

## **Brief note on NAFCC Project at Nuapada**

### **1. Name of the Project: -**

*“Conserve water through the management of run-off in the river basin to reduce vulnerability and enhance resilience for traditional livelihood in Nuapada.”*

### **Introduction**

This project has approved by MoEFCC for Rs. 20.00 crores and communicated in their Lt. No. ENV-I-102/2015 (Pt). 23383/ F&E Dt. 28.12.2015 and aims **to reduce vulnerability and enhance resilience for traditional livelihood in Nuapada** district by restoring a hill stream in Jonk river basin through constructing water harvesting structures i.e. check-dams to conserve water through the management of run-off. The project has aimed to achieve multi sector improvement specifically in water conservation, promotion of horticulture, linking the fishery activity also use of Solar lifting system and drip irrigation for efficient use of water for agricultural activity.

### **I. Project concept**

The project aims to prosper “Climate Resilience Livelihoods” through promotion of Plantation, Water Conservation, Crop Diversification, Pisciculture, Animal Husbandry, Solar Induced Drip Irrigation, Capacity Building through Community Based Institutions. The location of the project is selected near the convergence point of Kharakhara nala of Nuapada District with the river Jonk at the border area of Chatishgada & Odisha the villages named Budhipalli, Palsabhadar, Porkod, Amlidadar, Bhusudi, Bhainsatal, Boloda and Jangula have been selected in three Grampanchayat named Parkod, Budhipalli and Bhainsatal of Nuapada Block in Nuapada District.

### **II. Components of project implementation:-**

- i. **First component:** Creation of structural measures such as Check Dams, Fencing, Micro Irrigation system and farm ponds etc.
- ii. **Second component:** Diversifying livelihood from Paddy monoculture and introduce Horticulture
- iii. **Third component:** Link fishery and poultry as part of livelihood diversification initiative
- iv. **Fourth component:** Solar pumping system to irrigate the up lands
- v. **Fifth component:** Formation, Linking Water Users Association and Panipanchayata for sustainable livelihood through capacity building and training.
- vi. **Sixth component:** Develop resource material and tool for monitoring of the climate change adaptation and mitigation co-benefits.

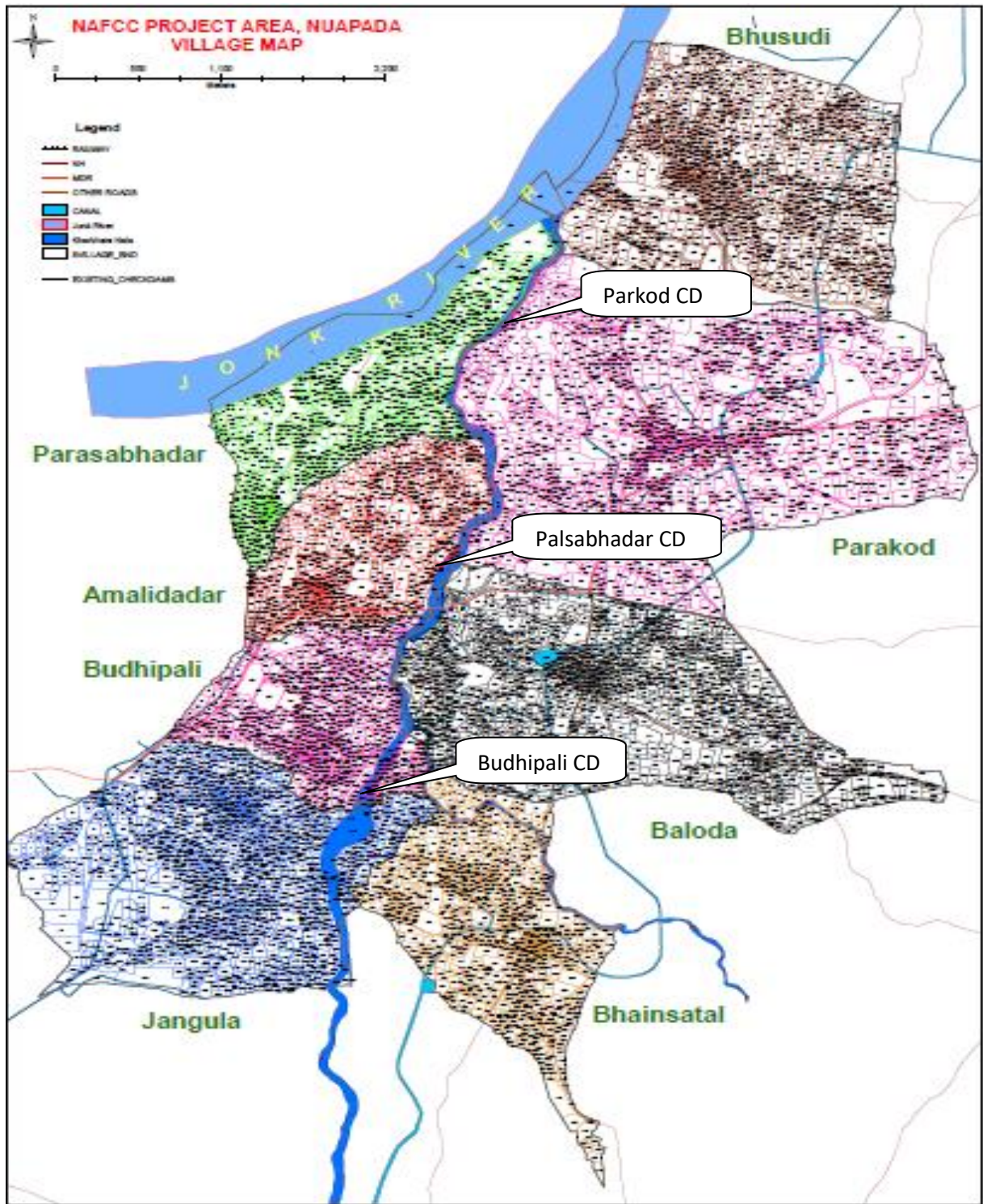


Figure 1 : MAP OF THE NAFCC PROJECT AREA

### **III. Approach of the project**

In addition to the construction of Check Dams in the in-stream storage structure, the project execution has been carried on with the following approaches:-

- The works have been taken up through various aspects by conducting the pre base line survey. In this connection the various data like economic standard, migration habit, crop production, education standard, health standard and willingness of farmers have been taken as reference.
- Basing on the geographic locations and topography of the three check dams, six clusters has been chosen for promoting cultivation with diversification from paddy monoculture to horticulture.
- Actions has been taken for formation of Panipanchayata, farmers income group (FIG), Farmers Producers Organisation (FPO).
- The formation of Panipanchayata (as per rule and act of 2002 & 2003) have been made with 257 farmers who are cultivating in 234 ha. of land at both sides of three check dams in six clusters. Provision have been made to provide irrigation through the Solar water pumping system to the respective delivery chambers in the command area through underground water delivery network.
- At present only paddy is the main cultivation practice in this locality. Very few farmers are conducting the vegetable cultivation. So importance has been given for adaptation of vegetable cultivation and value addition practices. Organic farm cultivation in kitchen garden also taken care for malnutrition through OLM and Horticulture departments.
- Introduction of entrepreneurs through exposure visit and capacity building for a sustainable livelihood has been taken care by all the stakeholders.
- The earning capacity of the farmers are targeted to enhance to a bigger extent. The women participation in this events are also encouraged in a greater manner. They have been trained for Agro by-products like Pickle, Tamoto souse, fruit Jelly and Mushroom cultivations. The School Children and College students are also being encouraged through Drawing, Debate, Essay and Song competitions for better understanding the climate change adaptation.

### **IV. Technical approach :**

The catchment area of the project is about 127.5 Sq.km.. The project have been designed to irrigate 145 ha of land through three check dams in the command area. But at present depending upon the condition it can be confirmed that more than 234 ha. can be irrigated with the involvement of farmers in six clusters of three check dams. For efficient of water Drip and Sprinkler irrigation systems have been included in the program. Another two check dams at Mohatamtara and Jangula also constructed at the U/s of Kharakhara nala by the State Government.

This has been examined by considering a patch of command area which is about 8m to 10 m high and available at a distance of 800m to 1800m from the source of water for irrigating the same through Solar water pumping system to grow the crops in an area of about 3ha. Again, this has been repeated for six patches with a pipe line network and delivery system through small overhead tank of 32000lt. in each patch.

**2. Pollution abatement steps, including recycle and reuse of waste water. Efforts made to be duly substantiated with data.**

With the use of solar pumping system CO<sub>2</sub> emission from Diesel and Kerosene pumps is being reduced. Diversification of paddy cultivation to horticulture activities helped the reduction of Methane emission in a significant manner.

**3. Number of trees planted, and maintenance mechanism for survival for trees. :**

Total trees are of 10,650 nos. out of which, 5085 nos of Mango, Jack fruit and cashew plantations have been used in Orchards, Back yards of households. 2000 nos distributed from Agro forestry, 1900 nos of Lemon and Drumstick plants in Back yard of households have been covered. Through Forest department also 2500 nos plantation have been made at the approach road sides and banks of kharakahara nala.

**4. Mass sensitization and capacity building in water conservation and management, including water budgeting. Furnish details of activities and impact thereof.**

Eight nos of water user Association have been formed for efficient use of water as per rule and act of Odisha Panipanchayata Act 2002 and Rule 2003. Two Nos. of Farmers Producer Organisation and 32 nos of Farmers Income Group have been generated in these 8 villages. Efforts are being taken to develop them through various business planning and to develop their livelihood. Continuous Awareness program have been conducted in all the villages for sustainable livelihood development. Exposure visits to WALMI at Cuttack, WALAMTARI at Hyderabad and local exposure visit tours to the successful farmers' field near the district have been made by the project committee. A continuous awareness generation program also has been conducted by the Odisha Livelihood Mission for Nutrition cultivation through Organic farming in the backyards of eight villages. Through Krushi Vigyan Kendra for livestock development, Sustainable livelihood development, Mushroom cultivation, At the field level by the experts of NAFCC for fisheries, Horticulture orchard farming and diversifying from Paddy monoculture to horticulture.

As we know, children are the future of country, so an awareness generation competition have been conducted in five categories from class one to class twelve in the colleges during last independence day. 304 students from 12 nos of schools and colleges have been selected for inter school and college competition. There were competitions of Drawing, Song and Debate in the event. Theme of Drawing and debate were on Plantation for lower standard students and on Climate Change for Higher category of students. Similarly Patriotic song competition was there for all categories.

## 5.Physical Achievements:-

- **Pre and Post Implementation Scenario** : The area was dry, it gets water from the Kharakhara diversion weir in each alternative year otherwise it remained dry . *Through the* five check dams constructed which stores the water for a length of 7.5 km long. Out of these five check dams, last three CDs named Budhipalli, Palsabhadar(Near Amlidadar) and Parkod have been constructed under NAFCC.



Figure 2:PRE CONSTRUCTION PHOTOS OF CHECK DAM AT BUDHIPALLI, PALSABHADAR AND PARKOD



Figure 3 : CHECK DAMS AT BUDHIPALLI, PALSABHADAR AND PARKOD

- **135** nos of migrant families have adopted off season vegetable cultivation in 11.30 Ha. land and harnessed the result with 220 % land utilisation due to substantial enhancement of cropping intensity due to conservation and utilisation of water in the catchment. It is also noticed that the water table in some open wells in the adjacent area are high compared to previous years & distant places. Farmers at the tail end are able to get their land irrigated and doubled their income from their land in 106.47 ha of ayacut area. 87 nos of marginal farmers have planted mango in 45.99 ac. of upland which were remaining hitherto unutilised. The land utilisation pattern has been changed altogether to advanced and scientific method with a certain prosperity in near future. In the wake of frequent drought like situation and scanty rainfall during the last two years, the crop of the ayacutt area was comparatively better than other area and sustained climate change. In addition, the morbidity and mortality of livestock population and indigenous poultry birds are significantly low than the previous years.
- **Length of rivers revived** : In 7.50 Km ( The slope of river Kharakhara in 1m in 1000m ) so by creation of in-stream-storage structures of a height of about 1.5 m, the water has been stored up to a length of 1500m It is seen that the water is not only being conserved, but also the water level below the ground has been increased.
- **Improvement in the Ground water recharge** :- A beautiful improvement have been noticed in the ground water levels in the 15 nos. of ground water observation wells. The dry wells became rejuvenated because of water conservations.



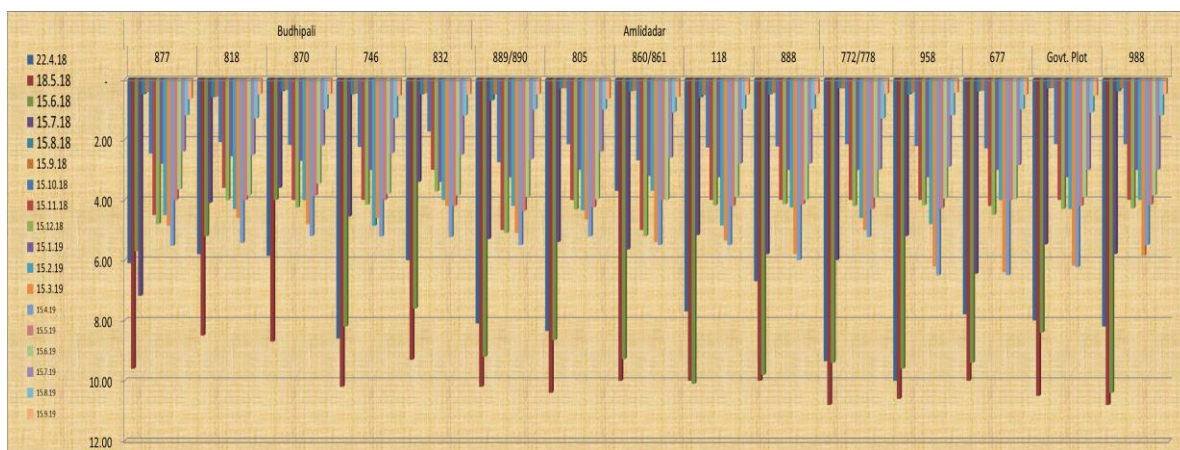


FIGURE 1 GROUND WATER LEVELS OF OBSERVATION WELLS

- **Pollution abatement steps** : Use of solar pumping system encouraged, by which CO<sub>2</sub> emission of Diesel and Kerosene pumps is being reduced. Diversification of paddy cultivation to horticulture activities helped the reduction of Methane emission in a significant manner.
- **Number of structure made in catchment area**: In Kharakhara nalla, total 5 check dams have been constructed but in the tributary of Kharakhara Nalla , 25 .nos of check dams have been constructed. At the upstream there is a diversion weir named as Chanabeda DW, constructed by Medium Irrigation division at a distance of about 1.4 km from the upstream of Mahatamtara check dam.
- **Total benefits accrued (tangible & intangible)** : Direct benefits have been provided for 5 villages named Amlidadar, Budhipalli, Palsabhadar, Parkod and Boloda and indirect benefits are also been made to Bhainsatal, Bhusudi and Jangula from these command area. The tangible benefits are from the project area is available of water inside the stream, livelihood development of farmers by converting the paddy monoculture to horticulture, increasing ground water level inside the observation wells and encouragement for self-sustainability. In the intangible benefits it has ushered into economic development of farmers, who have got enhanced earning by selling the vegetables in the market through the capacity building program made by the NAFCC project. Similarly the practice of Nutrient kitchen garden helped the dwellers practice of Organic cultivation and to promoted nutritional security in the household.
- 93 Beneficiaries are developing their courtyard poultry farm @50 each, 40 farmers are being benefited from Duck farm @17 nos each, 89 will be from goatery @ 5 nos each. 50 farmer will be provided with diary farming.
- Similarly the practice of Nutrient kitchen garden helped the dwellers for making a practice of Organic cultivation.
- With the help of different training activities the knowledge of farmer have been developed through explosive visit, hands on training, off campus & on campus training through KVK, regarding person from Horticulture, Agriculture, Odisha Livelihood mission & expert from NAFCC.
- The scientific data box have been created with the soil moisture data, soil nutrition & NPK data, Ground water table vacation as well as water flow in the stream data. Similarly the vulnerability analysis study is also been taken by third party consultant.
- **Awareness generated**: Six nos of Water User's Associations have been formed for efficient use of water as per rule and act of Odisha Pani Panchayata Act 2002 and Rule

2003. Two Nos. of Farmers Producer Organisation and 32 nos of Farmers Income Groups have been formed in these 8 villages. Efforts are being taken to develop them through various business planning and to develop their livelihoods through training, demonstration and working capital & asset infusion conducted in all the villages for sustainable livelihood development. Continuous Awareness program have been conducted in all the villages for sustainable livelihood development. Exposure visits to WALMI at Cuttack, WALAMTARI at Hyderabad and local exposure visit tours to the successful farmers' field near the district have been made by the project committee. A continuous awareness generation program also has been conducted by the Odisha Livelihood Mission for Nutrition cultivation through Organic farming in the backyards of eight villages. Through Krushi Vigyan Kendra, programme for live-stock development, Sustainable livelihood development, mushroom cultivation have been taken up. At the field level, horticulture orchard farming and diversification from paddy monoculture to horticulture is being undertaken.

The details are annexed in this booklet for kind personal of the higher authorities.

## 6. Financial progress in brief

	Component	Revised Budget amount	Amount spent with disbursement Rs.in cr.	Amount to be spent Rs. in Cr.	Target date of completion
1	Structural intervention to rejuvenate Natural Stream	9.215	5.201	4.014	31.6.2021
2	Diversification of livelihood from paddy monoculture to horticulture	2.350	1.51709	0.8329	30.6.2021
3	Fishery & other allied activities	1.350	0.4139	0.9361	30.6.2021
4	Solar pumping system for efficient use of water	1.515	0.3170	1.198	30.4.2021
5	Capacity building activities	1.584	0.5699	1.014	31.12.2021
6	Monitoring of the climate change adaptation and mitigation co-benefits	2.075	1.2155	0.8595	31.3.2022
	Project Execution cost	1.329	1.0340	0.295	31.12.2021
	Project Cycle Management cost	0.583	-	0.583	31.3.2022
	<b>Total</b>	<b>20.00</b>	<b>10.2684</b>	<b>9.7326</b>	<b>31.3.2021</b>

## 7. Scope of replication:

In the 2<sup>nd</sup> State Level Steering Committee of NAFCC under the chairmanship of Chief Secretary held on 14.1.2020 and the 3<sup>rd</sup> State level Steering Committee held on 8.1.2021 it has decided to take up five such projects in Komna, Khariar & Boden block of Nuapada and Saintala & Bongomunda block in Bolangir districts. The proposals with feasibility reports are to be studied by the state Technical Advisory Committee for submission to the ministry of MoEF & CC through NABARD for implementation .