

## Success story of Penala village, Kandhamal

1. **Title of the Project:** “Development of Nutri-Smart village for combating malnutrition in tribal districts of Odisha
2. **Category (Agriculture, Horticulture, Soil Conservation, etc.) -To narrate significant/ the success story of the project :** Nutrition Sensitive Intervention under Extension Education of OUAT
3. **Background of the project. (Issues, Challenges, Gaps):**

As per the National Family Health Survey (NFHS - 4), 2015-16, Gajapati, Kalahandi, Kandhamal, Koraput, Rayagada, Malkangiri and Nuapada districts of Odisha have been categorized under the districts having high degrees of malnutrition. The report also indicates high levels of stunted growth (i.e. long term effect of malnutrition) in almost all of these districts. Similar observations were also found for wasted (low weight-for-age i.e short term effect of malnutrition) and severely wasted children (low weight-for height). Malnutrition was observed more in case of Particularly Vulnerable Tribal Groups (PVTGs), who are staying nearby forest areas. Indian Council of Medical Research (ICMR) recently reported that the Chronic Energy Deficiency (CED) was much higher in case of tribal women, which was 46.0 per cent, as compared to the 39.3% women per cent of the State. Though, Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) have been declining in recent years, but still it remains above the desirable level. Anemia, which is very common among pregnant mothers and infants, accounts for 8.1% infant deaths. Likewise malnutrition among children is rampant in tribal dominated areas, particularly among forest dwellers. Further, due to their remoteness and nutrition insecurity, they face health problems, poverty, hunger and declining livelihood opportunities. Most of the tribal of the selected districts are marginal farmers. They depend upon off-farm activities during dearth of farm operations. Particularly, women are more vulnerable to scarcity of work and food. As a result, anemic and undernourished mother gives birth to an anemic child. Such children often do not lead a healthy life in subsequent years. Thus, addressing this issue of malnutrition for both mother and child is of utmost importance.

In addition to the above, health and income are closely related. The widespread poverty among the tribes in Odisha has a direct bearing on the purchasing power and the health status of these people and also the poor health aggravates poverty by reducing the income of the people. Climatic fluctuations have also been contributing adversely for getting adequate production from

their rain fed farming. In spite of getting food support from Public Distribution System (PDS), they are still undernourished and under poverty. Their health status has not improved remarkably.

In view of the above, the project aimed at creating awareness about the production and consumption of nutri-dense crops and placing diversified foods in the food baskets of tribal households of the district.

The present case study is for the Penala under Tikabali block, which was selected for the implementation of project after initial field studies. The village is situated around 10 kms away from G.Udayagiri.

#### **4. Pre-Implementation Issues**

##### **Issues:**

The main issue was the poor nutritional status of women giving birth to Low Birth Weight (LBW) baby. It was observed that 4%, 4%, 16% of females were severe underweight, moderate underweight and mild underweight having Body Mass Index(BMI ) <16, in between 16-16.9 and 17-18.4, respectively and Waist Hip Ratio(WHR) ratio showed 2% of females were underweight having the WHR ratio <0.7.

The base line study indicated that the average consumption of cereals and millets were 411.4 g in males and 396.07 g in females per day, which was low from the Recommended Dietary Allowances (RDA) of National Institute of Nutrition( NIN), Indian Council of Medical Research(ICMR). Average pulses consumption daily was also low, i.e. 37.5 g in males and 27.63 g in females. Males consumed average 267.99 g of vegetables and females consumed only 239.4 g of vegetables, which were low from RDA. Intake of fruits was also very low, only 10.62 g and 7.5 g for males and females, respectively. Low milk and milk products intake was also observed; it was 9.57 ml for males and 5.62 ml for females. Non-vegetarian foods (Meat, fish, poultry) intake was also low in both males (108.86gm) and females (105.89 gm). As it was observed, the women consumed less nutritive food than men, though the figures for men were also not very satisfactory. Same was observed in case of children also. Their diet is dominated with rice, maize, locally grown vegetables, and forest based wild roots, tubers, leafy vegetables, flowers

season wise. Consumption of fruits, milk and milk products are far from the expectation. Egg and poultry are consumed once or twice in a month. About 56.25%, 55%, 92.5% of respondents consumed greengram, bengalgram, blackgram occasionally and 48.75% consumed pigeon pea once in a day. Among nuts and oil seeds 83.75%, 98.75% of respondents consumed ground nut, sesame occasionally respectively, 38.75% of respondents consumed mustard oil occasionally and 41.25% consumed palm oil twice a day. Meat and fish consumed occasionally by 78.75% and 76.25% of respondents respectively, chicken and eggs consumed weekly by 60% and 55% respectively. From the above discussion, tribal households are not getting sufficient nutrients as per RDA value.

In addition to the above, the following were also observed

1. Every day search for livelihood forcing the tribal women to neglect their children
2. Low production from own farm (crops as well as livestock)
3. Poor maintenance of backyard kitchen garden resulting low production
4. Crop loss due to climatic fluctuation in rain fed farming
5. Poor sanitation and personal hygiene



Picture showing undernourished both mother and children



Elderly Women engaged in selling vegetables from their nutritional garden



Measurement of wt.& ht. of tribal woman at Penala



Measurement of wt.& ht. of tribal woman at Penala



Pre-implementation meeting with farmers along with KVK scientist



Selling wild tubers and leaves collected from nearby forest areas by the women

##### **5. RKVY Initiative (feedback from stakeholders activity knowledge changing the practice, policy, investment through amount spent, year of intervention)**

The project was implemented during 2017-18 to 2020-2021 with the basic mandate of ensuring dietary diversities at the household level to help people to come out of the malnutrition cycle. In this context, nutrition sensitive agriculture was identified as the tool to address these issues. Therefore, based on the base line information and series of discussions with the stakeholders, the following activities were undertaken in the RKVY “ Nutri-Smart” Project.

1. Development of household nutritional garden and ensuring harvest round the year
2. Plantation of fruit seedlings anticipating available of fruits seasonally
3. Introduction of nutri-dense crops
4. Rearing of dual purpose poultry birds

5. Creation of awareness on nutritious food and their health benefits through one to one meetings/ trainings
6. Training on preparation of products like mango RTS and tomato ketchup for entrepreneurship development among Women SHGs

Ten households were identified for development of nutritional gardens and the vegetable kits consisted of okra seeds, pumpkin seeds, amaranthus, brinjal, chili, radish, tomato etc. The women developed their own backyard garden under the supervision of the project scientists as well as the local KVK. The crops were identified in a manner considering suitable crop rotation model that there was harvest throughout the year. It was also ensured that the families obtained constant supply of fresh vegetables adequately meeting their family needs.

Households having available land were provided with saplings of mango, guava, custard apple, pomegranate, apple ber, etc. to get fresh fruits round the year so that required micronutrients need could be fulfilled. Lemon, banana and drumstick seedlings were also supplied for growing in their nutritional garden. The fruit plants are now under vegetative stage. Later on it would ensure the availability of fresh fruits in the locality.

Introduction of nutri-dense crops such as grain amaranthus, CR-311 paddy seed and HQP maize seeds were distributed among some interested households. Grain amaranthus is very rich in protein (around 14 g in 100 g edible portion). CR Dhan 311 has high protein content (10.1%) and moderately high level in Zn content (20 ppm) in 10% polished rice. Through these interventions, Protein Energy Malnutrition (PEM) among children and women particularly pregnant and lactating would be addressed.

Backyard poultry provided livelihood security to the tribal households in addition to securing their food availability particularly available of quality protein. Two hundred numbers of dual purpose poultry chicks, Banaraja were supplied to 20 farm families in the Penala village. From this they got on an average 108 number of eggs/ hen which was consumed by them and they got additional income selling their birds in the local markets. Further, they were advised to increase the Banaraja population partially replacing the local breed.

Hand holding activities were also conducted on all the above aspects to the villagers starting from agronomic practices, crop management, storage as well as food preparation.

The International women's Day was celebrated on 8.3.2020 at the village in order to sensitize women towards health and nutrition as well as their roles in social sectors.

## **6. Technology/Tools development**

The following technologies were adopted in the village.

- Integration of nutri-dense crops
- Vegetables in nutritional garden round the year
- Fruit plantation for getting fruits in all seasons
- Dual purpose poultry rearing
- Healthy food preparation

## **7. Outcomes/Impacts of the project.**

### **a. Supporting images/ Videos**

- Increase in vegetable yield by 77% in their nutritional garden ensured vegetable consumption as per their requirement and surplus amount gave additional income to the beneficiaries. The other non-beneficiary farmers and farm women motivated to grow varieties of vegetables in their nutritional garden round the year.
- Rearing of dual purpose Poultry bird increased egg production as well as meat production. Through this intervention they got quality protein diet as well as additional income.
- Consuming grain amaranthus, quality protein maize and protein rich rice, they could meet the protein requirement for their family and it would be the example of other farmers to adopt the same practice in reducing malnutrition in their locality.
- By consuming varieties of fresh fruits and vegetables from their own garden micronutrient deficiencies among all the age group of the tribal communities can be addressed.
- The women Self help Groups ( SHGs) in this village practiced to prepare mango RTS for entrepreneurship development so that they will be able to get more return from mango cultivation reducing market glut during season.

## **7. Citation of 3-4 sentences from 4 to 5 beneficiaries that bring a change (Beneficiaries details to be mentioned)**

1. Sri Baladev Pradhan, age about 47 years, village –Penala, block-Tikabali, District Kandhamal: “We have received mango, pomegranate, sapeta, guava, apple ber, custard apple seedlings and we have grown them, which would provide fresh fruits round the year in coming days. RKVY “Nutri-Smart’ project supplied us vegetable seeds and seedlings to grow in nutritional garden in addition to our own seeds for vegetables and also lemon and banana and drumstick seedlings for nutritional garden. Banaraja birds were received from RKVY project which would provide additional income besides eggs for home consumption. We got more number of eggs from this breed than our traditional birds.”
2. “I am actively involved in RKVY Nutri-Smart project activities. Madam from the project arranged trainings and demonstrations. I have been associated with arranging the meetings and beneficiaries for this project since 2017-18. We have been benefited from this project by developing nutritional garden, poultry keeping and particularly by making mango squash and tomato ketch up”: Mrs.Nikima Pradhan, w/o Late Luma Pradhan of village Penala.
3. “Attending training programme I have learnt making mango RTS (Ready To Serve). During previous years we have sold jack fruit and mango in through away price, even if we did not get the labour cost. We hope through this preparation we would get more price from mango RTS selling this in our local market and also we will consume in our family. We got additional income and more egg from the poultry .”. Mrs. Jiratama Pradhan, w/o Sudhira Pradhan of penala, Kandhamal.
4. Smt. Chandrabati Pradhan, W/o Harida Pradhan of Penala “We had no idea about nutritious foods. Whatever we want we consume. After getting training and gone through the booklet, I came to know about consumption of varieties of food items which are available with us. We did not consume many nutritious food materials around us. Again, we have prepared mango RTS which was very tasty and we will prepare it in next season in our group.

**5. 9- Additional Information-**

1. **List of project parameters/donors**
2. **Links to supporting materials**

Such as news items, photos & presentations on slide share.

Project Activities photos:



Fruit saplings supplied to farmers of Village Penala, Kandhamal district



Celebration of International Womens' Day on 8<sup>th</sup> March, 2020 at Penala



Supply of poultry chicks to women farmers of village Penala



Supply of poultry chicks to women farmers of Penala



Showing bitter gourd from nutritional garden by the farmers of Penala under RKVY Nutri-Smart project



Training on Preparation of mango RTS at Penala





Training on nutritious food preparation at Penala under RKVY Nutri-Smart project



Training on Preparation of mango RTS



Preparation of mango RTS during training to WSHGs



Distribution of booklets on " Khadyaku Pustikara Karibe Kipari?"



Demonstration of nutritional garden at Penala



Showing crop rotation for nutritional garden