Promoting Nutrition Co-Benefits of Climate Smart Agriculture in Myanmar

Modules for Village-level Nutrition Education Sessions
Purpose of the Modules

The International Institute of Rural Reconstruction (IIRR), with the support from IDRC and CGIAR global research program on climate change, agriculture and food security (CCAFS) and other local NGO partners is doing a participatory action research on climate smart villages as platforms for build community-based adaptation in agriculture that contributes to food security and nutrition. As part of the research, IIRR and its partners conducted baseline studies in 2018 to determine the food security and diet diversity of the CSVs. Based on the results of the baselines, IIRR identified key nutrition messages that shall be promoted in the CSVs to nurture and strengthen the link between climate smart agriculture and nutrition. These key messages are:

1. Eat a variety of foods; different types of food have different roles for the body – for energy, growth and development, and protection from sickness/infection.
2. Planting different types of crops in the home garden makes a variety of food available for the family.
3. Tubers and roots are alternative sources of energy like cereals.
4. Legumes, beans and pulses are alternative affordable source of protein.
5. Dark green leafy vegetables (or small fish with bones) are high in calcium.
6. Orange and dark green leafy vegetables are high in vitamin A.
7. Fruits and vegetables contain vitamins and minerals that protect the body from sickness/infection.
8. Iron from meats, legumes and dark green leafy vegetables help in muscle and brain development
   • Iron from plant foods are better used by the body when eaten with animal source foods
   • It is good to eat vitamin C rich foods with plants rich in iron for better absorption
9. Using clean safe water (washing food, cooking and drinking) is as important as choosing healthy food.

This collection of modules is an effort of IIRR to develop culturally appropriate nutrition education workshops are developed to guide field implementers in facilitating nutrition education sessions that provide linkages between agriculture and nutrition. The topics of the modules are selected and focused on topics that provide the minimum set of information for villagers to understand the link between the various climate smart agriculture options and their household food consumption and be motivated to act on household level nutrition.
Modules in this Compilation

Module 1: Causes and Consequences of Malnutrition
Module 2: Nutrition Assessment
Module 3: Agriculture and Nutrition
Module 4: Promoting healthy eating
Module 5: Promotion of breastfeeding and appropriate complementary feeding
Module 6: Recipe and Cooking demonstrations
Module 7: Improved sanitation practices

Introduction

The narrowing of the food base becomes a global phenomenon. Although it is generally believed that poverty is a major determinant of nutritional deficiency, farming system interventions have not effectively documented the way in which the use of indigenous crops by poor communities can simultaneously achieve the outcomes of micronutrient adequacy, poverty reduction, and biodiversity conservation (1). Nutrition interventions in developing countries can be described as piecemeal, fragmented, and single-nutrient oriented. Despite the wide availability of edible plant species as a food source, humans have an overdependence on too few species that many food plants have been forgotten or neglected, while lesser known plant species require more research to find out about their potential which contribute macro- and micronutrients needs of the diets in some populations (2). Nonetheless, a significant number of these neglected food plants are still important for meeting the macro- and micronutrient needs of developing country populations in particular (3). Many factors have contributed to the move from diversified to simplified diets such as high-input agriculture, reduced transportation costs, and agricultural subsidies have combined to make refined carbohydrates (wheat, rice, and sugar) cheaper in cities of the developing world that there has been a significant decline in the consumption of indigenous foods (4).

Overall, in the developing world, people gravitate to fashionable “modern” foods while abandoning traditional diets that are considered a sign of backwardness and poverty. Ironically, in industrial societies people increasingly look to traditional diets such as those of East Asia and the Mediterranean as embodiments of good nutrition for health (5). Modernizing systems in Asia need to diversify away from conventional staples to focus more on legumes and micronutrient-rich foods. The consequences of the nutrition transition from pulses, fruits, and vegetables to simplified diets devoid of micronutrients and non-nutrient bioactive protective components pose enormous health and development challenges. The cumulative effects of micronutrient malnutrition established early in life limit educational progress, work productivity, and life expectancy (6). At the population level, the ability of people to participate in economic activities is reduced, and this situation is further complicated and worsened
by the burden on national health systems of the pandemic of obesity coexisting with malnutrition (7).

Malnutrition is a global challenge with huge social and economic costs, and the biggest risk factor for the global burden of diseases. (8) One in three people are affected, and virtually every country is facing a major public health issue due to malnutrition (9). Many countries are dealing with a “triple burden” of malnutrition such as energy deficiencies (hunger), micronutrient deficiencies (hidden hunger), and excessive net energy intake and unhealthy diets (overweight/obesity) (10). Despite significant progress of the global food system, 795 million people still are not getting the minimum dietary energy needs. The majority of these people are in Sub-Saharan Africa, in which 1 in 4 people are hungry; and in South Asia, in which 1 in 6 people are hungry. More than 2 billion people are deficient in key vitamins and minerals that are necessary for growth, development, and disease prevention (11). Undernutrition reduces global gross domestic product (GDP) by up to USD 2 trillion per year, the size of the total economy of Africa south of the Sahara. Annual GDP losses due to malnutrition average 11% in Asia and Africa—greater than the loss experienced during the 2008–2010 financial crisis (12).

In earlier years, the widespread availability of food calories resulting from increases in cereal productivity was critical for the rapid decline in the number of hungry people, particularly in developing countries. However, today the availability of high-energy cereal staples is implicated in the nutrition transition phenomenon—the emergence of simplified diets, lack of dietary diversity, and attendant health consequences (6, 7). The vast majority of hungry and malnourished people live in developing countries under substandard living conditions and over half a billion of the global population suffer from chronic food insecurity. With the global population expected to reach over 9 billion by 2050, there will be a continuous need to increase food production and buffer stocks to meet the growing demand and efficiently cope with volatilities in food production and prices. It has been projected that global food production will need to increase by 70% in order to meet the average daily caloric requirement of the world’s population in 2050 (13).

Malnutrition can be viewed as an outcome of dysfunctional interactions between different systems: the agri-food system, the environmental system, the health system, and, crucially, the system of individual and household decision-making (14). As malnutrition is the final outcome of a combination of determinants, clustered into food, health, and care, it requires responses from a range of sectors: food security, public health, water, sanitation and hygiene, and social protection. Nutrition is not itself a sector, but it is dependent on actions that originate from these sectors if it is to be effectively and sustainably addressed. Agriculture is obviously a key sector and it needs to work in harmony with other sectors to maximize its impacts on nutrition.
Improved water, sanitation, and hygiene (WASH) can increase the nutritional benefits of agricultural programs and policies aimed at improving diets by reducing disease and enhancing nutrient absorption (15).

World Declaration and Plan of Action for Nutrition recommended the promotion of dietary diversity and the use of locally available nutrient-rich indigenous and traditional foods as a vital strategy against food insecurity, malnutrition, and disease (16). The joint recommendation from the World Health Organization (WHO) and FAO on diet, nutrition, and the prevention of chronic diseases and the more recent recommendation on increased consumption of fruit and vegetables for health, reaffirm the urgent need for a global change to dietary diversification. For populations in developing countries, this strategy would entail a significant move toward the greater use of local biodiversity, which engenders good nutrition and ensures diverse and balanced diets (17). The International Plant Genetic Resources Institute (IPGRI) proposes a new kind of intervention—a mobilization of indigenous and traditional food resources to ensure food security and improved health in the developing world. This strategy contrasts with the single-nutrient interventions that have characterized global food and nutrition intervention programs (5). In spite of ample evidence for the positive nutritional and health impacts of dietary diversification, there has been some degree of resistance to large-scale implementation of such types of programs. Nevertheless, dietary diversification offers the best option for long-term sustainability of food resources in communities. This is especially true when traditional knowledge and sociocultural values are nurtured and a community embraces the targeted behavioral changes (18).

Since the time of colonization, there has been a drastic decline in health and integrity of indigenous cultures, social structures and knowledge systems which are integral to our ability to respond to our own needs for adequate amounts of healthy indigenous foods (19). The changing food systems brought about by the forces of globalization have led to both challenges and opportunities. There is alarm that local culture and food traditions are disappearing, where multinational and transnational corporations are increasingly controlling national food in addition, for most countries, micronutrient deficiencies are of concern (20). There are many kinds of local food plants which have their own characteristics contributing enormous health benefits in every region.

Food diversification is compulsory to optimize the daily nutritional requirements. Many kinds of local/indigenous foods are naturally abundant in carbohydrate and protein contents that can be used as staple foods. They are also rich in functional substances like antioxidants, dietary fibers, vitamins and minerals (21). Promoting biodiverse food is considered a key element in combating micronutrient deficiencies through the household production and consumption of appropriate foods (19). Local foods such as pumpkin, potatoes, sweet potatoes and cassava can be used as alternatives to rice as a
main source of carbohydrates. They contain more micronutrients such as vitamins and minerals. Food diversification can increase eating habits of balanced nutrition food with the application of simple and acceptable food process to attain high quality, nutritious diets. By promoting the beneficial effects of food diversification, people are expected to become more motivated to choose various kinds of carbohydrate more than rice. Moreover, the consumption of a variety of local foodstuffs will help to ensure an adequate food supply at affordable price. Therefore, it is important to encourage the communities to strengthen their use of local food and sustain knowledge of their local food systems for essential contributions to cultural protection, well-being and health. Nutrition-sensitive agricultural programs can reduce poverty and malnutrition among smallholder farmers in their roles as both producers and consumers and help them to optimize their contribution to agricultural production and to food systems as a whole.
Module 1: The Causes and Consequences of Malnutrition

In order to understand under-nutrition we need to look at its causes and consequences. This topic will introduce participants to the causes and consequences of under-nutrition.

They will learn about and discuss:
- nutrients, food groups and how to achieve a balanced diet
- the main signs and symptoms of under-nutrition
- how the effects of having an adequate or poor diet can be passed down from mothers to children

Materials Needed:
- Flip charts
- Pens
- Crayons
- Prepared diagrams and drawings for presentations

We should care about nutrition because it affects our families, our communities and us as individuals. Malnutrition is the result of not getting the right kind of nutrients for the needs of our body. It can lead to health problems, education problems, lack of employment opportunities and lower incomes. Figure 1.1 summarises some of the consequences of malnutrition in children and adults.
The causes of malnutrition

Malnutrition has different levels of causality. Immediate causes are at the individual level. Underlying causes happen at household or community level and influence immediate causes. In turn, basic causes happen at community or national level and influence underlying causes. Figure 1.2 shows these causes and relationships.

Poor diets do not contain enough of the right foods and nutrients. Poor diets and disease are direct causes of malnutrition for women, children and men. Children may have a poor diet because they are not breastfed properly as babies. It may also be a result of a diet that lacks variety or insufficient food intake. As children grow the frequency and size of meals must increase to ensure proper growth and development.
Disease can lead to malnutrition because illnesses can reduce appetite and the body’s ability to absorb nutrients. Illness may also cause the body to lose nutrients through diarrhoea and vomiting or to use up nutrients more quickly.

Poor diet and disease are linked because if a person has a poor diet they are more likely to become ill. When a person is ill their body may not be able to take in or use food properly, which can lead to malnutrition.

**Underlying causes of malnutrition**

Factors which happen at an individual, household, family or community level cause poor diet and disease. Food insecurity may be linked to problems of food availability, of food access and of food use.

Family members may experience a food shortfall due to lack of money or inadequate storage and preservation methods which result in food spoilage. They may make poor choices about what to eat and what types of food to buy. They may not have access to markets to sell or purchase foods, or have market disruptions. They may have lost productive assets such as crops or livestock. Shocks, hazards, trends or other seasonal factors can also contribute.

Caregivers may not have the knowledge, money or time to care for themselves or other family members properly. This may result in inadequate care and feeding practices.

Poor living conditions due to overcrowding, as well as lack of access to clean water, sanitation and health services, can lead to serious health problems.

**Basic causes of malnutrition**

Basic causes of malnutrition occur at the community or national level. They include poverty, lack of employment, rising food prices and unequal distribution of land, water, housing or other resources. The low social status and education level of women is a basic cause.

Other factors include overpopulation, environmental damage, climate change, political unrest and discrimination, as well as insufficient health and education services.
Supporting women’s role in nutrition

In most families, women are responsible for childcare, food production, food purchases and food preparation. It is important to keep this in mind, because adding to a mother’s already heavy workload may impact on the nutrition of the whole family.

It can have a negative impact on family nutrition if women are not able to choose what food can be grown or bought or how the family can be fed. If women are not educated and valued in their family or community they may not be able to make good choices about feeding themselves or their families. Men must acknowledge this important role and they must support women by sharing the workload and helping to provide nutritious food for the family.
Figure 1.2 Immediate, underlying and basic causes of under-nutrition in a community.

Outcome

Malnutrition, disability and death

Immediate causes

Disease
Poor diet

Underlying causes

Poor living conditions, poor health services
Inadequate care and feeding practices
Family food shortages

Basic causes

Poverty, unequal access to resources, low status and education of women, environmental stress, fluctuations in food prices, conflicts, etc.
Procedures

Activity 1: Malnutrition Tree

1. Explain that this session is about identifying and explaining the different causes and consequences of malnutrition. There are usually several reasons why a person does not get enough of the

2. Ask the participants what they think the term “malnutrition” means. Write their answers on the flip chart. They may come up with a definition such as “malnutrition is the result of not getting enough of the right type of food to keep the body strong and healthy”. Note that malnutrition is a complex problem and has many causes and consequences.

3. Explain that the aim of this activity is for each group to produce a diagram in the shape of a tree which will show the causes and consequences of a problem. The problem which we are going to look at is malnutrition in their community.

4. Divide the participants into small groups. Give each group a flip chart page and some markers.

5. Ask each group to draw a simple picture of a tree and to write “malnutrition” over the trunk. Encourage them to fill the whole flip chart page with their picture. Show them an example by drawing a large, simple outline of a tree on your own page. Allow 10 minutes.

6. Ask participants to look at their trees and discuss:
   - What makes trees strong? How do they become strong?
   - Which parts of a tree do we see and which parts are invisible?
   - How and why are the roots of a tree important? What do they do?
7. Point out that there are different factors that contribute to a tree’s growth and strength, such as water, sun, air and nutrients in the soil.

Activity 1.1
Malnutrition problem tree

Purpose
- to enable the participants to:
  - develop a better understanding of the main causes of malnutrition and how they are related
  - identify some of the consequences of malnutrition

Time
1 hr 10 mins

Materials
- flip chart
- permanent pens (various colours)
- tape
- blank pieces of paper in two different colours (about 20 pieces of each colour per group) or Post-it notes

Discussion: Malnutrition in the participants’ community

Discuss the pictures and ask the participants to explain about malnutrition in their own community. Use some of these questions to help you:

- What causes of malnutrition are in more than one of the drawings?
• What makes an environment unhealthy? Why is there a lack of sanitation? Is it due to other priorities, no means to provide sanitation, a lack of information, or anything else?
• Why is there environmental degradation? Is it due to population pressures, poor farming methods, flooding, or other reasons?
• What are the possible reasons for inadequate childcare and feeding practices? Do mothers have too much work? Do mothers lack knowledge about nutrition? Are there other reasons?

2. Explain that when a person or child is malnourished there are usually numerous reasons. Often the reasons are connected. For example, the father may blame the mother for not feeding the child enough, but the father is not giving the mother enough food or enough variety of foods to cook for the child. Maybe he does not give her enough variety because he cannot afford to buy it, or because he doesn’t have enough land.

3. It is important to do a proper analysis and not blame one person. In most cases the solution to one person’s malnutrition will involve the whole household or community.

Reflection of the Learning Process

1. Ask the participants what they have learnt from the activity.

2. Discuss why it is useful to identify the causes of malnutrition in the community. Explain that in future sessions you will be looking at ways to address some of these problems.
Module 1: Assessing Malnutrition Signs and Symptoms

Learning Objectives

to enable the participants to:

- develop a better understanding of how to identify the different types of malnutrition and their causes
- identify some common vitamin and mineral deficiencies and suggest ways to prevent them

Materials Needed:

- flip chart
- permanent pens
- Tape
- Visual aid: Wasting and Stunting Signs
- Visual aid: Vitamin and Mineral Deficiency

How can we tell if someone is undernourished?

Malnutrition can be due to:

- a person not getting enough nutrients for growth and maintenance of the body from their diet (under-nutrition)
- illness causing the body to become unable to fully use the food which is eaten (under-nutrition)
- a person consuming too much food (over-nutrition)

Undernutrition is currently a major problem amongst children under five years old in Myanmar. In urban areas, problems of over-nutrition are increasing.

Who is affected by malnutrition?

Children tend to be more commonly and more seriously affected by under-nutrition than adults. They need many nutrients in order to grow and develop, but have small stomachs and so they cannot take in large amounts of food at one time. This is why it is important for children to eat more frequently than adults. One of the most common signs of a malnourished child is that they do not seem to be growing properly either in terms of height or in terms of putting on weight.
**Wasting and stunting**

Wasting is seen when a child is too thin for his or her height. Poor care practices, disease, and insufficient food intake, which results in starvation, are the usual causes of wasting. Wasting is a very serious, life threatening condition.

Stunting is seen when a child is too short for his or her age. This usually occurs in children with long-term nutrient deficiencies or long-term illness or both of these. Children who are born with low birth weight are often stunted.

Children who become stunted before birth or during the first two years of their lives will usually remain shorter than others of their age until adulthood. Apart from poor growth, stunted children often have more difficulty learning in school since nutrient deficiencies can slow brain development. Stunted children and adults are also more susceptible to diseases and disabilities than non-stunted people. Stunted people tend to be less productive adults and earn lower incomes than non-stunted adults.

In Myanmar around 7.9% of children under five years old suffer from wasting while 35.1% suffer from stunting. Both conditions are preventable if children under five years old have a nutritious, balanced diet.

**Visual Aid: Wasting and Stunting Signs**

![Wasting and Stunting Signs](image-url)

*From LEARN Myanmar*
Understanding the signs of malnutrition

It is often hard to see the signs of malnutrition because when everyone in the community is of short stature a small child does not appear to be a problem. However all children all over the world should grow at the same rate up to the age of around five years old. Children who do not grow at this normal rate are likely to be malnourished. Poor growth can indicate other invisible symptoms of malnutrition such as poor brain development, damage to the immune system and eyesight.

Vitamin and mineral deficiencies

Some of the most serious consequences of malnutrition are caused by vitamin or mineral deficiencies. Appendix 2 outlines the deficiencies which cause the most serious problems in Myanmar, their symptoms and sources of foods which can be used to prevent these deficiencies.

Visual Aid of Vitamin and Mineral Deficiencies
### Some important vitamins and minerals

<table>
<thead>
<tr>
<th>Protective nutrient</th>
<th>Function</th>
<th>Symptoms of deficiency</th>
<th>Examples of food sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>Important for vision, growth and development, immune function and reproduction</td>
<td>Night blindness, spots, patches and sores on the eyes. People get sick more often and have more serious symptoms when they are ill.</td>
<td>Egg, liver, dark green leafy vegetables, pumpkin, ripe mango and papaya</td>
</tr>
<tr>
<td>Vitamin B1</td>
<td>Important for nerve function</td>
<td>Loss of appetite, severe weakness especially in the legs</td>
<td>Beans/lentils, tofu, groundnut, pork, fresh fish, moringa and other vegetables</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Important for immune function and healing of wounds</td>
<td>Scurvy, which can include bleeding gums and joint pain</td>
<td>Lemon, lime, guava, bitter gourd, tomato, moringa, ripe mango, ripe papaya and other fruits and vegetables</td>
</tr>
<tr>
<td>Iron</td>
<td>Important for delivering oxygen to different cells in the body and for proper functioning of muscles and the brain</td>
<td>Pale tongue and inside lips, tiredness, dizziness, breathlessness</td>
<td>Beef, chicken, liver, egg, dark green leafy vegetables, beans/ lentils, tofu, fresh &amp; dried fish, groundnut</td>
</tr>
<tr>
<td>Iodine</td>
<td>Important for hormones produced by thyroid gland, and for mental development of children.</td>
<td>Goiter, feeling cold, lacking energy, feeling sleepy, dry skin</td>
<td>Iodised salt, sea fish, shell fish, seaweed</td>
</tr>
</tbody>
</table>

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**Procedures**

*Promoting Nutrition Co-Benefits of Climate Smart Agriculture in Myanmar Modules for Village-level Nutrition Education Sessions*
1. Ask the participants if they have seen someone who is under-nourished. How do we know when someone in the community is suffering from under-nutrition? What are the signs of under-nutrition? Write their responses on the flip chart, discuss what they have said and make sure you include:

... feeling weak and dizzy
... numbness in feet and hands
... pale lips, pale skin
... being too thin
... children being too short
... frequent illness
... night blindness

2. Show the participants Visual aid 1.2 of a normal, wasted and stunted child.

3. Explain that the first picture shows a normal child. The second is a child of the same age showing signs of wasting. The child is the same height as the normal child but he is too thin. The third is a picture of a child of the same age showing stunting. He is too short for his age. The last picture shows a child who is both wasted and stunted.

4. Ask the participants which type of undernutrition shown in the picture do they think is the most common in their community.

5. Note that studies done in 2010 found that 1 in 12 children under five years old in Myanmar are too thin for their age while 1 in 3 are too short for their age.

6. Ask what they think the main causes of the wasting and stunting are in Myanmar.

7. Ask which people in their community they think are most at risk.

8. Ask what the effects of stunting are on learning ability, education and future productivity.

9. Discuss their responses.

Vitamin and mineral deficiencies

1. Explain that we will now look more at the protective foods which contain nutrients called vitamins and minerals. Ask the participants if they can name any vitamins or minerals and say what their function for our health is.

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2. Discuss the symptoms of common vitamin deficiencies, which can be found in the table above. Ask the participants if they have seen anybody suffering from a vitamin deficiency in their community. Point out that a lack of any nutrient can make a person sick. Ask the participants if they know which vitamin or mineral deficiency causes each symptom.

3. Show the picture of the three food groups depicted in Visual aid 1.1 and ask for volunteers to show examples of foods which can address each deficiency.

4. While discussing the pictures note that they show very extreme cases of nutrient deficiencies. Often a person can still be suffering from problems related to the deficiency even if you can’t see any visible signs of deficiency.

5. Explain that Vitamin A, B1, iron and iodine are lacking in many people’s diets in Myanmar.

Reflection:

1. Ask the participants what they learned from this session.
2. Ask them why it is important for them to identify signs of malnutrition?
Module 3: Agriculture and Nutrition

Learning Objectives
For the participants to understand the relationship of agriculture production to food security and nutrition. At the end of the session participants will:

- Understand the importance of diversifying agriculture production to address nutrition and food security needs
- Identify ways that crop production will contribute to nutrition security of the households and community.

Materials needed
- White board
- Markers
- Handouts
- Pictures
- A model kitchen garden

Procedure

Activity 1: Discussion on Agriculture and Nutrition
- Divide the participants into small groups of 10 participants.
- In each small group—let them discuss this question:
  - “What is the connection between what we grow in and nutrition and food security of our family?”
- Give them 15 minutes to discuss. Ask them to write their answers on the flipchart for reporting
- Give each group time to share their responses.
- After all the group finished sharing their responses, explain to the group the following points:

Lecture/Inputs:
1. **What is food security?** A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (40).
2. Agriculture continues to be the primary source of livelihood for the majority of nutritionally vulnerable households in Myanmar.
3. In addition to providing food and raw material, agriculture also provides employment opportunities to very large percentage of the global population.
4. Agriculture and food systems play a central role in nutrition by supplying nutritious, healthy and affordable foods and simple nutrition messages around
specific crops can be effective if they are targeted to the farmers who grow the crops.

5. Agriculture mainly affects nutrition through the production (and therefore improved availability) of food, not only staple crops but also animal source of foods, fruits, and vegetables.

6. The increase in food production, particularly that of staple grains, pulses and vegetables, showed more conclusive evidence on improving the nutrient intake and nutritional outcomes, compared with the overall agricultural growth rates.

7. Agricultural biodiversity is important for food and nutritional security. It also acts as a safeguard against hunger, a source of nutrients for improved dietary diversity and quality and strengthening local food systems and environmental sustainability.

8. Intake of one variety rather than another can be the difference between micronutrient deficiency and micronutrient adequacy in traditional farming. Adequate human nutrition thus involves regular intake of a wide range of nutrients, some of which must be consumed on a frequent basis, even if in small quantities. It is important to focus on diversification of diets rather than a reliance on fortified foods and supplementation where possible.

9. Traditional varieties of different crops not only have different genetic attributes than modern varieties; they also have several consumption characteristics such as taste, aroma, cooking quality, nutrition, etc. Therefore, the farmer households should be encouraged to consume more diverse plant resources including wild-harvested foods as well as traditional crops because they contain variety of macro and micronutrients.

10. Cultivation of home gardens and ownership of domesticated animals are also potential ways of increasing household access to nutritious foods and home gardens have been shown to provide a number of economic and dietary advantages in rural and urban areas in predominantly small-scale subsistence agricultural systems.

Activity 2: Crops Diversity and Diet Diversity

What is dietary diversity?
Dietary diversity is a qualitative measure of food consumption that reflects household access to a variety of foods, and is also a proxy for nutrient adequacy of the diet of individuals. Follow the steps below to facilitate this activity.

1. Give each participant a piece of paper. Show the participants the questions below. Write these questions on a flip chart before the session.

Have participants answer the following two questions in their piece of paper:

Question 1: Describe your farm/home garden.
- What crop(s) do you grow? (Include grains, vegetables, fruits, animals)
- Why do you choose to grow these crops?
Question 2: In the last 24 hours, list all the food that you and your household members have eaten?

After each one has written on their piece of paper—ask 4-5 volunteers to read/share to the big group what they have written. Ask the participants,
  a. Are the crops you are growing match to the food you are eating?
  b. If answer is yes, why?
  c. If answer is no, why?

Divide the participants into groups of 3-5 people each. Have them discuss the following four questions and have one person from the group serve as the notetaker. Have each group write as many answers as possible to the following questions on the flipchart paper:
  • What are the benefits of diversifying your crops and growing times?
  • What are the challenges to diversifying your crops and growing times?
  • What are the benefits of diversifying the foods you eat every day?
  • What are the challenges to eating a diverse diet every day?

Bring the groups together and have them share what they discussed in the small group. The facilitator should go around and ask each group to share one answer without repeating past answers, until all answers have been given.

Some of the potential responses are listed below to provide guidance; they are not inclusive of all the ideas that the groups may come up with. The facilitator should validate their ideas and help by providing examples for the benefits/challenges that the groups identify.

Benefits of Diversifying on Farm
  • Soil health
  • Reduction of pest pressures
  • Yield increases through beneficial intercropping or rotations
  • Varied income sources
  • Varied time of income from different harvests maturing at different times
  • Reduction of risk: not all resources are invested in one crop that may fail

Challenges of Diversifying on Farm
  • Cost of inputs, including seeds, fertilizer, tools, and equipment
  • Lack of available inputs in market
  • Lack of irrigation infrastructure for dry season farming
  • Limited knowledge of production techniques for different crops
  • Insufficient land for cultivation

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• Limited market for the produce
• Limited ability to store produce for consumption or sale

Benefits of Diversifying Nutritionally
• Different foods provide different nutrients for health and growth.
• A diverse diet reduces risk of disease. A strong body can fight disease.
• A diverse diet provides energy to work and be productive.
• A diverse diet allows children to grow healthy, strong, and smart—body and brain.
• Pregnant or breastfeeding women gain nutrients for their babies and themselves: Nutrients like iron, found in animal-source foods, which is lost with blood loss during pregnancy, can be replaced through a diverse diet.
• A diverse diet meets tastes and preferences—not just the same thing every day.
• Diversifying home production provides food in each season and reduces purchasing costs in the market.

Challenges of Diversifying Nutritionally
• Some foods, especially nutrient-dense foods, are expensive.
• Limited availability of diverse foods, especially at certain times of the year
• Insufficient land to grow diverse foods
• Lack of storage facilities or processing techniques for food preservation
• Tastes and preferences—dislike of a certain food group
• Taboos regarding certain foods

5. End this activity by saying the following messages:
   In order to get a diverse food sources, farmers need to diversify their crops and small livestock. This will provide diverse sources of income as well as diverse sources of food to ensure food security and nutrition.

Reflection:
Ask the participants what are the important lesson and learning they got from the session. Ask them if they have questions and requests which the facilitators can provide assistance.
Repeat the important messages in the session as follows:
• Diet diversification is important for good nutrition. Each nutrient comes from some different sources. The more diverse the food, the more nutrients are given to the individual.
• One way to diversify the diet of households is to diversify the crops produced in the farms and homesteads. Grow as many food crops as possible. Some maybe for sale but some for household food.
• Integrate small livestock into the farming system to provide sources of animal protein.
• Home gardening is one way to produce diverse food for the households.
Module 4: Promoting Healthy Eating

Learning Objectives:
At the end of this session, participants will be able to:

- Get an overview and understanding of the basic food groups to be included in a healthy diet;
- Know local examples of food and crops of the basic food groups;
- Use the food plate as guide for planning and preparing healthy meals for the family.

Materials needed
- White board
- Markers
- Food model cards
- Pictures
- Educational posters
- Pictorial summary of food groups

Background
What is a healthy diet?
A healthy diet includes a variety of fruits and vegetables of many colors, grains and starches, good fats, and lean proteins in the right proportions. Eating healthfully also means avoiding foods with high amounts of added salt and sugar and also drink plenty of water to keep hydrated and to help body function better.

Why is it important to have a good nutrition?
Good nutrition is an important part of leading a healthy lifestyle. A healthful diet can help to reach and maintain a healthy weight, reduce and prevent the risk of diseases and infections, improve the immune system and promote general wellbeing and overall health.

How to choose a balanced diet?
A healthy balanced diet is one with plenty of variety, covering all of the five main food groups in suitable proportions. It is important to choose a variety of foods from the 5 different food groups – specifically:
1. Vegetables and fruits
2. Protein (meat, fish, eggs, beans, soy, legumes)
3. Milk and dairy products or other milk alternatives

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4. Carbohydrates (such as rice, potatoes, pumpkin, corn, sweet potatoes, taro, legumes and bread — preferably wholegrains or whole wheat varieties)

5. A small quantity of healthy fats

A balanced diet means eating a variety of foods in the meals we consume daily. It is important for people to eat diverse foods from the three food groups in the right proportions, so that they can get all the energy and nutrients they need to function, grow and be healthy.

Although foods from all three food groups do not need to be eaten at every single meal, it is important to try to eat balanced meals as often as possible. Nutritious snacks, such as fruit and nuts, should also be consumed in between meals since they will contribute important nutrients to the daily diet (unlike unhealthy snacks such as processed crackers and candies). A balanced meal should be made up of:

**Energy food** — This is made up of a staple food and is the largest part of meal – about 50%. Rice is the most commonly consumed staple in Myanmar, but other examples are: noodles, bread, corn and potatoes. Some additional energy also comes from fat or oil (about 5%).

**Growth food** — About 15-20% of the quantity of the meal should be made up of animal foods (meat, offal, fish, eggs) or legumes. Animal foods are especially important for young children and pregnant and lactating women and should be included in their meals whenever possible.

**Protective food** — The rest of the meal should be made up of one or more vegetables. Different types of vegetables (of various colors) should be eaten at different meals so that all the micronutrients will be included in the diet.

**Procedures**

**Activity 1: Food Groups in a Healthy Diet**

**Nutrients and the food groups**

1. Ask the participants why we eat food and get them to explain what they think food does for the body. List their responses.

2. Explain that when thinking about food and how it is used by the body we can use the example of making a fire for cooking. Explain that when we light a fire we need kindling, a match, fuel such as wood, and air. Without all of these things we cannot make a good fire. When the fire has lots of dry wood it burns well and makes good charcoal for cooking on. The more wood that we give to a fire the bigger and hotter it gets. When the fire runs out of wood, it burns down.
3. Explain that our bodies are the same as a fire. We need many things in order to have energy and stay healthy. The food we eat contains important substances called nutrients which help us grow, give us energy and keep us healthy. If we do not get enough food or the right kind of food we can get tired, weak and sick. The fuel for people is the nutrients in the food we eat.

4. Emphasize that in order to stay healthy, to have energy and to grow, we need many different nutrients. Food contains different nutrients in different amounts. We can group foods according to the nutrients contained in them. These food groups help us choose the most nutritious kinds of food to eat.

Activity 2: Food Groups Game

1. Provide each participant with two or more small pieces of blank paper.
2. Ask them to write down or draw a locally-available ingredient which they usually eat on each piece of paper.
3. Explain that they should not write down foods that include many ingredients, such as mohinga, but they can write the ingredients of mohinga such as noodles and fish paste on separate pieces of paper.
4. Collect all of the pieces of paper and mix them up together in a box. Meanwhile write the names of the 5 food groups on 5 separate flip chart pages, one per page. The 5 food groups are presented in a visual aid below. The 5 food groups are also organized into 3 groups namely: ENERGY foods, GROWTH foods and PROTECTION foods.
5. Lay the flip chart pages on the floor and ask each participant to take two small pieces of paper from the box.
6. Ask the participants to place each piece of paper into the food group to which it belongs. Let the participants look at the 5 groups with all the different foods. Ask the rest of the group to say whether the papers have been placed in the correct group.
7. Then show them Visual aid below and discuss it. Comment on how the foods are grouped into the 5 categories. Ask which kinds of food are available in their community. Are they bought, grown or collected from the wild?
Note to Facilitator: Prepare the following table on a flipchart

Visual Aid 1: Functions of macronutrients from 5 food groups and their sources

<table>
<thead>
<tr>
<th>Food Groups</th>
<th>Functions</th>
<th>Sources</th>
<th>What are available in the village? (Write Here)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY FOODS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate (grains)</td>
<td>• Main source of energy</td>
<td>Foods rich in carbohydrate are rice, maize, wheat, millet, oats, rye, barley, and other cereals, all types of starchy root crops such as potatoes, corn, sweet potatoes, pumpkin, yams and cassava, legumes such as peas and beans, most vegetables, fruits and sugars and oils.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Regulation of blood glucose</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Degradation of skeletal muscle and other tissues such as the heart, liver, and kidneys</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gut health</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fats and oils</td>
<td>• Provide energy</td>
<td>Good sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fat soluble vitamins absorption</td>
<td>Unsaturated fats: peanut oil, corn oil, soybean oil, sunflower oil, sesame oil, olive oil, avocado, fish, nuts and seeds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Brain development and health</td>
<td>Bad sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Insulation and Temperature Regulation</td>
<td>Saturated fats: coconut oil, palm oil, cream, butter, animal fats</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Protection of internal organs</td>
<td>Trans fats: margarine, fried foods and baked goods made with shortenings or partially hydrogenated vegetable oils</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GROWTH FOODS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>• Growth and development</td>
<td>Animal sources: all types of meat, poultry, fish, eggs and dairy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provides amino acids for basic body functions</td>
<td>Plant sources: beans, peas, lentils and other legumes, nuts and soy products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bolsters Immune Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Major component of the body’s transportation system that carries oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and nutrients to all cells of the body</td>
<td>Help in building and repair of muscles, tissues and bones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Milk and dairy products</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Contributes essential nutrients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Benefits overall bone health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• As part of a healthy balanced diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk products such as milk, yoghurt, ice cream and cheese</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## PROTECTION FOODS

| **Fruits and vegetables**              |                                                         |
| • Protection against diseases         |                                                         |
| • Weight control                      |                                                         |
| • Gut health                          |                                                         |
| • Overall health benefits             |                                                         |
| All fresh, dried and frozen fruits and vegetables including starchy vegetables and legumes |

Facilitators can also use the following format for the workshop/activity:

![Food Groups Diagram](image)

**Activity 3: Meal Planning using Healthy Plate**

1. From the Activity 2 above (Food Groups and Healthy Diet) use the pieces of paper with food names that were identified by the participants. ADD more food ingredients that they can think off that are available in the village.
2. Divide the participants in smaller groups of 5-6 participants per group.
3. Give each group 1 piece of flip-chart with the food plate drawing in it. Below is the food plate diagram. The diagram should NOT HAVE any label so we can check if the participants can properly identify which part of the food plate they will put the food items they listed.

4. Say to the participants: Now we will start thinking in terms of healthy meals using the ingredient papers. We will give a blank flip chart (with food plate diagram) to each group which already has a drawing of a divided plate. The proportions show the estimated amount of food that you should eat from each of the three food groups.

5. Each group will receive some ingredient papers and will try to create healthy meals on their plates. They can add new ingredients and food items that are available in the village.

6. Let each group show their results and provide feedback. (Check to see that the foods from the correct food groups are included in the 4 parts of the plate.)

7. At the end of the exercise, explain that the main part of the meal (a little more than half) should be made up of energy foods (most of this should come from foods like rice or noodles and a little bit should come from things like oil and fat). SHOW the drawing of the Food plate below:
8. About 15% of the quantity of the meal should come from growth foods (meat, fish, and beans) and the rest of the meal should come from protective foods (vegetables and fruit).

9. Ask: How much of your plate is full of rice when you usually have a meal? Do you include enough vegetables and fruit in your diet?

10. Finally end the session by sharing the following:

A balanced diet means eating a variety of foods in the meals we consume daily. A balanced diet is very important to keep ourselves healthy and survive. Nutritious foods and a healthful diet are important because:

- They protect against diseases (improve the body’s immune system)
- They help you to grow well
- They give you energy to work and help you to learn
- They bring satisfaction, make you happy and prevent hunger

Below are some pictures you can show to the participants of a balanced meal:
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Modules for Village-level Nutrition Education Sessions
Additional Information guide for healthy Eating

- Eat foods from 5 food groups every day. These food groups are carbohydrates, fats and oils, protein, milk, fruits and vegetables.
- Choose foods prepared with little or no salt. Too much salt is bad. Limit use of condiments such as soy sauce, chili powder, fish sauce, etc. These are too much salt.
- Use spices, fresh herbs, onion, lemon and vinegars for added flavor.
- Avoid foods with which are high in monosodium glutamate (MSG).
- Eat less sugar and other sweets.
- Limit or avoid alcohol.
- Drink plenty of water, 8-10 glassed per day.

Reflection Session to Close the Discussion:
1. How was your breakfast and lunch? Was it balanced according to the food plate?
2. If yes, was difficult to prepare or easy?
3. If no, do you think you can prepare a balanced meal tomorrow?
4. What do you think we should do to teach our family the importance of balanced meal and healthy eating?
Module 5: Promotion of Breastfeeding and Appropriate Complementary Feeding

Materials needed:
- White board
- Markers
- Pictures
- Educational posters

Methods:
- Active learning process which involves reciprocal questioning, demonstration, role playing

Objectives
- To improve the breastfeeding knowledge and awareness of the participants
- To understand the importance of breastfeeding, and the consequences of not breastfeeding, in terms of health outcomes.
- To understand the importance of timely introduction of complementary foods and of continuing breastfeeding during the weaning period, into the second year of life and beyond.

Procedures
This program is mainly composed of lecture session in which the facilitator provides information of breastfeeding (emphasizing that exclusive breastfeeding is the practice of feeding a child only breast milk and no other food or drinks from the first hour of birth until six months old), complementary feeding and healthy first foods by using educational aids such as white board, markers, pictures, and educational posters. The session will be followed by interactive discussions and reciprocal questioning session at the end.

Time required: 3 hours

Lecture Content

Babies who are breastfed have many health advantages over others fed other types of milks or formulas. Breastmilk contains the perfect amount of protein, fat, carbohydrate and other nutrients for the growth and development of newborns. Since breastmilk is perfect for babies, it is recommended to feed only breastmilk for the first six months of life and that mothers breastfeed for as long as they can. **Giving only breastmilk (exclusive breastfeeding)** means not giving other foods or liquids to the infant for the
Benefits of breastfeeding to infants (28, 61, 62)

- Colostrum is the first form of milk produced by the mammary glands immediately following delivery of the newborn.
- Colostrum contains antibodies and is important for promotion of health and prevention against diseases.
- Human milk is specially designed to meet all the nutrition requirements such as carbohydrate, fat, protein, vitamins, minerals, hormones and digestive enzymes and as an optimal nutrition source.
- Antibodies from mother passes to infant via breast milk thereby increasing the immunity of the infant and help the infant to resist diseases and help improve normal immune response to certain vaccines.
- Studies suggested the protective effects of breastfeeding against gastrointestinal, respiratory and urinary tract infections and it can reduce asthma, allergies and incidence of sudden infant death syndrome during the infancy period and also beyond.
- Diarrheal diseases are 3 to 4 times less likely to occur in breastfed infants when compared to formula fed infants.
- Breast milk has anti-inflammatory, antibacterial properties and can also eliminate the exposure to pathogens that may be introduced through the preparation and delivery of formula feeding.
- Breastfeeding is protective against chronic diseases such as ischemic heart disease, atherosclerosis, celiac disease and diabetes.
- Breastfeeding is also economical, convenient, safe and increase the bonding between mother and infant.
- Breastfed infants have lower prevalence of obesity in later life than formula fed infants.
- Breastfeeding still remains the preferred mode of feeding for infants in almost all the difficult circumstances including low birth weight or preterm infants, HIV infected mothers, malnourished infants, adolescent mothers, etc.
- If the breastfeeding technique is satisfactory, exclusive breastfeeding for the first 6 months of life meets the energy and nutrient needs of the vast majority of infants. No other foods or fluids are necessary.
- Several studies have shown that healthy infants do not need additional water during the first 6 months if they are exclusively breastfed, even in a hot climate.
- Breast milk itself is 88% water, and is enough to satisfy a baby's thirst. Extra fluids displace breast milk, and do not increase overall intake.
- However, water and teas are commonly given to infants, often starting in the first week of life. This practice has been associated with a two-fold increased risk of diarrhea (63).
Important facts

- Mothers who cannot breastfeed should consult a health care professional to plan appropriate replacement milk.
- Giving cow, goat or any other animal milk to a baby under one year of age is not an adequate replacement for breastmilk, as the nutrients in those milks are different from the nutrients needed by a human baby.
- Infant formulas available commercially can be a breastmilk substitute when necessary, but formula does not provide protection to the baby’s immune system.
- Formula is usually expensive and requires clean water and sanitary conditions for proper preparation, cleaning of bottles and feeding.

Complementary feeding

- Should be started only at the six months of age, while continuing breastfeeding, because an infant’s need for energy and nutrients starts to exceed more than breast milk.
- If complementary foods are not introduced when a child has reached 6 months, or if they are given inappropriately and of inadequate nutritional quality, an infant’s growth may falter (64).
- Poor feeding practices can lead to impair nutritional status and childhood obesity later.
- Adequate and timely complementary feeding practices do not only regulate growth and functional developments, but also appear to play a pivotal role in lifelong programming effects that regulate health, disease, mortality risks, neural function and behavior, and quality of life in adulthood (65).
- The timing and type of complementary foods provided to infants is variable, depending on the cultural practices of the society, nutritional needs, immunological safety, environmental influences as well as the developmental maturation.
- Evidences suggested that introduction of foods before 4 months or later than 6 months have higher risks than benefits (28).
- It is important to introduce mixed food items such as cereals, rice, potatoes, meats, tofu, poultry, etc. rather than single foods and gradually increase food consistency and variety as the infant gets older, adapting to the infant’s requirements and abilities.
- Infants can eat pureed, mashed and semi-solid foods beginning at six months.
- By 8 months, most infants can eat “finger foods” (snacks that can be eaten by children alone).
- By 12 months, most children can eat the same types of foods as consumed by the rest of the family with avoidance of foods that may cause choking such as nuts, grapes, raw carrots or high allergenic foods (66).
Guiding principles for appropriate complementary feeding

- Continue frequent, on-demand breastfeeding until two years of age or beyond
- Practice responsive feeding
- Practice good hygiene and proper food handling
- Start at six months with small amounts of food while continuing breastfeeding
- Gradually increase food consistency and the variety of foods as the child grows older, adapting to the infant’s requirements and abilities.
- Increase the number of times that the child is fed: 2-3 meals per day for infants 6-8 months of age and 3-4 meals per day for infants 9-24 months of age, with 1-2 additional snacks as required
- During illness, increase fluid intake including more breastfeeding, and offer soft, favorite foods
- Complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding
- Foods should be prepared and given in a safe manner that measures are taken to minimize the risk of contamination
- Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child clues for hunger and also encourages the child to eat which is also referred to as active or responsive feeding. (64)

According to complementary foods at six months of age in addition to breast milk, foods should be adequate, meaning that they provide sufficient energy, protein and micronutrients to meet a growing child’s nutritional needs. Infant should be fed with thick porridge, well mashed foods. Usually baby in this age should start feeding solid food and breast milk 1-2 meal per day. The protein requirement of the 6-month-old infant is 75% higher than in the adult due to growing requirements (67, 68).

The first 1000 days of life: the importance of good nutrition

The first 1000 days of life, from conception to age 2, is a critical phase during which the foundations of a child’s development. It is a rapid and crucial period of brain and organ development that is heavily influenced by the environment through many different pathways. Optimizing the first 1000 days for each child means focusing on a healthy mother, a healthy pregnancy, and a healthy early childhood. Positive early childhood conditions, especially loving, responsive and secure relationships with parents/caregivers lay the foundations for optimal development and lifelong health and wellbeing. Exposure to stresses or adversity during this period can result in a child’s development falling behind their peers.

Research over the last few decades has highlighted the first 1000 days as the period of maximum developmental plasticity, during which a child’s environment has profound
and lasting impacts. Early childhood has been recognized as critical to health equity, as children in families with limited economic resources often face multiple physical and psychosocial hardships in early childhood that can dramatically damage their health, often with lifelong consequences. While all nutrients are important for brain development and function, optimal overall brain development depends on providing sufficient quantities of key nutrients during specific sensitive time periods in these first 1,000 days. Therefore, babies should be breastfed exclusively for the first six months and should continue to breastfeed, alongside appropriate complementary foods, up to the age of two or beyond.

Healthy first foods

- Starchy foods alone are not the best first foods for babies because they do not provide enough protein, calories and other nutrients to meet the needs of the rapidly growing baby.
- Foods from all food groups – meats, dairy, fruits, vegetables, grains should be included in the complementary foods.
- Starchy staple foods that are part of the local diet can be enriched to make good first foods by adding small amounts of shredded, chopped or pounded foods from other food groups together with a small amount of oil.
- The foods require special preparation to make sure they are clean, soft and easy to eat and digest.
- They should be mashed and diluted to prevent choking.
- When the child is accustomed to liquid and soft foods, and as teeth appear, semi-solid and then solid foods can be added to the diet.
- Foods should be prepared without added salt, as babies cannot yet process it (44).

Complementary feeding should include

- Proteins from plants (beans, lentils, peas) and animals (meat, chicken, fish, eggs)
- Staples (maize, wheat, rice,)
- Roots and tubers (taro, pumpkin, cassava, potatoes)
- Milk and milk products
- Vitamin A-rich fruits and vegetables (mango, papaya, carrots, sweet potato, pumpkin and oranges)
- Dark green leafy vegetables
- Other fruit and vegetables (banana, pineapple, watermelon, tomatoes, eggplant, cauliflower and cabbage)
- Moderate amount of healthy fats

Questions and answers session

1. When is the correct age to stop breastfeeding?
2. When is the correct age to introduce complementary feeding?
3. What is the minimum frequency of giving complementary food in a day depends on age of a child?

4. Are you breastfeeding your baby?

5. If no, what replacement are you giving the baby?

6. When did you stop breastfeeding?

7. How often do you feed the baby?

8. Do you give only breastmilk to the baby?

9. If no, what else do you give the baby?

10. When did you start to give the baby other liquids or foods?

11. How do you prepare the additional foods you give the baby?

12. Do you think your baby is growing and developing well?

13. Do you have your baby weighed regularly to check weight gain?

Visual Aids on Complementary Feeding:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>1 meal</th>
<th>2 meals</th>
<th>3 meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>2 table spoons</td>
<td>4 tablespoons</td>
<td>6 tablespoons</td>
</tr>
<tr>
<td>Sweet potato or Taro</td>
<td>½ Bowl</td>
<td>1 Bowl</td>
<td>1 &amp; ½ Bowls</td>
</tr>
<tr>
<td>Fish or Meat or Peanut</td>
<td>1 tablespoon</td>
<td>2 tablespoons</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Egg</td>
<td>One Egg</td>
<td>One Egg</td>
<td>One Egg</td>
</tr>
<tr>
<td>Vegetable</td>
<td>1 tablespoon (chopped)</td>
<td>2 tablespoons</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Oil</td>
<td>1 teaspoon</td>
<td>½ tablespoon</td>
<td>1 tablespoon</td>
</tr>
</tbody>
</table>

Complementary foods for 6-8 months
### Complementary foods for 9-11 months

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>1 meal</th>
<th>2 meal</th>
<th>3 meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice or OR</td>
<td>2 1/2 tablespoons</td>
<td>5 tablespoons</td>
<td>7 1/2 tablespoons</td>
</tr>
<tr>
<td>Sweet potato or Taro</td>
<td>1 Bowl</td>
<td>2 Bowls</td>
<td>3 Bowls</td>
</tr>
<tr>
<td>Fish or Meat or Peanut</td>
<td>1 1/2 tablespoons</td>
<td>3 tablespoons</td>
<td>4 1/2 tablespoons</td>
</tr>
<tr>
<td>OR</td>
<td>1 Egg</td>
<td>1 Egg</td>
<td>1 Egg</td>
</tr>
<tr>
<td>Vegetable</td>
<td>1 1/2 tablespoons</td>
<td>3 tablespoons</td>
<td>4 1/2 tablespoons</td>
</tr>
<tr>
<td>Oil</td>
<td>1 1/2 tablespoons</td>
<td>1 tablespoon</td>
<td>1 1/2 tablespoons</td>
</tr>
</tbody>
</table>

### Complementary foods for 12-24 months

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>1 meal</th>
<th>2 meal</th>
<th>3 meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice or OR</td>
<td>3 1/2 tablespoons</td>
<td>7 tablespoons</td>
<td>10 1/2 tablespoons</td>
</tr>
<tr>
<td>Sweet potato or Taro</td>
<td>1 1/2 Bowls</td>
<td>3 Bowls</td>
<td>4 1/2 Bowls</td>
</tr>
<tr>
<td>Fish or Meat or Peanut</td>
<td>2 tablespoons</td>
<td>4 tablespoons</td>
<td>6 tablespoons</td>
</tr>
<tr>
<td>OR</td>
<td>1 Egg</td>
<td>1 Egg</td>
<td>1 Egg</td>
</tr>
<tr>
<td>Vegetable</td>
<td>2 tablespoons</td>
<td>4 tablespoons</td>
<td>6 tablespoons</td>
</tr>
<tr>
<td>Oil</td>
<td>1 1/2 tablespoons</td>
<td>1 tablespoon</td>
<td>1 1/2 tablespoons</td>
</tr>
</tbody>
</table>

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*Promoting Nutrition Co-Benefits of Climate Smart Agriculture in Myanmar Modules for Village-level Nutrition Education Sessions*
Module 6: Recipe and Cooking Demonstration

Introduction
When nutrition education and messages are delivering to the communities, the participants have failed to absorb the information and effectively benefit from the programs because nutrition advice and knowledge are difficult for them to understand and cooperate into daily practice especially when the literacy rate is low and poverty is prevalent. Therefore, the intervention programs should be designed to help families with limited resources to make food choices which are available, affordable and accessible to them so that it will help to improve their dietary patterns and overall wellbeing. This can be achieved by providing hands-on learning activities, demonstrations and discussions.

In this program, the villagers will be educated using cooking demonstrations by nutritionist and community health workers. Participatory cooking demonstrations can be a powerful tool to help families plan and prepare nutritious meals, select appropriate food sources, handle food safely and learn about the nutritional needs of family members throughout their life-cycle. Moreover, nutritious, diverse diets are essential for infants and young children to ensure optimal physical growth, cognitive development, health and well-being.

The Food and Agriculture Organization of the United Nations experienced that participatory food demonstrations can be a powerful motivational tool for positive behavior change resulting in better dietary quality and tangible nutritional outcomes. In resource-poor environments, food demonstrations are most likely to result in positive nutritional benefits if they are combined with a broader range of food production activities targeted to women, such as home gardens, small-animal raising, and the development of appropriate food processing and preservation skills.

Materials needed
- Cooking utensils
- Food ingredients (based on recipes)

Time required: 4 hours

Objectives
- To develop and test the acceptability and feasibility of nutritious recipes for young child and family feeding and to develop confidence to prepare nutritious and healthful meals
- To motivate and empower families and mothers to adopt the suggested improvements

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• To improve feeding practices of the family through the development nutritious local recipes based on locally available and affordable foods
• To encourage local people to learn more about how to prepare a variety of dishes with high nutritional values and the importance of good hygiene

Procedures

1. Cooking with IIRR® consists of 3 practical sessions for recipe demonstrations including food preparation techniques, meal planning and tasting of foods which are designed to increase energy and nutrient density by making better use of traditional/local recipes.
2. Recipe demonstrations program, will be conducted based on most commonly eaten dishes in the particular area/community.
3. Recipes will be chosen that conform to local eating patterns and adjust if needed
4. The cooking procedures of the selected 3 recipes should not be too complicated and ingredients should be widely available.
5. The nutritional components of the selected ingredients and how to minimize nutrient losses while cooking will be explained verbally during the same time of demonstrations.
6. The local recipes will be modified and added more ingredients to improve overall nutritional quality and to meet the adequate calorie requirements of the individuals.

Some Reminders for the Facilitators and Organizers

1. The villagers will be allowed to participate in the recipe development and contribute their knowledge from previous modules and the cooking skills as well as their cooking utensils and food ingredients where possible.
2. The steps and nutritional messages including nutritive values of the ingredients used are clearly explained during the demonstration.
3. All participants should be able to join in meal preparation by cutting, cleaning and mixing the ingredients and cooking different dishes using readily available local foods in line with healthy and balanced nutrition goals and also encourage them to ask questions and offer suggestions.
4. This involves learning about combining diverse foods to enhance nutritional value and variety, adding ingredients in the right proportions by using local measures, ensuring correct cooking times and handling and storing foods safely.
5. Participants also taste the cooked food and evaluate the taste, appearance, smell and acceptability based on local preferences.
6. Testing different recipes under real life conditions enables modifying and refining them in line with community and household capacities and needs.
Module 7: Improved Sanitation Practices at Home

Introduction
Inadequate sanitation has direct effect on health of individual, family, communities and nation as a whole. Food borne diseases are illness caused by consuming contaminated food or drink. The contamination can occur anywhere from farm to the plate and can lead to a variety of avoidable infectious diseases. The high prevalence of food borne illness at home could be attributed to poor food hygiene and preparation due to poor awareness of proper practices. Contaminated foods contribute to poor health outcomes and impact 1 in 10 people globally each year. An estimated 420,000 people die each year from contaminated foods, 30 percent of whom are children under 5 years, with the highest death rates occurring in Sub-Saharan Africa and Asia. The many sources and forms of contaminated foods include poor production, post-harvest, storage practices and food handlings etc. (69). Access to sanitation facilities and literacy rate of women are also strong factors affecting malnutrition children in low income countries.

Fresh and clean foods are important for good nutrition. Foods need to be grown and handled properly so that they provide the best nutritional quality possible. Most illnesses from eating contaminated or spoiled food can be avoided if food is handled, prepared, cooked and stored properly and if basic cleanliness and personal hygiene practices are followed. Food needs to be kept safe during growing, harvesting, moving from the field, processing, storing, selling, and finally preparing and eating it. Knowing how to choose good foods in the shops and how to store and prepare food safely at home can protect the safety and quality of the foods.

Preparing and cooking food properly can help protect the nutrients in foods. Nutrients are affected by contact with air, heat, light and chemicals. It is important to cook foods with sufficient heat to kill harmful bacteria, but it is also important not to destroy the nutrient content of foods by overcooking. When foods are boiled for a long time, many of the important nutrients dissolve in the cooking water. If the cooking water is thrown away and not eaten, fewer nutrients will be consumed. Correct food preparation and cooking will help ensure the nutritional quality and safety of foods and meals prepared for the family members.

Materials needed
- Water
- Soap
- Educational posters

Time required: 3 hours
Objectives
- To understand the level of awareness about hand hygiene including critical times for handwashing, appropriate way to clean hands and importance of handwashing
- To educate the villagers how to prepare foods safely and hygienically
- To promote the awareness and practice of food safety at home

Procedures:
1. Lecture session in which the facilitator is delivering the information of hand hygiene promotion measures, benefits of handwashing, when/ how to wash hands properly and safe steps in personal hygiene precautions. Discuss the following content:

   **Benefits of hand washing using soap**
   - Prevention and control of the spread of communicable diseases and infections such as flu, diarrhea, hepatitis etc.
   - Reduce the risk of cross-transmission of infections and illnesses

   **Necessary items for hand washing with soap**
   - Soap (any type of soap can be used, including soap bar, liquid soap or sanitizers)
   - Clean water

   **Soap is important**
   - Washing hands with soap and water is the best way to remove substantially more disease-causing organisms than washing hands with water alone.

   **Handwashing (Centers for Disease Control and Prevention)**
   **When to Wash?**
   - Before, during, and after preparing food
   - Before eating/ drinking
   - Before and after caring for someone at home who is sick with vomiting or diarrhea
   - Before and after treating a cut or wound
   - After using the toilet
   - After changing diapers or cleaning up a child who has used the toilet
   - After blowing the nose, coughing, or sneezing
   - After touching an animal, animal feed, or animal waste
   - After handling pet food or pet treats
   - After touching garbage
   - After using tobacco
2. Practical session in which the facilitator is demonstrating how to wash hands in front of the participants and let each participant engage in the activity. Demonstrate the following steps and show pictures of proper hand washing and food hygiene:

**7 Steps to Wash Your Hands Properly**
- Step 1 - Wet your hands and apply enough soap.
- Step 2 - Rub your palms together.
- Step 3 - Rub the back of each hand.
- Step 4 - Rub both your hands while interlocking your fingers.
- Step 5 - Rub the back of your fingers.
- Step 6 - Rub the tips of your fingers.
- Step 7 - Rinse both hands properly with water.
- Step 8 - Dry your hands using a clean towel or air dry them.

**Safe steps in food handling, cooking, and storage together with personal hygiene precautions**
- Use clean water to prepare and cook the dishes.
- Wash surfaces, cutting boards and utensils before cooking and after cooking.
- Wash vegetables and fruits with clean water. Peel if possible.
- Cover foods and store utensils in a clean place.
- Cover all foods to keep flies, dust and dirt away.
- Don’t cross-contaminate. Keep raw meat, poultry, fish, and their juices away from other ready-to-eat foods, fresh foods, fruits and vegetables.
- Cooking at right temperature to prevent foodborne illnesses.
- Cook or reheat food properly, avoiding overcooking which can destroy nutrients.
- Cook or steam vegetables with as little water as possible, rather than boiling them.
- Dry, non-perishable foods, such as flour, salt, sugar, legumes (beans, lentils), grains (rice, maize, oats) and seeds should be kept in a dry, clean place free from insects, rodents or other animals.
- Serve and eat vitamin A-rich plant foods with some fat to help improve absorption of vitamin A. For example, cook pumpkin and carrots with a small amount of oil.
- Prepare and eat iron-rich plant foods with vitamin C-rich foods to help absorption. For example, eat leafy green vegetables and salads with a lemon juice.
- Recognizing the signs of good or spoiled foods such as leakage, presence of molds, bad smell or unusual taste.
3. End the session with questions and answers sessions

Sources of Microorganisms

- Avoid drinking, smoking and eating while preparing and cooking food. Also avoid sneezing or coughing on food and scratching or touching the head and body.
- Keep rubbish in a covered bin and empty frequently.
- Use clean, properly constructed latrines.
How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDBRUB

Duration of the entire procedure: 40-60 seconds

1. Wet hands with water;
2. Apply enough soap to cover all hand surfaces;
3. Rub hands palm to palm;
4. Right palm over left dorsum with interlaced fingers and vice versa;
5. Backs of fingers to opposing palms with fingers interlocked;
6. Rotational rubbing of left thumb clasped in right palm and vice versa;
7. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;
8. Rinse hands with water;
9. Dry hands thoroughly with a single use towel;
10. Use towel to turn off faucet;
11. Your hands are now safe.

World Health Organization
Patient Safety
SAVE LIVES
Clean Your Hands

Promoting Nutrition Co-Benefits of Climate Smart Agriculture in Myanmar
Modules for Village-level Nutrition Education Sessions
**Questions and answers session**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is a clean hand?</td>
<td>A clean hand looks clean, have no odor and is free of dirty matters</td>
</tr>
<tr>
<td>Why should we wash our hands with soap regularly?</td>
<td>To remove dirt and germs</td>
</tr>
<tr>
<td>Why should we wash our hands with soap before meals?</td>
<td>To remove bacteria and other pathogens from getting into our body via mouth through the hands</td>
</tr>
<tr>
<td>Why should we wash our hands with soap before preparing food?</td>
<td>To avoid contamination of foods</td>
</tr>
<tr>
<td>Why should we wash our hands with soap before breastfeeding the child?</td>
<td>To avoid spreading infections from our hands to the child’s mouth</td>
</tr>
<tr>
<td>Why should we wash our hands with soap after touching poultry?</td>
<td>To avoid contacting microorganisms from the poultry to our body</td>
</tr>
<tr>
<td>Where should we put soap and clean water for convenient hand washing with soap?</td>
<td>In the kitchen and toilet areas</td>
</tr>
</tbody>
</table>
Materials for Further Reading

63. World Health Organization, Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2009
64. World Health Organization, and UNICEF, Global Strategy for Infant and Young Child Feeding, Available at: http://www.who.int/mediacentre/factsheets/fs342/en/, 2003