NUTRITION-SENSITIVE AGRICULTURE

TRAINER MANUAL

FOR AGRICULTURE DEVELOPMENT AGENTS (DAs)

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Acronyms

AEWs	Agriculture extension workers
DAs	Development agents
ENGINE	Empowering New Generations to Improve Nutrition & Economic Opportunities
FTCs	Farmer training centers
HH	Households
IQ	Intelligence quotient
MFIs	Microfinance Institutions
OFSP	Orange-fleshed sweet potato

Introduction

About this training manual

Agriculture is the major source of food, employment and income upon which the majority of people rely to provide for and support their livelihood. Lower income families, in particular, are involved directly or indirectly in agricultural activities and derive multiple benefits from its multifunctional nature.

Since the purpose of economic growth and agricultural development is to improve living conditions, development in agriculture must provide sustainable benefits for society as a whole and especially to those communities which depend on the land for their survival and tend to be resource poor, marginalized, food insecure and malnourished. Consequently, focus needs to be given to not only increasing the production and access to foods but also its consumption, ensuring that the poor have access to adequate quantities of safe, good quality food for a nutritionally adequate diet.

Agriculture and nutrition are interrelated. Agricultural production is an important means for most people to get the food and essential nutrients they need. On the other hand, as agriculture is highly labor intensive, particularly in poor countries like Ethiopia, productive agriculture requires the labor of healthy, well-nourished people.

In order to impact on the nutritional outcomes, there is a need to focus on nutrition-sensitive agriculture. Nutrition-sensitive agriculture involves the incorporation of nutritional concerns into the design and implementation of agricultural policies, projects and investments, targeting nutritionally vulnerable groups with these investments and particularly focusing on women and increasing year-round access to diverse, nutrient-dense foods.

Development agents (DAs) or agriculture extension workers (AEWs) are at the forefront of the support available to farmers for improved agricultural production and opportunities to increase income. This nutrition-sensitive agriculture training aims at building the knowledge and skill of DAs in nutrition-sensitive agriculture so that they can promote agricultural and related practices that have the potential to maximize nutritional benefits.

Training Method

Different training methods appropriate for adult learning are suggested for use during this nutrition-sensitive agriculture training. Detailed instructions on how to carry out each session using the methodologies suggested below are included in the activity description boxes incorporated throughout the training manual. Training methodologies used in this training manual include the following:

- Group work
- Pile sorting
- Demonstrations
- Brainstorming sessions
- Interactive plenary presentations

Training Materials

The materials needed for each session of the training such as markers, flip charts, masking tape, counseling cards, training manual, etc. are cited. Details about materials are found in each session.

Training Evaluation Method

In this training, different training evaluation methods are used including:

- Pre- and post-tests
- Participants' feedback
- Daily evaluation at the end of each day and recap
- Final training evaluation checklist

Overall Training Purpose

At the end of this nutrition-sensitive agriculture training, AEWs/DAs will be able to:

- Understand the importance of nutrition in decreasing morbidity and mortality; improving productivity and educational performance and the country's economy
- Explain the relationship between agriculture and nutrition
- Describe nutrition priority groups and the undernutrition cycle
- Explain the concept of dietary diversity and what it means in practice
- Conduct food demonstrations
- Explain how to keep food safe by practicing safe handling, preparation and storage techniques (from farm to fork)
- Describe the type of interventions that promote nutrition-sensitive agriculture and how to integrate them into their daily activities
- Use the tools to counsel farmers on nutrition-sensitive agricultural interventions

Training Sessions and Schedule

DAY 1	DAY 2
DAILY REVIEW	
Session-1: Welcome, introductions, pre-assessment (45 min) **Session-2: Why nutrition matters (70 min)** **Session-3: Nutrition priority groups and Undernutrition cycle (30 min)**	Recap of Day 1 (10 min) **Session-7:** Conducting cooking demonstrations (120 min)
TEA BREAK	
Session-4: Gender and nutrition (120 min)	**Session-8:** Agriculture and marketing for improved nutrition (90 min)
LUNCH BREAK	
Session-4: Gender and nutrition (Continued) **Session-5: The basics of food handling, storage and preparation (50 min)**	**Session-9:** Conducting group nutrition education (60 min) Planning exercise (60 min)
TEA BREAK	
Session-5: The basics of food handling, storage and preparation (Continued) **Session-6: Dietary diversity-what it means and why it is important (50 min)**	Post-test, evaluation and closing (60 min)

Session 1: Welcome, Introductions and Pre-assessment

Learning objectives
1. **To get to know participants and their expectations.**
2. **To assess participants' knowledge.**

Preparation

- Read the session carefully
- Prepare all necessary flip chart papers and write the training objectives on flip chart

Materials

- Flip chart, markers
- Prepared flip chart with the workshop objectives; other flip charts
- Copies of: Resource 1.1: Assessment of Knowledge (Pre-test)

Duration: 45 minutes

Learning objective 1: To get to know participants and their expectations.

Methodology: Brainstorming and administration of pre-test

Activity 1: Welcome and workshop objectives

1. Welcome participants to the workshop.

2. Ask participants to group in pairs to introduce one another. One will introduce the other including name, position, where he/she comes from, what he/she ate for lunch yesterday and one expectation from the training. Write participants' expectations on one flip chart and what they ate on another flip chart.

3. After all of the participants have been introduced, summarize and comment on the expectations.

4. Present the workshop objectives below to the participants (should be written ahead of time on a flip chart). Ask a volunteer from the participants to read them aloud:

Training objectives

- Understand the importance of nutrition in decreasing morbidity and mortality; improving productivity and educational performance and the country's economy
- Explain the relationship between agriculture and nutrition
- Describe nutrition priority groups and the undernutrition cycle
- Explain the concept of dietary diversity and what it means in practice
- Conduct food demonstrations
- Explain how to keep food safe by practicing safe handling during pre- and post-harvest, preparation and storage technique (from farm to fork)
- Describe the type of interventions that promote nutrition-sensitive agriculture and how to integrate them into their daily activities
- Use the tools to counsel farmers on nutrition-sensitive agricultural interventions

5. Compare participants' expectations to the workshop objectives and discuss any discrepancies.

6. Ask participants to review the list of foods eaten for lunch and facilitate a discussion by asking: Is there much diversity? Are there many vegetables?

Activity 2: Pre-test

1. Prepare numbers on a piece of paper for each participant to serve as a code for pre- and post-tests. Each participant should randomly select from the different numbers and remember his/her code but it should remain confidential.

2. Distribute the pre-test to participants and allow them to finish within 10 minutes. Remind them to write their code on the pre-test.

3. Inform participants that they can ask questions if anything is not clear to them.

4. Collect the pre-test after 10 minutes. Make sure that participants have written their code on the pre-test.

Resource 1.1: Assessment of Knowledge (Pre/Post-Test)

Key		Statement	Yes	No	Don't know
False	1	By increasing agricultural production, we can fully address the problem of malnutrition			
True	2	Malnutrition can affect agricultural production by decreasing farmers' productivity			
False	3	Though malnutrition can affect individuals, it does not have any impact on the economic development of a country			
True	4	By improving agricultural practices, we could bring better nutritional outcomes			
False	5	Development agents don't have any role to play in improving the nutritional status of households			
False	6	Teff, sorghum, millet and maize all represent different food groups			
True	7	A good diet needs to include foods from at least four different food groups every day			
False	8	Spinach, kale and other green leafy vegetables should not be given to children under the age of one year			
False	9	When a child is born, his/her IQ/intelligence quotient and how well the child will do in school are already determined.			
False	10	Post-harvest handling has nothing to do with the nutritional content of agricultural products			
False	11	Increasing an income of a household will automatically bring about improvement in the nutritional status of individuals in the family			
True	12	Homestead production of high value crops such as vegetables and fruits used to be encouraged through the extension service as sources of additional income generation rather than addressing nutritional problems			
False	13	Smallholder farmers can adopt new technologies as long as the technology is found to be productive			
True	14	Empowering mothers to have a decision role at household level will contribute toward tackling malnutrition			
False	15	Malnutrition is not a problem for successful smallholders as they earn substantial income from the sales of staple crops and livestock they produce			

Session 2: Why Nutrition Matters?

Learning objectives
1. **To describe the impact of malnutrition on mortality and morbidity, productivity, economic development and education.**
2. **To explain the relationship between agriculture and nutrition.**

Preparation

- Read the session carefully
- Prepare all necessary flip chart papers
- Conceptualize worksheets 2.1 and 2.2
- Draw worksheets 2.1 and 2.2.A & B on a flip chart

Materials

- Flip chart with stand, markers, tape/sticky putty
- Copies of worksheets 2.1 and 2.2.A&B

Duration: 70 minutes

Learning objective 1: To describe the impact of malnutrition on mortality and morbidity, productivity, economic development and education.

Methodology: Group work exercise and discussion

Activity 1: Group work

1. Explain to the participants that the next session will be on the impact of malnutrition.
2. Ask participants: "What do we mean by malnutrition?" Write responses on a flip chart. Explain to the participants that malnutrition includes both overnutrition and undernutrition but because undernutrition is the major problem in poor countries like Ethiopia, we will focus on it.
3. Ask participants what they think are the major causes of undernutrition? Write responses on a flip chart. Explain to the trainees that inadequate food/diet and poor health are the immediate causes of undernutrition. Inadequate food/diet can be caused by household food insecurity and poor care of mother and child including poor or suboptimal feeding practices. Similarly poor health can be caused by poor access to health care, poor feeding practices, poor hygiene and sanitation and other health conditions.

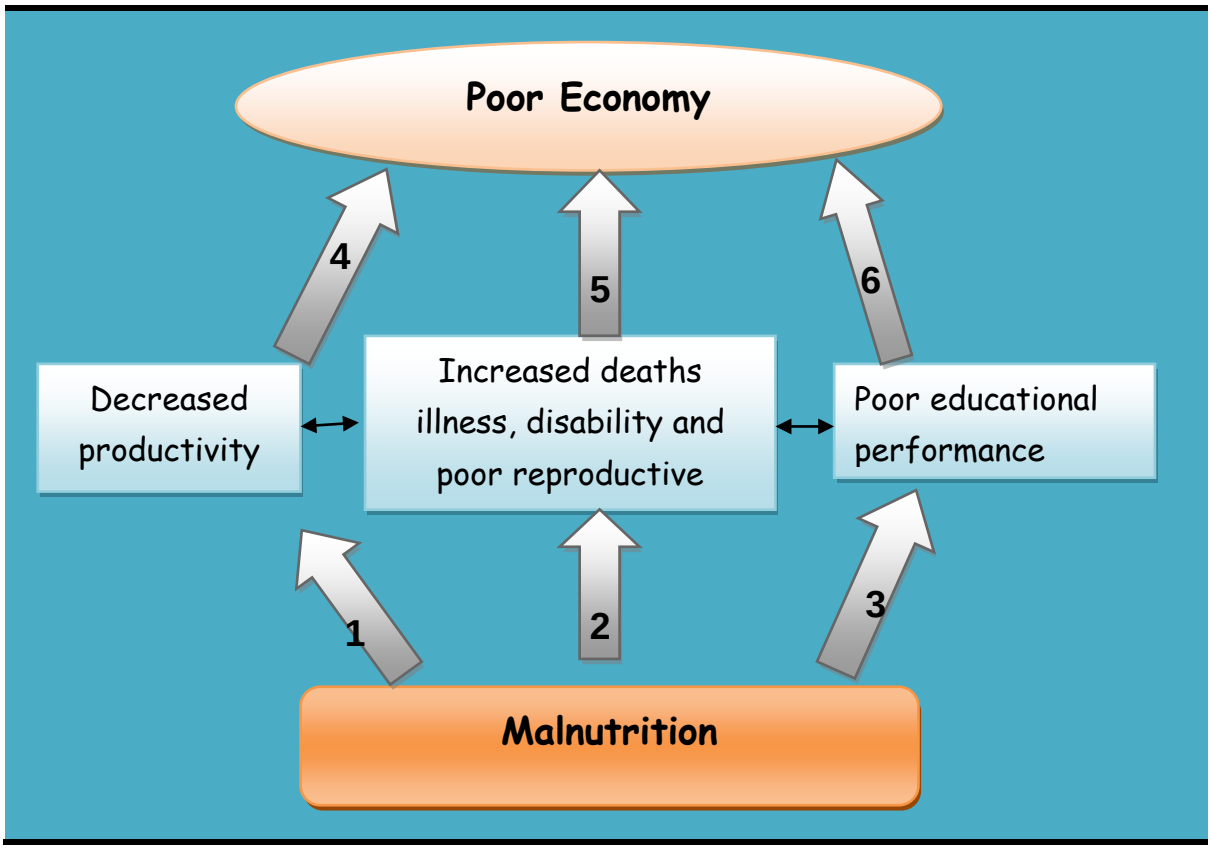
4. Ask participants: If these are the causes of undernutrition/malnutrition, what could be the impact or consequences of undernutrition?" Write responses on a flip chart. Show the chart from **worksheet-2.1.**
5. Draw the chart from **worksheet-2.1** on a flip chart and explain to the participants that malnutrition could cause decreased productivity, increased deaths and illnesses and poor educational performance. Eventually these all cause poor economic development (don't explain the "How" part as this will be done as group work).
6. Explain to the participants that the next activity will be group work. Use **worksheet-2.1**.
7. Each group will identify the causes as per the number indicated in each arrow.
8. Divide participants into 6 groups (from 1 to 6 as per the arrows indicated in the worksheet) and give them a card. They need to write the causes in a short phrase/word on the small cards.
   - **Group-1**: How does malnutrition decrease productivity?
   - **Group-2**: How does malnutrition cause increased deaths and illnesses?
   - **Group-3**: How does malnutrition cause poor educational performance?
   - **Group-4**: How does decreased productivity cause a poor economy?
   - **Group-5**: How do increased deaths and illnesses cause a poor economy?
   - **Group-6:** How does poor educational performance cause a poor economy?

9. Give each group 15 minutes to discuss and write the causes on the cards.
10. After 10 minutes, ask representatives of each group to post the causes on the chart (draw the chart on a flip chart ahead of time). Cards should be posted at the arrows.
11. When each group finishes posting the cards on the chart, ask others if they have questions and address them accordingly. Use the key information below to complement participants' suggestions.
12. When all of the groups finish posting the cards, explain to the participants that decreased productivity, increased deaths and illnesses and poor educational performance are also interlinked to each other (e.g., increased illness makes less productivity and increased school drop-out rate).
13. Ask participants if they have questions and summarize the session.

Key Information

Arrow-1: How malnutrition decreases productivity	**Arrow-2: How malnutrition increases deaths and illness**	**Arrow-3: How malnutrition causes poor educational performance**
- When malnourished individuals are sick, they can't perform their daily work (e.g., sick farmer) - Individuals with iron deficiency anemia (particularly women) become tired and can't perform their day-to-day activities - Shortage of iodine decreases IQ and causes a productivity loss - Stunting also causes less productivity	- Malnutrition weakens immunity and predisposes individuals to different infections - More than half of infant deaths are associated with malnutrition - Suboptimal breastfeeding is accountable for 24% of infant mortality and vitamin A deficiency for 17% of deaths - Marasmus and kwashiorkor and finally death are caused by severe malnutrition - Goiter due to iodine deficiency - Night blindness to complete blindness from vitamin A deficiency - Anemia from iron deficiency - Diseases from deficiency of vitamins (scurvy, pellagra, etc.)	- Iron deficiency anemia lowers IQ by 9 points, mild iodine deficiency by 10 points, sever stunting by 5-10 points, and low birth weight by 5 points - High absence and drop-out rates from school due to malnutrition associated illness
Arrow-4: How decreased productivity causes poor economy	**Arrow-5: How increased deaths and illnesses cause poor economy**	**Arrow-6: How poor educational performance causes poor economy**
- Less productive citizens will have lower income and this creates poorer society - Productivity loss due to iodine deficiency is estimated at 1,347 million birr each year and this has negative economic impact - Productivity loss due to stunting (low height for age) is estimated at 2,992 million birr per year and this has negative economic impact - Increased dependency due to less productive citizens causes poor economy	- High number of ill individuals will become less productive and have low income - Low number of productive citizens (due to high number of deaths) can't produce adequate income - High dependency due to low number of productive citizens (as a result of high deaths)	- Illiterate farmers will follow traditional agricultural practices and this will yield to poor agricultural productivity - Illiterate society will have poor access to modern health care and this will increase deaths and illness and finally create poor productivity and economy - Illiterate society will have less innovation and creativity and this will decrease productivity and cause poor economy - Illiterate mothers will follow poor feeding practices and this will eventually lead to increased deaths and illness and finally to decreased productivity and poor economy

Worksheet-2.1: Impact of Malnutrition



Arrow-1: How does malnutrition decrease productivity? (Group-1)

Arrow-2: How does malnutrition cause increased deaths and illness, disability and poor reproductive performance? (Group-2)

Arrow-3: How does malnutrition cause poor educational performance? (Group-3)

Arrow-4: How does decreased productivity cause a poor economy? (Group-4)

Arrow-5: How does increased deaths and illness cause a poor economy? (Group-5)

Arrow-6: How does poor educational performance cause a poor economy? (Group-6)

Learning objective 2: To explain the relationship between agriculture and nutrition.

Methodology: Group work exercise and discussion

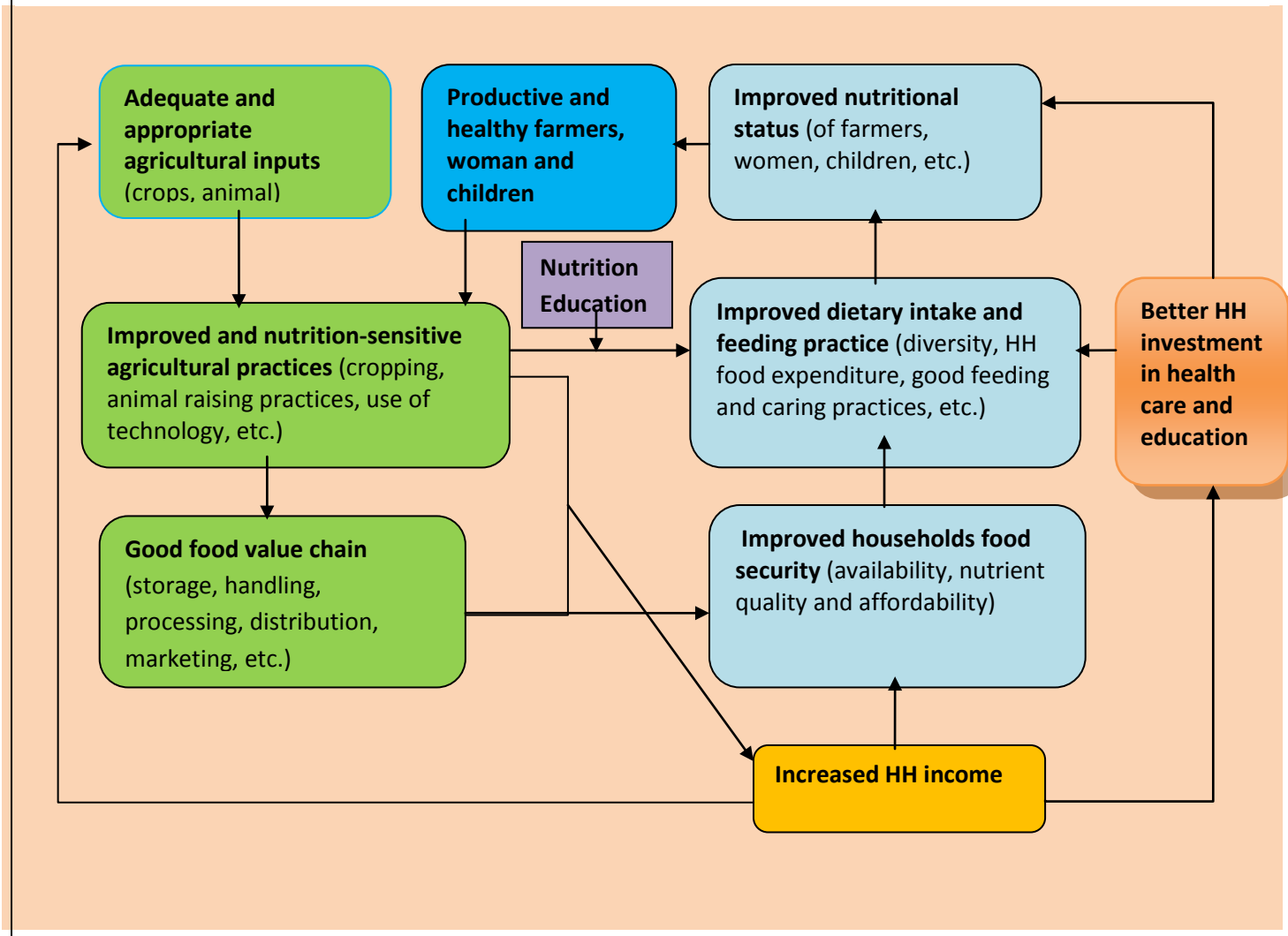
Activity 1: Group work

1. Facilitate a discussion on the relationship between agriculture and nutrition with the following points:
   - From the previous group work exercise, you may have noticed that there is a relationship between agriculture and nutrition. Could you explain how the two are linked to each other? Write responses on a flip chart.
   - Explain to the participants that agriculture and nutrition are interrelated and by changing agricultural practices, we can bring improve nutritional outcome.
2. Explain to the participants that the next activity will be group work that will help increase their understanding of the relationship between agriculture and nutrition.
3. Form three groups and distribute worksheet 2.2.A. Ask participants to read and focus on the 10 pieces for the relationship between agriculture and nutrition. Explain each piece briefly before they start the group work.
4. In the group work, participants will try to link the 10 pieces using arrows. Allow 20 minutes for the group exercise.
5. After 20 minutes, each group will present for 5 minutes.
6. When finished, present the key worksheet 2.2.B as one example of how the 10 pieces are linked to each other to show the relationship between agriculture and nutrition. Emphasize to the participants that this is just one option.
7. Ask participants if they have questions and summarize the session.

Worksheet 2.2.A: Ten pieces of the relationship between Agriculture and Nutrition (for group work)

1	**Adequate and appropriate agricultural inputs** (crops, animal, fertilizer, etc…)	Producing adequate and diversified food starts with agricultural inputs. Agricultural inputs include crops, animals, fertilizer and other technology.
2	**Improved nutrition sensitive agricultural practices** (cropping, animal rearing practices, use of technology, etc…)	Having adequate and appropriate agricultural inputs improves agricultural practices. Cropping and farming systems that produce a variety of foods helps to improve the consumption of diversified foods at the HH level.
3	**Good food value chain** (storage, handling, processing, distribution, marketing, etc…)	Good agricultural practices result in better production, but only with improved harvesting, storage and proper marketing. Proper processing and storage is necessary to maintain the nutrient content of the food. The better the food value chain, the better the availability and quality of food.
4	**Increased HH food security and income**	Increased production and yield will increase HH income through selling surplus products which improves food consumption.
5	**Better HH investments in health care and education**	When households have better income, they have the capacity for investments in health care and education for their children and other family members.
6	**Good access to food** (availability, nutrient quality and affordability)	For consumption of adequate and diversified foods, there should be good access to food (both amount and quality). Better access is determined by good value chain practices.
7	**Improved food consumption and caring and feeding practice** (diversity, HH food expenditure, good feeding practices, etc.)	When households have good access to adequate and diversified foods, the consumption of such foods will be improved. Note that good agricultural practices that yield good production are also important for improved consumption. Increased investments in health care and education will also improve the feeding practices.
8	**Improved nutritional status** (of farmers, women, children, etc.)	Better consumption and feeding practices will result in improved nutritional status. The investment in health care and education will also contribute to improved nutritional status.
9	**Productive and healthy farmers, women and children**	The final outcome of improved nutritional status is productive and healthy farmers. This is an important input for establishing improved agricultural practices.
10	**Nutrition Education**	Good agricultural practices alone may not result in improved consumption and feeding practices. HHs should also have access to nutrition information.

KEY: Worksheet 2.2.B: One possible option that shows the relationship between agriculture and nutrition



Session 3: Nutrition Priority Groups and Undernutrition Cycle

Learning objectives
1. **To identify the priority groups for nutrition and explain the importance of nutrition during the first 1,000 days (window of opportunity).**
2. **To describe the undernutrition cycle.**

Preparation

- Read through the session and familiarize yourself with the process and activities.
- Prepare pile-sort cards (Resource 1: Information for cards for pile-sort)

Materials

- Cards for pile-sort
- Flip chart paper and markers

Duration: 30 minutes

Learning objective 1: To identify the priority groups of population for nutrition and explain the importance of nutrition during the first 1,000 days (window of opportunity).

Methodology: Pile-sorting and discussion

Activity 1. Pile-sort cards on nutrition during the first 1,000 days

1. Explain that this session will provide an opportunity to discuss the priority groups for nutrition and the importance of nutrition during the first 1,000 days.
2. Explain to the participants that the session will start by pile-sorting among groups.
3. Divide participants into groups of five or six people and hand out the materials for the pile-sort. Explain that each card has different statements that the group should discuss to determine whether the activity/statement on the card is "true" or "false." Each group will form two piles—one for true and one for false statements.
4. Ask each group to choose a volunteer to read each card and then decide as a group whether the statement is true or false. They should repeat this until they have discussed all of the cards and have two piles: true and false.
5. Give the groups 10 minutes to go through the exercise.
6. Gather the large group again. Have two flip charts ready for posting results—one headed TRUE, the other headed FALSE. Starting with Statement 1, ask each group to have one person stick the statement card on the corresponding flip chart according to the discussion in their group. Make sure that all of the groups have the statements on the correct flip chart. If there is disagreement, facilitators can explain and reinforce the correct information.

7. Finally make the following points and summarize the session:
   - Pregnant, lactating women and children under the age of 2 years are the priority groups that need attention in nutrition. Pregnant women need one extra meal to feed themselves and the infant in the womb. Similarly, lactating women need two extra meals per day for their own body recovery, for adequate breast milk production, and good growth and development of their child.
   - Children under the age of 2 years are in a very rapid growth and development period, so nutrition during this period is critical for optimal development. Most of a child's mental and physical growth is irreversible after this age.
   - The first 1,000 days is the period from pregnancy through 2 years of age. Explain that research from around the world has identified the consequences of undernutrition during pregnancy and over the first 2 years of a child's life.

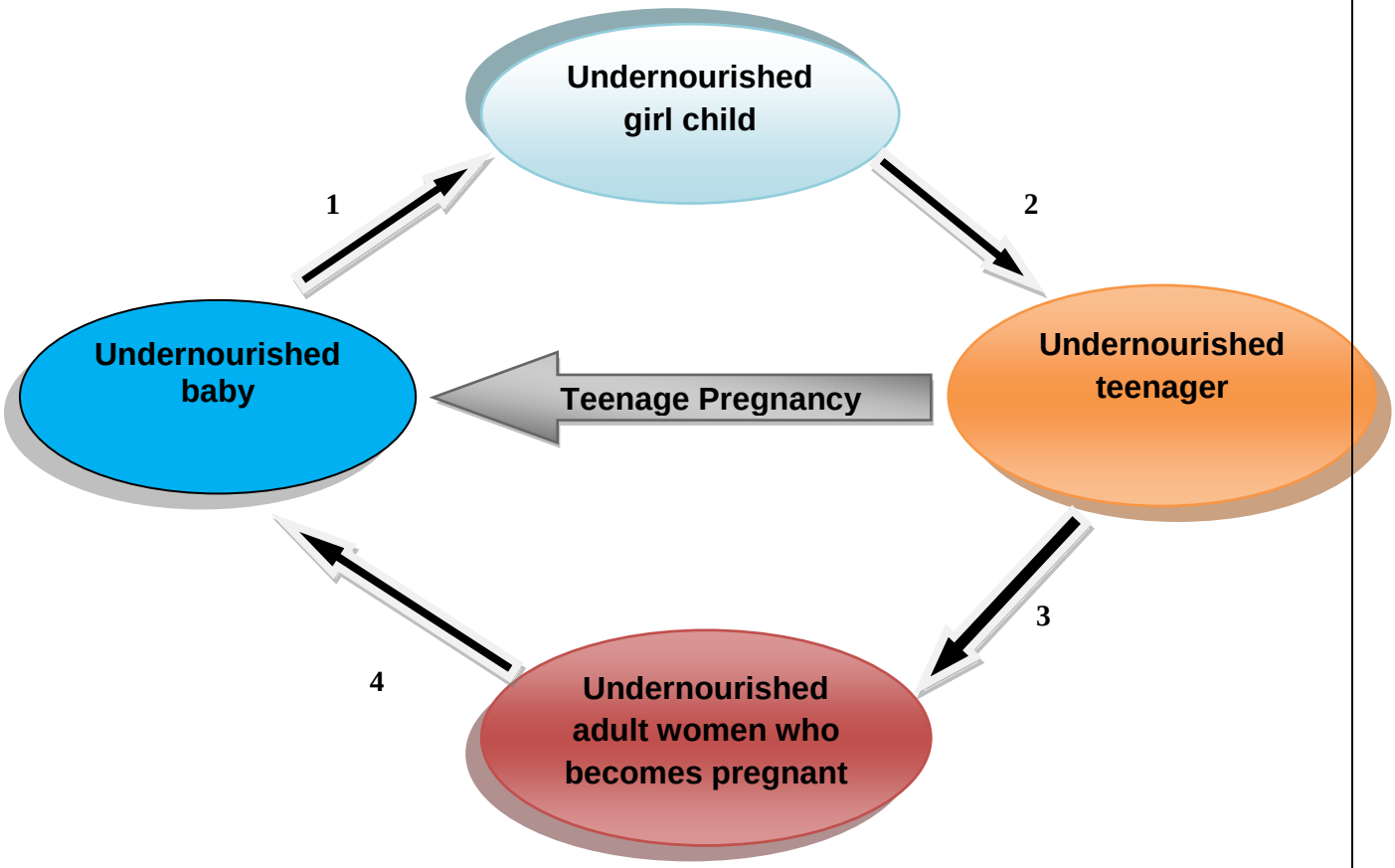
Learning objective 2: To describe the undernutrition cycle.

Methodology: Brainstorming and discussion

Activity 1. Brainstorming and discussion

1. Draw the undernutrition cycle on a flip chart and ask participants what they understand from the picture.
2. Explain that undernutrition occurs in a cycle. So, if we don't break it at some point, the problem will continue from one generation to another.
3. Explain some of the nutrition related interventions that can be implemented at each linkage to break the cycle.
4. Summarize the session and ask if there are any questions.

Fig.1: The undernutrition cycle



Resource 3.1: Information for cards for pile-sort (the first 1,000 days—Nutrition Priority Groups)

Number	Statements	Answer
1	Pregnant women who are undernourished are more likely to have a small, underweight baby	TRUE
2	The amount and variety of food a pregnant woman needs is the same as she used to consume before she got pregnant	FALSE
3	A breastfeeding woman needs to eat extra meals for her own health and nutrition status and for the best development of her infant	TRUE
4	Much of a child's mental and physical development is irreversible after the age of 2 years	TRUE
5	Nutrition from the start of a mother's pregnancy through her child's second birthday is a critical window for a child's growth and development	TRUE

Session 4: Gender and Nutrition

Learning objectives
1. **To equip the participants with basic concepts of gender and sex.**
2. **To help participants understand the ideas on gender roles and division of labor and how they relate to maternal and child nutrition.**
3. **To help participants understand the concept of gender analysis and how it could be applied to understand the gender dynamics and relations in the community.**
4. **To help participants understand the concept of gender mainstreaming and ways of incorporating gender issues in nutrition interventions.**

Preparation

- Read the session carefully
- Prepare all necessary flip chart papers
- Hand out 1: Sex and Gender

Materials

- Flip chart with stand, markers, tape
- *Copies of Resources 1, 2, 3 and 4: The Gender Game, Concepts of Sex and Gender, Gender roles and division of labor, Gender analysis and Gender mainstreaming*

Duration: 120 minutes

Learning objective 1: To equip the participants with basic concepts of gender and sex.

Methodology: Brainstorming, interactive lectures and question and answer session

Activity: Brainstorming and question and answer session

Instructions for activity

1. Distribute the participants' material on the "Gender game."
2. Ask the participants to indicate if the statements are referring to "Sex" or "Gender."
3. After giving the participants a chance to read and answer the statements on their own, discuss each of the answers with the entire group.
4. Ask the participants what they understand by the term" gender equality" and allow them to have some time to discuss on it.
5. Summarize the points by selecting points from the handout and focusing on the points that were not mentioned by the participants.

Resource 1: The Gender Game

Identify whether the statements refer to gender or sex:

1. Women give birth to babies, men don't.
2. Girls should be gentle: boys should be tough.
3. Women or girls are the primary caregivers for those sick with AIDS-related illnesses in more than two-thirds of households worldwide.
4. Women can breastfeed babies, men can bottle feed babies.
5. Women in many countries are more likely to experience sexual and domestic violence than men.
6. Men are paid more than women for the same work (in many countries).
7. Men's voices break at puberty, women's do not.
8. Women have long hair and men have short hair.

Resource 2: The concept of Sex and Gender

Sex

- ✓ Refers to biological attributes that identify a person as a male or female.
- ✓ These attributes are generally permanent, universal and cannot be changed over time.
- ✓ The socially constituted relations between men and women did not stem from the biological differences between them, rather it originates from gender.

Gender

- ✓ Gender refers to the socially constructed roles and responsibilities assigned to men and women in a given culture or location.
- ✓ These roles are learned, they vary between cultures and they change over time.
- ✓ Historically, attention to gender relations has been driven by the need to address women's needs and circumstances since women typically tend to be more disadvantaged than men.
- ✓ In most instances, gender is equated with women. However, paying attention to gender does not means focusing on women as beneficiaries, but focusing on gender analysis and incorporating the needs of girls, boys, men and women at all levels of interventions.

Gender Equality

Gender equality does not mean that there should be an equal number of boys and girls or women and men in all activities. Gender equality means that women, men, boys and girls have equal opportunities, resources, rights and access to goods and services. Gender equality also means equal opportunities and equal responsibilities in sharing workloads and energy expended within individual capability in caring for families and communities. (UNFPA, 2008)

Promoting gender equality in the nutrition program requires taking into consideration the social, economic and biological differences between men and women and addressing the inequalities which are barriers to good nutrition.

Gender Relations

Usually, the relations between women and men are based on unequal power. Women's and men's gender are not only different, they are often unequal in power, weight and value. These relations determine women's and men's access to and control over material resources and benefits. Since these relations are socially constructed, they can be changed. Ensuring that women have the same access to productive resources as men and improving the gender inequalities can significantly improve nutrition and well-being for the entire household.

Gender Sensitive

Gender sensitivity is being aware of the differences between women's and men's needs, roles, responsibilities and constraints and seeking out opportunities and mechanisms to include and actively involve women as well as men in all activities. It requires redressing the existing gender inequalities by addressing gender norms, roles and access to resources as necessary to reach the project goal.

Learning objective 2: To help participants understand the ideas on gender roles and division of labor and how they relate to maternal and child nutrition.

Methodology: Brainstorming, interactive lectures, small group work

Activity: Group work

Instructions for activity

1. Ask participants to list typical household duties that take place on a regular basis. To assist, ask them to think about what needs to be done in a household and on the farm from the first activities of the day until the last thing before going to sleep. List and number all of the activities on a flip chart. The list of activities should include:
   - Cooking, house cleaning, washing clothes, collecting water, collecting fuel
   - Upkeep and maintenance, including repairing household items or farm equipment
   - Farming, trading, food shopping
   - Looking after animals, child care
2. Ask the participants to identify which of the listed activities are usually done by women or men, or equally by both?
3. Tally the number of activities that women, men and both sexes normally do and ask the participants to discuss what they think about the division of labor. For example, you can raise the following question:

- Do men help take care of young children when the mother is around, or only when she is away?

4. Ask the participants about what they learned from this exercise and what they can do to promote an equitable distribution of labor in household work and to increase the participation of men in feeding and caring for their children.
5. Summarize the discussion by presenting points from **Resource 2: Gender roles and the division of labor**

Resource 2: Gender roles and the division of labor

Gender roles and the division of labor in households

Gender roles are the roles both women and men are expected to fulfill in society as defined by the virtue of being female or male. Men and women get messages about their role and division of labor from family, schools, media and society at large. Gender roles show society's rule for how men and women are supposed to behave. These rules are sometimes called gender norms. They dictate what is "normal" for men and women to think, feel and act.

Many of these differences are created by society and are not part of our nature or biological make-up, and many of these expectations help us enjoy our identities as either men or women. However, some of these expectations limit us from using our full potential as human beings.

> For example: If and how a father is involved in child feeding and care is not linked to biological characteristics, but depends more on how women and men are raised as to whether they believe that men can also take care of children.

Both men and women play multiple roles in society. These roles can be broadly categorized into:

1. **Productive role:** Tasks which contribute to the economic welfare of the household through production of goods. Women's role as producers is usually undermined and undervalued.

2. **Reproductive role:** Activities performed for reproduction and caring for the household, water and fuel/wood collection, child care, health care, washing, cleaning, etc.

3. **Community management or socio-cultural activities:** Activities primarily carried out by men and women to ensure the co-existence of themselves as well as their family in

their social environment. Examples of such activities include idir, mutual help among neighbors/relatives, community groups, etc. which boosts their social capital (FEMNET, 2006).

Men usually focus on productive roles and play their multiple roles sequentially. Women, in contrast to men, must play their roles simultaneously and balance their time between all of them. These facts show that women are overburdened with triple roles and the probability that they face time-related constraints in providing adequate care for the children and seeking health care.

Learning objective 3: To help participants understand the concept of gender analysis and how it could be applied to understand the gender dynamics and relations in the community.

Methodology: Brainstorming, interactive lectures, group discussion

Activity: Brainstorming and small group work

Instructions for activity

1. Ask participants to list typical household assets and resources that are being used for household consumption. List and number all of the assets and benefits on a flip chart. The list of household assets and benefits may include:
   - Land, cows, poultry, sheep, goats, etc.
2. Ask the participants to identify if the listed assets/benefits are usually accessed or controlled by women or men, or equally by both?
3. Tally the number of assets/benefits that women, men and both sexes normally access and control.
4. Ask the participants to discuss what they think about the division of labor. For example, you can raise the following questions:
   - Do you think women and men have equal access to the assets and benefits in the household?
   - Do you think that women and men have equal decision making power and control over the household assets and benefits listed or do you think there is a difference in the patterns of ownership and decision making?
   - Do you think the differential access and control of assets and benefits by women and men affects the nutrition of the household?
   - What can be done to improve women's access, control and decision making power over household assets and benefits?
5. Summarize the discussions by presenting key points from **Resource 3: Gender Analysis and its importance in project designing and implementation**

Resource 3: Gender Analysis and its importance in project designing and implementation

Gender Analysis

Gender analysis is a systematic effort to identify and understand the roles, needs, opportunities and life circumstances of men and women in a changing socio-economic context. It examines the differences in women's and men's lives, including those which lead to social and economic inequity for women, and applies this understanding to policy development and service delivery. It is concerned with the underlying causes of these inequities.

- It aims to achieve positive change for women. (FAO, 1997)

A gender analysis creates a "gender looking glass" through which we examine our community to promote gender equality through:

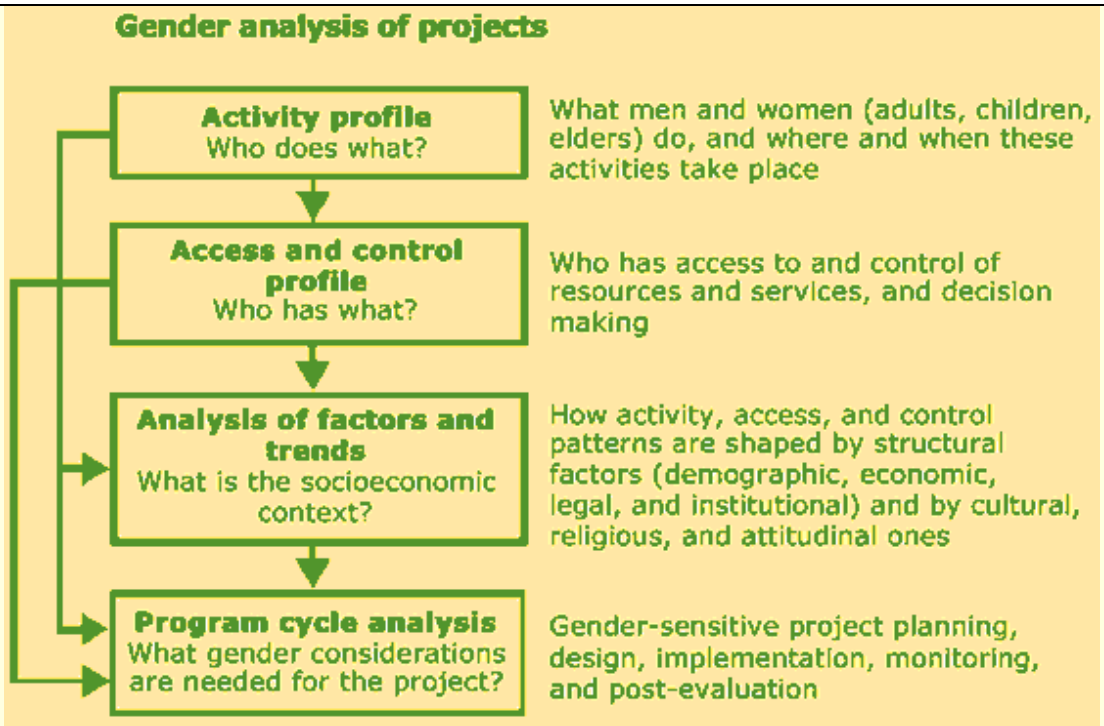
- Gender differences in the division of labor and the access to and control over resources;
- Practical need and strategic interests of men and women;
- Power differentials and dynamics between men and women;
- Social, economic and political constraints and opportunities facing women and women;
- Assessing institutional capacities to promote gender inequality.

There are different frameworks of gender analysis. These include:

1. The Harvard Gender Analysis Framework
2. Moser's Framework
3. Gender Analysis Matrix

Each of these frameworks has their unique features and relevance to specific contexts.

The Harvard framework is one of the more widely used gender analysis frameworks for collecting and analysing data on gender relations. This framework has four interrelated components:



Source: Adapted from the ADB, 2002; Gender Checklist - Agriculture

Access to and control over resources and benefits

One of the manifestations of power imbalances between men and women in any society relates to the disparity in access to and control over resources. This has implications on women's decision making power/ability both within the household as well as in community structures outside of the household.

Access to resources means having the opportunity to use resources without having the authority to decide on the output and the exploitation methods.

Control over resources or benefits means having full rights to use and authority to decide what the outputs should be and how they should be used.

Learning objective 4: To help participants understand the concept of gender mainstreaming and ways of incorporating gender issues in nutrition interventions.

Methodology: Brainstorming, interactive lectures

Activity: Brainstorming and discussion

Instruction for activity

1. Ask participants to brainstorm and identify key gender issues in nutrition and livelihood interventions.
2. Ask them to discuss how each of the identified issues affects the nutrition issues in the household.
3. Ask them to explain and share their experiences on how they are addressing the identified issues in their work to improve nutrition in the community.
4. After getting their feedback, summarize the discussion by presenting the key points from **Resource 4: Gender mainstreaming in nutrition and livelihood programs**

Resource 4: Gender mainstreaming in nutrition and livelihood programs

What is gender mainstreaming?

Gender mainstreaming is "a process of assessing the implications for men and women, of any planned activities including legislation, policies and programs, in all areas as well as all levels" (UN, 1997). It involves deliberate actions to ensure that the experiences, expectations, needs and concerns of men and women are integrated in decision making, planning, programming and budgeting, monitoring and evaluation of policies and programs.

Men, women, boys and girls have distinct roles in agriculture and livelihood production, income generation or household activities. They also face specific constraints. Understanding and taking into account these different roles helps to ensure that projects do not reinforce or exacerbate gender inequality or power imbalances. If constraints are not identified, strategies cannot be developed to overcome them.

Key gender issues in livelihood

Below are the key issues being considered in agriculture and nutrition:

1. Equal access to land and other resources such as credit and other support services
2. Gender differences in roles and activities
3. Gender and agriculture extension services
4. Women's empowerment and equal access to decision making

Women typically have limited access to markets or control over income from selling crops, despite the fact that increases in women's income are associated with improvements in child nutrition. In many societies, women's access to productive assets such as land, formal credit, capital, inputs and extension services is constrained even though women produce most of the subsistence crops, manage household seed stocks and contribute to the maintenance of plant biodiversity. The following are some tips in identifying ways to integrate gender concerns in agriculture and nutrition interventions:

- Understand the roles of men and women, boys and girls in the household reproductive and productive systems (division of labor, workload and time allocation, resource control, etc.) and anticipate how the project might affect them.
- Involve and empower both men and women equally in addressing nutrition problems in the community. Focusing on women only as victims, may instigate negative outcomes, such as inciting jealousy among men; turning away men from nutrition issues and actions resulting in the stigmatization of nutrition activities as "women's business."
- Acknowledge and enhance the key roles of women in the production, storage and preparation of food by providing training and nutrition education to empower their ability to offer healthy diets for their families through homestead gardening.
- Acknowledge and promote the role of men in improving nutrition for their families. Engage men as partners, as caregivers and as agents of positive change.
- Use Farmer training centers to practically demonstrate gender and nutrition-sensitive interventions as complementary to other health-based nutrition interventions.
- Consult and include men and women in community meetings, demonstrations at field level and monitoring & evaluation of nutrition interventions.
- Educate men and women on good fatherhood and motherhood practices, breastfeeding, complementary feeding and other nutrition matters.
- Incorporate gender awareness as part of the community awareness sessions and campaigns on health and nutrition matters.
- Conduct routine assessment and client exit interviews at facilities to assess the friendliness of services to mothers and children.

Session 5: The Basics of Food Handling, Storage and Preparation

Learning objectives	
1	**To explain how to keep food safe by practicing pre- and post-harvest handling, preparations and storage techniques (from farm to fork).**
2	**Describe the barriers and motivations to keeping food safe.**

Preparation

- ☐ Read through session; get familiar with all activities
- ☐ Prepare labels (Safe Practice, Unsafe Practice, Neutral Practice) and flip chart for brainstorming

Materials

- ☐ Resource 4.1: Food safety actions
- ☐ Resource 4.2: Recommended pre- and post-harvest storage and handling practices
- ☐ Labels for Activity 1
- ☐ Prepared flip chart

Duration: 50 minutes

Learning objective 1: To explain how to keep food safe by practicing safe handling, preparations and storage techniques.

Methodology: Group work and discussion

Activity 1: Introduction to food safety

1. Place the three labels (Safe Practice, Unsafe Practice, and Neutral Practice) that you have prepared in three different places in the room. Explain what each of the labels means.

2. Explain that you are going to name a practice and that each person should decide whether they think the practice is safe, unsafe or neutral (neither safe nor unsafe—makes no difference). Once decided, they should go stand under the appropriate label.

3. Refer to Resource 4.1: Food safety actions; read out the actions one at a time.

4. Once participants have made their decisions and are standing under the labels, ask why they have made that choice.

5. If all of the participants have not identified the practice correctly, make sure to ask the reason for their choice to both those who have identified it correctly and those who have not. Repeat for next action.

Activity 2: Brainstorm on barriers to food storage and safety

1. Explain to the group that you would like to brainstorm some barriers to food safety and how these might be overcome. First, ask the group what are some of the key behaviors needed to keep food safe. Write their answers on a prepared flip chart. Participants should mention the following:

    - Use of organic compost is a better option than the use of chemicals for small-scale vegetable and fruit production
    - Safe use of agrochemicals
    - Safe use of veterinary pharmaceuticals
    - Livestock production and consumption can lead to four main types of human health risks:
        - Diseases transmitted from livestock to humans
        - Environmental pollution
        - Foodborne diseases and risks
        - Diet-related chronic diseases
    - Wash your hands with soap and water before preparing foods and feeding.
    - Wash your hands and your baby's hands with soap before eating.
    - Wash your hands with soap and water after using the toilet and/or washing or cleaning the baby's bottom.
    - Feed your baby using clean hands, clean utensils and clean cups.
    - Use clean utensils.
    - Store the foods in a safe, clean place and re-heat before eating.

2. For each behavior identified, ask the group what might be a barrier to farmers implementing this behavior. Ask what might be done to help the farmers overcome these barriers.

Activity 3: Brainstorming and discussion on the post-harvest storage and handling techniques and their importance

1. Ask the participants why we are concerned with on farm and post-harvest storing and handling techniques. Write their answers on a prepared flip chart. The participants should mention the following

    - Proper handling and storage reduces product loss
    - It helps to preserve and maintain the nutritional quality of the product for long
    - It helps to ensure sustained availability of the product
    - To protect food safety
    - Provides farmers a more sustainable income from sales of the products

2. Group the participants into two or three and ask each group the following questions. Give them about 10 minutes to consider the question. Finally, be sure to capture the points raised on the flip chart during the presentation by each group.

    - What traditional and improved post-harvest handling and storing practices do they know and practice in their locality for crops (cereals, legumes and vegetables)?
    - What traditional and improved handling techniques and/or preservative practices

for animal source food (milk, meat, egg and fish) are known to the participants?

- What challenges do they encounter to widely promote improved techniques particularly in pre- and post-harvest handling of vegetables and fruits?
- What suggestions can they provide to address the issue?
- What role should ENGINE take to address the issue? How?

A Case of Potato

- In line with the discussion on improved storage practices, ask the participants about their level of awareness and exposure to ware potato (food potato) and seed potato improved storage techniques.
- Then, highlight its importance to participants using the information below.
- Finally, advise them to strictly infuse or promote this technology into their localities and see if there is a difference.

(Figure 1 Diffused Light Store (DLS)

Figure 2 Ware Potato (for food) Storage

(Holleta Agriculture Research

1. Diffused Light Storage for seed potato:

- It is a low cost method of storing potato tubers for seed which extends their storage life and improves their productivity.
- Uses natural indirect light instead of low temperature to control excessive sprout growth and associated storage losses.
- A DLS structure needs to have an insulated roof, translucent walls and adequate ventilation.
- DLS cuts storage losses and increases yields, thus reducing the need to buy expensive potato seed. Since farmers produce their own potato seeds, they will not be dependent on imported seeds and can plant during optimal conditions.
- Planting at optimal times results in more spaced harvests and provides farmers with extra time to cultivate another crop.
- According to research findings that compared potato seed stored in diffuse light storage to seed stored under traditional methods, potatoes stored in diffuse light were of better quality and showed a 12 percent increase over the traditionally stored seed.
- The loading capacity of diffuse light stores is low since all tubers have to be exposed to the light. It has the capacity to store 20-25qts. It is more suitable for small seed units and not for large scale seed production schemes.
- Screening of the stores with small-mesh netting provides some protection against attack by insects.

2. **Ware Potato (for food) Storage**: Potatoes for food must not be exposed to light for more than a few hours otherwise they turn green, develop an unpleasant taste and may become toxic. Ware potatoes can be stored up to six months in tropical highlands without significant losses provide that:
    - The variety of potato is one with long dormancy
    - The potatoes are free from diseases, damage or insect infestation
    - Storage temperatures are kept to levels that do not induce high rates of respiration
    - The relative humidity within the store is kept at sufficiently high levels to reduce water loss from the tubers
    - The potatoes are not wet as a result of rain or condensation

- All potatoes showing greening, any decay or damage should be rejected for storage.
- Immature tubers and those showing minor damage or wetting by rain may be put aside for immediate consumption.
- As shown on the picture (figure 2 above) the ware storage is a mud-block structure with a thatched roof and a ventilation chamber at the bottom and upper part of the store. The store has ventilation opening with a shutter from the windward side to regulate the ventilation during the day and night time. During the storage period, the shutter on the ventilation opening is left open at night when ambient temperatures are lowest and closed during the day when temperatures are higher and relative humidity is lower.

Resource 4.1: Food safety actions

	Action	Safe	Unsafe	Neutra
1	A mother washes her hands before she feeds her baby with her hand.	X		
2	A mother purchases a mango and gives it to her 22-month-old child.		X	
3	A mother has her school-age child go to the market to purchase tomatoes for the family meal.			X
4	After the meal is finished, there is leftover shiro—the mother tells one of her school-age children to cover it and put it in a cool spot.	X		
5	A grandmother gives the leftover shiro wot from the mid-day meal to a 20-month-old child in the early evening without reheating it to boiling.		X	
6	A mother washes and peels the carrots before putting them in the pot to cook.	X		
7	A father is washing the hands of his 2 year old child before feeding.	X		
8	The child is eating uncooked washed cabbage with tomato.	X		
9	The mother of a 2 year old child is on the farm; her neighbor is giving washed papaya for her 7 month old child.	X		

10	A farmer came from the field; his wife told him there is no water to wash his hands and he is eating with unwashed hands.		X	
11	Consuming or selling crops recently sprayed with pesticides		X	
12	Serving un-boiled milk to children	X		
13	Washing and drying fresh produce before storage	X		
14	Use of cool, dark, well ventilated storage protects against insects and rodents	X		
15	Use of protective clothes and/or equipment (e.g., gloves and mask) when applying agrochemicals to plants in the field and in the stores	X		
16	Washing milking cow udder and teat protects children against contaminant milk-borne diseases	X		
17	Proper cooking of chicken, meat and egg protects against serious communicable diseases	X		
18	Raw milk consumption has no major health problem to children and mothers		X	
19	Serving uncooked eggs to children		X	
20	Seafood like fish is highly perishable and needs to be kept at room temperature and consumed fresh	X		

Resource 4.2: Recommended pre- and post-harvest storage and handling practices

1. Recommended pre- and post-harvest storage and handling practices

- Harvest at maturity
- Solar drying or shed drying
- Use of proper storage for vegetables such as ware and diffused light store for potato consumption and seed respectively
- Cool, well-ventilated storage facility protected against insects and rodents
- Inspect produce
- Clean and maintain the storage structure
- Remove trash and weeds
- Install Rat guards
- Cement floors preferred
- Disinfect used sacks
- Use Wooden pallets
- Animal source food hygiene and safety starts with what the animals eat since what goes into an animal is what comes out as a food
- Milk hygienic practice should start by cleaning the udder and teat before milking
- Keep milk and milk products in a clean and easy to clean container (if possible aluminium can)
- As a " rule of thumb" eat animal source food fresh and cooked

2. The typical **causes and sources of food safety problems** during production and post-harvest handling fall into the following three major categories:

2.1 **Physical Hazards**: Examples of physical hazards which may become imbedded in produce during production handling or storage are:

- Seeds of weeds and soil from threshing ground
- Damage and bruising during harvesting particularly for bulb, root crops and fruits
- Contamination with animal manures while threshing
- Wood splinters

2.2 **Chemical Hazards**: Examples of chemical hazards which may contaminate produce during production handling or storage are:

- Pesticides, fungicides, herbicides, fungicide, rodenticides and factory wastes

2.3 **Human Pathogens**: There are four main types of human pathogens associated with fresh produce:

- Soil associated pathogenic bacteria (*Clostridium botulinum, Listeria monocytogenes*)
- Feces associated pathogenic bacteria (*Salmonella spp., Shigella spp., E.coli* O157:H7 and others)
- Pathogenic parasites (*Cryptosporidium, Cyclospora*)
- Pathogenic viruses (Hepatitis, Enterovirus)

3. **Food safety on the farm**: Practices related to these four simple principles can reduce the risk that produce may become contaminated on the farm.

3.1 Clean soil

- Avoid the improper use of manure.
- Compost manure completely to kill pathogens, and incorporate it into soil at least two weeks prior to planting.
- Keep domestic and wild animals out of fields to reduce the risk of fecal contamination.
- Advice use of improved latrines instead of open defecations.
- Prevent run-off or drift from animal operations from entering produce fields.
- Do not harvest produce within 120 days of a manure application.
- Avoid consuming or selling crops recently sprayed with pesticides and animals fed with hormones.

3.2 Clean water

- Test surface water that is used for irrigation for fecal pathogens on a regular basis, especially if water passes close to a sewage treatment or livestock shelter.
- Keep livestock away from the active recharge area for well-water that will be used for irrigation.
- Keep chemicals away from the active recharge area for well-water that will be used for irrigation.
- Filter or use settling ponds to improve water quality.
- Where feasible, use drip irrigation to reduce crop wetting and minimize risk.
- Use potable water for making up chemical pest management sprays.

3.3 Clean surfaces

- Tools and field containers must be kept clean. Wash and sanitize items before each use.

Session 6: Dietary Diversity- What it Means and Why it is Important?

Learning objectives
1. **To list the six main food groups.**
2. **To explain that eating a variety of foods means variety across the food groups.**
3. **To understand why eating a variety of foods is important.**

Preparation

- ☐ Read through the session and familiarize yourself with the process and activities
- ☐ Prepare photocopies of the background information on the six food groups

Materials

- ☐ Small pieces of paper to write names of foods
- ☐ Prepared flip chart papers with six food groups labeled
- ☐ Resource 5: The six food groups
- ☐ Resource 6: How to get a diversified diet

Duration: 50 minutes

Learning objective 1: To list the six main food groups.

Methodology: Group work and discussion

Activity 1: Food groups game

1. Ask each participant to write the names of three different foods on small pieces of paper, one on each piece. Explain that this can be any type of food—animal source, vegetable, fruit, etc. Each should be a separate food item, not a mixed food that has more than one ingredient.

2. Put all of the papers in a basket and mix them up. Then lay out the prepared flip chart papers on the floor with the six foods group categories—one category on each piece of paper. Ask each participant to pick three slips of paper from the basket and to put the foods listed on the corresponding flip chart paper—into the food category to which it corresponds.

3. Check with the group to ensure that the foods are put in the correct category.

Activity 2: Presentation and review on dietary diversity

1. Using Resource 5.1: The six food groups and the flip charts from the first activity, review the six food groups and the importance of eating a variety of foods at every meal.
2. Repeat the key messages and give examples (see Resource 5.2: How to get a diversified diet).
3. Ask if there are any questions and summarize.

Learning objective 2: Explain that eating a variety of foods means variety across the food groups.

Methodology: Group work and discussion

Activity 1: Divide participants into three groups. Provide the group with the following scenario to discuss and present for the bigger group. Give 15 minutes for group discussion and 5 minutes for each to present.

Scenario 1

Abebe is a farmer who is living in agro-pastoralist part of Ethiopia. He is married and has four children. Abebe is a very hard working farmer who is working with the DA in his kebele. Last year he was awarded as a model HH. His wife Tirunesh is keeping a cow and she is using the dairy products for the children. She has poultry and the family is consuming eggs and chicken. She is also selling butter and eggs to buy other food products like cabbage and carrots which she is not growing.

From Scenario 1, discuss in a group the following questions:

- Is this something that can be practiced in your kebeles? If not, why?
- Is Tirunesh practicing consumption of diversified food for her children? How did she make this happen?
- How could DAs help HHs to consume diversified food?

Scenario 2

Almaz is a single mother with two children aged 1 and a half and 4 years old. She has one hectare of land. She has fruit trees around the house and has a plot to grow some vegetables. She has one cow with low milk production. Almaz has no grazing area or is not able to provide adequate fodder for the cow. Almaz is getting around six quintals of teff every year. Almaz is selling most of her products and provides only teff and some milk to her children.

From Scenario 2, discuss in a group the following questions:

- Is this something that is common in your kebeles? If not, why?
- Is Alamz practicing consumption of diversified food for her children? If not, why?
- Dose Almaz have the potential to provide diversified food to her children? If yes, how? If not, why?
- As a DA, how could you help Almaz to consume diversified food for herself and her children?

Scenario 3

Temima is living in one of the highland areas of Ethiopia. She is growing wheat and barley. She is getting 3 quintals of the crop every year. She is not able to send her children to school and the product is not adequate to cover food for the family, so she stopped growing cereals. She noticed her sister-in-law with the same plot is living better. She started growing chat and she has been successful in growing this.

From Scenario 3, discuss in a group the following questions:

- Is this something that is common in your kebeles? If not, why?
- How could Temima improve consumption of diversified food for her children?
- As a DA, how could you help Temima to consume diversified food for herself and her children?

Make the following note

Animal-source foods

Animal-source foods are a good source of readily digested protein and are rich in energy. Animal-source foods are easily absorbable and an efficient source of micronutrients (calcium and B_{12} from milk, and iron, zinc and vitamin A). Animal products are exclusive sources of dietary vitamin B_{12}, and a good source of preformed vitamin A, particularly in milk which protects children from diseases.

Legumes

Encourage the use of legumes. Legumes are a good source of protein which is essential for the body, as well as important minerals such as calcium, zinc, iron and folate, a mineral that is important for brain function, mental and emotional health.

Vitamin A

Fruits and vegetables are good for the body to protect you from disease. Encourage the use vitamin A rich foods such as yellow colored fruits/vegetables (papaya, mango, oranges, carrots, pumpkins, orange-fleshed sweet potatoes), dark green vegetables, organs (liver), animal source (eggs, milk, butter, cheese and vitamin A fortified foods).

Make sure the child gets vitamin A supplementation from 6-59 months of age twice a year.

Iron

Iron is one of the necessary micronutrient which the human body needs. Plant sources include beans, peas, lentils and spinach are a source of iron.

Eating foods rich in **vitamin C** together with/or soon after a meal, **increases** the **absorption** of **iron.**

Drinking tea and coffee with a meal reduce the absorption of iron.

Iodine

Use iodized salt for cooking. Iodine will help brain growth. This will help the child perform better in school and be more productive in farming activities.

Resource 5.1: The six key food groups

1. Staples

Foods in this include cereal grains such as sorghum, millet, maize, barley, oats, wheat, teff, rice, and starchy roots (cassava, sweet potato, false banana and potato). They are good sources of energy.

2. Legumes and Nuts

This group includes ground nuts, soya beans, beans, peas, chick peas, broad beans, kidney beans, lentils. They provide mainly protein and are important for growth, repair and body building.

3. Animal Foods

All of the foods in this group are of animal origin such as meat, poultry, eggs, milk products and fish. They provide protein, fats, vitamins and minerals. They help the child to grow, have strong bones and be healthy.

4. Vegetables

Include green leaf and yellow vegetables such as cabbage, kale, spinach, cauliflower, lettuce, carrot, celery, cucumber, eggplant, green pepper, broccoli, pumpkin, onions, tomato and others such as mushroom. They provide mostly vitamins, minerals and water. Vegetables also contain fiber that is necessary for proper digestion.

5. Fruits

They include citrus fruits (oranges, lemons and mandarins), bananas, apple, avocado, cherry, grapes, pineapple, papaya, mango, peach, guava, watermelon, sweet melon and many others. Fruits provide mostly carbohydrates, vitamins & water. They help to protect from illness.

6. Fats

This group includes oil seeds (soybean, sesame, linseed and groundnut), avocado, cooking oil, milk and milk products such as butter, margarine, yoghurt, meat, fish and poultry. They mainly provide fat (additional energy).

Resource 5.2: How to get a diversified diet

All six food groups are important and should be eaten in combination in order for them to complement each other in increasing dietary intake and utilization of various nutrients by the body.
One should eat a variety of foods at every meal for a diversified diet. For example:

Staples	+	Legumes & nuts	+	Vegetables	+	Animal foods	+	Fats	+	Fruits
Injera, genfo, kita, or kolo from: Millet Sorghum Maize Teff Barley Wheat Oats Cassava False banana	+	Lentils Peas Ground beans Chick peas Beans Broad Beans*	+	Kale* Spinach Cabbage* Lettuce Mushroom Pumpkin* Eggplant Broccoli Irish Potato* Orange fleshed Sweet Potato* Carrot* Swiss chard*	+	Egg Fish Meat (beef, lamb, poultry) Milk and dairy products	+	Sesame seeds Linseeds Cooking oil Butter Sunflower seeds Pumpkin seeds	+	Mango* Banana Papaya* Guava Apple* Pineapple Grapes Orange Lemon Avocado*

Prepare your food from at least four food groups every day to become and stay healthy

* - Crops Recommended under ENGINE Support

Session 7: Conducting Cooking Demonstrations

Learning objectives
1. To gain skill in conducting a cooking demonstration to make food for children.
2. To gain skill in conducting a cooking demonstration for nutritious family foods.

Preparation

- Read the steps to conduct the cooking demonstration
- Assemble everything that is needed to do the cooking demonstration

Materials

- Food ingredients (locally available) required for food preparation
- Cooking utensils (pan, spoon, fork , knife, plate)
- Fuel

Duration: 120 minutes

Learning objective 1: To gain skill in conducting a cooking demonstration to make food for children.

Learning objective 2: To gain skill in conducting a cooking demonstration for a nutritious family food.

Methodology: Group work

Activity 1. Conducting a cooking demonstration

1. Divide the participants into two groups (one to cook porridge for a 12-month-old child and the other to cook food for the family).
2. One facilitator will work with each small group. Cook what is locally acceptable food for the family and the child. Make sure to reinforce key behaviors such as washing hands, washing fruits and vegetables, keeping utensils clean, etc.
3. For the child group: point out the consistency of the preparation as you make it and demonstrate the thickness with a spoon when it is finished.
4. For both the family food and the child groups: emphasize the number of food groups included in the meal.
5. In each group, ask the participants to taste the food when it is finished and get their feedback.

6. Ask one group member to be prepared to share the experience with the broader group. Include answers to these questions in the short summary:
   - What was the food that they prepared?
   - Was it difficult or were there any difficult parts in following the recipe?
   - Did the group think that there would be any barriers to the farmers making this food? How did the group think any barriers could be addressed?
   - How could DAs help promote consumption of diversified food with the proper consistency?

7. Have a volunteer from each group summarize the food demonstration in which they participated.

Sample Recipes (*this sample can be changed depending on the staple food in the area*)

For a young child:

- **Teff/sorghum/maize/wheat/barley porridge enriched with pea flour, kale, tomato and butter/oil**

Ingredients:
Staple: Teff/maize/sorghum
Meat or fish, egg, milk or beans or "mitin"
Vegetables: Kale, tomato
Fat: Butter/oil, water, iodized salt

Method:
1. Wash hands and use clean surface, utensils and plates.
2. Wash, chop and boil the kale and tomato.
3. Mix sorghum/maize/teff flour with pea flour.
4. Boil water and then add the flour into the water.
5. Add butter/oil, kale and tomato, and stir while cooking.

For a family food:

- **Injera with shiro, onion, tomato and kale**

Ingredients:
Staple: Teff/injera, potato, cassava, sweet potato
Meat or fish or beans- roasted pea flour, lentils
Vegetables: Tomato, onion
Fat: Butter/oil; water, iodized salt

Method:
1. Wash hands and use clean surface, utensils and plates.
2. Chop and fry onion with oil or butter.
3. Clean and chop the tomato, add oil and iodized salt and lemon.
4. Add pea flour (shiro) and stir while cooking.
5. When shiro is properly cooked prepare it for eating with injera

Session 8: Agriculture and Marketing for Improved Nutrition

Learning objectives
1. **To understand the key nutrition-sensitive agricultural interventions at the smallholder level.**
2. **To illustrate the importance of translating income into nutrition.**
3. **To bring about the introduction and promotion of nutritious crops through extension services.**

Preparation

- Prepare a brief flip chart presentation and print key informational resources to familiarize trainees with the common nutrition-sensitive agriculture activities; the importance of translating income earned from surplus sales in-to nutrition; and how they would promote new crop or animal varieties which are high in nutrition through the extension service, such as orange-flesh sweet potato and improved layers chicken.

Materials

- Printed information resources
- Assessment questions
- Flip chart
- Markers
- Colored paper for group exercise

Duration: 90 minutes

Methodology: Group work, brainstorming, pile carding, case study and discussion

Activity 1: Pre-session assessment: to learn their level of understanding of the key nutrition-sensitive agriculture interventions and the linkage between marketing, income and nutrition.

1. Split the trainees into two groups and assign each group one of the questions below to discuss for 15 minutes.

   - **Group 1**- How to diversify agricultural production to meet dietary diversification?

     Group 2- How production, income from sales of surplus produce and nutrition could be interrelated at the household and group level? Provide labeled pile cards to the group so that they can construct a framework using arrows.

2. Allow both groups to use a flip chart to make a 5 minute presentation to the whole group

Activity 2: Brief flip chart presentation on the basics of nutrition informed agriculture, marketing and income (15 minutes).

1. Present on a flip chart the sub-topics below for the participants.

- Growing diverse food crops based on the agro-ecology of the area
  - ✓ Cereal (staples) – on the farm plot
  - ✓ Legumes – on the farm plot and intercropping with staples, crop rotation which also improves soil fertility
  - ✓ Vegetables and fruits – in the backyard
    - Green leafy vegetables such as kale, Swiss chard, head cabbage, etc.
    - Root crops such as carrot, Irish potato, orange-fleshed sweet potato, etc.
    - Fruits such as avocado, mango, apple, papaya, etc.
    - Use of irrigation during the dry season
  - ✓ Livestock rearing – such as dairy, small ruminants and poultry
- Consumption and translating household income into nutrition
  - ✓ Production of diversified farm products should be primarily for own consumption.
  - ✓ Sales of surplus produce without compromising own consumption should be for the purchase of nutritious foods from the market (vegetable, fruits and animal source food that is not available at home and serve to children and mothers).
  - ✓ Sales of surplus produce of vegetables and fruits should target local market before opting for other market channels.
  - ✓ Certain amount of cash from the sale proceeds should be saved to sustain the intervention and for further asset building.
  - ✓ Saving could be initiated at the household and within the group and consequently linked to financial service providers such as cooperatives or Microfinance Institutions (MFIs)
  - ✓ It is possible to increase the likelihood of additional income to bring about positive nutrition effects through the following measures:
    - Increasing women's access to and control of income which will result in the increased likelihood of income translating to expenditures related to nutrition Building the capacity of farmers, especially women, on small business management.
    - Receiving regular small amounts of income stream may be more beneficial than larger but less frequent payments.
    - Diversifying production systems and livelihoods, including small-scale agro-processing and in-kind revolving funds or inventory credit.
    - Providing nutrition education to increase the likelihood of income gains being spent on nutritious food.
    - Targeting the poorest and most vulnerable households for income-generating opportunities.

2. Present the hypothetical framework for how production, income from sales of surplus produce and nutrition could be interrelated at the household and group level and compare that with the group 2 presentation. Indicate that the presented framework could be one of the possibilities among others.
3. Ask trainees to reflect back on each presented sub-topic and ask if there are any questions. Summarize the session.

Activity 3: To learn how DAs would introduce and promote new varieties of crops and animal breeds through the extension service.

1. Allow trainees to brainstorm the duties and responsibilities of DAs and their contribution to addressing malnutrition.
2. Write their responses on a flip chart. Allow 15 minutes.
3. Divide the participants into two groups. Provide each group with a case study of orange-fleshed sweet potato (OFSP) and improved poultry production and promotion. Give them 20 minutes to brainstorm the case and come up with their report.
4. Brief participants on the importance and key nutritional facts of OFSP and improved small scale poultry farming mentioned below and the emphasis given by the government and concerned stakeholders to promote it among smallholder farmers to combat malnutrition and food insecurity.
5. Inform participants that they will be expected to introduce and promote through the extension service OFSP and improved breed of poultry to smallholder farmers in their locality and ask them how would they go about the planning, implementation, monitoring and evaluation tasks.
6. Let each group present its findings (10 minutes each).

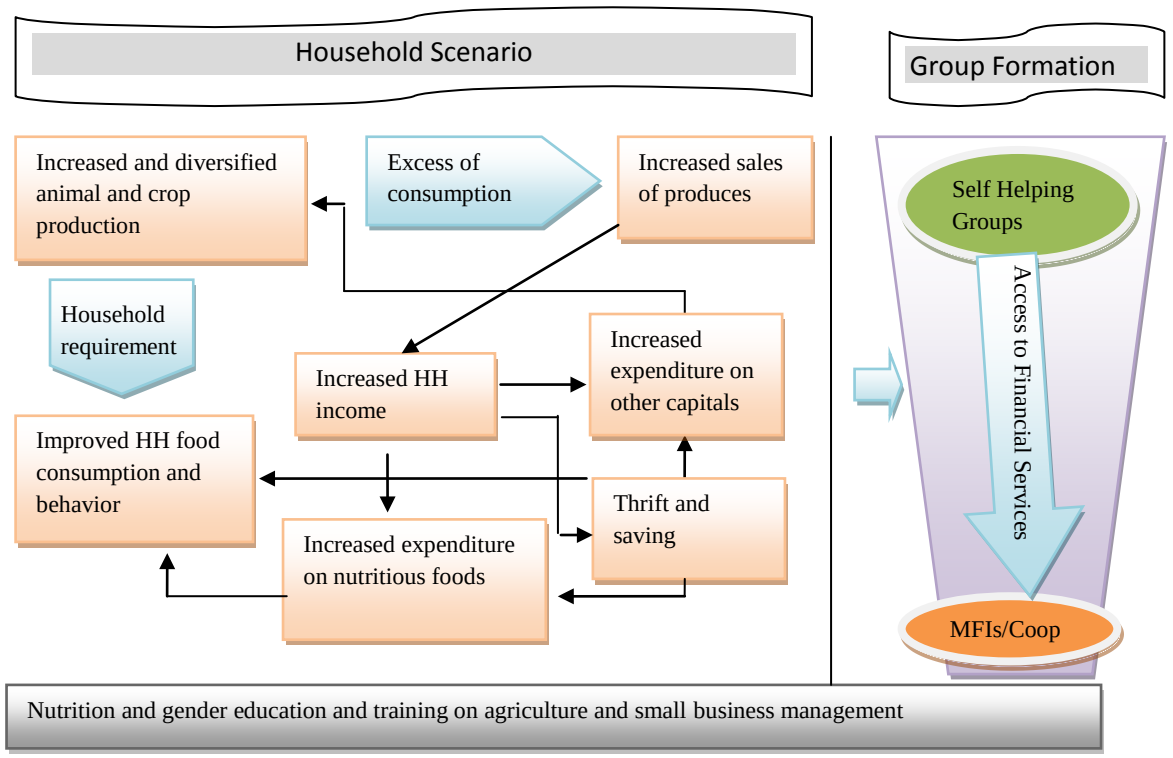
Each group should mention the following methods in their presentation:

1. **Demonstration of agronomic and cooking practices for the crops at FTCs, schools, model farmers, farmers research group, etc.**
2. **Training and experience sharing visits**
3. **Demand creation**
4. **Technical advice for early adopters**
5. **Encourage farmers to farmers learning**
6. **Linkage to input suppliers and market**
7. **Linkage to financial service providers**
8. **Progress reporting**
9. **Annual performance evaluation**

In addition to the above points the poultry group should mention:

- **Training and technical support in poultry house construction, feed preparation, veterinary services, and poultry management**

Resource 1: Hypothetical model on how production, income and nutrition could be interrelated at household and group level



Resource 2: Agronomic and Nutritional Facts of OFSP

- An ideal crop in combating vitamin A deficiency and food insecurity in sub-Saharan Africa.
- The new OFSP varieties contain high levels of beta-carotene, a precursor to vitamin A
- A good source of energy, fibre and other essential vitamins such as vitamin C, iron, vitamin B6, riboflavin, thiamine, magnesium and niacin.
- Research has shown that regular intakes (125 grams per day or half cup) of OFSP varieties can provide the recommended daily amount of vitamin A for children under-5 years of age and pregnant or lactating women.
- OFSP makes an excellent food security crop and its production is less labor intensive.
- The crop is propagated by cutting the vines whereby one plant can yield around 25 cuttings.
- Most varieties of OFSP are drought resistant and therefore suited to low rainfall conditions.
- It can be produced year round, stored for considerable periods and can be used as a main ingredient in the production of a variety of secondary products such as breads, cakes, chips, drinks, starch, animal feed and flour.
- Preliminary studies conducted in East Africa showed that OFSP is well accepted by children and has been used to increase vitamin A status and reduce food insecurity in several food- based interventions.
- Promoting the consumption of OFSP is a proven intervention in combating malnutrition and food insecurity particularly in resource-poor settings.
- Increasing its consumption among women and children depends on a strategy that promotes OFSP production at the household level, adequate nutrition education and appropriate behaviour change communication.

Resource 3: Facts on poultry role in human nutrition and performance of improved chicken breed

- There is growing evidence to demonstrate the role of small-scale poultry in enhancing the food and nutrition security of the poorest households and in the promotion of gender equality.
- Poultry meat and eggs are widely available, relatively inexpensive and can be of central importance in helping to meet shortfalls in essential nutrients of impoverished people.
- The incidence of several common metabolic diseases associated with deficiencies of critical dietary minerals, vitamins and amino acids can be reduced by the contribution of poultry products rich in all essential nutrients except vitamin C.
- Providing small portions of eggs can have a highly beneficial effect on a child by reducing many of the signs associated with a dietary protein deficiency such as low growth, kwashiorkor and poor mental function.
- Chicken meat and eggs provide a readily available, high-quality source of proteins, vitamins and micronutrients. Eggs are an excellent source of iron, zinc and vitamin A, all of which are essential to health, growth and well-being. Chickens and eggs contribute to a nutritious, balanced diet, which is especially important for children, nursing mothers and people who are ill.
- Folic acid in poultry meat and eggs is especially important during pregnancy.
- The egg production potential of local chicken is 30-60 eggs/year/hen with an average of 38 gm egg weight under village management conditions, while exotic breeds produce around 250 eggs/year/hen with around 60 gm egg weight.
- Improved chicken has no broodiness.
- Hens start laying eggs at the age of 22-32 weeks, depending on the breed, their health and development. Often indigenous hens will start much later than imported (exotic) breeds.
- Hens around 40-50 weeks of age lay the most eggs, and then gradually their egg production decreases slowly. If a mature egg layer lays very few eggs, you should sell or eat it.
- Improved chicken growth rate is 50-55 gm/day, while local chicken growth rate is 5-10 gm/day.

Session 9: Conducting Group Nutrition Education

Learning objectives
1. **To become familiar with group nutrition education materials.**
2. **To be able to provide group nutrition education.**

Preparation

- Familiarize yourself with the contents of the session
- Prepare counseling cards

Materials: Group nutrition education tools

Duration: 60 minutes

Learning objective 1: To become familiar with group nutrition education materials.

Methodology: Brainstorming and group work

Activity 1: Introduction to group nutrition education materials

1. Ask participants to take out the group nutrition materials.
2. Present an overview on the materials and how they are intended to be used.
    - Explain that the purpose of the cards is to generate discussion in the farmers group at FTCs or any other gatherings.
    - There are general questions that focus on what participants see in the picture.
    - The group discussion leader should not read the information in the boxes but should use it as a guide to encourage discussion.

Learning objective 2: To be able to provide group nutrition education.

Methodology: Group work

Activity 1: Practice using nutrition education materials

1. Divide participants into groups of 3-4 and provide them with the different counseling cards. Each group will work on one counseling card.
2. Each group will select a person who will work as a DA. The others will act as farmers. Allow 30 minutes for each group.
3. Using the counseling card, the DA will practice group education. The other participants will give feedback.
4. Then each group will select another DA and will practice the exercise as frequently as possible so that each member will have the chance to practice as a DA (practice 3 times at a minimum, depending on the speed of the group).
5. After 30 minutes, call back all groups and ask a volunteer to present in a plenary.
6. Ask participants to provide feedback on the role-play practiced in a plenary.
7. Ask participants: As a DA, can you practice this in your daily work? What are the challenges? Discuss and summarize the session.

Resource 7.1 Counseling Cards

Counseling Card 1: Healthy Family Foods (ADD PICTURE)

1. Opening questions

- What is this family eating?
- How many different foods do you see? Do you think that they are eating well?
- Do you eat these foods?
- Do you grow any of these foods in your garden?

2. Why is it important to eat many different foods?

Different foods provide different nutrients that people need to be healthy:

- Children need a variety of foods to grow well and to develop properly.
- Adults need a variety of foods to have energy and be productive.
- Women who are pregnant or breastfeeding need different foods for the baby and themselves to be healthy and strong.

3. What can a family do to make sure that they have a healthy diet?

- Eat at least four different foods groups every day. Include vegetables or fruits in every meal.
- Spend some of the money from selling crops to buy foods that will add to the variety eaten by the family, including fruits, eggs, meat and poultry.
- Each day, eat at least one additional food that is different from your normal diet.

4. Discussion questions

- What are some challenges that you would face in trying to have a diversified food every day?
- What can you do to overcome these challenges?

Counseling Card 2: Food Safety (ADD PICTURE)

1. Opening questions

- What do you see in these pictures?
- Do you think that these people are doing healthy things? Why?

2. What might happen to a young child if the food was not washed or the mother did not wash her hands before feeding the child?

- The child might get sick with diarrhea.
- The child might not grow well.
- The child might have to go to the health center.
- The child might be crying and inactive.

3. What are things that your family can do to keep food safe for eating?

- Wash all utensils (pots, pans, knives) and all work surfaces for cooking—make sure all is clean.
- Clean hands with soap or ash and water.
- Keep flies and insects away from food.
- Cover or wrap leftover cooked food.
- Always reheat leftover food.
- Wash fresh foods (vegetables, fruits) in clean water.

4. Discussion questions

- What are some challenges that you would face in trying to keep food clean and safe to eat?
- What can you do to overcome these challenges?

Counseling Card 3: Growing diversified crops and, if not growing, purchase the necessary food by selling what you have (ADD PICTURE)

1. Opening questions

- What do you see in these pictures?
- Do you think that the food types you see are necessary? Why?

2. What might happen if the family or a child is not eating these foods?

- The child might get sick.
- The family might not get nutritious food.
- The child might become malnourished.

3. What are things that the family can do to improve the food intake?

- Give fruits and vegetables.
- Use backyard gardens
- Sell some of the products and buy others to diversify the food.

4. Discussion questions

- What are some challenges that you would face in this?
- What can you do to overcome these challenges?