

KRISHI VIGYAN KENDRA BILASPUR (C.G.) INDIRA GANDHI KRISHI VISHWAVIDYALAYA RAIPUR (C.G.)

KVK BILASPUR

PROPOSED ACTION PLAN 2013-2014

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	I.G.K.V. Krishi Vigyan Kendra, Bilaspur (C.G.)
Vigyan Kendra (KVK)	
Area of operation (Name & address of selected	Village- Khargahna, Post- Lamer, Via-Ganiyari
the village)	Tahsil- Takhatpur, distt- Bilaspur(C.G.)
Zonal project directorate (concerned)	ZPD, Zone,VII,jabalpur
Project team of the KVK	Dr. R.N.Sharma-PI, Er.U.K.Dhruw-Co-PI
	Dr.D.K.Sharma- Member, Dr (Smt) Kiran Gupta –
	Member, Smt. N.Pathak- Member ,Smt Shilpa
	Kaushik-Member, Devendra Upadhaye-Member,
	Vinod Nirmalkar- Member
Duration of the project	2013-2014 (April 2013 to March 2014)
Budget Year 2013-14:	-

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	15	165	180	80	20	460
Average landholding size (ha)	-	<1ha	1-2 ha	2-3 ha	>4 ha	

Demographic details

Particular	Male	Female	Total/ overall
Total population	1200	1100	2300
Literacy	480	660	1140

1.2 (a) Rainfall

Particular	Average (mm)	Normal Onset (specify week and month)	Normal Cessation (specizfy week and month)
SW monsoon (June-	1260.00	June-III &IV weeks	III rd Sept. onward
Sep):		July-Aug. –All the Week	
		SeptI &II Week	
NE Monsoon(Oct-Dec):	23.0	Last week of Nov. to I & II weeks of	Last Week of
		Dec.	December
Winter (Jan- March)	14.0	-	-
Summer (Apr-May)	13.0	-	-
Annual			

1.2 (b) Historical trends in rainfall

Historical trends in rainfall			Last Five Years					
			2009-10	2010-11	2011-12	2012-13		
No. of rainy days								
No. dry spells during kharif season	> 10 days							
	> 15 days							
	> 20 days							
No. Intensive rain-spells	> 60 mm per day							

1.3 Types of soil

S.No.	Major Soils	Area (ha)	Percent (%) of total
1	Loamy	60	30
2	Clayey	100	50
3	Very Shallow	5	2.5
4	Shallow	15	7.5
5	Moderately deep	10	5
6	Very Deep	10	5

1.4 Agricultural land use pattern

	Agricultural land use	Area (ha)	Per cent (%)
1	Total cultivated area	200 ha	35.71 %
2	Culturable wasteland /Forest	240 ha &	42.86 % & 21.43%
		120 ha	
3	Pasture land		-
4	Rainfed area	140 ha	25%
5	Net irrigated area	60 ha	10.71 %
6	Gross irrigated area	80 ha	
7	Gross cultivated area	232 ha	
8	Cropping intensity %		124 %

1.5 Irrigation sources:

	Sources of Irrigation	Number	Area (ha)	% area
1	Tanks	03	12 ha	15 %
2	Open wells	02	08 ha	10 %
3	Bore wells	20	60 ha	
4	Lift irrigation			
5	Other sources(River)			
	Total			
1	Pump-sets(Electric Motor)			
2	Sprinkler/ drip systems	5	2 ha	
3	Defunct rain-water harvesting structures in the village			
4	Groundwater availability and use			
5	Depth of water table in bore wells (feet)	200 feet		
6	Decrease of water table, if any over the past 10 years (feet)	180 feet		
7	Quality of water:	safe		
8	Area irrigated by one bore-well (ha)	4 ha		
9	Area irrigated by one open-well (ha)	1 ha		

1.6 Area of major field crops & horticulture etc.

a) Field Crops

	Major Field Crons	Area (ha)					
		Kharif		Rabi		Summer	Tatal
	cultivateu	Irrigated	Rainfed	Irrigated	Rainfed	Summer	TOLAT
1	Paddy	60 ha	140 ha			55 ha	
2	Wheat			8 ha			
3	Arhar		8 ha				
4	Til		10 ha				
5	Gram				2 ha		
6	Field pea				2 ha		
7							

b) Horticulture crops

	Horticulture crops - Fruits	Total area	Irrigated	Rainfed
1	Guava	2.4 ha	2.4 ha	
2				
	Vegetables	Total area	Irrigated	Rainfed
1	Tomato	8.0 ha	4.0 ha	4.0 ha
2	Brinjal	2.4 ha	2.4 ha	
3	Potato	4.0 ha	4.0 ha	
4				
5				

	Other crops (Medicinal, plantation, fodder crops	Total area	Irrigated	Rainfed
1				
2				
3				
4				
	Grazing land			
	Sericulture etc.			
	Others (Specify)			

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			
2	Cattle: Indigenous	500	½ lit/day	Milk-Rs. 25/lit
3	Buffaloes	30	5 lit/day	Milk- Rs. 27/lit
4	Goat	250		
5	Sheep			
1.8	Poultry			
1	Commercial			
2	Backyard			
1.9	Inland Fisheries	Area (ha)	Yield (t/ha)	
1	Fresh water			
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

Cron	Average productivity (kg/ha)					
Стор	Kharif	Rabi	Summer			
Paddy	3800		4200			
Wheat		1250				
Gram		750				
Pigeonpea	750					
Linseed		90				

b) Horticulture crops

Major Horticultural crops	Average productivity (kg/ha)
Chilli	12,000 Kg/ha
Brinjal	20,000 Kg/ha
Tomato	15,000 Kg/ha
Okra	15,000 Kg/ha

1.11 Sowing pattern for major crops

Sowing window for 5 major crops	Crop 1:	Crop 2:	Crop3:	Crop 4 :
(start and end of sowing period)	Paddy	Pigeon Pea	Wheat	Gram
Kharif- Rainfed	July 1 st wk	June end		
Duration with dates (Sowing to Harvest)	July to Oct	July to Nov		
Rabi- Rainfed				Nov 1 st wk
Duration with dates (Sowing to Harvest)				Nov to Mar
Rabi-Irrigated			Nov end	
Duration with dates (Sowing to Harvest)			Nov to Mar	

1.12 Major constraints/scarcities

What is the major constraints the	Regular			Sporadic (specify month of occurrence in brackets)			Which crops are	
village is prone to? (Tick mark)	Severe	Moderate	Mild	Severe	Moderate	Mild	affected most	
Drought		\uparrow			Sept.		Rice	
Flood								
Heat wave			\uparrow			May	Summer Vegetable	
Cold wave			\uparrow			Dec- Jan	Arhar,Gram	
Pests and diseases (specify)		\uparrow			SeptOct Feb & Oct- Nov		Rice,Gram,Arhar	
Sea inundation								

1.13 Other constraints/ scarcities

Water logging	
Change in rainfall timing affecting certain livelihood	Cultivation of crop
(in certain areas)	
Non-availability of quality seed in time (name the	Arhar, Til, Wheat, Gram, Mustard, Sunflower, Tomato
crop):	Brinjal,Safflower
Non-availability of farm machinery/ implements	Tractor, Rotavator, Seed Cum fertilizer, MB
(name the machine/ implement):	Plough, Reaper, Thresher
Non-availability of fodder (specify the months of	May,June, Oct, Nov.
scarcity):	
Non-availability of critical inputs for livestock &	Improved Breed, Vaccination
poultry, like vaccines, etc.	
Major diseases in livestock & poultry (which animal	FMD
is more affected):	
Which crops are more affected due to water	Rainfed Paddy
scarcity/ low rainfall:	
Lower price of farm produce (name of the crops):	Paddy
Marketing arrangement/ channels for livestock &	Local
their products:	

1.14 Existing community participation

No. of active SHGs in the village:	03
No. of the other active community based organizations in the	01- Krishak Club
village and their activities:	
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)	Delayed Planting, SRI
Normal onset followed by 15-20 days dry spell	Short duration variety
Mid season drought (long dry spell, consecutive 2 weeks	-
rainless	
Terminal drought	-
Insufficient groundwater recharge due to low rainfall/ over-	Lack of Knowledge of
exploitation	groundwater recharge
Scarcity of feed and fodder and water for animals during	Paddy straw and rice brawn is
drought	used as feed
Feeding/ reproductive management of livestock during heat/	Animal Shed
cold wave	
Feed and fodder and water for animals during heat/ cold wave	-
Fisheries: Shallow water in ponds due to insufficient	-
rains/inflows	
Crop management during short duration flood situation	-
Disease epidemics mitigation in livestock during cyclone/ flood	-

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

- MNREGS Integrated watershed development programme
- Others NGOs
- Nehru yuva Kendra(NYK)
- Self Help Group(SHG)

2.1 Proposed interventions*

Interventions	No. of units/	Area, ha	Cost per unit <i>or</i> per	Total Expenditure,
			ha, Rs.	(Rs. in Lakhs)
Drought resistant / varieties: Crop				
Crop-1 Paddy –(Samleshwari/High	10	8	4000	32,000-
yielding variety (Durgeshwari)				
Crop 3-Wheat (GW-273)	10	5.000	2000/-	10,000/-
Crop-4-Gram- (JG-11)	20	10.00	6,000	60,000
Crop 5- Tivda (Mahatiwra)	5	10.00	2500	25000
Vegetables				
Tomato(Laxmi)	5	0.200	20000	4,000
Cowpea(Super Ujjwala)	5	1.000	10,000	10,000
Bitter gourd(Swastik)	5	0.400	2,500	2,500
Chilli(Indira Chilli-1)	5	0.200	20,000	4,000
Brinjal (Mukta Keshi)	5	0.400	5,000	5,000
Okra(Arka Anamika)	5	0.400	8,000	8000
Introduction of new crops (drought)				
Crop 6- Urd (Indira Urd)	5	3.00	5,000	15,000
Crop 7- Safflower(JHS 129/JSI-7)	5	3.00	6667	20,000
Crop 8- Corriender	20	0.400	20,000	8,000
Appropriate inter-cropping systems				
Gram+ Safflower	10	3	5,000	15,000
Gram + Corriender	20	3	5,000	15,000
In-situ moisture conservation:				
Summer deep ploughing	20	10.0	4,000	40,000/-

water harvesting structure (farm	01	1,50,000=00	1,50,000=00
pond)			
Size: 30 X 30X 3m			
Lined/ not lined			
Percolation pond/ injection wells	05	30,000	1,50,000=00

for recharging the wells				
Renovation of defunct water harvesting structures in the village: 30X30X3 m	02	2	1,00,000=00	1,00,000=00
Micro-irrigation system:				
1-Drip	2	0.800	2,00,000	2,00,000=00
2-Sprinkler	1	1	40,000	40,000=00
Seed production (bank)				
Crop 1: Paddy(Indira Barani dhan 1)	2	2	10,000	10,000
Crop 2: Wheat(GW-273)	2	2	8,000	8,000
Fodder Bank (Silage, Hay, Backyard				
perennial fodder)				
Development of private/ common				
fodder resources –				
Prophylaxis of livestock & poultry-	All Livestock			
Animal Health camp	01	25	50,000	50,000
Introducing better adapted high			-	
yielding breeds of				
livestock/Poultry				
Poultry- Improved	5	100	100	20,000
Duck	5	100	50	5,000
Goat-Jamunapari/ other	5	10	6000	60,000
Custom hiring center (farm	1	-	-	-
machinery/ implements/ equipments)				

Activities for		
diversification of		
agriculture/ livelihoods		
Agri-silvi culture system		
Mahua, Karanj, Mahaneem,		

Teak, Palash	50		1,00,000
Lac culture	10		10,000
Mushroom Production	2		10,000
unit			
Capacity building			
(trainings/ visits):			
1. Training	5	5,000	25,000
2. Visits	10	10,000	1,00,000
Extension Activities			
Insurance of livestock/ crops			
(facilitation)			
Agro-advisory services to	100		
the farmers-			
Group marketing for high	3		
value crops –			

* 1. The interventions may be decided based on real needs of the village and feasibility of implementation

2. The NRM interventions like check dams, de-silting of water harvesting structures, (even some farm ponds) etc. may got done through MNREGS. The wage component may come from NREGS and material component may come from NICRA.

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

SI. No.	Name of farm implements & machineries	Cost (Rs. in Lakh)
1		
2		
3		
4		
5		

* Farm Machinery procurement must be based strictly on community needs. A participatory process of identifying the mechanization needs must be adopted following a transparent and democratic process with proper documentation and justification.

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

The farmers of the selected village have to own the programme. There is need to organize/form committees of the villagers to take up the project activities by calling a gram sabha meeting. The following committees may be organized:

- *Village Climate Risk Management Committee (CRMC)*: to take up the overall activities of the project
- *Committee for managing the custom hiring center* (Farm service center) in the village
- 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 2013 to March 2014)

Activity/ intervention	Months											
	First	First Ouarter		Second			Third			Four Ouarter		
				Quarter		Quarter						
Natural resource Management	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	March
In-situ moisture conservation RCT	_	*										
Water harvesting and recycling for				*	*							
supplemental irrigation												
Improved drainage in flood prone				*	*							
areas												
Conservation tillage where appropriate								*	*			
Artificial ground water recharge				*	*	*						
Water saving irrigation methods	*	*										
Any other (Pl. specify)												
Crop production												
Introducing drought / temperature				*								*
tolerant varieties												
Advancement of planting dates of rabi							*	*				
crops in areas with terminal heat stress												
Water saving paddy cultivation			*	*								
methods (SRI, aerobic, direct seeding)												
Frost management in horticulture												
through fumigation												
Community nurseries for delayed	*	*										
monsoon												
Custom hiring centres for timely								*				
planting								.1.				
Location specific intercropping							*	*				
systems with high sustainable yield												
Any other (Pl_specify)												
Livesteck & Fishery												
Livestock & Fishery												
Use of community lands for fodder	*	*										
production during droughts												
Improved fodder/feed storage methods												
Preventive vaccination												
Improved shelters for reducing heat		*										*
stress in livestock												
Management of fish ponds / tanks		*		*	*							
during water scarcity and excess water												
Any other (Pl. specify)												

Institution/ capacity building								
Seed bank	*				*	*		*
Fodder bank								
Commodity groups								
Custom hiring centre								
Collective marketing								
Climate literacy through a village level								
weather station								
Any other (Pl. specify)								

2.6 Budget requirements (Rs. in lakhs)

SI. No.	Items of expenditure	2013-14	2014-2015	Total
1.	Non- Recurring	2,00,000		
1.1				
2.	ТА	70,000		
2.1	TA (other than local movements)			
3.	Contingencies	6,09,770		
3.1	Contractual services: SRF (2)	4,10,880		
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)*	13,41,500		
	Total			

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

2.7 Project Team

KVK –Biilaspur, IGKV, (C.G.)

Organization: - Zone-VII, ZPD, ICAR, Jabalpur (M.P.)

Email- kvkbilaspur@rediffmail.com

S.No	Name	Designation		e Designation Email			Mobil No.	Date of
							Joining	
		PI	Co-PI	SRF				
1.	Dr.R.N.Sharma	PI			Kvkbilaspur@rediffmail.com	9424152366	-	
2.	Miss Samarth	SRF			Kvkbilaspur@rediffmail.com	9685212650	-	
	Bedi							
3.	Er.U.K.Dhruw	Co-PI			Kvkbilaspur@rediffmail.com	9752153388		
4.								