

State: ARUNACHAL PRADESH
Agriculture Contingency Plan for District: Lower Subansiri

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone	16.3 Arunachal Pradesh (Subdued Eastern Himalayas), warm to hot, perhumid eco-subregion (C1A10)		
	Agro Ecological Sub Region (ICAR)	Warm to hot moist (humid to per humid eco sub region)		
	Agro-Climatic Zone (Planning Commission)	North Eastern Hill Region		
	Agro Climatic Zone (NARP)	Temperate Sub Alpine (AZ49)Tropical Hill (AZ50)		
	List all the districts or part thereof falling under the NARP Zone	Papum pare, upper Subansiri , lower dibang valley upper siang , lower siang , lohit , longding , Anjaw, east kameng , west Kameng lower Subansiri,East siang,Tirap , Changlang, upper Dibang valley		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		26°55' and 28°21' North	92° 40' and 94°21 East	1000-1600 msl
Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ICAR Research Complex Basar			
Mention the KVK located in the district	KVK Lower Subansiri district			

DATA RECORDED FOR THE YEAR 2014

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	Monsoon (South west)June- Sept.	2268.2	40.18	1 st June	8 th October
	Post monsoon (Oct – Dec)	225.4	7.15	2 nd October	7 th December
	Winter (Jan - Feb)	89.5	-	-	-
	Pre-monsoon/ Summer (March – May)	687	18.45	-	-
	Annual	794.5	65.78	-	-

Source :District Agriculture office Ziro, Lower Subansiri:

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)
	Area ('000 ha)	350.8	18.38	867.3 ¥	0.85	0.43	1.05	1.09	0.68	2.95	1.27

*Census of India 2011, Ministry of Home Affairs, Government of India

\$ FSI (Forest Survey of India, Ministry of Environment, 2011)

¥ Inclusive of Kurung Kumey District

*Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India.(Data provided for the year 2011)

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	1 Red clayey soils	DATA NOT AVAILABLE	
	2 Lateritic soils		
	3 Alluvial colluvial soils (partly saline)		
	4 Alluvial-colluvial soils		
	5 Lateritic gravelly soils		
	6 Rock land and water bodies		
	7 Medium deep black soils		
	8 Red gravelly loam soils		
	9 Red gravelly clay loam soils		
	Others (specify):		
	Loamy sand		
	Sandy loam		

Source :District Agriculture office Ziro, Lower Subansiri:

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	12.03	131.4%
	Area sown more than once	3.78	
	Gross cropped area	15.81	

*Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India.(Data provided for the year 2011-12)

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	6.96		
	Gross irrigated area	6.96	Source : District Statistical office Lower Subansiri 2010- 2011 source - * SREP ATMA, lower Subansiri district	
	Sources of Irrigation	-	Area ('000 ha)	
	Canals**	-	-	
	Tanks **	-	-	
	Open wells**	-	-	
	Bore wells**	--	-	
	Lift irrigation schemes**	-	-	
	Micro-irrigation**	-	-	
	Other sources(Stream flow)	-	-	
	Total Irrigated Area	-	-	
	Pump sets	-	-	
	No. of Tractors	-	-	
	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		-	The quality of ground water is generally safe, as these chemicals are with in the normal range
	Wastewater availability and use	NA	-	
	Ground water quality	The quality of ground water is generally safe, as these chemicals are with in the normal range		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

** Data not available

*Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of. India.(Data provided for the year 2008-09)

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2013-14)

1.7a	Major field crops cultivated	Area ('000 ha)							Summer	Grand total
		Kharif			Rabi					
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total			
1	Jhum paddy	-			-	-	-	-		
2	TRC/WRC Paddy	-	8.3729	8.3729	-	-	-	-	8.3729	
3	Maize	-	0.650	0.650	-	-	-	-	0.650	
4	Millet	-	1.503	1.503	-	-	-	-	1.503	
5	Oilseeds	-	0.910	0.910	-	-	-	-	0.910	
6	Ginger	-	0.192	0.192	-	-	-	-	0.192	
7	Pulses	-				0.391	0.391		0.391	

Source: Statistical Handbook of Lower Subansiri Distt. 2011

1.7b	Horticulture crops – Fruits	Total	Irrigated	Rainfed ('000 ha)
		1	Pineapple	0.021
2	Banana	0.023	-	0.023
3	kiwi	0.0165	-	0.0165
4	plum	0.021	-	0.021
5	pears	0.023	-	0.023
6	peach	0.165	-	0.165

1.7c	Horticulture crops – Vegetables	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1.	Leafy vegetable		-	3.203
2.	Colocasia	0.028	-	
3.	Chilli	0.027	-	
4.	Pea	0.017	-	
5.	Onion	0.001	-	
6.	Cabbage	0.056	0.038	
7.	Tomato	0.049	-	

Source: District Agriculture Census, Ziro, Distt. Lower Subansiri 2010

1.7d	Medicinal and Aromatic crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)	
1	Medicinal and Aromatic crops	Data not available	-	Data not available	
* For the year 2009-10					
1.7e	Plantation crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)	
1	Coconut				
2	Cashew				
Others (Specify)	Eg., industrial pulpwood crops etc.	Data not available			
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				
1.7i	Others (specify)				
1.8	Livestock (in number)	Male ('000)	Female ('000)	Total ('000)	
	Non descriptive Cattle (local low yielding)	12.78	18.37	31.14	
	Crossbred cattle	1.86	1.83	3.69	
	Non descriptive Buffaloes (local low yielding)	-	-	-	
	Graded Buffaloes	-	-	-	
	Goat	8.83	12.32	21.15	
	Others (Camel, Pig, Yak etc.)	-	-	-	
	(i) Pig	11.85	15.70	-	
	Commercial dairy farms (Number)	-	-	-	

*Source: Livestock census (Data provided for the year 2007)

1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial	-	-				
	Backyard	-	72.89				
Source. DATA NOT AVAILABLE.							
1.10	Fisheries (Data source: District Statistical office Lower Subansiri 2013)						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets		Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	Not applicable						
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds	No. of Reservoirs		No. of village tanks	No of ponds& tanks	
		54	01			873	
	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)	1070.5		Data not available		-	
	Others	-		-		-	

1.11 Production and Productivity of major crop

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	-	-	-	-	-	-	-	-	-

Crop 2	TRC/WRC Paddy	22.19	2650	-	-	-	-	-	-	-
Crop 3	Maize	1.33	2050	-	-	-	-	-	--	-
Crop 4	millets	1.58	1053	-	-	-	-	-	-	-
Crop 5	pulses	0.72	1850	-	-	-	-	-	-	-
Crop 6	Rapeseed/mustard	-	-	1.14	1250	-	-	-	-	-
Crop 1	Pineapple	-	-	-	-	-	-	-	-	-
Crop 2	Banana	-	-	-	-	-	-	-	-	-
Crop 3	Lemon	-	-	-	-	-	-	-	-	-
Crop 1	vegetables	9.93	31000	-	-	-	-	-	-	-
Crop 2	Potato	-	-	3.18	9500	-	-	-	-	-
Crop 3	Chill	0.27	1750	-	-	-	-	-	-	-
Crop 4	ginger	1.08	5649	-	-	-	-	-	-	-
Crop5	sugarcane	2.75	30550	-	-	-	-	-	-	-
Crop 6	Tomato	-	-	-	-	-	-	-	-	-

Source :District Agriculture office Ziro, Lower Subansiri:

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: Soybean	Crop 5: Rapeseed/ mustard	Crop 6: Linseed	Crop7 cabbage
	Kharif- Rainfed	April-May.	June –july (suptropical zone) April – May(Temperate zones)	April-Aug.	May- june	-	-	-
	Kharif-Irrigated	-	-	-	-	-	-	
	Rabi- Rainfed	-	-	Oct.- Nov.	-	Oct-Nov.	Oct-Dec.	Oct-Nov
	Rabi-Irrigated	-	-	-	-	-	-	-
	Zaid- Rainfed			Feb.	-	-	-	-

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)			✓
	Others (specify)			

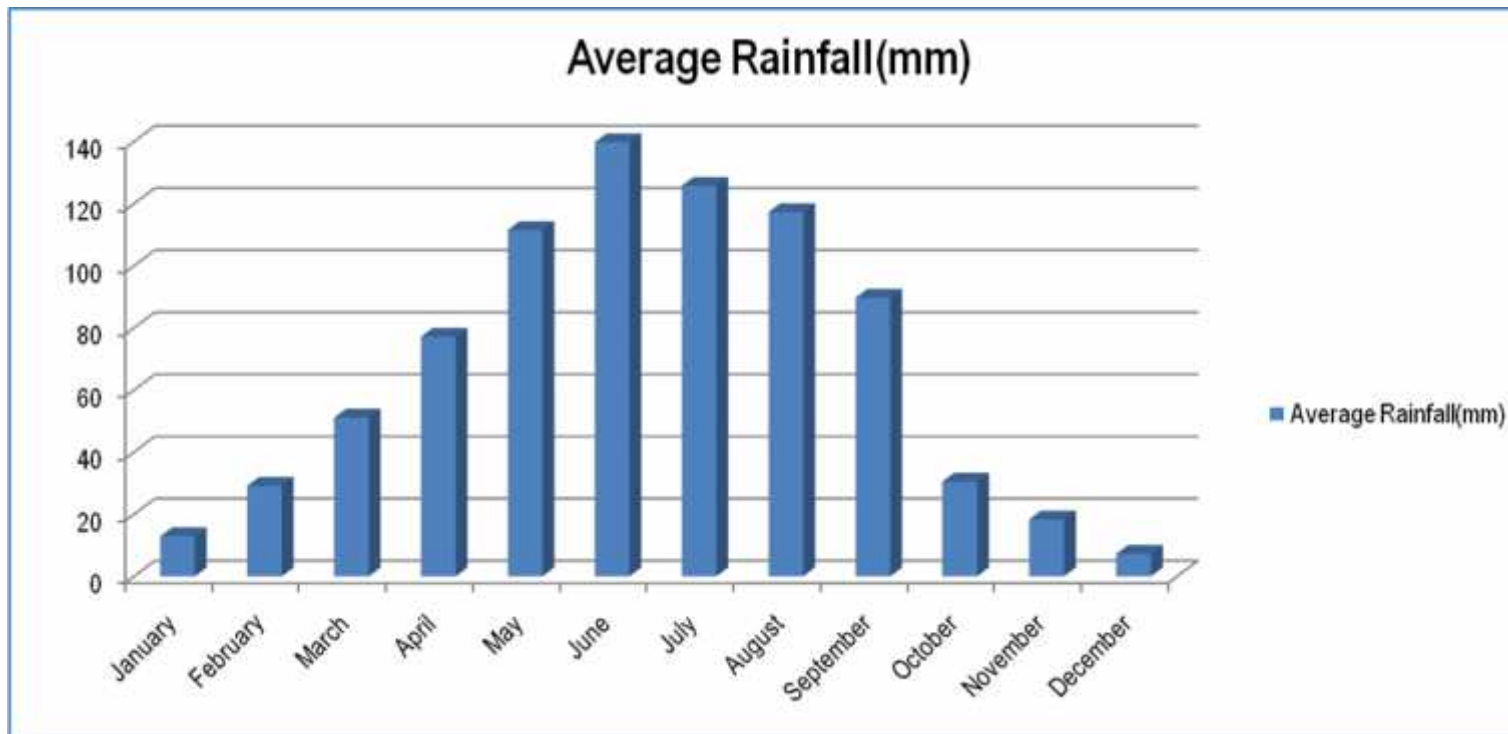
6 out of 10 years = Regular

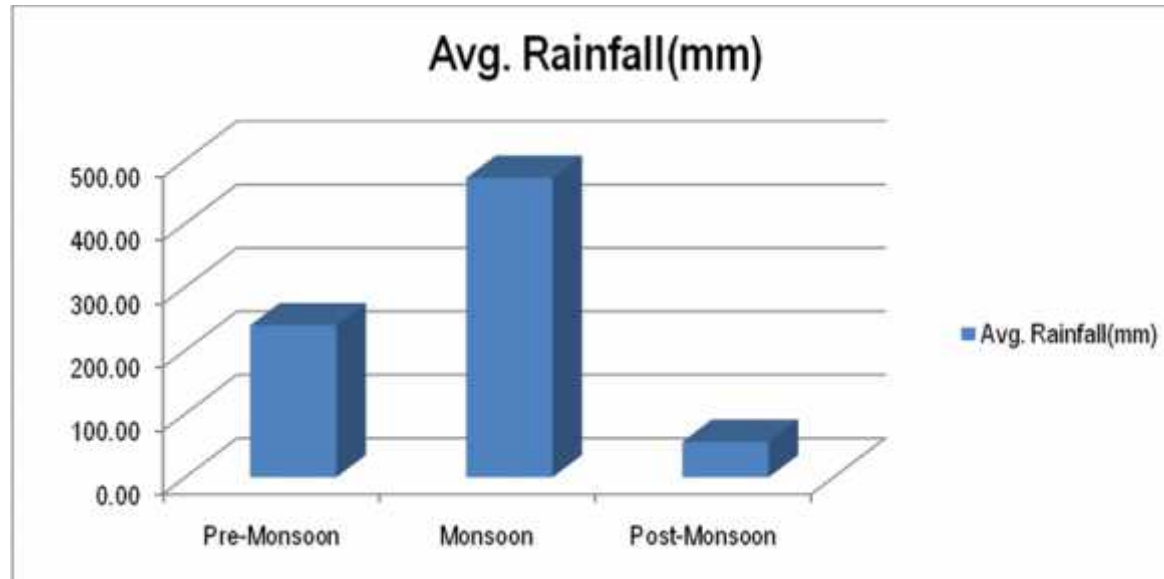
1.14	Include Digital maps of the district for		Enclosed: Yes
	Location map of district within State as Annexure I		Enclosed: Yes
	Mean annual rainfall as Annexure 2		Enclosed: Yes
	Soil map as Annexure 3		Enclosed: No

Annexure – 1: LOCATION MAP OF LOWER SUBANSIRI DISTRICT OF ARUNACHAL PRADESH



Annexure – 2: MEAN ANNUAL RAINFALL OF LOWER SUBANSIRI DISTRICT, ARUNACHAL PRADESH





Seasonal Rainfall Distribution Pattern in Lower Subansiri District

2.0 Strategies for weather related contingencies

2.1 Drought (Rainfed situation)

Drought-Pre-Monsoon (Last week of March to First week of April) Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			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 steep sloping hills with deep fine soils	Maize	<ul style="list-style-type: none"> ▪ Short duration crops/varieties like RCM-1-75, RCM-1-76 ▪ Maize + groundnut/soya bean/rice bean inter cropping. 	<ul style="list-style-type: none"> ▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices ▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing. ▪ Application of organic manure before sowing. 	Schemes from Line Deptt. /RKVY/ ATMA
		WRC	Prefer rice var, like Megha-1&Megha -2	<ul style="list-style-type: none"> ▪ Encourage line sowing, maintain proper water depth 	
		Millet (finger/foxtail millet)	No Change <ul style="list-style-type: none"> ▪ Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera) 		

		Vegetables	No Change	<ul style="list-style-type: none"> ▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) ▪ Raise crop on ridge-furrow or raised bed planting system ▪ Conservation of soil moisture through soil/straw/grass mulching practices. ▪ Mixed cropping of various vegetable crops. 	
		Pulses	No change	<ul style="list-style-type: none"> ▪ Use organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) ▪ Raise crop on ridge-furrow or raised bed planting system ▪ 	
Very steep sloping hills shallow sandy loamy soils		Maize	<ul style="list-style-type: none"> ▪ Short duration crops/varieties like RCM-1-75, RCM-1-76, Allrounder, HQPM-1, DA-61 A ▪ Maize + groundnut/soya bean/rice bean inter cropping. 	<ul style="list-style-type: none"> ▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices ▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing. ▪ Application of organic manure before sowing. 	Schemes from Line Deptt. /RKVY/ ATMA
		Millet	Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)		
		Jhum paddy	<ul style="list-style-type: none"> ▪ Encourage short duration 	<ul style="list-style-type: none"> ▪ Do not allow weeds to grow during plant's early growth stage. 	

			varieties like bhalum - 1, bhalum-2 & sharsarang rice varieties	
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Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)	Moderately steep sloping hills with deep fine soils	Maize,	local, RCM-1-75, RCM-1-76	1. Sowing in ridge and furrow / Mulching, 2. Sowing against the slope,	Line dept. schemes/ RKVY
		WRC	No Change ▪ Prefer rice var, like Megha-1 & Megha -2,	▪ Encourage line sowing, maintain proper water depth ▪ Gap filling /resowing 35-40 days old seedling, transplant millets on dykes	
		Ginger	No change Prefer improved varieties like Nadia	1. Sowing in furrow / Mulching	Schemes from Line Deptt. /RKVY/ ATMA

		Pulses	Local beans ,Soybean var, JSS-35/ local	Proper line sowing,/ mulching	
	Very steep sloping hills shallow sandy loamy soils	Maize	<ul style="list-style-type: none"> ▪ Short duration crops/varieties like RCM-1-75, RCM-1-76, Allrounder, HQPM-1 , DA-61 A 	<p>Sowing in ridge and furrow / Mulching, 2.Sowing against the slope,</p> <ul style="list-style-type: none"> ▪ Conservation of pre-monsoon soil moisture through soil/straw/grass mulching practices ▪ Maize + groundnut/soya bean/rice bean inter cropping. ▪ Hydropriming/ seed soaking in water for 24hr and followed by shade drying before sowing. 	
		Millet(foxtail/finger millet)	Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)		

2.2 Drought

Normal onset of Monsoon (1st week of June) Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop /cropping system including variety	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 2 weeks (3 rd week of June)	Moderately steep sloping hills with deep fine soils and lowland plains	WRC/TRC (Paddy)	No change Short duration vars. CAU-R-1, TTB-404, TTB-303, Mulagavaru, Kanaklata. Medium duration vars. Shahsarnag-1, RCM-9 and RCM-11, RCM-5 SRI, VL dhan 62 SRI, Intensive Crop Management	<ul style="list-style-type: none"> ▪ Closer spacing of 15x15 cm and 4-5 seedlings/hill ▪ Weeding is to be done 15 and 35 days after transplanting. 	Schemes from Line Deptt. /RKVY/ ATMA
		Millet (finger/foxtail millet)	No Change <ul style="list-style-type: none"> ▪ Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16,Arjuna, Prasad) 	<ul style="list-style-type: none"> ▪ 10% higher seed rate 	-

		Vegetable crops	No Change <ul style="list-style-type: none"> ▪ Kashi Anmol, Arka Lohit, Kashi Early, IIHR -Sel. 132 	<u>Chilli</u> <ul style="list-style-type: none"> ▪ Prefer Cabbage var. Drum Head, Himjyoti etc ▪ Raise crop on ridge-furrow raised bed planting system ▪ Use of organic manures (FYM 5 tones/ha or vermicompost 1 ton/ha) to enhance water holding capacity of soil ▪ Conservation of soil moisture through soil/straw/grass mulching practices. ▪ Do not allow weeds to grow during plant's early growth stage. ▪ Mixed cropping of various vegetable crops. 	-
	Very steep sloping hills shallow sandy loamy soils	Pulses	No change Short duration crops/varieties of finger millet (VR-708, GPU-67), foxtail millet (SR-16, Meera)	<ul style="list-style-type: none"> ▪ Adopt soil and water conservation, Harvest rain water, ▪ Weeding and interculture operations, and mulching with green debrish within rows 	-
		Millet	No Change		-
		Ginger	No Change	<ul style="list-style-type: none"> ▪ Rough out pest and disease infected plants ▪ Give life saving irrigation if possible ▪ Mulching with locally available weed biomass ▪ Eathing up for healthy Rhizome growth 	-

Note: Generally the delay in onset of monsoon by 4 weeks is not applicable.

Normal onset of pre- monsoon

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 steep sloping hills with deep fine soils	Maize	<ul style="list-style-type: none"> ▪ Prefer HQPM-1,HQPM-2 ,RCM-75,RCM- 76 ,DA-61 ▪ If the germination is less than 30% of optimum plant population, re sowing should be done ▪ Gap filling to be done to maintain optimum plant density ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Give life saving irrigation timely weeding and interculture operation. ▪ Mulching with locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		WRC	<ul style="list-style-type: none"> ▪ Re transplant 30-40 days old seedling maintain proper water depth 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
		ginger	<ul style="list-style-type: none"> ▪ Weeding and interculture operation 	<ul style="list-style-type: none"> ▪ Mulching with locally available weed biomass 	
		Vegetables	<ul style="list-style-type: none"> ▪ Gap filling with available seedlings. ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Prefer Drip/sprinkler irrigation ▪ Mulching of locally available material 	Protected cultivation to be promoted
	Very steep sloping hills shallow sandy loamy soils	Maize	<ul style="list-style-type: none"> ▪ If the germination is less than 30% of optimum plant population, re sowing should be done ▪ Gap filling to be done to maintain optimum plant density ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	Schemes from Line Deptt. /RKVY/ATMA
		Millet	<ul style="list-style-type: none"> ▪ If the germination is less than 30% of optimum plant population re sowing should be done ▪ Gap filling to be done to maintain optimum plant density ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	
		Vegetable	<ul style="list-style-type: none"> ▪ Gap filling with available seedlings. 	<ul style="list-style-type: none"> ▪ Provide irrigation from the 	Protected

				available sources <ul style="list-style-type: none"> Mulching with locally available material 	cultivation to be promoted Promoted rain water harvesting structure
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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 (>2.5 mm)period)					
Vegetative stage	Moderately steep sloping hills with deep fine soils	Maize	<ul style="list-style-type: none"> Weeding Interculture Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Mulching with locally available material 	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> Weeding Interculture Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Urea or DAP at 2% concentration may be sprayed Potassium chloride(2%) may be sprayed at 15 days interval for reducing the stress Mulching of locally available material 	
		Vegetable crops (cole crops,Bottle gourd, Chilli, beans, brinjal)	<ul style="list-style-type: none"> Gap filling with available seedlings. Foliar application of 1% MOP 	<ul style="list-style-type: none"> Provide irrigation from the available sources Prefer Drip/sprinkler irrigation Mulching of locally available material 	
		Maize	<ul style="list-style-type: none"> Weeding 	<ul style="list-style-type: none"> Provide irrigation from the available 	

	Very steep sloping hills shallow sandy loamy soils		<ul style="list-style-type: none"> ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> sources ▪ Mulching of locally available material 	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP ▪ Urea or DAP at 2% concentration may be sprayed ▪ Potassium chloride(2%) may be sprayed at 15 days interval for reducing the stress 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	
		Pulses(soybean)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching with locally available material ▪ Mulching with locally available material 	

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 (>2.5 mm)period)					
Reproductive stage	Moderately steep sloping hills with deep fine soils	Maize	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide life saving irrigation from the available sources ▪ Mulching of locally available material 	

		Vegetable crops Chilli, beans, brinjal)	<ul style="list-style-type: none"> ▪ Gap filling with available seedlings. ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Prefer Drip/sprinkler irrigation ▪ Encourage protected cultivation ▪ Mulching of locally available material 	
	Very steep sloping hills shallow sandy loamy soils	Maize	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Interculture ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ Mulching of locally available material 	

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
	Moderately steep sloping hills with deep fine soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity. ▪ Follow water conservation methods ▪ Efficient use stored water for life saving irrigation 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole Crops 	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity. 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole crops 	
		Vegetables	Give life saving irrigation.	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. 	Preparation for cole crops

	Very steep sloping hills shallow sandy loamy soils	Ginger	▪ Harvest at physiological maturity	Mulching with locally available mulches	
		maize	▪ Harvest as green cobs	▪ Mulching locally available green biomass	

Normal onset of monsoon

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Moderately steep sloping hills with deep fine soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Gap filling ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Application of organic manure, wherever possible ▪ Timely plant protection of measures for brown spot, thrips 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Gap filling ▪ Weeding ▪ Foliar application of 1% MOP ▪ Application of organic manure, wherever possible 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
		Off season vegetable crop	<ul style="list-style-type: none"> ▪ Mulching with locally available material ▪ Foliar application of 1% MOP ▪ 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ 	Protected cultivation to be promoted
	Very steep sloping hills shallow sandy loamy soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Application of organic manure, wherever possible ▪ Timely plant protection of measures for brown spot, thrips 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail)	<ul style="list-style-type: none"> ▪ Gap filling ▪ Weeding 		

		millet)	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Application of organic manure, wherever possible 		
		Off season vegetable crop	<ul style="list-style-type: none"> ▪ Mulching with locally available material ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Protected cultivation to be promoted Promoted rain water harvesting structure

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 (>2.5 mm)period)					
Vegetative stage	Moderately steep sloping hills with deep fine soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for brown spot, thrips 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
		WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Weeding to be done ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for brown spot, thrips 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources ▪ 	
	Very steep sloping hills shallow sandy loamy soils	Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Weeding ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
		Maize	<ul style="list-style-type: none"> ▪ weeding 	<ul style="list-style-type: none"> ▪ Mulching with locally available biomass ▪ Give life saving irrigation if possible 	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)period)	Major Farming situation	Normal Crop /cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Reproductive stage	Moderately steep sloping hills with deep fine soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for gundhi bug, 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	Schemes from Line Deptt. /RKVY/ATMA
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
	Very steep sloping hills shallow sandy loamy soils	Jhum paddy	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for gundhi bug, 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	
		Millet (finger/foxtail millet)	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Weeding and interculture operations 	<ul style="list-style-type: none"> ▪ Provide irrigation from the available sources 	

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
	Moderately steep sloping hills with deep fine soils	WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA
		Millet (finger/foxtail)	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. 	

		millet)		<ul style="list-style-type: none"> ▪ Preparation for cole crops 	
		WRC/TRC (Paddy)	<ul style="list-style-type: none"> ▪ Harvest at physiological maturity 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole crops 	Schemes from Line Deptt./RKVY/ATMA
	Very steep sloping hills shallow sandy loamy soils	Jhum paddy	<ul style="list-style-type: none"> ▪ Foliar application of 1% MOP ▪ Timely plant protection of measures for gundhi bug, if grain filling is severely affected harvest for fodder 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole crops 	
		maize	<ul style="list-style-type: none"> ▪ In situ moisture conservation, mulching with locally available biomass 	<ul style="list-style-type: none"> ▪ Planning for zero tillage cultivation of pea, toria etc. ▪ Preparation for cole crops 	

2.1.6 Pre-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 steep sloping hills with deep fine soils	Maize	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give 1 supplementary irrigation if possible & plant protection measures for stem borer and aphids	Link department of Agriculture, KVKs, and NGOs for supply of seeds and trainings to the farmers .

		Ginger	Earthing up , weed management	Plant protection measures for leaf spot Give life saving irrigation if possible/mulching and roughing out unhealthy and disease infected plants.	
		WRC	Weeding / interculture operations	Give life saving irrigation if possible	
	Very steep sloping hills shallow sandy loamy soils	Finger millet	Weeding and interculture operations		
		Maize	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give 1 supplementary irrigation if possible & plant protection measures for stem borer and aphids	
		pulses	Weeding/ intercultural operations etc.	If possible give life saving irrigation	

Drought - Irrigated situation-- not applicable

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	NA				
Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	NA				

Condition	Suggested Contingency measures			
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures
Insufficient flow of water in streams	NA			

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		NA	Feeds for pigs and cattles

* Other extreme events are not applicable in this district

2.5 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 Preparation of Hay	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	Judicious use of water, Using preserved water in	Maintenance/cleaning of

	the tank for drinking purpose	the tanks for drinking purpose, recycling of household used water.	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	Not applicable		
Shelter/environment management			
Health and disease management			

^s based on forewarning wherever available

(i) Shallow water depth due to insufficient rains/inflow	Increase the depth and width of trenches by 50-80 cm for cultivable fish species in rice cum fish farming system.	Reduce the stocking density of cultivable fish spp. in rice cum fish farming system.	Early harvest of the cultured fish stock and the field is prepared for next crop.
(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 of cultivable fish, deepening of ponds by 1.5 -2metres, restrict use of Manures and fertilizers, Channeling water to pond if possible, Maintain proper	Integrated farming, air breathing fish culture to be practiced, avoid fertilization and manuring on supplementary basis, feeding should be minimum to avoid organic loading, short term aquaculture with medium and	Pond preparation for the next crop after early harvest, Maintain proper water quality parameters.

	water quality	minor carps, Maintain proper water quality	
(ii) Impact of salt load build up in ponds / change in water quality	Rain water harvesting, deepening,desilting of existing water bodies and removal of debris	Rain water harvesting, deepening,desilting of existing water bodies and removal of debris	Control feeding to avoid waste accumulation and eutrofication
(iii) Any other			
2) Floods	Not Applicable		
3. Cyclone / Tsunami	Not Applicable		
4. Heat wave and cold wave	Not Applicable		

^a based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event ^a	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		
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

Horticulture crop	Major problem	Reason related to weather aberration
Orange	Fruit dropping	due to moisture stress (Pre harvest- Oct)
	Growth of lichen	due to continuous rainfall/excessive moisture
	Fruit setting	Due to moisture stress
	White fly	Moist condition
Apple	Fruit drop	Moisture stress
Kiwi	Small fruit size	Due to moisture stress
Large cardamom	Furki&chirki Aphid (pentalonia nigro lerbosa) vector	Excessive moisture
Ginger	Soft rot disease	Excessive moisture

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
1) Drought			
A. Capture			
Marine	Not Applicable	Not Applicable	Not Applicable
Inland			