

State: NAGALAND
Agriculture Contingency Plan for District: PEREN District

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone	Subtropical to tropical		
	Agro Ecological Sub Region (ICAR)	Warm to hot moist (humid to per humid eco sub region)		
	Agro-Climatic Zone (Planning Commission)	Eastern Himalayan Hill Region		
	Agro Climatic Zone (NARP)	Mid Tropical Hill Zone (AZ52)		
	List all the districts or part thereof falling under the NARP Zone	Peren, Dimapur, Wokha, Mokokchung, Longleng, Mon, Kohima, Zunheboto, Tuensang Phek, Kiphire		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		25 ⁰ 30' N	93 ⁰ 44' E	1337 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	NIL			

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	Winter (Jan-Feb)	42.3			
	Summer (March – May)	309.5	20.45	-	-
	South west (June- Sept)	998.6	56.55	1 st June	8 th October
	Northeast (Oct – Dec)	162.4	10.50	2 nd October	7 th December
	Annual	1515.8	96.23	-	-

- Dimapur district rainfall data was used as it was not available in case of Peren district (Peren District is adjoining to Dimapur district with an aril distance 50 km range).

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)	164.7	114.8	34.3	1.5	0.1	33.2	3.4	0.3	2.4	Nil

Source: SREP Peren District prepared by ATMA, Nagaland

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	1 Red clayey soils	-	-
	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): Sandy loam	164.70	100

Source: SREP Peren District prepared by ATMA, Nagaland

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	105.89	120.26
	Area sown more than once	21.46	
	Gross cropped area	127.35	

Source: SREP Peren District prepared by ATMA, Nagaland

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	4.38	Source:- Statistical Handbook of Nagaland 2011	
	Gross irrigated area	6.36	Source:- Statistical Handbook of Nagaland 2011	
	Rainfed area	98.635 Source :- SREP, ATMA Peren, 2010-13		
	Sources of Irrigation	Number	Area ('000 ha)	% of total irrigated area
	Canals	-	-	-
	Tanks	-	-	-
	Open wells	-	-	-
	Bore wells	-	-	-
	Lift irrigation schemes	-	-	-
	Micro-irrigation	-	-	-
	Other sources (please specify)	-	-	-
	Total Irrigated Area	-	-	-
	Pump sets	4	Source :- SREP, ATMA Peren, 2010-13	-
	No. of Tractors	300	Source :- SREP, ATMA Peren, 2010-13	-
	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	-	-	-
	Critical	-	-	-
	Semi- critical	-	-	-
	Safe	3	100 %	The quality of ground water is generally safe, as these chemicals are with in the normal range
Wastewater availability and use	-	-	-	
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%				

1.7 Area under major field crops & horticulture (as per latest figures) (2009-2010)

1.7a	Major field crops cultivated	Area ('000 ha)									Grand total
		Pre Kharif			Kharif			Rabi			
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	
1	Jhum Paddy	-	4.43	4.43	-	-	-	-	-	-	4.43
2	WRC Paddy	-	-	-	-	6.75	6.75	-	-	-	6.75
3	Maize	--	3.01	3.01	-	-	-	-	-	-	3.01
4	Rice bean	-	-	-	-	0.30	0.30	-	-	-	0.30
5	Ginger	-	0.40	0.40	-	-	-	-	-	-	0.40
5	Rapeseed/Mustard	-	-	-	-	-	-	-	5.25	5.25	5.25
	Linseed	-	-	-	-	-	-	-	1.21	1.21	1.21
Others (specify)											
1.7b	Horticulture crops - Fruits					Total			Irrigated		Rainfed ('000 ha)
1	Orange	-	-	-		0.400		-			0.400
2	Lemon	-	-	-		0.105		-			0.105
3	Papaya	-	-	-		0.100		-			0.100
4	Banana	-	-	-		0.500		-			0.500
5	Pineapple	-	-	-		1.230		-			1.230
Others (specify)		-	-	-		-		-			-

Source: Statistical Handbook of Nagaland 2009-10

1.7c	Horticulture crops - Vegetables	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1	Vegetable			
	Cabbage	0.20	-	0.20
	Chilli	0.30	-	0.30
	Colocasia	0.10	-	0.10
	Chow chow	0.20	-	0.20
	King Chilli	0.040	-	0.040

Source: Statistical Handbook of Nagaland 2009-10

1.7d	Medicinal and Aromatic crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1	Medicinal and Aromatic crops	0.10		0.10

Others (specify)				
1.7e	Plantation crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1	Coconut	0.30	-	0.30
2	Cashew	0.15	-	0.15
3	Arecanut	0.02	-	0.02
Others (Specify)	Eg., industrial pulpwood crops etc.			
1.7f	Fodder crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
Others (Specify)				
1.7g	Grazing land	-	-	-
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)	5.12	7.67	12.79		
	Crossbred cattle	1.42	2.09	3.51		
	Non descriptive Buffaloes (local low yielding)	2.26	4.23	6.49		
	Graded Buffaloes	-	-	---		
	Goat	1.97	3.33	5.30		
	Sheep	0.29	0.43	0.72		
	Others (Camel, Pig, Yak etc.)					
	(i) Pig	15.09	13.19	28.28		
	(ii) Mithun	0.82	1.30	2.12		
	Commercial dairy farms (Number)					
1.9	Poultry	No. of farms	Total No. of birds ('000)			
	Commercial	4	9.15			
	Backyard	-	187.22			
Source: - Livestock census 2007 Directorate of Veterinary & AH, Govt. of Nagaland.						
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		
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs	No. of village tanks	
	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)	170.10	2.08		0.355		
Others						

Source: Statistical Handbook of Nagaland 2012

1.11 Production and Productivity of major crops (Average of last 4 years: 2008-09, 09-10, 10-11, 11-12)

1.11	Name of crop	Pre Kharif		Kharif		Rabi		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	8.59	1600.00	-	-	-	-	8.59	1600.00	-
Crop 2	Paddy	-	-	15.69	2264	-	-	15.69	2264.00	-
Crop 3	Maize	5.18	1692.00	-	-	-	-	5.18	1692.00	-
Crop 4	Rice bean	-	-	0.31	885.70	-	-	0.31	885.70	-
Crop 5	Rapeseed /mustard	-	-	-	-	2.8525	910.00	2.8525	910.00	-
Crop 6	Linseed	-	-	-	-	0.5525	760.00	0.5525	760.00	-
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Ginger	4.13	10325.00	-	-	-	-	4.13	10325.00	-
Crop 2	Cabbage	-	-	-	-	1.75	10000	1.75	10000	-
Crop 3	Chilli	-	-	2.10	6000	-	-	2.10	6000	-
Crop 4	King Chilli	0.22	4093.00	-	-	-	-	0.22	4093.00	-
<i>Source: Statistical Handbook of Nagaland 2009 & 2012</i>										

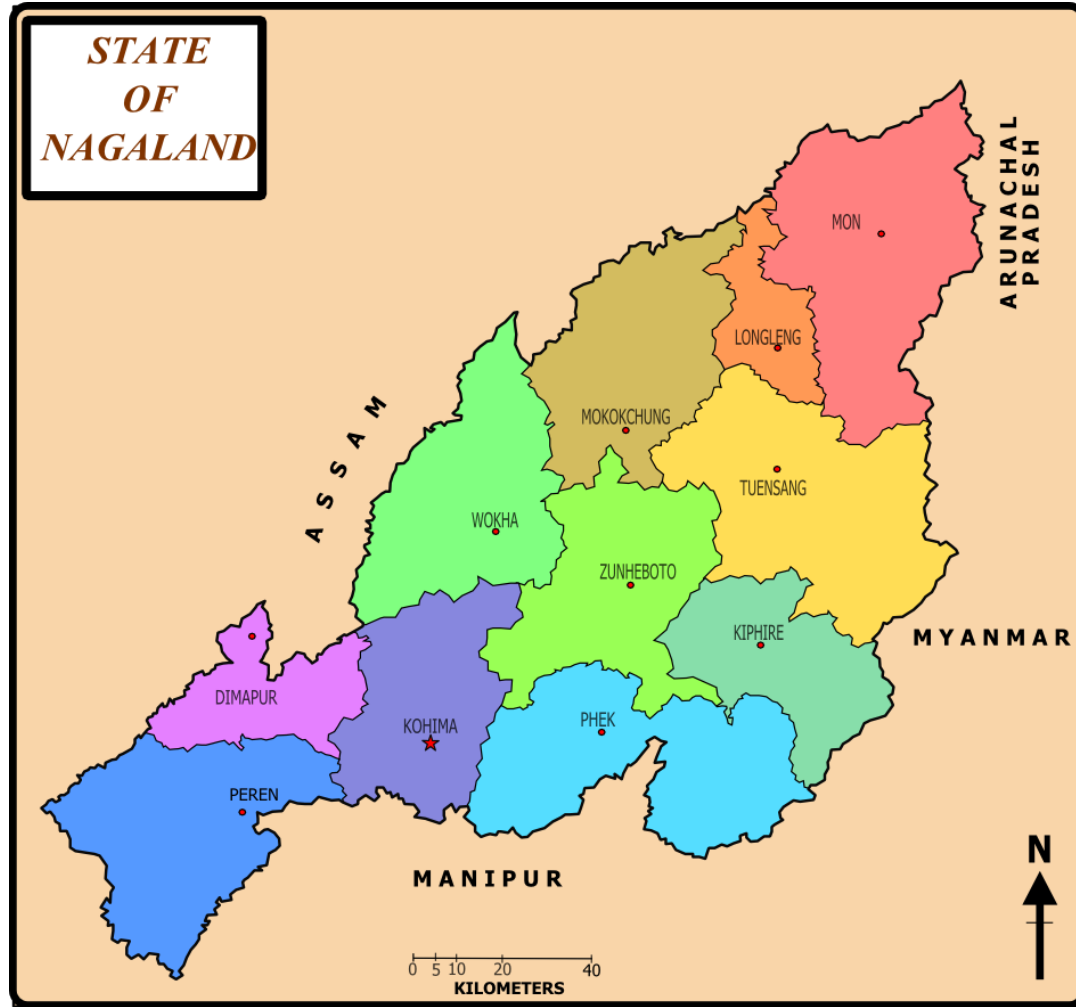
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1 : Jhum Paddy	Crop 2: Wet Rice cultivation	Crop 3: Maize	Crop 4: Rice bean	Crop 5: Pea
	Pre-Kharif Rainfed	March-April	-	Feb.-March	-	-
	Pre-Kharif Irrigated	-	-	-	-	-
	Kharif- Rainfed	-	June-July	-	May-June	-
	Kharif-Irrigated	-	-	-	-	-
	Rabi- Rainfed	-	-	-	-	Sept.-Oct.
	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)			✓
	Others (specify)			

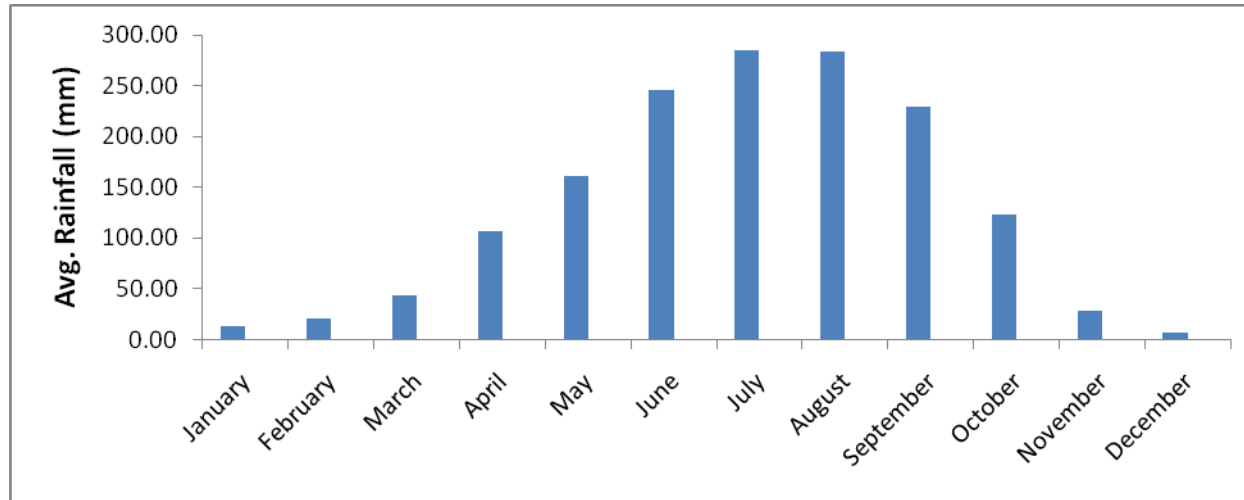
6 out of 10 years = Regular

1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

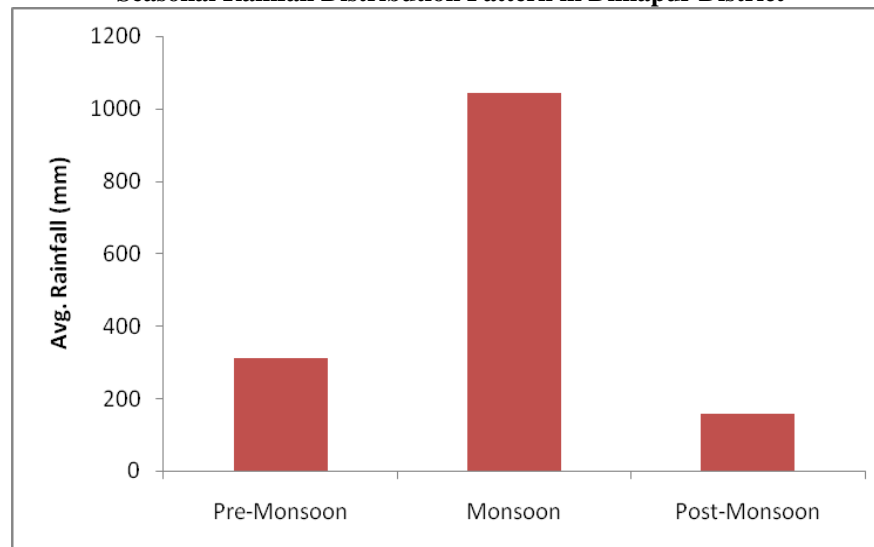
Annexure – 1: LOCATION MAP OF PEREN



Average monthly rainfall for 14 years at ICAR Research Complex for NEH Region, Jharnapani, Nagaland Centre



Seasonal Rainfall Distribution Pattern in Dimapur District



Annexure – 3: SOIL MAP OF PEREN

<p align="center">Particle size map of Nagaland</p>	<p align="center">Soil depth map of Nagaland</p>	<p align="center">Soil sub groups of Nagaland</p>	<p align="center">Soil erosion of Nagaland</p>	<p align="center">Surface maps of Nagaland</p>

Source: NBSSLUP, Regional Centre, Jorhat, Assam

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation- Pre-monsoon

2.1 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)	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		Line dept. schemes/ RKVY
		Pre-kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
		Perilla	No change Local cultivars.		
	FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Pre-kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Sowing in ridge and furrow / Mulching	

		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)		Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Pre-kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Rice bean	No change Local cultivars		
		King chilly	No change Local cultivars		
FS-4 (Moderately sloping foot hills with deep fine loamy soil)		Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Pre-kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change Nadia & local cultivars	Sowing in ridge and furrow / Mulching	
		Turmeric	No change Megha-1	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change Local cultivars		
		King chilly	No change Local cultivars		

	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Pre-kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger/	No change Nadia & local cultivars	Sowing in ridge and furrow / Mulching	
		Turmeric	No change Megha-1	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, PUNCHMUKHI & local cultivars		
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change Local cultivars		
		King chilly	No change Local cultivars		

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

Condition	Major Farming situatio	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementat ion
Early season drought (delayed onset)					
Delay by 4 weeks (4 th week of	FS-1(Steep to moderate steep side slopes of hills with	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		Line dept. schemes/ RKVY

April to 1st week of May	moderately deep loamy soils)	Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
		Perilla	No change Local cultivars.		
	FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
	FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Rice bean	No change Local cultivars		
		King chilli	No change Local cultivars		

	FS-4 (Moderately sloping foot hills with deep fine loamy soil)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change Nadia & local cultivars	Sowing in ridge and furrow / Mulching	
		Turmeric	No change Megha-1	Sowing in ridge and furrow / Mulching	
		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change Local cultivars		
		King chilli	No change Local cultivars		
	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	Jhum paddy	No change Short duration vars. Like Bhalum-3,4 and SARS-1, 2		
		Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change Nadia & local cultivars	Sowing in ridge and furrow / Mulching	
		Turmeric	No change Megha-1	Sowing in ridge and furrow / Mulching	

		Colocassia	No change Mukta keshi, Punchmukhi & local cultivars		
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change Local cultivars		
		King chilli	No change Local cultivars		

2.1.2 Rainfed situation – South west monsoon - normal (1st week of June)

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 June 3 rd week	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Mulching	
		Colocassia	No change	Mulching,	
		Perilla	No change	Mulching	
		Sesame	No Change AST-1, Local cultivars		
		French Bean	Arka Komal, Selection - 9, Pant Anupama,	Mulching,	

FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	WRC paddy	No change Medium duration vars. Shahsarnag-1, RCM-9 , RCM-11, RCM-5 and CAUR-1 SRI		
	Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
	Ginger	No change	Weeding and mulching	
	Colocassia	No change	Weeding and mulching	
FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)	WRC paddy	No change Medium duration vars. Shahsarnag-1, RCM-9 , RCM-11, RCM-5 and CAUR-1 SRI		
	Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
	Rice bean	No change	Weeding and mulching	
	King chilli	No change	Weeding and mulching	
FS-4 (Moderately sloping foot hills with deep fine loamy soil)	WRC paddy	No change Medium duration vars. Shahsarnag-1, RCM-9 , RCM-11, RCM-5 and CAUR-1 SRI		
	Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars	Mulching	
	Ginger	No change	Weeding & Mulching	
	Turmeric	No change	Weeding & Mulching	
	Colocassia	No change	Weeding & Mulching	

		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change	Weeding & Mulching	
		King chilli	No change	Weeding & Mulching	
	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	WRC paddy	No change Medium duration vars. Shahsarnag-1, RCM-9 , RCM-11, RCM-5 and CAUR-1 SRI		
		Kharif maize,	No change DA-61 A, RCM-75, RCM-76 and local cultivars.	Mulching	
		Ginger	No change	Weeding & Mulching	
		Turmeric	No change	Weeding & Mulching	
		Colocassia	No change	Weeding & Mulching	
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change	Weeding & Mulching	
		King chilli	No change	Weeding & Mulching	

Rainfed situation – South west monsoon - normal (1st week of June)

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 4 weeks July 1 st week	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Lowland Paddy	No change Short duration vars, RCM-5, CAUR-3	SRI, Direct sowing of paddy by using paddy drum seeder ICM,	
		Kharif maize,	No change	Re-sowing of maize or any vegetables, Early harvest of pre-kharif maize and sell as raw cobs.	
		Ginger	No change	Mulching	
		Colocassia	No change	Mulching,	
		Perilla	No change	Mulching	
		Sesame	No Change	Weeding	
		French Bean	No change	Mulching,	
	FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	WRC paddy	No change Short duration vars, RCM-5, CAUR-3	SRI, Direct sowing of paddy by using paddy drum seeder ICM	
		Kharif maize,	No change	Re-sowing of maize or any vegetables, Early harvest of pre-kharif maize and sell as raw cobs.	
		Ginger	No change	Weeding and mulching	
		Colocassia	No change	Weeding and mulching	
	FS-3 (Moderately steep sloping)	WRC paddy	No change Short duration vars, RCM-5, CAUR-3	SRI, Direct sowing of paddy by using paddy drum seeder ICM	

	side slope of hills with moderately shallow, clayey soils)	Kharif maize,	No change	Re-sowing of maize or any vegetables, Early harvest of pre-kharif maize and sell as raw cobs.	
		Rice bean	No change	Weeding and mulching	
		King chilli	No change	Weeding, mulching and plant protection measures for disease and pests	
	FS-4 (Moderately sloping foot hills with deep fine loamy soil)	WRC paddy	No change Short duration vars, RCM-5, CAUR-3	SRI, Direct sowing of paddy by using paddy drum seeder ICM	
		Kharif maize,	No change	Re-sowing of maize or any vegetables, Early harvest of pre-kharif maize and sell as raw cobs.	
		Ginger	No change	Weeding & Mulching	
		Turmeric	No change	Weeding & Mulching	
		Colocassia	No change	Weeding & Mulching	
		Cucurbits	Okra/ cowpea etc.	Okra-A. Anamika/ Prabhani Kranti, Long yard beans	
		Rice bean	No change	Weeding & Mulching	
King chilli	No change	Weeding, mulching and plant protection measures for disease and pests			
FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	WRC paddy	No change Short duration vars, RCM-5, CAUR-3	SRI, Direct sowing of paddy by using paddy drum seeder ICM		
	Kharif maize,	No change	Re-sowing of maize or any vegetables, Early harvest of pre-kharif maize and sell as raw cobs.		
	Ginger	No change	Weeding & Mulching		

		Turmeric	No change	Weeding & Mulching	
		Colocassia	No change	Weeding & Mulching	
		Cucurbits	Okra/ cowpea etc. Okra-A. Anamika/ Prabhani Kranti, Long yard beans		
		Rice bean	No change	Weeding & Mulching	
		King chilli	No change	Weeding, mulching and plant protection measures for disease and pests	

- 6-8 weeks delay of South west monsoon is not applicable in the district.

2.1.4 Pre monsoon- Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (delayed onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination /crop stand etc	FS-1(Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Jhum paddy	If there is poor germination (Less than 30%) re-sowing	Weeding	Line dept. schemes/ RKVY
		Kharif maize,	If there is poor germination (Less than 30%) re-sowing of maize /vegetable Gap filling life saving irrigation if possible Weeding	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger		Mulching	
		Colocassia		Mulching	

		Perilla	If there is poor germination (Less than 30%) re-sowing		
FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)		Jhum paddy	i. If there is poor germination (Less than 30%) re-sowing	ii. Weeding	
		Kharif maize,	i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger		Mulching	
		Colocassia		Mulching	
FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)		Jhum paddy	i. If there is poor germination (Less than 30%) re-sowing	ii. Weeding	
		Kharif maize,	i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Rice bean	i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	

		King chilli		Weeding, mulching and plant protection measures for disease and pests	
FS-4 (Moderately sloping foot hills with deep fine loamy soil)		Jhum paddy	i. If there is poor germination (Less than 30%) re-sowing	ii. Weeding	
		Kharif maize,	i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger/		In situ moisture conservation, mulching with locally available bio mass	
		Turmeric		In situ moisture conservation, mulching with locally available bio mass	
		Colocassia	If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling	In situ moisture conservation, mulching with locally available bio mass	
		Cucurbits	Okra/ cowpea etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	

		Rice bean	<ul style="list-style-type: none"> i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding 	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		King chilli	Weeding	Mulching and plant protection measures for disease and pests	
	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	Jhum paddy	<ul style="list-style-type: none"> i. If there is poor germination (Less than 30%) re-sowing 	ii. Weeding	
		Pre-kharif maize,	<ul style="list-style-type: none"> i. If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling iii. life saving irrigation if possible iv. Weeding 	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger		Mulching In situ moisture conservation, mulching with locally available bio mass	
		Turmeric		Mulching In situ moisture conservation, mulching with locally available bio mass	
		Colocassia	<ul style="list-style-type: none"> If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling 	In situ moisture conservation, mulching with locally available bio mass	

		Cucurbits	If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling	In situ moisture conservation, mulching with locally available bio mass	
		Rice bean	If there is poor germination (Less than 30%) re-sowing of maize /vegetable ii. Gap filling	In situ moisture conservation, mulching with locally available bio mass	
		King chilli	Weeding	Mulching and plant protection measures for disease and pests	

2.1.5 Pre-monsoon Normal

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (delayed onset)					
Mid season drought (Long dry spell consecutive 2 weeks rainless (>2.5 mm period) Vegetative stage	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Jhum paddy	Weeding	Spraying of 2% Urea Spraying of 2% Potash	Line dept. schemes/ RKVY
		Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass Spraying of 2% Urea Spraying of 2% Potash	
		Ginger	Weeding/ intercultural operations etc	Mulching	
		Colocassia	Weeding/ intercultural operations etc	Mulching	
		Perilla	Weeding/ intercultural operations etc.		

FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	Jhum paddy	Weeding/ intercultural operations etc.		
	Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
	Ginger	Weeding/ intercultural operations etc.	Earthing up and soil drenching with <i>Trichoderma harzanium</i> to minimize soft rot	
	Colocassia	Weeding/ intercultural operations etc.	Mulching	
FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)	Jhum paddy	Weeding/ intercultural operations etc.		
	Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
	Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
	King chilli	Weeding/ intercultural operations etc.	Mulching and plant protection measures for disease and pests	
FS-4 (Moderately sloping foot hills)	Jhum paddy	Weeding/ intercultural operations etc.		

	with deep fine loamy soil)	Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger/	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and Earthing up , soil drenching with <i>Trichoderma harzanium</i> to minimize soft rot	
		Turmeric	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass , Plant protection measures for leaf spot	
		Colocassia	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Cucurbits	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	

		King chilli	Weeding/ intercultural operations etc.	Mulching and plant protection measures for disease and pests	
FS-5 (Moderately steep sloping side slope of hills with deep fine soils)		Jhum paddy	Weeding/ intercultural operations etc.		
		Pre-kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		Ginger	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Turmeric	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Colocassia	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Cucurbits	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		King chilli	Weeding/ intercultural operations etc.	Mulching and plant protection measures for disease and pests	

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 (>2.5 mm period)) Flowering stage/ Fruiting Stage	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Jhum paddy	Spraying of 2% Urea Spraying of 2% Potash		Line dept. schemes/ RKVY
		Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give one supplementary irrigation if possible & plant protection measures for stem borer and aphids	
		Ginger	Weeding/ intercultural operations etc	Mulching	
		Colocassia	Weeding/ intercultural operations etc	Mulching	
		Perilla	-		
	FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	Jhum paddy	Weeding		
		Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give one supplementary irrigation if possible & plant protection measures for stem borer and aphids	

		Ginger	Weeding/ intercultural operations etc.	Earthing up and soil drenching with <i>Trichoderma harzanium</i> to minimize soft rot	
		Colocassia	Weeding/ intercultural operations etc.	Mulching	
	FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)	Jhum paddy	Weeding		
		Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give one supplementary irrigation if possible & plant protection measures for stem borer and aphids	
		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		King chilli	Weeding/ intercultural operations etc.	Weeding, mulching and plant protection measures for disease and pests	
	FS-4 (Moderately	Jhum paddy	Weeding		

	sloping foot hills with deep fine loamy soil)	Kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give one supplementary irrigation if possible & plant protection measures for stem borer and aphids	
		Ginger/	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and Earthing up , soil drenching with <i>Trichoderma harzanium</i> to minimize soft rot	
		Turmeric	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass , Plant protection measures for leaf spot	
		Colocassia	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Cucurbits	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	

		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		King chilli	Weeding/ intercultural operations etc.	Mulching and plant protection measures for disease and pests	
	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	Jhum paddy	-		
		Pre-kharif maize,	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass give one supplementary irrigation if possible & plant protection measures for stem borer and aphids	
		Ginger	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Turmeric	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Colocassia	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		Cucurbits	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	

		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass	
		King chilli	Weeding/ intercultural operations etc.	Mmulching and plant protection measures for disease and pests	

2.1.7 Terminal drought

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Crop management	Rabi crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	FS-1 (Steep to moderate steep side slopes of hills with moderately deep loamy soils)	Jhum paddy	-	i. If grain filling is severely affected harvest for fodder	Line dept. schemes/ RKVY
		Kharif maize,	i. Mulching ii. Life saving irrigation if possible	i. If grain filling is severely affected harvest for fodder ii. Land preparation for sowing of linseed, toria, buckwheat	
		Ginger		Harvest at physiological maturity	
		Colocassia		Harvest at physiological maturity	
		Perilla	-		
	FS-2 (Deep to moderate deep, fine soils on moderate sloping to gently sloping hills and escarpment)	Jhum paddy	-	i. If grain filling is severely affected harvest for fodder	
		Kharif maize,	i. Mulching ii. Life saving irrigation if possible	i. If grain filling is severely affected harvest for fodder ii. Land preparation for sowing of linseed, toria, buckwheat	

		Ginger		Harvest at physiological maturity	
		Colocassia	-	Harvest at physiological maturity	
	FS-3 (Moderately steep sloping side slope of hills with moderately shallow, clayey soils)	Jhum paddy	-	i. If grain filling is severely affected harvest for fodder	
		Kharif maize,	i. Mulching ii. Life saving irrigation if possible	i. If grain filling is severely affected harvest for fodder ii. Land preparation for sowing of linseed, toria, buckwheat	
		Rice bean	Weeding/ intercultural operations etc.	In situ moisture conservation, mulching with locally available bio mass and life saving irrigation if possible	
		King chilli	-	Harvest at physiological maturity	
		Jhum paddy	-	i. If grain filling is severely affected harvest for fodder	
	FS-4 (Moderately sloping foot hills with deep fine loamy soil)	Kharif maize,	i. Mulching ii. Life saving irrigation if possible	i. If grain filling is severely affected harvest for fodder ii. Land preparation for sowing of linseed, toria, buckwheat	
		Ginger/		Harvest at physiological maturity	

		Turmeric		Harvest at physiological maturity	
		Colocassia	-	Harvest at physiological maturity	
		Cucurbits		Harvest at physiological maturity	
		Rice bean	-	Harvest at physiological maturity	
		King chilli		Harvest at physiological maturity	
	FS-5 (Moderately steep sloping side slope of hills with deep fine soils)	Jhum paddy	-	i. If grain filling is severely affected harvest for fodder	
		Kharif maize,	i. Mulching ii. Life saving irrigation if possible	i. If grain filling is severely affected harvest for fodder ii. Land preparation for sowing of linseed, toria, buckwheat	
		Ginger		Harvest at physiological maturity	
		Turmeric		Harvest at physiological maturity	
		Colocassia		Harvest at physiological maturity	
		Cucurbits		Harvest at physiological maturity	
		Rice bean		Harvest at physiological maturity	

		King chilli		Harvest at physiological maturity	
--	--	-------------	--	-----------------------------------	--

2.1.2 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 ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j	
Limited release of water in canals due to low rainfall	NA				

2.2 Unusual rains (untimely, unseasonal etc) Not applicable

2.3 Floods: Not Applicable

2.4 Extreme events- Hailstorm

Extreme event type	Suggested contingency measure ^f			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Hailstorm				
Maize		Resowing	NA	NA
Tomato	NA	NA	NA	Harvest and value addition
King Chilli	Resowing of nursery	Gap filling	NA	NA
Pineapple	NA	NA	NA	Harvest and value addition
Cucurbits	NA	Remove the affected plants and top dress with urea	NA	NA

Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event ^s	During the event	After the event
Drought	Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging hedge row species for fodder crops Silage – using excess fodder for silage	Utilizing fodder from perennial trees and Fodder bank reserves Transporting excess fodder from adjoining districts Use of feed mixtures	Availing Insurance Culling unproductive livestock
Feed and fodder availability	Preserving water in the tank for drinking purpose	Using preserved water in the tanks for drinking priority for drinking purpose	
Drinking water	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	Culling sick animals
Health and disease management			
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			
Cold wave (Applicable only in Hill section around 2500 MSL)			
Shelter/environment management	Construction of low cost shelter /pigpen model for insulation of cold wave	Covering of the open area with Jute Bags/ polythene sheet	
Health and disease management	Procurement of medicine	vaccination	

^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	Insurance & Integration Establishing feed serve Bank	Utilizing from feed serve banks	Availing insurance Strengthening feed Reserve Banks	
Shortage of feed ingredients				
Drinking water	Emergency Veterinary preparedness with medicines vaccination to birds	Campaign and Mass Vaccination	Culling affected birds	
Health and disease management				
Floods	Not applicable			
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Cyclone	Not applicable			
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Cold wave (Applicable only in Hill section around 2500 MSL)				
Shelter/environment management	Construction of low cost shelter	Installation of heater, bulb	Culling of effected birds	
Health and disease management	Procurement of medicine	vaccination	Culling of effected birds	

^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			
(ii) Impact of salt load build up in ponds / change in water quality			
(iii) Any other			
2) Floods	Not applicable		
A. Capture			
Marine			
Inland			
(i) Average compensation paid due to loss of human life			
(ii) No. of boats / nets/damaged			
(iii) No.of houses damaged			
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases			
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination and changes in water quality			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			
3. Cyclone / Tsunami	Not applicable		
A. Capture			
Marine			

(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave	Not applicable		
A. Capture			
Marine			
Inland			
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 -2metres, restrict use of Manures and fertilizers, Channelling 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,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			

^a based on forewarning wherever available