NICRA Annual Report 2022-23

Name of KVK:Puri

Nature of Climatic Vulnerability:Flood

Name of Adopted Village:Jatipur

Brief description of the village:

Village- Jatipur of block Puri sadar is consisting 72 households with geographical area of 77 ha. Nearly 85- 90% of the villagers used to get their livelihood from Agriculture and dairy. Flood due to South-West monsoon during kharif is the prime climatic constraint against agricultural productivity followed by the socio-economic condition of the villagers. They mostly grow crops like-summer paddy, okra, leafy vegetables, gourds etc.

Name of PI/Co-PI/Associated Scientist/SRF:

PI-Dr. Sanjay Kumar Mohanty, Senior Scientist & Head, KVK, Puri

Co-PI-Dr.DipsikaParamjita, Scientist (Ag Engg), KVK, Puri

SRF- Ms.ChandanaMahapatra, KVK, Puri

I. Module I : NRM

Table. Performances of demonstration of in-situ moisture conservation technologies

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)	Economics of demonstration (Rs/ha)		
				Gross Cost	Net Return	BCR
Green manuaring (dhaincha) in rice						
Brown manuaring in rice						
Summer Ploughing in rice	20	16	-			
Azolla in Paddy	10	0.5				
Zero Tillage in wheat / Maize/ Others crops						
Repair of bund	17	6.8	50	50760	100000	1.97
Horticultural production through land embankment development	17	0.70	-			
Organic mulching in vegetables						
Mulching						
Any intervention not covered in above						
Total	**64**	**24.0**				

Bund Renovation

Horticultural crops planted in Bund Embankment

Table.Performances of water harvesting and recycling for supplemental irrigation

Technology demonstrated	No. of farmers	Area (ha)/Unit	Output (q/ha)	Economics of demonstration (Rs/ha)		
				Gross Cost	Net Return	BCR
Renovation of pond for fish production and irrigation	10	0.2	39.5	208000	187000	1.9
Renovation of canal						
5% Model						
Bora bandh						
Renovation of Well for irrigation						
Bund making leveling in paddy field						
New water harvesting structure						
Raising of land embankment for sequential paddy – cum - fish farming	17	6.8	5.25	195150	164850	1,84
Ground water recharge						
Desiltation of defunct water harvesting structures						
Renovation of irrigation channel						
Newly Check dam						
Renovation of common pond						
Any intervention not covered in above						
Total	**27**	7.0				

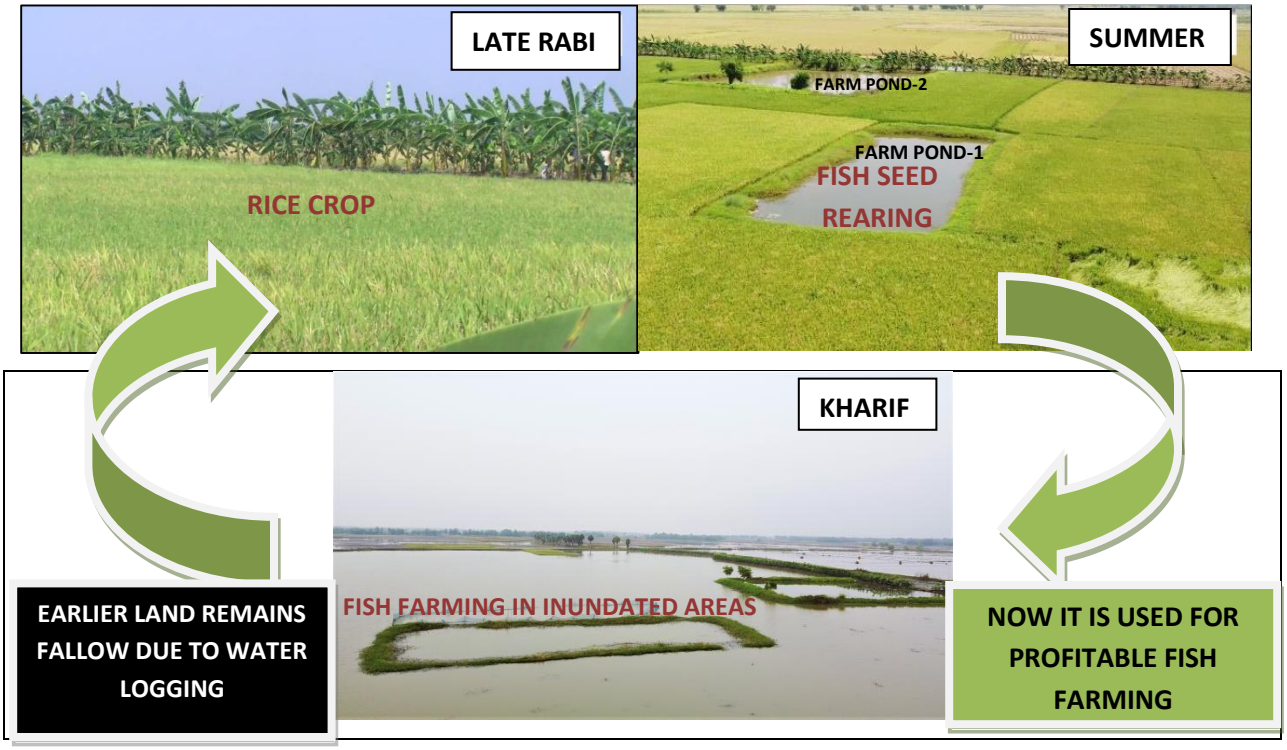

Table. Performance of artificial ground water recharge technologies demonstrated

Technology demonstrated	No. of farmers	Area (ha)	Output (q/ha)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Field bunding for rice	17	6.8	50	50760	100000	1.97
Water management through bunding of rice						
Ground water recharge through SRI by sub-soiler						
Any intervention not covered in above						
Total	**17**	**6.8**				

Enclosed 2/3 Photos

Bina Dhan cultivated in 6.8ha area through bunding of Rice

Table. Performance of different water saving irrigation methods

Technology demonstrated	No. of farmers	Area (ha)	Output (q/ha)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Irrigation system (micro Irrigation system)						
Application of biofertilizer in rice/crops						
Vermi-compost from biodegradable wastes	10	10units	9q Vermicompost /cycle/Bed Annum+ 20kg Vermiculture)	6550	3450	1.52
Production of crops on farm bund	17	0.70	98.5q	34750	39200	2.12
RBF in crops						
LEWA in crops						
Sprinkler irrigation in crops						
Any intervention not covered in above						
Total						

Table. Performance of other demonstrations

Technology demonstrated	No. of farmers	Unit (Nos.)	Output (q/unit)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Demo 1 Khaki Campbell duck farming	10	50	0.7	6200	11250	2.8
Demo 2 White Pekin duck farming	20	50	0.75	6250	13750	3.0
Demo 3 Vanaraja poultry	20	25	0.53	5625	12375	3.2
Total	**50**	**125**				

Table: Rainwater harvesting structures developed

RWH structures	No.	Storage capacity (cu.m)	No. of farmers	Protective irrigation potential (ha)	Increase in cropping intensity (%)
Desilting Pond					
New Pond created					
Pond Renovation	3	3000	15	3	100
Canal					
Checkdam					
5% model					
Pyne					
Well					
Inlet Channel					
Desiliting drainage channel					
Bora bandh (Temporary check dam)					
Repaired well					
Jalkund					
Small ditches for jute retting					

Landshaping and rain water harvesting structure					
Total	3	3000	15	3	100

Enclosed 2/3 photos

Module II: Crop Production

Table. Performance of different drought tolerant varieties

Technology demonstrated Crops with varieties	**No. of farmers**	**Area (ha)**	**Yield(q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Pumpkin, Arjun	05	0.2	230	182	26.37	1,62,000	183000	2.12
Crop 2								
Crop 3								
More if any								
Total	**05**	**0.2**						

Table. Performance of different salt tolerant paddy varieties

Technology demonstrated (Crops with varieties)	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Crop I								
Crop 2								
Crop 3								
More if any								

Total			

Enclosed 2/3 photos

Table. Performance of different flood tolerant varieties

Technology demonstrated (Crops with varieties)	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Paddy, Swarna Sub I	10	8.0	43.6	35.7	22.12	37900	27500	1.72
Paddy, CR1009 Sub I	10	8.0	46.2	37.1	24.52	38600	30494	1.79
Crop 3								
More if any								
Total	20	16.0						

Table. Performance of advancement of planting dates in different crops

Technology demonstrated	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Crop I								
Crop 2								
Crop 3								
More if any								
Total								

Table.Performances of water saving technologies

Technology demonstrated	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Water saving technology through								

SRI								
Aerobic Rice								
Direct seeded brown manured rice								
DSR								
Sowing of rice/ wheat / Maize with ZTD machine								
Others if any								
Total								

Performance of Community nurseries

Technology demonstrated	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Crop I								
Crop 2								
Crop 3								
More if any								
Total								

Table. Performance of different location specific intercropping systems

Technology demonstrated	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Crop I + Crop 2								
Crop 3 + Crop 4								
More if any								
Total								

Table. Performance of different crop diversification in NICRA villages

Technology demonstrated	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Cultivation of	10	0.4	200	175	14	79700	80300	2.1

colocassia variety - Sankhasaru								
Sweetcorn , Misthi	05	0.1	125	-	-	70000	80000	2.14
Red hybrid, Lady's Finger	10	0.4	200	170	17.64	85000	115000	2.35
Radish, KTX999	10	0.4	300	240	25	70400	79600	2.13
Marigold, Ceracole	10	0.4	170	144	18.05	145600	99000	1.68
Total	45	1.7						




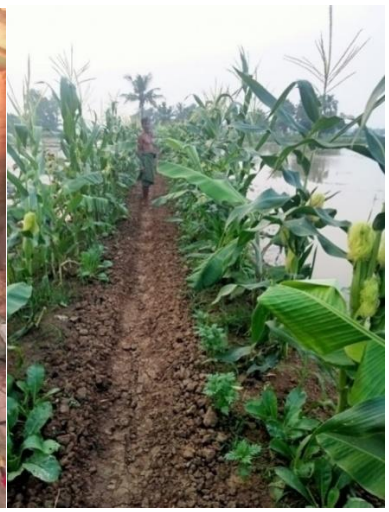

Table. Performance of other demonstration under crop production module

Technology demonstrated	No. of farmers	Area (ha)	Yield(q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Demo 1								
Demo 2								
Total								

Module III : Livestocks and Fisheries

Table. Performance of different fodder demonstration in community lands

Technology	No. of	Unit/	Output	% increase	Economics of

demonstrated	farmers	Area (ha)	(q/ha)			demonstration (Rs/ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Hybrid Napier, CO4	5	0.4	210	-	New intervention	78000	37500	1.48
Fodder 2								
Total								


Table. Performance of improved fodder

Technology demonstrated	No. of farmers	Unit (Nos.)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Azolla (*A. caroliniana*)	10	10 units (2mX1.2mX0.3m)	102	87	17.24	90000	62000	1.69
Fodder 2 Hybrid Napier CO4	5	5 (0.4ha, 0.08ha each)	210	-	New intervention	78000	37500	1.48
Total	15	15						


Table. Performance of various vaccination camps organized

Technology demonstrated	No. of farmers	Unit/ No./ Area (ha)	Measurable indicators of output* (q/ha)	% increase	Economics of demonstration (Rs./ha)

			Demo	Local		Gross Cost	Net Return	BCR
Vaccination camp against FMD Cattle	60	176 nos. dairy cows	1440 litres/cow	1080 litres/cow	33.33	43200	20700	1.9
Vaccination for Ranikhet in Poultry.	20	344 nos poultry chicken	2.3q/unit (60 birds)	1.4q/unit (60 birds)	64.3	60800	42700	3.36
Deworming	25	32nos calves&28 nos. goat kids	-	-	-	--	-	-
Mineral mixture								
Proper De-worming								
Vaccination camp against other diseases	60	176 nos cows	1440 litres/cow	1080 litres/cow	33.33	43200	20700	1.9
Total	145	384 nos						

Table. Performance of composite and cat fish in the renovated ponds

Technology demonstrated	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output* (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Cat Fish 1								
Cat Fish 2								
IMC & Chinese carps 1 (Individual farmer)	10	0,2	39.5	28.6	38.11	208000	187000	1,9
IMC & Chinese carps 2	17	6.8	5.25	0.30 (Trash	1650	195150	164850	1.84

(Community based)				fish)				
Total	27	7.0						

Table. Performance of livestock demonstration in NICRA adopted villages

Technology demonstrated	No. of farmers	Total (No.)	Measurable indicators of output* (kg/bird)		% increase	Economics of demonstration (Rs./bird)		
			Demo	Local		Gross Cost	Net Return	BCR
Vanaraja*	20	500	2.1kg	1.5kg	40	225	495	3.20
Whitepkin duck*	20	1000	1.5 kg	0. 8 kg	100	125	275	3.0
Khaki campbell duck*	10	500	1. 4 kg	0.8 kg	78	125	225	2.8
Total	50	2000						

***Calculation based on 6-month-old bird (per bird)**

Table. Performance of improved shelters for poultry and dairy animals

Technology demonstrated	**No. of farmers**	**Unit/ No. / Area (ha)**	**Measurable indicators of output** (q/ha)		**% increase**	**Economics of demonstration (Rs./ha)**			
			Demo	**Local**		**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Portable poultry housing system	8	8	10% (Disease occurrence)	23% (Disease occurrence)	56	continuing	-	-	-
Others if any									
Total	8	8							

Module III: Institutional Intervention

Table. Details of the various institutional interventions

Interventions	**No.of KVKs**	**Details of activity**			**No. of farmers**	**Unit/ No. /Area (ha)**
		Name of crops / Commodity groups / Implements	**Quantity(q) / Number / Rent / Charges**	**Technology used in seed / fodder bank & function of groups**		
Seed bank	1	Bina 11 Rice	10 q	-	25	01
Fodder bank	1	Hybrid Napier	210 q	-	30	01
Commodity groups						
Custom hiring centre	1	Farm Machineries	8 nos	-	-	-
Small scale income generation activity	1	Mushroom Production	1.2 kg/bed (PSM)		15	01
Climate literacy through a village level weather station						

More if any						
Total						

Village Climate Risk Management Committee (VCRMC)

To accomplish the objectives of NICRA-TDC project in Jatipur village, the Senior scientist & Head and Scientist cum Co-PI recommended the villagers to form a committee , so called " Village Climate Risk Management Committee (VCRMC) . This committee comprised of ten male and five female members. These people are implementing the project work with their active participation and strong support. A fort nightly meeting is being conducted for smooth facilitation of NICRA activities in the village. In each meeting members discussed about future activities and impact of the previous activities. Apart from that the members are actively participating in the management of grain bank, fodder bank, community plantation, Community CHC and community fish farming etc. The members also facilitate the selection of appropriate beneficiaries and site for implementation of the proposed programme.

Custom Hiring Centres:

The farm implements available at the CHC are Electric & Diesel water pump, power weeder, Power sprayer, Battery sprayer, Rice mill and Self propelledPadd Reaper. These implements are provided on rent basis to the villagers and farmers of side by villages for different farm operations. The rent amount is very nominal and the VCRMC is responsible for operating the CHC.

Table. Revenue generated through Custom hiring Centres and VCRMC in KVKs

Name of KVK	Revenue generated (Rs.)	
	From Custom Hiring Centres (2022-23)	Total under VCRMC as on 31.03.23
Puri	6200	6000
Total	**6200**	**6200**

Capacity Building

Thematic area	Topic of the training	No. of Courses	No. of beneficiaries		
			Male	Female	Total
Natural Resource Management					
Crop Management					

Nutrient Management	Nutrient management in Banana	1			
Integrated Crop Management					
Crop Diversification					
	Sweetcorn cultivation	1			
Resource conservation Technology					
	Micro Irrigation	1			
Pest and disease management					
	Integrated management of Panama wilt in Bananna	1			
Nursery raising					
Employment Generation	Round the year mushroom cultivation	1			
Nutrition garden					
Repair & Maintenance of farm machinery & Implements	Operation & maintenance of	1			
Integrated Farming System	Fish – cum – duck farming	1	12	13	25
Livestock and Fishery Management	Composite carp culture	1	21	04	25

Fodder and feed management	Azolla cultivation for supplementary feed of poultry & cattle	1	21	04	25
	Feeding management in composite carp culture	1	25	-	25
Farm implements and machineries					
Value addition					
Employment generation					
Others if any					

Extension Activities

Name of the activity	Number of Programmes	No. of beneficiaries		
		Male	Female	Total
Agro advisory Services	10		-	100
Awareness	04	115	65	180
Diagnostic visit	12	84	7	91
Exposure visits	01	36	11	47
Field Day				
Group Discussion	22	32	11	43 (Each discussion)
Method demonstrations	08	84	11	95
KMAS Services	24	62	23	85
Farmers day				
SHG				
Campaign				
Popular extension literature				
Animal Health Camp	1	54	6	60
World earth day				
KrishakChaupal				
KishanGosthi				
Woman health and nutrition				
Technology week				
NICRA Workshop at ATARI, Kolkata				
Scientist visit to field	15	110	34	144
Others if any				
Total	**97**	**577**	**168**	**745**



Table- SHC card distribution at NICRA adopted villages

KVK	Year	No of soil samples collected	No. of samples analysed	SHC issued	No of Farmers involved
KVK, Puri	2022-23	10	10	10	17

Table: Convergence of Ongoing Development Programmes/Schemes in NICRA implementing KVKs

KVK	Development Scheme /Programme	Nature of work	Amount (Rs.)

Dignitariesvisited NICRA Villages during 2022-23

Name of KVK	Name of VIPs/Experts	Date of visit
Puri	**Sri JyotiSankarMahapatra, Chief Development Officer, Puri**	**22.11.22**
	Sri Ramesh Chandra Roy, CDAO, Puri	**16.11.22**
	Senior Line department officials of 15 districts (Block Agriculture officer, AAO), Forest officials of Puri	**16.11.22**
	Chief, AICRP on Maize, OUAT	**22.9.22**
	Principal Scientist, IIMR	**22.9.22**




- **Success stories of NICRA Village Farmers with photographs**

Community Fish Farming in a consolidated patch of submerged paddy field

Introduction

In recent past due to the combined effect of global warming and climate change frequent low pressure conditions have been occurring over Bay of Bengal. This causes erratic rainfall, untimely heavy rainfall, cyclone, super cyclone, flood, flash flood etc. Always, being a coastal district of Odisha, Puri is worst affected by this phenomena. More than 70% of the district's geographical area are low-lying and become water-logged during monsoon season. In these areas, water stands 3 to 4 feet level above the crop fields hinders greatly to take up rice cultivation during Kharif season. During this Kharif 6 - 8 months, farmers sit idle and compel some of them to go on exodus in regular basis to different cities of the country to earn their livelihood as daily labourers in brick kilns, construction sites, agricultural farms, hotels, spinning mills etc. Looking into the gravity of situation, a small village with 72 house-holds namely – Jatipura of Puri sadar block has been adopted under KVK's NICRA-TDP project during the year 2022-23.

Entry Point Activities

Preliminary PRA survey was conducted in the village. Out of total geographical area of 77 ha of village, a compact patch of paddy field of 17 acres area with ownership of 17 nos. of small and marginal farmers was identified to take up "Scientific sequential paddy-cum-fish farming" in it. A series of village meetings were conducted to convince villagers to undertake composite pisciculture in this 17 acres land during fallow period of Kharif - 2022. During the month of May-2022, as an 'Entry Point Activity', the peripheral embankment of the 17 acres land was made strengthened by doing earthwork up to a height above maximum flood level that came during last 10 years. There, two nos. of 'Farm ponds' of total WSA 0.3 acres were present within the selected patch. The farm ponds were made dewatered, exposed for sun- drying, filled up with water, fertilised and stocked initially with 4000 nos. of Jayanti rohu stunted fingerlings. To start with backyard income generating activities the interested farm families were supplied with 400 nos. of Khaki Campbell ducks, 1000 nos. of Kadaknath chicks and 1000 nos. of White Pekin ducks. During July and August-2022 the two farm ponds were phase-wise stocked with 10000 nos. of GI catla, 8000 nos. of Jayanti rohu and 10,000 nos. of Amur carp frys .

Technological interventions

By the end of August-2022, the 17 acres patch was impounded with sufficient rain water and the water depth became 3 – 5 feet level (due to undulated bottom). The water quality parameters (Total Alkalinity, Total hardness and pH) were tested and accordingly 800 kg lime was applied into the water. Then after 5 days the water was manured with 8 tractor trips (around 2000 kg) of raw cow dung. Two days after manuring, one side of the two farm ponds were cut open to enable auto-stocking its seeds into the large impoundment. During the month of September-2022,

- **Newspaper coverage**

- **Publication**

Expenditure Statement of NICRA-TDC Budget during 2022-23

KVK	FINAL RE				Expenditure	Closing Balance .04.2023
	Contingencies	TA	NRC	Total		
Puri	850000	80000	115000	1045000	1045000	0