

State: NAGALAND
Agriculture Contingency Plan for District: Mokokchung District

1.0 District Agriculture profile

1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Tropical to temperate			
	Agro-Climatic Zone (Planning Commission)	Eastern Himalayan Region			
	Agro Climatic Zone (NARP)	Sub – Tropical Hill Zone (98.10) & Mid Tropical Hill Zone (1.90)			
	List all the districts or part thereof falling under the NARP Zone	Sub- tropical hill zone: Kohima, Mokokchung, Mon, Phek, Tuensang, Wokha, Zunheboto Mid-tropical Hill zone: Dimapur, Kohima, Mokokchung, Wokha			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		25° 56' and 27° 40'N	93°53' and 94°53' E	150-1650 msl	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ICAR Research Complex for NEH Region, Umiam, Umroi Road, Meghalaya 793 103			
	Mention the KVK located in the district	KVK Mokokchung, Nagaland			
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (3 rd week May - Sep):	1550	64	3 rd week May	4 th week September
	Post Monsoon/ NE Monsoon (Oct-Dec):	50	08	2 nd week October	4 th week December
	Winter (Jan- March)	61.2	12	1 st week January	4 th week March
	Summer (Apr-May)	230	29	2 nd week April	2 nd week May
	Annual	1891.20	113		

1.3	Land use pattern of the district (latest statistics)	Geographical area ('000 ha)	Cultivable area ('000 ha)	Forest area ('000 ha)	Land under non-agricultural use ('000 ha)	Permanent Pastures ('000 ha)	Cultivable wasteland ('000 ha)	Land under Misc. tree crops and groves ('000 ha)	Barren and uncultivable land ('000 ha)	Current Fallows ('000 ha)	Other fallows ('000 ha)	Land put or non agricultural use
	Area ('000 ha)	161.5	103.3	28.05	12.5	Nil	1.8	1.08	2.2	9.5	Nil	3.07

1.4	Major Soils (common names like red sandy loam deep soils (etc.))*	Area ('000 ha)	Percent (%) of total
	1 Non Lateritic red soils	12.92	8
	2 Alluvial soils	2.43	1.5
	3 forest soil	46.7	28.92
	Others (specify): Inceptisol	78.2	48.42

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	18.76	122 %
	Area sown more than once	4.25	
	Gross cropped area	23.01	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	2.82		
	Gross irrigated area	7.32	Source : Statistical Hand Book of Nagaland 2008	
	Rainfed area	12.84		
	Sources of Irrigation	Number	Area ('000 ha)	% of total irrigated area
	Canals**			
	Tanks **			
	Open wells**			
	Bore wells**			
	Lift irrigation schemes**			
	Micro-irrigation**			
	Other sources – Stream flow		10.14	100
	Total Irrigated Area		10.14	
	Pump sets			
	No. of Tractors	8		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)****	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	NIL	-	-
	Critical	NIL	-	-
	Semi- critical	NIL	-	-
	Safe	6	100	Safe as all this chemicals are in normal range
	Wastewater availability and use	NA	-	-
	Ground water quality	In general water is suitable for both drinking and irrigation purposes		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

Source: SREP, ATMA, Mokokchung ,Nagaland

1.7 Area under major field crops & horticulture (2011-12)

1.7a	Major field crops cultivated	Area ('000 ha)							
		Kharif			Rabi			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
1	Jhum paddy	-	12.1	12.1	-	-	-	-	12.1
2	TRC/WRC Paddy	-	2.6	2.6	-	-	-	-	2.6
3	Maize	-	7.6	7.6	-	-	-	-	7.6
4	Soybean	-	1.0	1.0	-	-	-	-	1.0
5	Ricebean	-	0.53	0.53	-	1.2	1.2	-	0.53
6	Rapeseed/mustard	-	-	-	-	2.4	2.4	-	2.4
7	Tapioca	-	0.27	0.27					0.27
Others (specify)									
1.7b	Horticulture crops - Fruits	Total		Irrigated		Rainfed ('000 ha)			
1	Pineapple	0.37		-		0.37			
2	Banana	0.34		-		0.34			
3	Litchi	0.79		-		0.79			
4	Orange	0.45		-		0.45			
5	Passion fruit	0.51		-		0.51			
Others (specify)									

1.7c	Horticulture crops - Vegetables	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1	Ginger	0.09	-	0.09
2	Chilli	0.11	-	0.11
3	Potato	0.31	-	0.31
4	Colocasia	0.22	-	0.22
5	Tomato	0.10	-	0.10
Others (specify)				
1.7d	Medicinal and Aromatic crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1	Lemon grass	0.04	-	0.04
2	Patchouli	0.037	-	0.037
3	Aloe vera	0.04	-	0.04
4				
5				

Others (specify)					
1.7e	Plantation crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)	
1	Arecanut	3.1	-	3.1	
2	Tea	0.15	-	0.15	
3	Large cardamom	0.62	-	0.62	
4	Rubber	3.9	-	3.9	
5	Coffee	0.36	-	0.36	
Others (Specify)	Eg., industrial pulpwood crops etc.				
1.7f	Fodder crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)	Remarks
1		-	-	-	Information not available
2		-	-	-	
3		-	-	-	
4		-	-	-	
5		-	-	-	
Others (Specify)					
1.7g	Grazing land	-	-	-	Information not available
1.7h	Sericulture etc	0.4	-	0.4	
1.7i	Others (specify)				

1.8	Livestock (in number)	Male ('000)	Female ('000)	Total ('000)		
	Non descriptive Cattle (local low yielding)	10	11.1	21.1		
	Crossbred cattle	3.2	7.0	10.2		
	Non descriptive Buffaloes (local low yielding)	1	1.4	2.4		
	Graded Buffaloes	-	-	-		
	Goat	2.3	3.5	5.8		
	Sheep	-	-	-		
	Others (Camel, Pig, Yak etc.)					
	(i) Pig	15.9	48	63.9		
	(ii) Mithun	-	-	-		
	Commercial dairy farms (Number)					
1.9	Poultry	No. of farms	Total No. of birds ('000)			
	Commercial	27	144.89			
	Backyard	-	188.6			
1.10	Fisheries (Data source: Chief Planning Officer of district)					
	A. Capture					
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets	Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized		
			Not applicable			
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds	No. of Reservoirs	No. of village tanks	No of ponds& tanks	
		1008			2134	
	B. Culture					
		Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)		
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)					
	ii) Fresh water (Data Source: Fisheries Department)	-	NA	-		
	Others					

1.11 Production and Productivity of major crops

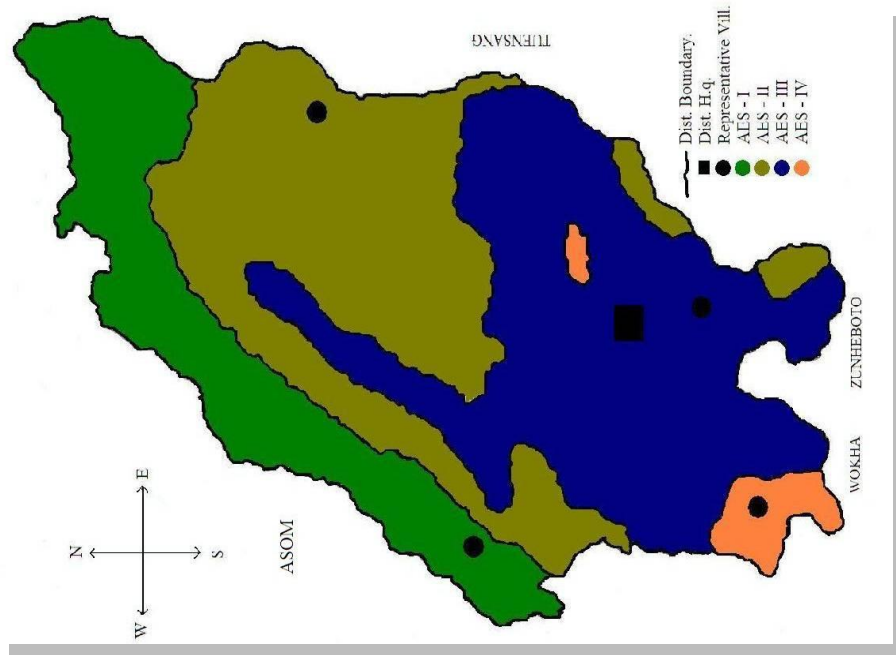
1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Jhum paddy	24.4	2100	-		-	-	24.4	2100	-
Crop 2	TRC/WRC Paddy	7.1	2500	-		-	-	7.1	2500	-
Crop 3	Maize	10.6	1660	-		-	-	10.6	1660	-
Crop 4	Soybean	1.6	1200	-		-	-	1.6	1200	-
Crop 5	Tapioca	30.9	29420					30.9	29420	
Crop 6	Rapeseed/mustard	-		1.4	700		-	1.4	700	-
Others										
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Pineapple	0.330	9700	-	-	-	-	0.330	9700	-
Crop 2	Banana	3.900	1444	-	-	-	-	3.900	1444	-
Crop 3	Litchi	0.018	2200	-	-	-	-	0.018	2200	-
Crop 4	Orange	0.965	2720	-	-	-	-	0.965	2720	-
Crop 5	Passion fruit	0.150	1600	-	-	-	-	0.150	1600	-
Crop 6	Ginger	0.500	6250			-	-	0.500	6250	-
Crop 7	Chilli	0.180	4280	-		-	-	0.180	4280	-
Crop8	Potato	-		2.300	8850	-	-	2.300	8850	-
Crop 9	Colocasia	1	5000	-		-	-	1	5000	-
Crop10	Tomato	-		0.760	2714	-	-	0.760	2714	-
Others										

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1 : Jhum paddy	Crop 2: TRC/WRC Paddy	Crop 3: Maize	Crop 4: Tapioca	Crop 5: Rapeseed/ mustard
	Pre-Kharif	March - April.		March - April	Feb - March	
	Kharif- Rainfed	-	May-July	-	-	Oct-Nov
	Kharif-Irrigated	-	-	-	-	-
	Rabi- Rainfed	-	-	-	-	
	Rabi-Irrigated	-	-	-	-	-

1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought	-	√	-
	Flood	-	-	√
	Cyclone	-	-	√
	Hail storm	-	√	-
	Heat wave	-	-	√
	Cold wave	√	-	-
	Frost	-	-	√
	Sea water intrusion	-	-	√
	Pests and disease outbreak (specify)	Rice-stem borer	√	-
		Rice blast disease	-	√
		Rhizome rot of ginger	√	-
		Tomato (bacterial blight)	√	-
	Others (Landslides)	-	√	-

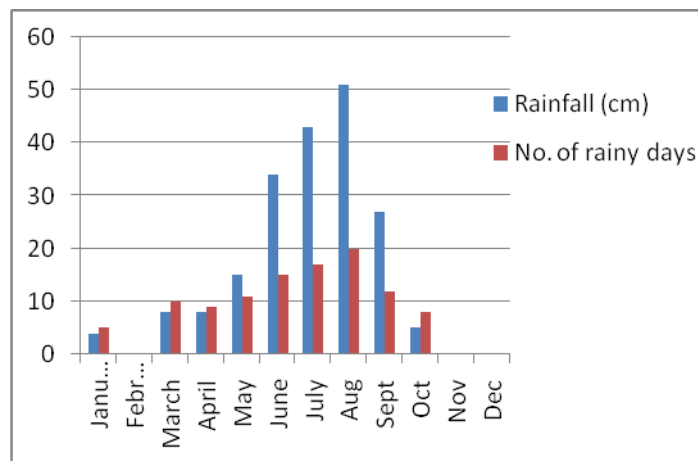
6 out of 10 years = Regular

1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes / No	Y
		Mean annual rainfall as Annexure 2	Enclosed: Yes / No	Y
		Soil map as Annexure 3	Enclosed: Yes / No	Y

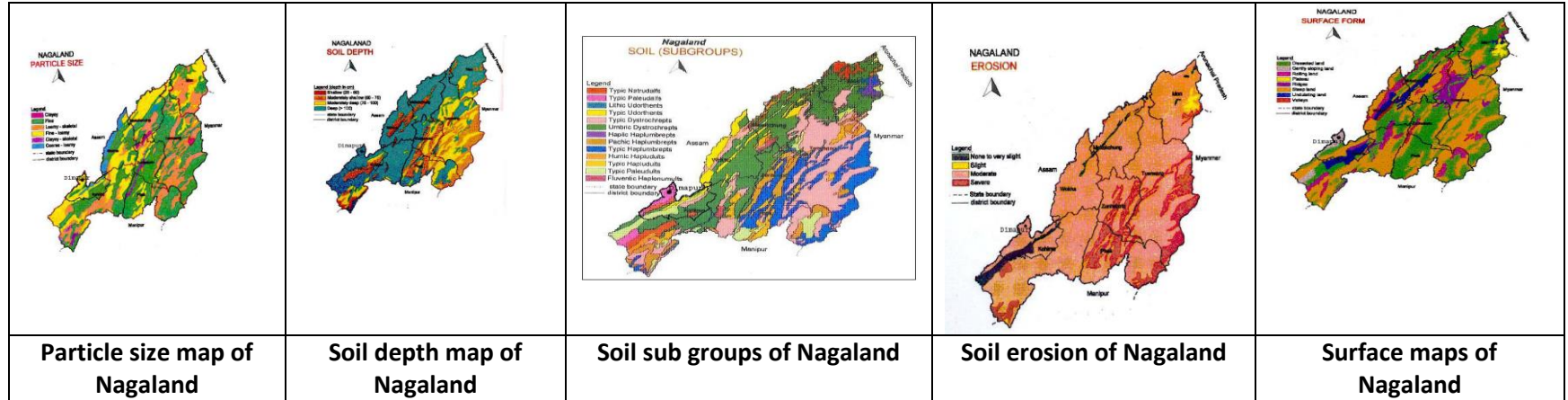


Annexure – 1: LOCATION MAP OF MOKOKCHUNG DISTRICT OF NAGALAND STATE

Annexure 2. Mean annual rainfall



Annexure – 3: SOIL MAP OF Nagaland
Source: NBSSLUP, Regional Centre, Jorhat, Assam



2.0 Strategies for weather related contingencies

2.0 Strategies for weather related contingencies

2.1 Drought –

2.1.1 Rainfed Situation

2.1.1 .1 Pre- monsoon (2nd week of April to First week of May).

Conditions			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Delay by 2 weeks (2 nd to 3 rd week of April)	Moderately sloping on side slopes of hills with deep, fine loamy soils	Pre-kharif maize (local land races)	No change	No change	Line dept. schemes/ RKVY
	Gently sloping , side slopes of hills with moderately shallow fine soils	Jhum-Maize (local land races)	No change	No change	
	Steeply sloping hills with deep, fine soils	<i>Jhum</i> paddy (local land races)	No change	No change	
		Maize (local land races)	No change	No change	
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	<i>Jhum</i> paddy (local land races)	No change	No change	
		Jhum-Maize (local land races)	No change	No change	
Delay by 4 weeks (1 st week of May)	Moderately sloping on side slopes of hills with deep, fine loamy soils	Pre-kharif maize (local land races)	No change	No change	Line dept. schemes/ RKVY
	Gently sloping , side slopes of hills with moderately shallow fine soils	Jhum-Maize (local land races)	No change	No change	
	Steeply sloping hills with deep, fine soils	<i>Jhum</i> paddy (local land races)	No change	No change	
		Maize (local land races)	No change	No change	

	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	<i>Jhum</i> paddy (local land races)	No change	No change	
		Jhum-Maize (local land races)	No change	No change	
Delay by 6 weeks (3 rd May)	NA				NA
Delay by 8 weeks (1 st June)	NA				NA

2.1.1.2 South west monsoon - normal (3rd week of May-Sept)

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures	
			Change in crop / cropping system including variety	Agronomic measures
Delay by 2 weeks (June 1 st week)	Moderately sloping on side slopes of hills with deep, fine loamy soils	<i>Kharif</i> maize (local land races)	No change	
		Terrace rice cultivation (local land races)	No change	
	Gently sloping, side slopes of hills with moderately shallow fine soils	<i>Kharif</i> maize (local land races)	No change	
		Terrace rice cultivation (local land races)	No change	ICM
	Steeply sloping, hills with deep fine soils	<i>Kharif</i> maize (local land races)	No change	
		Colocasia (local land races)	Summer vegetables	Mulching with local bio-mass (tree litter)
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	<i>Kharif</i> maize (local land races)	No change	
		Terrace rice cultivation (local land races)	No change	ICM

2.1.1 .3 South west monsoon - normal (3rd week of May-Sept)

Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation		
Delay by 4 weeks (4 th week June)	Moderately sloping on side slopes of hills with deep, fine loamy soils	<i>Kharif</i> maize	Local land races of maize Intercrop with Legumes (Soybean) and oilseeds (sesame) and local cucumbers	Mulching with local bio mass.	-		
		Terrace rice cultivation	Medium duration variety RCM-9, MTU-1010	ICM			
	Gently sloping , side slopes of hills with moderately shallow fine soils	<i>Kharif</i> maize	Local land races of maize Intercrop with Legumes (Soybean) and oilseeds (sesame) and local cucumbers	Mulching with local bio- mass. throughout the cropping period			
		Terrace rice cultivation	Medium duration variety Abishak	ICM			
	Steeply sloping, hills with deep fine soils	Terrace rice cultivation	Medium duration variety Abishak	ICM			
		<i>Kharif</i> maize	Local land races of maize Intercrop with Legumes (Soybean) and oilseeds (sesame) and local cucumbers	Mulching with local bio mass.			
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	<i>Kharif</i> maize	Local land races of maize Intercrop with Legumes (Soybean) and oilseeds (sesame) and local cucumbers	Mulching with local bio mass.			
		Terrace rice cultivation	Medium duration variety Abishak	ICM			
	Delay by 6 weeks (1st week of July)	NA	NA				
	Delay by 8weeks (4th week of July)	NA	NA				

2.1.1.4 Monsoon- Normal

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/ cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Moderately sloping on side slopes of hills with deep, fine loamy soils	Kharif maize	I. If there is poor germination (Less than 30%) re-sowing II. Gap filling III. life saving irrigation if possible IV. Weeding	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
		Ginger	I. If there is poor germination re-sowing of rhizomes II. inter-cultural operations.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
	Gently sloping , side slopes of hills with moderately shallow fine soils	Jhum paddy	I. If there is poor germination (Less than 30%) re-sowing II. Keep Weed free	In situ moisture conservation, mulching with locally available bio mass	-
	Steeply sloping, hills with deep fine soils	Terrace rice cultivation	No change	Transplanting of 30-35 Days old seedlings	-
		Maize	I. If there is poor germination (Less than 30%) re-sowing II. Gap filling III. Weeding	In situ moisture conservation, mulching with locally available bio mass	-
		Ginger		Mulching	
Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	Jhum paddy	I. If there is poor germination (Less than 30%) re-sowing II. Weeding	-	-	

2.1.1.5 Monsoon- Normal

Condition			Suggested Contingency measures		
Mid season drought (Long dry spell consecutive 2 weeks rainless long dry)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Vegetative stage	Moderately sloping on side slopes of hills with deep, fine loamy soils	Kharif maize	Weeding/ intercultural operations etc.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	Line dept. schemes/ RKVY
		Ginger	intercultural operations,weeding.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Gently sloping , side slopes of hills with moderately shallow fine soils	Terrace rice cultivation paddy	Foliar spray with 2 % urea and MOP	-	
		Ginger	Weeding/ intercultural operations etc.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Steeply sloping, hills with deep fine soils fine soils	Jhum paddy	Weeding Foliar spray with 2 % urea and MOP after rain	-	
		Maize	Weeding/ intercultural operations etc. Foliar spray with 2 % urea and MOP	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	Jhum paddy	Weeding Foliar spray with 2 % urea and MOP	-	
		Maize	Weeding/ intercultural operations etc. Foliar spray with 2 % urea and MOP	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	

2.1.1.6 Monsoon Normal

Condition	Major Farming situation	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (Long dry spell consecutive 2 weeks rainless long dry)					
At flowering / fruiting stage	Moderately sloping on side slopes of hills with deep, fine loamy soils	Kharif, Maize,	Weeding/ intercultural operations etc. Life saving irrigation.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	Line dept. schemes/RKVY
		Ginger	life saving irrigation	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Gently sloping , side slopes of hills with moderately shallow fine soils	Terrace rice cultivation paddy	Foliar spray with 2 % urea and MOP	-	
		Ginger	Weeding/ intercultural operations etc.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Steeply sloping, hills with deep fine soils fine soils	Jhum paddy	Weeding	-	
		Maize	Weeding/ intercultural operations etc.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	Jhum paddy	Weeding	-	
		Maize	Weeding/ intercultural operations etc.	rain water harvesting as resource conservation technology, mulching with locally available bio mass, and earthing up	

2.1.1.7 Terminal drought

Condition	Major Farming situation ^a	Normal Crop /cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Moderately sloping on side slopes of hills with deep, fine loamy soils	Kharif, Maize,	Mulching Life saving irrigation if possible If grain filling is severely affected harvest for fodder	Land preparation for early rabi sowing of linseed, toria/pea	
		Ginger *	Mulching Harvest at physiological maturity	-	
	Gently sloping , side slopes of hills with moderately shallow fine soils	Terrace rice cultivation paddy	If grain filling is severely affected harvest for fodder	Land preparation for early rabi sowing of linseed, toria/pea	
		Ginger	Mulching Harvest at physiological maturity	-	
	Steeply sloping, hills with deep fine soils fine soils	Jhum paddy	If grain filling is severely affected harvest for fodder	Land preparation for early rabi sowing of linseed, toria/pea	
		Maize	Mulching and Life saving irrigation if possible Harvest at physiological maturity	-	
	Moderately to gentle sloping hills slopes with deep loamy skeletal to fine loamy soils	Jhum paddy	If grain filling is severely affected harvest for fodder	Land preparation for early rabi sowing of linseed, toria/pea	
		Maize	Mulching and Life saving irrigation if possible Harvest at physiological maturity	-	

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations) NA

2.3 Floods: Not Applicable

2.4 Extreme events- Hailstorm

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Hailstorm				
Tomato	NA	NA	NA	Harvest and value addition
Pineapple	NA	NA	NA	Harvest and value addition
Cucurbits	NA	Remove the affected plants and top dress with urea	NA	NA

* Other extreme events are not applicable in this district

Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought/ Lean period (Oct-March)			
Feed and fodder availability	Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging hedge row species for fodder crops	Utilizing fodder from perennial trees and Fodder bank reserves Transporting excess fodder from adjoining districts Use of non conventional fodders. Use of feed mixtures and feed blocks Culling unproductive livestock	Use of non conventional fodders. Use of feed mixtures and feed blocks Availing Insurance
Drinking water	Roof top water harvesting, Preserving water in the tank for drinking purpose.	Judicious use of water, Using preserved water in the tanks for drinking purpose, recycling of household used water. Chlorination of water.	Maintenance/cleaning of community reservoirs/ village ponds
Health and disease management	Insurance, Veterinary preparedness with medicines and vaccines, organizing vaccination camps and mineral supplementation	Conducting mass animal Health Camps and treating the affected one, mineral supplementation.	Culling sick animals and mineral supplementation
Floods	Not applicable		
Feed and fodder availability			
Drinking water			

Health and disease management			
Cyclone	Not applicable		
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave	Cold wave		
Shelter/environment management	Adoption of deep litter system for pig/poultry	Covering of open space with gunny bags, warming of pen using heating bulb or any other source and Feeding of high energy feed.	
Health and disease management	Deworming hygiene and cleanliness of the floor of the pen	Apply appropriate medicine	

^s based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Drought	-	-	-	-
Shortage of feed ingredients	Procurement and storage of feed ingredients, Establishing feed reserve Bank	Utilizing from feed reserve banks, nutritional supplementation to poultry	Nutritional supplementation to poultry	
Drinking water	Arrangement for drinking water, Roof top water harvesting , Preserving water in the tank for drinking purpose	Judicious use of water, providing B-complex and Vit.C in water	Supplementation of Vit. B-complex to be continued.	
Health and disease management	Insurance and Emergency Veterinary preparedness with medicines and vaccination to birds	Sanitation and Hygiene	Culling affected birds, Mass vaccination	
Floods	Not applicable			
Cyclone	Not applicable			
Heat wave and cold wave	Not applicable			

^a based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
1) Drought	-	-	--
A. Capture			
Marine	-	-	-
Inland	-	-	-
(i) Shallow water depth due to insufficient rains/inflow	-	-	-
(ii) Changes in water quality	-	-	-
(iii) Any other	-	-	-
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	De-silting, repair of bunds of existing ponds, rain water harvesting, liming and adopt low stocking density, deepening of ponds by 1.5-2 meters, restrict use of Manures and fertilizers, Channelizing water to pond if possible, Maintain proper water quality	Integrated farming, air breathing fish to be practiced, avoid fertilization and manuring on supplementary basis, feeding should be minimum to avoid organic loading, short term aquaculture with medium and minor carps, Maintain proper water quality	Prepare pond for the next crop after early harvest, Maintain proper water quality
(ii) Impact of salt load build up in ponds / change in water quality	Rain water harvesting, deepening, de-silting of existing water bodies and removal of debris	Rain water harvesting, deepening, de-silting of existing water bodies and removal of debris	Control feeding to avoid waste accumulation and eutrophication
(iii) Any other			
2) Floods	Not Applicable		
3. Cyclone / Tsunami	Not Applicable		
4. Heat wave and cold wave	Not Applicable		