



# Homestead Farming For Health & Nutrition

A Case Study in Madanpur Rampur block of  
Kalahandi District Odisha



# Homestead Farming for Health & Nutrition

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Rajkishor Mishra  
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# Abbreviations

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APPI	Azim Premji Philanthropic Initiatives
AWC	Anganwadi Centre
BMI	Body Mass Index
CLF	Cluster Level Federation
CRP	Community Resource Person
GP	Gram Panchayat
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MUB	Mo Upakari Bagicha
NFHS	National Family Health Survey
OBC	Other Backward Caste
OLM	Odisha Livelihood Mission
PLA	Participatory Learning and Action
SC	Scheduled Caste
ST	Scheduled Tribe
WSHG	Women Self Help Group

# Introduction

**H**omestead garden is a traditional agroforestry system and an important component in the livelihoods of rural poor, and in the rural economy of the country. Homestead garden plays a vital role in providing daily requirements of nutrients through green leafy vegetables.

Homestead gardens have long been the most effective and widespread measure for bio-diversity conservation as due to anthropogenic pressure and land use change the natural forest has been decreasing day by day both in explicit and implicit ways leading to threats to future productivity. Generally, rural communities preferred cultivated and planted multipurpose species that can be served as fruits, vegetables and species also used as timber.

It is now established that there is a correlation between homestead farming and improving dietary diversity. Further dietary diversity is key to address malnutrition and micro-nutrient malnutrition (hidden hunger). During the present pandemic “Covid-19” there are also report, that indicates that families having homestead farming are more food and nutrition secure than others. Homestead gardens became the source of constant supply of nutritious and vitamin enriched vegetables and food for disadvantageous section of the society, who are earlier deprived of this opportunity and had restricted consumption to largely cereals and pulses to certain extent.

It is also an established fact that women and children get nutritious and balanced diet, if families having homestead farming. It is effective in addressing malnutrition and not expensive. The practice of homestead farming also promoting kitchen garden in institutions like Anganwadi and Schools so that women and children in that area get nutritious and balanced diet. Homestead garden not only provide economic and health security, but protect the environment and promote bio-diversity. People, livestock also lives around are immensely benefited from these interventions.

Homestead gardens attract a number of bird species. Some birds plays a significant role as pollinators or in the control of insect pests. At this time of dispersal of seeds, also occurs by the animal, birds and help in natural regeneration of homestead plant species since natural regeneration in the most important factors for tree diversity conservation.

## 1.1. Rationale of the study

Homestead garden provides livelihoods options for rural poor, and add substantially to the rural economy. Homestead garden is a model based on conservation of bio-diversity, conservation of resources and eco-friendly agriculture principle. Homestead garden also provides dietary diversity, that is main interference relating to nutrition. According to Food and Agriculture Organization (FAO) diversity in agriculture, cultivation of crops with more nutrition and rearing of livestock in small unit can enhance dietary diversity and reduce malnutrition to greater extent.

The present study is mainly to document the successful cases of homestead garden, so that it can be replicated in rural areas of Odisha and India, that have both economic and nutritional benefit to the rural poor. Caritas India has promoted homestead gardens in many villages across Odisha and has got encouraging results. This study is an attempt to document the good practices and successful cases in Odisha so that it can be replicated elsewhere.

# About the Study

Many civil society organisations have started promoting homestead farming across Odisha, including Caritas India. Based on the experience and encouraging result, Government of Odisha have standardised the processes and scaled it up by providing institutional support to the families. The present study is to document the homestead farming, its method and processes. It is also to highlight the benefits of the homestead farming that could be replicated in other places.

## 2.1. Study Objectives

- to capture the practice of homestead farming and its impact on food security, promotion of biodiversity and protection of the environment
- to draw recommendations for replication in Odisha and other states of the country

## 2.2. Scope of the Study

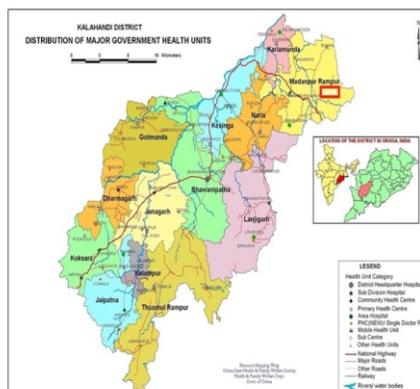
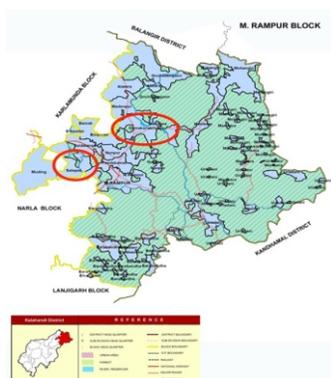
The present study will give a new biological and ecological insight and also helps in natural resource management. It will also give an idea how local and

family level intervention could benefit the family and community at large, economically also ensures health and nutrition. Apart from this, it will shed light on how this intervention would help in development planning for health and nutrition of socially vulnerable section, by spreading awareness, organising and empowering the women.

## 2.3. Samples and Study Methodology

The documentation process is carried out in Kalahandi, one of the most underdeveloped districts of Odisha. Madanpur Rampur block has been chosen for the purpose.

It has been learned that many villages in Madanpur Rampur Block of Kalahandi district have successfully created homestead gardens (in their backyards) also the villagers have successfully created and managed institutional kitchen gardens (in the school and AWCs). The State Government and district administration is promoting the same in the area. Based on the successful experience from M. Rampur, it is scaling up in other blocks of Kalahandi.



<sup>1</sup> Caritas India is one of the leading humanitarian organisation having impacted millions of lives over the last five decades. Founded in 1962, Caritas India has been working in India under the aegis of Catholic Bishops' Conference of India

**a. Sample**

Two villages were selected from among the list of villages of Madanpur Rampur block (as collected from

Odisha Livelihood Mission) where home stead gardens have been successfully grown and promoted. 10 successful case studies for the proposed documentation study.

**List of villages visited**

Name of village	Gram Panchayat	Block
Kandegaon	Dom Karlakhunta	Madanpur Rampur
Kaccharpali	Salepali	

**Gram Panchayat details:**

	Dom Karlakhunta	Salepali
Total household	1117	750
SC household	319	112
ST household	420	188
OBC household	434	370
General household	8	6
Total population	3355	2644
Male	1675	1319
Female	1680	1325
Total women SHG	86	48
Total SHG members	887	489
No of household having goat	342	162
No of household poultry	251	293
No of families having cow	46	32
Household doing agriculture	870	740
Total MUB	625	545
Achievement of MUB	488	500

**Village Details:**

	Kaccharpali	Kandegaon
Total household	109	100
SC household	13	12
ST household	25	40
OBC household	71	48
Total population	400	370
Male	212	189
Female	188	181
Total women SHG	6	7
No of household doing goatary	14	42
No of household having poultry	56	45
Families depending on agriculture	105	85
Targeted MUB	86	
MUB Achievement	60	60
4 categories who were provided MUB		
Pregnant women	3	2
Lactating mother	1	4
6 months to 5 years child	20	16
10 to 18 years girls	36	38

**b. Methods**

Both primary and secondary source of data collection and compilation were used to document the good practices in managing homestead gardens in the area. The following methods were used to capture the success stories also processes in the sample villages.

**I. Community Meetings**

Community meetings were organised with community members of two selected villages to understand

homestead gardens, food habit and practices. Process of gardening and the support they are receiving from government and civil society.

**II. Focus Group Discussion**

Two Focus Group Discussion were organised, one in each village with women members who were doing the homestead gardens, know about the socio-economic and nutritional benefits of the homestead gardens also its sustainability issue.

### III. Key Informant Interview

The team interacted with the key informants like women beneficiaries, women SHG members. Several stakeholders interviews were carried out like OLM officials, office bearers of SHG federations like CRP, Prani Mitra, Krushi Mitra and others to understand the processes and reasons for success of homestead gardens in the area and block. For this lead questions were developed for the key informant interviews.



### IV. Transect Walk

Transect walk methodology was used as a tool for describing and showing the location and distribution of resources, features, landscapes, and edible fruits/vegetables availability and users along a given transect



**Transect in Kandegaon**

### V. Review of Literature

The official documents, guidelines and available studies and reports on homestead garden / nutri garden / Mo Upakari Bagicha on the processes, about the schemes and support were reviewed and documented for the sake of getting secondary information.

### C. Time Line

The documentation process started with literature review and contacting the stakeholders during 1st week of January 2022. Field visits and interviews were done during 6th January to 11th January 2022.

Date	Activities
5th January 2022	Meeting with DPC, OLM Kalahandi district also Cluster Manager / Trainer Living Farms in charge of MUB
6th January 2022	Visited Kandegaon village of Dom Kar lakhunta GP
7th January 2022	Visited Kandegaon village of Dom Kar lakhunta GP
8th January 2022	Visited Kaccharpali village of Salepali GP
9th January 2022	Visited Kaccharpali village of Salepali GP
10th January 2022	Discussion with BPM, OLM, M Rmpur and BLRP, Living Farms
11th January 2022	Visited Kaccharpali and Kandegaon for additional information

# Profile of the sample district and block

The present district of Kalahandi came into existence during March 1993, being carved out from erstwhile district along with Nuapada district. For convenience of developmental activities and revenue administration the is divided into 13 blocks and same number of Tehsils. The climate of Kalahandi district is of extreme type, it is dry except monsoon. The maximum temperature of the district is 45+ degree Celsius, whereas the minimum temperature recorded is 4 degree Celsius. The district experiences the average annual rainfall of 1378mm. The monsoon starts late in June and lasts up to September.

Kalahandi district is largely an agriculture-based economy. Since 2000s, due to the Indravati Hydro-electric multipurpose dam, four blocks of Kalahandi namely Kalampur, Junagarh, Jaipatna and Dharmagarh are being irrigated. Paddy has been the main crop produced in the district, apart from that cotton is also grown in blocks like Kesinga, Golamunda and Bhawanipatna. The scheduled blocks like Lanjigarh and Thuamul Rampur produces forest produces, millets and pulses to a large extent. Forest based produces like Mahua, Kendu leaf, wood, timber and bamboos also contribute to the local economy.

Kalahandi is often known for its under-development, poverty, hunger and starvation. A long history of drought has broken the economic backbone of the district. The effect of the drought continued to be felt in regular interval. Being an agriculture economy, the landless agricultural labourers become unemployed due to suspension of all sorts of agricultural operations. The worst sufferer were the landed gentry, who could not reap a harvest nor could take to manual labour to which they were not accustomed. Distress migration is also noticed from many parts of the district.

But with irrigation facilities, social security schemes, employment guarantee schemes the livelihoods issues has been addressed to a great extent. The vulnerability of households has been decreased. With the Covid-19 Pandemic and its related lockdown and shutdown people in the district faced major problem of livelihood options. The inward migration due to the pandemic also opened up other issues at the village level, with high degree of unemployment and struggle for survival. During this challenging time “Nutri-garden” later known as Mo Upakari Bagicha came to the rescue of many households in the district so far as household food and nutrition security is concerned.

## Kalahandi district details:

	Kalahandi district	Madanpur Rampur Block
Total Gram Panchayats	310	19
Total villages	2253 (2116 inhabited)	249
Area in sq km	7920	309.62
Total households	404814	37014
Total population	1576869	137942
SC Population	286580	20828 (15.1%)
ST Population	449456	39946 (29%)

	Kalahandi district	Madanpur Rampur Block
Literacy rate	59.22%	65.41%
Sex Ratio	1003	998
Urban Population	7.7%	5.7%
Rural Population	92.3%	94.3%

Source: District Census Handbook, 2011, Kalahandi

### 3.1. Nutrition Status Odisha and Kalahandi

The state of Odisha also Kalahandi district has a huge burden of undernutrition. Food insecurity is quite

visible among women, children and adolescent girls. The prevalence of food insecurity and undernutrition is more among tribal groups also SC community.

#### Odisha

Nutritional Status of Children	NFHS - 5	NFHS - 4
Total children age 6-23 months receiving an adequate diet (%)	20.4	8.5
Children under 5 years who are stunted (height-for-age) (%)	31	34.1
Children under 5 years who are wasted (weight-for-height) (%)	18.1	20.4
Children under 5 years who are severely wasted (weight-for-height) (%)	6.1	6.4
Children under 5 years who are underweight (weight-for-age) (%)	29.7	34.4
Children under 5 years who are overweight (weight-for-height) (%)	3.5	NA
Nutritional Status of Adult		
Women whose Body Mass Index (BMI) is below normal (BMI <18.5 kg/m <sup>2</sup> ) (%)	20.8	26.5
Men whose Body Mass Index (BMI) is below normal (BMI <18.5 kg/m <sup>2</sup> ) (%)	15.3	19.5
Women who are overweight or obese (BMI ≥25.0 kg/m <sup>2</sup> ) (%)	23	16.5
Men who are overweight or obese (BMI ≥25.0 kg/m <sup>2</sup> ) (%)	22.2	17.2
Anaemia among children and adult		
Children age 6-59 months who are anaemic (<11.0 g/dl) (%)	64.2	44.6
Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl) (%)	64.4	51.2
Pregnant women age 15-49 years who are anaemic (<11.0 g/dl) (%)	61.8	47.6
All women age 15-49 years who are anaemic (%)	64.3	51
Men age 15-49 years who are anaemic (<13.0 g/dl) (%)	28.5	31.5

National Family Health Survey – 5 (2020-21)

## **Kalahandi**

Only 16.4% of children between the age group of 6 months to 23 months are getting adequate food, that is less than the State average. One third of children in Kalahandi district are stunted and one in three children in Kalahandi are underweight. 17.2 % children in the district are wasted and 6% of them are severely wasted. Children between 6 months to 59 months are anaemic. 70.2% of pregnant women in Kalahandi between the age group of 18 years to 49 years are found to be anaemic. When it comes to weight of women in the district, 23.8% of women are below the BMI (<18.5). NFHS-5

# Homestead Garden for health and nutrition

Homestead garden or kitchen garden is not new in Madanpur Rampur Block, every rural household used to put vegetables of their choice in their back yard or in free space in-front of their houses, for their own consumption. But in last four years the concept of Nutri-Garden or popularly known as MUB (Mo Upakari Bagicha) has been adopted by thousands of families across the Block. The Block Programme Manager, Odisha Livelihood Mission, recount that during the financial year 2018-19, 1556 households were selected and supported across the Block to create new Nutri Garden. They were supported with technology and seeds.



Rectangular model

There are three models of Nutri-Garden / MUB first one is rectangular model with seven beds (symbolising seven days in a week) and second one is circular model. The rectangular shape with seven raised beds is being preferred more compared to the circular one because the former is relatively easy layout and digging. For creating a new Nutri Garden the household need just more than 2 decimal of land. But this does not mean that families having no land will be deprived of this Nutri Garden. For landless families there is a third model called Bag model where gunny bag is used to farm vegetables in the house itself. The BPM informed that during 2021-22 there are 1470 landless households (out of target 6090 beneficiaries during the financial year) those who are doing MUB in their houses.

During 2020-21, Government of Odisha converged MUB with MGNREGA and it has helped 9191 families across the Block, during the time of Covid-19 pandemic and during related lockdown and shutdown. Apart from the kind support, the financial support provided has been a great relief for families. Every families those who created new MUB or renovated MUB created last year, were supported more than 10,000 rupees under MGNREGA. This is not limited to Kalahandi or M Rampur alone, to address the social and economic distress during the pandemic, during 2019-20 financial year, 90000 nutri-gardens were promoted and supported by OLM in the state of Odisha, and the target has been enhanced to 5 lakhs Nutri Garden during 2020-21 financial year.

**Target 5 lakhs rural households during 2020-21:**

Convergence plan for the year 2020-21			
Block Type	MGNREGA Fund	OLM	Total
Migration prone block (20)	13508	250*	13758
Other blocks	10479	250*	10729

\*Rs.200 for providing seeds for three seasons and Rs.50 for Banana and Lemon saplings

Source: Field manual for development of MUB, Dept of PR and DW, GoO

Every households having the Nutri-garden (MUB) were supported with 33 person days of support through MGNREGA. It was divided as follows;

- 18 person days for preparing the bed
- 4 person days for sowing and planting seeds/ saplings
- 11 person days for preparing the water tank and fencing

This has been a great support for the families those who lost livelihoods and were maintaining without employment. Satyabrata Parida, BLRP, Living Farms

The convergence was for one year and was aim at improve access to nutrition rich diverse vegetables and fruits particularly the needs of children, pregnant women, lactating mothers and adolescent girls in the family. With convergence with MGNREGA, OLM and support from APPI, poor households who started MUB also get support for fencing, digging compost pit and water storage pit near the homestead garden / MUB.

The BPM further informed that during 2021-22, the MUB programme is being implemented across 18 GPs (out of 19 GPs in the Block) and the target has been 6090 – new beneficiaries. This target includes, institutional MUB – 18 in Anganwadi Centers and 4 in Residential schools for tribal children. The MUB for households this year has been 4620. During the financial year each new beneficiaries are supported with Rs.700 (throughout the year) – Rs. 200 for saplings, Rs. 300 for fencing and Rs. 200 for seeds. This year the convergence with MGNREGA is not there.

Financial support for the New beneficiaries targeted to be covered during the year 2020-21 (called as first-year beneficiaries). support for beneficiaries of the previous

financial year 2019-20 (called as second-year beneficiaries) who shall repeat the Nutrition Garden this year like the previous year. (Rs.400 for second year beneficiary / Rs.700 for first year beneficiary)

Nutrition is foundation to the achievement of major social and economic goals. Malnutrition in early life, is responsible for 45% of the death among under-five year children, reduced cognitive attainment, increased likelihood of poverty and is associated with increased maternal morbidity and mortality. The BPM, Madanpur Rampur also informed that MUB is a Nutrition Specific intervention of the Government, where the basic objective of the programme is to ensure Nutrition Security.

#### 4.1. Who are the beneficiaries:

As per the District Project Coordinator, OLM there are four category of beneficiaries – families having 6 months to 5 years child, Pregnant women, Lactating mother or Families having adolescent girls. The eligibility criteria as mentioned is as follows;

- Poor, EPVG and other vulnerable groups like PVTGs, Scheduled Castes, Scheduled Tribes, households with PWD members, migration prone households, etc are the primary stakeholders of this project
- At risk Pregnant Women, Lactating mothers and adolescent girls could be identified as anaemic pregnant women (Haemoglobin less than 11g/dl), anaemic Lactating Mothers (Haemoglobin less than 12g/dl), anaemic adolescent girls of 10-19-year (Haemoglobin less than 12g/dl) lactating mothers and adolescent girls with low Body Mass Index (BMI) Less than 18.5 (low weight).
- At-risk children of 0-5 years are those identified as stunted (Low weight for age), wasted (low weight for height), underweight (low weight for age), anaemic children (Haemoglobin less than 11g/dl)

Source: Revised SOP on implementation of Backyard Nutrition Garden

During the documentation process, along with the OLM team at block level and district level the team interacted with community members as well as. Personal interview of 10 beneficiaries from each village

was done to understand more about the homestead garden / Mo Upakari Bagicha. The details of village wise beneficiaries interviewed were given below;

**Village: Kandegaon, GP: Dom Karlakhunta**

Beneficiary Name	Age	Caste	Total HH members	Category	Number
Ms. Subidha Suna	70	SC	4	Lactating mother	1
Ms. Sumitra Bibhar	24	SC	4	Child below 5 years	1
Ms. Somabari Sagadiya	65	SC	6	Lactating mother	1
Ms. Swopna Pujhari	31	OBC	4	Child below 5 years	1
Ms. Janani Rana	39	OBC	5	Child below 5 years	1
Ms. Sundarmati Bhoi	55	ST	5	Adolescent girls	2
Ms. Janaki Chhatria	38	SC	3	Pregnant woman	1
Ms. Harabati LBhoi	55	ST	3	Adolescent girls	1
Ms. Basamati Bhoi	47	ST	5	Adolescent girls	1
Ms. Sukanti Rana	52	OBC	7	Child below 5 years	1

Ms. Tikemani Suna, 21 daughter in law of Ms. Subidha Suna and Ms. Janani Sagadiya, 29, daughter in law of

Ms. Sombari Sagadiya were interviewed during the process.

**Village: Kaccharpali, GP: Salepali**

Beneficiary Name	Age	Caste	Total HH members	Category	Number
Ms. Padmini Sahu	33	OBC	5	Adolescent girls	2
Ms. Latika Sahu	25	OBC	4	Child below 5 years	2
Ms. Barsha Sahu	22	OBC	3	Child below 5 years	1
Ms. Samita Sahu	32	OBC	4	Child below 5 years	1
Ms. Kasturi Sahu	26	OBC	5	Child below 5 years / Adolescent girls	1 / 2
Ms. Manjula Nag	48	SC	5	Adolescent girls	1
Ms. Mamata Majhi	49	ST	5	Adolescent girls	2
Ms. Sarita Majhi	25	ST	2	Pregnant woman	1
Ms. Sumati Sahu	26	OBC	3	Lactating mother	1
Ms. Beby Senapati	22	OBC	4	Pregnant woman	1

Two village meetings were organised in the villages visited to document the good practices. It was the women members of the villages who participated in the village meetings. Apart from that focus group discussions were organised with women SHG members

who have been benefited from the scale up process. During the process 20 women beneficiaries were interviewed to know about the status of MUB / Nutri Garden. From the processes of first hand collection of data, the following information were gathered.

“During last few years prices of vegetables have skyrocketed, it is not possible to buy vegetables on a daily basis. So can pluck vegetables from our homestead garden when we need that”. Tikemani Suna, Kandegaon

- Invariably all the women interviewed and during the community meetings were of the opinion that, they are saving money for the family by not purchasing costly vegetables from market
- Every day they are getting vegetable from their homestead garden, as per their requirement also choice.
- Almost all were of the opinion that the taste of the homegrown vegetable is better, as it is organically grown – without any chemical fertiliser and pesticides.
- All are aware about the bad impact of chemical fertiliser and pesticides.
- All were aware about organic manure and natural pesticides (use of cow dung, cow urine, Bijamruta and others are known to one and)
- During the meeting also during transect walk it is evident that all houses having homestead garden were also having compost pit, for natural manure.
- Along with all the family members, children, women (mainly pregnant and lactating) are getting variety of vegetables and green every day.
- All households having homestead garden have also grown 10 fruit trees in their backyard including banana, lemon, drumsticks and papaya.
- The villagers were proud to show their traditionally grown “Simba” local flat sim beans in the branches used for fencing. At least two varieties of Simba are there in each households, having homestead garden.
- They are aware about the trees, which need more water and that need less, also seasonality of vegetables. Water used of daily use is not going waste, as it is recycled and feeding the vegetable trees.



*Women in Nutri Garden*

- All the community members are of the opinion that they are attending regular meetings of village around nutrition and MUB / Nutrition Garden.
- Women in Nutri Garden
- All are found to be aware about causes and consequences of malnutrition and are ready to address it locally.
- All were proud to declare that they are now independent in seed, also knows well about traditional variety and avoid using hybrid variety.
- All knows how to preserve seeds, treatment of seeds and other processes.
- Some families are also found selling surplus vegetables in local market and economically getting benefiting out of it.
- Some proudly said that due to MUB, they have tasted new vegetables and saag – Palak Saag, Poi saag and Chhachindra were never consumed before, now they are finding it tasty. It has added to their food basket.

**Some of the key observations from the field are:**

The vegetables are fresh, natural and tasty. We can put vessel in the hearth and go and pluck vegetables and cook food. Janani Sagadiya, Kandegaon

1. Women are more empowered and organised around food diversity and nutrition
2. The level of awareness among the women are really high, about safe and nutritious food, food diversity, benefit of organic farming. Most of the women (here beneficiaries) are aware about how to make organic manure and pesticide at home like – Jibamrut, Handi Khata and Agyenastra (local names of manures)
3. Food habits and nutrition behaviour have found

to be changed with new grown vegetables and greens their homestead gardens

4. Beneficiaries are found to be more concerned about the health and nutrition of family, so also the household economy
5. There is marked change in positive consumption behaviour, daily use of vegetables and greens
6. Children and adolescent were found to be visibly healthy.
7. The coordinated effort of OLM and facilitating NGO (living farms in this case) is critical and clearly visible through its success

**4.2. Difference between Homestead / Kitchen Garden and Nutri Garden / MUB**

In homestead / kitchen garden families grow their preferred vegetable in a large quantity. But in Nutri Garden variety of vegetable plants were grown in a systematic way as per food requirement of the family and that meet the dietary diversity. Nutri Garden model emphases more on food diversity, farmers are sensitized to cultivate 12 to 14 varieties of crops, including vegetables, tubers, seasonal greens and fruits. As major focus is on nutrition, planning is essential. The MUB model aims to address malnutrition across the State, it is targeting pregnant women, lactating mother, under five children and adolescent girls. The Nutri-Garden / MUB target mainly women. It is a scientific way of designing gardens. Water loving plants are grown near the water source, whereas those using less water can be planted six feet away from the water sources. Creepers, ladies finger need less water so those plants were planted six feet away from water sources.

Efforts have been made to ensure active participation of local women's SHG. Empowering women farmer is one of the main objectives of the Nutri Garden initiative. Farmers mainly women are trained on a range of sustainable agricultural methods and techniques including preparing plots for Nutri Garden, soil

conservation, moisture retention, mulching and preparing organic composts and insecticides. This nutrition sensitive initiative has contributed to a positive behaviour change and encouraged communities to adopt healthy food in their diets.

**4.3. Civil Society engagement and coordination**

Azim Premji Philanthropic Initiatives is supporting “Mo Upakari Bagicha” earlier known as Nutri Garden across 750 Gram Panchayats in Odisha. Along with Nutri Garden, rural and tribal families are also encouraged to rear poultry and goats for adequate nutrition and dietary diversity. Nutri Garden also known as Mo Upakari Bagicha is one among the strategies to improve the dietary diversity of rural communities, that have direct impact on the nutrition status among the vulnerable social groups like children, pregnant women, lactating mothers and adolescent girls. As per APPI documents, the entire process is part of a large scale programme on addressing under-nutrition, stunting and wasting in Kalahandi and other districts through PLA by linking agriculture and natural resources with nutrition. Before the scaling up of the Nutri Garden by the name of MUB impact evaluation was done and it was found to be positive. So during 2020-21 OLM has scaled up Nutri Gardens through MGNREGA.

Apart from the fund the major contribution of APPI has been roping in civil society having experience on Nutri Garden to this process, which has been proved to be worthwhile.

#### 4.4. Dietary diversity

“Within 45 days after establishing a nutri garden the family can start harvesting. The cropping pattern is designed in a way that its production is perennial round the year. Earlier villagers used to harvest one or two variety of seasonal vegetables, but now they are getting variety of food to eat at their reach”. Janki Chhatria, CRP, Kandegaon

Civil society organisations involved in facilitating the MUB are conducting periodic survey to document the

impact of nutri gardens (reports are yet to be published). The survey indicates positive changes in the dietary diversity among the families especially among women members. The other important impact has been the spread of awareness among the community on dietary diversity.

Every season (summer, kharif and rabi), beneficiaries get around 13 types of seeds, so that there is standing crops throughout the year in backyard nutri-gardens. Homestead Nutri Garden promoting mass awareness generation on nutrition and health, setting up of nutri gardens and rearing of livestock like poultry and goats.

“All family members are getting variety of vegetables to eat everyday” Sarita Majhi, Kaccharpali

#### 4.4. Seed kit supplied to individual households

(calculation based on requirement for 2 decimal – backyard nutrition garden)

Quantity of seeds in number and grams				
SL	Name of seed	Kharif season	Rabi season	Summer season
1	Pumpkin	12 (1.2 gram)	16 (1.6 gram)	12 (1.2 gram)
2	Cucumber	22 (1.1 gram)	24 (1.2 gram)	11 (0.55 gram)
3	Bottle gourd (Lau)	16 (3.2 gram)	12 (2.4 gram)	8 (1.6 gram)
4	Ridge gourd (Janhi)	18 (2.2 gram)	18 (2.2 gram)	18 (2.2 gram)
5	Basella (Poi)	18 (0.9 gram)	12 (0.6 gram)	26 (1.3 gram)
6	Bitter gourd (Kalara)	14 (3.5 gram)	12 (3 gram)	18 (4.5 gram)
7	Snake gourd (Chachindra)	4 (1 gram)	0	0
8	Brinjal	60 (0.3 gram)	30 (0.2 gram)	30 (0.2 gram)
9	Tomato	0	32 (0.2 gram)	0
10	Chilli	70 (0.45 gram)	60 (0.40 gram)	60 (0.40 gram)
11	Ladies finger (Okra)	70 (5 gram)	0	50 (3.5 gram)
12	Saga	10 gram	10 gram	10 gram

13	Spinach (Palanga)	0	20 gram	0
14	Coriander (Dhania)	0	20 gram	0
15	Ipomoea (Kalama)	90 (4.5 gram)	12 (0.6 gram)	90 (4.5 gram)
16	Bean	0	64 (20 gram)	0
17	Cluster bean (Guanra)	0	0	60 (3 gram)
18	Cow peas (Jhudunga)	80 (13.5 gram)	60 (20 gram)	70 (11.5 gram)
19	Carrot (Gajara)	0	2 gram	0
20	Radish (Mula)	0	2 gram	0

Each Backyard Nutrition Garden must have 4 numbers of Little gourd plants. Vine cutting to be planted instead of little gourd seeds.

Along with the seeds each households were supplied with 10 fruit tree saplings, that supply additional nutrition and micro-nutrients to the family on a regular basis.

#### 4.6. Requirement of (10) sapling per household

Name of the sapling	Quantity	Nutritional Benefits
Banana	3	Rich in calcium, iron, vitamin – C
Papaya	3	Rich in calcium, iron, vitamin – B & C
Drumstick	2	Rich in calcium, Vitamin – C
Lemon	2	Vitamin A, Potassium



#### 4.7. Food as well as income security

Along with dietary diversity within the household, it has also raised the income of the family, by selling surplus produce. All the families are financially benefiting by not purchasing expensive vegetable from outside.

To prepare Nutri Garden plots, for fencing, preparing compost pit and other activities farmers received 33 person-days of work under MGNREGA. Adding to the dietary diversity for the family the household got more than 10000 rupees as remuneration under MGNREGA.

Buying vegetables during summer used to be a daily struggle. But the situation has now changed. The women sell the surplus vegetables and fruits and generate constant source of income round the year. The model requires small investment and promises bigger returns. MUB in Madanpur Rampur is found to be cost effective and sustainable strategy for food security and supplementing additional household income.

#### 4.8. Safe and healthy food

Efforts has been made to use traditional local variety of seeds. Also deliberately chemical fertiliser and pesticides are being avoided in the whole process. All the women members interacted during the documentation were of the opinion that the vegetables as grown in the homestead garden is healthy and tasty. Nutri-gardens can strengthen a household's resilience and adaptive capacity to climate-related risks and natural calamities.

All the women are aware that they are eating healthy, local and safe food including variety of organic green and leafy vegetables, tubers, roots and fruits. They are also aware and conscious about the health of themselves and their children to a great extent, thanks to the awareness drive through PLA cycles. Villagers choose the vegetables based on their nutritional value, traditional acceptance, harvest frequency, market price, crop seasons and safety hazard scale.

Instead of chemical fertilisers and pesticides, a

traditional organic manure is prepared by a unique method of fermentation from a mixture of cow dung, cow urine, jaggery, pulse flour, soil and water. Called "Jeevamrut", it is used as an organic fertiliser and pesticide, and farmers have been trained to prepare it, after regular application of jeevamrut, "farmers have started reporting increased numbers of earthworms in the soil resulting in increased crop yield rate and minimised agricultural cost". Farmers were also encouraged to use mulching to restore soil fertility and boost crop yield. Further, farmers use crop residue and dried leaves, twigs and tree bark for mulching all around the plants, adding that this helps prevent evaporation and retain moisture for longer. When mulch decomposes, it turns into compost, providing nutrition to the plants and fostering the growth of microorganisms essential for soil fertility. It is important to note that the community members mainly women are aware about the fact that due to organic farming it is naturally enriching their soil, that is good for their health.

#### 4.9. Awareness and community participation on Mo Upakari Bagicha:

It is heartening to see women are well aware about all the aspects of nutrition, malnutrition, organic farming and its benefit, dietary diversity. They are really found to be empowered so far as food habit and food practices are concerned. To ensure women participation and raise their level of awareness PLA method has been used and it is found to be effective. As master trainers Community Resource Persons (CRP) were trained on Participatory Learning and Action (PLA) method and tailor made 14 cycles of PLA to be carried out by them in the community. They in turn complete these PLA cycles in their respective community in one year. The topics that are covered during the course of PLA cycles in the community are as follows;

1. About PLA and its 14 cycles, understanding the generational cycle of poverty and malnutrition
2. Understanding malnutrition (weight, MUAC and growth measurement chart)
3. Identification of issues related to nutrition, health

and hygiene and prioritising them

4. Identification of reasons and understanding its consequences
5. Finalising the work plan to address the issues and sharing of responsibility to carry that out
6. Importance of first 1000 days in the life of children
7. Locally available food and balanced diet
8. New born care and exclusive breast feeding of children till 6 months
9. Starting complementary feeding (IYCF) in time and improving their diet
10. Poisonous food – how chemical fertiliser and pesticides converting food into poison
11. Open defecation and faecal to facial transmission of diseases
12. Menstrual hygiene, IFA tablets and prevention of child marriage
13. Review of action plan to address malnutrition
14. Strengthening the action plan to address malnutrition and evaluation of 14 PLA cycles

It is visible that the awareness drive has been proved to be effective women empowerment process in the villages.

#### 4.10. Scaling up

Five lakh target of Nutri Garden across the State need proper roll out plan and robust coordination. There are around 3 lakhs women SHG in the State, who were roped in along with civil society organisation and planning done before hand on developing modules for training, design of nutri garden, seed sowing and usage of organic manure etc.

In every GP, 3 “Krishi Mitras” and 2 “Prani Mitras” were selected and were trained. Prani Mitras are

Livelihood supporters in the GP who are taking care of goats and poultry including vaccination. The scaling up programme started with promotion of vegetables and fruits, but livestock was included too, for animal protein. The main aim of is to break the inter-generational malnutrition cycle.

#### 4.11. A game-changer during Covid-19 pandemic

The Covid-19 pandemic has worsened an already deficient landscape of nutrition and food security in rural and tribal Odisha. There is a urgent need for collective action and it seems Nutri Garden / MUB has been a fitting model.

Nutri-gardens have become a game-changer in the time of the novel coronavirus disease (COVID-19) pandemic. They have helped reduced malnutrition. Regular consumption of chemical-free vegetables and seasonal fruits have helped villagers bridge the nutrient gap. The gardens have helped the community to stave off economic hardship. The women members can save thousand of rupees a month by not purchasing expensive vegetables during the pandemic.

The state government has changed the MGNREGA guidelines to allow all the earth work cost, material cost and shed development cost to be included in the employment scheme after the return migration of migrant workers due to Covid-19 pandemic. Dovetailing the Nutri Garden with MGNREGA has many benefits. This has construction activities around Nutri Garden has been easy, mainly construction of water tanks, compost pits, fencing, nursery beds in the garden. More importantly during the critical time when there is dearth of employment it has provided employment and assured income.

During lockdown everything was shut, also the prices of items have skyrocketed. During this critical time, families having homestead nutri garden, had their own supply of fresh, organic vegetables. Organically grown vegetables and fruits not only are healthier but also it is tastier than vegetables purchased from market. Reaping the benefit during Covid-19 related lockdown.

#### 4.12. Community Nursery:

To meet the regular demands of communities for

quality seedling materials (both vegetables and fruits) and ensure diminishing dependency on market players community nursery has been established. By promoting community level entrepreneurship, it ensures income of WSHG members while facilitating easy availability of quality planting materials in community. Guidelines have been developed and all the WSHG members of the villages were trained on how to raise the nursery at community level. Normally the community nursery has been established for every 200 households. During the training site selection, equipment and materials required, preparation of bed and raising of vegetable seedlings and preparation of poly bags and raising of



**Vegetable seedling bed**

WSHG are found to be ensuring and using quality indigenous / local variety seeds, not high yielding / improved and hybrid seeds. Even the WSHG members are well aware of the cost estimate, disease pest attack and control measures. How to protect the nursery during extreme heat and rainfall is also part of their training. Raising community nursery has been a continuous process where the women members are growing 3 seasonal vegetable seedlings (Kharif, Rabi and Summer) and one time fruit tree seedlings.

#### **4.13. Institutional Nutri Gardens**

OLM has come up with detail guidelines for establishing nutri-garden in Anganwadi Centers and tribal residential schools. The AWC having 1300 square feet of land area, permanent source of water for regular irrigation and fencing / boundary wall need to be there for nutri- garden in AWC and residential tribal

fruit seedlings are covered.

Seed banks, seed treatment by cow urine or by Bijamruta, vegetable seed / fruit tree seed sowing methods, mulching and inter cultural operation, transplantation of vegetable and fruit seedlings are also part of the training imparted to the WSHG members in the villages visited. Financial support to the tune of Rs.30000 to Rs.35000 has been assured to selected WSHG through OLM. This amount is provided to Gram Panchayat level Federation of WSHG as a loan with 7% interest per annum.



**Poly bag seedling preparation**

schools. This effort has been meant to provide food and nutrition benefit to the children attending the AWCs and children staying in the residential schools.

#### **4.14. Seed Bank**

Women in both the villages of Kaccharpali and Kandegaon were proud to show their seedbank and narrate in detail about how they do it. The process as narrated by the women farmers are as follows;

- Identification of healthy plants and fruits suitable for seed collection
- Marking of vegetables kept for seed collection
- Seed collection and processing
  - Seed collection after proper drying of the mature vegetables

- o Seed collection after full ripening of vegetables
- o Seed extraction from ripened vegetables
- Seed storage (preservation) process
- Characteristics of good quality seed
  - o Shape of the seed is uniform and comparatively bigger
  - o Not damaged, broken or damaged
  - o Not infested with disease pest attack such as free from holes, wrinkles, not sunken which can be seen through inspection
  - o Has good germination capacity
- Timeline for seed conservation



The practice has begun towards identification, multiplication and exchange of engendered traditional seed varieties amongst the farmers. Traditional seeds are rich in multivitamins. Indigenous seeds can be preserved for a longer period of time, whereas hybrid seeds never last that long.

*“This will empower our farmers to produce their own seeds and reduce expenses on buying expensive hybrid seeds which require expensive and harmful chemical inputs”.* Ramita Sahu, Kaccharpali

**Identification of healthy fruits**

Traditional seeds are climate resilient. There are certain variety of seeds that require less water. Some varieties are naturally resilient to pests and diseases. The government should propagate these varieties on a priority basis.

**Seed Preservation**



Traditional local vegetable seed



(Bhendi) Ladies finger seed



(Lau) Bottle gourd seed



(Mircha) Chilly seed



(Chei Saag) Basella seed



(Kakharu)



(Khada Saga)



(Janhi) Ridge gourd



(Kalara) Bitter gourd seed



(Bhaji saga)

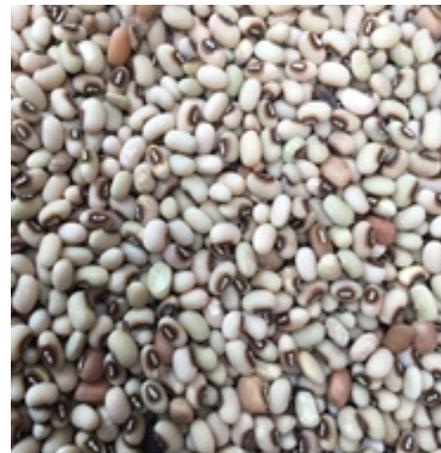
### Traditional local vegetable seed



**(Kumuda) Pumpkin seed**



**(Jhunga) Cow peas seed**



**(Saan Jhunga) Black eyed pea legume seed**

#### 4.15. Challenges

- Awareness of beneficiaries and their families is important. So long the families are not aware about the benefits (nutritional and economic) of Nutri Garden it is not sustainable.
- Most of the beneficiaries are busy with other works, so getting time to start the Homestead garden is critical. Mobilising people around homestead garden “Nutri Garden” is always a challenge.
- During agriculture season and when families going out for work, it is really hard to spend required time by family members in Nutri Garden.
- Timely preparation of bed with specification, sowing of seeds and planting of saplings are time specific. In case of not getting seeds and saplings in time is a major problem.
- Germination of seeds and timely planting of saplings is also a reason of concern.
- There are discontentment among few beneficiaries who have not received their wages and dues from MGNREGA.
- Facilitating organisation faces challenges when it comes to make the people aware about the different aspects of MUB. It is not about planting vegetable plants but also about dietary diversity, nutrition security, safe food (organic), compost pit, timely plantation, watering and care, timely supply and planting of seeds, germination, seed bank, financial benefit and more importantly women empowerment and their control over the food basket for the nutrition security of the family.
- Planning and coordination of all activities and processes need to be specific and spot on.
- Demonstration of success stories and linking them to the community is also a challenge.
- For nutrition security, along with Nutri Garden there is need for other activities like poultry and cattle / goat rearing at household level. Combining them all at the community level is a challenge.
-

Vegetables and greens as available during the field visit (with local name)



**Patra Kobi**



**Ful Kobi**



**Piaj**



**Baigan**



**Baigan**



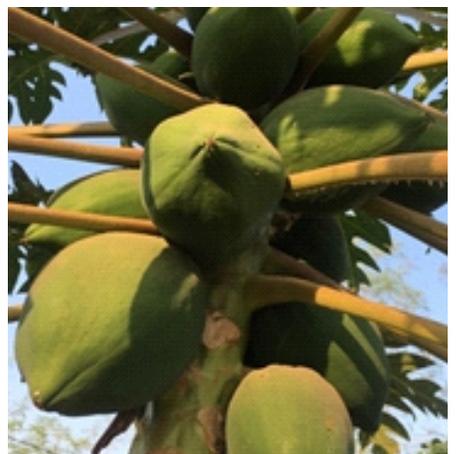
**Baigan**



**Saag**



**Semi**



**Amrut Bhandra**



**Saag**



**Saag**



**Pij Saag**



**Saag**



**Palak saag**



**Bari Chhati**

# Way Forward

It is clearly visible that the MUB / Nutri Garden in Madanpur Rampur is a success story and can be replicated and scaled up. Despite same effort across the State the result varies from place to place. Off record the implementing officials also the supporting NGO staff members admit that the same success cannot be seen in other blocks of Kalahandi. There is something that has really worked in Madanpur Rampur. For meaningful scale up and replication the following learning from Madanpur Rampur experience could be learned and disseminated.

- a. Focus should be on women awareness, participation and empowerment. For this purpose proper and efficient PLA methods could be a good idea.
- b. Stakeholder engagement and their proper coordination is necessary to make the MUB programme a success. Efforts should be made to make proper and effective coordination among all stake holders.
- c. Active surveillance of the programme at different level is necessary.
- d. Community especially women should realise that this is not a employment generation programme rather it is a nutrition sensitive intervention meant for them and their children.
- e. Clarity of the aim and objective of the programme should be articulated and messaging should be simple and clear from the perspective of women in rural areas.
- f. Transparency of the programme is also necessary, so also accountability and grievance redressal mechanism.
- g. Review and evaluation of the programme should be participatory and simple so that women can understand and relate the outcomes.

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