

FACILITATION GUIDE

**PARTICIPATORY LEARNING AND ACTION**

# Improving Nutrition Outcomes in Rural Livelihood Programmes in South Asia



Developed by



FACILITATION GUIDE

PARTICIPATORY LEARNING AND ACTION

**Improving Nutrition Outcomes in Rural  
Livelihood Programmes in South Asia**

Based on the approach of Linking Agriculture, Natural  
Resource Management and Nutrition (LANN)

## IMPRINT

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We acknowledge the very important role of partners of Welthungerhilfe for piloting the Facilitation Guide and giving us rich insights to contextualise the manual.

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**Rajesh Kumar Sinha,**

Director,

Ekjut Management Consultancy Pvt Ltd (EMCPL)

# FOREWORD

## Dear Reader,

This manual is trying to fill the critical gap between livelihood or agriculture interventions and actual nutrition outcomes among the target communities and families of such intervention. Much has been debated about the “missing link” for instance in the Lancet Series of 2013.

Under the heading “unlocking the potential of nutrition-sensitive programs”, it is noted that: *“Evidence suggests that targeted agricultural programmes are more successful when they incorporate strong behaviour change communications strategies and a gender-equity focus. Although firm conclusions have been hindered by a dearth of rigorous programme evaluations, weaknesses in programme design and implementation also contribute to the limited evidence of nutritional outcomes so far”.*

And yet, we have realised in our own endeavours to link agriculture, natural resource management and nutrition (LANN) that surprisingly little practical tools are available to incorporate behavioural change communication and gender into agriculture or natural resource management interventions or provide clear guidance on how such interventions could be designed.

This PLA attempts to be very practical, very simple to use and very effective when it comes to providing nutrition outcomes. It is based on tested models of PLA cycles and puts the community in the centre of the learning and action process, while the facilitator only gives facilitation support to the community. The approach is based on earlier work of Welthungerhilfe and other international organisations in Cambodia and Laos on the LANN approach, which emerged there in the last 5 years. It is also based on Ekjuts work on a PLA cycle for mother and child health, which has found recognition in The Lancet in 2010 for its effectiveness in decreasing neo-natal mortality.

The cycle has been designed to bring together the more male domain of providing income, food and making decisions with the female domain of caring for the family and the children. The cycle addresses both women and men, and contributes to a common understanding and common decision making in the family. Due to the large evidence that caring practices as well as access to health services highly contribute to the burden of malnutrition in South Asia, the cycle looks at those practices intensively. Further, the cycle takes a livelihood approach into consideration and acknowledges the changing livelihood patterns of the poorest people of South Asia. Wage labour plays a larger and larger role, while smallholder agriculture and common resources show a worrying trend as diversity of food, agro-biodiversity and the state of natural resources are on a downward trend. That trend needs to be reversed as agriculture and the commons could and should continue to provide a diversity of healthy food on a sustainable basis.

This is the first version of the PLA cycle. It has been tested in terms of efficiency of the single sessions, but the overall effectiveness is still to be evaluated in the coming years. If you use this manual, we would appreciate your feedback. Please contact us at [info.india@welthungerhilfe.de](mailto:info.india@welthungerhilfe.de)

**Joachim Schwarz**  
Regional Director  
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# A BBREVIATIONS

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AWC	Anganwadi Centre (India)
AWH	Anganwadi Helper (India)
AWW	Anganwadi Worker (India)
CSC	Community Score Card
FAO	Food Agriculture Organisation
FYM	Farm Yard Manure
IFA	Iron Folic Acid (Tablet/ Syrup)
IYCF	Infant and Young Child Feeding
LANN	Linking Agriculture, Nutrition and Natural Resource Management
MUAC	Mid -Upper Arm Circumference
NRM	Natural Resource Mangement
ORS	Oral Rehydration Salt/ Solution
PLA	Participatory Learning and Action (approach)
PRA	Participatory Rapid Appraisal
SAM	Severe Acute Malnutrition
SHG	Self Help Group
WHO	World Health Organisation

# INTRODUCTION

## 1.1 Overview

The manual aims at making community interventions nutrition-sensitive by incorporating nutrition outcomes with agriculture and natural resource management practices through a Participatory Learning and Action (PLA) approach.

The manual has been developed as a handbook for facilitators to plan and conduct meetings in the community to help them develop an understanding of how nutrition is linked to natural resource management and agricultural practices. Using Participatory Learning and Action as an approach, the facilitator guides the community members to discuss issues that are relevant in this context, and identify and prioritize those that they think are most important in their area. Through this process, they also understand the underlying causes for these problems, plan and implement strategies using locally available resources and evaluate their own actions.

## 1.2 How does Participatory Learning and Action (PLA) help?

- The community learns to link nutrition with good agricultural practices and proper management of natural resources available to them.
- Community discussions will help the community understand the manifestation of undernutrition and its causes and effects and how it can be measured.
- The community gains an understanding of the intergenerational transfer of undernutrition, and how it can be broken by addressing nutritional needs of different age groups including infants and young children, adolescent girls, pregnant women and lactating mothers.
- The community discusses infant and young child feeding (IYCF), overall child caring practices, the importance of balanced food in their regular diet, healthy cooking practices, hygiene and sanitation.
- Plans are prepared for improving availability of and diversity of food through growing nutrition gardens, integrated farming, promotion,

utilization and conservation of uncultivated food and making optimal use of the available natural resources.

- Entitlements related to food, health and livelihoods are discussed in the community and strategies are prepared on how to avail of these provisions to break the chain of malnutrition.

### 1.3 Framework of the Manual

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered
Phase I Assess Situation	1	Introduction to the PLA Cycle and Inequity Issues  To introduce facilitator and participants To introduce the LANN PLA cycle To understand the need to include all sections of the community	Discussion Power walk game	Questions for game as given in manual	Understanding issues of inequity in the community Sensitizing the community and frontline Government providers about why some people are not able to access services and get left out/ are at a higher risk of undernutrition and ill health Looking at ways to reach out to the excluded persons/ communities for improving nutritional outcomes
	2	Understanding underlying causes for undernutrition  To develop an understanding of the intergenerational undernutrition cycle To explain the linkages between illness and undernutrition	Discussion on cycle of undernutrition Discussion on how to break the cycle	Flex for depicting intergenerational undernutrition cycle	Undernutrition is intergenerational but the cycle can be broken Discrimination against the girl child, undernutrition in adolescent girls, pregnant

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase   Assess Situation					and lactating mothers Repeated and/or prolonged episodes of illness leads to under-nutrition	
	3	Assessment tools and current status of undernutrition	To understand the growth chart / growth monitoring and other tool for measuring undernutrition To develop an understanding of local practices and beliefs related to nutrition & NRM	Demonstrating the use of growth chart Sample weighing of children at Anganwadi Centre / Health centre Discussion on local practices	Growth chart MUAC tape (if available) and weighing machine (at Health centre) Questions for exploring local practices	Importance of regular growth monitoring sensitizing the community about the need for regular growth monitoring and seeking appropriate advise from frontline workers' (pertaining to different country set ups) Understanding of existing practices
	4	Locally available food and balanced diet	To understand the importance of food groups and a 'balanced diet' To map locally available food groups To prepare seasonal food calendar	Demonstration & mapping of locally available food Interactive discussion	Participants to bring locally available food and place in appropriate food groups Participatory preparation of seasonal food calendar	That different varieties of food are available locally That nutritionally rich food can be prepared at the village level with the existing food stuff That a variety of food is available round the year from different cultivated and uncultivated sources

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase I Assess Situation	5	Available resources in the community	To identify the status of available resources and practices related to NRM To identify the status of available land (fallow, forest, agriculture) and water resources To identify best nutrition gardens	Transect walk Mapping of resources	Chart paper	Understanding the current status of natural resources in the village Knowing the gaps Planning for appropriate utilization of land with a focus around improving nutrition
	6	Identifying & prioritizing nutrition related problems	To identify food and nutrition related problems in the community To find out how common they think the problem is	'What is it?' game 'Voting' game	Problem picture cards Pebbles for voting	Community identifies symptoms of the problems (undernutrition and related issues) Prioritizes problems based on how common they are
Phase II Decide Action	7	Finding causes and solutions to the problem	To find underlying causes for problems related to health and undernutrition in their community To arrive at solutions to deal with the problems	Story-telling 'But why?' game	Story developed by facilitators Picture cards to go with the story	Community understands the different causes for undernutrition (both immediate & underlying causes, which link with agriculture and natural resources management practice) Learn to find feasible/ community based solutions for problems
	8	Finding and choosing feasible strategies	To identify strategies arising out of the solutions from the previous meeting	'Bridge' game	Bricks, wooden planks, strips of white paper	Community tries to develop strategies by overcoming barriers for implementation through optimal use of resources

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase II Decide Action	9	Undertaking responsibilities	To undertake responsibilities for implementing the strategies	Discussion formats	Format	Each one in the group has a responsibility Together they can track the progress The need to incorporate all stakeholders at village level to implement the strategies
<p>Village Interface Meeting I</p> <ul style="list-style-type: none"> <li>– Meeting with different stakeholders and soliciting their support to implement strategies.</li> <li>– Discussing different entitlements in local context and how to avail these entitlements.</li> <li>– Prepare Score card of available services.</li> </ul>						
Phase III Take Action	10	Timely initiation of complementary feeding and improved IYCF practices	To understand the importance of timely introduction of complementary food To understand importance of “enriching “ the food.	Demonstration of different semisolid food Hand washing technique Engaging community in a ceremony on timely introduction of semisolid food Discussion on energy dense food recipes for infants	Soap and water Plate and spoon with locally made food using cereals, greens, vegetables	Importance of introducing complementary foods at the completion of 6 months of age (180 days) Importance of hand washing before feeding Inclusion of energy dense/nutritive food to enrich the diet Importance of age-specific frequency, quality and quantity of food

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase III Take Action	11	Recipe demonstration	To demonstrate local recipes and good cooking practices To discuss about food preservation methods	Demonstration of recipes	List of some local recipes and ingredients	Enriching diet with a variety of food (such as oil, seasonal vegetables & fruits, lentils, animal protein) with attention to frequency and quality of meals Encouraging inclusion of locally available cultivated and uncultivated food for daily diet
	12	Strategies to prevent undernutrition in the community	To identify and implement possible strategies for improving nutrition and growth of adolescents and mothers	“Choosing the appropriate circle” game	Picture cards, material related to practices like feeding bottle, soap, packet of pesticide, vegetable basket, bednet, etc.	Recognizing doable strategies for improving nutrition and growth
	13	Reinforcing strategies to prevent undernutrition	To find the underlying causes for problems related to undernutrition To implement strategies to deal with the problem	‘Chain’ game	Ribbons in four colours, dummy of baby Story and picture cards	Understand the underlying causes of undernutrition related to feeding practices, cultural practices, illness management and lack of access to entitlements). Identify doable strategies for improving child undernutrition

Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase III Take Action	14	Nutrition gardens	To understand the importance of nutrition gardens for family food diversity Discussions on how to develop nutrition gardens, type of plants, bio-fencing use of organic manure, etc. To discuss strategies to develop a nutrition/ homestead garden.	Story telling Visit to a nutrition garden	Story	Family is able to plan and develop a nutrition garden
	15	Uncultivated food	To reinforce importance of uncultivated food as a rich source for dietary diversity and critical for food security To map available uncultivated food and discuss about its utilization, conservation and promotion	Preparing a seasonality chart for available uncultivated food	Discussion	Learning about the importance of uncultivated food Learn to preserve/ store uncultivated food for use in lean seasons Learn to conserve, protect and regenerate cultivated food
	16	Crop planning	To improve net yield (quantity & diversity) of a unit of agricultural land based on local conditions	PRA – Seasonality Group planning	Different colour powders, small quantity of seeds of local crops, drawing sheets and pens etc.	Community discusses how to plan crops for different seasons for a good yield



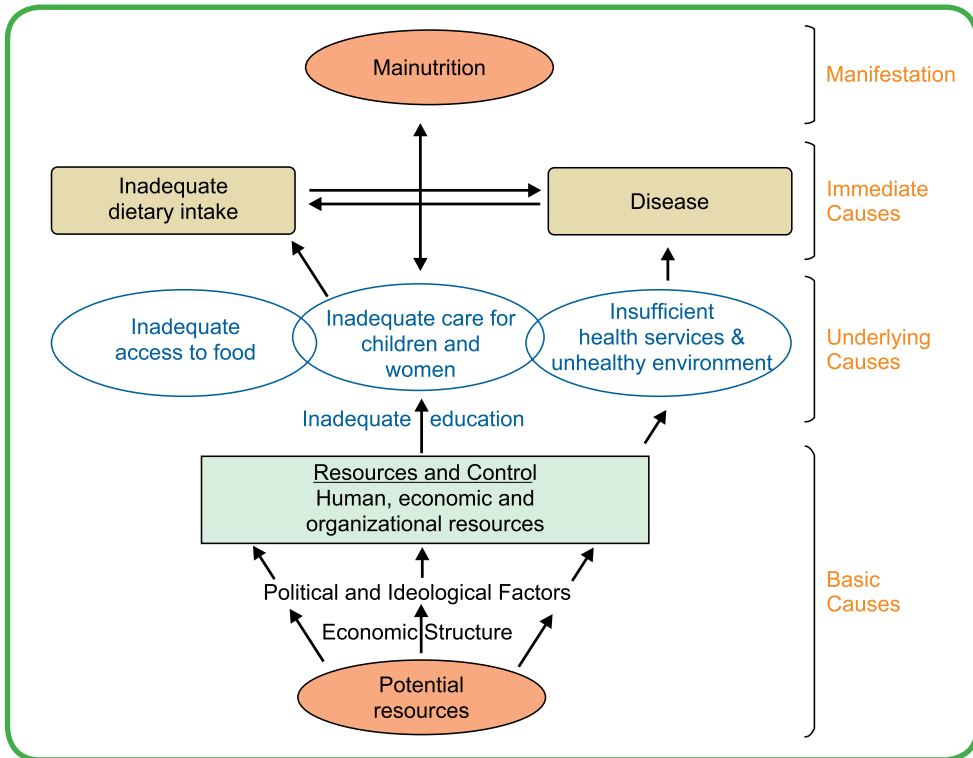
Meeting no.	Contents	Objective	Methods	Materials/Tools used in meeting	Key issues covered	
Phase IV	17	Evaluation of PLA cycle	To share experiences of the PLA cycle on LANN Phase wise evaluation of the cycle To evaluate impact of activities To plan for the future	'Voting' Game Score cards	Discussion Pebbles	Recognize achievements and how they have impacted the community The community is encouraged to continue with good practices
	18	Village Interface (2) for Dissemination	To disseminate the experiences, good practices, success stories and future plan of the groups in implementing PLA	Village meeting, discussion, demonstration, role play		Community disseminates findings of evaluation of the PLA meetings with other stakeholders, and shares future course of action.

## 1.4 Relevance

Undernutrition continues to be a major challenge faced by countries in South Asia and Sub-Saharan Africa, leading to almost half of the deaths of children under five years of age (Black R E, et al, 2013). Hunger and food scarcity are two major contributing factors towards malnutrition, and much of the current debates today are around how to make agriculture more nutrition-sensitive (Ruel M T et al, 2013, Braun J, 2011, Dorward, 2013).

It is being increasingly recognized that addressing undernutrition needs a multi pronged strategy that addresses the immediate and underlying causes, and other social determinants (CSDH, WHO, 2010). Different determinants that affect nutritional status include food security at household level, access to food within households, living conditions and morbidity, home care practices and access to quality health care. Gender, education, economic condition, political situation are significant factors that determine how the other determinants play out (CSDH WHO, 2010; UNICEF, 1990). Needless to say, an approach encompassing complementary sectors like agriculture, education, livelihood, water and sanitation, social security nets, early childhood development and health care is needed for addressing the situation of malnutrition (Ruel M T, et al. 2013). While results of interventions of impacting nutrition through different pathways of home production,

general development or market processes have been mixed and inconclusive due to insufficient research (Berti P R et al, 2003), women empowerment has been identified as a critical component for improving the nutritional status (Ruel MT, et al, 2013, Haddad L, 2013; Berti P R et al, 2003).



Source: UNICEF 1990

This manual has tried to look at how agriculture and natural resource management and nutrition can be linked together through a community mobilization process that will help communities prioritize their own nutritional needs, prepare strategies using available resources and take action for solving the problem. Knowledge on LANN can improve family eating practices, including the selection, purchase, preparation, intra-household distribution and use of food. It can also contribute to crop diversification, promote the use of indigenous foods, and protect biodiversity and traditional culinary practices.

The PLA manual is presented through a process of nutrition education known as Participatory Action for Learning, that will empower individuals and societies to adopt healthy eating practices and life styles that respects local food habits and the natural environment, resulting in improved nutrition and better health. It also focuses on addressing the underlying causes of malnutrition, namely, access to food through

improved availability and utilization; care of mother and children; improving uptake of health and nutrition services and entitlements; and changes in practices related to hygiene and sanitation. The process of participatory learning and action (PLA) is a bottom up approach that empowers women and addresses two fundamental social determinants of gender inequity and poverty (Victora C.G and Barros F.C, 2013).

### **For which type of interventions can this PLA cycle be used?**

We believe that the manual can add substantial nutrition outcomes to numerous types of interventions, for instance:

- In interventions supporting smallholder agriculture: this manual was developed for a program that promotes integrated farming systems in South Asia. This PLA cycle connects effective and sustainable production and greater diversity in the farm with actual nutrition practices of the family, and especially children.
- Interventions supporting natural resource management, for instance watershed projects, community forestry or forest rights interventions. Here the PLA cycle can provide the link between protecting the environment and improving nutrition practices.
- In Water, Sanitation and Hygiene interventions, the PLA cycle can contribute extending the behavioural change activities towards nutrition outcomes.
- In livelihood and income generation programs, the PLA cycle can add critical aspects, so that better or more diversified income could actually translate into better nutrition of the family.
- In health or nutrition-specific interventions, for instance strengthening governance of primary health systems, the PLA cycle could also contribute to linking such interventions back to the realities and practices related to nutrition in the villages.

The PLA cycle could become a valuable add-on in many interventions, but it could also be the main intervention in a program, leading to first nutrition outcomes and behavioural change, improved knowledge about entitlements and increased demand for government services, while other activities, for instance strengthening local service providers, would be complementing the PLA cycle.



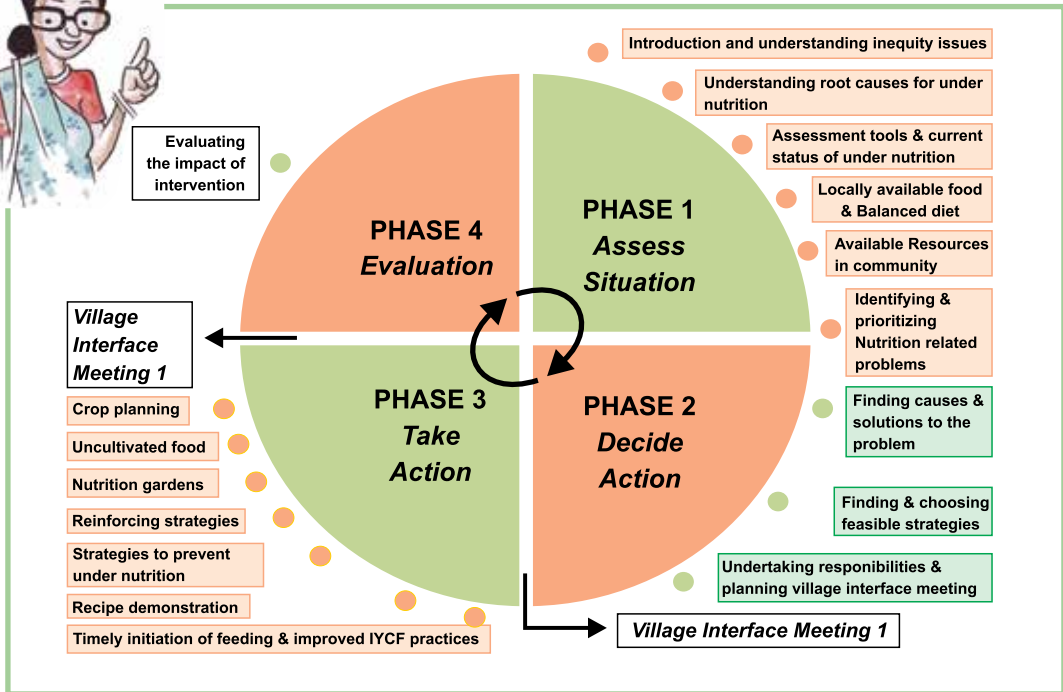
## GETTING READY

### 2.1 Four Phases of PLA

The Participatory Learning and Action cycle uses a variety of adult learning methods that community members can easily relate to, particularly in areas with low literacy. These methods include games, storytelling, pictorial display, practical demonstrations, participatory discussions etc for facilitating discussions. The duration of the meetings are approximately 1.5 to 2 hours, and the group members decide the time and venue of the next meeting.

The meeting cycles are designed in four phases:

- **Phase-1: Assessing Situation**—This phase, comprising of six meetings (meeting 1-6), will enable the assessment of the problem status related to nutrition, agriculture and natural resource management in the community and the identification and prioritization of common problems.
- **Phase-2: Deciding Action**—In this phase (meeting 7-9), the community will decide on solutions and strategies to deal with each of the prioritized problems. At the end of phase-2, groups organize a larger community meeting involving other members of the community and frontline workers, where they share the problems they identified and the strategies they want to implement in order to seek support for proper implementation of the strategies.
- **Phase-3: Taking Action**—This phase (meeting 10-16) has specific meetings focusing on actions to be taken that support good nutritional, agricultural and NRM practices. The group members also review the strategies that they have been implementing and discuss their progress to be followed by a second interface meeting with the larger community to assess the impact of the intervention.
- **Phase-4: Evaluating Progress**—This phase is marked by one final meeting (meeting 17) where group members evaluate their progress regarding the strategies they have chosen.



## 2.2 Facilitator and Community Groups – Roles and Responsibilities

### 2.2.1 Who can be a Facilitator?

Facilitating these meetings needs an understanding of the local language and context. It is therefore recommended that the facilitator be chosen from the same area where the PLA meetings will be implemented.

A facilitator should have

- Good communication skills
- Minimum literacy for record keeping
- Mobility to be able to move in the area, so cycling or driving would be an additional skill requirement
- Ability to manage a group of people
- A pleasant disposition and
- Willingness to learn new things.

Such persons can be identified through organizing village meetings and/or through personal interviews.

### **2.2.2 What are the Roles of a Facilitator?**

A facilitator is expected to:

- Map and select existing community groups for the programme.
- Where no groups exist, s/he will form small community groups.
- S/he will identify the most marginalized communities within the village and encourage their participation in the meetings.
- S/he will encourage other family members (including male members) to join the meetings.
- S/he will conduct regular meetings of the community groups, and help them in identifying and prioritizing problems related to undernutrition, crop diversity, growing toxic-free nutritious food throughout the year and accessing food from the common resources. She will help develop strategies on how to address these issues and guide the group to implement these strategies.

### **2.2.3 Community Groups**

Both men and women should have a role to play in improving nutritional outcomes in a family. Community groups therefore include both men and women from the families residing in the area. Generally, a PLA community group covers a population of about 500-700 for best results. A facilitator must ensure members of vulnerable families are included in the meetings.

### **2.2.4 Role of Community Groups**

The community groups will be the focal point for galvanizing any action on undernutrition. It is expected that members attend the meetings regularly and encourage other members of the community to join the meetings as well. Since the entire process is based on community decisions, the members need to take responsibility for planning, implementing and evaluating the strategies in their area. This will also include liaising with other stakeholders, ensuring that they get their entitlements, bringing in non-members and mobilize all available resources for implementation of the plans.

### 2.2.5 Who Should Attend?

The PLA cycle places importance on the care of pregnant women and young children: a mothers' nutrition and nourishment, protection against illness, and care giving practices. By taking action, families can help mothers and young children get the best start.

Members of the most vulnerable and marginalized communities are encouraged to attend the meetings. The meetings also encourage the participation of government frontline functionaries, so that they can share about different government programmes related to nutrition that could be helpful to the communities, and facilitate their access to different services.

## 2.3 Training of Facilitators

The facilitators need to be trained on PLA cycle in three phases with an interval of about 6 months (depending on the meeting interval fortnightly or monthly), over a period of 2 years. In each training, lasting for approximately three days, the contents of five-six meetings will be covered. The initial training can be for four days to help facilitators understand the principles of PLA.

The implementing organization needs to collect information about relevant government schemes with respect to nutrition, NRM and agriculture, and about technology resource agencies in their local area, and orient the facilitators about these on an ongoing basis. It is also recommended that review meetings are conducted with facilitators on fortnightly or monthly basis to provide ongoing handholding support for field related problems.



## PLA MEETINGS

*At the start of the first meeting, the facilitator should introduce himself/herself and encourage all participants to introduce themselves, while ensuring that no one gets left out.*

The facilitator can play some ice breaking games to initiate the discussions. Each facilitator can decide for himself/herself how s/he would like to introduce himself/ herself to the community, and explain his/her role in the project.

The facilitator will then explain that he/she is a FACILITATOR and not an INSTRUCTOR or HEALTH WORKER. She/ he will encourage the community to discuss what could be the difference between the two roles.

Some examples include:

- Facilitators *do not take a directive role*; instead they adopt the role of a listener, i.e. they facilitate the problem identification and planning processes rather than directing them.
- Facilitators *listen and learn* from the community, i.e. facilitators can learn from some groups and can share this information with other groups when they think it is beneficial.
- The facilitator will also ask the group to discuss what they think makes a good facilitator. Some examples include:
  - Having a good relationship with all the participants
  - Encouraging all members to participate in the discussion, not just letting a few people dominate it
  - Being able to listen and learn from the women's group members
  - Using local language and words which the participants are familiar with and understand
  - Having a good knowledge of the local culture



AT THE START OF EACH MEETING, THE FACILITATOR WILL ...

1. Informally chat with the participants and other members of the community
2. Encourage the participants to sit together in a circle
3. Welcome the participants and thank them for coming
4. Explain the purpose of the meeting
5. Review the progress of implementation of prioritised strategies

AT THE END OF EACH MEETING, THE FACILITATOR WILL ...

1. Summarize the learning from the meeting
2. Confirm the date, time and meeting place of the next meeting
3. Inform the group about the content of the next meeting
4. Informally chat with the participants and other members of the community
5. Thank the participants for attending the meeting and encourage them to bring more people for the next meeting
6. Make sure all the necessary information is entered in the register





Ask the group to discuss what they see as their role as members of a group, and again encourage a discussion about this. Some examples include:

- Attend meetings voluntarily
- Help each other as well as the wider community
- Share their knowledge and experiences with others
- Listen to and respect the opinions of others
- Make their own decisions
- Work together to solve problems

# PHASE 1



### 3.1 Meeting 1: Introduction to the PLA Cycle and Inequity Issues

	Objective	<ul style="list-style-type: none"><li>• Introduction to LANN PLA cycle</li><li>• To understand the need to include all sections of the community</li></ul>
	Duration	1.5 hours
	Material	Chart paper, pens
	Methodology	<ul style="list-style-type: none"><li>• Discussion</li><li>• Power walk game</li></ul>

#### Session 1: Introducing PLA Cycle on LANN

The facilitator will start by telling the participants about the objectives of the project, i.e. ‘Linking Agriculture, Nutrition and Natural Resource Management’. It is important for them to understand that nutrition will be the main underlying theme and will be discussed throughout the meeting cycle along with issues concerning harmful agricultural practices and management of natural resources; how these affect nutrition and what could be done to improve nutritional outcomes.

#### Process of implementation of the project

- About 17-18 meetings will be regularly conducted in the village
- The meetings will be held once every fortnight or every month. The meetings are broken down into the following four phases:
- In the 1<sup>st</sup> phase of the cycle, group members will identify the problems related to undernutrition of mothers and children, availability of natural resources and harmful agricultural practices and understand how undernourished children can be identified using different anthropometric measurements. They will also discuss how they currently perceive these problems and prioritize which ones they would then like to tackle as a group.
- In the 2<sup>nd</sup> phase, they will try to understand the immediate and underlying causes for undernutrition, and discuss possible solutions and strategies to overcome these problems. The group will then hold a community meeting to feedback to the community what they have been learning and focusing on for the last few months.
- In the 3<sup>rd</sup> phase, group members will undertake the responsibility to implement the strategies and discuss actions to be taken that support good nutritional, agricultural and NRM practices. The group members also well review the strategies that they have been implementing and discuss their progress.

- In the 4<sup>th</sup> phase, group members will discuss what they have done well and what they could do better in the future, so that they can learn from the process. They will also disseminate the experiences of implementing the PLA cycle in addressing undernutrition by linking it with natural resource management practices.

Before going to the next session ask the participants if they have understood the topics discussed so far. Encourage the group members to participate actively. The facilitation can be done by asking questions relating to the topics, like:

- What are the objectives of the project?
- How many meetings will be held during the project?
- What will be discussed in these meetings?
- What is the PLA cycle?

## **Session 2: Developing an Understanding on the Need to include all Sections of the Community**

Poor and disadvantaged people are at a higher risk of undernutrition and mortality. For different reasons they are not able to access the services and entitlements provided by the government. Both community members and frontline workers need to understand why some people get left out, or face multiple barriers in accessing the services. A game will help in identifying those who get left out, understand why they get left out and encourage those present to think what could be done to include them.

### **Method for conducting the ‘Power walk’ game.**

- The facilitator will choose any six members from the group.
- S/he will explain the game to them before the meeting starts.





- Each of them will be given a chit with a character s/he will be representing.
- The six members will be asked to keep their role/character a secret.
- To start the game, the six persons will be asked to stand in the centre of the group in one line and move forward one step at a time depending on the questions asked.
- The facilitator will ask a few questions so that everyone can hear them clearly.
- The facilitator will request all the participants to listen to the questions carefully.
- For a better participation of the characters and to make the game more interactive it is advisable that the characters are rehearsed prior to the meeting. While planning for the game, each character is also given directions on when to stop while playing the game.

Characters for the play (examples of six characters are given below, other relevant characters can be included based on the respective project areas):

1



### Character 1:

Landless pregnant woman in late pregnancy with two children, working as an agriculture worker and residing in a 'hard-to-reach' area

### Character 2:

Pregnant woman in late pregnancy residing near health centre / in regular contact with the Health worker

2



3



### Character 3:

Daughter-in-law of the village leader

5



**Character 5:**  
Casual laborer (man)  
with less than 1 acre  
of upland

**Character 4:**

Marginal farmer  
who migrates  
seasonally

4



6



**Character 6:**

Ecological farmer (a farmer who uses locally/ home  
produced agriculture inputs- renewable seeds, organic  
manure, bio-pesticides etc)

### Questions to be asked by the facilitator and the responses

	Questions	Possible Responses
1	How many of you have received four ANC services from the health centre? Please take one step forward.	Landless pregnant woman in late pregnancy with 2 children working as an agriculture worker and residing in 'hard-to-reach' area will remain standing, others will take one step (Character 1).
2	How many of your children have completed their full immunization? Please take one step forward.	Marginal farmer who migrates seasonally will remain standing, others will take one step (Character 4).
3	How many of you have irrigation facility to grow your own vegetables?	Casual laborer (man) with less than 1 acre of upland will remain standing and others will take one step (Character 5).
4	How many of you have been counselled on family planning, breastfeeding and taking care of newborn baby? Please take one step forward.	Pregnant woman in late pregnancy residing near health centre, ecological farmer and daughter in law of the village leader will take one step (Character 2, 3 & 6).
5	How many of you have had the following items in their diet at least twice in the last one week: mix of cereals, pulses, greens, fruits, oil, and meat/ fish, egg?	Ecological farmer and daughter in law of the village leader will take one step (Character 3 & 6).





Discussion questions for the *community first* and then the characters:

- Who are those that have come to the front? Why are they at the front?
- Who are the people that were left behind and why?
- How can we make sure that the voices of marginalized along with all community members are included in the community processes? Why is this important?
- How can we make sure that everyone in the community reaches the end line?

## MEETING SUMMARY

- Discussions will be around nutrition along with natural resource management and agriculture over the entire period.
- There are four phases to the cycle, between 17-18 meetings in all.
- Meetings will be held at regular intervals, every 15 days or monthly.
- There are different and multiple barriers preventing people in a community from accessing services.
- Those who get left out are generally at a higher risk of undernutrition and ill health.
- It is the collective responsibility of the community to reach out to the excluded people and help them in accessing the services and resources for better health and nutritional outcomes.

### 3.2 Meeting 2: Understanding Underlying Causes for Undernutrition

	Objective	<ul style="list-style-type: none"> <li>• To develop an understanding of the intergenerational undernutrition cycle</li> <li>• To understand the linkages between illness and undernutrition</li> </ul>
	Duration	1.5 - 2 hours
	Material	Flex for depicting intergenerational undernutrition cycle, chart paper, pen, notebook
	Methodology	<ul style="list-style-type: none"> <li>• Discussion on cycle of undernutrition</li> <li>• Discussion on how to break the cycle</li> </ul>

After welcoming the participants, the facilitator will ask members to recount the discussions and learning of the previous meeting.

#### Session 1: Understanding of the Intergenerational Undernutrition Cycle

- The facilitator will show the participants a poster depicting the undernutrition cycle.
- S/he will ask the participants what they understand from the chart.



- Using the observations from the participants the facilitator will explain that undernutrition runs in an intergenerational cycle. Young girls who grow poorly become short and weak women and are more likely to give birth to low birth weight babies. If the baby happens to be a girl child, she is likely to continue the cycle by being short in adulthood. Adolescent pregnancy increases the risk of low birth weight babies. Good nutrition, especially for girls and women, in all these stages of life—at birth, infancy, childhood, adolescence and adulthood—is essential to break this cycle.
- The facilitator will now show the life cycle approach on the Poster, and encourage a discussion on each phase of the life cycle. Through this approach the facilitator will make an effort to sensitize the community to address undernutrition and anaemia much before girls reach the reproductive age.
- To break the undernutrition cycle it is important to first identify it. Encourage the participants to discuss the various causes of undernutrition in their village.
- Ask the participants if they agree that the cycle can be broken.
- The facilitator will tell the participants that in future meetings, they will identify together strategies to try to break this cycle.







## Session 2: Understanding the Linkages between Illness and Undernutrition.

- The facilitator will explain the linkages between undernutrition and repeated illnesses: sick children are more likely to become undernourished and undernourished children are more likely to become sick. An undernourished child is more likely to die of respiratory infections, diarrhoea, malaria, measles and other infectious diseases and repeated illnesses further increase the risk.
- The facilitator will ask the participants to share some real life stories where they have seen the linkages.
- S/he will also make a note of the responses, which will be used in future meetings.

### Meeting Summary

- Undernutrition can be carried on from one generation to the next, if the intergenerational cycle is not broken.
- Good nutrition, especially for girls and women at all these stages—infancy, childhood, adolescence and adulthood—is essential to break this cycle.
- Sick children are more likely to be undernourished and undernourished children are more likely to be sick.
- Undernutrition increases the susceptibility to diseases and increases the risk of death; repeated illness can be a major cause for undernutrition.

## Meeting 3: Assessment Tools and Current Status of Undernutrition

	Objective	<ul style="list-style-type: none"><li>• To understand the growth chart / growth monitoring and other tools for measuring undernutrition</li><li>• To develop an understanding of local practices and beliefs related to nutrition &amp; NRM</li></ul>
	Duration	1.5 - 2 hours
	Material	Growth chart, weighing scale (at Health centre), questions for exploring local practices
	Methodology	<ul style="list-style-type: none"><li>• Demonstrating the use of growth chart</li><li>• Sample weighing of children at Anganwadi or Health centre</li><li>• Discussion on local practices</li></ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting. The facilitator will start by saying that they had

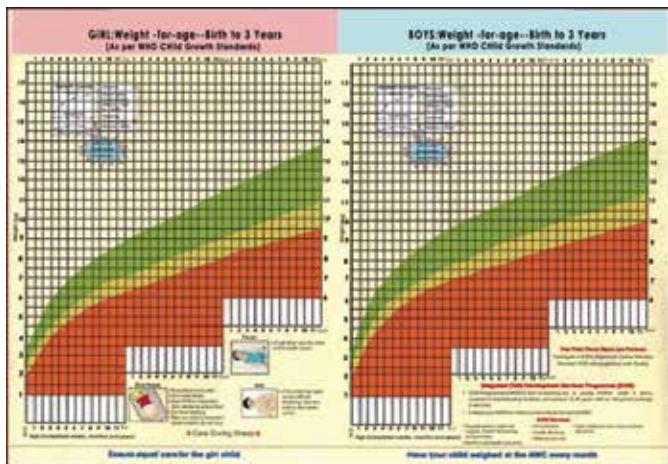
discussed undernutrition and it is now important for them to learn about the methods for identifying it; the facilitator will then introduce the agenda of the meeting.

### Session 1: To Understand the Growth Chart / Growth Monitoring and Other Tools for Measuring Undernutrition

**IMPORTANT NOTE:** The facilitator will not train community members on growth measurements; this meeting rather aims at helping mothers understand the importance of these measurements and follow it up with the regular government health and nutritional services.

Discussions about the importance of growth charts and measurements of child's weight for age.

- All growth charts have a weight for age graph printed on one side, separate for boys and girls. This graph can be used for the first five years
- The charts reflect the health status of a growing child.
- It is important to see that the curve follows a trend that indicates how the child is growing.
- The child should be weighed every month and each time the child is weighed, a dot is marked on the chart. Connecting the dots for each visit forms the growth line for an individual child.
- Any change in trend (the child's curve going upward or downward from its normal track) should be investigated to determine its cause and necessary action taken.
- A flat line indicates that the child is not growing. This is called stagnation and may need to be investigated.
- Good feeding practices – both before the child is six months old and after complementary feeds have been introduced - can help prevent growth faltering in both weight and length.



[Using the growth charts the significance of different colours can be discussed, depending on the growth charts available in the local area.]

Other tools for measuring undernutrition:

- (a) *Mid Upper Arm Circumference* (MUAC) —This screening tool is used for measuring reduction in muscle mass and for identification of SAM (Severe Acute Malnutrition) children at the community level and appropriate referral for treatment at the health facility. This tape can be used for children aged 6 months to 59 months. MUAC makes it easy to understand how children are classified and whether they will qualify for treatment.
- (b) Another measurement which can be used is length (less than two years old) or height (more than two years old). A child who is undernourished for a long time will show slow growth in length or height. This is referred to as *stunting* or short height for age.

Before going to the next session the facilitator asks the participants if they have understood the topics discussed so far. S/he Encourages the women to participate actively. The facilitation can be done by asking questions relating to the topics, like:

- What will you see in a growth chart?
- How will you know if the child is growing well?
- What are the other tools to know that a child is undernourished or not?
- What do you understand by stunting?

## **Session 2: To Develop an Understanding of Local Practices and Beliefs Related to Nutrition, Agricultural Practices and Natural Resource Management**

- The facilitator once again would refer to the life cycle poster and encourage discussion on each phase of the life cycle. The discussion should focus on addressing the causes of undernutrition during pregnancy and moving through birth, infancy, early childhood, adolescence and lactation.
- The facilitator will ask the group about the current practices in women and children during pregnancy and lactation, feeding of infants, introduction of complementary feeding, feeding during adolescence.
- The facilitator will encourage the group to discuss the various causes of undernutrition in their village.

The facilitator can use the questions below as a guide for facilitating the discussion and keeping the group focused on these issues:

### Questions on nutrition:

- What are the food restrictions during pregnancy and lactation?
- What is the first feed given to a newborn? What is done with the first milk (colostrum)? Is anything given to the baby before initiating breastfeeding? Why?
- When is complementary feeding normally introduced to the baby? What food is given to the baby once complementary feeding starts and how frequently?

### Questions on agricultural practices:

- How many main crops are normally grown in a year?
- Is the village self-sufficient in terms of growing vegetables/cereals/oil seeds?
- How often are pesticides used in the agricultural field?
- What are the problems in getting these types of food from their agriculture and nutrition garden/ common resources/ market?

### Questions on natural resources:





- How much are they dependant on forest for their livelihood needs?
- What are the common problems faced?

*[The facilitator will inform the group that in the next meeting they will try to understand about a balanced diet and will request the members to bring any locally available raw food items from their houses to the meeting]*

### Meeting Summary

- The importance of monitoring growth of children every month. Weight for age is a commonly used tool for growth monitoring. Other tools for identifying undernutrition are MUAC and weight for height.
- Plotting the weight of child on the WHO growth chart; If the dot is in the yellow zone, the child is moderately undernourished; if in the red zone, the child is severely undernourished. Both yellow and red zones need investigation and appropriate referral to health facility for advice.
- An upward going graph is normal, but if the line goes flat, or turns downward, it is a risky situation and investigation and corrective action are required.
- Understanding existing practices help in identifying harmful practices related to nutrition, agricultural practices and natural resources management and ways to improve them.

### 3.4 Meeting 4: Locally Available Food and Balanced Diet

	Objective	<ul style="list-style-type: none"> <li>To understand the importance of food groups and a 'balanced diet'</li> <li>To map locally available food groups</li> <li>To prepare seasonal food calendars</li> </ul>
	Duration	1.5 - 2 hours
	Material	Chart paper, pen; participants to bring locally available food
	Methodology	<ul style="list-style-type: none"> <li>Demonstration &amp; mapping of locally available food</li> <li>Interactive discussion</li> </ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: Mapping of locally available food for improving diet through “food grouping” game

[Prior to the meeting the members are requested to bring any locally available raw food items from their houses to the meeting]



- The facilitator will ask the group members to put the food items collected on the floor/ mat and ask about other food items that are available in the village but for some reason could not be collected for the meeting e.g. seasonal fruits and vegetables. S/he will write the responses in a card and place it near the food items.



- Using the chart with the food groups s/he will emphasize the importance of getting adequate portions from all locally available food groups. The main food is placed in the centre, with the three groups of HELPER FOODS – Energy food, Body-building food and Protective food around it.

- S/he will encourage discussion on each of the food groups using examples of the

different varieties of food items to help the members understand which types of food belong to which nutrient category. The facilitator will discuss with the group that food contains nutrients – substances which the body uses for growing and functioning. Food gives us energy to move, think and work. Food also contains important substances which keep our body strong and healthy, help to boost our immune system and protect us from infections.

- To help the members understand the different food groups the facilitator will use a chart with the food groups and discuss their basic function and what they comprise. The Food and Agriculture Organization (FAO) suggests three groups:
  - ◊ Body-building food (rich in proteins), like pulses, milk, egg, fish, meat, insects etc.
  - ◊ Protective food (rich in vitamins and minerals), like fruits and vegetables.
  - ◊ Energy food (carbohydrates and fats), like cereals, sugar, oil etc.

The main food supplies cover most of our body's needs, but with them we also need:

- GO FOODS (energy helpers) that help the body to run, work and play;
  - GROW FOODS (proteins and body-building helpers) that help the body muscles and nerves to grow;
  - GLOW FOODS (vitamins and minerals or protective helpers) that help hair, eyes and skin shine or glow.
- The facilitator will draw three squares on the ground/floor to represent the three food groups and keep the three pictures/cut outs on each of the square. S/he will ask the members to pick one food item at a time and put them under the appropriate category.



- S/he will ask the rest of the group to say whether they are correct. This process is continued till all the available items brought by the members have been completed.
- The facilitator will then ask members to think about other food items that have not been brought/ and /or available in other seasons and write them on blank chits and ask them to put them under the appropriate food group.



- After all the food items and chits are put under the appropriate category, the facilitator will encourage members to include each of the food group in their daily dietary intake for enriching their food during pregnancy and lactation, and include all items in the child's daily diet.
- The facilitator will specifically talk about the need to add oil in each meal to increase the density of complementary food for children aged 6-59 months. S/he will emphasize that dietary diversity is important, especially the intake of iron, calcium and folic acid rich food. Therefore, the family food should be enriched with a variety of colourful food such as orange/red vegetables and fruits, green leafy vegetables, eggs, beans, lentils or peanuts in adequate amounts. Children should also be fed animal foods (meat, liver, chicken, and fish) and milk whenever available, as these would make the child grow healthy and strong.
- During the discussion on food groups the facilitator will also encourage interactions on myths and food restrictions during pregnancy, lactation, start of complementary food for children and feeding of children and try to dispel these beliefs.
- The facilitator will stress the point that there is availability of all food groups at the village level and most of them can be either grown locally or collected round the year for a balanced diet. Some food may also be purchased from the market.



## Session 2: Preparing a Seasonal Food Calendar

The facilitator will use a matrix to map the different uncultivated food that can be collected throughout the year. S/he may facilitate the group to prepare a seasonality chart as shown below. The elders and women in the village need to be encouraged to contribute to the listing. It may be done as a focussed group discussion.

Name of the food items and number of varieties	Summer	Rainy	Winter	Name of food that is disappearing/ vanishing
	Name of the food and source*	Name of the food and source*	Name of the food and source*	
Cereals				
Pulses				
Other legumes				
Green vegetables				
Roots & tubers				
Leafy vegetables				
Spices				
Oil				
Animal protein				
Fruits				
Others (mushroom, bamboo shoots, and seeds etc.)				
* Options: (i) agricultural fields and / or home gardens, (ii) village commons including water bodies, (iii) forest, and (iv) market, including the fair price shops				

Following this classification, the group members need to be invited to share their knowledge, experiences and concerns about the uncultivated food that were available and collected and are now disappearing and if they have thought of ways of protecting/ conserving or regenerating them. The facilitator will enquire about the preservation practices that help to retain its nutritive values (e.g. drying fish, mushrooms, etc).





### MEETING SUMMARY

- Our body needs different varieties of food to grow and to keep us healthy and strong.
- Wide varieties of food are available locally - some are grown or collected or even bought from the market. We need to include the different varieties of food in our daily diet.



- Family food should have a range of colours by including fruits and vegetables that are orange, red, yellow, green etc. in adequate quantities
- Children should also be fed animal food (meat, liver, chicken and fish) and milk whenever available.
- Women need nutritious food in higher amounts during pregnancy and lactation. Apart from cereals and pulses, women's food should also include food rich in iron and folic acid (e.g., green leafy vegetables, amla) and calcium (e.g., milk, egg, fish, meat).
- Locally available uncultivated food is an important and critical source of food and nutrition and it can be preserved; the younger generation could be motivated to learn to regenerate, protect and conserve it.

### 3.5 Meeting 5: Mapping Available Natural Resources in the Community

	Objective	<ul style="list-style-type: none"> <li>• To identify the status of available natural resources like available land (fallow, forest, agriculture) and water</li> <li>• To identify best nutrition gardens</li> </ul>
	Duration	1.5 - 2 hours
	Material	Chart paper
	Methodology	<ul style="list-style-type: none"> <li>• Transect walk</li> <li>• Mapping of resources</li> </ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

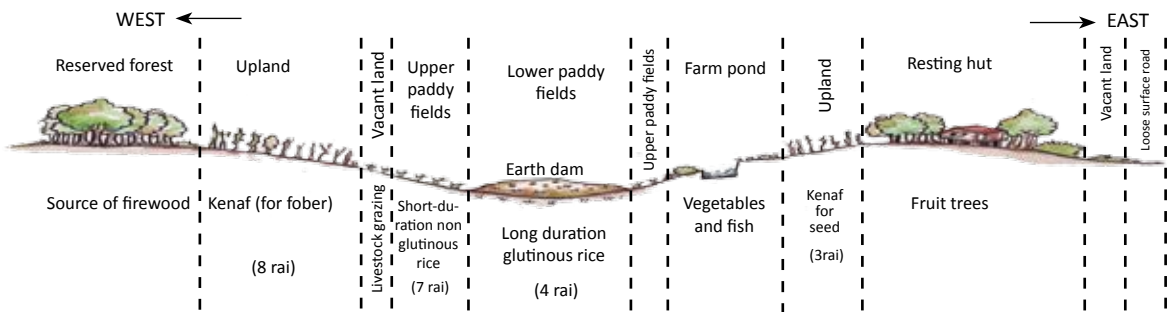
#### Session 1: Identifying Status of Available Natural Resources (including Forests, Agricultural Land and Water)

- The facilitator along with the group members will go around the village and ask them to observe what they see on the way with a focus on the condition of its agricultural and natural resources.
- S/he will ask the members to locate the agriculture fields, homestead and village common areas, where food crops can be grown by individual households and collectively as well.
- S/he will ask the members to also locate water bodies.

- The facilitator will try to encourage discussions on identifying strategies through pointed and open ended questions, enabling the community to address the issues related to agriculture and nutrition. This serves as a strong trigger to bring out hidden thoughts associated with nutrition among the community. (The facilitator will make notes on responses made by the members during the walk)
- Suggested questions during the visit:
  - ◇ Where are the main types of food—cereals, pulses, oil seeds-grown? [Visit and observe the area]
  - ◇ Where and how are vegetables grown?
  - ◇ What kind of agricultural inputs do people use—seeds, fertilizers, pesticides and from where are they procured?
  - ◇ What are the leafy vegetables and fruits grown in homestead gardens in the community?
  - ◇ What are the types of uncultivated food they find in different seasons and from where?
  - ◇ What is their main source of drinking water?
  - ◇ Where do people shower and wash their utensils?
  - ◇ Which areas in the village are used for defecation purposes?
  - ◇ What are the available water sources for agriculture?
- The facilitator will draw attention to the fallow areas which can be used for growing food.
- S/he will ask and discuss with the members how often they use forest products.

Do's	Don'ts
✓ Be curious. Walk slowly, observe carefully.	× Do not lecture or ask questions that will not be used.
✓ Try to include as many villagers (village elders specifically) is possible.	× Do not avoid the ill maintained gardens.
✓ Give positive reinforcements for initiatives observed in the village during the transect.	× At any point, do not pass judgment on the community.

The facilitator needs to draw the track that they will be walking, noting the details of each ecological setup as mentioned in the table below. For details, see Annex 4.



Note: 1 rai = 0.16 hectare

Niches	Reserved forest	Upland	Upper paddy fields	Lower paddy fields	Farm pond	Upland	Resting hut	Vacant land	Road
Soil type									
Food grown									
Food collected									
Water use									
Any good practice noted									
Ownership									
Defecation practices									

### Discussion based on transect walk





At the completion of the transect the members of the group will be able to understand the status with regard to their forest, nutrition garden, agriculture fields and/or crop diversity, production problems and some possible solutions, and areas or plots where changes can be initiated. The members will together prepare a plan based on the findings, referring to the notes made during the transect walk, which will help them to decide on strategies in future meetings.

For example, if they find that their nutrition gardens are lying fallow or have only a few varieties of vegetables and/or do not have a proper fence around, they will then try to diagnose the underlying reasons for the garden lying fallow. The probable reasons could be lack of water and/or lack of seeds and/lack of time to work there and/or no proper fence etc. The facilitator will then have to creatively plan based on the locally available resources, including knowledge and skills.

## MEETING SUMMARY

- A family's daily diet should include a variety of food in adequate quantities such as vegetables, fruits, cereals, millets, oil and animal protein.
- Most of the food groups are locally available round the year.
- Uncultivated food and food from forest are also a critical source of nutrition.
- Available natural resources can be optimally utilised for improving the nutritional status at the family and community level.
- Best use of natural resources can be made through systematic planning.

### 3.6 Meeting 6: Identifying and Prioritising Nutrition-related Problems

	Objective	<ul style="list-style-type: none"><li>• To identify food and nutrition related problems in the community</li><li>• To find out how common they think the problem is</li></ul>
	Duration	1.5 - 2 hours
	Material	Problem picture cards, pebbles for voting
	Methodology	<ul style="list-style-type: none"><li>• 'What is it?' game</li><li>• 'Voting' game</li></ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: To identify Food and Nutrition-related Problems in the Community

The facilitator will explain that s/he is going to introduce the group to problems using a game called "What is it?".

- The facilitator will circulate each of the problem picture card to the participants and ask whether they understand what has been shown in the picture. S/he will ask them to discuss amongst themselves. If they have not understood any of the pictures, s/he will explain what the picture denotes ask whether they have a local name for it and make a note of it.



S/he will also ask how common the problem in their community is and make a note of it. **[The 'What is it?' game will be played for only a few selected problem cards to save time]**

## LIST OF PROBLEM CARDS

- Anaemia
- Food restriction during pregnancy
- Late introduction of complementary food
- Pesticide or chemical fertilizer exposure to pregnant/lactating women
- No dietary diversity
- Food scarcity
- Reduced forest food diversity
- Unsafe food
- Unsafe food consumption
- Unhygienic food handling
- Worm infestation
- Undernutrition
- Unkept nutrition garden
- One blank card

Anaemia



Food restriction during pregnancy



Late introduction of complementary food



Pesticide or chemical fertilizer exposure to pregnant/lactating women



No dietary diversity



Food scarcity



Reduced forest food diversity



Unsafe food



Unsafe food consumption



Unhygienic food handling



Worm infestation



Undernutrition



Unkept nutrition garden



- The facilitator will place a few selected picture cards (**red font**) face down on the ground and ask any group members to pick up a card.
- The facilitator will pin it to the back of the volunteer who has not seen the particular card or its contents. The facilitator would then ask the remaining participants to carefully look at the card.
- The volunteer will try to guess the issue/topic written on the card while taking help from the remaining group members by asking several questions, e.g., Is the problem related to child, maternal health? Is it a disease? Is it something that helps prevent a problem? Is it related to food/nutrition? Is it about agriculture? Is it related to forest? The group members will try to enact the issue/problem (without speaking) that is shown on the card and allow the volunteer to guess.
- The facilitator should keep one blank card to include any problem that the community thinks has not yet been included.

The above process allows the participants to get actively involved and also helps them to identify the picture cards that can be related to nutrition of mothers and children, both directly and distantly.

## **Session 2: Prioritising the Problems Related to Nutrition**

The facilitator will explain that they will be playing another game called the ‘voting’ game:

- Facilitator will take each problem picture card in turn and remind the participants what the problem is (using the local name for it) and ask them to describe the symptoms. Then s/he will place the cards on the ground, picture facing upwards, in the middle of the circle so that all can see them clearly.
- Once all the problem cards have been laid out, the facilitator will explain that today, as a group, they are going to choose which problems they think are more important and they would like to try to address. They may want to consider how common the problem is in their community; how serious is it and how feasible is it for them as a group to address?
- The facilitator will give each of the participants six pebbles.
- She will ask the participants to place three pebbles against the problem card they consider to be the most important, two on the next most important and one on the third most important problem. Group members should think carefully before they put pebbles against the card, and should not be guided by others in the group in this particular exercise.

- Ask the facilitator will as the group to place the pebbles beside the picture cards, so that the picture is clearly visible to others.
- After every member has put the pebbles, the facilitator will ask any member to add up the pebbles on each card and write down the number on a paper next to it.
- The card with the maximum number of pebbles is the first priority, and so on. The facilitator will inform the group about the order of their prioritized problems.
- S/he will choose the first 4-5 prioritized problems depending on what the group wants and take a consensus from the group – if some problems are interrelated then the facilitator may consider taking some more.

**Discussion of the local practices and beliefs on the problems prioritised**—The facilitator will discuss with the participants all the prioritised problems on the basis of the example given below. E.g., if the problem is anaemia:

The facilitator will ask:

Symptoms	Causes	Management	Prevention
Facilitator will ask how you will know it is anaemia?	Why do women/ children become anaemic?	What do you do when they are anaemic?	What do you do to prevent anaemia?

Or if the problem is reduced diversity in the daily diet:

Problem	Causes	Management	Prevention
Reduced diversity in the daily diet.	Why do you grow/ eat less diverse food?	What do you do when the daily food intake becomes less diverse?	What do you do to improve the food diversity?

The facilitator will read out from the backside of the picture cards **only the causes and symptoms** of the problems. Participants will be informed that these issues will be discussed in further details in the forthcoming meetings.

The facilitator will make a note of the responses from the participants to be used later when the stories will be written.

## MEETING SUMMARY

- This meeting will help the community to understand what the problems are pertaining to undernutrition.
- They will prioritise the problems they feel are most important for them and understand their symptoms and causes.







# PHASE 2





### 3.7 Meeting 7: Finding Causes of and Solutions to the Problems

	Objective	<ul style="list-style-type: none"><li>• To find immediate and underlying causes for problems related to health and undernutrition in the community</li><li>• To arrive at solutions to deal with these problems</li></ul>
	Duration	1.5 hours
	Material	Story developed by facilitators, picture cards (drawn by facilitators themselves) to go with the story
	Methodology	<ul style="list-style-type: none"><li>• Story-telling</li><li>• 'But why?' game</li></ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: Finding Immediate and Underlying Causes for Prioritized Problems Related to Undernutrition and Natural Resource Management

The facilitator will use storytelling and picture cards to help group members understand the causes and effects of the problems they have prioritized. The causes will include both the immediate and underlying causes along with those that include social, medical, natural resources and agriculture.



Stories should have a single theme that is clearly defined (e.g. undernutrition); the characterization should have a local flavour (learning from the cultural practices from the earlier meetings); pictures should highlight the causes leading to the problem; the plot should have a dramatic ending to have an impact on the listeners.

Understanding the cause and effect of the problem:

This meeting allows the facilitators to develop a story that weaves through the underlying and structural causes of undernutrition.

The stories are prepared based on the problems prioritised in the previous meeting. Since the facilitators are new to the idea of story-telling, they will need the following to make their stories:

- **Context/background** – since the facilitators are local they would understand the local cultural practices related to undernutrition, e.g. not giving colostrum, not giving ORS, not taking advice from Community Health workers, no food diversity, consumption of toxic food produce, etc – findings that were captured during the 2nd and 3rd meeting.
- **Symptoms of the condition** – these are written on the back of the problem picture cards
- **What causes the condition** – these are written on the back of the problem picture cards (both possible immediate and underlying)
- **How the condition affects the family** – either undernourished mother/child or death of either. This is to generate concern in the participants and to encourage them to attend future meetings where the solution to the problem will be discussed

Using the above, the facilitator will develop a story where the protagonist is a person from the village and goes on to tell her/his story using the background, symptoms, causes and effects. The story would reflect real life settings. The underlying and socioeconomic causes of the problems should be woven into the story in such a way that the listeners internalize the causes leading to the problem. The facilitator would use local terminologies and dialect to draw attention to the story.

While preparing the stories, the facilitator would also make hand drawn pictures of the *immediate* and *underlying* causes and while narrating the stories lay down these pictures on the ground as the story is told.

#### **Example: A story focusing on childhood undernutrition**

Menjari lived in village next to a forest where they grew diverse crops (cereals, pulses, other legumes, oil seeds, roots & tubers, spices and vegetables). As a child she loved to go to the forest to collect fruits, mushrooms, green leafy vegetables, and roots etc. and other forest produce that she learned from her parents.

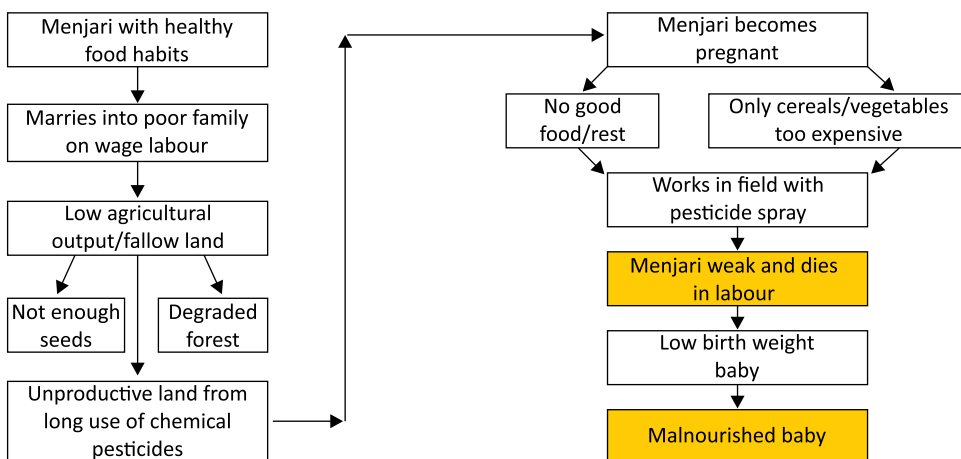
She was married into a family that was poor and the main source of income was wage labour. They grew food on a part of their land and left the rest as fallow. When she asked her husband why they did not use all their land for cultivation he said, “We do not have enough seeds for the entire land and the land has become highly unproductive.” He further added that it might be due to prolonged use of chemical inputs. She further wanted to know from him as to why they did not collect food from the forest, to which her husband said that the forest which used to be a rich source of nutritious food had now become degraded.

After a few months, when she became pregnant, she requested her husband to get her vegetables and animal protein because she had seen her sister-in-law taking a variety of food during her pregnancy. Her husband responded helplessly, saying, “Things are different in your village, where you have optimized your land to grow a variety of cereals, lentils, fruits and vegetable and even kept domestic animals to provide for your nutritional requirements. Our situation is different because we grow only rice/wheat/corn with the seeds procured from the market. We cannot afford to buy green vegetables from the market as they are very expensive. So, you need to adjust to our situation. I know it will affect our child, but I am afraid I cannot do much.”

Menjari compromised with her situation and therefore could not take adequate food and the required rest. She also had to work in other people’s field where a lot of pesticides were used and became very weak as the days progressed; at the ninth month, she delivered a low birth weight baby. Menjari was too weak to even look after her child and within a few months she died; her child continued to grow weak and by one year of age had become very undernourished and had to be admitted in hospital.

After narrating the story, the facilitator will ask any group member to repeat the story using the picture cards to remind them of the main causes leading to undernutrition.

Flow chart to understand the causes leading to death of mother and malnourished child. The picture drawings will be based on the boxes in the flow chart.



## Session 2: Solution-finding Process for Problems Related to Health, Nutrition and Natural Resource Management

The facilitator will explain that they will be playing a game called ‘But why?’ to find the causes of the problem.

- S/he will encourage all participants to take part in this exercise.

- The picture cards should remain on the ground after the story-telling session.
- The facilitator will ask the group to discuss why the child had undernutrition and so on until all the causes to the problem have been covered.

### **The “But why?” game.....**

#### **What happened at the end of the story?**

The child was admitted in the hospital.

#### **But why was the child admitted in the hospital?**

Because the child had become undernourished

#### **But why did the child become under nourished?**

Because the child could not be looked after by the mother and was born as a low birth weight body.

#### **But why was the child not looked after by the mother?**

Because the mother had died.

#### **But why did the mother die?**

Because the mother was weak and anaemic.

#### **But why was the mother weak?**

Because the mother did not get proper food and rest, not enough vegetables, lentils and animal protein to eat during pregnancy and lactation.

#### **But why did the mother not get proper food and rest during pregnancy and lactation?**

Because she had to work hard and the family could not afford to buy proper food, nor did they grow any vegetables or fruits or reared any domestic animals.

#### **But why could the family not afford this food?**

Because they worked as wage labourers and did not grow their own crops, vegetables or fruits, nor reared domestic animals.

#### **But why did they work as wage labourers and not grow their own vegetable garden?**

Because they did not have their own seeds of various crops and a part of them became unproductive due to prolonged use of synthetic chemical inputs; they could not collect any forest produce because the forest was now degraded.

#### **What were the other reasons for the child’s low birth weight?**

Because Menjari continued to work without proper food and the family could not provide her with nutritious food, as they could not afford to buy it from the market nor could they grow it. Since a part of their land became unproductive due to prolonged use of synthetic chemical inputs.







The facilitator will summarize the causes at the end of the ‘But why?’ game by recalling all the causes that led to the problem of undernutrition.

**To arrive at the solutions the facilitator will ask ‘what could have been done’ to prevent the problem from happening and note down all the solutions in the register for using them later on.**

## MEETING SUMMARY

- Nutrition, Agriculture and Natural Resource Management are interlinked in many ways.
- The problem of malnutrition has different immediate and underlying causes that need to be addressed.
- Understanding these causes is important to find feasible community based solutions.
- The community can draw from their own resources as well as from external resources and Government programmes to find solutions to these problems.

### 3.8 Meeting 8: Choosing Feasible Strategies

	Objective	To identify strategies arising out of the solutions from the previous meeting
	Duration	1.5 hours
	Material	Bricks, wooden planks, strips of white paper
	Methodology	‘Bridge’ game

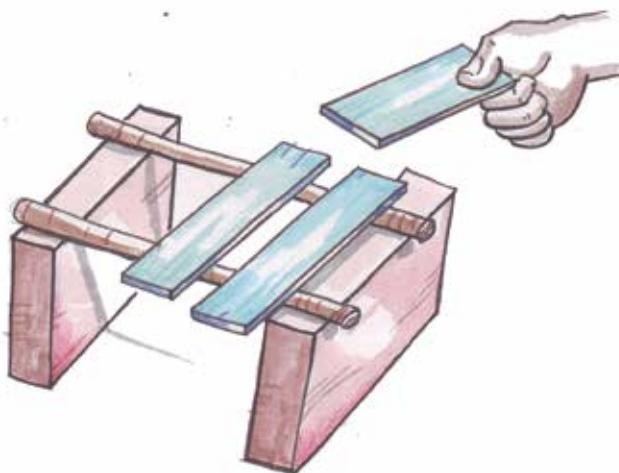
After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: Identifying and Prioritising Strategies after Understanding the Opportunities and Barriers to the Implementation of the Strategies

The facilitator will explain that the group will play ‘*the bridge game*’. This is a practical and visual exercise to help participants understand the process between the present situation “they are now in”, with regard to health and nutritional problems of women and children, and “where they would like to be”.

- The facilitator will ask participants to imagine they are standing on one bank of the river. This represents their current situation regarding health of women and children in their community. S/he will place one brick on the ground.

- S/he will place another brick a little apart, which represents the other bank of the river and the situation the community would like to be in regarding health of women and children.
- The river is the barrier that is preventing them from reaching where they want to be.
- To overcome the barriers they need to build a bridge that represents the strategies that will need to be implemented.
- The facilitator will place two long sticks across the bricks. These represent the strengths of the groups and they provide the supportive base to implement strategies.
- She will place shorter planks crossing these two. Each of these sticks represents a strategy.



Once the facilitator has shown the final bridge and described what each stick represents, s/he will start from the beginning and have a discussion about each aspect, reminding the group about discussions from previous meetings:

- (1) The first brick = where are we now? (e.g. undernutrition in children and women)
- (2) The second brick = where do we want to be? (e.g. healthy family)
- (3) The river = the barriers we face (e.g. consumption of toxic food products, no food diversity, shortage of water resource, cultural barriers to starting of semi-solid food, etc.)
- (4) The two long sticks = the strengths we have as a group (e.g. active savings group, helpful village leader, sincere Community Health Workers, unity among group members, etc)
- (5) The shorter planks = the strategies the group shall come up with. The group needs to decide what these will be now.

*To identify strategies the facilitator will ask 'but how?', e.g. but how can you ensure that the child is given diverse food? But how can you ensure that we give non-toxic food to the*

child? But how can you ensure that the child is fed properly during illness? But how can you make the land more productive? But how can you grow vegetables in your garden? etc

- The facilitator should keep prompting for as many suggestions as possible.
- For each strategy, s/he will discuss the barriers the participants face and the strengths they have as a group and discuss whether it is a feasible strategy.
- Once the group has decided they want to implement a strategy and that it is feasible for them, the facilitator will place a short plank on the bridge.
- Similarly all the strategies are taken up and the bridge is completed.
- As the strategies are being finalised they are put under four broad headings: (a) Nutrition, (b) Agriculture, (c) Natural resources and (d) Behaviour.





Village	Prioritised Problem	Prioritized Strategy			
		Nutrition	Agriculture	Natural Resources	Behaviour

The facilitator will summarize all the discussions with the help of the participants. S/he will tell the participants that now they know the problems, the causes and the solutions to them and have decided on the strategies that they will be implementing together for preventing the prioritized problems.

### MEETING SUMMARY

- The community is facilitated to develop strategies by overcoming barriers for implementation through optimal use of available resources.

## 3.9 Meeting 9: Taking Over Responsibilities

	Objective	<ul style="list-style-type: none"> <li>• To undertake responsibilities for implementing the strategies</li> <li>• Planning for the interface meeting</li> </ul>
	Duration	1.5 hours
	Material	Formats
	Methodology	Discussion on formats

After welcoming the participants, the facilitator will ask them to recount the discussions and strategies prepared in the previous meeting.

### Session 1: Discussing Strategy Implementation Process and Taking over Responsibility thereof

The facilitator will take up each strategy to be implemented and ask how the group plans to implement them.

- For each strategy, the following details should be discussed:
  - ◇ When do they want to start the implementation?
  - ◇ What actions / activities are necessary?
  - ◇ Who will take responsibility for its implementation?
  - ◇ Do they want / need to involve non-group members? How feasible is this? Who will take responsibility for interacting with them?
  - ◇ What should they do if they experience any problems while implementing the strategies?
- A role should be assigned to each person; the group should discuss how they will proceed to ensure that they have enough support and guidance from other members or non-members.



The facilitator will keep a record using a table like the one given below and also ensure that one other group member maintains this record as well.

Village	Problem	Strategy to be implemented	Person (s) responsible	Progress of Implementation	Remarks

The facilitator will summarize all the discussions with the help of the participants. S/he will remind them about all the responsibilities they have taken over to be able to implement the strategies properly.

### Session 2: Planning for the Interface Meeting

The facilitator will inform the group that in the next meeting they will be having an Interface meeting with the larger community to share their experiences. S/he will encourage the group members to select their method/s of dissemination. The following should be considered:

- The facilitator will discuss the need to have a community meeting: to take responsibility for implementing the strategies.







- The facilitator will find out from the group:
  - ◊ When do they want to have the community meeting? (time, date)
  - ◊ Where do they want to have it? (Place/venue – school premises/open area/ etc.)
  - ◊ Who would they like to invite for the meeting? (Frontline government staff and other health staff, village leaders, village elders, nearby villagers, teachers, etc.)
  - ◊ Who will take responsibility for the invitation?
  - ◊ What will be the mode of invitation? (Letter, traditional methods, etc.)
  - ◊ What are the resources required? (Seating arrangements, food, water, etc.) How will they obtain these?
  - ◊ What will be the method of dissemination of their learning with the community? (Story-telling, street play, role play, puppet show, picture cards, songs, etc.)
  - ◊ What kind of help will they need from the facilitator? (Preparation of script, help with practicing the play, discuss the previous meetings, etc.)
- The facilitator will encourage group members to participate and take up responsibilities.
- The method of presentation should be made simple so that everyone can understand. The presentation should be in the local language.
- The facilitator will help the groups to practice for the play in advance (characters in the play, voice should be loud and clear, etc.).
- The facilitator will help the group to decide the venue and the seating arrangements (where the stage is to be set, place for the audience, etc.).

## MEETING SUMMARY

- Some strategies can be implemented at the individual or household level (like change in practice) and some need community efforts.
- Together the community can implement the strategies.
- Each one in the group has a responsibility and a role to play.
- Members used to take responsibilities for organizing the interface meeting
- There is a need to include all stakeholders at the village level to implement the strategies.

## Village Interface Meeting 1

	Objective	<ul style="list-style-type: none"><li>• To meet with different stakeholders and solicit their support to implement strategies</li><li>• To discuss different entitlements in the local context related to nutrition, health, agriculture, resource management and how to avail these entitlements</li><li>• To prepare score cards of available services</li><li>• To undertake responsibilities for implementing the strategies.</li></ul>
	Duration	1.5 hours
	Material	Formats
	Methodology	Discussion on formats

After welcoming the participants, the facilitator will ask them to recount the discussions and strategies prepared in the previous meeting.



### **Some useful tips prior to holding the interface meeting:**

- During the meeting the group members will summarize their activities over the past few months and share the prioritized problems and strategies with the larger community and key stakeholders, e.g. village headmen, Government officials, village development field workers, health workers and others who had not attended the meetings.
- Street plays, puppetry and storytelling are some of the innovative approaches that can be used by the group members for dissemination of the prioritized problems and their underlying causes.
- Stakeholders (especially the frontline health staff) can be requested to inaugurate the function so that their role in the community can be acknowledged.
- During the preparation for this meeting the facilitators will help the members in script writing, acting, etc. and rehearsals.
- The members can use locally available resources like 'saris/sheets' as back drop, leaves for decorations, and jute woven mattresses for seating the attendees, etc, as locally appropriate. The group members can voluntarily contribute money for the logistic arrangements like food, microphones, etc.
- Any group member is encouraged to preside over the meeting with help from the facilitator

### **Process:**

- The meeting can start with a welcome song followed by thanking the audience for being able to attend the meeting and briefing them about the day's proceedings.
- The meetings conducted so far should be discussed briefly to help the audience understand the process.
- Group members will then present the method they have selected for disseminating the prioritized problems, barriers identified, strategies selected to overcome the problems and the local resources they have. While sharing the information, the members will identify the stakeholders who will be able to help them with the implementation of strategies.
- The group, depending on the situation, might also think of a community score card on relevant services. Refer to Annex 9 for the details.
- Towards the end of the community meeting, the stakeholders should be asked to share their experiences. These experiences can be recorded by the facilitator and

later be used as quotes. The facilitator can use the following format for keeping a note of meeting findings:

### Community Meeting Format

Name of the group	Dissemination method	Total female participants	Total male participants	Designation of the stakeholders	Feedback/ comments from the stakeholders

There is no single way of conducting this meeting; however, the following points can be useful:

- The community meeting should be held with full enthusiasm like a festival.
- The members can pin up the picture cards used in the earlier meetings on a sari/bed-sheet to attract the crowd and also to make them understand what the stories were about.
- Arrangements should be such that everyone present can listen to the discussions clearly and will be able to understand.
- Everyone should be comfortably seated to be able to see and hear the discussion.
- The meeting must be simple to understand and not too lengthy.
- The audience should have a good mix of adolescent children, mothers of children between 0-5 years of age, pregnant and lactating mothers; they should be encouraged to sit in the front.
- Pregnant and lactating mothers, and mothers of children 0-5 years of age should be encouraged to share their views.
- People from the audience to share their views on undernutrition with the community.
- The relevant decisions at the meeting should be noted down by a group member.







# PHASE 3





## Meeting 10: Timely Initiation of Complementary Feeding and Improved IYCF Practices

	Objective	<ul style="list-style-type: none"> <li>• Review of Village Interface Meeting</li> <li>• To understand the importance of timely introduction of complementary food</li> <li>• To understand the importance of “enriching” food</li> </ul>
	Duration	2 hours
	Material	Soap and water, food prepared by mothers for introducing complementary feeding
	Methodology	<ul style="list-style-type: none"> <li>• Demonstration of hand washing technique</li> <li>• Engagement of community in a ceremony on timely introduction of semisolid food</li> <li>• Discussion on energy dense food recipes for infants</li> </ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

### Actions Required Prior to the Meeting:

- Preparing a list of all infants who are 5-6 months old to be able to include them in the ‘Introduction of complementary food (*annaprash*)’ ceremony.
- Meeting mothers with infants aged 5-6 months, discussing with them the ceremony and asking them to bring some food for their children for the ceremony. Also, inviting the mothers with infants aged 7-9 months, whose children may not have yet started on complementary foods.
- Meeting Community Health Workers to enquire about the possibility of organising the ‘Introduction of complementary food’ ceremony at the Community centre (or as appropriate in the local context).

### Session 1: Review of the Village Interface Meeting

The facilitator will praise the group members for having organized the community meeting at the village/village cluster (as applicable in the local context) level and proceed to ask the following:

- What did the group think about the community meeting? What went well? What could have been improved?

- How many people attended? Who attended? What were their reactions? Did they receive any feedback from members of the community? If yes, what feedback did they receive? (The facilitator should prompt for reactions specifically from other married women of reproductive age, adolescent girls, mothers-in-law, men.) Did they receive any feedback from any key stakeholders? If yes, what feedback did they receive?
- Was it a good idea to have a community meeting at the village level? If so - why? If not – why not?
- How was the discussion on score cards received by the community?
- What did they like and why?

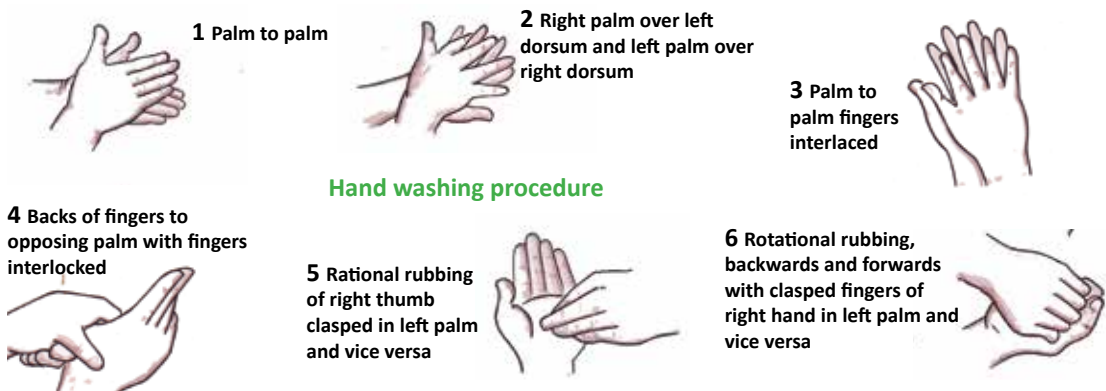
**The facilitator will again praise the group members for managing to organise such an event**

Discussing the progress of the implementation of strategies:

- The facilitator will ask members about the progress of strategies implementation since the last meeting.
- For each person carrying out a responsibility, the facilitator will ask - How is it going? Are they facing any problems in trying to collect information or while implementing the strategies? If yes, what are these problems? Are there any issues which they would like to discuss? – The facilitator will keep a note of these concerns.
- The facilitator will encourage the group to continue implementing the strategies and discuss their progress in every meeting

## **Session 2: Demonstration of Hand Washing Method and Celebratory Ceremony for Introduction of Complementary Food**

- The facilitator will help all the mothers whose children would start complementary food that day/week to wash their hands and the utensils for feeding the child with soap **(S/he should demonstrate the actual method of hand washing).**



- The facilitator will start the meeting by asking the mothers of those infants to start feeding their children using a bowl and a spoon with the food they have brought for this occasion. Children in the 7-9 months age group who have not yet started complementary food will also be given cooked food from home or prepared by the Community Health Worker.
- The facilitator will ask the mothers whose children started semisolid food that day to continue breastfeeding along with complementary feeding.
- After the ceremony, the facilitator will initiate a discussion on the importance of timely introduction of complementary food. This is the time when parents begin to gradually introduce food other than breast milk into their baby's diet. Specially prepared solid/semi-solid food should be introduced after 6 months of age.

### Session 3: Understanding the Importance of “Enriching” Food

- The facilitator will first wash hands and the utensils with soap (S/he will demonstrate the actual method of hand washing)
- The facilitator will ask members about the different recipes that are normally prepared for children and make a note of it. S/he will ask the mothers to demonstrate the preparation of the food which they brought and will encourage a discussion on how it can be enriched to make it more nutritious, by adding a spoon of oil, vegetables, mashed potato, etc
- The facilitator will remind members about the frequency/quantity/quality of feeding for different age groups. *[6 to 9 months: 2-3 times a day; 9 to 12 months: 3-5 times a day; 12 months to 5 years: 3-5 times a day]*
- The facilitator, with help from the Community Health Workers, will keep a list of all the babies who will be completing 6 months of age and are due for introduction of complementary food in the subsequent months. In all future meetings these mothers can be encouraged to attend the group meetings where this ceremony can be repeated; alternatively, the ceremony can be held at the Community Centre (or as appropriate) every month on a pre-specified date.





### MEETING SUMMARY

- It is important to introduce complementary food to babies after 6 months. Exclusive breastfeeding until the baby is six months old is recommended; however, after six months breast milk alone does not provide the baby with adequate nutrients, particularly the iron and calories that solid food provides. Hence, complementary food provides the child with a nutritional balance for proper growth and development.



- Babies consume very little amounts at a time and need to be fed repeatedly. As they grow older, the quantity of food per serving has to increase too.
- Breastfeeding along with complementary feeding must continue at least till 2 years of age.
- It is very important to always wash hands with soap before cooking and before feeding the baby. This prevents infections like diarrhoea.

### 3.11 Meeting 11: Recipe Demonstration

	Objective	<ul style="list-style-type: none"> <li>• To understand good cooking practices through demonstration of local recipes</li> <li>• To discuss about food preservation methods</li> </ul>
	Duration	2 hours
	Material	List of some local recipes and ingredients
	Methodology	Demonstration of recipes

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1

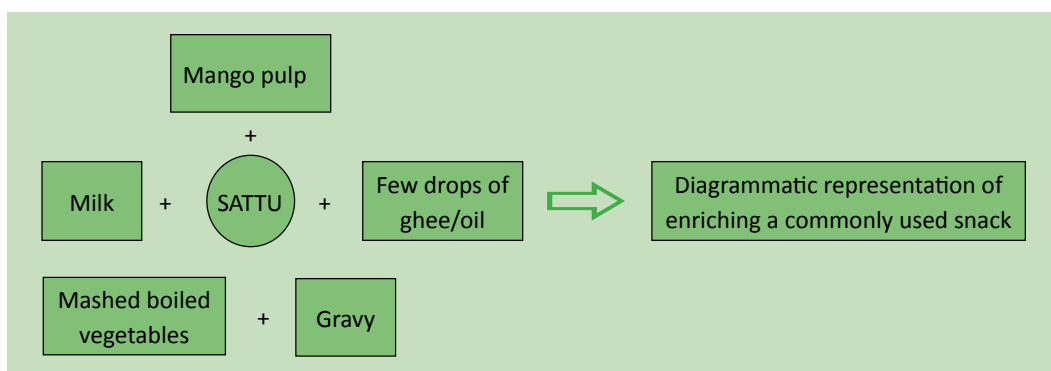
- While relating to the previous meeting, the facilitator will ask the mothers if they have continued to give their young children semisolid food and will tell them that in this meeting they will discuss the different types of recipes/food that the child can be given.
- S/he will then discuss some recipes that are prepared in the community like rice pudding, rice porridge, pancakes, commonly used snacks, etc. At first s/he will ask members how these recipes are usually prepared and then discuss how they can be enriched or made more nutritious. S/he will remind members about the food groups discussed in the earlier meeting and encourage them to refer to the list/mapping of the locally available food.

#### Examples of enriched recipes

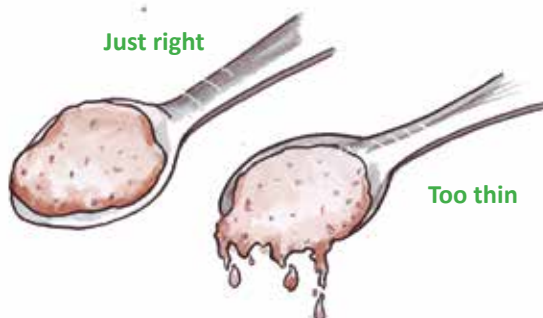
Red lentil (*masoor dal*) or Yellow lentil (*moong dal*) and Bengal gram (*channa dal*) can be roasted, powdered and stored in a jar and given to the baby as a complementary food along with jaggery and water or milk.

As a snack the children can be given sweets made from ground nuts, sesame seeds and jaggery (*Gur badam*).

- Babies can be given steamed rice cakes or pancakes to which different vegetables, powdered maize, ground nuts, or seeds of sesame, melon, pumpkin, jackfruit etc. can be added, while making the dough or along with the rice while being ground.
- Feeding yellow-flesh fruit and vegetables and dark-green leafy vegetables should be encouraged.
- Any new food should be introduced one at a time. If the child is allergic to a specific food, the facilitator will give advice on the use of an alternative that contains similar nutrients.
- The facilitator will ask members to play an enriching food game for which s/he will:
  - ◊ Keep “Mixed sattu (roasted gram flour)” (provided by the Anganwadi Workers/ Health Workers for babies) in a bowl wherever applicable
  - ◊ Remind members about the list of locally available foods which they had identified/mapped in the earlier meeting
  - ◊ Ask members to use the food materials and chits for enriching the recipe (adding sugar, oil or juice of seasonal fruits). E.g.:



- ◊ Discuss again the frequency/ quantity/quality of feeding for different age groups using picture card number 62 [6 to 9 months: at least 2-3 times a day; 9 to 12 months: at least 3-5 times a day; 12 months to 5 years: at least 3-5 times a day, while



**Thickness: the food should be thick enough so that it does not slide off the spoon**

*continuing breast feeding till the child is 2 years of age].*

Facilitators can refer to Annex 10 for additional recipes

## Session 2: Food Preservation Methods

The facilitator will first find out about the methods that are locally used for preserving food and then discuss additional methods.



**A growing child needs 2-4 meals a day plus 1-2 snacks if hungry: a variety of food should be given**

- (1) Drying is one of the oldest techniques that uses the power of the sun. Vegetables and fruit can be naturally dried by the sun and wind. The fire in the kitchen can provide heat to dry the various fruits, vegetables, green leafy vegetables and herbs and even meat cut into thin strips. Salt can be added to prolong their life.
- (2) Refrigeration preserves food by slowing down the growth and reproduction of micro-organisms.
- (3) Salting (curing) – to preserve meat
- (4) Sugar as a preservative – fruits, ginger, citrus fruits can be heated with sugar.
- (5) Smoking – for meat/fish, fruits, spices, mushrooms, etc.
- (6) Pickling – usually in salt, vinegar, alcohol, vegetable oil.
- (7) Jugging (stewing) – meat or fish cut into small pieces in a tightly covered earthenware with salt water and stewed.

After the discussion, the facilitator will encourage participants to use the above methods if they have not yet done so.





## MEETING SUMMARY

- A good complementary meal needs to have: rice or another cereal, green leafy vegetables, pulses and a red or yellow piece of fruit. Whenever possible, an animal source of food (preferably once a day) should be given.
- If the diet is mainly cereal-based, the mother should make the cereal thick, not diluted, and add some fat (for example, oil) to increase energy density.
- Breastfeeding should be continued along with complementary feeding at least till 2 years of age.
- Hands should always be washed with soap before cooking and before feeding the baby. This prevents infections like diarrhoea.

- Food can be preserved in any season to be used in the future by reconstituting it. However, this may alter the character of the food and bring to the loss of some nutrients that fresh food can give, because of the process involved in preservation

Note: The facilitator can encourage members to discuss the preparation of locally available recipes

### 3.12 Meeting 12: Strategies to Prevent Undernutrition in Communities

	Objective	To identify and implement possible strategies for improving nutrition and growth of adolescents and mothers
	Duration	1.5 hours
	Material	Picture cards, material related to practices like feeding bottle, soap, packet of pesticide, vegetable basket, bednet, etc.
	Methodology	“Choosing the appropriate circle” game

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

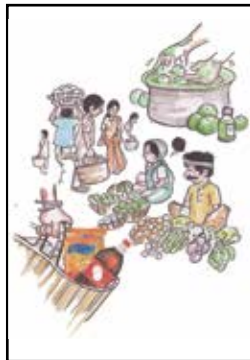
#### Session 1: Discussing Possible Strategies for Preventing Undernutrition in Women and Adolescents through “Choosing the Appropriate Circle” Game

Familiarizing members with the picture cards (prepared by the facilitators themselves) and materials.

##### List of cards to be used in the game

1. Early marriage – a young girl getting married (card)
2. Girl having IFA tablets in her school (card)
3. Adolescent girl working with her mother in the field (card)
4. Food restrictions during pregnancy – a pregnant mother having only rice (card)
5. Pregnant women exposed to pesticides – pregnant women working in field with men spraying (card)
6. No food diversity – a family having very little food diversity on their plate (card)
7. Seasonal fruits and vegetables basket – Including seasonal fruits and vegetables in baby’s, pregnant and lactating women’s diet (material)
8. Food during illness – (card)
9. Soap – mother using soap regularly for washing her hands (material)
10. Eating once a day during postpartum and lactation (card)
11. Unsafe food handling (card)
12. Bed net – having the family sleep under bed nets (material)
13. Mother having milk products, fish/ poultry product (card)
14. Homestead garden (card)
15. Pesticide packet (material)
16. Intra-family food discrimination (card)

## LIST OF CARDS TO BE USED IN THE GAME



The facilitator will take all the picture cards and pass them around the circle so that all get a good look at each card.

- The facilitator will then place the cards on the floor, and encourage participants to discuss each one, by asking them to select the card they would like to discuss first.
- For each of the card, s/he will ask participants to describe what they see in the picture and will help them understand what the card shows.
- After a detailed discussion on each of the card the facilitator will show some of the materials to be used for the game such as food plate, soap, bowl and spoon, etc.
- The above process allows participants to get actively involved and helps them to identify the picture cards and the materials.

Playing the Game:

- The facilitator will draw two circles on the floor/ground large enough for some participants to stand in. S/he will put the picture of the undernourished woman and of a well nourished woman next to each circle.
- The facilitator will distribute all the cards and the materials among those volunteering for this game. S/he will refer to someone holding the picture/material and ask to which circle they should go. The rest of the group members can decide to which circle that particular person belongs to and the person holding the picture/ material will go that circle. Example: pointing to the person holding a soap, the facilitator will ask, where will the family be if his/her mother uses soap before feeding. This process will be repeated till all the picture cards/materials are covered.
- The facilitator will discuss with the people in each circle why they think that is the appropriate circle for that particular picture/material.
- The facilitator will encourage participants to come up with possible strategies for bringing those standing in the undernourished circle towards the well nourished circle.
- The facilitator will keep a note of all the responses and encourage participants to follow these simple steps for preventing undernutrition in mothers, adolescents and children.

Identifying the possible strategies for implementation and reviewing implemented strategies:





- The facilitator should encourage all participants to take part in this exercise.
- S/he will ask the group to discuss possible strategies that they would like to implement for reducing undernutrition.

- The group members should think of various possibilities and discuss them openly. The facilitator should keep prompting for as many suggestions as possible
- For each strategy, the group should discuss the barriers they face and the strengths they have as a group and whether it is a feasible strategy.
- Once the group has decided they want to implement a strategy and they think it is feasible for them to do so, the strategies are finalized and written on the strategies progress note.
- At the end of the discussion, the facilitator will keep a record of the progress of strategies implementation and encourage the group to keep on implementing the strategies.

## MEETING SUMMARY

- Early marriage leading to early childbearing can be risky for the mother and the child, and the risk of a low birth weight baby increases considerably.
- Many customs and superstitions prevent the consumption of nutritious food during pregnancy and lactation, especially vegetables and animal products resulting in undernutrition in mothers and babies.
- There are special food needs during adolescence; since they grow fast in this age, they require higher quantities of iron and calcium rich food, along with other food. A well balanced diet is very important in this age group too.
- Prevention of illnesses leads to good health. Use of bed-nets, washing hand with soap, drinking boiled water, maintaining cleanliness around the house, having a good ventilation and sun light inside the house are some ways of preventing illnesses.

### 3.13 Meeting 13: Reinforcing Strategies to Prevent Undernutrition in children

	Objective	To understand the underlying causes of childhood malnutrition and identifying possible strategies for its prevention
	Duration	1.5 hours
	Material	Ribbons in four colours (yellow, blue, green, red), dummy of baby, story and picture cards
	Methodology	'Chain' game

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

### Session 1: Discussing Causes and Possible Solutions for Preventing Childhood Undernutrition

The facilitator will use the following story with picture cards to help members understand the causes of childhood undernutrition.

- The facilitator will ask one of the members to repeat the story using the picture cards. The picture cards should remain on the ground.

Example: A Story Focusing on Undernutrition

Bamai married early into a poor family and soon after became pregnant. During her pregnancy she did not take care of her food intake for which she became anaemic and weak. She did not receive iron tablets from the Health Centre as the only time she had visited the Health Centre for the tablets, the worker said they were out of stock. She gave birth to a low birth weight baby. She was herself under nourished and since her mother-in-law gave her one meal a day, therefore she had insufficient breast milk to feed the baby. Her mother-in-law advised her to give goat's milk for two days and not to give the thick yellow first milk, and later on asked her to bottle-feed. When Bamai took her child for immunization, she was told to come another day because the worker had to attend a meeting. She did not go to the Health Centre after that. When the child was about 10 months old he had fever with rashes all over the body and he was not given adequate feeds during the illness. The child however recovered with medicines, but his conditions became worse; he became very weak and his legs and hands became thin and he had a withered look with skin hanging loose. The child had grown up to be a small and undernourished one.

- The facilitator will explain that they will play 'the chain game' to help participants identify solutions for preventing childhood undernutrition. This is a practical and visual exercise to help them understand and analyze the causes of undernutrition and thereby look for ways they already know for preventing it.
- All causes listed can be put under four main headings:
- Nutrition (green color) – having to do with nutrition and food
- Cultural Practices (yellow color) – having to do with people's attitudes, behaviour, customs, beliefs, etc.
- Illness (red color) – caused by virus, bacteria, parasite, etc
- Entitlements (blue) – where they were deprived of their entitlements







- The facilitator will use paper bands or ribbons of four different colors to represent the four major categories. S/he will explain what each of the colors represents to the members.
- The facilitator will remind the group about the causes mentioned by them and tell them that all can be listed under the above four categories
  - ◊ The facilitator will use a dummy/cut out of a child for this game and put it up against the wall/tree at a high level.
  - ◊ The facilitator will randomly distribute the colored ribbons/bands among members. Each time the facilitator mentions a cause, the members will reflect under which category it would fall and the one having the correct colored ribbon will consult the other members before tying the ribbon on the dummy's leg. For each subsequent cause a new ribbon is tied to the existing one in the form of a chain.
  - ◊ The chain/shackle gradually increases in length to show how the child can be burdened with all the causes leading to the problem of undernutrition.
  - ◊ The members are allowed to interact and discuss amongst themselves.
- Sometimes the causes can be categorized under more than one heading and this allows for a discussion amongst the group which then has to be resolved or directed by the facilitator.

**Identifying Possible Strategies**—*To break the chain/shackle* the facilitator will now ask “what can be done” to break/remove this chain. The facilitator will encourage members to think of the strategies discussed in the previous meetings for dealing with the problem of undernutrition. The group members will think of various possibilities and discuss them openly. As they decide upon the strategies, they keep on opening the ribbon (chain) one by one. The facilitator will keep a note of all the strategies.

## MEETING SUMMARY

Undernutrition in a child could result from a combination of different factors, like wrong feeding practices, cultural practices, poor illness management or lack of access to available government services and entitlements. To break this chain of factors, appropriate action is needed at individual, household and community level.

### 3.14 Meeting 14: Growing Nutrition Garden

	Objective	<ul style="list-style-type: none"><li>• To understand the importance of nutrition gardens for family food diversity</li><li>• Discussions on how to develop nutrition gardens, type of plants, bio-fencing, use of organic manure, etc.</li><li>• To discuss strategies to develop a nutrition/ homestead garden</li></ul>
	Duration	1.5 hours
	Material	Story on importance of Nutrition Gardens
	Methodology	<ul style="list-style-type: none"><li>• Story telling</li><li>• Visit to a nutrition garden</li></ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: Discussing the Importance of Nutrition Gardens to Combat Undernutrition

The facilitator will narrate a story on the importance of nutrition/kitchen gardens:

##### Story of Sombari

Sombari spent her childhood in a village. Her family never experienced food crisis because they grew different kinds of fruits and vegetables themselves and also reared cattle that provided milk and other milk products that she loved eating. Her teachers were always happy with her because she performed well in her class.

She was married in a nearby village. Within two years of her marriage Sombari became pregnant but her family did not give her fresh vegetables or fruits because they did not grow them in their garden nor could they afford to buy them. When her child was 7 months old, she was not able to include fresh vegetables in the child's diet and she was not happy because of this.

Once when her child became sick, she took him to the health centre where she saw that the child's weight and MUAC were in the yellow zone. The doctor counselled Sombari on improving her child's food intake and maintaining hygiene during food preparation and storage.

Sombari decided that she would pay more attention to her child's diet by not allowing the weight to reduce further. She would start growing vegetables and plant fruit trees in the space available using the waste water from her house like she had seen in her parental home as a child. In a few months she was able to grow some green vegetables that she then included in her family food.

Sombari also inspired her neighbours and others in the village to grow vegetables in their own kitchen gardens. She and her husband initiated a movement where they and the people in the village started growing a community garden and in a few years this became a large scale business; they even had a poultry farm and bought cattle and gradually the economic, health and nutrition conditions of the village improved.

The facilitator will discuss the story with the group and try to extract their understanding of it. S/he will facilitate the group to understand the importance of kitchen/nutrition gardens.

The facilitator will ask the group if anyone wants to volunteer and show their kitchen/nutrition garden to the others.

## Session 2: Discussing the Implementation of Nutrition Gardens

The facilitator will ask the group members how they plan to implement the nutrition garden. The following should be discussed in details:

- When do they want to start the implementation?
- What actions/activities are necessary? How will they do it?
- Would they like to do in smaller groups, helping each other?
- Would they like to sit once again after this meeting to strategize how to start – with construction of live fence, or collection of planting materials, day and time etc.
- Who will take responsibility to follow up on how each household develops homestead gardens? How/where can they seek expertise needed for any of the interventions?
- What should they do if they experience any problems while implementing the strategies?

Notes for facilitators: Drumsticks, curry leaves, custard apples, papayas, shoe flowers, *begonia*, *basak*, etc can be grown as the fence itself. Plants like Cassiasima, Neem, tamarind etc. can be grown in between, which would serve as poles for the fence. Once these plants grow up to around two meters they can be branched off and used as fodder or compost material. These trees will support creepers like velvet bean, ivy gourd, ridge gourd...

The facilitator may also refer to Annex 9 for Living Fences.





The group should discuss how they will proceed to ensure that they have enough support and guidance.

Note for facilitators: additional information can be found in refer Annex 11, 12 and 13.

## MEETING SUMMARY

- Nutrition gardens can be an important resource to supplement diversity in the family's nutrition
- By making a good choice of plants, these can be a source of fruits and vegetables, fodder plants and even animal proteins (like poultry, fishes etc)
- Household kitchen waste can be used as compost for these gardens

### 3.15 Meeting 15: Uncultivated Food

	Objective	<ul style="list-style-type: none"><li>• To reinforce the importance of uncultivated food as a rich source for dietary diversity and critical for food security</li><li>• To map available uncultivated food and discuss about its utilization, conservation and promotion</li></ul>
	Duration	1.5 hours
	Material	Discussion
	Methodology	Preparing a seasonality chart for available uncultivated food

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting.

#### Session 1: Identifying Uncultivated Food and its Seasonal Availability

- (1) Uncultivated food being consumed by local population in different seasons:
- (2) Storage practices and different recipes using it and identifying possibilities of value addition.
- (3) Uncultivated food that is disappearing, the reasons and plans for its regeneration, protection and conservation.

The facilitator will use a matrix to map the different uncultivated food that is collected throughout the year. S/he may facilitate the group to prepare a seasonality chart as shown below. The elders and women in the village need to be encouraged to contribute to this process. This may be done as a focused group discussion.



Name of the food items and number of varieties	Summer	Rainy	Winter	Name of food that is disappearing/ vanishing
	Name of the food and source*	Name of the food and source*	Name of the food and source*	
Cereals				
Pulses				
Other legumes				
Green vegetables				
Roots & tubers				
Leafy vegetables				
Spices				
Oil				
Animal protein				
Fruits				
Others (mushrooms, bamboo shoots, seeds etc.)				

\* Options: (i) agricultural fields and/or home gardens, (ii) village commons including water bodies, (iii) forest and (iv) market- including the fair price shops




After this classification, the group members need to be invited to share their knowledge, experiences and concerns about the uncultivated food they were used to collecting and is/was available in their area. The facilitator will enquire about the storage practices that help to retain its nutritive values (e.g. drying fish, mushrooms, etc)

The facilitator will conclude by highlighting the fact that locally available uncultivated food is an important and critical source of food and nutrition and that it can be stored, and the younger generation could be motivated to follow these practices. It is also important to regenerate, protect and conserve it.

## MEETING SUMMARY

- Uncultivated food items form a rich source of food diversity and food security in difficult weather conditions.
- It is important to identify and preserve these resources.
- Because of the seasonal scarcity of food, it is important to preserve and store these food items for consumption during lean seasons.

### 3.16 Meeting 16: Crop Planning

	Objective	To improve net yield (quantity & diversity) of a unit of agricultural land based on local conditions
	Duration	2 hours
	Material	Different colour powders, small quantity of seeds of local crops, drawing sheets and pens etc.
	Methodology	<ul style="list-style-type: none"><li>• PRA – Seasonality</li><li>• Group planning</li></ul>

After welcoming the participants, the facilitator will ask them to recount the discussions and learning of the previous meeting. (Facilitators must ensure that elderly men and women participate and contribute to the meeting.)

#### Session 1: Discussion on Current Cropping Practices

- The facilitator will discuss with the group the crops being grown in different seasons in their fields.
- S/he may draw a matrix with illustrations on different seasons (summer, rainy and winter), land types based on local classification and crop groups (cereals, pulses, oil seeds, spices, roots tubers, and vegetables etc). (See Annexure 14 for the matrix)
- The facilitator will encourage each participant to talk about the crops they grow in their field in different seasons. Some guiding questions that the facilitator can ask are:
  - ◇ Why is this up and/or medium and/or low land lying fallow in a given season?
  - ◇ Is it part of the local land use practice or are a few factors responsible for the fallow period?
- The facilitator needs to encourage the group to analyze the factors responsible for the fallow period and explore local solutions:
  - ◇ Are there locally appropriate crop varieties (that can be grown in local climatic conditions, are part of the food culture and can also be used as fodder) that can be grown during the fallow period?
  - ◇ Are there ways to extend the present sowing and harvest period?
  - ◇ Amend the land use pattern during the fallow period etc.

- The facilitator needs to engage the local elders in exploring crop varieties, which can be sown and harvested beyond the present sowing and harvest period. The group may also discuss on crop varieties that can be sown along with the crops being grown by them, to increase the quantity and diversity of the total yield out of a unit of land.

The local knowledgeable people should be invited to contribute.

### **Session 2: Discussing Crop Planning**

- The facilitator will encourage group members to plan crops based on the day's discussion. S/he can use a matrix (Annex 6, 15) to help the discussion.
- The facilitator should ensure the contribution of women in the planning process and suggest changes to make to address concerns of food and nutrition and sustainable management of their agriculture fields.
- The facilitator will conclude by highlighting the fact that, based on the local climatic conditions, land type, food culture and land use pattern appropriate crop planning needs to be done to improve net yield (quantity & diversity) of a unit of agricultural land to get access to more food and nutrition at the household level.

### **MEETING SUMMARY**

- Crop planning is essential to improve net yield (quantity & diversity) of a unit of agricultural land based on local conditions.
- A different mix of crops can be planted based on local conditions.
- It is important that women are involved in planning processes and that suggested changes are made to include concerns about nutrition.





# PHASE 4





touched their heart or has been a turning point in their lives.

- S/he will ask each whether to briefly share their experience keeping in mind the following:
  - ◊ What happened at that point in time?
  - ◊ Who all were present?
  - ◊ How did they feel?
  - ◊ Who helped there and how?
  - ◊ What did they do?
  - ◊ What is it that made the experience memorable?
- The facilitator will keep a note of it and thank the members for sharing their valuable experiences

### **Session 3: Phase-wise Evaluation of the Cycle**

Facilitator will prepare a chart with pictures representing each meeting of the three phases and the community meeting. Each community member attending the meeting will be given a stone and asked to put the stone on the chart against the meetings they preferred in each phase including the community meeting. After all the members have finished, the facilitator will ask the group:

- Why did members like that particular meeting?
- What did they learn from the meeting?
- Has the learning helped in changing the behaviour of the members? If so, in what ways?

For those meetings with the maximum number of stones, processes 1-3 should be repeated in each phase (I, II, & III) and in the community meetings.

### **Session 4: Evaluation of the Activities by the Group and of the Impact of Intervention**

The facilitator will evaluate the impact of the interventions by asking the following:

- Has attending the group influenced the behaviour of the members (probe for practices, attitude, and confidence)? If so, how? What facilitated and what prevented this?
- Do members think they have influenced the behaviour of others in their community? If so, how? What facilitated and what prevented this?
- How many of them have regularly been involved in the cycle? What interested them the most and why?
- What were the prioritized problems?

- What strategies did they plan?
- Were they able to implement the strategies? From whom (stakeholders) did they receive support?
- Were they able to utilize available government resources/schemes/programmes? (participants can fill score card to assess what changes)
- How successful/unsuccessful was the strategy to address the identified problem?
- What else needs to be done? What does the community think they can do together in the future?
- The facilitator will discuss with the group whether they want to continue to meet together as a group.
- The facilitator will discuss the feasibility of having one of the group members take over the role of the facilitator.





### Session 5: Planning for Interface Meeting

The facilitator will inform the group that in the next meeting they will be having an Interface meeting with the larger community to share their experiences. S/he will encourage groups to select their method/s of dissemination. The following should be considered:

- The facilitator will discuss the need to have a community meeting: to take responsibility for implementing the strategies.
- The facilitator will find out from the group about the following:
  - ◊ When do they want to have the Interface meeting? (time, date)
  - ◊ Where do they want to have it? (Place/venue – school premises/open area/ etc.)
  - ◊ Who will they like to invite for the meeting? (Frontline government staff and other health staff, village leaders, village elders, nearby villagers, teachers, etc.)
  - ◊ Who will take responsibility for the invitation?
  - ◊ What will be the mode of invitation? (Letter, traditional methods, etc.)
  - ◊ What are the resources required? (Seating arrangements, food, water, etc.) How will they obtain these?
  - ◊ What will be the method of dissemination of their learning with the community? (Story-telling, street play, role play, puppet show, picture cards, songs, etc.)
  - ◊ What kind of help will they need from the facilitator? (Preparation of script, help with practicing the play, discuss about the previous meetings, etc.)

- The facilitator will encourage group members to participate and take up responsibilities.
- The method of presentation should be made simple so that everyone can understand. The presentation should be in the local language.
- The facilitator will help the groups to practice for the play in advance (characters in the play, voice should be loud and clear, etc.).
- The facilitator will help the group to decide the venue and the seating arrangements (where the stage is to be set, place for the audience, etc.).

## Village Interface Meeting 2

	Objective	<ul style="list-style-type: none"> <li>• To share experiences, good practices adopted, successes and impact of the PLA meetings over the last one year</li> <li>• To share future plans of action</li> </ul>
	Duration	1.5 hours
	Material	Formats
	Methodology	Discussion on formats

Some useful tips prior to holding the interface meeting:

- During the meeting the group members will summarize their activities over the past one year and share the prioritized problems and strategies with the larger community and key stakeholders, e.g. village headmen, Government officials, health workers and others who have not attended the meetings.
- Street plays, puppetry and storytelling are some of the innovative approaches that can be used by the group members for dissemination of the prioritized problems and their underlying causes.
- Stakeholders (especially the frontline staff) can be requested to inaugurate the function so that their role in the community can be acknowledged.
- During the preparation for this meeting the facilitators will help the members in script writing, acting, etc. and rehearsals.
- The members can use locally available resources like 'saris/sheets' as back drop, leaves for decorations, and jute woven mattresses for seating the attendees, etc. as locally appropriate. The group members can voluntarily contribute money for the logistic arrangements like food, microphones, etc.

- Any group member is encouraged to preside over the meeting with help from the facilitator.

After welcoming the participants, the facilitator will ask the stakeholders and other villagers to recall the first Village Interface Meeting.

**Process:**

- The meeting can start with a welcome song followed by thanking the audience for being able to attend the meeting and briefing them about the day’s proceedings.
- The meetings conducted so far should be discussed briefly to help the audience understand the process
- Group members will then present the problems prioritized, how they planned the strategies and how they implemented them. They will present what resources they were able to access. While sharing the information, the members will acknowledge the stakeholders who helped with the implementation of the strategies. The improvement in service scores using score cards can also be shared with the larger audience.

[The facilitator will support and encourage the members in order to conduct the meeting smoothly]

Towards the end of the community meeting, the stakeholders should be asked to share their experiences. These experiences can be recorded by the facilitator and later be used as quotes.

**Community meeting format:**

Name of the group	Dissemination method	Total female participants	Total male participants	Designation of the stakeholders	Feedback/ comments from the stakeholders

The facilitator will summarize all the good work that the group has done and encourage the group to continue their good work as s/he will be unable to continue attending.

S/he will thank all the stakeholders for their support and express hope for their continued cooperation for implementing strategies to improve the status of undernutrition among women and children in their community – and remind them that together they can make a difference with all what they learnt from the meetings!!

## ANNEX 1

# WHAT IS UNDERNUTRITION? (MEETING 2)

Undernutrition is a state in which the body does not get enough nutrients either because:

- there is not enough to eat,
- or the person is not eating the right things,
- or the body is not able to absorb the food eaten.

Under such conditions, the undernourished person finds it difficult to carry out normal daily activities and frequently falls sick due to lowered resistance to diseases. In children, undernutrition leads to growth failure.

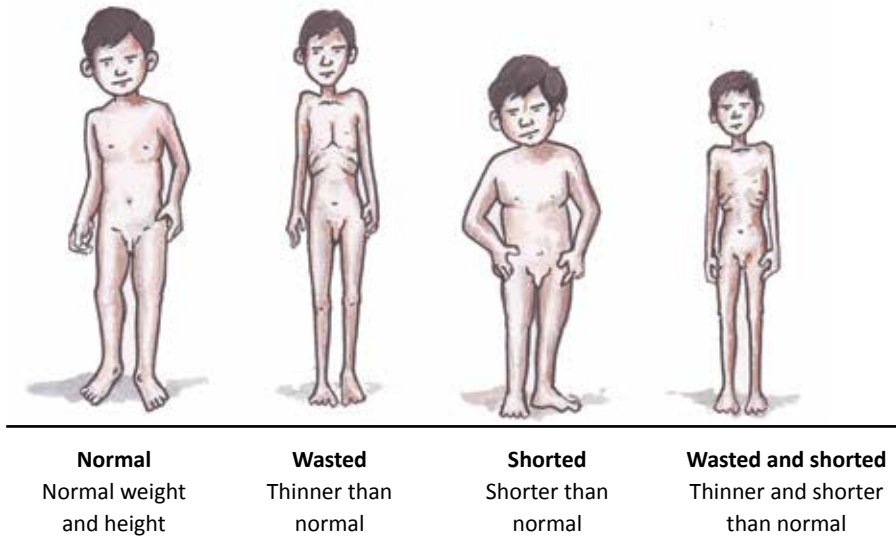
The three common types of malnutrition or growth failure in children are:

**Wasted:** Too thin for his/her height. This can happen in case of inadequate nutrition that is of sudden and short term onset (from food inadequacy or episodes of illness), leading to rapid weight loss or failure to gain weight normally. The body's response to infection is reduced leading to increased chances of death.

**Stunted:** Too short for his/her age. This situation happens when inadequate nutrition over a long period of time leads to failure of linear growth (inability to grow in height in accordance to age). Chronic malnutrition, or stunting, is another form of growth failure; the child often appears to be normally proportioned but is actually shorter than the average for his/her age. Stunting starts before birth and is caused by poor maternal nutrition, poor feeding practices, poor food quality as well as frequent infections which can slow down growth.

**Underweight:** low weight for his/her age. This results from both chronic (long term) and acute (sudden and short term) undernutrition.

If a child also presents odema (swelling) in both legs, the condition could be serious and will need immediate medical attention.



Source: <http://www.unicef.org/nutrition/training/2.3/25.html>

UNICEF; Basic Concepts in Nutrition in Emergencies – Types of undernutrition: micronutrient deficiencies.

## ANNEX 2

# MID UPPER ARM CIRCUMFERENCE (MEETING 3)

MUAC is the circumference of the left upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow (acromium - the outermost point of the spine of the shoulder blade and Olecranon process – tip of the elbow bone). The child folds the left arm at 90 degrees to the elbow with the palm facing up. The facilitator will stand behind the child, locate and mark the two points with a pen and measure the length of the upper arm. The distance between the two points is measured and by dividing this a horizontal line is marked as the midpoint for reference.

The facilitator will demonstrate the measuring of the mid upper arm circumference

- The child's arm should hang in a relaxed position
- The arm circumference comprises the skin, fat, muscles, and bone of the upper arm
- The muscle of the arm should not be flexed or tightened
- The tape should lie flat over the arm without compressing the skin or underlying tissue
- The facilitator takes this reading to the completed 1 mm

Measures: 0-11.5 cm (Red), 11.6 – 12.5 cm (Yellow), 12.6 – 25 cm (Green)



## ANNEX 3

## TYPES OF FOOD (MEETING 4)

## MAIN TYPES OF FOOD



**GROW FOOD** (Proteins and body-building helpers)

Examples:

**Legumes:** kidney beans and lobia, peas – white, green and chick peas, varieties of lentils like moong, toovar, Bengal gram and soybeans\*)

**Nuts\*:** almonds,

cashews, groundnuts\*

**Oil seeds\*:** sesame, sunflowers, mustard, pumpkin seeds, jack fruit seeds etc.

**Animal products:** milk, meat, chicken, eggs, fish and insects

**IMPORTANCE:** Combined with the main food, this food increases the quantity and improves the quality of the protein in the meal

\*also valuable as energy helpers because of their high fat content.

**GLOW FOOD**

(Vitamin, minerals and protective helpers)

Examples:

**Vegetables:** (dark green leafy and Green vegetables, tomatoes, carrots, papaya, pumpkin, drum stick, etc)

**Fruits:** (mangoes, oranges, guava, berries, custard apple, tamarind, and papayas)

**Animal products** (eggs, chicken, meat, milk products, fish and fish liver oil)

**IMPORTANCE:** these foods provide vitamins A and C and other vitamins. Dark green leafy vegetables are also excellent source of iron and the B vitamins – as well as some protein



Examples:

**Cereals and grains:** wheat, maize, rice, millet, and sorghum

**Starchy roots:** potatoes, taro, yam, colocasia etc.

**Starchy fruits:** banana, plantain, plantain stem, plantain flower etc.

**IMPORTANCE:** All main food is a cheap source of energy. Cereals are also a cheap source of proteins, irons and vitamin B.

WE PUT THE MAIN FOOD IN THE CENTER BECAUSE IT SUPPLIES MOST OF THE BODY'S FOOD NEEDS



**GO FOOD:** (Energy helpers) *Examples:*

**Pure fats:** oils, butter, ghee and lard

**Fat rich foods:** fruits, oil seeds, bacon, fatty meat and coconut

**Sugars:** sugar, honey, sugar cane, and molasses/ jaggery

**IMPORTANCE:** This food is a low bulk source of concentrated energy.

Fats contain 2 or 3 times as much energy as starchy foods like potato and maize.



Source: Adapted from *Helping Health Worker's Learn*: by David Werner (Published by Hesperian Health Guide; 2012) and Integrated IYCF trainers guide.



## ANNEX 4

# MAPPING RESOURCES AFTER TRANSECT WALK (MEETING 5)

### Steps in drawing a transect

- 1. Clarify soil types:** The agro-ecosystem transect is best used after a mapping exercise. It is mainly a tool for capturing and sharing the large amount of information that was elicited during the mapping exercises. You will often have more information than can be drawn clearly on a map!
  - ◇ Visit each agro-ecological niche and confirm its local name and characteristics.
  - ◇ Ask questions about the soil types within the niche and what they are called.
  - ◇ Ask about the water resources.
  - ◇ Don't forget to check for seasonality.
- 2. Generate a list of species:** Remember to include crops, trees, animals, fish, forages and vegetables. The list of species that are cultivated, gathered or otherwise utilized is put together in two parts:
  - ◇ Farmers are asked to identify the species that can be seen during the field visit.
  - ◇ This list is expanded to include species that are cultivated at other times of year (seasonality).

- 3. Sketch the topographical cross-section of the landscape:** Demonstrate the idea of a topographical cross-section by drawing an example on the ground. Once the idea is understood, let the farmers design and draw their own cross-sections. Use symbols for the important species or enterprises conducted across the section. The drawing should also show land features, like terraces. The transect is then assembled using individual sketches of each agro-ecological niche. The order of niches along the transect does not have to be the order in which they were visited, or in which they actually exist in the landscape. Farmers can choose to order the agro-ecological niches in a way that makes most sense to them. Convention, however, places the highest elevation in the landscape on the left and the lowest on the right. Conventionally, each agro-ecological niche is drawn only once no matter how often it occurs on the map or in the landscape, to make the diagram simpler.
- 4. Construct a matrix to explain the transect:** Under each agro-ecological niche, write information which is relevant to the inquiry. Typically, this might include soil type, water resources, crops, vegetables, forages, trees and animals, as well as actual and potential use and problems encountered in each agro-ecological unit. Make a note of any seasonal variations in the enterprises (seasonal information might be better displayed using seasonal calendars). Conventionally, this information is displayed as a matrix:



SOIL TYPE	Loam	Sandy Loam	Sandy Loam	Sandy and Stony	
Water Source	Irrigated (from Gebong Dam)	Irrigated (from Gebong Dam)	Rain water	Rain water	
Crops	Rice-Rice-Cash crops, (Cash crops: Soybean, Mungbean, Corn) Rice-Rice-Corn Rice-Rice-Soybean Rice-Rice-Rice (10 ha)	Banana, Rambutan, Papaya, Vegetables, Cassava, Sweet Potato, Jack fruit, Rice (in rainy season)	Rice-rice-corn; chili, soybean, mungbean, cassava	Corn	
Livestock		Goat, Buffalo, Cattle, Chickens and ducks			Fish
Fodder	Grass, <i>Sesbania</i> sp. on the bund		Grass, <i>Sesbania</i>	Elephant grass	
Problems	Poor Water distribution management; Pests and diseases on rice	Manure not much used for field crops	Canal not cleaned (in bad condition); pest disease on rice	Drought and shortage of water	
Opportunity		Make compost fertilizer, use manure for rice; Increase off-farm activity: making pots & selling to Bali	Improving irrigation for growing crops; Using pump machine to irrigate (from river); Develop wells		

To know more : [http://www.icra-edu.org/objects/anglolearn/Maps\\_&\\_transects-Guidelines.pdf](http://www.icra-edu.org/objects/anglolearn/Maps_&_transects-Guidelines.pdf)

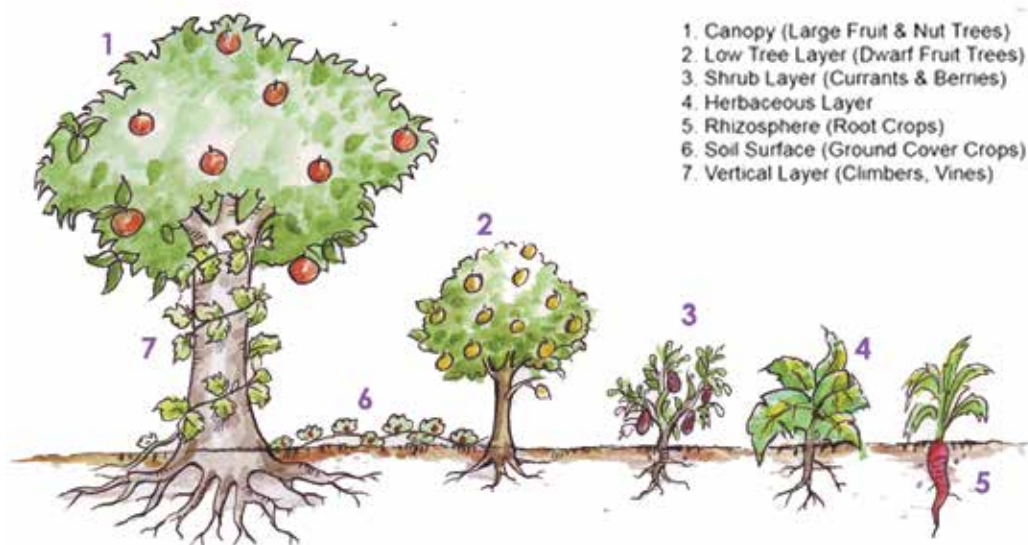
## ANNEX 5

# FOOD FOREST<sup>1</sup> (MEETING 8)

### What is a Food Forest?

A food forest is typically comprised of seven layers, the uppermost layer being the canopy layer. The canopy layer is comprised of tall trees — typically large fruit and nut trees. Between the tall canopy layer trees, there is a layer of low growing, typically dwarf fruit trees. The combination of trees and plants include trees, shrubs, perennial vegetables, herbs (also often called weeds!) and climbers, all interacting in a natural way that

#### The Seven Layers of a Forest Garden



1. Canopy (Large Fruit & Nut Trees)
2. Low Tree Layer (Dwarf Fruit Trees)
3. Shrub Layer (Currants & Berries)
4. Herbaceous Layer
5. Rhizosphere (Root Crops)
6. Soil Surface (Ground Cover Crops)
7. Vertical Layer (Climbers, Vines)

<sup>1</sup> The Permaculture Research Institute <http://permaculturenews.org/2011/10/21/why-food-forests/>

minimises direct competition and also pest problems and is imitating a productive natural young forest system. Food forests create a fantastic habitat for wildlife, and because they consist of mostly perennial plants, there is none of the back-breaking planting, mulching and weeding that goes along with annual cropping. As there is a huge diversity of species in a small area, pests tend not to be a problem. A good habitat will support birds and spiders that prey on most garden pests and keep their numbers down. Weeds are not a problem, in fact they make up a large part of the food forest! Most weeds have an edible or medicinal use, and as there is no bare soil, there is no opportunity for a vigorous weed to come in and dominate. In addition, the system mulches itself! There is no need for digging, as the plants themselves break up the soil with their roots, and the mulch from their leaves adds all the nutrients they need.

These leaves form living mulch that protects the soil, reduces water loss to evaporation, and prevents weeds growing. A level deeper we find the rhizosphere, or root zone, the underground level which is occupied by root crops, such as potatoes, carrots, ginger, etc. The upright vertical space is filled by climbers and vines, which can be run up, trees or any other vertical support. This category includes climbing beans and many other species that love to climb.

### **What we do about it**

Rural communities collectively negotiate with the local administration or the concerned departments of the government, in order to take common properties like vested lands, fallow lands, degraded grass lands, pond bank lands etc. Communities can take a short term lease and plant different types of drought-tolerant agro-eco specific plants. They are encouraged to plant a sensible combination of various multipurpose trees, shrubs, bushes, creepers/climbers, grass, and runners etc. of many different species and different heights, root depths and shapes that give food, fuel and fodder. Food and fruit trees, firewood trees, strategic crops, seasonal vegetables, pulses are cultivated. Apart from mitigating the food crisis, efforts need to be made to create scope for a supplementary income of the group members.

The village group/s will be motivated to create a food forest. The trees to be planted will be selected by the group in accordance with their needs. Vegetables, pulses, oil seeds etc will be cultivated as interim-crops. The saplings need to be protected and nurtured by the group. The surplus may be sold in market and the bio mass may be used as fuel and fodder.

### Zone Wise Trees/Crops/Herbs List

(suggestive list; to be modified as per local conditions)

Type	Semi- Arid/Sub-Humid	Humid	Arid
Multi-purpose Tree	Cutch tree ( <i>Acacia catechu</i> Wild), Bauhinia, Neem ( <i>Azadiracta indica</i> A. Juss), Mahua ( <i>Madhuca indica</i> ), Mulberry ( <i>Moras alba</i> ), Indian beech ( <i>Pongamia pinata</i> Pierre), Gliricidia ( <i>Gliricidia sepium</i> ), Jack Tamarind ( <i>Tamarindus indica</i> L.), Subabul, Coconut ( <i>Cocos nucifera</i> ), Drumstick ( <i>Moringa oleifera</i> Lam), Bhumal Jamun ( <i>Syzygium cuminii</i> L.), Arjun ( <i>Terminalia arjuna</i> ), Minjiri ( <i>Cassia siamea</i> ), Raintree ( <i>Samanea saman</i> Merrill), Banyan ( <i>Ficus benghalensis</i> ), Walnut ( <i>Aibizzia</i> sp), Nepal Ebony Persimmon ( <i>Diospyrus tomentosa roxb.</i> ), Cashew nut ( <i>Ana cardium occidentale</i> L.), and Tamarind ( <i>Tamarindus indica</i> L.)	Jack fruit ( <i>Artocarpus heterophyllus</i> Lam.), Mango ( <i>Magifera indica</i> L.), Guava ( <i>Psidium guajava</i> L.), Neem ( <i>Azadiracata indica</i> ), Bamboo, Jamun ( <i>Syzygium cuminii</i> ), Skeels Tamarind ( <i>Tamarindus indica</i> L.)	Date sugar palm ( <i>Phoenix sylvestris</i> Roxb.), Indian jujube ( <i>Ziziphus mauritiana</i> Lam), Kummat, Neem ( <i>Azadiracta indica</i> ), Israel Babool, ( <i>ingdusis</i> sp), Vilayati Babul ( <i>Parkinsonia aculeata</i> L), Date palm ( <i>Phoenix dactylifera</i> L.), Jangal Jalebi ( <i>Pithecellobium</i> sp)

Type	Semi- Arid/Sub-Humid	Humid	Arid
Fruit Trees	Custard apple ( <i>Annona squamosa</i> L.), Indian jujube ( <i>Ziziphus mauritiana</i> Lam.), Karonda, Mango ( <i>Mangifera indica</i> L.), Guava ( <i>Psidium guajava</i> L.), Jamun, Tamarind ( <i>Tamarindus indica</i> L.), Mandarin Orange ( <i>Citrus reticulata</i> Blanco), Lemon ( <i>Citrus limon</i> L., Burm.f.), Papaya ( <i>Carica papaya</i> L.), Banana ( <i>Musa paradisiaca</i> L.), Drumstick ( <i>Moringa oleifera</i> Lam), Sapota ( <i>Acharas zapota</i> L.), Indian Gooseberry ( <i>Embilica officinalis</i> Gaernt.), Jack fruit ( <i>Artocarpus heterophyllus</i> lam.), Lichi [ <i>Litchi chinensis</i> (Gaertn) Sonn.], Mulberry, Bael ( <i>Aegle marmelos correa ex Roxb.</i> ), Pomegrante ( <i>Punica granatum</i> L.), Falsa, Cashew nut ( <i>Anacardium occidentale</i> L.), Elephant apple Curry leaves ( <i>Murraya koenigii</i> L. Speng.), Figs ( <i>Ficus hispida</i> L.f.)	Mandarin Orange ( <i>Citrus reticulata</i> Blanco), Lemon [ <i>Citrus limon</i> (L) Burm.f.], Papaya ( <i>Carica papaya</i> L), Banana ( <i>Musa paradisiaca</i> ) Lichi [ <i>Litchi chinensis</i> (Gaertn) Sonn.], Jack fruit ( <i>Artocarpus heterophyllus</i> Lam.), Pear [ <i>Pyrus pyrifolia</i> (Burm.f.) Nakaiavar. culta (Makino) Nakai] Sapota ( <i>Achras zapota</i> L), Mango ( <i>Mangifera indica</i> L.)	Indian jujube ( <i>Ziziphus mauritiana</i> Lam), Karonda ( <i>Carissa carandas</i> L.) Jamun ( <i>Syzygium cuminii</i> L. skeels), Date palm ( <i>Phoenix dactylifera</i> L.), Bael ( <i>Aegle marmelos</i> )
Cereals	Paddy ( <i>Oryza sativa</i> ), Wheat ( <i>Triticum aestivum</i> ), Kado millet, Ramdana, Foxtail millets (long & short duration), Barnyard millet, Maize ( <i>Zea mays</i> L.), Fox tail millet, Little millet (long and short duration), Finger millet ( <i>Eleucine coracana</i> Gaertn) (short, medium and long duration), Pearl millet ( <i>Pennisetum typhoides</i> ) (short and long duration), Sorghum (long and short duration), Black gram, Horse gram, Rice bean, White bean, Amaranthus, Cow pea, Pigeon pea (short and long duration), Niger, Sesame, and Castor etc.	Paddy ( <i>Oryza sativa</i> ), Wheat ( <i>Triticum aestivum</i> ), Maize ( <i>Zea mays</i> L.), and Oat, etc	Pearl millet ( <i>Pennisetum typhoides</i> ), Wheat ( <i>Triticum aestivum</i> ), Barley, Maize ( <i>Zea mays</i> L.) Sorghum, and Ramdana etc.

Type	Semi- Arid/Sub-Humid	Humid	Arid
Oil seeds	Sesame ( <i>Sesamum indicum</i> L.), Linseed ( <i>Linum usitatissimum</i> L.), Ground nut ( <i>Arachis hypogaea</i> L.), Mustard ( <i>Brassica juncea</i> ), Soyabean ( <i>Glycine max. Merrill</i> ) Safflower ( <i>Carthaus tinctorvus</i> L.), Cotton, Coconut, Sunflower, ( <i>Helianthus annuus</i> L.), Niger ( <i>Guizotia abyssinica</i> Cass.) Castor, Purging nut ( <i>Jatropha curcas</i> L.), Rozal Roselle ( <i>Hibiscus sabdarffa</i> L.)	Rapeseed ( <i>Brassica campestris</i> ), Mustard ( <i>Brassica juncea</i> ), Groundnut ( <i>Arachis hypogaea</i> al.), and Sunflower ( <i>Helianthus annuus</i> L.) etc.	Mustard ( <i>Brassica juncea</i> ), Sesame ( <i>Sesamum indicum</i> L.), Castor ( <i>Ricinus communis</i> L.), Groundnut ( <i>Arachis hypogaea</i> L.), Sesame ( <i>Sesamum indicum</i> L.), Niger ( <i>Guizotia abyssinica</i> Cass), Safflower ( <i>Carthamus tinctorvus</i> L.)
Pulses	Pigeon pea ( <i>Cajanus cajan</i> L.), Black gram ( <i>Vigna Mungo</i> (L) Happer), Green gram ( <i>Nigna Radiata</i> L. Wilczek), Cowpea ( <i>Vigna catang</i> Walp), Chick pea, Mothbean ( <i>Nigna aconitifolia</i> ), Beans, Horse gram ( <i>Dolichos biflorus</i> L.), Pea ( <i>Pisum sativum</i> L.), Lentil ( <i>Lens culinaris</i> Madic.), Razma ( <i>Vica faba</i> L.), and Khesari ( <i>Lathyrus sativus</i> )	Black gram ( <i>Vigna mung</i> (L.) Hepper), Green gram ( <i>vigna radiata</i> (L.) Qilczek), Lentil ( <i>Lens culinaris</i> Medic.) and Khesari ( <i>Lathyrus sativus</i> )	Green gram ( <i>Vigna radiata</i> L.), Wilczek Cowpea ( <i>Vigna catiang walp</i> ), Chick pea, Mothbean, [ <i>Vigna aconitifolaia</i> (Jacq.) Marechal], Black gram ( <i>Vigna mungo</i> L. Hepper), Pigeon pea ( <i>Cajanus cajan</i> L. Millsp.), Cluster bean ( <i>Cyamopsis tetragonoloba</i> L. Taub.)

Type	Semi- Arid/Sub-Humid	Humid	Arid
Root/ tuber crops	Sweet potato ( <i>ipomoea batatas (L.) lam.</i> ), Radish ( <i>Raphanus sativus L.</i> ), Carrot ( <i>Daucus carota L. var</i> ), Onion ( <i>Allium cepa L.</i> ), Garlic ( <i>Allium sativum L.</i> ), Ginger, Haldi ( <i>Curcuma sp</i> ) Tapioca, Taro ( <i>Colocasia esculenata L.</i> ), Potato ( <i>Solanum tuberosum L.</i> ), Ground nut ( <i>Aarachis hypogaea L.</i> ), Yam [ <i>Pachyrhizus erosus (L)</i> Urban turnip ( <i>Brassica rapa L.</i> ), Ginger ( <i>Zingiber officinale Rosc</i> ), Beat root ( <i>Beta vulgaris L.</i> ), Elephant Foot Yam ( <i>Amorphophallus campanulatus</i> )	Colocassia sp, Potato Yam, Cassava, Radish, and Carrot	Onion, Radish, Carrot, Sweet potato, Cassava /Tapioca, and Dioscorea sp
Spices	Chilli, Ginger ( <i>Zingiber officinale Rosc.</i> ), Turmeric ( <i>Curcuma domestica</i> ), Clove ( <i>Syzygium aromaticum</i> ), Garlic ( <i>Allium sativum L</i> ), Coriander ( <i>Coriandrum sativum L.</i> ), Fenugreek, Onion, and Pudhina etc.	Garlic, Turmeric, and Ginger	Cumin ( <i>Cuminum cyminum L.</i> ), Fenugreek ( <i>Trigonella foenum graecum L.</i> ), Isabgol, Coriander ( <i>Coriandrum satvum L.</i> ), Fennel Ashwagandha Guggal, Sonamukhi, Aloe vera, Tumba Dhatura, Lawsonia alba Tulsi, Drumstic ( <i>Moringa oleifera Lam</i> ), Soanum sp Onion ( <i>Allium cepa L.</i> )



## ANNEX 6

# NUTRITION SENSITIVE AGRICULTURE (MEETING 8)

Interventions for different agro-climatic zones are given below. However, the facilitator in collaboration with group members needs to adapt it to the local context.

### Integrated Soil Fertility Management

	Agricultural implements and system	Change in land shaping and cultural practice	Change in organizational and other practices
Kitchen garden or irrigated upland	Application of fertiliser like compost tea, vermi-compost, high temperature compost, natural lime, stone dust, and bone dust etc.	Preparation of double digging bed, circle bed etc. and crop rotation (Pulses, legumes, leafy vegetables, fruits, cereals, tubers and oilseeds etc.)	Production of bio-gas and application of the slurry as fertilizer.
Uplands of drought prone areas (rain fed agriculture)	Application of leguminous cover crops, heap compost, green leaf manure, lime, decomposed leaf, manure, oil cakes, and bio fertilisers etc.	Planting rows of fast growing leguminous	Keeping cattle in enclosures and making arrangements for collecting their urine and dung.
Lowland or waterlogged land	Application of green manure, azola, blue green algae, bio fertilisers, natural lime, different mineral dust etc.	Arranging for group cultivation of mixed crops	Developing community bio gas plant and community compost pit etc.

## Integrated Soil and Water Management

	Agricultural implements and system	Change in land shaping and cultural practice	Change in organizational and other practices
Kitchen garden or Irrigated upland	<p>Covering / mulching the soil with fragments of hay, shredded leaves, crop residues, and uprooted weeds etc. Making arrangements for pitcher irrigation. Mixing residual plants of the harvested paddy plants or charcoal in clayey soil and pond slurry in sandy soil. Applying plenty of high temperature compost or heap compost in soil.</p>	<p>Preparation of double digging bed, circle bed etc. and introduced mixed plantation of both shallow and deep rooted crops. Making arrangement for drip irrigation by laying underground bamboo pipes or any other locally appropriate arrangements.</p>	<p>Using waste water logged around tube wells and dug wells for growing saplings. Making arrangements for collecting rain water from the roof top and harvesting it in small ditches, soak pits and drums etc.</p>
Uplands of drought prone areas (rain fed agriculture)	<p>Reusing soap water after filtration through sand + charcoal + lime stone beds. Introducing mixed cropping and mulching the soil with cover crops. Covering the soil around large trees with pebbles, gravels or brick bats. Applying plenty of high temperature compost or heap compost in soil.</p>	<p>Selecting drought tolerant crops and varieties and making arrangements for light irrigation at critical moments. Cutting small square trenches or building semi circular bunds for harvesting rain water to be used for cultivation of crops and trees. (Agro forestry)</p>	<p>Renovating ponds for harvesting rain water. Organising group cultivation of vegetables on trellises built on ponds excavated step wise.</p>

Lowland or waterlogged land	Applying plenty of high temperature compost or heap compost in soil. Cultivating green manure on fields and applying branches of immature or premature trees. Cultivating paddy on beds by phased irrigation.	Using residual moisture of soil to do relay cropping. Excavating shallow ditch at one corner of the field and using the stored water for irrigation.	Using treadle pumps.
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## Integrated Pest and Disease Management

	Agricultural implements and system	Change in land shaping and cultural practice	Change in organizational and other practices
Kitchen garden or irrigated upland	Foliage application of solutions prepared from neem leaves and seeds etc. Application of extracts from garlic, and chilly etc. on plant body and leaves. Foliage application of wood ash + kerosene Application of oil cake neem/karanj/mahua/ castor etc on soil. Use of light traps, glued ribbons, and other traps. Plantation of aromatic plants like garlic, onion, and coriander etc intermittently within rows of main crops as pest repellents. Use of scare crows.	Growing dense and multi-storeyed live fences. Arranging for mixed cultivation of a variety of vegetables. Selecting varieties on the basis of agro climatic conditions and growing vegetables as per the season.	Selecting well nourished and disease free seeds and storage their properly. Making arrangements for burning the pest ridden or infected plants.

<p>Uplands of drought prone areas (rain fed agriculture)</p>	<p>Application of organic manure, vermi compost and bio-fertilizer in soil.</p> <p>Use of predator insects and micro organisms.</p> <p>Sterilization of seeds with warm (60 degree Celsius) cow urine solution.</p> <p>Growing pest repellent plants like marigold, basil, etc on live fences.</p> <p>For example: (i) diverse crops act as a deterrent for the spread of pests/diseases; (ii) trap crops such as ambadi, bhendi, sesame, etc. attract pests/insects and protect other crops; (iii) marigold and other flowers inhibit the spread of pests/diseases; (iv) friendly insects, birds, etc. feed on pests that are harmful for crops.</p> <p>Selecting disease resistant varieties for cultivation.</p>	<p>Mixed cropping of cereals, oil seeds and pulses.</p> <p>For example: It may have a combination of barnyard millet, maize, varieties of fox tail millet, little millet, finger millet, pearl millet, sorghum, black gram, horse gram, rice bean, white bean, amaranthus, multiple varieties of cow pea, pigeon pea, niger, sesame, castor, and local varieties of short and medium duration paddy etc.</p> <p>Use of predator insects and micro organisms.</p> <p>Making row of leguminous (alley cropping) within the rows of cereals.</p> <p>Selecting crops and varieties suitable for the local area.</p>	<p>Putting up social barriers in order to create the movement of cattle.</p> <p>Masking of fields free of rodent by collective efforts.</p>
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<p>Lowland or waterlogged land</p>	<p>Application of lime stone dust, dust gathered by burning snails, and bio gas slurry etc. on soil.          Making perches in the field for hunting birds.          Releasing hunting insects and micro organisms in the field.          Foliage application of solution made out of cow urine, cow dung and raw turmeric.          Rearing ducks, predator fish, frogs etc in or around crop fields.          Collecting seeds from healthy and disease free plants.</p>	<p>Promoting integrated farming with rice + fish + duck and plantation of trees on farm ridges.          Collecting seeds from healthy disease free plants.</p>	<p>Learning to identify and preserve rat eating snakes instead of killing them.          Organising collective effort for weed control (learning to identify beneficial/ harmful insects and weeds.)</p>
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## Species and Varieties Selection

	Agricultural implements and system	Change in land shaping and cultural practice	Change in organizational and other practices
<p>Kitchen garden or irrigated upland</p>	<p>Growing a mix of some leafy vegetables, some shoots, a few pods and legumes, some fruits and some spices in every season.          Selecting better varieties from native livestock and making suitable changes in the environment for rearing them.</p>	<p>Constructing multi-storeyed trellises and fences.</p>	<p>Generating awareness regarding the qualities and use of less known crops.          Establishing seed bank and nursery for indigenous plant varieties.</p>

Uplands of drought prone areas (rain fed agriculture)	Planting drought tolerant trees that have the capacity to withstand coppicing on permanent fallows. Cultivating fodder (drought tolerant bushes/creepers) on seasonal fallows.	Promoting integrated farm with components like pig/goat, palm/date palm-cassava/sweet potato-pigeon pea/roselle etc. and making use of biogas unit etc.	Designating some common property as food forest, and/or protected area as shelter and nesting place for birds.
Lowland or waterlogged land	Cultivating aquatic plants that grow fast while floating-plants may be used as food for humans, animals and fishes (e.g. water chestnut, and azolla, etc.).	Promoting integrated farming through innovative land shaping. Cultivating different vegetables etc. on trellises constructed on the banks of irrigation canals, ponds and other water bodies.	Protecting the water bodies from chemical pollution, industrial wastes and over-utilization. Creating agro-forestry on common lands with the help of marginalized groups and for their benefit.

### Sources:

- Nutrition Sensitive Agriculture and Food Based Approach, Food and Agriculture Organisation (FAO), <http://www.fao.org/food/nutrition-sensitive-agriculture-and-food-based-approaches/en/>
- Entry Points to Nutrition Sensitive Agriculture, <http://link.springer.com/article/10.1007%2Fs12571-013-0293-5>
- Production and Processing of Foods as core aspects of nutrition sensitive agriculture and sustainable diets. <http://www.biodiversityinternational.org/e-library/publications/detail/production-and-processing-of-foods-as-core-aspects-of-nutrition-sensitive-agriculture-and-sustainable/>
- Nutrition Sensitive Agriculture, Leveraging Agriculture for Nutrition in South Asia <http://lansasouthasia.org/content/nutrition-sensitive-agriculture-0>
- Nutrition Sensitivity: How agriculture can improve nutrition. Save the Children, [http://www.savethechildren.org.uk/sites/default/files/images/Nutrition\\_Sensitivity2.pdf](http://www.savethechildren.org.uk/sites/default/files/images/Nutrition_Sensitivity2.pdf)
- Parlborg R, 2011, IFPRI 2020 Conference on “Leveraging Agriculture for Improving Nutrition and Health”, Delhi, India, <http://www.ifpri.org/sites/default/files/publications/ia34.pdf>
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- Synthesis of Guiding Principles on Agriculture Programming for Nutrition [http://www.spring-nutrition.org/sites/default/files/synthesis\\_of\\_ag-nutr\\_guidance\\_fao\\_issuepaper\\_draft\\_summary.pdf](http://www.spring-nutrition.org/sites/default/files/synthesis_of_ag-nutr_guidance_fao_issuepaper_draft_summary.pdf)

## ANNEX 7

# RAIN WATER HARVESTING (MEETING 8)

### What is it?

The rainwater which is not harvested and stored mostly runs off the land surface and gets wasted without proper use. Where the rains are intense and continuous over some days, the run off turns into flood inundating vast tracts of land and damaging life and property. When the rainfall is scanty, part of it gets lost by interception by tree canopy, evaporation and run off leaving very little of it for storage and future use. Although water is renewable, it is a finite commodity. Therefore rainwater harvesting and storage becomes imperative in either case, for effective use by people, livestock and nature.

### How can it be done?

In rural areas, rain water harvesting is taken up considering watershed as a unit. The following techniques may be adopted to save water going to waste through slopes, rivers, and rivulets:

- (i) Rain Water Harvesting through a Gully Plug using local stones, clay and bushes across small gullies and streams running down the hill slopes carrying drainage to tiny catchments during rainy season.

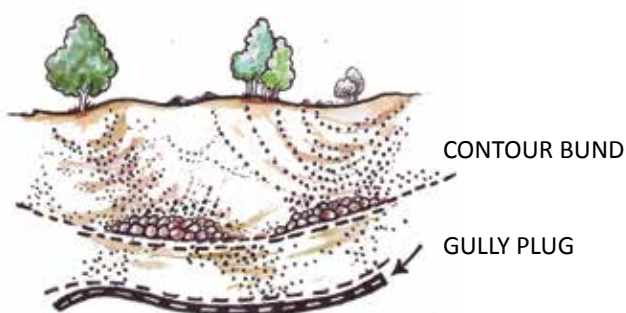
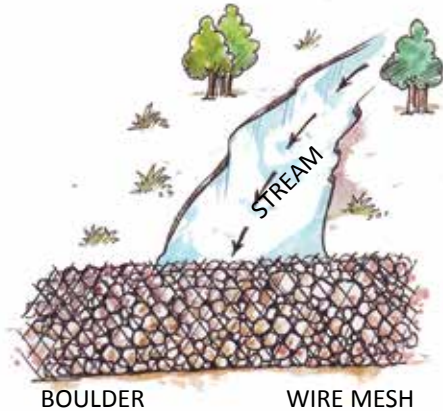


Fig. 16.10: Rain water harvesting through gully plug and contour bund

(ii) Rain Water Harvesting through a Contour Bund, which are suitable in low rain fall areas where monsoon run off can be impounded by constructing bunds on the sloping ground all along the contour of equal elevation.

(iii) Rain Water Harvesting through a Gabion Structure, a type of check dam commonly constructed across small streams to conserve stream flows with practically no submergence beyond the stream course. A small bund across the stream is made by putting locally available boulders in a mesh of steel wires and anchored to the stream banks. The height of such structures is around 0.5 m and is normally used in the streams with width of less than 10 m.



**FIG. 16.11: Rain water harvesting through Gabian Structure**

(iv) Rain Water Harvesting through a Percolation Tank, which is generally not more than 60 x 60 x 60 cm pits (designed on the basis of expected runoff as described for settlement tanks), filled with pebbles or brick jelly and river sand, covered with perforated concrete slabs wherever necessary.

(v) Water harvesting in high-rainfall areas in hygienic conditions. This need is more pronounced in high-rainfall areas, where it is more feasible to store water in containers for direct use, rather than for recharging the groundwater. Generally, in small domestic systems, mud pots, tanks and ferrocement tanks are used to store water.

**To know more:**

- Rainwater Harvesting, Centre for Science and Environment <http://www.rainwaterharvesting.org> and <http://cseindia.org/node/657>
- [http://www.yourarticlelibrary.com/wp-content/uploads/2013/12/clip\\_image0082.jpg](http://www.yourarticlelibrary.com/wp-content/uploads/2013/12/clip_image0082.jpg)



## ANNEX 8

# GOVERNMENT PROGRAMMES RELATED TO NUTRITION IN INDIA (MEETING 8)

### To know more:

- National Food Security Act 2013, Gazette of India, <http://indiacode.nic.in/acts-in-pdf/202013.pdf>
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- National Rural Health Mission, Government of India <http://nrhm.gov.in/nhm/nrhm/guidelines/nrhm-guidelines/adolescent-reproductive-and-sexual-health-arsh.html>
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- Rashtriya Bal Swasthya Karyakram, National Rural Health Mission, Government of India <http://nrhm.gov.in/nrhm-components/rmnch-a/child-health-immunization/rashtriya-bal-swasthya-karyakram-rbsk/background.html>
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- National Rural Drinking Water Program <http://www.mdws.gov.in/NRDWP>
- Village Gramin Bank Scheme <http://dfpd.nic.in/?q=node/222>
- Nirmal Bharat Abhiyan [http://www.tnrd.gov.in/schemes/cen\\_nba\\_13.html](http://www.tnrd.gov.in/schemes/cen_nba_13.html)



## ANNEX 9

# COMMUNITY SCORE CARD (VILLAGE INTERFACE MEETING 1)

The Community Score Card (CSC) is a two-way and ongoing participatory tool for the assessment, planning, monitoring and evaluation of services. The Community Score Card brings together the demand side (“service user”) and the supply side (“service provider”) of a particular service or program to jointly analyze issues underlying service delivery problems and find a common and shared way of addressing them. It is an exciting way to increase participation, accountability and transparency between service users, providers and decision makers.

### WHAT is NOT part of the Community Score Card?

- It is NOT about finger-pointing or blaming.
- It is NOT designed to settle personal scores.
- It is NOT supposed to create conflict.

The Community Score Card exercise is usually done in 4 phases, and can be modified according to the needs and capacity.

1. **Planning and Preparation:** Discussing with the community the process, prioritizing and selecting the issue.
2. **Conducting CSC with the community**
  - ◇ Identifying Expectations of the Service
  - ◇ Selecting Performance Indicators
  - ◇ Assigning Scores for each Performance Indicator

### Example of a scoring table (Child care centre of 0-6 years)

Indicator	Full mark	Given Mark	Cause	Remarks
Building	10	0	No centre building	For both centers, a centre building should be provided.
Regularity of the worker	10	7	Centre functions regularly on time but some days the worker is not on time.	We do not know whether the worker is coming in time or not, because we do not visit the centre regularly.
Regularity of the helper	10	7	Every day the helper cooked and distributed food, but she prepared it carelessly.	We do not know whether the helper is coming in time or not, because we do not visit the centre regularly.
Nutritional food supply	10	7	No vegetables, no oil, no turmeric powder, the dal is not good to eat.	Good quality dal should be prepared.
Fast aid box	10	5	No Box in one centre.	Fast aid box must be in the centre.
Breakfast	10	0	No breakfast is supplied.	Breakfast should be provided.
Mother's committee monitoring	10	3	No regular monitoring.	Centre should be monitored properly.

### 3 Score card with the service provider

#### Example of a score card

Indicator	Full Mark	Given Mark	Reason	Remarks
Centre Building	10	0	No Anganwadi Building	At least one Centre building should be constructed for the two Centers.
N. of Water filters	10	0	Using pots instead of filters	We ask the superviso for water filters.
N. of toys in Centre No-2	10	5	Children are not getting the toys.	Toys should be provided.
Regularity of worker	10	10	Except immunization days and meetings, we are conducting the pre-school every day.	We are doing our duty regularly.
Regularity of helper	10	10	We do our duty every day from 8 o' clock in the morning till 2 o' clock afternoon	We are doing our duty regularly.
Nutritional food supply	10	8	Food distribution is regular if stock is available.	Block ICDS office should provide regular stock of food in time.
Fast aid box	10	5	No first aid box in centre-2	First aid box can be provided from Gaon Kalyan Samiti budget
Supplementary nutrition for pre-school children	10	5	Centre-2 did not receive nutrition supplies	I am not receiving the money for breakfast so I try my best to solve this problem. It is my fault (Anganwadi worker of centre-2)
Monitoring	10	2	Parents are not cooperating with us. They are not interested in attending meetings.	They should monitor the standard of pre-school and attend the meetings.

4. **Interface meeting** (Service Providers and the Community): The Interface meeting is a single meeting in which both service providers and community members meet face-to-face and discuss the matrix together. Coming together face-to-face and listening to each other's presentation respectfully is the main idea of interface meeting. Both of them come together and try to come up with a joint action plan.

#### Example of an Action Plan

Indicator	Full Mark	Remarks	Responsibility	Time
Centre Building	0+0	Demand generated for centre building to the DSW, collector.	All the beneficiaries and service provider	Within 10 days
Nutritional food supply	7+5	Now oil, vegetables should be added in making of dal	Anganwadi worker. Centre=2	From tomorrow
Pre Schooling	10+7	The pre-school aspect is good. But regularity should be maintained.	Anganwadi Worker, Anganwadi Helper, AWH	From tomorrow.
Breakfast	10+5	From tomorrow I can give breakfast (centre no.2)	Anganwadi Worker	From tomorrow
Mothers committee		The mothers committee will regularly attend the meeting and monitor the preschool by visiting the Centre and take the responsibility to send their child timely to the centre.	All the parents of the pre-school child	From tomorrow
Fast aid Box	5+5	Funds should be given from the Gaon Kalyan Samiti and a fast aid box should be brought to the centre-2	Members of the Gaon Kalyan Samiti, Ananwadi worker	Within One week
SHG group monitoring	3+2	Now we all monitor the centre; every day two members from us can visit the centre.	Members of SHG	From tomorrow

For following up, the below format may be use afterwards in a repeat session.

Indicator	Scores as per the previous assessment (centre-1 and Centre-2)	Scores as per the new assessment	Changes	Suggestions

**To know more:** [http://www.care.org/sites/default/files/documents/FP-2013-CARE\\_CommunityScoreCardToolkit.pdf](http://www.care.org/sites/default/files/documents/FP-2013-CARE_CommunityScoreCardToolkit.pdf)



## ANNEX 10

# SAMPLE RECIPES FOR COMPLEMENTARY FEEDING (MEETING 11)

### 1. WHEAT MIX

**Ingredients:**

Wheat flour (Whole)	100 g.
Bengal gram (Roasted & de-husked)	30 g.
Groundnut (Roasted)	20 g.

**Method of preparation:**

1. Roas Wheat flour.
2. Remove the skin of groundnut.
3. Make powder of roasted Bengal grams and groundnut. Mix with Wheat flour throughly.
4. Store in a dry airtight container.

**Nutritive Value Per 100 gms:**

Calories	377
Protein	16.1 g.
Iron	5.54 mg.
Carotene	41.96 µg.

### 3. WHEAT & GREEN GRAM MIX

**Ingredients:**

Whole wheat	25 g.
Whole moong (green gram)	10 g.

**Method of preparation:**

1. Clean whole wheat & whole green gram properly.
2. Roast wheat & green gram separately in hot sand.
3. Grind these individuallyn and mix together.
4. Fill the prepared instant food mix in a dry and air tight bottle.

**Nutritive Value Per 100 gms:**

Calories	343
Protein	15.3 g.
Iron	5.3 mg.
Carotene	72.59 µg.

### 4. WHEAT SOYA MIX

**Ingredients:**

Whole wheat	80 g.
Whole Soyabean	20 g.

**Method of preparation:**

1. Clean whole wheat & soyabean separately.
2. Roast wheat and soyabean in hot sand.
3. Grind these separately and mix together.
4. Store the prepared instant food in an air-tight container.

**Nutritive Value Per 100 gms:**

Calories	363
Protein	18.1 g.
Iron	6.3 mg.
Carotene	136.0 µg.

### 9. CHIDWA MIX (RICE FLAKES)

**Ingredients:**

Chuda (Rice Flakes)	100 g.
Moong dal	30 g.

**Method of preparation:**

1. Roast Chidwa and Moong dal separately.
2. Grind the ingredients individually and mix thoroughly.
3. Store in a dry airtight container.

**Nutritive Value Per 100 gms:**

Calories	346
Protein	10.73 g.
Iron	16.28 mg.
Carotene	38.0 µg.



## 16. RAGI MIX

### Ingredients:

Roasted Ragi Powder	100 g.
Roasted Bengal gram Powder	50 g.

### Method of preparation:

1. Mix the powder ingredients thoroughly.
2. Store in dry airtight container.

### Nutritive Value Per 100 gms:

Calories	341
Protein	12.36 g.
Iron	5.76 mg.
Carotene	65.66 µg.

## 20. MAIZE FOOD MIX

### Ingredients:

Maize	100 g.
Lentil	30 g.
Groundnut	20 g.
Sugar	50 g.

### Method of preparation:

1. Clean and roast maize, lentil and groundnut seeds separately.
2. Grind individually to a fine powder.
3. Mix all these ingredients with powdered sugar.
4. Store in dry airtight container.

### Nutritive Value Per 100 gms:

Calories	379
Protein	11.93 g.
Iron	2.59 mg.
Carotene	85.5 µg.

## 21. JOWAR MIX

### Ingredients:

Roasted Jowar Flour	45 g.
Roasted Bengal gram Powder	20 g.
Roasted Groundnut	10 g.
Sugar	25 g.

### Method of preparation:

1. Mix all the ingredients thoroughly.
2. Add powdered sugar and store in air tight container.

### Nutritive Value Per 100 gms:

Calories	388
Protein	11.80 g.
Iron	4.06 mg.
Carotene	43.75 µg.

## 23. BAJRA FOOD MIX

### Ingredients:

Bajra	50 g.
Green Gram Dal	20 g.
Til seeds	10 g.
Sugar	20 g.

### Method of preparation:

1. Clean and dehusk bajra.
2. Roast and powder Bajra, green gram dal and til seeds separately.
3. Mix all the powders together adding powdered sugar.
4. Store in dry and airtight container.

### Nutritive Value Per 100 gms:

Calories	385
Protein	12.53 g.
Iron	5.71 mg.
Carotene	82.0 µg.

Source: Nutritious Recipes for Complementary Feeding of Infants and Young Children; Food and Nutrition Board, Ministry of Women and Child Development, Government of India, 2008

## ANNEX 11

### LIVING FENCES (MEETING 14)

Home gardens need to be protected from domestic animals, birds etc. Most fences made today tend to be ineffective, hard to maintain or costly. Sometimes living plants are used for fencing, but the fence itself does not contribute much to production. A well designed fence can yield food, medicines etc.; it can also help control soil erosion and act as a windbreak. Additionally, it can be a source of leaf and stems etc. for mulching, green manuring, composting etc. LIVING fences can also produce fuel wood and support climbing plants.

#### Advantages

If plants are carefully selected, the trees, shrubs, climbers etc. used to make fences can become a source of food in the dry season, especially when seasonal vegetables are difficult to grow. The fence can reduce damage to soil and plants by regulating the flow of water and strong winds. The fence plants can also provide vertical support for climbing plants.

#### Limitations

If plants on the fence have dense foliage or spreading branches, they can block the light from reaching other garden plants. Living fences can take some time before they can provide effective protection against small animals. In the initial stages, some of the fence-plants themselves may need to be protected. If fence plants are not selected carefully they may compete with plants inside for nutrients and water.



**Examples:** A tentative list can be adapted as per the local context

**Lower level:** Agave, Pineapple...

**Lower middle level:** Zizyphus, Thorny acacias, Hibiscus.....

**Upper middle level:** Erythrina, Wild lemon, Zizyphus.....

**Highest level:** Sesbania grandiflora, Betel nuts.....

**Climbing plants:** Sponge gourd, Basella, Dolichos Beans

**Source:**

- Multifunctional Living Fences, <http://www.themodernhomestead.us/article/Multifunctional+Living+Fences.html>
- The many benefits of planting a living fence <http://www.decodedplants.com/many-benefits-planting-living-fence/892>
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- The Permaculture news. Org [http://www.permaculturenews.org/resources\\_files/farmers\\_handbook/volume\\_4/10\\_living\\_fence.pdf](http://www.permaculturenews.org/resources_files/farmers_handbook/volume_4/10_living_fence.pdf)

## ANNEX 12

# BIO-REPELLENTS (MEETING 14)

### Simple preparation of bio pest repellent

**Seasons:** All places and all seasons

**How to make it:** Plants that are aromatic - such as herbs and spices; plants that have bitter taste - such as neem, nirgundi (vitex negundo); and plants that have a milky sap often possess anti-feed-ant, anti-fungal or anti-bacterial properties. We often crush these plants, soak them overnight in an equal volume of water; strain them through a cloth and then dilute them with 5-6 times mild soap water. Such solution is sprinkled on the crops/ vegetables, usually in the afternoon, once in 10 days or whenever the pest density justifies.

**Relevance:** Locally available plant extracts are used, which can be made easily at home and sprinkled with care towards sunset when pests become active and bees/other pollinators, even human or livestock are not harmed. Sprinkling wood-ash also helps to prevent plants from chewing insects. Non-edible oil cakes of Neem, Mahua etc are often mixed with compost and incorporated in top-soil to combat soil-borne diseases and nematodes etc.

### Crop combinations and rotations

To reduce pest and disease attacks on crops, it is always suggested not to plant crops of the same family nearby. The vegetable crops can be categorized into the following families:

Pumpkin family – Bottle gourd, pumpkin, ash gourd, ridge gourd, bitter gourd etc

- Cotton family – ladies finger, roselle etc.
- Tomato family – tomato, capsicum, chilly, brinjal, potato etc.
- Amaranth family – amaranthus
- Coriander family – coriander, carrot etc.
- Mustard family – mustard, raddish, cauliflower, cabbage, salgum
- Onion family – onion, garlic etc.
- Ipomoea family – ipomoea, sweet potato etc.
- Jute family – sweet jute, bitter jute, roselle etc.
- Beet root family – beet root, spinach, *Bathua sag etc.*

Similarly some of the crops, called companion crops, used in combination help in repelling pests and diseases:

- (a) Tomato/chilly/brinjal + onion/garlic
  - (b) Raddish/salgum + carrot/beet/French beans
  - (c) Ladies finger + guar + amaranths
  - (d) Mustard + any of the legumenacea
-

## ANNEX 13

# ORGANIC COMPOST (MEETING 14)

### Vermi-composting

**Season:** All spaces; especially dry season

**Idea:** Most of the agro-waste can be recycled as animal droppings/urine sometimes by facilitating its absorption in suitable media such as coir dust.

**Description:** For areas with water-logging problems, vermicompost is preferred and can be made on a raised platform after pre-digestion in a hole for 5-6 weeks. Chopped up water hyacinth can be the main ingredient, and chicken/duck/goat manure could be mixed along with kitchen waste to attain a carbon - nitrogen ratio of 25-30:1.

Once semi-decomposed manure is heaped up to 50-60 cm on a raised bamboo platform which is shaded, any quick multiplying type of earthworm could be released. The heap needs to be kept wet for rapid decomposition. Depending on the number of earthworm added, the vermicompost should be ready for use in 8-12 weeks.

**Advantage:** Composts supply some nutrients, but are even more important as soil-amendments, which are very important to reduce the bulk density of heavy soils and also as a buffer to salinity.

### Preparation of liquid manure

**Seasons:** All seasons and spaces

**Idea:** Making of liquid manures for maintaining soil fertility, either used to treat seeds/seedlings; or sprinkled on leaves (foliar application), or added to top-soil at regular intervals.

**Details:** Several types of manure or compost teas are made either from raw manure or from ready compost. For treating seeds, concentrates are often made by mixing cattle dung with an equal volume of urine, and fermented with 5 parts of water for 8-10 days. The mixture is stirred twice everyday for 5-10 minutes and when applied, it is strained and diluted with water 1:1; for soaking seeds, the quantities are @2-2.5 ltr./kg of seed. For application to crops, the mother solution is often made by mixing cattle manure with an equal volume of urine and crushed leaves or kitchen waste. This is diluted by mixing with 10-12 times water and allowed to ferment for 10-14 days, stirring 2-3 times a day. Before the application on leaves, it is diluted by mixing 2 litres water and for soil application, an equal volume of water. [Rate about 2.0-2.5 litre for a 9 square meter area, once a week]

There are several other types of solution, but stirring regularly is essential, and ready solutions can be kept for about 10-14 days; in case of chicken/duck/ goat manure, the fermentation period is reduced to 4-5 days.

If ready compost [made at high temperature] is used, only about 1.0 - 1.5 litre of compost needs to be immersed in 50 litres of water and a hand full or two of liquid jaggery is added. The solution is artificially aerated, up to about 24 hours, and then the solution is applied, roughly @ 1 lit/4-5 square meter area.

**Relevance:** All these are micro-biological solutions, made at home after some basic training. These can easily reduce the need for synthetic fertilizers and even large quantities of farm yard manure (FYM).

We can also apply bacterial or fungal cultures available in the market, mixing 4-5 packets [800-1000 grams], in 5 kg of vermicompost for application to 1 acre plot.

Such methods work better when the field is ploughed to a shallow depth, and mulched on the surface. They can fertilize and also control soil-borne diseases.

## Preparation of high temperature compost

**Idea:** Composting is the perfect recycling activity to help to grow crops.

### Detail steps

- 1 Clear a corner of the backyard by the fence or near the edge of the garden for the compost pile or bin. It should be close to a water source and easy to reach, but out of the main traffic flow. It should be out of the direct summer sun and away from buildings.
- 2 Construct or place your compost bin, if you choose to confine your compost. You can use a variety of materials, such as untreated wood pallets, wire mesh, snow-fencing or concrete blocks to make a simple structure for your compost.

- 3 Add “browns” and “greens.” Browns are fallen leaves, evergreen needles, woody matter, including bark, twigs and branches, sawdust, wood chips and other materials that contain carbon, such as shredded cardboard and paper. Greens are grass clippings, green garden waste, vegetable scraps, coffee grounds, eggshells, fruits and other kitchen waste. These items release nitrogen as they break down.

There are different methods of combining the materials. One is to mix brown and green stuff together, tossing kitchen or yard waste into the bin or onto the pile as you collect it. The other is to alternate layers of carbon-rich and nitrogen-rich materials, starting with a 6-inch layer of brown stuff topped by 3-inch layer of green stuff, which is topped by another 3-inch layer of brown stuff, and so on.

- 4 Do not compost meat, bones or fish scraps (they will attract pests), perennial weeds (they can spread with the compost) or diseased plants.
- 5 Add safe animal manures to the compost heap, if available. Use manure from grass, grain and hay eaters, such as horses, rabbits, cows and chickens.
- 6 Moisten the pile periodically as you add to it. Sprinkle a shovel or so of healthy garden soil over the compost materials to add live microorganisms that will begin to break down the trimmings and scraps.
- 7 Watch for the pile to settle, a sign that the composting is working. Natural decomposition does the work of transforming the materials, heating up the pile.
- 8 Check for signs that the compost is finished in one to four months if you layer material and regularly turn it, or two months to two years if you don't. Your compost is ready to use when all the materials turn into a clean-smelling, crumbly, earth-like brown substance. Use it to enrich your garden soil or outdoor potted plants.





**ANNEX 14****MATRIX FOR MAPPING EXISTING CROPS GROWN (MEETING 16)**

Land Types	Seasons		
	Summer	Rainy	Winter
Upland	Cereals	Cereals	Cereals
	Pulses	Pulses	Pulses
	Oil seeds	Oil seeds	Oil seeds
	Spices,	Spices	Spices
	Roots & tubers	Roots & tubers	Roots & tubers
	Vegetables	Vegetables	Vegetables
Medium Land	Cereals	Cereals	Cereals
	Pulses	Pulses	Pulses
	Oil seeds	Oil seeds	Oil seeds
	Spices	Spices	Spices
	Roots & tubers	Roots & tubers	Roots & tubers
	Vegetables	Vegetables	Vegetables
Lowland	Cereals	Cereals	Cereals
	Pulses	Pulses	Pulses
	Oil seeds	Oil seeds	Oil seeds
	Spices	Spices	Spices
	Roots & tubers	Roots & tubers	Roots & tubers
	Vegetables	Vegetables	Vegetables

## ANNEX 15

# CROP PLANNING (MEETING 16)

Crop Calendar for Dry rain fed region of non paddy crops																											
Name of the crop	Sowing (Rainy)					Harvesting (Winter)																					
	Duration	May	June	July	Aug	September				October				November				December				January					
						1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
<b>Grains</b>																											
Sorghum (White)	LD																										
Sorghum (Red)	SD																										
Finger Millet	SD																										
Finger Millet	MD																										
Finger Millet	LD																										
Maize																											
Little Millet	SD																										
Little Millet	LD																										
Foxtail Millet	SD																										
Foxtail Millet	LD																										
Barnyard millet																											
Pearl Millet																											
Kodo Millet																											
<b>Pulses</b>																											
Pigeon Pea	SD																										
Pigeon Pea	LD																										
Cow pea																											
Rice bean																											
Horse gram																											
Black gram																											
Green gram																											
<b>Oilseed</b>																											
Sesame																											
Niger																											
Mustard																											
Castor																											
<b>Tubers</b>																											
Tapioca																											
Yam																											
Elephant foot yam																											

D- Long Duration; MD- Medium Duration; SD- Short Duration

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