Indo-Global
Social Service Society
Celebrating the Spirit of Humanity

Agri-nutri smart village through nutrition sensitive farming and seed hub

1st Phase Assessment Report

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Development of Agri-Nutri smart village through nutrition sensitive farming and seed hub

Background: IGSSS is implementing the CRAFT-K project in 20 villages of Karlamunda of Kalahandi District in Odisha to promote climate resilient farming. Small plot holders practice rain fed Kharif paddy supplemented by NTFP collection and wage labour. A handful of families with access to a water source, cultivate vegetables beyond the monsoons on a limited scale as water sources dry up post monsoon.

Traditionally, this area has been prone to drought and the people had developed their own coping mechanisms. However these measures are not enough in the context of the severity and frequency of extreme events. This has meant severe agrarian crisis due to problems in germination, poor harvest, pest attack, crop disease outbreak, crop loss. Use of chemical fertilizers and pesticides is also increasing every year. Substantial number of farmers have been induced to take up highly expensive cash crops (mainly cotton) increasing their indebtedness. Nonfood cash crop led to reduce diversity of food crops as well as reduced natural farm biodiversity. Every year crop loss and non availability of diversified food also sharply impacted their market dependency.

About the Pilot: Droughts and flashfloods are two main climatic events that occur annually in the block. Failure of crops is mainly attributed to insufficient and unevenly distributed rainfall and increase of nonfood cash crops. Since 1992, the people of Karlamunda are gradually facing nutrition food scarcity due to change in cropping pattern, non availability of seeds and decrease of uncultivated foods during food scarcity period. Women and youths are unaware about their nutritious dietary needs, food preferences due to lack of household nutritious crop planning/food budgeting and poor implementation of nutrition related schemes. Awareness of sanitation and health hygiene is also low. Combined, these have a serious effect on the nutrition status of the marginal farming households.

IGSSS believes when farmers have their own renewable, regenerative seeds, they can replant after a climate induced disaster, which will contribute to both climate resilience and economic resilience. The lowering of dependence on costly non renewable seeds from different companies in every year, will help avert crop loss, reduced indebtedness and safeguard the ecosystem

In the above context, IGSSS ERO is piloting the development of an agri-nutri smart village through nutrition sensitive farming and a Seed hub. The households will produce and have access to nutrition rich food as per their food budgeting with adequate sanitation, health and hygiene services. The duration of the pilot is 2 years (2019-2021).

Goal: 49 households of Terekela village secure their nutrition rich healthy food through development of agri-nutri smart village adopting nutrition sensitive faming and seed hub with the support of institutional convergence.

Objectives:

1. To facilitate the households to produce agri-nutri sensitive food
2. To facilitate all households to prepare their household level food budgeting along with sanitation and health hygiene services through nutrition sensitive farming
3. To establish seed hub through institutional convergence

Outcome:

1. Nutrition sensitive food budgeting is developed at each household level
2. Nutrition rich seed verities are collected, protected and conserved at all household level
3. Nutrition rich clean, green and fresh foods are cultivated and consumed by all households
4. Agri-nutri Seed Information Hub is developed and managed by villagers.
5. In-situ and Ex-situ conservation strategy is adopted by the villagers for regeneration of nutritional rich foods for next generation.
6. Food & nutrition and health hygiene related schemes are monitored by the community and properly implemented in the village.

Process for development of Agri-Nutri smart village through nutrition sensitive farming and seed hub

Activities	Objectives	Processes
Village selection	• Identify a suitable places for piloting the initiative for learning, fine tuning and wider replication	• Sharing meeting with VDC leaders, PRI representatives, Government line departments • Form an assessment team comprising VDC members and IGSSS staffs • Develop Assessment questionnaire/ checklist • Organise village meeting • Focus Group Discussion • Household interview • Visit Anganwadi, Primary Health Care Center, Agriculture, Horticulture, Fishery, Animal Husbandry, Pulses Mission, Millet Mission, NABARD, and ICDS for information collection and rapport building. • Preparation of findings and database • Sharing of findings with villagers
Seasonal nutritious food production assessment ▪ Cultivated & uncultivated	1. Identify types of seasonal nutritious food produced or collected by the villagers from various sources. 2. Understand the current status of existing nutritious foods 3. Identify and understand the protection, conservation and regeneration strategies prevalent in the community	Assessment/ mapping of seasonal nutrition food in the last month of the rainy and winter season involving farmers, women and youth. ▪ Production of cultivated food for different types of lands/ soils through community mapping , focus group discussion and interview with experienced farmers ▪ Preparation of database ▪ Collection/ harvesting of different types of uncultivated food form forest, grazing land, river embankment, water sources like river, stream, pond, farm field etc through site visit with experienced farmers. ▪ Community mapping , focus group discussion and interview with experienced farmers ▪ Preparation of database and sharing with villagers for sustainable harvesting for collection and conservation initiatives.
Government Schemes	1. Identify FNS schemes provided by government departments and understand current status of community's access to them. 2. Develop strategic plan to link eligible beneficiaries with nutritional food schemes and programmes.	1. Assessment/ mapping of FNS schemes provided by Government departments to the beneficiaries such as: - Health services - Support for production of nutrition food 2. Organize community sharing meeting 3. Household interview 4. Visit to Anganwadi center and primary health care center 5. Development of database and sharing with appropriate department for proper implementation through village level interface, sharing of memorandum and participation in grievance sharing meeting.
Household level nutrition food requirement/production assessment (food budget) ▪ Energy Giving Food	1. To develop household wise nutrition sensitive food & seed production strategic plan to promote production of energy giving good, bodybuilding food	Development of household wise food budgeting for round the year production of different nutritious food group like energy giving food, bodybuilding food and protective food. ▪ Development of household interview questionnaire ▪ Meeting with household members on requirement of food

▪ Bodybuilding Food ▪ Protective Food	and protective food as per their requirements.	▪ Development of food budget with seed production & conservation plan based on availability of land ▪ Sharing with VDC leaders for production and sustainable harvesting of uncultivated food ▪ Development of time line for sharing with Gram Sabha, different line department, different committee meetings at GP, Block and District level.
1st phase assessment report	Document first phase of pilot for wider dissemination and mobilizing support from stakeholders (research institutes, academicians and experts, government departments, other peer / resource agencies)	▪ Develop 1st phase assessment report based on different assessment and sharing with IGSSS and line departments. ▪ Develop Data base of relevant stakeholder ▪ Prepared timeline for monitoring of progress and mobilization support from Government departments.
Sharing of findings with villagers and line departments	1. Facilitate community reflection on current status of food & nutrition, their sources and policy/programmes implementation. 2. To develop community demand notes and advocacy notes on production and collection/ harvesting of nutritious foods and linkages of eligible beneficiaries with food and nutrition related schemes/programmes.	▪ Development of community demand notes (suggestions) on production and collection/ harvesting of nutrition foods and linkages of eligible beneficiaries on food and nutrition related schemes/programmes through community meetings ▪ Interface/Sharing meeting with different line department organized by VDC ▪ Presentation of community in Gram Sabha and different committee meeting of Government department (block & district level)
Formation of farmer groups having understanding of seed production as per the requirement of crop to maintain seed purity as far as possible.	1. Collectivize farmers into groups for production of seeds as per the seed production guideline 2. mobilizing seeds for community seed hub	▪ Formation of farmers group ▪ Discussion of knowledge among farmers on seed production (learning / knowledge exchange sessions) ▪ Development of IEC on seed production and conservation technique
Indentifying nodal person to look after the seed information hub, day-to-day operation and maintenance, and motivate farmers to associate with this system to derive maximum advantage of the seed information hub	1. Identify key persons and strengthen their capacity to mange seed hub 2. Develop seed hub management plan for collection, storage and regenaration of seeds from various sources	▪ Develop criteria for selection of nodal person with VDC ▪ Farmers meetings to identify Nodal Person for management of seed hub. ▪ Seed Profiling development ▪ Community Seed hub management strategy plan development
Training of nodal farmers in managing seed hub especially in the area of seed viability assessment, seed storage methods, importance of seed	1. Develop capacity of nodal farmers on seed production, seed purification and seed storage 2. Develop sample seed	▪ Training on seed hub management (production, collection, harvesting, storage, grading and purification process) with the support of Agriculture, Horticulture, Millet Mission, Pulses Mission and Forest department officials. ▪ Seed profiling development ▪ Seed exchange profile development

moisture content and humidity, fumigation techniques, seed grading, maintaining seed purity and quality, germination testing, sample plotting, seed harvesting from sample plot, packaging (storage) and data recording.	production unit managed by farmers as per the seed hub guideline	▪ Seed production sample plot development ▪ Seed production and collection strategy at every household ▪ Seed production and collection strategy like contact with researcher, farmers and institutions and networks.
Assessing the quality of seed at the time of seed collection, distribution and while taking it back from the farmers for storage.	1. To assess the quality of seeds to be collected and distributed. 2. To develop seed collection and production plan	▪ Session with farmers groups and nodal person to develop Seed quality monitoring plan ▪ Sharing with community for strengthening seed hub ▪ Formation of Seed production, collection and testing committee of VDC and Farmers group
Linking the seed banks with farmer producer and marketing company for generating the market for the surplus seeds available in the seed banks to extend financial support to the farmers and seed banks.	Develop a support group with expert, forums, institutions, technical and research, government etc to strengthen the Seed Hub	▪ Develop data base of Seed providers/ supporters ▪ Develop Seed production and collection strategy for outside villages, researcher, farmers, community seed banks and institutions and networks ▪ Collect indigenous paddy, millet, pulses, vegetables, oil seeds and tubers form different farmers through direct visit ▪ Meeting with NABARD, Pulses Mission, Millet Mission and KVK for mobilizing support to strengthen seed hub.
▪ Collection and exchange of seed from local farmers, networks, forums and Government departments (seed collection roadmap, see data book, household level crop production calander) ▪ Involving women, youth and students in cropping pattern and seed conservation	1. Enable farmers having endangered (or not available locally) categories of seeds for regeneration, cropping and conservation in own land and common land. 2. Organize seed exchange knowledge events involving women, youth and students for collection, protection, conservation and regeneration of nutritious seeds at household level. 3. Involve women, youths and students towards seed conservation and cropping	▪ Organise Seed exchange fair at village level ▪ Seed exchange campaign (farmers visit) ▪ Seed and food related knowledge exchange meeting organized at school and GP office ▪ Monthly seed and food production assessment organized involving women, youth and students at village level ▪ Post card campaign by farmers and students to seed supporters to promote seed exchange & knowledge sharing
▪ Knowledge exchange visit to nearby farmer's field for collection of nutrition seed. ▪ Regularly organizing community seed hub knowledge exchange visit.	▪ Promotion of use of quality traditional seeds among the target community	▪ Organize Knowledge exchange visit by farmers group for seed collection ▪ Organise Bi monthly debate on nutrition food/ seed by seed hub management committee at village level involving experienced farmers and Government officials ▪ Develop Seed and food related rituals/ festival calendar ▪ Celebrated Seed and food related rituals/ festival (Akhi Muthi, Kadua Yatra,

▪ Post card mapping for seed collection ▪ Celebration of local rituals and festives related to food.		Nua Khai etc)
Nutrition food/seed production and consumption in every household ▪ Kitchen garden ▪ Upland ▪ Middle land ▪ Lowland ▪ Commons	Develop nutrition seed and food production tracking sheet for monitoring of household level nutrition seed and food production and consumption as well as seed support to seed hub	▪ Develop Nutrition food/ seed production and collection tracking sheet and share with seed hub monitoring team ▪ Tracking Monthly food/ seed production and consumption with the support of student/ anganwadi worker ▪ Monthly visit to kitchen garden, upland, middle land, low land and common land by seed hub monitoring committee for preparation of seed and food production database
Nutritious food collection from commons with conservation initiatives ▪ Insitu & exsitu conservation initiatives	1. Develop in-situ (conservation in natural habitat) and ex-situ (conservation in outside the natural habitat- agricultural land, kitche garden etc) conservation plan 2. Develop strategic plan of collecting edible nutritious food plants from different places	▪ Develop seed profile for suitable in insitu and exsitu conservation ▪ Organize Knowledge exchange meeting at village level involving forest, horticulture and agriculture department officials ▪ Collection of Edible tubers and nutritious food plant species from adjoining blocks like M. Rampur, Gudvela, Saintala, Baliguda, of Kalahandi, Balangir and Kandhamal district
Monitoring household nutritious food production as per the food budgeting	Enable Seed Hub Monitoring Committee to organize monthly food budgeting monitoring cum sharing meeting	▪ Organise Monthly food budgeting monitoring cum sharing meeting by the seed hub monitoring committee ▪ Develop Monthly database and shared with different line department for support to seed hub and individual beneficiary ▪ Sharing of stories with media for advocacy ▪ Organise quarterly VDC leaders sharing meeting
Final reporting	Document Pilot on agri-nutri smart village through nutrition sensitive farming and seed hub for sharing with different stakeholders	▪ Process documentation of agri-nutri smart village through nutrition sensitive farming and seed hub report ▪ Develop plan for dissemination ▪ Sharing with IGSSS & Governmental line departments
Declaration of nutrition sensitive farming cum seed hub village	Presentation of pilot to government for recommendations, adoption and replication	▪ Formation of internal review committee (IGSSS staff and representatives of Agriculture, Horticulture, Heath and Forest department officials) for review of the achievements ▪ Recommendations inputed into final report ▪ Agri-nutri smart village report prepared ▪ Organised sharing and learning exchange meeting with Government department, NGOs and media.

Brief Update on the Pilot (from Inception to December 2019)

Village identification for Pilot:
A series of meetings were organized with different VDC leaders, PRI representatives and Government officials to discuss the concept of the smart village through nutrition sensitive farming and seed hub.

Based on the discussions, Terekela village was selected for piloting as it has only 49 household, all from the Gond tribal community. The reasons for selection:

- Drought and flash flood occur annually and affects the food production sources.
- No forest in Terekela, however people have planted fuel wood trees in five acres of land to meet their daily requirements.
- Sharing by older habitants revealed that 30 to 40 years ago a variety of nutritious tubers and leafy vegetables were in abundant supply at embankment of Tel River and common lands.
- The tubers are no longer available currently.
- Leafy vegetables have also drastically reduced due to illegal timber cutting, fire in agricultural land, soil erosion, use of weedicides and unsustainable harvesting.
- Education level is very low compared to the other project villages.
- Majority of households face food scarcity mid August to mid October and mid June to mid July.
- As per the Anganwadi and ANM workers women of Terekela village are not taking diversified nutrition foods, nor prepare hygienic food. Adoption of WASH (Water, Sanitation and Hygiene) practice is low due to poor awareness level and blind belief (use of soil for hand wash and not used soap).
- Most of the Government departments are interested to support Terekela village but due to coordination gap access to government support such as ODF village etc has been low, till late.
- Road communication is relatively good and hence it will be easy to approach Terekela for both support as well as exchange of knowledge.

Village selection in block level VDC federation meeting with participation of all the block officials

	1. Household wise nutrition food crops & seed availability assessment. 2. Yellow colored houses are chronologically put in the maps as per the existing situation of house. In every household, seven types of information have been written by the head of household. Availability of own seeds like M- millets, P- pulses, O- oilseeds, V- vegetables, T- tubers, PD- paddy KG - kitchen garden. 3. Households (green colour house) having more seeds This will help to information collection team to compile household wise availability of nutritious crops database and further help development of food budgeting.

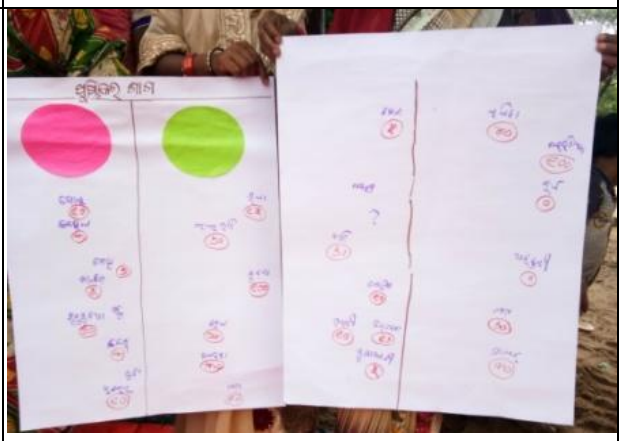
Seasonal nutritious food production assessment: (Cultivated, uncultivated and Government schemes): This assessment will be conducted in two phases for Rainy, winter and summer seasons. First phase assessment for Rainy Season (Jul-Sep 2019) & winter (Oct-Dec 2019) has been completed.

Seasonal nutritious food production assessment was conducted in Kharif (Rainy) and Rabi (winter) season with the help of VDC and representatives (Assistant Agriculture Officer, Assistant Horticulture Officer and Village Agriculture Worker) to analyze and understand the status on availability of cultivated food, uncultivated food and food supply from different government departments.

An information collection team was formed with 3 VDC members and one IGSSS staff. A questionnaire was developed in local language for primary and secondary data collection. Three focus group discussions were conducted on production of cultivated food and uncultivated food and food & nutrition facilities provides by Government departments. During this assessment household interview with different beneficiaries like pregnant women, lactating mother, children, students etc) focus group discussion and physical visit to different places like farm field, forest, river embankment, pond, anganwadi and agriculture offices were organised.

FGD were on production and collection of different category of foods by the villagers in different seasons, issues related to productivity, use, causes of degradation or non availability, how they met the deficit.

The FGDs revealed that both cultivated and uncultivated foods are gradually decreasing. Simultaneously, low levels of awareness among the community and lack of vigilance, government schemes are not implemented properly.



Nutritious uncultivated food status. Villagers are identifying types of uncultivated foods collected from forest, common land and streams. Red column species are very poor and green column species are poor. Figures (days) putting respective species collected and used by people in a year.

Season wise and food group wise nutrition food production assessment. White colours are indicating very poor production.

<table>
<tr><td> 
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<tr><td colspan="2">Findings report of joint visit shared in world food day in the presence of all Govt officials. VDC Terekela also presents an estimate of total basic food species requirement.</td></tr>
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<tr><td>  </td><td>  </td></tr>
<tr><td>Status of assessment of food supply sources. Types of plant species gradually decreasing in different places of village.</td><td>Endangered food species collected from near bay forest and streams. First column species are plenty, second column species poor third column species are endangered/ very poor condition.</td></tr>
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Seed & soil mapping

Seed & soil mapping was organized in two phases. In the first phase, older farmers were facilitated to analyze and understand soil types in different land, status of soil health, causes of soil erosion and soil type wise suitable crops. In this process, Assistant Agriculture Officer, Assistant Horticulture Officer and Agriculture Village level Worker were involved for assessment and analysis.

Sharing by the experienced farmers revealed the following:

- Decrease in diversified food production since 1990 due to a change in the mindset of younger farmers and promotion of cotton and mono crops like paddy in all types of land; this has resulted in nutrition food and seed scarcity.
- Earlier (prior to 1990), 106 varieties of crops were produced by the farmers; currently only 35 verities of crops are being produced.
- From 2005 onwards top soil of all types land has gradually become hard because the seasonal cultivation pattern like mixed cultivation, natural mulching crops (millet and pulses), bund crops and moisture intensive crop species production have reduced.
- Increasing night time temperature and frequency of drought and flashflood have affected soil health.

Land/ soil wise suitable principal crops and suitable inter crops assessment. This is an exercise cum brainstorming tool. Farmers will rethink about their cropping pattern. First column is soil name, second is suitable principal crops and 3rd is suitable associate crops which are grown in same field and same time.

Annexure-1 (Land wise cultivated food & seeds)

Annexure-2 (Schemes /programmes related to food & nutrition implemented in Terekela village)

- District Agricultural Plan has been prepared by government department without consultation of farmers and observations of local food habit with soil condition. The Agriculture plan focuses on industrial crop production based on land type instead of food crops production as per the local food culture (such as local cropping practices, food habits, and as well as the beliefs and rituals related to production, distribution, and consumption of foods which are adopted by farmers hereditarily). As a result, Karlamunda block is focused on paddy and cotton. Hence, Millet mission and Pulses mission has not covered the block.

  During this learning exchange phase senior farmers, youth and women prepared a list of farmer's friendly biodiversity/ species which are rare, threatened and endangered as per the following table as a result of use of chemical fertiliser, pesticides and herbicides.

Land and soil wise beneficial insect list identified by farmers. Tick symbols are poor category and cross symbols are very poor category.

Annexure -3 (Farmers Friendly Beneficial Species)

2nd Phase Assessment: In the second phase, land/soil wise crops assessment was organized where youth farmers first shared their knowledge on soil wise crop production (land/ soil wise crop production mapping). Following this, senior farmers shared their knowledge to youths. At the end, a sharing meeting was organized in the village. Most of the youth farmers acknowledged that they were unaware about the soil wise cropping pattern in different seasons.

Data was collected through FGD and knowledge exchange as well as site visit (food collection or production places such as agricultural land, river embankment, forest and grazing land etc).

The findings revealed that total 21 types of leaves, 29 types of fruits, 07 types of flowers , 14 types of tubers and 22 types of fishes collected by the people. Out of 72 species 51 are E- endangered (rarely available) and 22 are T- threatened (highly decreasing) category.

Annexure -4 (Wild Food Status, Terekela)

Detailed Implementation Plan

Sl.	Activities	April-Jun 2019	Jul – Sep 2019	Oct-Dec 2019	Jan - Mar 2020	Apr – Jun 2021	Jul – Sep 2021	Oct –Dec 2021	Jan –Mar 2022	Apr – Jun 2022	Period / Frequency	Current Status
1.	**Village selection**	√									Once	Completed
2.	**Seasonal nutritious food production assessment:** (There are three major seasons in Odisha: Summer (March-June), Rainy Season (July-September) and the Winter (October-February). Based on the tropical forest ecosystem of Odisha most of the uncultivated foods (especially tubers) are produced from November to March of succeeding year. Hence it would be appropriate to intervene at the community level during December for pre assessment)											
	a) Cultivated & uncultivated										1st Phase assessment in last of summers season (June) 2nd Phase assessment in last of rainy season (September) 3rd Phase assessment during winter season (December)	1st Phase assessment - Rainy season (Jul-Sep 2019) & Winter (Oct-Dec 2019) completed;
	b) Govt. Schemes			√							Three times: June last, September last and December	1st Phase assessment of Government Schemes (Jun-Dec 2019) completed
	c) Status assessment of food supply sources (production, collection & government supply sources)			√							Only once.	Completed
d)	**Seed & soil mapping** ▪ Status assessment of geographically suitable seeds ▪ Soil health assessment ▪ Climate change and its impact on food supply sources		√								Yearly two times - at the end of Rainy season (September) and at the end of the Winter season (March). - Winter (December, January and February) - Rainy season (June to September)	1st Phase (Jul – Sep 2019) Completed
e)	**Household level nutrition food requirement/production assessment (food budget)** 1. Energy Giving Food 2. Bodybuilding Food 3. Protective Food										2 phases: - 1st to be completed by 20th January 2020 - 2nd at the end of the pilot.	Initiated in December 2019
f)	**1st phase assessment report**											31st December 2019
g)	**Sharing of findings with villagers and line departments** ▪ Community demand notes										Scheduled for (Jan-Mar 2020)	
h)	**Formation of farmer groups** having understanding of seed production as per the requirement of crop to maintain seed purity as far as possible.										Scheduled for Feb 2020	
i)	**Indentifying nodal person** to look after the seed information hub, day-to-day operation and maintenance, and motivate farmers to associate										Scheduled for Feb 2020	

	with this system to derive maximum advantage of the seed information hub											
j)	**Training of nodal farmers in managing seed hub** especially in the area of seed viability assessment, seed storage methods, importance of seed moisture content and humidity, fumigation techniques, seed grading, maintaining seed purity and quality, germination testing, sample plotting, seed harvesting from sample plot, packaging (storage) and data recording.										8 days practical training (4 days in March and 4 days in June) Scheduled for Mar and June 2020	
k)	**Assessing the quality of seed** at the time of seed collection, distribution and while taking it back from the farmers for storage.										In 2 phases in Feb 2020 and Feb 2021	
l)	**Linking seed banks with farmer producer and marketing company** for generating the market for th surplus seeds available in the seed banks to extend financial support to the farmers and seed banks.										Feb 2020 onwards till the end of the pilot	
m)	▪ Collection and exchange of seed from local farmers, networks, forums and Govt. departments (seed collection roadmap, see data book, household level crop production calander) ▪ Involving women, youth and students in cropping pattern and seed conservation										Seasonally in Rabi and Khariff, starting from Jan 2020 to till the end of the pilot	
n)	▪ Knowledge exchange visit to nearby farmer's field for collection of nutrition seed. ▪ Regularly organizing community seed hub knowledge exchange visit. ▪ Post card mapping for seed collection ▪ Celebration of local rituals and festivities related to food.										Monthly, from Jan 2020 to till the end of the pilot	
o)	Nutrition food/seed production and consumption in every household ▪ Kitchen garden ▪ Upland ▪ Middle land ▪ Lowland ▪ Commons										Monthly, from Jan 2020 to till the end of the pilot	
p)	Nutritious food collection from commons with conservation initiatives ▪ Insitu & exsitu conservation initiatives										Monthly, from Jan 2020 to till the end of the pilot	
q)	Monitoring household nutritious food										Seasonally one month	Initiated in Rabi 2019

	production as per the food budgeting										prior to Kharif, Rabi & Summer	
r)	Final reporting										Mar 2022	
s)	Declaration of nutrition sensitive farming cum seed hub village										Apr – Jun 2022	

Assessment Report

To help the community realize and understand the impact of climate change on household food security and identifying vulnerabilities in the context of climate change, VDC leaders and IGSSS staff undertook sample household survey on the following:

1. Status of Availability, Accessibility and Utilisation of nutritious food at household and community level

2. Analysis of existing coping strategies and identify barriers and opportunities for improving food and nutrition security at household and community level.

Finding of first phase assessment:

The Impact of CC has diminished production and affected food diversity. Increasing extreme events has led farmers to drop crops and use increasing amounts of chemical fertilizers to increase production from their small plots thereby increasing their market dependency. As a result not only has production reduced, types of crops too have reduced (both cultivated as well as uncultivated); consumption / dietary intake reduced; over a period of time, knowledge about the traditional systems is also vanishing.

- Seed and soil mapping:

Sharing by the experienced farmers revealed the following:

- Decrease in diversified food production since 1990 due to a change in the mindset of younger farmers and promotion of cotton and mono crops like paddy in all types of land; this has resulted in nutrition food and seed scarcity.
- Earlier (prior to 1990), 106 varieties of crops were produced by the farmers; Currently only 35 verities of crops are being produced.
- From 2005 onwards top soil of all types land has gradually become hard because the seasonal cultivation pattern like mixed cultivation, natural mulching crops (millet and pulses), bund crops and moisture intensive crop species production have reduced.
- Increasing night temperature and frequency of drought and flashflood have affected soil health.
- District Agricultural Land has been prepared by government department without consultation of farmers and observations of local food habit with soil condition. The Agriculture plan focuses on industrial crop production based on land type rather on food crops production without disturbing the local food culture like the cropping practices, food habits, and as well as the beliefs and rituals related to production, distribution, and consumption of foods which are adopted by farmers hereditarily. As a result, Karlamunda block is focused on paddy and cotton. Hence, Millet mission and Pulses mission has not covered the block. This situation is happening because
- The findings revealed that total 21 types of leaves, 29 types of fruits, 07 types of flowers , 14 types of tubers and 22 types of fishes collected by the people. Out of 72 species 51 are E- endangered (rarely available) and 22 are T- threatened (highly decreasing) category.

1) **Impact of climate change in food production system:**

- 90% household reported food crops are gradually decreasing; reasons cited include:
  a. Change in cropping pattern (land/ soil wise different crops at different points of time)
  b. Lack of geographically and environmentally suitable seeds (climatic stress tolerant, insect, pest and diseases resilience seeds)

c. From 2008, each year, farmers face consecutive droughts and flash floods,
d. Increased day and night temperature;
e. Water scarcity at appropriate times such as during germination, transplanting, flowering and fruiting period

- Out of 141 ha of agricultural land 88 ha land is completely dependent on rain fed agriculture
- 70% farmers cited depleting soil health (decrease in necessary natural nutrients, water and oxygen requirement of plants, and extinction of organism which support natural decomposing and recycling system in the soil) and erosion of fertile top soil as reasons for reducing crop production.

2) **Impact on Food Availability (decreasing Food diversity and yield)**

A. **Uncultivated Foods**: These comprise mostly the nutritious wild edible plants collected from common land, forest, stream, river and grazing and including leaves, flower, fruits, animals, birds, mushroom, fish, crabs, shrimps, honey etc

- Currently only 38 types uncultivated food are available in the villages, a huge decline compared to as many as 64 types before 1990.
- Reasons cited where change in land use pattern, unsustainable practices that damage habitat, its flora and fauna spatially and temporally (space and time) such as forest fire, fire in agriculture, premature harvesting, untreating the pit of tubers species after harvesting, not caring harvesting limit of species etc that damage natural habitat of native flora and fauna).and increasing use of weedicide, chemical fertilizer & pesticides
- Mushrooms and tubers are most affected due to increasing of temperature, increasing hardness of soil, erosion of topsoil and use of weedicide, chemical fertilizer & pesticides.
- Uncultivated fish species are rapidly decreasing due to decreasing of water flow in the streams, river and use of weedicide, chemical fertilizers & pesticides in farm fields.

B. Cultivated Food (Decreasing yield and diversified food species):

- Production of Protective foods like green leafy vegetables, yellow and orange vegetables, citrus fruits and other fruits production is very low. These contain adequate amounts of vitamins, minerals, and high quality proteins and protect against development of a deficiency disease.
- Production of energy rich foods like paddy, millet, tubers, nuts, oil seeds and sugarcane is very poor.
- 42 household are cultivating paddy crop in Kharif season
- 14 household are cultivating paddy crop in Rabi season
- Only 8 household are cultivating millet in 6 acres of land
- 15 households are cultivating groundnut in 5 acres of land.
- 32 households are cultivating pulses in 8 acres of land. But it is not sufficient to meet the household requirement.
- Out of 49 household only 12 household are getting round the year food and 42 houses hold are facing food scarcity for 3 to 4 months.
- During the assessment, AWW data however revealed that 22 children were found; 9 (0-3 years) and 13 (3-6 years). Of these, 1 is in Red Zone, 2 in Yellow and 19 in Green.
- The assessment of cultivated food requirement for the Terekela village revealed: 2701 Kg Rice, 2701 Kg Dal, 1350 Ltr Oil, 2701 Kg Spices, 13505 Kg Vegetables, 14020 Kg Fish and Meet, 28416 pieces Egg, 540 Kg Sugar & Sweets, 2841 Ltr Milk and 216080 Ltr safe drinking water are required for the villagers. The market value of the required food will be around Rs. 81, 85,860/-. But due to lack of proper crop planning and different causes most of the food species are less cultivated. 70-80% HHs are dependent on market especially for Spices, Oil, Fruits, Fish, Sugar and Milk.

C. **Increased market dependency and increase in cost of production**

- 80% farmers said that the cost of production has increased 10 times for paddy and vegetable cultivation.
- 100% farmers have said that agriculture, horticulture, fishery and animal husbandry department are not supporting in right time to farmers for crop protection and compensation
- 90% farmers have been using chemical fertilizers and pesticides since 1992 in their crops.
- 90% farmers have purchased seeds from market and agriculture department.

- Every year a farmer has to purchase seeds and chemical fertilizers of Rs. 8000/- from market (for paddy cultivation).
- Out of 38 types of crops only 6 types of seeds are available in the village and rest are purchased form market.
- Due to impact of project intervention 20 households are cultivating vegetables in their kitchen garden whereas other households are procuring green vegetables form market in every week average Rs. 250/-

D. **Knowledge and Practice:**

- 90% households are not taking locally available balanced and safe food in their daily diet.
- 98% households are not taking body building food such as milk and milk products in their food. The families eat eggs and meat but on an average, once a month only.
- 90% households are reported to have hardly taken fruits (banana, apple, grapes, pine apple and papaya) three to four times in a year.
- 18 household are said to have taken millets in their food. The remaining other households have not taken millets since more than one year.
- 100 % youth are not aware about seed production and use of food groups in daily food.
- 70% youths cannot identify and recognize seeds.
- Out of 5 pregnant women and 4 lactating mothers, only 2 are taking appropriate foods (quantity and time). But no one is taking food and care as per the ICMR[1] balanced diet guideline.
- From this assessment it is found that 80% women's are not aware of cropping pattern of energy giving, body building and protective food crops which are cultivated by farmers. Women's participation in crop selection and seed conservation is very poor and neglected.
- Only 20% women are aware about cropping pattern due to project intervention and participation in different training programmes.

[1]The expert committee of the Indian Council of Medical Research has recommended that every individual should consume at least 300 g of vegetables (GLV: 50 g; Other vegetables : 200 g; Roots & Tubers : 50 g) in a day. In addition, fresh fruits (100 g), should be consumed regularly. Since requirements of iron and folic acid are higher for pregnant women they should consume 100g of leafy vegetables daily.

Annexure-1 (Land wise cultivated food & seeds)

Land wise cultivated food/ seed status									
SL No	Crop Variety	Odia Name	Crop	Land type/Soil	Major traits Tolerance to			Special preparations	Status
					Drought	Water logging	Pest diseases		
1	Jhilli	Odia Name	Paddy	Bahal (Low)	Yes		Yes	Khai, Pakhal, Khiri, Medicinal value	Rare
2	Kulhia	Odia Name	Paddy	Aant (Up Land)	Yes			Chuda	Rare
3	Kusuma	Odia Name	Paddy	Aant (Up Land)	Yes		Yes	Chuda,Pakhal	Rare
4	Mahipal	Odia Name	Paddy	Bahal (Low Land)	Yes			Khai, Pakhal	Rare
5	Rajakarani	Odia Name	Paddy	Bahal (Low Land)	Yes			Chuda,Khai, Pakhal	Rare
6	Saria	Odia Name	Paddy	Aant (Up Land)	Yes		Yes	Chuda,Khai, Pakhal	5 Household
7	Karpurkranti	Odia Name	Paddy	Bahal (Low Land)	Yes			Scented, Khiri	Rare
8	Sorishaphul	Odia Name	Paddy	Bahal (Low Land)	Yes			Scented, Khiri	Rare
9	Dumerphuli	Odia Name	Paddy	Aant (Up Land)	Yes			Chuda,Pakhal	Rare
10	Kumarmani	Odia Name	Paddy	Berna (Medimum Land)	Yes			Chuda,Pakhal	Rare
11	SankriBanko	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
12	Pruthiraj	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes		Scented, Khiri	Rare
13	Karani	Odia Name	Paddy	Berna (Medimum Land)	Yes			Chuda,Pakhal	Rare
14	Sankari	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
15	Biramani	Odia Name	Paddy	Aant (Up Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
16	Geleikanthi	Odia Name	Paddy	Bahal (Low Land)	Yes		Yes	Mudhi,Khai,Pakhal	Rare
17	Kalia Karani	Odia Name	Paddy	Berna (Medimum Land)	Yes		Yes	Pakhal	Rare
18	Ratanchudi	Odia Name	Paddy	Bahal (Low Land)	Yes		Yes	Mudhi, Chuda, Khai, Pakhal	Rare
19	Laxmi Bhog	Odia Name	Paddy	Bahal (Low Land)	Yes		Yes	Scented, Khiri	Rare
20	Kabarichina	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
21	Mughdhi	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
22	Sapari	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal, Khiri, Medicinal value	Rare
23	Sarian Dhan	Odia Name	Paddy	Aant (Up Land)	Yes			Pakhal	Rare
24	Dubaraj	Odia Name	Paddy	Bahal (Low Land)		Yes		Scented, Khiri	Rare
25	Baspatr	Odia Name	Paddy	Bahal (Low Land)		Yes		Chuda,Khira	Rare

26	Boerbuta	Odia Name	Paddy	Bahal (Low Land)	Yes			Pakhala	Rare
27	Kulia	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal, Khiri, Medicinal value	Rare
28	Poradhan	Odia Name	Paddy	Bahal (Low Land)	Yes			Pakhala	Rare
29	Setka	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
30	Harishanka	Odia Name	Paddy	Berna (Medimum Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
31	Kalikaranaj	Odia Name	Paddy	Berna (Medimum Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
32	Asamchudi	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
33	Bhulashanka	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
34	Gelahi	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
35	Loche	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
36	Magura	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
37	Mahipal	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
38	Ratanchudi	Odia Name	Paddy	Bahal (Low Land)	Yes		Yes	Mudhi, Chuda, Khai, Pakhal	Rare
39	Dhobbaspatri	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
40	Jeeradhan	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
41	Jirabati	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
42	Baspatri	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
43	Karpurkranti	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
44	Pruthiraj	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
45	Sorishaphul	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
46	Tulsibas	Odia Name	Paddy	Bahal (Low Land)	Yes			Mudhi, Chuda, Khai, Pakhal	Rare
47	Assanchudi	Odia Name	Paddy	Bahal (Low Land)	Yes	Yes	Yes	Mudhi, Chuda, Khai, Pakhal	Rare
48	Maka	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Pitha, Khiri	2 Household
49	Mandia	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Khiri, Medicinal value	8 Household
50	Bajara	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Khiri, Medicinal value	2 Household
51	Gurji	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Khiri, Medicinal value	5Household
52	Koda	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Khiri, Medicinal value	Extinct
53	Janha	Odia Name	Millet	Bahal (Low Land)	Yes		Yes	Khiri, Medicinal value	8 Household
54	Muga	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	10 Household
55	Chaiti Muga	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	3 Household

56	Bhala Muga	Odia Name	Pulses	Bahal (Low Land)	Yes			Dal	2 Household
57	Biri	Odia Name	Pulses	Aant (Up Land)	Yes			Dal, Medicinal value	12 Household
58	Harada	Odia Name	Pulses	Aant (Up Land)	Yes			Dal, Medicinal value	22 Household
59	Buta	Odia Name	Pulses	Aant (Up Land)	Yes			Dal, Medicinal value	8 Household
60	Matara	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	12 Household
61	Kolatha	Odia Name	Pulses	Aant (Up Land)	Yes			Dal, Medicinal value	5 Household
62	Masuri	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	Rare
63	Baragudi	Odia Name	Pulses	Aant (Up Land)	Yes			Dal, Medicinal value	Rare
64	Khudia	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	8 Household
65	Tiasi	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	12 Household
66	Jhudang	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	13 Household
67	Simba	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	35 Household
68	Bins	Odia Name	Pulses	Aant (Up Land)	Yes			Dal	Rare
69	Sorisha	Odia Name	Oil seed	Aant (Up Land)	Yes			Oil, Medicinal value	8 Household
70	Rasi	Odia Name	Oil seed	Aant (Up Land)	Yes			Oil, Medicinal value	12 Household
71	Jada	Odia Name	Oil seed	Aant (Up Land)	Yes			Oil, Medicinal value	8 Household
72	Alasi	Odia Name	Oil seed	Aant (Up Land)	Yes			Oil, Medicinal value	Rare
73	Chinabadam	Odia Name	Oil seed	Aant (Up Land)	Yes			Oil, Medicinal value	20 Household
74	Amba	Odia Name	Fruits	Aant (Up Land)	Yes	Yes	Yes	Fruits, Leaves, Medicinal value	4 Household
75	Kamala	Odia Name	Fruits	Aant (Up Land)				Fruits, Leaves, Medicinal value	Rare
76	Lembu	Odia Name	Fruits	Aant (Up Land)	Yes			Fruits, Leaves, Medicinal value	4 Household
77	Panash	Odia Name	Fruits	Aant (Up Land)				Fruits, Leaves, Medicinal value	Rare
78	Pijuli	Odia Name	Fruits	Aant (Up Land)	Yes			Fruits, Leaves, Medicinal value	8 Household
79	Dalimba	Odia Name	Fruits	Aant (Up Land)				Fruits, Leaves, Medicinal value	12 Household
80	Sitaphala	Odia Name	Fruits	Aant (Up Land)	Yes	Yes	Yes	Fruits, Leaves, Medicinal value	14 Household
81	Amrutabhanda	Odia Name	Fruits	Aant (Up Land)			Yes	Fruits, Medicinal value	12 Household
82	Kaju	Odia Name	Fruits	Aant (Up Land)	Yes	Yes	Yes	Fruits, Medicinal value	8 Household
83	Alu	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	8 Household
84	Gachha Baigana	Odia Name	Vegetable	Berna (Medimum Land)	Yes	Yes	Yes	Curry	3 Household
85	Chhota Tamata	Odia Name	Vegetable	Berna (Medimum Land)	Yes	Yes	Yes	Curry	2 Household
86	Bhendi	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	Rare

87	Mula	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	Rare
88	Kakharu	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	6 Household
89	Kalara	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	Rare
90	Kakudi	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	Rare
91	Janhi	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	Rare
92	Lau	Odia Name	Vegetable	Berna (Medimum Land)			Yes	Curry	2 Household
93	Guanrasemi	Odia Name	Vegetable	Berna (Medimum Land)	Yes	Yes	Yes	Curry	Rare
94	Kunduru	Odia Name	Vegetable	Bahal (Low Land)	Yes	Yes	Yes	Curry	6 Household
95	Tarabhuja	Odia Name	Vegetable	Bahal (Low Land)				Curry	Rare
96	Sajana	Odia Name	Vegetable	Aant (Up Land)	Yes		Yes	Curry	12 Household
97	Kosala saga	Odia Name	Vegetable	Bahal (Low Land)			Yes	Curry	Rare
98	Leutia saga	Odia Name	Vegetable	Bahal (Low Land)			Yes	Curry	Rare
99	Piaja	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Curry, spices	Rare
100	Rasuna	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Spices	Rare
101	Ada	Odia Name	Spices	Aant (Up Land)	Yes		Yes	Spices	Rare
102	Haladi	Odia Name	Spices	Aant (Up Land)	Yes		Yes	Spices	Rare
103	Dhania	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Spices	Rare
104	Lanka	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Spices	Rare
105	Panamahuri	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Spices	Rare
106	Methi	Odia Name	Spices	Berna (Medimum Land)	Yes		Yes	Spices	Rare

Annexure-2 (Schemes /programmes related to food & nutrition implemented in Terekela village)

Schemes	Department	Sector	Objective	Status
Mamata Seheme	Health & Family Welfare Department	Health care	Monetary support for pregnant women and lactating mothers	Eligible beneficiaries are getting benefit
Mamata Diwas-VHND			It is a joint initiative to strengthen the ongoing Mother and Child Health Services by the Department of Health and Family Welfare and Department of Women and Child Development (WCD). This is held throughout the State at Angan Wadi Centers (AWC)once in a month either on Tuesday or Friday to provide the following services: • To provide essential and comprehensive health nutrition services to pregnant women, lactating mothers, children (0-5 yrs) and adolescent girls. • To ensure early registration, identification and referral of high-risk children and pregnant women. • To provide an effective platform for interaction between service providers and the community (through Gaon Kalyan Samiti or the mother's group) • To provide information to families on the care of mothers and children at the household and community level through discussion of various health topics (as envisaged in the Health Calendar). • To ensure establishment of linkage between health & Integrated Child Development Services (ICDS) to promote maternal & child survival programmes	Peoples are unaware and eligible beneficiaries are not getting benefit
Growth Monitoring Promotion	Women & child development	Integrated Child Development Services	Growth monitoring, nutritional surveillance and analysis of the nutritional status of children are imperative for assessing the impact of the health and nutrition-related services. 'Mother and Child Protection Cards' are maintained for all children below six years. Their growth is charted both to detect growth faltering, stagnation and to assess their nutritional status which aids in assessing the utilisation of the current strategies and helps in community mobilisation to enable better childcare practices at home.	Peoples are unaware and eligible beneficiaries are not getting benefit
Mother and Child Protection Card	Women & child development	Integrated Child Development Services	Mother and Child Protection (MCP) Card is a joint initiative of ICDS and National Rural Health Mission (NRHM). It is a comprehensive multipurpose card which provides information to the parents/guardians on various types of services delivered through ICDS and NRHM, which the families can access and utilise for growth and development of their children and health of the mothers. MCP Card replaces the existing immunisation card. The card contains a unique identification number which is linked to the Mother Child Tracking software under NRHM. The card also contains the code of the AWC, along with detailed information about the AWC and the worker.	Peoples are unaware and eligible beneficiaries are not getting benefit
Nutrition Operation Plan	Women & child development	Integrated Child Development Services	The Nutrition Operational Plan (NOP) supported by DFID (Department for International Development) has emerged as an evidence based plan to accelerate the pace of underweight reduction in Odisha. Nutrition Operation Plan focuses on the 15 'High Burden' districts of Odisha. It has been developed based on the following principles and strategies to support convergent health and nutrition services at the grass root level encompassing:	Peoples are unaware and eligible beneficiaries are not getting benefit

			• Disease control and prevention activities; • Education to improve home based newborn and child care; • Feeding practices including diet diversification and micronutrient supplementation and greater convergent health and nutrition actions • Uninterrupted and qualitative delivery of ICDS services with a focus on nutritionally vulnerable, poor and socially excluded • Improve departmental coordination between ICDS, Health, Rural Water Supply and Sanitation (RWSS) and Panchayati Raj (PR) for improving child survival in the State.	
Nutrition and Health Education	Women & child development	Integrated Child Development Services	Nutrition and Health Education (NHEd.) forms one of the key elements of the ICDS programmes. Women in the age group of 15-45 years should be given information on their health, nutrition and developmental needs. These are imparted through counselling sessions during home visits, fixed immunization days, VHND (Mamta Diwas), mothers meetings, Gram Sabha and during the panchayat meetings in the community.	Peoples are unaware and eligible beneficiaries are not getting benefit
Supplementary Nutrition Programme	Women & child development	Integrated Child Development Services	Take Home Ration (THR) is given to pregnant and lactating mothers, children from 6 months to 3 years as they do not attend the AWC on a daily basis. The severely malnourished children of 3-6 years are also given THR over and above Hot Cooked Meal. The Govt of India (GOI) has fixed the per beneficiary cost, calorie and protein norm to be maintained across the states.	Peoples are unaware and eligible beneficiaries are not getting benefit
Health Check-up	Women & child development	Integrated Child Development Services	Various health services provided to the children by the Anganwadi Worker (AW) include the following - Regular health check-ups, recording of weight, management of malnutrition, treatment of diarrhoea, de-worming and distribution of medicines particularly on Village Health & Nutrition Day .	Not implemented properly
Referral Services	Women & child development	Integrated Child Development Services	During health check-ups, home visits and growth monitoring, sick or malnourished children, at risk pregnant women and neonates in need of prompt medical attention are provided referral services through ICDS. The AWWs are also oriented to detect disabilities in young children and all such cases are referred to the Medical Officers. The effectiveness of this service depends on timely action, co-operation from health functionaries and the willingness of families to avail these services.	Peoples are unaware and eligible beneficiaries are not getting benefit
SABLA: Rajiv Gandhi Scheme for Empowerment of Adolescent girls(RGSEAG)	Women & child development	Integrated Child Development Services	The scheme aims at covering all out-of-school Adolescent Girls in the age group of 11 to 18 years who would assemble at the Anganwadi Centre on a fixed day at regular interval. The others, i.e., school-going girls, meet at the AWC at least twice a month, and more frequently (once a week) during vacations/holidays. Here they receive life skills education, nutrition and health education, awareness about socio-legal issues, etc. This provides an opportunity for mixed group interaction between school-going and out-of-school girls, motivating the latter to also join school and help the school going to receive the life skills. This scheme mainly aims at reducing the dropout rate of Adolescent Girls by increasing their literacy rate and work participation.	Peoples are unaware and eligible beneficiaries are not getting benefit
Shishu O Matru Mrutyuhara Purna Nirakaran Abhiyan (SAMPURNA)	Women & child development	Health Care	Financial assistance to pregnant women in try to reduce Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR)	Peoples are unaware and eligible beneficiaries are not getting benefit

scheme				
Biju Swastya Kalyan Yojana	Health & Family Welfare Department	Health care	Aims at providing financial assistance for healthcare to about 3.5 crore people of the state, with annual health insurance coverage of Rs 5 lakhs per family and 7 lakhs per women members of the family	Peoples are unaware and eligible beneficiaries are not getting benefit
Khushi Scheme	Health & Family Welfare Department	Women Empowerment	Sanitary napkins for adolescent girls in Classes 6 to 12 in government and government-aided schools	Peoples are unaware and eligible beneficiaries are not getting benefit
Bhoochetana	Agriculture & Farmers Empowerment	Farmers Empowerment	Odisha's version of the Soil Health Card Scheme, soil health mapping and support for farmers	Peoples are unaware and eligible beneficiaries are not getting benefit
Biju Krushak Kalyan Yojana (BKKY)	Agriculture	Health Insurance	Health insurance scheme for the farmers in the state of Odisha	Peoples are unaware and eligible beneficiaries are not getting benefit
Odisha Fish Pond Yojana	Fisheries and Animal Resource Development Department	Livestock	Create additional water bodies and subsidize fish farming	Peoples are unaware and eligible beneficiaries are not getting benefit
Mukhyamantri Adibandha Yojana	Agriculture	Disaster preparedness	Improve pond embankment	Peoples are unaware and eligible beneficiaries are not getting benefit
Pulses Mission	Agriculture and Farmers Welfare	Agriculture	Collaboration between International Center for Agricultural Research in the Dry Areas (ICARDA) and the government of Odisha in eastern India is the “Odisha Pulse Mission.” The aim of this project is to enhance nutritional security by encouraging farmers to grow their own pulses and explore myriad benefits of this crop. ICARDA and its local partners have promoted lentil, grasspea, chickpea, mung bean, and black gram to help them adapt to climate change and improve nutrition.	Not covered
Special Programme for promotion of Millet in tribal areas	Agriculture and Farmers Welfare	Agriculture	Revive millets in rainfed farming systems and household consumption. Major objectives of the programme are:- • Inclusion of Millets in State Nutrition programmes such as ICDS, Mid Ddy Meal, Intigrated Tribal Development Agency (ITDA) Welfare Hostels and eventually in PDS. • Increasing Household consumption by setting up decentralized processing units at panchayat and block level. • Improving productivity through improved agronomic practices and organic inputs. • Increased availability of millet seeds through community managed/community owned seed centres with focus on local varieties. • Strengthening of Farmer Co operatives / Farmer Producers Organisations for better marketing of millets.	Not covered
Targeted Public Distribution System	Rural Development	*Food* Supplies and Consumer	Beneficiaries can receive ration from any Public Distribution System (PDS) outlet under the National Food Security Act (NFSA) and the State Food Security Scheme (SFSS)	Eligible beneficiaries are getting benefit

(TPDS) (Odisha Food Security Scheme (SFSS)	Department	Welfare *Department*		
Mid Day Meal Scheme (MDMS)	Ministry of Human Resource Development Department of School and Education Literacy	Education department	To enhance the enrollment, Mid day meal scheme logoretention and attendance and simultaneously improve nutritional levels among school going children studying in Classes I to VIII of Government, Government - aided schools, Special Training centres (STC) and Madarasas and Maktabs supported under the Sarva Shiksha Abhiyan.	Eligible students are getting benefit

Annexure – 3 (Farmers friendly beneficial species) - Farmers Friendly Beneficial Species					
Sl No	Odia Name	English Name	Types	How to support farmers and farm biodiversity	Status
1	Gobarpoka	Ladybug	Insects	Control aphids, whitefly, mites, fleas, Colorado potato beetle	Very Poor
2	Budhiani	Spiders	Insects	Control bed bugs, aphids, roaches, grasshoppers, mosquitoes, and fruit flies	Very Poor
3	Dhala pithia	Soldier Beetles	Insects	Control grasshopper eggs, aphids, soft-bodied insects	Very Poor
4	Patapoka/ Lalpoka	Predatory Mites	Insects	Control spider mites	Very Poor
5	Birudi	Hoverflies	Insects	Control aphids, scale insects, caterpillars	Very Poor
6	Nila Machhi	Tachinid Flies	Insects	Control gypsy moths, Japanese beetles, cutworms, squash bugs	Very Poor
7	Endua	garden lizard, hedgehog	Reptiles	Pest Control	Very Poor
8	Kachhap	tortoise	Reptiles	Pest Control	Very Poor
9	Genda	snail	Reptiles	Pest Control	Very Poor
10	Godhi	guana	Reptiles	Pest Control	Very Poor
11	Jia	earth worm	Reptiles	Improving soil health/enhances plant growth, suppresses disease in plants, increases porosity and microbial activity in soil, and improves water retention and aeration.	Very Poor
12	Jhitipiti	lizard	Reptiles	Pest Control	Very Poor
13	Dhamana	rat snake	Reptiles	Control the mice and rats	Very Poor
14	Dhanda	water snake	Reptiles	Control the mice and rats	Very Poor
15	Bajrakapta	pangolin, scaly ant-eater	Reptiles	Control the white ant	Very Poor
16	Benga	frog	Reptiles	Control the insect population, and they're a food source of different animals	Very Poor
17	Brahmani benga	marsh frog, toad	Reptiles	Control the insect population, and they're a food source of different animals	Very Poor
18	Bengafula	tadpole	Reptiles	Control the insect population, and they're a food source of different animals	Very Poor

19	Kuruma,kaicha	turtle	Aquatic Species	Providing key habitat for fish, helping to balance water food webs and facilitating nutrient cycling from water to land.	Very Poor
20	Kankada	crab	Aquatic Species	Nutritious food, Crabs are one of the main decomposers in the water ecosystem.	Very Poor
21	Shamuka	oyster	Aquatic Species	Nutritious food, Provide minerals, nitrogen and phosphorus to crop roots	Very Poor
22	Machha	fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
23	Kerandi	minnow	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
24	Gadisha	gudgeon	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
25	chandimachha	silver fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
26	chitala machha	flat fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
27	chingudi (chhota)	shrimp	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
28	chingudi (bada)	lobster	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
29	chenga	gilt head	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
30	todi	eel	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
31	dandikiri	grig	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
32	falimachha	flounder	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
33	balia	trout	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
34	baligarada	sandeel	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
35	bhakura	carp,white fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
36	magura	sheat fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
37	mirikali	mackerel	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
38	rohi	breeding fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
39	shingi	scorpion fish	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
40	sheula	big gudgeon	Aquatic Species	Nutritious food, Provide phosphorus and other essential nutrients to cro roots	Very Poor
41	igal	eagle	Bird	Control pest, rats and support for pollination	Very Poor
42	kapota	dove	Bird	Control pest, rats and support for pollination	Very Poor
43	kau	crow	Bird	Control pest, rats and support for pollination	Very Poor
44	kantibaga	pond heron	Bird	Control pest, rats and support for pollination	Very Poor
45	kathahana	woodpecker	Bird	Control pest, rats and support for pollination	Very Poor
46	kakatua	cockatoo	Bird	Control pest, rats and support for pollination	Very Poor
47	kaduakhumpi	snipe	Bird	Control pest, rats and support for pollination	Very Poor
48	kukuda	cock	Bird	Control pest, rats and support for pollination	Very Poor

49	mai kukuda	hen	Bird	Control pest, rats and support for pollination	Very Poor
50	kochilakhai	hornbill	Bird	Control pest, rats and support for pollination	Very Poor
51	koili	cuckoo	Bird	Control pest, rats and support for pollination	Very Poor
52	kajalpati	black drongo	Bird	Control pest, rats and support for pollination	Very Poor
53	kalapecha	strix	Bird	Control pest, rats and support for pollination	Very Poor
54	kukudachhua	chicken	Bird	Control pest, rats and support for pollination	Very Poor
55	khanjan	wagtail	Bird	Control pest, rats and support for pollination	Very Poor
56	krouncha	curlew,bittern	Bird	Control pest, rats and support for pollination	Very Poor
57	gunthuri	quail	Bird	Control pest, rats and support for pollination	Very Poor
58	gendalia	grey crane	Bird	Control pest, rats and support for pollination	Very Poor
59	gobara,bulbul	nightingale	Bird	Control pest, rats and support for pollination	Very Poor
60	gharachatia	sparrow	Bird	Control pest, rats and support for pollination	Very Poor
61	chakrabaka	ruddy goose	Bird	Control pest, rats and support for pollination	Very Poor
62	chataka	swallow	Bird	Control pest, rats and support for pollination	Very Poor
63	chila	kite	Bird	Control pest, rats and support for pollination	Very Poor
64	chadhei	bird	Bird	Control pest, rats and support for pollination	Very Poor
65	chhanchana	falcon	Bird	Control pest, rats and support for pollination	Very Poor
66	tia (patishua)	lorikeet	Bird	Control pest, rats and support for pollination	Very Poor
67	tentei	tattler bird	Bird	Control pest, rats and support for pollination	Very Poor
68	damarakau	rook,raven	Bird	Control pest, rats and support for pollination	Very Poor
69	dahuka	water hen	Bird	Control pest, rats and support for pollination	Very Poor
70	titiri,harada	partridge	Bird	Control pest, rats and support for pollination	Very Poor
71	para	pigeon	Bird	Control pest, rats and support for pollination	Very Poor
72	panikua	little cormorant	Bird	Control pest, rats and support for pollination	Very Poor
73	pecha	owl	Bird	Control pest, rats and support for pollination	Very Poor
74	badhiakanka, sarasa	stork	Bird	Control pest, rats and support for pollination	Very Poor
75	baga	heron	Bird	Control pest, rats and support for pollination	Very Poor
76	bani	myna, mina	Bird	Control pest, rats and support for pollination	Very Poor
77	bayachadhei	weaver bird	Bird	Control pest, rats and support for pollination	Very Poor
78	baja	hawk	Bird	Control pest, rats and support for pollination	Very Poor
79	balitentei	sandpiper	Bird	Control pest, rats and support for pollination	Very Poor

80	badudi	bat	Bird	Control pest, rats and support for pollination	Very Poor
81	bilahansa	dabchick	Bird	Control pest, rats and support for pollination	Very Poor
82	bagula	large egret	Bird	Control pest, rats and support for pollination	Very Poor
83	bharatia	lark	Bird	Control pest, rats and support for pollination	Very Poor
84	machharanka	king-fisher	Bird	Control pest, rats and support for pollination	Very Poor
85	haladibasanta	golden oriole, mango bird	Bird	Control pest, rats and support for pollination	Very Poor
86	hadagila	adjutant	Bird	Control pest, rats and support for pollination	Very Poor
87	Kokishiala	fox	Animal	Help to control the numbers of prey species like rodents and insects	Very Poor
88	Gai	cow	Animal	Provide milk, compost, manures, cowdung fuel. Cowdung will heat naturally, killing many microbes and weed seeds	Very Poor
89	Gunduchimusha	squirrel	Animal	Conrol Insect	Very Poor
90	Neula	mongoose	Animal	Control rats	Very Poor

Annexure -4 (Wild Food Status, Terekela) - Wild Food Status, Terekela

S No	Plant Name	Scientific Name	Species	Season of availability	Types of food	Wild Food	Both	Status	Nos of month collected before	Nos of month collected now
1	Bana Kunduri	Melothriaheterophylla(Lour.) Cogn.	Herb	Whole year	Leaves	1		E	12	2
2	Bathua	Chenopodium album Linn.	Herb	Rainy	Leaves	1		T	3	1
3	Poi	Basella alba Linn.	Herb	Whole year	Leaves			E	12	0
4	Chankunda	Casssiatora Linn.	Herb	Whole year	Leaves	1		T	12	3
5	Puruni	Portulaca oleracea Linn.	Herb	Rainy	Leaves	1		T	3	1
6	Bana Sorisha	Cleome isosandra Linn.	Herb	Rainy	Leaves	1		T	3	1
7	Banakhada	Amaranthus viridis Linn.	Herb	Whole year	Leaves	1	1	T	6	2
8	Kena/Kansaree	Commelinabenghalensis Linn.	Herb	Rainy	Leaves	1		T	2	1
9	Kankada	Momordica dioica Roxb.exWilld.	Herb	Rainy	Leaves	1		T	3	1
10	Gaisa	Leucas cephalotes Spreng	Herb	Rainy	Leaves	1	1	T	2	0
11	Kuler	Bauhinia purpurea Linn.	Tree	Summer	Leaves	1	1	E	4	1
12	Gobi	Trianthemaportulacastrum Linn.	Herb	Rainy	Leaves	1		T	3	1
13	Kalamba	Ipomoea aquatica Forck.	Herb	Whole year	Leaves	1		E	12	0
14	Koilekha	Asteracanthalongifolia Nees.	Herb	Rainy	Leaves	1		T	3	0
15	Sirel	Celosia argentea Linn.	Herb	Rainy	Leaves	1		T	3	2

16	Sankhapuspi	Aervalanata Juss. Ex Schult.	Herb	Whole year	Leaves	1		E	12	1
17	Madranga	Alternanthera amoena (Lemaire) Voss.	Herb	Rainy	Leaves	1		E	3	1
18	Pitasaga	Polygonum plebeium R. Br.	Herb	Rainy	Leaves	1		E	3	1
19	Khapuri	Trianthemadecandra Linn.	Herb	Rainy	Leaves	1		E	3	1
20	Sunsunia	Marsieiaminuta Linn.	Herb	Whole year	Leaves	1		E	12	3
21	Banasaru/Manasaru	Colocasia sp.	Herb	Whole year	Leaves	1	1	E	12	0
22	Amla	Phyllanthus emblica	Tree	Winter	Fruits	1		E	2	0
23	Dumer	Ficus carica Linn.	Tree	Rainy	Fruits	1		E	2	0
24	Bahada	Terminalia bellerica	Tree	Winter	Fruits	1		E	1	0
25	Pijuli	Pasidum guava	Tree	Rainy	Fruits	1	1	T	3	0
26	Char	Buchanania lanzan	Tree	Summer	Fruits	1		T	3	1
27	Jamun	Syzygium cumini	Tree	Spring	Fruits	1		T	1	1
28	Bankundri	Melothria heterophylla (Lour.) Cogn.	Herb	Rainy	Fruits	1		E	3	0
29	Ban karaila	Momordica dioica Roxb. ex Willd	Herb	Rainy	Fruits	1		T	3	0
30	Bhadoo	Vitex glabrata R. Br.	Tree	Summer	Fruits	1		E	3	0
31	Barkoli	Ziziphus jujube	Tree	Summer	Fruits	1		E	3	0
32	Sana Dumer	Ficus glomerata Roxb.	Tree	Rainy	Fruits	1		E	2	0
33	Dhamna	Grewia subinaeqnalis DC.	Tree	Summer	Fruits	1		E	1	0
34	Terrel	Diospyros melanoxylon Roxb.	Tree	Summer	Fruits	1		E	1	0
35	Sana Pijuli	Dillenia indica Linn.	Tree	Winter	Fruits	1		E	2	0
36	Kashiphal	Bridelia retusa Spreng.	Tree	Summer	Fruits	1		E	1	0
37	Sana Amla	Emblica robusta	Tree	Winter	Fruits	1		E	1	0
38	Pinder	Randia uliginosa DC.	Tree	Winter	Fruits	1		E	1	0
39	Chhota Jamun	Ficus lucescens Blume	Tree	Rainy	Fruits	1		E	1	0
40	Khata koli	Dillenia pentagyna Roxb.	Tree	Summer	Fruits	1		E	1	0
41	Bana Bhalia	Semecarpus anacardium Linn. f.	Tree	Spring	Fruits	1		E	1	0
42	Dumer Sana	Ficus hispida Linn. f.	Tree	Winter	Fruits	1		E	1	0
43	Tentuli	Tamarindus indica	Tree	Summer	Fruits	1		E	12	0
44	Kunduru	Coccinia indica	Climber	Whole year	Fruits, Leaves	1		T	3	1
45	Agasti phool	Sesbania grandiflora Pers.	Tree	Winter	Flower	1		E	1	0

46	Kolthia	Indigofera pulchella Roxb. in part	Tree	Spring	Flower	1		E	1	0
47	Sunari	Cochlospermum religiosum (Linn.) Alstm	Tree	Summer	Flower	1		E	1	0
48	Kujri	Celastrus paniculatus Willd.	Herb	Summer	Flower	1		E	1	0
49	Kurei	Holarrhena antidysenterica (Linn.) Wall.	Tree	Summer	Flower	1		E	1	0
50	Mahua	Madhuca indica J.F.Gmel.	Tree	Summer	Flower	1		T	3	2
51	Tentuli	Tamarindus indica Linn.	Tree	Winter	Flower	1		E	2	0
52	Barakoli	Ziziphus jujuba Mill.	Tree	Winter	Fruits	1		T	1	0
53	Bhelwa	Semecarpus anacardium Linn. f.	Tree	Winter	Fruits	1		E	1	0
54	Char	Buchanania lanzan Spreng.	Tree	Summer	Fruits	1		T	3	1
55	Kendu	Diospyros melanoxylon Roxb.	Tree	Winter	Fruits	1		T	2	0
56	Mankan Kendu	Diospyros peregrina (Gaertn.) Gurke	Tree	Winter	Fruits	1		E	1	0
57	Mahua (Tola)	Madhuca indica J.F.Gmel.	Tree	Rainy	Fruits	1		T	2	1
58	Sal	Shorea robusta Gaertn. f.	Tree	Summer	Fruits	1		E	1	0
59	Pit	*Diascorea oppositifolia*	Climber	Rainy	Tuber	1		E	3	0
60	Soronda	*Diascorea glabra*	Climber	Rainy	Tuber	1		E	3	0
61	Taragai	*Diascorea tomentosa*	Climber	Winter	Tuber	1		E	3	0
62	Cherenga	*Diascorea wallichi*	Climber	Summer	Tuber	1		E	2	0
63	Sika	*Diascorea hamiltonii*	Climber	Rainy	Tuber	1		E	3	0
64	Pita	*Diascorea bulbifera*	Climber	Winter	Tuber	1		E	3	0
65	Kasha	*Diascorea puber*	Climber	Winter	Tuber	1		E	3	0
66	Mitni	*Diascorea pentaphylla*	Climber	Winter	Tuber	1		E	2	0
67	Kulia	*Dioscorea hispida*	Climber	Winter	Tuber	1		E	4	0
68	Mitha Kanda, Nali	Dioscorea sp.	Climber	Spring	Tuber	1		E	3	0
69	Mitha Kanda, Dhala	Dioscorea sp.	Climber	Spring	Tuber	1		E	3	0
70	Alu Kanda	Dioscorea puber Blume.	Climber	Spring	Tuber	1		E	6	0
71	Hati Pahunda	Dioscorea sp.	Climber	Spring	Tuber	1		E	6	0
72	Khamba Alu	Dioscorea wallichii Hook. f.	Climber	Winter	Tuber	1		E	3	0
73	Karadi, baunsa	Bambusa species	Woody/ Grass	Winter	Shoots	1		T	2	1

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Development of an integrated plan by marginal farmers based on their knowledge, experience, land situation, soil type, local weather, planting time, maturation period, tolerant to common insect pests and diseases that will provide for the nutritional needs of the household members round the year

Piloted in CRAFT-K Project Area, Karlamunda Kalahandi