

Risk Reduction and Livelihood Promotion of the Marine Traditional Fishing community in Orissa coast through Information, Communication and Technology (ICT)

**Supported by UNDP and Govt of Orissa**



Facilitated by a Network Of



**AFPRO, Udyama ,  
and Primary-Marine-  
fisher Cooperatives  
From Berhampur to  
Balasore, Orissa Coast.**

## **1. Executive Summary**

As per the commitment of Government of India in Millennium Development Goal (MDG), eradication of poverty is one of its priority areas to be achieved by 2015. This will be achieved within an environmentally sustainable framework which combines the participation of people at all levels. MDG has also given importance on the empowerment of women and socially disadvantaged groups like fishing community, rural artisans, schedule caste and schedule tribes. This concept note has been developed to address the need of the traditional fishing community through Information, Communication and Technology (ICT).

Base-line reliable data on resource inventory for planning and management for sustainable exploitation of aquatic resources both in inland and marine sectors are urgently needed. This becomes more important in the dynamic situations, prevailing in east coast of India with shrinking man land ratio, increasing rate of sedimentation and consequent low volume of water with loss/gain of nutrients with poor primary productivity management and utilization, change in the pattern of land and water use, taming of rivers, loss of flood plain fishery, increasing pollution load in the water, disruption of mangrove forest and increasing use of coastal area for shrimp farming, over exploitation of near shore area etc.

It is important that Geographic Information System through development of digitized maps of the fisheries resources based on satellite imagery and information provided by INCOIS, Hyderabad. The computerized GIS utilizing the satellite imagery maps and ground data collected/generated will provide quick, reliable and structured information to support the traditional fishing community those who mainly depends on their traditional knowledge base. Thus it is essential that development workers should be familiarized with the system and also give their input in framing the required information needed for GIS in fisheries.

The proposed Action Research Project would enhance the livelihood security of Poor Fishing Communities as well as reduce the vulnerability in Orissa. It aims to develop a process to foster greater involvement of poor communities in decision-making processes related to access, development and management of aquatic resources through Information, Communication and Technology (ICT).

This action research will encompass social, economic, environmental and policy perspectives and will be carried out in a participatory way involving all key stakeholders in the community, civil society organisations, research institutions and administration. The project will also identify options for improving the harmonization of stakeholder needs across different groups, sectors and levels of government in ways which provide benefits for all and are within the capacity of all to implement. The project will also transfer skills to the community to make it sustainable.

## **2.1 Background**

India has a coastline of about 7500 kilometers including the island territories of Andaman and Nicobar and the Lakshadweep. The fisheries production of the Indian Ocean is very low compared to any of the countries. When viewed against the world production of 90 million tons, India's contribution is only about 2 percent where as about 7 million people living in the coastline depending on fishing activity for their livelihood.

Orissa has a coastal line of 480 Km from the marshes of Ichhapuram in the south to the east of Subarnarekha in the north-east. This fertile region is known as the 'rice bowl' of Orissa. This is narrow in the north, widest in the middle, narrowest in the Chilika coast and broad in the south. The coastal plain is a gift of six major rivers. The formation of the coastal plains depends on the rivers and their catchment's area. The rivers are: From north to the south, the Subarnarekha, the Burhabalanga, the Baitarani, the Brahmani, the Mahanadi and the Rushikulya. According to the location, the coastal plain can be divided into three sub regions:

## **2.2 Salient Features of the coast line**

- Orissa is one of the main fish producing and consuming States in India. It possesses a 480 km coastline;
- Fish production has increased from 289.39 TMT in 2002-03 to 306.95 TMT in 2003-04, i.e. an increase of 6.07% over the previous year;
- Approximately 166,000 persons are engaged in fishing and related activities in the state of whom about 60,000 are actively directly involved in fishing operations. 1,700 mechanized vessels, 3,100 motorized and 8353 non-motorized craft operate from the State;

- The fisheries sector contributes about 2.5% to the Net Domestic Product of the State with about 80% of the population (about 28 million people) consuming fish. The per capita annual consumption of fish has increased from 2.85kg in 1985-86 to 8.28 Kg in 2003-04. WHO has recommended annual per capita fish consumption of 11 Kg;
- Total value of fish produced in the State has increased from Rs.1,264.10 Crore in 2002-03 to Rs.1,374.61 Crore in 2003-04;
- Orissa produced 4.80% of the total fish production in the country and was placed 7<sup>th</sup> amongst the States in 2003-2004;
- About 85.65 TMT fish has been exported from Orissa in 2003-2004, out of which 61.95TMT from fresh water and 15.42TMT from Brackish water sector;

### 2.3 Problem Statement

Fish production has increased more than fivefold since independence in our country. It rose from only 800,000 tons in FY 1950 to 4.1 million tons in the early 1990s. The value of fish and processed fish exports increased from less than 1 percent of the total value of exports in FY 1960 to 3.6 percent in FY 1993. On one hand the fish catch has increased over several years and on the other, the fishing fleet has increased manifold particularly the mechanized means. But the fish catch has not been grown substantially. That means less fish for each boat and each fisherman especially the traditional fisherman. The livelihoods of the fisherfolk are thus affected. The reasons are overexploitation of the resources through unsustainable practices;

- poor enforcement of marine fishing regulations and poor knowledge of the fishermen on the same
- lack of information on the potential fishing zone;
- Continuous natural disasters with aggravated effect due to poor disaster and weather warning systems to the villages
- Lack of awareness about sustainable resource management among the fishing community and other stakeholders and policy-makers;
- Poor information base on the fishery and non fishery related alternate livelihood possibilities and its market realities among the fisherfolk
- Poor linkage to credit institutions and information resource centers.
- Lack of a cohesive approach to management and development of resources within the coastal zone.

In spite of the situation, the proposed intervention will address the above discussed limiting conditions in an innovative manner to develop a model for a “people’s based livelihood security Risk reduction process through ICT”.

Many success stories are indeed beginning to change the face of rural India. One example is the way ICT has changed the life of a 21 year old tribal youth Goverdhan, son of a landless Bhil daily wage earner who takes home not more than Rs 30 per day. Goverdhan has been now earning approximately Rs.100 per day ferreting out crop market rates, e-mailing villagers grousers, generating caste and land certificates out of his rural cyber kiosks.

Another ICT success story comes from the coastal state of Pondicherry, a fishing hamlet on the shores of the Bay of Bengal where now loudspeakers dotted around the fishing villages crackle to life by announcing the weather forecasts. The announcer also gives the details of the tide, wind direction and height of the waves. Earlier, the fishermen used to scan the skies to hazard a guess about possible storms; however now the fishermen are always prepared even during stormy weather conditions.

Another story comes from the sugar-cane belt : Some 400 kms, south-west of Bombay, India's industrial capital lies the sugar-cane belt of India where aged dairy and cane farmer Mahadeobhau Chowgule is happy with a PC installed in his Pargaon village, which gives him information about the harvesting time for the crop, the results of the crop sampling (a field officer from the cooperative takes a sample of the crop of every farmer which is tested for the volume of the sugar and quality) and a forecast about the expected yield. The software also keeps records of all his transactions with the local sugar and milk cooperatives.

**Yet such success stories are still very few and far in between.** Major impediments include:

- Acute shortage of project leaders and guides who could ensure implementation of the ICTs at the grass root levels. Unfortunately most professionals want to work in the urban areas where there are

ample opportunities available to them for growth as well as prosperity. In the absence of these 'techno-catalytic' resources; development of ICTs in the rural areas is always very slow.

- Financing difficulties encountered by the local grass root level institutions
- Major power-cuts and 'brown-outs' affecting the country-side ranging from 5 to 12 hours every day. Even though uninterrupted power supply systems are used; yet they prove insufficient to cope up with the power breakdowns.
- Illiteracy amongst the vast multitude of people

However there is no disputing the fact, that the ICTs are paving the way to digital empowerment, and hopefully to poverty alleviation in India's hinterland. The ICT revolution has arrived silently in India's heart land and has also begun kicking!!

## **2.4 Rationale**

Keeping in view the past learning's of various projects, this concept has been proposed on the basis of following rationale:

- The traditional information to catch fish alone can not address their livelihood requirement. Along with the traditional information base, the forecast of potential fishing zone (PFZ) needs to be used by the fishing community.
- The youth mass of the fishing communities are not accessible to the information due to various reasons hence capacity building of the youth group must be undertaken to use the information base (kiosk/hub) for alternative livelihoods particularly for the unemployed youth.
- A community process is very critical to make the program successful. What this really means is that professional practice and fields of action must move from "provision" to "facilitation" in the processes of decision-making and change in the fishing community.
- Partnerships and cooperation amongst organizations to catalyze pro-poor investments and help scale-up successful local solutions to widen development impact are essential. It is, therefore, necessary to explore and put in place innovative methods of leveraging investments into rural physical asset creation – both for the individual and the community.

## **3. Project**

### **3.1 Introduction to Project:**

The Department of Fisheries with support from the UNDP is proposing to set up 10 information Kiosks for fisher folk in 10 different villages along the coast of Orissa. The kiosks will be computerized information centres with an electronic display board on Potential fishing Zones (PFZ) information received from INCOIS Hyderabad. UNDP through the state authorities will be taking care of the installation and maintenance of the systems. INCOIS will be providing the information on the PFZ and sea conditions INCOIS will also link up with the Department of Meteorology on the weather conditions and informing the kiosks accordingly.

The project now requires a body, preferably an NGO to take care of the grounding of the program and to ensure that the community involved the process of the implementation of the project. In this background Action for Food Production (AFPRO), a national level NGO with considerable experience in facilitating people centered Natural Resource Management and livelihood programs including fisheries, with the association of Udyama and I Concept initiatives proposes to take up the responsibility of as a management partner(s) in implementation of the program for one year.

### **3.1 Project objectives**

The primary objective of the project is to demonstrate sustainable improvement in quality of life and a tangible reduction in vulnerability of fishing families through interventions that enhance incomes and improve habitat conditions.

#### **Primary objectives are:**

- Popularizing the ICT among the community
- Create demand for kiosk and PFZ board in the operational villages

#### **Important objectives are:**

- Risk reduction and livelihood promotion through ICT
- To link fishing families in the target area with the information on PFZ and guide them to identify the area in the sea through global Positioning System (GPS);

- To build capacities to analysis the information on PFZ and handle the GPS in a financially sustainable manner.
- To build capacities of local institutions to develop the early warning system during the time disaster.

### 3.2 Project outputs

At the end of one year support, the outputs envisaged include:

- Ten community hub/kiosks established and functionally operated by the community;
- Reaching to 2500 families in at least 50 villages of coastal Orissa;
- 50 village youth are trained to handle the GPS and analysis the PFZ information;
- In at least 40 villages are capable to catch fish from the PFZ as per the INCOIS data;
- In all the communities, Early warning system practiced during natural calamity;
- Increase in incomes and better health in villages under intervention.
- Demonstration and verification of best practices for easy replication through documented evidence
- Different type of information used by the communities for value addition of their product

### 3.3 Project Strategy

AFPRO will coordinate with UNDP, Department of Fisheries, ORSAC and INCOIS at state level and establish backward linkages with UDYAMA and I concept initiatives for the implementation of the project. These two intermediary organizations will ensure the implementation of the approved activities as per the project framework in coordination with grass root level CBOs.

#### 3.3.1 Implementation Strategy

Implementation mechanisms will be operating at three levels.

The community institutions (Self Help groups, Fishing cooperative society, Village Development Committees etc.) will be the first tier that will be executing the interventions with the facilitation of local CBO This is the body that would mobilize and leads the decision-making process on all development-related interventions of the village. Out of the disaster mitigation group, community would select one person preferably from the village information group to establish the back ward linkage with the information kiosk to obtain the latest information and disseminate the same among the village as well as build the capacity of the community.

The next tier of implementation mechanism is the node. For the purpose of smooth implementation all the ten kiosks are divided into two nodes. Each node will be supported by one coordinating organization. Coordinating the programs, capacity building, and handholding and providing necessary support to kiosk and the CBOs is the function of coordinating organisation. The nodal leader is responsible for co-ordination of the entire five kiosks.

AFPRO will look after the overall management at the central level. The central co-ordination team is not stationed in the field, but its members spend on an average 30% of their time in the village locations. The remaining 70% of the time is spent in coordinating programs across ORSAC, INCOIS, Department of Fisheries (DOF) and UNDP. The whole team will work full-time on the proposed project interventions. In addition to this, a Project Co-ordination Committee (PCC) would be formed for to review progress against agreed objectives.

### 3.4 Project operational area

Sl. No.	District	Proposed locations
A	Balasore	1. Bahabalapur
		2. Chandipur
B	Bhadrak	3. Chudamani
		4. Kasia
C	Kendrapada	5. Kharinasi
		6. Talachua
D	Jagatsinghpur	7. Paradip
		8. Noliasahi

E	Puri	9. Astaranga
		10. Penthakata
F	Ganjam	11. Golabandha
		12. Arjipalli

**Out of 12 locations, 10 will be selected to set up Kiosk and PFZ boards**

### 3.5 Project impacts

The program impacts is envisaged by taking two dimensions: firstly, the project will improve upon livelihood conditions of fishing communities through the appropriate technology based information and secondly build the capacities of the village institutions reduce the risks and links with outside institutions and service delivery enterprises for value addition of their product. By the end of the year, following impacts could be visible.

- Demand generated for ICT and PFZ board among the fishing communities;
- Early warning system reduces the loss of lives and resources in the target area.
- Capacity building and skill up gradation of youth group will lead to empowerment of this vulnerable section of the society.

### 4. Work plan / methodology

It is proposed that the communities from targeted villages would be engaged to address their short to medium term needs of both habitat and livelihoods. This process will be facilitated by Udyama and i-concept initiative through local village based community organizations. Qualitative feedback would be obtained from AFPRO and Dept. of Geography, Utkal University to implement the program.

#### 4.1 Phase wise plan of action

The program will be implemented in three phases.

Phase I will be completed in two months time. During this phase following outcomes are expected:

- Build capacities of CBO and village community groups to engage in participatory need assessment and planning processes with their communities and develop action plans related to the project.
- During this phase the role and responsibility of the community will be finalized.

Phase II will consist of project implementation within a period of 8 months. The implementation will include:

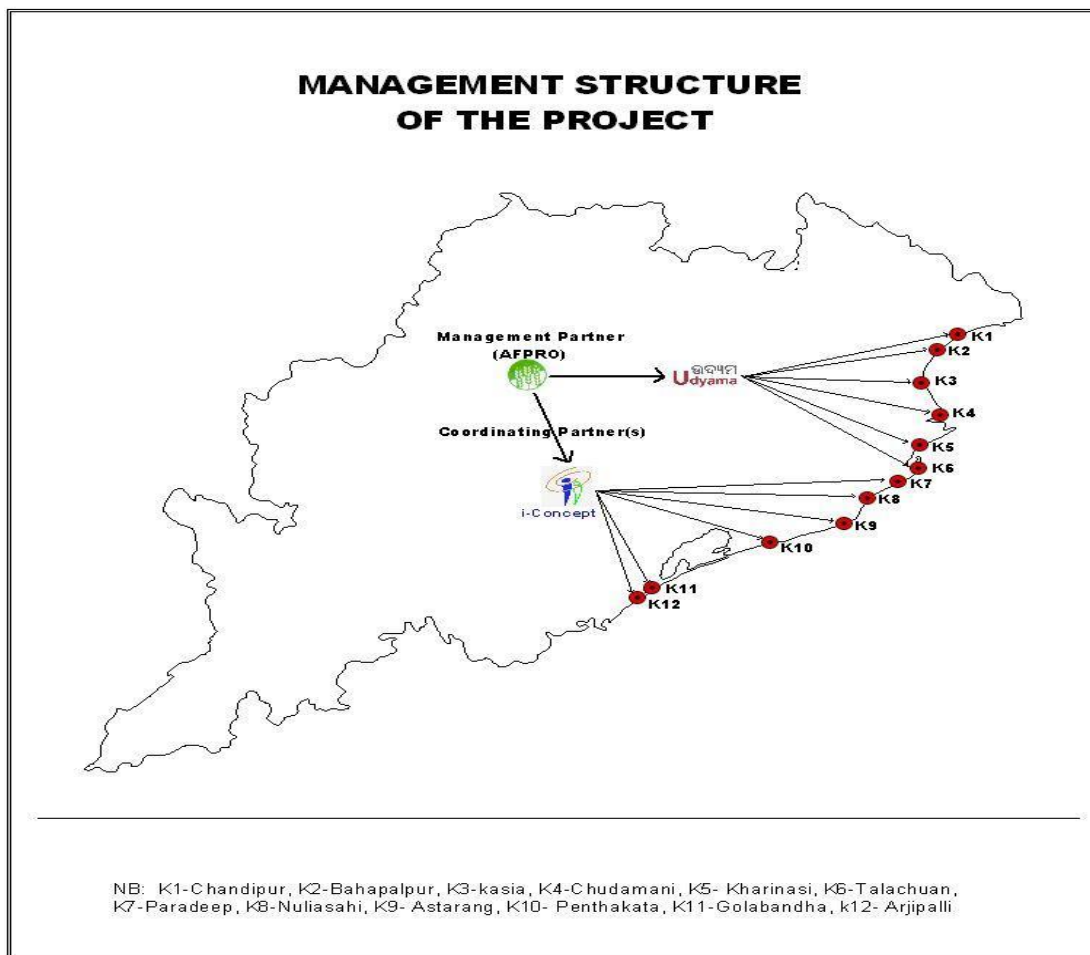
- Setting up community hub with internet connection in the village
- Training the village youth groups on technical, management and maintenance aspects of the ICT
- Develop the system and procedure for the operation of community hub;
- Training of community groups in target villages on handling the GPS and identifying the PFZ
- Analysis of the cost effectiveness and accuracy of the system and procedure.
- The community monitoring process will be a crucial and continuous part of this Phase.

The last phase of the project consist of two months, where in the following activities will be implemented:

- Though phasing out strategies will be built in from the beginning, in this Phase there will be a concerted effort at empowering the village level groups to manage the processes evolved through the project by themselves with a view to project sustainability after completion of the project period.
- A detailed completion report on project outcomes, successes and learning's will be prepared and make suggestions for possible inputs/strategies for the future.

The Department of Fisheries with support from the UNDP is proposing to set up 10 information Kiosks for fisher folk in 10 different villages along the coast of Orissa. The kiosks will be computerized information centres with an electronic display board on Potential fishing Zones (PFZ) information received from INCOIS Hyderabad. UNDP through the state authorities will be taking care of the installation and maintenance of the systems. INCIOS will be providing the information on the PFZ and sea conditions INCOIS will also link up with the Department of Meteorology on the weather conditions and informing the kiosks accordingly.

The project now requires a body, preferably an NGO to take care of the grounding of the program and to ensure that the community involved the process of the implementation of the project. In this background Action for Food Production (AFPRO), a national level NGO with considerable experience in facilitating people centered Natural Resource Management and livelihood programs including fisheries, with the association of Udyama and I Concept initiatives proposes to take up the responsibility of as a management partner(s) in implementation of the program for one year.



### 5. Partnership and Implementation Arrangements

The program will be facilitated through a networking of partners (AFPRO,UDYAMA and I concept initiatives) and grassroots organizations like Fishing Cooperative societies and SHGs. The program management structure of the project is given below.

### 6. Roles and Responsibilities

Below is given a broad spectrum of roles and responsibilities of each stakeholder in the project.

Roles and Responsibilities			
	AFPRO	UDYAMA/I CONCEPT INITIATIVES	CBO
Preparation	Allocation and approval of project areas	Finalization of partners (NGO/PRI)	Providing information on project area.
	Approval of partners	Handhold the community to	Preparation of detailed activity

	(NGO/PRI) Agreement with partners to roll on the project Hiring of experts to provide technical support,	assess the need on ICT Finalise the location of the PFZ boards Identify the village volunteers	plan Conflict resolution and community mobilization Identify the location of PFZ board
Management	Establishment of Project Management Units at State level Coordination with ORSAC, DoF, INCOIS and UNDP Periodic review at state level	Establishment of Project Management Units at field level Coordination with AFPRO, NGO and district collectors' Monthly program review at the kiosk level	Establishment of field supervision team coordination with the other Stakeholders Monthly program review at the community level
Capacity Building	Act as resource centre for capacity building Coordinate with state level agencies for the program Developing appropriate material for extension at village level asp pamphlets, booklets, posters, CDs and also need based multimedia development	Cadre development to take full use of the ICT centers and make it self sustaining within the community/CBO Assessment of capacity building programs Backward linkage with AFPRO for organizing the program	Capacity building of CBOs and NGOs Logistic arrangement for the program
Monitoring	Project and financial monitoring. Develop Monitoring system Periodic reflection by all project stakeholders.. Consolidation of reports	Project monitoring at node level Information compilation Periodic reflection by all project stakeholders, Process monitoring	Work/activity monitoring Information collection

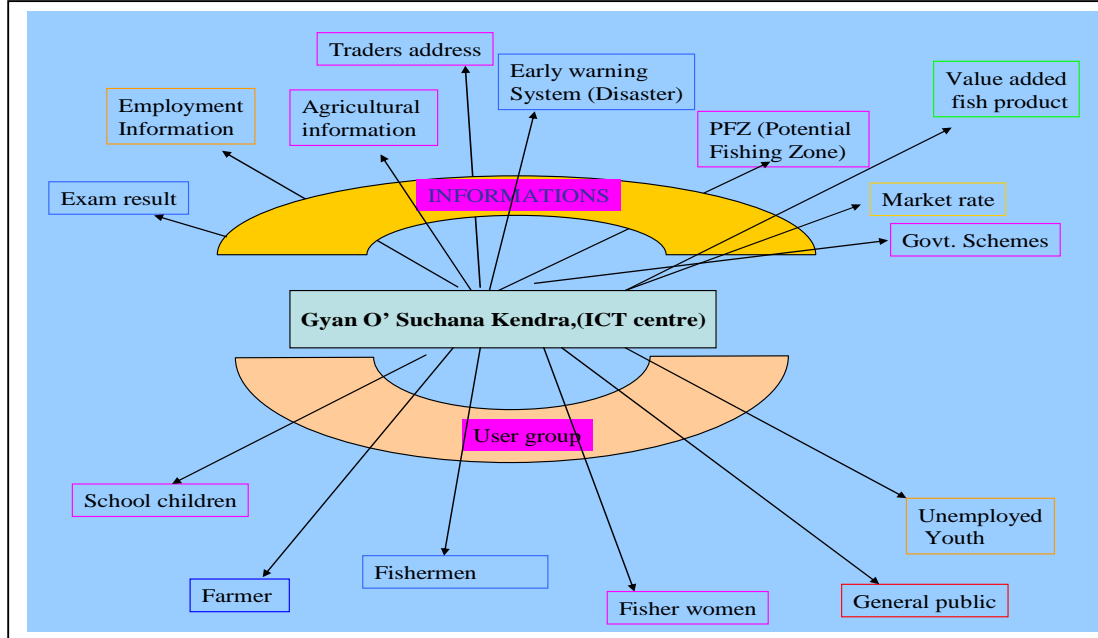
### 7. Monitoring and Reporting

The benchmark indicators will be developed in consultation with all the stakeholders in due course of the project implementation. On the basis of indicators, the monitoring tools and system will be developed to monitor and document the content and the process of the project. Benchmarks/ indicators against which progress will be monitored will be of two types: quantitative and qualitative. The quantitative ones will relate to delivery of program components. The qualitative indicators will relate to characteristics of processes initiated/fostered, and result of such processes.

#### Achievements:

Commissioned ICT	centers
Nuagolabandha(1) Sanaaryapalli(2) Puri(1) Astaranga(3) Paradip	Kasafala(6) Balaramgadi(7) Chudamani(8) Talachua(9) Khairanasi(10)





- Risk reduction and livelihood promotion through ICT
- Popularizing the ICT among the community
- To build capacities of local institutions to develop the early warning system during the time of disaster
- To demonstrate sustainable improvement in quality of life that would enhance incomes and improve habitat conditions
- Create demand for kiosk and PFZ (Potential Fishing Zone) board in the operational villages
- To build capacities at the village level to make use of the information kiosks as a demand driven self supporting system
- To link fishing families in the target area with the information on PFZ and guide them to identify the area in the sea

#### Achievements

- 10 community hub/kiosk established and functionally operated by the community
- Reaching to 2500 families in at least 50 villages of coastal Orissa
- 50 village youth are trained on analysis the PFZ information
- 40 villages are capable to catch fish from the PFZ as per the INCOIS data
- Increase in incomes and better health in villages under intervention
- Demonstration and verification of best practices for easy replication through documented evidence
- In all the communities, early warning system practiced during natural calamity
- Different type of information used by the communities for value addition of their product and livelihood enhancement
- Information from village kiosks used by villagers for different purposes on nominal payment