

KVK, BHANJANAGAR, GANJAM-I, ODISHA
ACTION PLAN (2012-13)

Under

Technology Demonstration Component
of

National Initiative on Climate Resilient Agriculture

Name of the scheme	National Initiative on Climate Resilient Agriculture (NICRA)
Source of funding	Indian Council of Agricultural Research, New Delhi
Name of the coordinating institution	Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad 500059
Name of the component of the scheme	Technology Demonstration component
Title of the project	Climate Resilient Agricultural Technology Package at village level
Name and address of the implementing Krishi Vigyan Kendra (KVK)	Krishi Vigyan Kendra, Ganjam Bhanjanagar At-Benakunda, PO-Dihapadhala, via-Tanarada Dist-Ganjam, Odisha Pin-761126
Area of operation (Name & address of selected the village)	Village-Chopara, GP-Jagannath Prasad PO-Jagannath Prasad, Block-Jagannath Prasad, Dist- Ganjam(Odisha)
Zonal project directorate (concerned)	Zonal Project Directorate, Zone-VII JNKVV Campus, Jabalpur, PO-Adhartal Madhya Pradesh-482004
Project team of the KVK	Mr. Sutanu Kumar Satapathy, PC & PI Prasanta Kumar Panda, SMS (P.P), CO PI. Other Team members SMS (Animal Sc.) SMS (Soil Sc.) SMS (Home Sc.) Farm manager (M.Sc. Ag. (Agronomy)
Duration of the project	2012- 2013 (April 2012 to March 2013)
Budget 13:	Year 2012- Rs.21.77 lakhs

1.0 Agriculture profile of the selected village (if village is changed)

1.1 Distribution of households in the village

Particular	Landless	Marginal	Small	Medium	Large	Total
Number	12	213	38	52	-	315
Average landholding size (ha)	-	0.25	1.0	1.4	-	

Demographic details

Particular	Male	Female	Total/ overall
Total population	902	343	1245
Literacy (%)	569	169	738

1.2 (a) Rainfall

Particular	Average (mm)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
SW monsoon (June-Sep):	712.20	2 nd week of June	2 nd week of Sept
NE Monsoon(Oct-Dec):	255.90	2 nd week October	1 st week of Nov
Winter (Jan- March)	40.00	-	-
Summer (Apr-May)	12.00	-	-
Annual	1020.10	-	-

1.2 (b) Historical trends in rainfall

Historical trends in rainfall		Last Five Years				
		2007-08	2008-09	2009-10	2010-11	2011-12
No. of rainy days		67 (1414)	76 (1481)	54 (1073)	63 (1250)	47 (1014)
No. dry spells during kharif season	> 10 days	NIL	NIL	01	02	01
	> 15 days	NIL	NIL	01	NIL	NIL
	> 20 days	NIL	NIL	NIL	NIL	NIL
No. Intensive rain-spells	> 60 mm per day	04	03	04	03	03

1.3 Types of soil

SL No.	Major Soils	Area (ha)	Percent (%) of total
1	Heavy	39.50	20.84
2	Red Medium	103.00	54.35
3	Light	47.00	24.80

1.4 Agricultural land use pattern

	Agricultural land use	Area (ha)	Percent (%)
1	Total cultivated area	150	27.2%
2	Culturable wasteland	22	3.6%
3	Pasture land	5	4.7%
4	Others	22.5	64.5%
5	Rainfed area	189.5	
6	Net irrigated area	-	
7	Gross irrigated area	-	
8	Gross cultivated area	168	
9	Cropping intensity %	112	

1.5 Irrigation sources:

	Sources of Irrigation	Number	Area (ha)	% area
1	Tanks	5 (Seasonal)	1.2	
2	Open wells	16		
3	Bore wells	2		
4	Lift irrigation	-		
5	Other sources(River)	-		
	Total	23		
1	Pump-sets(Electric Motor)	2		
2	Sprinkler/ drip systems	-		
3	Defunct rain-water harvesting structures in the village	One		
4	Groundwater availability and use			
5	Depth of water table in bore wells (feet)	75		
6	Decrease of water table, if any over the past 10 years (feet)	-		
7	Quality of water:	Alkaline		
8	Area irrigated by one bore-well (ha)	-		
9	Area irrigated by one open-well (ha)	2.5		

1.6 Area of major field crops & horticulture etc.

a) Field Crops

	Major Field Crops cultivated	Area (ha)					
		<i>Kharif</i>		<i>Rabi</i>		Summer	Total
		Irrigated	Rainfed	Irrigated	Rainfed		
1	Paddy		130.5				130.5
2	Groundnut		10.5		8		18.5
3	Black gram		2		10		12.0
4	Ragi		5				5
5							
6							
7							

b) Horticulture crops

	Horticulture crops - Fruits	Total area	Irrigated	Rainfed
1	Cashew	15		
2	Coconut	0.2		
3	Mango	6..8		
4				
	Vegetables	Total area	Irrigated	Rainfed
1	Chilli	0.6	0.6	-
2	Banana	0.2	0.2	-
3	Brinjal	1.0	-	1.0
4	Cabbage	0.2	0.2	-
5				
	Other crops (Medicinal, plantation, fodder crops)	Total area	Irrigated	Rainfed
	Grazing land	5.0		
	Sericulture etc			
	Others (Specify)			

	Teak	11.0		
	Gambhari	5.0		
	Acasia	5.0		
	Bamboo	1.0		

1.7-1.9: Livestock, Poultry & Inland Fisheries

1.7	Livestock	Number	Yield/ productivity	Price (Rs./ liter in case of milk; Rs./ kg live body weight in case of sheep & goat)
1	Cattle: Crossbred	200	1lit/day	Rs10/litre
2	Cattle: Indigenous	25	1.5litre/day	
3	Buffaloes	100		Rs20/litre
4	Goat	50		
5	Sheep			
1.8	Poultry			
1	Commercial			
2	Backyard			
1.9	Inland Fisheries	Area (ha)	Yield (t/ha)	
1	Fresh water	2	0.6	
2	Brackish water			
3	Others			

1.10 Production and Productivity of major crops (Average of last 3 years: 2009-10, 2010-11, 2011-12)

a) Field Crops

Crop	Average productivity (kg/ha)		
	Kharif	Rabi	Summer
1 Paddy	2500.0	-	-
2 Groundnut	400.0	500	
3 Blackgram	-	200	

b) Horticulture crops

Major Horticultural crops	Average productivity (kg/ha)
Crop 1 Brinjal	10500
Crop 2 Chilli	4500

1.11 Sowing pattern for major crops

Sowing window for 5 major crops (start and end of sowing period)				
Kharif- Rainfed	Crop 1: paddy	2: Groundnut	3: Blackgram	4: Brinjal
Duration with dates (Sowing to Harvest)	June-Aug	June	August	July-August
Rabi- Rainfed	-			
Duration with dates (Sowing to Harvest)	-		January	
Rabi-Irrigated	-	-		
Duration with dates (Sowing				

to Harvest)				
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1.12 Major constraints/scarcities

What is the major constraints the village is prone to? (Tick mark)	Regular			Sporadic (specify month of occurrence in brackets)			Which crops are affected most
	Severe	Moderate	Mild	Severe	Moderate	Mild	
Drought		✓	-				Paddy
Flood							
Heat wave			✓				Vegetable
Cold wave							
Pests and diseases (specify)			✓				Paddy, Groundnut, Blackgram, Brinjal
Sea inundation							

1.13 Other constraints/ scarcities

Water logging	
Change in rainfall timing affecting certain livelihood (in certain areas)	No
Non-availability of quality seed in time (name the crop):	Paddy, Groundnut, vegetables
Non-availability of farm machinery/ implements (name the machine/ implement):	Power tiller, thresher, weeder, sprinkler and drip systems
Non-availability of fodder (specify the months of scarcity):	-
Non-availability of critical inputs for livestock & poultry, like vaccines, etc.	Yes
Major diseases in livestock & poultry (which animal is more affected):	-
Which crops are more affected due to water scarcity/ low rainfall:	Paddy, Fish, Groundnut
Lower price of farm produce (name of the crops):	Paddy
Marketing arrangement/ channels for livestock & their products:	No

1.14 Existing community participation

No. of active SHGs in the village:	05
No. of the other active community based organizations in the village and their activities:	02
No. of farmers going for insurance of their crops:	-
No. of farmers going for insurance of their animals (mention separately for small and large ruminants):	-

1.15 Coping strategies adopted by innovative farmers of the selected village/ nearby villages:

Adverse situation	Coping strategy
Early season drought (delayed onset)	Nil
Normal onset followed by 15-20 days dry spell	Cultivation of short duration ragi var-Chilika, (KVK intervention)

Adverse situation	Coping strategy
Mid season drought (long dry spell, consecutive 2 weeks rainless)	Nil
Terminal drought	Nil
Insufficient groundwater recharge due to low rainfall/ over-exploitation	Nil
Scarcity of feed and fodder and water for animals during drought	Nil
Feeding/ reproductive management of livestock during heat/ cold wave	Nil
Feed and fodder and water for animals during heat/ cold wave	Nil
Fisheries: Shallow water in ponds due to insufficient rains/inflows	Stocking of fish yearlings with supplementary feeding with mixture of GNOC & RB in the ratio 1:1 fortified with vit-min mixture(1%) @2-5% of body wt.
Crop management during short duration flood situation	Nil
Disease epidemics mitigation in livestock during cyclone/ flood	Nil

1.16 Schemes/ programmes in operation in the selected village, like..

- MNREGS Integrated watershed development programme
- Others - NGOs

2.0 Climate resilient technology package

2.1 Proposed interventions*

Interventions	No. of units/ farmers proposed	Area, ha	Cost per unit or per ha, Rs.	Total Expenditure, (Rs.in Lakhs)
Drought resistant / varieties: Crop				
Drought resistant / flood tolerant varieties:				
Crop-1: Paddy				
Var. Sahabhagi/Khandgiri/MTU-1010	50	36.0	Rs. 4000/	Rs.1,44,000/-
Total	50	36.0	-	Rs. 1,44,000/-
Crop- 2 Ragi (Bhairabhi)	10	2.0	6,000	12,000
Crop-3 Maize HYB	10	2.0	5,000	10,000
Crop-4 Groundnut (Smruti/TMV-2/Devi/AK-12-24)	15	5.0	18,000	90,000
Total	35	9.0		Rs. 1,12,000/-
Introduction of new crops (drought)				
Kharif				
Crop-5Cowpea (Utkal manik)	10	5.0	Rs. 5000/-	Rs. 25,000/-
Crop-6 Elephant Foot Yam (Gajendra)	10	3.0	Rs. 10,500	Rs. 31,500
Crop- 7 Yam bean (Rajendra mishri khanda & others)	05	1.0	Rs.25,000	Rs.25,000
Total	25	16.0		Rs.56,000/-
Appropriate inter-cropping systems				
Crop-1 Paddy+ Arhar	05	1.0	Rs.14,000	Rs.14,000

Interventions	No. of units/ farmers proposed	Area, ha	Cost per unit or per ha, Rs.	Total Expenditure, (Rs.in Lakhs)
Total	05	1.0		Rs.14,000/-
Rabi Pulse				
Crop- 3 Green gram	20	10.0	Rs. 7500/-	Rs. 75,000/-
Crop – 4 Black gram	30	5.0	Rs. 7500/-	Rs. 37,500/-
Crop- 5 Ground nut	10	5.0	Rs. 7000/-	Rs. 35,000/-
Crop-6 Peageon pea	10	2.0	Rs. 8000/-	Rs.16,000/-
Total	70	27.0		Rs. 1,63,500/-
Crop- 7 Vegetables				
• Brinjal (hybrid)	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Tomato (Utkal kumari)	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Cauliflower (Hybrid)	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Cabbage(Golden arce)	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Onion (Nasik red)	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Chilli	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Pumpkin	10	0.8	Rs. 15,000/-	Rs. 12,000/-
• Drumstick	20	0.5	Rs. 20,000/-	Rs.10,000/-
Total	90	6.1		Rs. 94,000/-
Crop-10 Summer vegetables				
• Pumpkin	10	1.0	Rs. 15,000/-	Rs. 15,000/-
• Bitter gourd	10	1.0	Rs. 15,000/-	Rs. 15,000/-
• Water melon	10	1.0	Rs. 15,000/-	Rs. 15,000/-
• Okra	10	1.0	Rs. 15,000/-	Rs. 15,000/-
• Bottle gourd	10	1.0	Rs. 15,000/-	Rs. 15,000/-
• Cucumber	10	1.0	Rs. 15,000/-	Rs. 15,000/-
Total	60	8.0		Rs. 90,000/-
Crop-Fruit crops				
Papaya	40	1	Rs.30000	Rs.30000
Total	40	1.0		Rs.30,000
Crop-11 Orchard crops				
Mango	5	2.0	Rs. 14 ,000/-	Rs. 28,000/-
Banana	2	2.0	Rs. 10,000/-	Rs. 20,000/-
Lemon	2	1.0	Rs. 10,000/-	Rs. 10,000/-
Total	9	5.0		Rs. 58,,000/-
Animal health camp (Mitigation of vitamins and mineral deficiency in l	4 no.	400 Animals	-	80,000
Introducing better adapted high yield livestock	-	-	-	30,000
Total				1,10,000
Rainwater harvesting structure	1 No.	0.4	2,00,000	2,00,000
Size: Lined/ not lined (Approved in action plan-2011-12)				
Percolation pond/ injection wells				

Interventions	No. of units/ farmers proposed	Area, ha	Cost per unit or per ha, Rs.	Total Expenditure, (Rs.in Lakhs)
for recharging the wells				
Renovation of defunct water harvesting structures in the village:	1 No.			
Micro-irrigation system:				
1-Drip	5	2	Rs. 40,000/-	Rs 80,000/-
2-Sprinkler				
Seed production (bank)				
Crop 1:				
Crop 2:				
Fodder Bank (Silage, Hay, Backyard perennial fodder)				
Development of private/ common fodder resources –				
Prophylaxis of livestock & poultry-				
Introducing better adapted high yielding breeds of livestock				
Custom hiring center (farm machinery/ implements/ equipments)	-	-	-	-
Activities for diversification of agriculture/ livelihoods				
i.Mushroom cultivation ii.Poultry birds iii.Leaflet press making machine	10 10 I SHG	1000 bed 400 birds I SHG	Rs. 50/- per bed Rs. 50/- per bird -	Rs.50,000/- Rs. 20,000/- Rs. 50,000/-
Total				Rs.4,00,000/-
Capacity building (trainings/ visits):				
1- Exposure visit (Inside- 2 nos. ; Outside- 1 nos.)				
2- Training	30	-	Rs. 75,000/-	Rs.75,000/-
i) Farmers & Farmwomen	15	-	Rs. 2000/-	Rs. 30,000/-
ii) Rural youth	10	-	Rs. 4,000/-	Rs. 40,000/-
3- Awareness campaign	5	-	Rs. 5000/-	Rs. 25,000/-
4- Farmer Scientist interaction	4		Rs. 10,000/-	Rs. 40,000/-
Total	64			Rs. 2,10,000/-
Extension Activities				
Technology package development(CD)	3	-	-	Rs. 30,000/-
Leaflet preparation	5	-	Rs. 8000/-	Rs. 40,000/-
Flex, Banners, Boards	-	-	-	Rs. 25,000/-
Report preparation	-	-	-	Rs. 10,000/-
Photographs	-	-	-	Rs. 5,000/-
T.A				Rs. 1,00,000/-

Interventions	No. of units/ farmers proposed	Area, ha	Cost per unit or per ha, Rs.	Total Expenditure, (Rs.in Lakhs)
POL and Vehicle repairing				Rs.70,000/-
SRF 2 no.				Rs. 4,00,000/-
Other misc				Rs.50,000/-
Total	8	-	-	Rs. 7,00,000/-

2.2 List of implements for the Farm machinery custom hiring center (to be identified based on community needs)*

Sl. No.	Name of farm implements & machineries	Cost (Rs. in Rupees)
1	Transplanter	
2	Foot Sprayer	
3		
4		
5		
6		
7		

2.3 Functioning of the fodder bank (conservation and storage of fodder to be used during scarcity period)

2.4 Institutional arrangements to be encouraged/ made

- *Village Climate Risk Management Committee (CRMC):*
- *Committee for managing the custom hiring center (Farm service center)*
- *Fodder management committee*

The relevant members of the CRMC may also be the part of other committees.

Sustainability fund and institutional framework for promoting user fee and collection of depreciation cost etc should also be planned.

Note: Some details should be provided about the functioning of the proposed institutional structures.

2.5 Activity schedule (April 2012 to March 2013)

[illegible]

2.6 Likely Outcomes

2.7 Budget requirements (Rs. in lakhs)

Sl. No.	Items of expenditure	2012-13
1.	Non- Recurring	
1.1		
2.	TA	
2.1	TA (other than local movements)	1.0lakh
3.	Contingencies	
3.1	Contractual services: SRF (2)	4.0
3.2	Operational expenses (agricultural inputs, labour, livestock, stationery, POL,, small repairs, miscellaneous expenditure to be incurred in the village like farm pond, percolation pond, seed bank, fodder bank, renovation of defunct water harvesting structure, capacity building and training and all other interventions)*	16.77
	Total	21.77

*Expenditure on major items under operational head may be depicted in separate rows