State: Tripura

Agriculture Contingency Plan for District: Dhalai

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Humid Eastern Himalayan Region (17.2)		
	Agro-Climatic Zone (Planning Commission)	Eastern Himalaya Region (II)		
	Agro Climatic Zone (NARP)	Mid Tropical Plain Zone (NEH-6)		
	List all the districts falling under the NARP Zone*(*>50% area falling in the zone)	South Tripura, West Tripura, Dhalai, North Tripura		
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		N $23^0$16'- N $24^0$14'	E $91^0$09'- E $91^0$47'	84 m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ICAR Research Complex for N.E.H. Region, Tripura Centre, Lembucherra, West Tripura, Tripura.		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Salema Model Orchard Farm, Dhalai		

1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset (specify week and month)**	**Normal Cessation (specify week and month)**
	SW monsoon (June-Sep):	1254.2	122.8	2nd week of June	Last week of September
	Post Monsoon/ NE Monsoon (Oct-Dec):	305.0	15.9	2nd week of October	1st week of December
	Winter (Jan- March)	82.8	16.3	2nd week of March	3rd week of January
	Summer (Apr-May)	747.3	130.5	2nd Week of May	2nd Week of April
	Annual	2389.3		June	December

Source: IMD, India & Agromet Service, ICAR (RC) for NEHR, Lembucherra, West Tripura

1.3	**Land use pattern of the district** (latest statistics)	Geographical area	Cultivable area	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	231.394	85.7	180.025	10	1.3	0.5	1.2	1.2	0.3	0.6

Source: Source: Land Use Statistics of Tripura

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total**
	Loamy and red soil	231.394	
	Tilla land	200342	88.5%
	Medium upland	13970	6.2%
	Valley/low land	11850	5.3%

(Source: Agriculture Department, Govt. of Tripura 2015-16)

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP)

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	35.14	**163**
	Area sown more than once	15.64	
	Gross cropped area	57.34	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	6.432		
	Gross irrigated area	11.785		
	Rainfed area	31.645		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area

	Tube wells	281		
	Tanks	428		
	Open wells	68		
	Bore wells	75		
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify) WHS	105		
	Total Irrigated Area(000'ha)	9.653		
	Pump sets	746		
	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			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality	-		
*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) (Specify year 2015-16)

1.7	**S.No.**	**Major field crops cultivated**	**Area ('000 ha)**							
			Kharif			***Rabi***				
			Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	1	Paddy	7.210	46.910	54.12	3.812	2.964	6.776	0.826	61.722
	2	Maize	0.160	1.504	1.664	0.316	0.564	0.88	0.000	2.544
	3	Redgram	0.534	5.300	5.834	1.880	1.174	3.054	0.510	9.398
	4	Groundnut	0.276	2.074	2.35	1.352	1.122	2.474	0.390	5.214
	5	Rapeseed & Mustard	0.110	1.05	1.16	0.160	0.240	0.4	0.160	1.720

	6	Sugarcane	0.270	10.228	10.498	0.580	1.470	2.05	0.892	13.440

	S. No.	**Horticulture crops - Fruits**	**Area ('000 ha)**		
			Total	**Irrigated**	**Rainfed**
	1	Banana	2.67	-	2.67
	2	Jackfruit	2.036	-	2.036
	3	Assam Lemon	1.638	-	1.638
	4	Papaya	0.615	-	0.615
	5	Litchi	0.953	-	0.953
	6	Orange	1.139	-	1.139
	7	Pineapple	2.835	-	2.835
	8	Colocasia	-	-	-
	9	Mango	1.337	-	1.337
	10	Sapota	0.010	-	0.010
	11	Musambi	0.173	-	0.173
	12	Guava	0.083	-	0.083
	13	Ber	0.010	-	0.010
	14	Minor fruits	0.220	-	0.220
	Others (specify)	-			
		Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
	1	Kharif	2.594	-	2.594
	2	Rabi	2.020	2.020	-
	3	Potato	1.220	1.220	-
	Others (specify)	-			
		Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	1	Citronella	-	-	-
	2	Lemongrass	-	-	-
	3	Neem	-	-	-
	4	Patchouli	-	-	-

	5	Amla	-	-	-
	Others (specify)	**Spices**	**Total**	**Irrigated**	**Rainfed**
	1	Coriander	-	-	-
	2	Turmeric	0.062	0.062	-
	3	Chilli	0.060	0.060	-
	4	Ginger	0.310	0.310	-
		Plantation crops	**Total**	**Irrigated**	**Rainfed**
	1	Coconut	0.856	0.856	-
	2	Arecanut	1.403	1.403	-
	3	Cashewnut	0.371	0.371	-
	Others (Specify)	Eg., industrial pulpwood crops etc.			
		Fodder crops	**Total**	**Irrigated**	**Rainfed**
	Others (Specify)	-	Data not available	Data not available	Data not available
		Total fodder crop area	Data not available	Data not available	Data not available
		Grazing land	Data not available	Data not available	Data not available
		Sericulture etc	Data not available	Data not available	Data not available
		Eri seeds (DFLS)	Data not available	Data not available	Data not available

1.8	**Livestock**	**Male (‘000)**	**Female (‘000)**	**Total (‘000)**
	Non descriptive Cattle (local low yielding)	45.178	58.133	103.311
	Improved cattle	-	-	-
	Crossbred cattle	3.159	7.021	10.180
	Non descriptive Buffaloes (local low yielding)	0.754	1.128	1.873
	Descript Buffaloes	-	-	-
	Goat	30.232	57.073	87.305
	Sheep	0.019	0.152	0.171
	Others (Camel, Pig, Yak etc.) Pigs	-	-	62.305

	Commercial dairy farms (Number)						
1.9	**Poultry**		**No. of farms**		**Total No. of birds ('000)**		
	Commercial						
	Backyard						
	Duck (Poultry/duck, Pigeon)		-		441.840		
1.10	**Fisheries** (Data source: Chief Planning Officer)						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		**Storage facilites (Ice plants etc.)**
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
		19807		**1**		**8460**	
	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)			5728		2.08	11914
	Others						

1.11 Production and Productivity of major crops (2015-16)

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	Cereals	492.49	1819.98	75.38	2225.02	7.25	1754.47	575.12	5799.48	
Crop 2	Coarse Cereals	5.03	604.80	3.99	907.18	0	0	9.023	1511.99	
Crop 3	Pulses	14.72	504.57	11.16	730.78	1.80	720.00	27.68	1955.36	
Crop 4	Oil seeds	6.46	550.00	8.716	704.65	1.88	768.37	17.06	2023.01	
Crop5	Fiber	2.64	454.74	1.540	669.56	1.72	583.22	5.91	1707.52	
Crop6	Any other crop	31.56	601.28	6.221	606.97	15.37	672.30	53.16	1880.55	
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Potato	-	-	22.572	22571.9	-	-	22.572	22571.9	
Crop 2	Rabi vegetables	-	-	30519	30518.9	-	-	30519	30518.9	
Crop 3	Kharif vegetables	38623	38622.9	-	-	-	-	38623	38622.9	
Crop 4	Arecanut	-	-	-	-	-	-	2435	2434.9	
Crop 5	Coconut							1415	1414.9	
Crop 6	Pineapple	-	-	-	-	-	-	43816	43815.9	
Crop 7	Jackfruit	-	-	-	-	-	-	80664	80663.9	
Crop 8	Papaya	-	-	-	-	-	-	6240	6239.9	
Crop 9	Lemon	-	-	-	-	-	-	4009	4008.9	
Crop 10	Banana	-	-	-	-	-	-	25355	25354.9	

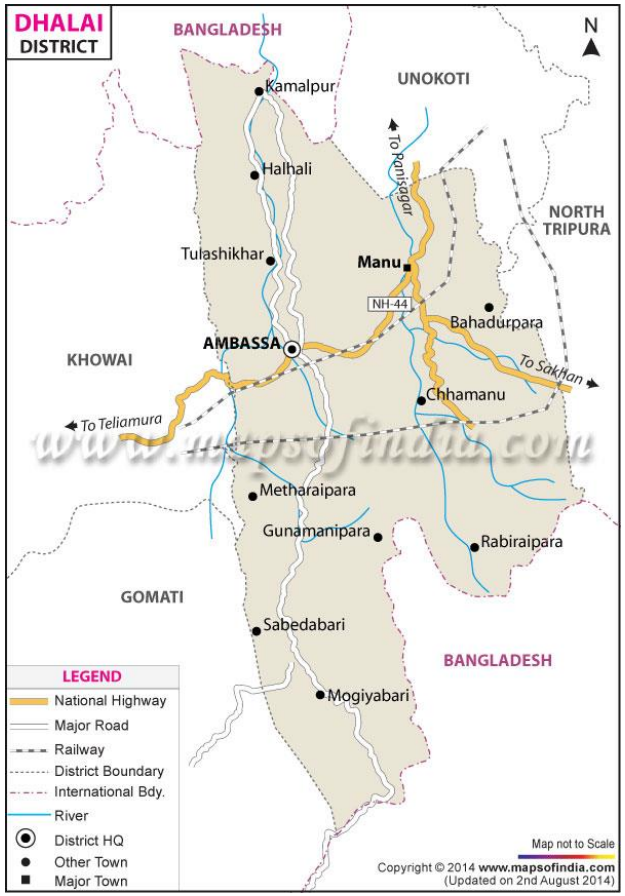
1.12	**Sowing window for 5 major field crops** (Pre kharif-raifed-irrigated)	**Crop 1 :** **Rice**	**Crop 2:** **Rapeseed**	**Crop 3:** **Maize**	**Crop 4:** **Groundnut**	**Crop 5:** **lentil**
	Pre Kharif-Rainfed	3rd week of May to 1st week of June	-	-	-	-

	Kharif-Rainfed	1st week of July to 4th week of July	-	1st week of July	June-July	-
	Kharif-Irrigated	1st of July to 15th of August	-	-	-	-
	Rabi- Rainfed	Nov-Dec	15th Oct -15th Nov	-	-	Mid Oct- Mid Nov
	Rabi-Irrigated	Nov-Dec	-	1st week of November	Mid Sept- Mid Oct	-

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)			

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:
		Soil map as Annexure 3	Enclosed:

Annexure – 1: Location map of Dhalai District



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1. Rainfed situation (Pre-Kharif)

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming Situation**	**Normal Crop/Cropping System**	**Change in crop/cropping System**	**Agronomic Measures**	**Remarks on Implementation**
Delay by 2 Weeks (Specify Month)* May 3rd Week to June 1st Week)	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation of rice, maize Mono cropping of Paddy/Maize	Short or medium duration HYV paddy should be introduced, like (Goramalati, Betti, Gelong, Maichika, Aduma kiting & color, Tarikol, Ghuria, CO-51, Gomati, Ranjit, Nabin, NDR-97 Single crossed hybrid maize can be introduced.	Conservation practices should be encouraged; instead of burning decomposition of plant parts should be encouraged. Mulching, Rain water Harvesting, Contour planting of Arhar, should be encouraged instead of Jhum cultivation to check soil and water loss.	IWMP, MGNREGA, RKVY, NFSM
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Maize - Mustard/Lentil/Pea/Ground nut/Maize Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Ground Nut	Green manuring of Dhaincha can be included prefer medium duration HYV paddy varieties, Single cross hybrid variety of maize can be included. Summer green gram can also be included where paddy cultivation is problematic due to scarcity	Adopt SRI paddy cultivation, Adopt zero or minimum tillage, Use paddy transplanting machine for timely quick sowing, Promote community nursery bed, Raised bed	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS,NFSM

			of water.	furrow irrigation method of maize.	
	Very gently sloping flood plains with very deep fine loamy soils Very gently sloping flood plains with deep clayey soils	Paddy/Summer Vegetables – Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy Paddy-Pea/Lentil/Mustard/Rape Seed /Maize/Vegetables	Green manuring of Dhaincha can be included prefer medium duration HYV paddy varieties Sahabhagi Dhana, Gomoti. Medium duration drought tolerant Maize variety-RCM 76, Black gram variety-Tripura Mashkolai can be adopted	Timely land preparation, sowing & Transplanting. Rain water harvesting by 30 cm high bunding. Utilization of waters for irrigation from nearby beels, ponds, rivers, natural depressions etc. Promote community nursery bed, Zero tillage or minimum tillage should be encouraged in case of mustard, lentil.	AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA RKVY, IWMP, NHM,NFSM)

2.1.2. Rainfed situation (Kharif)

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming Situation**	**Normal Crop/Cropping System**	**Change in crop/cropping System**	**Agronomic Measures**	**Remarks on Implementation**
Delay by 2 Weeks (Specify Month)* June 3rd Week	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation of rice, maize. Mono cropping of Paddy/Maize	Short or medium duration HYV paddy should be introduced; like CO-51 Gomati, Single crossed hybrid maize can be introduced.	Conservation practices should be encouraged instead of burning decomposition of plant parts should be encouraged. Mulching, Community Paddy nursery, inter cropping of cow pea can be encouraged along with maize.	IWMP, RKVY, MGNREGA, NFSM
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Maize - Mustard/Lentil/Pea/Ground nut/Maize Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	No change. Preference should be given to medium duration paddy varieties.	Adopt SRI paddy cultivation, Adopt zero or minimum tillage in case of lentil, mustard, Use paddy transplanter for timely quick sowing, Promote community paddy nursery bed	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS,NFSM

	Very gently sloping flood plains with very deep fine loamy soils	Paddy –Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy/Fallow Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	No change, prefer medium duration HYV paddy varieties.	Timely land preparation, sowing & Transplanting. Rain water harvesting by 30 cm high bunding. Utilization of waters for irrigation from nearby beels, ponds, rivers, natural depressions etc, SRI Technology should be properly adopted, Timely weeding, at critical growth stages and short duration drought tolerant crops should be grown.	AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM,NFSM)
	Very gently sloping flood plains with deep clayey soils	Paddy –Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	No change, prefer medium duration HYV paddy varieties.	Preparation of seed bed & main field immediately after rainfall. Rain water harvesting by 30 cm high bunding. Utilization of waters for irrigation from nearby beels, ponds, rivers, natural depressions etc. Keep constant visit in the field to check any cracks & crevices and take immediate measures by repairing/mud plastering. SRI Technology should be properly adopted, Timely weeding, at critical growth stages and short duration drought tolerant crops should be grown.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS,NFSM AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM,NFSM)

Condition			Suggested Contingency measures		
Early season Drought (delayed onset)	**Major Farming Situation**	**Normal Crop/Cropping System**	**Change in crop/cropping System**	**Agronomic Measures**	**Remarks on Implementation**
Delay by 4 Weeks (Specify Month) July 1st week	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation of rice, maize. Mono cropping of Paddy/Maize	Short or medium duration HYV paddy Gomati, CO-51, should be introduced, Single crossed hybrid maize can be introduced.	Conservation practices should be encouraged instead of burning decomposition of plant parts should be encouraged. Mulching, Community Paddy nursery, inter cropping of cow pea can be encouraged along with maize.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS,IWMP, MGNREGA, RKVY, NHM,NFSM
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Maize - Mustard/Lentil/Pea/Ground nut/Maize Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	No change. Prefer short duration of paddy varieties **(**MTU 1010, Naveen), Adopt relay cropping in *rabi* season in pulses and oil seeds.	Transplant 3-4 seedlings/hill in conventional cultivation of paddy, Adopt SRI paddy cultivation, Adopt zero or minimum tillage in lentil and mustard, Use paddy transplant machine for timely quick sowing, Promote community seed bed	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS

	Very gently sloping flood plains with very deep fine loamy soils Very gently sloping flood plains with deep clayey soils	Paddy –Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy/Fallow Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	No change, prefer short duration paddy variety	Re-sowing or delay sowing, Timely weeding, Community paddy nursery, proper adaptation of SRI, Early sowing of rapeseed. Soil & moisture conservation measures (Organic mulches + more FYM).Timely land preparation & sowing. Seed soaking for toria. Weeding & breaking of soil mulch by finger weeder. Ridge & furrow cultivation of Maize. Grow short duration pulses (Black gram, Pea etc.). Utilization of waters for irrigation from nearby beels, ponds, rivers, natural depressions etc.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HR MGNREGA (RKVY, IWMP, NHM,NFSM)

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming Situation**	**Normal Crop/Cropping System**	**Change in crop/cropping System**	**Agronomic Measures**	**Remarks on Implementation**
Delay by 6 Weeks (Specify Month July 3rd week	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation of rice, maize. Mono cropping of Paddy/Maize	Cultivation of short duration rice variety, like CO-51, NDR 97, Dishang, luit Single cross hybrid for maize. Ganga-4, Ganga-5, Ganga safed-2	Conservation practices should be encouraged instead of burning decomposition of plant parts should be encouraged. Mulching, Community Paddy nursery, inter cropping of cow pea can be encouraged along with maize.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS NHM, , MGNREGA RKVY,NFSM, State Agril. department
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Arahar/Maize/Ground nut.-Mustard/Lentil/Pea-Fallow Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	Cultivation of paddy may be withdrawn, if paddy is considered only very short duration i.e. 90-110 days variety to be sown, no change for maize-pulse cropping system	Adopt DSR technique, zero tillage, , relay cropping in next to paddy, community nursery bed	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS
	Very gently sloping flood plains with very deep fine loamy soils	Paddy, Maize, Ground nut Vegetables Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	Cultivation of paddy may be withdrawn, if paddy is considered only very short duration i.e. 90-110 days variety to be sown, no change for maize and in place of paddy *kharif* pulse or Groundnut may be taken as alternative crop	Adopt DSR technique, zero tillage in next to paddy , , relay cropping in lentil and mustard, community nursery bed	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS,NFSM
	Very gently sloping	Paddy –Mustard/Pea/Lentil/Winter	Cultivation of paddy may be	Adopt DSR technique, zero	RARS-AAU,

	flood plains with deep clayey soils	Vegetables/Ground nut/Paddy Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	withdrawn, if paddy is considered only very short duration i.e. 90-110 days variety to be sown, no change for maize and in place of paddy *kharif* pulse or Groundnut may be taken as alternative crop	tillage in next to paddy , relay cropping in lentil and mustard, community nursery bed	IIPR, CRRI, ICAR-Tripura centre, HRS,NFSM

***Matrix for specifying condition of early season drought due to delayed onset of monsoon (2, 4, 6 & 8 weeks) compared to normal onset (2.1.1)**

Normal onset (Month and week)	**Month and week for specifying condition of early season drought due to delayed onset of monsoon**			
	Delay in onset of monsoon by			
	2 wks	**4 wks**	**6 wks**	**8 wks**
June 1st wk	June 3rd wk	July 1st wk	July 3rd wk	Aug 1st wk
June 2nd wk	June 4th wk	July 2nd wk	July 4th wk	Aug 2nd wk
June 3rd wk	July 1st wk	July 3rd wk	Aug 1st wk	Aug 3rd wk
June 4th wk	July 2nd wk	July 4th wk	Aug 2nd wk	Aug 4th wk
July 1st wk	July 3rd wk	Aug 1st wk	Aug 3rd wk	Sep 1st wk
July 2nd wk	July 4th wk	Aug 2nd wk	Aug 4th wk	Sep 2nd wk

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 steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation including rice, maize. Mono cropping of Paddy/Maize	Gap filling or retranslating, Timely weeding	Straw mulching in maize. Use of erosion resisting crop like cow pea can be grown as inter crop with Maize.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Arahar/Maize/Ground nut.-Mustard/Lentil/Pea-Fallow Paddy/Maize – Lentil/Pea/Maize/Mustard/ Rape Seed/Fallow	Transplant the seedlings in gaps raised from available nursery or by splitting the tillers from the surviving hills, Timely weeding, Gap filling or resowing. Foliar spray with 2% Urea during the dry spell, Postpone top dressing with N,	Life saving irrigation (fertigation)	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS
	Very gently sloping flood plains with very deep fine loamy soils Very gently sloping flood plains with deep clayey	Paddy,Arahar,MaizeGround nut Vegetables Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	Transplant the seedlings in gaps raised from available nursery or by splitting the tillers from the surviving hills, Timely weeding, Gap filling or resowing Foliar spray with 2% Urea during the dry spell, Postpone top dressing with N	Life saving irrigation (fertigation)	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS

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**
At vegetative stage	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation including rice, maize. Cropping system: Mono cropping of Paddy/Maize	Weeding, Transplant the seedlings from available nursery	Mulching in maize, life saving irrigation in paddy.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Arahar/Maize/Ground nut.-Mustard/Lentil/Pea-Fallow Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	Transplant the seedlings in gaps raised from available nursery or by splitting the tillers from the surviving hills. Timely weeding, Gap filling or resowing Postpone top dressing with N	Life saving irrigation (fertigation), application of anti transparent and mulching.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS
	Very gently sloping flood plains with very deep fine loamy soils Very gently sloping flood plains with deep clayey soils	Paddy, Arahar, Maize, Ground nut, Vegetables Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	Transplant the seedlings in gaps raised from available nursery or by splitting the tillers from the surviving hills, Timely weeding, Gap filling or resowing, Relay cropping (Lentil and Mustard) Postpone top dressing with N	Life saving irrigation application of anti transpirant and mulching.	RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS

Condition			Suggested Contingency measures		
Mid season Drought(long dry spell)	**Major Farming Situation**	**Normal Crop/Cropping System**	**Crop Management**	**Soil Nutrient & Moisture conservation measures**	**Remarks on Implementation**
Flowering stage	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation including rice, maize. Mono cropping of Paddy/Maize	In extreme condition crops should be harvested for fodder . In maize cobs should be plucked early	Life saving irrigation should be given Lower leaves should be nipped off to save moisture, in paddy anti transparent can be used.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM)
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Arahar/Maize/Ground nut.-Mustard/Lentil/Pea-Fallow Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	In extreme condition crops should be harvested for fodder In maize cobs should be plucked early,	Life saving irrigation should be given Lower leaves should be nipped off to save moisture, in paddy anti transparent can be used In case of crops like lentil and mustard zero tillage cultivation should be practiced.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM)

	Very gently sloping flood plains with very deep fine loamy soils Very gently sloping flood plains with deep clayey soils	Paddy, Maize, Ground nut, Vegetables Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy/Fallow	In extreme condition crops should be harvested for fodder In maize cobs should be plucked early	Life saving irrigation should be given Lower leaves should be nipped off to save moisture, in paddy anti transparent can be used in case of crops like lentil and mustard zero tillage cultivation should be practiced in harvested water from water bodies should be utilized in case of vegetables.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM

Condition			**Suggested Contingency measures**		
Terminal drought	**Major Farming Situation**	**Normal Crop/Cropping System**	**Crop Management**	**Soil Nutrient & Moisture conservation measures**	**Remarks on Implementation**
	Moderately steeply sloping hill top and hill slopes with deep to very deep fine loamy soils	Jhum cultivation including rice, maize. Mono cropping of Paddy/Maize	In maize cobs should be plucked early. In extreme condition crops should be harvested for fodder. Control pests and diseases, reduce plant population, control weed	Apply a life saving irrigation. Lower leaves should be nipped off to save moisture	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM).
	Gently to moderately sloping undulating plains with deep fine loamy soils	Paddy/Arahar/Maize/Ground nut.-Mustard/Lentil/Pea-Fallow Paddy/Maize – Lentil/Pea/Maize/Mustard/Rape Seed/Fallow	In maize cobs should be plucked early. Iin extreme condition crops should be harvested for fodder. Control pests and diseases, reduce plant population, control weed	Apply a life saving irrigation. Lower leaves should be nipped off to save moisture	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM)

2.1.2 Irrigated situation (Pre-Kharif)

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	Not applicable				
Limited release of water in canals due to low rainfall	Not applicable				
Non release of water in canals under delayed onset of monsoon in catchment	Not applicable				
Lack of inflows into streams due to Insufficient/ delayed onset of monsoon	Very gently sloping flood plains with very deep fine loamy soils	Summer Vegetables, Paddy Cropping System: Fallow/Summer Vegetables-Aus Paddy-Fallow/Winter Vegetables/Mustard/Lentil/Pea/Paddy	Summer Green gram can be cultivated in the fallow areas and Dhaincha can be grown as green manuring crop instead of keeping lands fallow.	Use more organic manure to improve water holding capacity of soil and use of life saving irrigation.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).
	Very gently sloping flood plains with deep clayey soils	Aush paddy, Summer Vegetables Cropping System: Aus Paddy/Summer Vegetables-Aman Paddy-Boro Paddy/Winter Vegetables	Photosensitive rice varieties up to 45 days old seedling can be transplanted, double transplanting of rice with 45 days old seedlings of long duration variety (Gomati).	Delay sowing and transplanting, use ground water, apply low dose of nitrogen,	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).

2.1.3 Irrigated situation (Kharif)

Condition			Suggested Contingency measures		
	Major Farming Situation	**Normal Crop/Cropping System**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient ground Water recharge due to low rainfall	Very gently sloping flood plains with very deep fine loamy soils	Paddy – Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy	No change, prefer medium duration HYV paddy varieties	SRI in Paddy.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).
	Very gently sloping flood plains with deep clayey soils	Aush paddy,Aman Paddy,Boro Paddy Paddy-Paddy	HYV paddy varieties should be introduced.	SRI in Paddy.	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).

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 rainfal	Not applicable				
Limited release of water in canals due to low rainfall	Not applicable				
Non release of water in canals under delayed onset of monsoon in catchment	Not applicable				

Lack of inflows into streams due to Insufficient/ delayed onset of monsoon	Very gently sloping flood plains with very deep fine loamy soils	Paddy – Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/Paddy	Photosensitive rice varieties up to 45 days old seedling can be transplanted, double transplanting of rice with 45 days old seedlings of long duration variety (Gomati).	Delay sowing and transplanting, use ground water, apply low dose of nitrogen and SRI in paddy.	DMR, RARS-AAU, IIPR, CRRI, ICAR- Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).
	Very gently sloping flood plains with deep clayey soils	Aush paddy,Aman Paddy,Boro Paddy Paddy-Paddy	Photosensitive rice varieties up to 45 days old seedling can be transplanted, double transplanting of rice with 45 days old seedlings of long duration variety (Gomati).	Delay sowing and transplanting, use ground water, apply low dose of nitrogen,	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).

Condition			**Suggested Contingency measures**		
	Major Farming Situation	**Normal Crop/Cropping System**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient ground Water recharge due to low rainfall	Very gently sloping flood plains with very deep fine loamy soils	Paddy – Mustard/Pea/Lentil/Winter Vegetables/Ground nut/Paddy Paddy-Pea/lentil/Mustard/Rape Seed/Maize/Vegetables/ Paddy	Photosensitive rice varieties up to 45 days old seedling can be transplanted, double transplanting of rice with 45 days old seedlings of long duration variety (Gomati).	SRI, Direct sowing of rice, tillage practices to minimize run-off and evapo-transpiration. Increase row spacing,	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, MGNREGA , RKVY, IWMP, NHM, NFSM, ISOPOM).

	Very gently sloping flood plains with deep clayey soils	Aush paddy, Aman Paddy, Boro Paddy Paddy-Paddy	Photosensitive rice varieties up to 45 days old seedling can be transplanted, double transplanting of rice with 45 days old seedlings of long duration variety (Gomati).	SRI, Direct sowing of rice, tillage practices to minimize run-off and evapo-transpiration. Increase row spacing,	DMR, RARS-AAU, IIPR, CRRI, ICAR-Tripura centre, HRS, (MGNREGA, RKVY, IWMP, NHM, NFSM, ISOPOM).

2.2 Unusual rains (untimely, unseasonal etc.) (For both rainfed and irrigated situations**)**

Condition	**Suggested Contingency measures**			
Continuous high rainfall in a short span leading to water logging	**Vegetable stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Crop 1. Rice. Crop 2. Maize Crop 3. Cow Pea Crop 4.Green gram	1. Proper drainage. 2. Raised bed 3. Proper drainage 4. Proper drainage	Application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting	Shifting of produce to safer place and protection against pest/disease damage in storage etc.	Shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc.
Horticulture				
Crop 1. Pine apple Crop 2. Orange Crop 3. Mango Crop 4. Crop 5.	Proper drainage of the basin	Application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting	Shifting of produce to safer place and protection against pest/disease damage in storage etc.	Shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc.
Heavy rainfall with high speed winds in a short span[2]				
Crop 1. Rice. Crop 2. Maize Crop 3. Cow Pea Crop 4.Green gram	Proper drainage of the soil.	Application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting, staking the maize plants.	Measures for preventing seed germination, shifting produce to safer place and protection against	Shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc.

			pest/disease damage in storage etc.	
Horticulture				
Crop 1. Pine apple Crop 2. Orange Crop 3. Mango Crop 4. Crop 5.	Proper drainage of the soil,	Application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting	Measures for preventing seed germination, shifting produce to safer place and protection against pest/disease damage in storage etc.	Shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc.
Outbreak of pests and diseases due to unseasonal rains				
Crop 1. Rice. Crop 2. Maize Crop 3. Cow Pea Crop 4.Green gram	Foliar spray with systemic fungicide like carbendazim @0.3%, Soil application of bioagent like *Trichoderma* spp @5g/lit along with CMC @0.2% (W/V), *Pseudomonas* @5 g/lit, neem based insecticides.	Foliar spray of chlorpyriphos @ 2 ml/ lit, neem based insecticides, use of bird perches,	Harvest at proper stage of maturity, spraying of imidacloprid @ 4 ml/10 lit, chlorpyriphos @ 2 ml/lit, NSKE 5% at 10 days intervals.	1. Clean & white wash the store before storing. 2. Cleared dry garon with <12 % moisture should stored. 3. Gunny bag treatment with malathion 1ml/li of water or dichlorvos @2ml/lit of water. 4. Spraying godown wall with malathion @ 2ml/lit of water. 5. Disinfect the storage with formaldehyde @4%. 6. Use improved storage bin. 7. Rodent management by using rodent trap or poison

				bait.
Horticulture				
Crop 1. Pine apple Crop 2. Orange Crop 3. Mango Crop 4. Crop 5.	Spray mancozeb 75 WP @ 2g/lit, blitox @ 4g/lit	Use of NAA @200 ppm, ANAA @ 1ml/4.5 lit of water. @ 1ml/ lit,	Spray malathion @ 1 ml/lit of water. Use Ethephon @ 100 ppm for uniform ripening.	Shift the freshly harvested produce to dry and cool place. Damaged, diseased harvest should not kept storage. Value addition to the harvest. Vacuum packaging.

2.3 Floods.

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop1 Rice, Maize, Blackgram	Drain out excess water, Gap filling and drenching with fungicide to prevent seedling rot	Drain out excess water, Weeding and top dressing	Drain out excess water	Drain out excess water, Harvesting and drying of The product
Horticulture				
Crop1 Tomato, Chilli, Cowpea, Okra, Brinjal, Cole Crops	Cleaning of channels in between the raised nursery bed.	Drain out excess water	Drain out excess water	Drain out excess water
Crop2 Citrus, Jackfruit, mango.	Provision for proper drainage	Drain out excess water	Drain out excess water	Drain out excess water
Continuous submergence for more than 2 days[2]				
Crop1 Rice	Drain out excess water	Drain out excess water, Weeding and top dressing application of 40 kg urea and 40 kg MOP/ha after drain of excess water	Drain out excess water; Tying up of lodged plants	Drain out excess water, Tying up of lodged plants drying of earheads and Harvesting
Crop 2 Blackgram, Maize	Drain out excess water,	Drain out excess water,	Drain out excess water,	Drain out excess water,

	Gap filling	Weeding and top dressing	Earthing up of maize plant; Tying up of lodged plants	Harvesting and drying of Cobs/plants
Horticulture				
Crop1 Tomato, Chilli, Cowpea, Okra, Brinjal, Cole Crops.	Crop cannot survive. New seedling should be transplanted.	-	-	-
Sea water intrusion[3]				
Crop1 Not Applicable		-	-	-

2.4 Extreme events: Heat wave /Cold wave/Frost/Hailstorm/Cyclone

Extreme event type	**Suggested contingency measure[r]**			
	Seedling/nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave	**NA**	**NA**	**NA**	**NA**
Crop 1	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-
Crop 4	-	-	-	-
Crop 5	-	-	-	-
Horticulture	-	-	-	-
Crop 1 (specify)	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-
Cold Wave	**NA**	**NA**	**NA**	**NA**
Crop 1	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-
Crop 4	-	-	-	-
Crop 5	-	-	-	-
Horticulture	-	-	-	-
Crop 1 (specify)	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-

Frost	**NA**	**NA**	**NA**	**NA**
Crop 1	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-
Crop 4	-	-	-	-
Crop 5	-	-	-	-
Horticulture	-	-	-	-
Crop 1 (specify)	-	-	-	-
Crop 2	-	-	-	-
Crop 3	-	-	-	-
Hailstorm				
Crop 1. Rice	Cover the nursery with net	Prevention of hails by hails suppression techniques, following forecasts of weather and protecting crops, Use heaters, wind machines, sprinkling water etc.	Prevention of hails by hails suppression techniques, following forecasts of weather and protecting crops, Use heaters, wind machines, sprinkling water etc.	Following forecasts of weather and protecting crops, spraying salt on harvested paddy or other crop to prevent the germination and sprouting of the harvested produce
Crop 2. Maize				
Crop 3. Mustard				
Crop 4. Lentil				
Horticulture				
Crop 1. Pine apple	Planting crop after the damage, select varieties which will mature before the beginning of the hazard	Prevention of hails by hails suppression techniques, following forecasts of weather and protecting crops, Use heaters, wind machines, sprinkling water etc.	Prevention of hails by hails suppression techniques, following forecasts of weather and protecting crops, Use heaters, wind machines, sprinkling water etc.	Following forecasts of weather and protecting crops, spraying salt on harvested paddy or other crop to prevent the germination and sprouting of the harvested produce, Covering plants with hot caps
Crop 2. Orange				
Crop 3. Mango				
Cyclone				

Crop 1. Rice Crop 2. Maize Crop 3. Mustard	Use proper method of irrigation, use of shelter belts (like row of trees planted for wind protection), grow lodge resistance varieties,	use of shelter belts (like row of trees planted for wind protection)	use of shelter belts (like row of trees planted for wind protection)	use of shelter belts (like row of trees planted for wind protection)
Crop 4. Lentil				
 Crop 2. Orange Crop 3. Mango	Use proper method of irrigation, use of shelter belts (like row of trees planted for wind protection), grow lodge resistance varieties,	use of shelter belts (like row of trees planted for wind protection)	use of shelter belts (like row of trees planted for wind protection)	use of shelter belts (like row of trees planted for wind protection)

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1. Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	Quantification of requirement and availability, preservation of fodder	Efficient utilization of preserved and unconventional fodder and feeds	Evaluate the suitability of measures taken during draught and application during next event.
Drinking water	Awareness programme to conserve water resource like rain water harvesting and reduced wastage of water	Application of techniques to reduce water loss, reduce sweating.	Programme to aware people to realize the last havoc and feel the importance of water conservation.
Health and disease management	Awareness programme on draught preparedness.	Application of measures suggested by health professionals and veterinarians.	Programme to aware people to realize the last havoc and feel the importance of water conservation.
Floods NA			
Cyclone			
Feed and fodder availability	Weather forecast to the general people along with advice	-	Rehabilitation programme based on damage assessed.
Drinking water	Weather forecast to the general people along with advice	Drinking of sterilized and filtered water.	Dispose the dead animals properly away from water source.

Health and disease management	Keep first Aid medicines	Keep vigil on animals	Health camps
Heat wave and cold wave			
Shelter/environment management	Awareness programmes to cop up with the events	Vigilance on casuality and rectification of the faults.	Aware the people to cop up with next event.
Health and disease management	Awareness programmes to cop up with the events	Vigilance on casuality and rectification of the faults.	Aware the people to cop up with next event.

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	Stocking of feed after quantifying the requirement.	Efficient utilization of stocked feed.	Cultivation of draught resistant feed ingredients.	Preparation of low cost feed with locally available ingredients.
Drinking water	Awareness programme to conserve water resource like rain water harvesting etc.	Utilization of conserved water.	Let the people feel about the importance of water preservation.	Awareness programme on draught.
Health and disease management	Awareness programme on health and hygiene.	Vigilance by veterinarian.	Dispose the dead bodies properly.	Awareness programme on health and hygiene.
Floods				
Shortage of feed ingredients	To grow flood resistant variety of feed ingredients.	Efficient utilization of stocked feed.	Evaluate the suitability of measures taken during flood and application during next event	Preparation of low cost feed with locally available ingredients.
Drinking water	Awareness programme on filtration techniques of water.	Proper utilization of sterilization and filtration of water.	Health camps.	Vaccination and health camps.
Health and disease management	Flood preparedness, awareness camps.	Health camps and proper disposal of dead	Health camps and awareness	Vaccination and health camps.

		bird.	programme to cop up with the last event.	
Cyclone				
Shortage of feed ingredients	Weather forecast along with advice.	-	Dispose the dead bird properly.	Health camps
Drinking water	Awareness programme on filtration of water.	Provide sterilized and filtered water.	Dispose the dead bird away from water source.	-
Health and disease management	Keep first Aid medicines ready.	Keep the bird inside secured shelter.	Health camps	Health camps.
Heat wave and cold wave				
Shelter/environment management	Awareness programme to cop up these events.	Vigil on casuality and correction of faults.	Aware the people about preparedness to meet event.	-
Health and disease management	Awareness programme to cop up these events.	Vigil on casuality and correction of faults.	Aware the people about preparedness to meet event.	Awareness programme on health and hygiene.

[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	NA	NA	NA
Inland			
(i) Shallow water depth due to insufficient rains/inflow	Reduce stocking density	De-silting, renovation etc.	Application of full package of practices
ii. Changes in water quality	Liming	Ploughing, proper dose of lime application	Application of full package of practices
iii. Any other	-	-	-
B. Aquaculture			
i. Shallow water in ponds due to insufficient rains/inflow	Reduce stocking density	De-silting, renovation etc.	Application of full package of practices

ii. Impact of salt load build up in ponds/change in water quality	Liming	Ploughing, proper dose of lime application	Application of full package of practices
iii. Any other	-	-	-
2. Floods			
A. Capture			
Marine	NA	NA	NA
Inland			
i. Average compensation paid due to loss of human life	Awareness programme	Rescue and relief	Health camp
ii. No.of boats/nets/damaged	Repairing	Proper handling of boats and nets etc.	Repairing and knitting
iii. No.of houses damaged	Awareness programme	Rescue	Rehabitation
iv. Loss of stock	Reduce stocking density	Harvesting fish and proper guarding by mess nets	Cleaning of aquatic weeds, application of lime, $KMnO_4$ and catching weed and predatory fishes
v. Changes in water quality	Proper maintenance of pond embankments	Proper guard by mess nets	Application of bleaching powder
vi. Health and diseases	Reduce stocking density	Proper guard by mess nets	Netting and sorting programme
B. Aquaculture			
(i) Inundation with flood water	Proper maintenance of pond embankments	Checking and repairing	Application of lime and $KMnO_4$
ii. Water continuation and changes in water quality	Proper maintenance of pond embankments	Checking and repairing	Application of lime and $KMnO_4$
iii. Health and diseases	Reduce stocking density	Proper guard by mess nets	Netting and sorting programme
iv. Loss of stock and inputs (feed, chemicals etc.)	Reduce stock and less application of inputs	Withdraw feed and chemicals	Assessment and fixing of stocking density and proper dose of inputs
v.. Infrastructure damage(pumps, aerators, huts etc.)	Keep these in secured place	Keep these in secured place	Checking and reinstallation
vi. Any other	-	-	-
3. Cyclone/ Tsunami			
A. Capture			
Marine	NA	NA	NA
i. Average compensation paid due to loss of fishermen			

lives			
ii. Avg. no. of boats/nets/damaged			
Inland			
B. Aquaculture			
i. Overflow/flooding of ponds	Reduce stocking density	Arrange outflow	Assessment of stocking density
ii. Changes in water quality(fresh water/brackish water ratio)	Maintain pond embankments	Checking and repairing	Application of lime and $KMnO_4$
iii. Health and diseases	Reduce stocking density	Proper guard by mess nets	Application of bleaching powder
iv. Loss of stock and inputs(feed, chemicals etc.)	Reduce stock and less application of inputs	Withdraw feed and chemicals	Assessment and fixing of stocking density and proper dose of inputs
v. Infrastructure damage(pumps,aerators, shelters/huts etc.)	Keep these in secured place	Keep these in secured place	Checking and reinstallation
vi. Any other	-	-	-
4. Heat wave and cold wave			
A. Capture			
Marine	NA	NA	NA
Inland			
B. Aquaculture			
i. Changes in pond environment(water quality)	Influx of water from nearby channels during heat wave and reduce stocking density in cold	Harvesting of fish during both heat and cold wave	Harvesting of fish during both heat and cold wave and water quality maintenance
ii. Health and Diseases management	-	-	-
iii. Any other	-	-	-

Prepared by KVK, Dhalai