

KVK, Ganjam-1, Odisha

Action Plan Format (2021-22)

NATIONAL INNOVATIONS IN CLIMATE RESELIANT AGRICULTURE - TECHNOLOGY DEMONSTRATION COMPONENT

A. Basic information

S.No.	Item	Detail
1.1	Zone	V
1.2	Name of KVK (district)	Ganjam-1, Ganjam
1.3	Name of Tehsil	Jagannath Prasad
1.4	Name of Village	Chopara, Lepa, Nada, Chikili
1.5	Climatic vulnerability	Drought, Moisture stress, Cyclone

B. What are the promising resilient practices identified based on the last 6 years of work

S No	Module	Resilient practice	*Suitability of the practice in the village
Natural Resource Management			
1		Raising of farm bund ht to 10 inch	Rain fed Up & medium land
2		Green manuring	Irrigated medium land
3		Check dam Construction & renovation	Upland
4		Cultivation of Maize, Cowpea in Ridge & Furrow system	Rain fed upland
		Renovation of well	Upland
		Renovation of farm pond	Upland
		Low cost poly house	Upland
Resilient varieties and systems			
1		Short duration Rice Var. MTU-1156	Rainfed medium land
2		Drought tolerant short duration Rice var. Sahabgadh	Rainfed medium land
3		Flood tolerant Rice var. Swarna sub-1	Rainfed lowland
4		medium duration Pigeonpea var. PRG-176	Rainfed upland
5		Crop diversification from Maize to Sweet corn	Irrigated up land
6		Poly mulching in Brinjal with wilt tolerant var.- Swarna Shyamali	Irrigated medium land
		Wilt tolerant Tomato var.- Arka Rakshyak	Irrigated medium land
7		YMV tolerant Greengram var. IPM 02-14	Rain fed medium land
8		Blackgram-PU-31	Rain fed medium land
		Integrated Farming System	Irrigated medium land
Livestock related interventions			
1		Yearling stocking in rain fed farm ponds	Rain fed upland
2		Feeding of Mineral Mixture in lean period to increase milk production	Home stead
3		Improved cattle house-Concrete flooring,	Home stead shelter

		straw thatching	
4		Animal health camp	Home stead
5		Improved poultry breed-Kadakhnath	Home stead shelter

- Suitability with reference to farming systems such as rainfed/ irrigated/ horticulture, etc.
- It can be lowland/ medium land/ upland situations in the village
- It can be temporary or shallow flooding/ prolonged and deep water situations, etc.

C. Predominant farming systems of the village and suitable low cost resilient practices for each of the farming situations

S No	Farming situation	Predominant crops grown	Extent of cultivated area in the village(ha.)	% of the total cultivated area in the village	*Low cost resilient practices that can be scaled up	Proposed area to be covered during 2021-22(ha.)
1	Rainfed upland	Rice -fallow	30	20	Direct seeded Rice	16
		Maize -Fallow	04	03	Ridge & Furrow system, Intercropping with cowpea	02
2	Rainfed midland	Rice - Greengram	60	40	Advancement of planting date, YMV tolerant Greengram var.	30
		Rice-vegetable	08	06	Short duration var., Poly mulching, wilt tolerant var.	04
		Rice- Sesame	06	04	Short duration var. of Sesame	05
3	Rainfed lowland	Rice - Blackgram	15	10	HYV short duration-PU-31	12

***Indicate NRM, crop based and livestock based interventions for each of the farming situation**

D. Module-wise existing practice and climate resilient practice/technology to be demonstrated for the year 2020-21

Sl. No.	Module	Climatic constraint addressed	Key intervention	Measurable indicator (s)
1	Natural resource management			
		delay in monsoon by 2 weeks, terminal moisture stress	Check dam construction, repairing	Irrigation area, no.of farmers benefitted

		Loss of moisture & soil during runoff water	Raising of farm bund height to 10 inch.	Moisture content at different time, yield
		Improper planting method decreases water use efficiency	Maize/Sweet corn& Cowpea planted in Ridge & furrow method	No. of Irrigation required, Yield
		Less availability of nutrient due to Increase soil acidity	Green manuring	PH status, Yield
		Delay in monsoon leads to late transplanting, no life saving irrigation in dry spell	Desilting & renovation of farm pond	Irrigation area, no.of farmers benefitted
		Less availability of Moisture & nutrient due to weed infestation in Rice Vegetables	Herbicide in Rice & Poly mulching in vegetables	nos.of Weeds/m2, Yield
		Mortality of seedling in open condition during heavy rainfall	Low cost Poly house	Seedling Mortality %, net income
2	Crop production			
		Terminal moisture stress, low yield	Short duration Rice var. MTU-1075	Dry spell period, Yield
		Terminal moisture stress, low yield	Drought tolerant Short duration Rice var. Sahabhagidhan	Dry spell period, Yield
		Water logging , mortality of plants in heavy rainfall during October month	Flood tolerant var.- Swarna sub-1	Water logging period, No. of tiller/hill
		Flower drop, moisture stress in longer Pigeonpea var.	medium duration Pigeonpea var.PR-176	Pods/plant,Yield
		Wilting& low yield of Tomato	wilt tolerant Tomato var. Arka Rakshyak	Wilting %, No. of fruits/plant,, Yield
		More YMV infestation in high temp.	YMV tolerant Greengram var. IPM 02-14	YMV%, Yield
		Low yield of existing Blackgram var. due to high temp.	Blackgram-PU-31	Yield
		Low yield of Oyster mushroom in low temp	Oyster mushroom strain- Hypsizygus ulmarius	Yield-kg/bed, temp.
		Less profit from traditional Maize	Sweet corn cultivation	No.of cobs/ha,net income
		Less utilization of available resources	Maize + cowpea in 1:1 ratio.	Additional benefit
		Less profit from single enterprise	Integrated Fish	Additional benefit

			Farming	
3	Livestock & Fisheries			
		High temp. & improper sanitation resulted in lower milk production	Concrete flooring with bamboo & straw thatching	Diseases incidence & milk yield
		Vulnerable to diseases due to improper housing in poultry	Low cost poultry house with Cement pillar & wire mesh	Avg. body wt, mortality %.
		Lower production performances of local poultry, high mortality	Backyard poultry rearing-Kadaknath	Avg. body wt, mortality %.
		Improper housing leading to high disease incidence	Low cost housing using raised bamboo house	Avg. body wt, mortality %.
		Lower milk production due to no supplementary feeding during lean period	Fodder cultivation-Hybrid napier-CO 4, feed block & Mineral mixture feeding	Milk Yield, Fat, SNF
		Cattle & Goats are Susceptible to different diseases	Vaccination & Deworming, Health camp	Disease incidence %, Body wt. gain
		to coop with the decrease water table & high temp. of seasonal farm pond	Yearling with floating fish feed management	Avg. body wt, survivability %.
4	Institutional interventions			
		To co op up for late agronomic operation	Use of farm implements	Efficiency, yield increase
		Field visit for climate resilient technologies	Exposure visit	Knowledge increase
		Knowledge enhancement on different technologies	Capacity building programme	Knowledge increase
		Awareness on different technologies	method demonstration, Awareness programme,	Knowledge increase

2.0 Non-recurring contingencies – Equipment

Procurement of farm machinery/ implements for Custom Hiring Centre (CHC)

<i>S.No.</i>	<i>Item</i>	<i>Unit cost* (Rs)</i>	<i>No. of units</i>	<i>Amount (Rs)</i>
1.	Power weeder	60000	01	60000
	Add row if required			
	Total NRC		01	60000

* Wherever possible, subsidy extended by State Government for the machinery to be utilized and accordingly rate adjusted. Wherever required, include equipment for village level small weather station, rain gauge and any other critical equipment for community interventions.

3.1 Module 1 – NRM interventions

A) Repair / Renovation of existing water harvesting structures & drainage channels etc.

S. No.	Intervention	Dimensions	No. of beneficiaries	Convergence value, if any (Rs)	Value of farmers share, if any(Rs)	Cost to project (Rs)
	Check dam repairing	50m * 20 m* 3m & 30m * 10m* 2m	84			40000
	Desilting of farm pond	80m * 35 m	18			20000
	Renovation of well		10			20000
	Sub-total 3.1					80000

B) In situ conservation – Resource Conservation Technologies (RCTs)

Item (specify)	Unit cost Rs/acre	No. of demos	Coverage		Amount (Rs)	Remarks
			Area (acres)	No. of farmers		
	A	B	C	D	A x C	
Raising of farm Bund height- Rice	1000	10	05	10	5000	Water conservation
Ridge & furrow practices in Maize, Cowpea	5000	10	04	10	20000	Water conservation
Poly mulching in Tomato, Brinjal	30000	10	01	10	30000	To check weed population
Green manuring	1000	10	10	10	10000	To decrease soil acidity
Low cost poly house	8000/unit	02		02	16000	To reduce seedling mortality
Drip irrigation	15000/unit	03		03	45000	Water conservation
Sub-total 3.1		45	19	45	126000	

3.2 Module II – Crop production interventions

A) Stress tolerant / improved varieties

Intervention	Description		Cost (Rs)/acre	No. of demos	Coverage		Amount (Rs)	Remarks (purpose of intervention)
	Crop	Variety (s)			Area (ac)	No. of farmer		
			A	B	C	D	A x C	
Drought	Rice	MTU-1156	1200	20	20	20	24000	Water conservation
Drought	Rice	Sahabhagidhan	1200	25	25	25	30000	Water conservation
Flood tolerant	Rice	Swarna sub-1	1200	40	40	40	48000	Flood tolerant
Wilt tolerant	Brinjal	Swarna Shyamali	16000	10	01	10	16000	Wilt tolerant
Short duration varieties (specify)	Pigeonpea	PRG-176	1000	20	20	20	20000	Moisture stress tolerant
Any other stress (specify, add rows if required)	oyster mushroom	Hypsizygus ulmarius	500	20	20	20	10000	Low t emp. tolerant
Crop diversification (to other crops)	sweetcorn	Sugar-75	15000	10	02	10	30000	Higher income
Agroforestry								
Seed for green / brown manuring								
Seed for legume catch crops (specify)	Greengram	IPM-02-14	1400	50	50	50	70000	YMV tolerant

	Blackgram	PU-31	1600	20	20	20	32000	Temp. Tolerant
Intercropping systems (specify)	Maize +cowpea	VNR Hybrid,Gayatri	6000	10	02	10	12000	Yield of each crop
Total				235	210	235	292000	

B) Improved agronomic practices and other crop interventions

<i>Intervention</i>		<i>Cost (Rs)/ acre</i>	<i>No. of demos</i>	<i>Coverage</i>		<i>Amount (Rs)</i>	<i>Remarks (Purpose of intervention)</i>
				<i>Area (ac)</i>	<i>No. of farmers</i>		
		A	B	C	D	A x C	
Water saving paddy cultivation methods	DSR	1200	15	15	15	18000	To decrease water use
	Aerobic						
	SRI						
Community nursery							
Critical inputs for Integrated crop management -Rice		1000	20	20	20	20000	Pest & disease management
Critical inputs for Integrated Farming systems (specify inputs and crops)		6000	04	04	04	24000	Sustainable increase of income
Other inputs (soil amendments, soil test based nutrient management, bio-fertilizers, other soil and plant health related etc)		400	25	25	25	10000	Use of micronutrient
Harvesting and post harvesting related interventions							
Facilitating insurance for crops (specify)							
Income generation activities (Mushroom etc)		500/10 beds	20	20	20	10000	Higher Income
Income generation activities (Vegetables etc.)		30000	10	01	10	30000	Higher Income
Facilitation of marketing of farm produce							
Any other (specify), add rows if needed							
Total			94	85	94	112000	

4.0 Module 3 – Livestock & Fisheries interventions

4.1 Year round fodder production strategies (annual/perennial fodder) in the village

Season	Name of fodder	Variety	Area (ha)	Unit cost of demo (Rs)*	No. of demos	Amount (Rs)*	Remarks (purpose of intervention& farmers covered)
Kharif	Napier	CO-4	01	15000	05	15000	Fodder availability in summer
	Sub-total 4.1				05	15000	
Rabi							
Summer							
	Total						

*if applicable

4.2 Feed demonstrations for crop residue management / stress management: silage / feed blocks/ mineral mixture (MM) blocks / feed enrichment

Details of feed demo*	Unit cost of demo (Rs)	No. of demos	Amount (Rs)	Remarks (purpose of intervention& farmers covered)
a) Silage demos				
b) Feed block demos				
c) Mineral mixture demos	800	10	8000	To increase milk production
d) Unconventional feed resources (eg., red gram stalks, cotton stalks etc) used in preparation of complete feed				
e) Animal Health camp	15000	04	60000	To increase immunity
f) Feeding management & disease control programme in livestock (Total Mixed Ration, Mineral block, medicines & disinfectant solution)				
Total		14	68000	

*Specify fodder & animal type for demos; here indicate cost of demo, if any; cost of establishment of new units to be given in item 2.0 (equipment), if any.

4.3 Improved housing /shelter for protection of livestock against extreme weather

Type of shelter improvement*	Unit cost of demo (Rs)	No. of demos	Amount (Rs)	Remarks (purpose of intervention& farmers covered)
Concrete flooring with bamboo & straw thatching	7000	05	35000	Better hygienic condition, Adverse climatic

for cattle				condition
Low cost poultry house with Cement pillar & wire mesh	6000	02	12000	Better hygienic condition, Adverse climatic condition
Low cost Goat house with raised bamboo structure	8000	02	16000	Better hygienic condition, Adverse climatic condition
Total		09	63000	

**Specify animal type and material used; Plan innovative demonstrations using locally available material*

4.4 Livestock / Fisheries units

A	B	C	D	E	F	G
Enterprise/unit*	Unit cost (Rs)	Convergence share in unit cost, if any** (Rs)	Project share in unit cost (Rs)	No. of units	Cost to Project (D x E) (Rs)	Remarks (purpose of intervention & farmers covered)
Kadaknath/Chhabro-Poultry	4000	1500	2500	10	25000	Better adaptability
Composite Pisciculture	50000	23000	7000	04	28000	To check mortality & higher income
Total				14	53000	

** Stress tolerant breeds/piggery/goatery/duckery/backyard poultry/ fisheries/bee keeping etc.*

5.0 Module 4 – Community interventions

5.1 Establishment of fodder banks (hay)

Name of the SHG	Fodder type	Quantity of storage (t)	Unit cost (Rs.)	No. of units	Amount (Rs.)	Remarks (purpose of intervention & farmers covered)
Total						

5.2 Establishment of Seed banks

Name of the SHG	Crop and variety	Quantity of storage (t)	Unit cost (Rs.)	No. of units	Amount (Rs.)	Remarks (No. of beneficiaries & Period of use)
	Paddy-Sahabgadhian, Sarna Shreya	08	10000	10000	10000	18/june-july
Total					10000	

6.0. Capacity Building & Training Programmes

6.1 Training Courses

Theme	Title of training course	Proposed month	No. of participants	Cost to project (Rs.)
IPM	Management of Pest & diseases in paddy	August	25	4000
IPM	Goat rearing	Jan.	25	4000
Income generation	Income generation activities	Nov.	25	4000
Resource conservation	Vermicomposting, use of Bio-Fertilizer in diff. crop	Sept.	25	4000
Feed management	Application of Floating feed in Pisciculture	Oct.	25	4000
Quality planting material	Nursery raising , Grafting techniques of veg. & fruits	Oct.	25	4000
ICT in Agriculture	Role of ICT in changing climate scenario	Dec.	25	4000
Total	07		175	28000

6.2 Field Days

Theme	Title of Field day	Proposed month	No. of participants	Cost to project (Rs.)
Field day	Field day on Medium duration Pigeonpea var.PR-176	Jan	50	4000
Field day	Field day on drought tolerant Paddy var.-Sahabgadhian	Oct.	50	4000
Field day	Short duration Greengram var.IPM-02-14	Feb.	50	4000
Field day	Short duration Blackgram var. PU-31	Feb.	50	4000
Total			200	16000

6.3 Exposure Visits

Place of visit	Purpose of visit	Proposed month	No. of participants	Cost to project (Rs.)
CHES, CTCRI, IIWM, NRRI	Awareness on improved technology	Dec.	40	40000
Total			40	40000

7.0 Up-scaling of Successful Interventions (Practices which can be scalable with minimal cost are to be selected for scaling up)

Sl.No.	Name of technology	Unit cost/ha (Rs.)	No. of farmers covered	Cost to project (Rs.)	Remarks (justification)
1.	Resilient var.	2500	15	10000	
2.					
Total		2500	15	10000	

8.0 Contractual Manpower (SRFs)

Category	Rate/month (Rs.)	No. of positions	No. of months	Amount (Rs.)
SRF	36750		06	220500
Total				220500

9.0 Media Products to be developed (brochure/bulletin)

Item description	No. of copies	Amount (Rs.)
Bulletin on Impact of NICRA activities	1000	10000
Total		10000

Summary of budget Estimates for 2021-22(Tentative)

S.N.	Item	Amount (Rs)
1.	Procurement of farm machinery/implements for CHC	60000
2.	Repair/ Renovation of existing water harvesting structures & drainage channels etc.	80000
3.	In situ conservation – Resource Conservation Technologies (RCTs)	126000
4.	Stress tolerant/ Improved varieties	292000

S.N.	Item	Amount (Rs)
5.	Improved agronomic practices and other crop interventions	112000
6.	Year round fodder production strategies (annual/perennial fodder) in the village	15000
7.	Feed demonstrations for crop residue management / stress management: silage / feed blocks/ mineral mixture blocks / feed enrichment	68000
8.	Improved housing /shelter for protection against extreme weather	63000
9.	Livestock/fisheries units	53000
10.	Establishment of fodder banks (hay)	
11.	Establishment of seed banks	10000
12.	Training courses	28000
13.	Field days	16000
14.	Exposure visits	40000
15.	Up-scaling of successful interventions	10000
16.	Contractual manpower (SRFs)	220500
17.	Media products to be developed	10000
18.	Any other contingencies (TA etc)	66000
	Grand total	1269500

Signature of PI/PC, NICRA- KVK