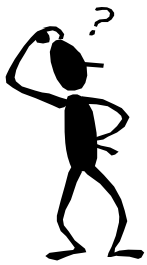
- **Loss of Habitat** – As more and more land is cleared to grow maize, local plants are destroyed. Destroying the local plants also takes away the habitat of animals and insects that live there and were at one time an abundant food supply in Malawi.
- **Exploitation of Animals** – In the early years of the colonialists, animals were reportedly hunted and exported to the point that they are very difficult to find in Malawi now. Now poachers have taken over the job!

- **Burning** – Malawians have a habit of burning their land every dry season in order to clear more land for farming, to 'clean' the area, or to make it easier to hunt for mice or other small game. Often these fires don't limit themselves to one area and they end up destroying large areas of trees, plants, and animals that are trying to live there and that used to be used for food, medicine, building or thatching.

- **Influence of a 'Western' Diet and Status** – Humans often look at the foods of another culture as 'exotic' or 'better' than the foods that grow naturally around them. 'Wild' or locally produced foods are also often seen as only for people who cannot afford to buy other foods. In Malawi people strive to afford foods like meats, oils, packaged foods, minerals or other sugar drinks, and foreign vegetables such as cabbage. These foods are often lower in nutrients than local foods and some can be harmful to health if they make up a large part of the diet. Take a minute to consider the time and energy (human, fuel) that goes into producing, processing, packaging and transporting foods from other places and the impacts that has on the environment and the nutrients in the food. Eating local food, where ever you live, is better for your health and better for the environment.



- **Loss of Knowledge** – As less and less people rely on a variety of local foods around them, the knowledge about how to use the foods is also being lost. Even if the food can be found growing nearby, many people don't know that it is food or how to use it.



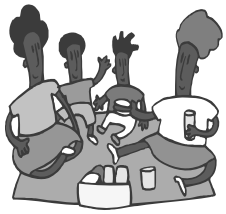
This list of changes is not unique to Malawi; it is happening all over the world with similar destruction taking place in the health of the environment, resulting in human health problems. You can probably think of more reasons why people are forgetting about local foods and relying on very few foods. The more important question is: What are some ways that we can preserve these local foods so that all people can have all the nutrients they need while protecting the health of the environment?

Increase awareness of Local Malawian Foods

Learn about local foods by asking people in your community (especially the older people), networking with other communities, and reading books available.

Collect & Plant Local Seeds

Collect seeds from nature or through the resources found in the appendix and plant them everywhere! Share these seeds with others who want to improve their environment and their diets. Start seed sharing networks and let others know that you are interested in collecting local seeds. You can also find creative ways to market local seeds for a reasonable price to make them available to others.



Use local foods in your meals, meetings & restaurants

Now that you have local foods established around your home, you can use them in your own meals and experiment with different tasty ways to prepare them. Brainstorm creative ways that you can market local foods for sale in local markets, urban centres, restaurants, or for export.

Teach others about local foods – become an Advocate!

You can teach others about these foods through schools, health clinics, meetings, school clubs, churches, politicians, friends, or with other groups. You can teach through classes, demonstrations on meal preparation, or by having a friend over to eat with you.

Creating products with local resources

Growing your own foods is not the only way to access your food, some people in Malawi purchase their foods, especially people with full time paid jobs outside the home. There are many ideas that could be used in Malawi to create quality indigenous products for our local market. Just about every product that you see imported could be copied with a local resource in Malawi. Part of the Permaculture Nutrition display shows some of these ideas. It is important to understand and have basic skills in business management – pricing the product to include all costs, energy and time input; setting up simple accounting systems; focusing on quality production; securing access to markets; and marketing the product creatively. There are many organizations in Malawi working in this area, and this model encourages relationships with those organizations to gain these skills.

Teaching about Reviving Local Food Knowledge

- **Field Guide to Foods in Malawi:** Pictures of the local foods need to be put into handbook and into posters so that people can see what they look like and how to use them.
- **Dramas about local foods available:** Katie from Livingstonia writes: One group I've worked with wrote a drama on this, showing a father and his child who eats a breakfast of avocadoes and bananas, and a rich mother who gives her son chips and soda for breakfast. The rich boy can't think in school, misses all the answers, and eventually gets sick (in classic melodramatic fashion), while the girl does well and then goes to help her dad in the market in the afternoon. There they meet the rich mother and son (who by now is very ill). The father explains why it is important to eat nutritious foods. The audience, of course loved it! And the best part is it was written by farmers themselves!
- **Song about all foods being food:** Another children's song in Malawi can be adapted to a variety of different foods, it goes:

  * **Line 1:** *(name of food, name of Food)* ndi *(food group)* nso
  * **Line 2:** Kumthirira *(to pour in, name a flavour such as pepper, etc.)* wakoma *(name the food)*
  * **Line 3:** Kweni kweni nsinjiro wankirankira *(with groundnut flour it just gets better and better).*