Agriculture Contingency Plan for District: Tamenglong
State: Manipur

1.0 District Agriculture Profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	North-Eastern Hills (Purvachal), Warm Perhumid Eco-sub region (17.2)		
	Agro-Climatic Region (Planning Commission)	Eastern Himalayan Region (II)		
	Agro Climatic Zone (NARP)	Sub-Tropical Zone (NEH-4)		
	List all the districts or part thereof falling under the NARP Zone	Manipur -Imphal, Thoubal, Bishnupur, Senapati, Churachandpur, Ukhrul, Tamenglong, Chandel, Howrah, Midnapore		
	Geographic coordinates of district	**Latitude**	**Longitude**	**Altitude**
		$24^0$30'N to $25^0$30'N	$23^0$0'E to $94^0$0'E	250 m to 2,600 m
	Name and address of the concerned ZRS/ZARS/RARS/ RRS/RRTTS	ICAR Research Complex for NEH Region, Manipur Centre, Imphal, Lamphelpat-795004 (KVK Tamenglong District, Charoi Chagotlong, Tupul, under Zone-III		
	Mention the KVK located in the district	KVK Charoi Chagotlong, Tupul, Tamenglong District, P.O. Longmai – 795147, Manipur		

1.2	**Rainfall**	**Normal RF (mm)**	**Normal Rainy days**	**Normal Onset**	**Normal Cessation**
	SW Monsoon (June-Sept):	-	-	1st week of April	1st week of October
	NE Monsoon (Oct-Dec):	-	-	2nd week of October	2nd week of December
	Winter (Jan-March):	-	-	2nd week of December	4th week of February
	Summer (Apr-May):	-	-	1st week of March	Last week of May
	Annual	3135	-	-	-

1.3	**Land use pattern of the district** (latest statistics)	Geographical area	Forest area	Land under non-agriculture use	Jhum land	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area (Lakh ha)	0.43	0.38	0.0067	0.0265					70.94	

1.4	**Major Soils (common names like shallow red soils etc.,)**	Area (‘000 ha)	Percent (%) of total
	Red soils	259.1	60
	Laterite soils	86.3	20
	Alluvial soils	43.1	10
	Sandy loam soils	43.1	10
1.5	**Agricultural land use**	Area (‘000ha)	Cropping intensity %
	Net sown area	1,007	104 %
	Area sown more than once	0.5	
	Gross cropped area	13.0	

1.6	**Irrigation**	Area (‘000ha)		
	Net irrigated area	5.69		
	Gross irrigated area	9.52		
	Rainfed area			
	Source of Irrigation	Number	Area (‘000ha)	Percentage of total irrigated area
	Canals		0.2	
	Tanks	-	-	-
	Open wells	-	-	-
	Bore wells	0	-	-
	Lift irrigation	0	-	-
	Micro-irrigation	0	-	-
	Surface flow Irrigation	37.0	5.6	60.0
	Other sources	-	0.0	-
	Total Irrigated Area	-	5.90	-
	Pump sets	9	-	-
	No. of Tractors	0	0	
	Groundwater availability and use* (Data source: State/Central Ground water Department/Board)	No. of blocks/ Tensils	(%) area	
	Over exploited	-	-	
	Critical	-	-	
	Semi-critical	-	-	
	Safe	-	-	

	Wastewater availability and use ground water quality	-	-
*over-exploited: ground water utilization>100%; critical:90-100%; semi-critical:70-90%;safe:<70%			

1.7 Area under major field crops & horticulture etc. (2008-09)

1.7	Major Field Crops cultivated	Area ('000ha)						
		Kharif		**Rabi**		**Summer**		**Total**
		Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	
	Rice (Jhum)	10.0	25.5	-	-	-	-	35.5
	Maize	-	2.9	-	-	-	-	2.90
	Sugarcane	-	3.14	-	-	-	-	3.14
	Wheat	-	-	-	2.9	-	-	2.90
	Pulses	-	1.11	-	3.43	-	-	4.54
	Oil seed	-	0.66	-	7.78	-	-	8.44
	Potato	-		-	2.8	-	-	2.80
	Horticulture crops-Fruits	**Total area**		**Irrigated**		**Rainfed**		
	Orange	1894		-		1894		
	Banana	801		-		801		
	Pineapple	808		-		808		
	Passion fruit	607		-		607		
	Others fruits	1395		-		1395		
	Horticulture crops-Vegetables	**Total area**		**Irrigated**		**Rainfed**		
	Cabbage	45		-		45		
	Cauliflower	22		-		22		
	Tomato	31		-		31		
	Pea	100		-		100		
	Potato	110		-		110		
	Medicinal and Aromatic crops	**Total area**		**Irrigated**		**Rainfed**		
	-	-		-		-		
	Plantation crops	-		-		-		
	Fodder crops	-		-		-		
	Total fodder crop area	-		-		-		
	Grazing land	-		-		-		
	Sericulture etc.	-		-		-		
	Others (specify)	-		-		-		

1.8	Livestock (in number)	Male (‘000)	Female (‘000)	Total (‘000)
	Non descriptive Cattle (local low yielding)	10.18	22.69	
	Crossbred cattle	0.22	0.72	
	Non descriptive Buffaloes	3.40	8.09	
	Goat	3.24	4.10	7.35
	Sheep	0	0	0
	Others (Camel, Pig, Yak, Mithun etc.)	14.14	17.40	31.54
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds (‘000)**	
	Commercial			
	Backyard	-	338.76	

	Fisheries						
	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)**	
		-	-	-	-	-	-
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**	**No. of Reservoirs**		**No. of village tanks**		
					14		
	B. Culture						
		Water Spread Area (ha)		**Yield (t/ha)**		**Production (‘000 tons)**	
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)					0.68	
	ii) Fresh water (Data Source: Fisheries Department)	15				1.05	
	Others						

1.11 Production and Productivity of major crops

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder (‘000tons)
		Production (‘000t)	Productivity (kg/ha)	Production (‘000t)	Productivity (kg/ha)	Production (‘000t)	Productivity (kg/ha)	Production (‘000t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Paddy	12.5	1319.3							
	Maize									
	Pea									
Major Horticultural crops (Crops to be identified based on total acreage)										
	Orange	14.15						14.15		
	Pineapple	6.99						6.99		
	Banana	6.03						6.03		
	Passion fruit	3.06						3.06		
	Ginger	1.48						1.48		
	Chillies	2.38						2.38		

1.12	**Sowing window for 5 major field crops** (Start and end of normal sowing period)	Rice	Maize	Chillies	Orange	Ginger
	Kharif-Rainfed	April - May	April - May	April - May	May-August	April - May
	Kharif-Irrigated	-	-	-	-	-
	Rabi-Rainfed	-	-	-	-	-
	Rabi-Irrigated	-	-	-	-	-
	Summer-Rainfed	April - May	April - May	April - May	April - May	April - May
	Summer-Irrigated	-	-	-	-	-

1.13	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought	√		
	Flood		√	
	Cyclone			√

	Hail storm	√		
	Heat wave			√
	Cold wave			√
	Frost		√	
	Sea water intrusion			√
	Pests and diseases (specify)	√		
	Others (Bamboo flowering)		√	

1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: No

Annexure I

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

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 **3rd week of April**	Shallow red soils	Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP
		Maize	Prefer short duration var.	Mulching	ISOPOM
		King Chilli	Pulses crops	Bamboo drip irrigation	NFSM
	Uplands	Orange	Pulses crops & Intercropping	Drip irrigation, cover crop & Mulching	IWMP
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Paddy	Upland rice	Decrease spacing & Mulching	IWMP
		King Chilli	King Chilli with pulses crops	Bamboo drip irrigation & mulching practice	NFSM
	Medium lands	Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Tree bean	Intercropping with pulses crops	Supplemental irrigation & Mulching	
	Eroded hill slope	Pigeon pea	Dwarf & drought resistant variety	Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Papaya	Crop rotation with pulses crops	Rice husk mulching	

Condition			**Suggested Contingency measures**		
Early season drought	**Major Farming**	**Normal Crop/cropping**	**Change in crop/ cropping**	**Agronomic measures**	**Remarks on**

(delayed onset)	situation	system	system		Implementation
Delay by 4 weeks **1st week of May**	Shallow red soils	Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP
		Maize	Choose alternate crops like pulses	Mulching	ISOPOM
		Chilli	Pulse crop/ Intercropping	Bamboo drip irrigation	NFSM
	Upland	Orange/Perennial plantation	Choose alternate crops like pulses	Drip irrigation, & Mulching	IWMP
		Banana	Prefer dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP
		King Chilli	Choose alternate crops like pulses	Bamboo drip irrigation & mulching practice	NFSM
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
	Eroded hill slops	Pigeon pea	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Jackfruits/ Perennial plantation	Jackfruit	Mulching	
		Papaya	Papaya	Rice husk mulching	

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	Shallow red soils	Paddy/Main crop	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP

3rd week of May		Maize	Maize short duration var.	Mulching	ISOPOM
		King Chilli	King Chilli	Mulching	NFSM
	Upland	Orange/ Perennial plantation	Pulses crops & Intercropping	Drip irrigation, cover crop & Mulching	IWMP
		Banana	Prefer Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP
		King Chilli	Chilli with pulses crops	Bamboo drip irrigation & mulching practice	NFSM
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	-
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
	Eroded hill slops	Pigeon pea	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Jackfruits/ Perennial plantation	Jackfruit	Mulching	
		Papaya	Papaya	Rice husk mulching	

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[e]**
Delay by 8 weeks	Shallow red soils	Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	IWMP
1st week of June		Maize	Prefer short duration var.	Mulching	ISOPOM
		Chilli	Chilli	Bamboo drip irrigation	NFSM

	Upland	Orange/ Perennial plantation	Choose Pulses crops & Intercropping	Drip irrigation, cover crop & Mulching	IWMP
		Banana	Prefer dwarf & drought resistant variety	Supplemental irrigation & Mulching	IWMP
		Paddy	Upland rice/ Mixed cropping	Mulching	IWMP
		King Chilli Intercropping	Chilli with pulses crops	Bamboo drip irrigation & mulching practice	NFSM
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Banana	Dwarf & drought resistant variety		IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
	Eroded hill slops	Pigeon pea	Dwarf & drought resistant variety	Mulching	IWMP
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Jackfruits/ Perennial plantation	Jackfruit	Mulching	
		Papaya	Papaya	Rice husk mulching	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**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.	Shallow red soils	Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	-
		Maize	Pulses crops	Mulching	
		King Chilli		Bamboo drip irrigation	
	Upland	Orange/ Perennial plantation	Intercropping with pulses crops	Supplemental drip irrigation & cover crop	
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	
		Chilli	Pulses crops &	Bamboo drip irrigation &	

			Intercropping	mulching practice	
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
	Eroded hill slops	Pigeon pea	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Colocasia	Colocasia with pulses crops	Decrease spacing & Mulching	
		Papaya	Pulses crops & Intercropping	Rice husk mulching	

Condition			**Suggested Contingency measures**		
Mid season drought (Long dry spell, consecutive 2 weeks rainless (>2.5mm) period**)**	**Major Farming situation**	**Normal Crop/ cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At vegetative stage	Shallow red soils	Upland rice	Intercropping with pulses	Mulching Supplemental irrigation &	-
		Maize			
		Orange			
		Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
	Uplands	Paddy	Upland rice/ Mixed cropping	Mulching	
		King Chilli	Intercropping with pulses	Drip irrigation & mulching	
		Tree bean		Supplemental irrigation, cover crops & Mulching	
		Banana			
	Medium lands	Tree bean	Intercropping with pulses	Supplemental irrigation, cover crops & Mulching	
		Pigeon pea	Dwarf & drought resistant variety		
		Colocasia	Colocasia with pulses crops		
	Eroded hill slope	Papaya	Intercropping with	Prefer cover crops in between	

			pulses	the rows; Mulching with paddy husk	
		Colocasia		Mulching	

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**
At flowering/ fruiting stage	Shallow red soils	Upland rice	Intercropping with pulses	Mulching Supplemental irrigation	-
		Maize	Intercropping with pulses crops		
	Uplands	Orange	Pulses crops & Intercropping	Supplemental irrigation & Mulching	
		Banana	Pulses crops & Intercropping		
		Paddy	Upland rice/ Mixed cropping		
		King Chilli	Pulses crops & Intercropping	Drip irrigation & mulching	
	Medium lands	Tree bean/ Perennial plantation	Pulses crops & Intercropping	Supplemental irrigation & Mulching	
		Banana	Dwarf & drought resistant variety		
		Colocasia	Pulses crops & Intercropping		
	Eroded hill slope	Pigeon pea	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Colocasia	Colocasia with pulses crops	Mulching	
		Papaya	Pulses crops & Intercropping	Rice husk mulching	

Condition			Suggested Contingency measures		
Terminal drought	**Major Farming situation**	**Normal Crop/ cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**

	Shallow red soils	Upland rice	Resowing & Crop rotation	Intercropping with short duration pulses	-
		Maize	Intercropping with pulses crops		
		King Chilli	Intercropping with pulses crops		
	Uplands	Orange/ Perennial plantation	Pulses crops & Intercropping	Soil & moisture conservation practices like cover crop & Mulching	
		Banana	Dwarf & drought resistant variety		
		Paddy	Upland rice/ Mixed cropping		
		King Chilli	King Chilli with pulses crops	Bamboo drip irrigation & mulching practice	
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Banana	Dwarf & drought resistant variety		
		Colocasia	Colocasia with pulses crops		
	Eroded hill slope	Pigeon pea	Dwarf & drought resistant variety	Supplemental irrigation & Mulching Rice husk mulching	
		Colocasia	Colocasia with pulses crops		
		Papaya	Pulses crops & Intercropping		

2.1.2 Irrigated situation

Condition			**Suggested Contingency measures**		
Delayed release of water in canals due to low rainfall	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
	Shallow red soils	Upland rice	Upland rice/ Mixed cropping	Decrease spacing & Mulching	-
		Maize	Prefr short duration var.	Mulching	
		King Chilli	Pulses crops & Intercropping	Bamboo drip irrigation	
	Uplands	Orange/ Perennial plantation	Intercropping with pulses crops to conserve soil & moisture	Supplemental irrigation &	

		Tree bean/ Perennial plantation		Mulching	
		Pigeon pea/ Intercropping	Dwarf & drought resistant variety		
	Medium lands	Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	
		Chilli	Chilli with pulses crops	Bamboo drip irrigation & mulching	

Condition			**Suggested Contingency measures**		
Limited release of water in canals due to low rainfall	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
	Shallow red soils	Upland rice	Upland rice/ Mixed cropping	Decrease spacing & Mulching	-
		Maize	Maize short duration var.	Mulching	
		King Chilli	Pulses crops & Intercropping	Bamboo drip irrigation	
	Uplands	Orange/ Perennial plantation	Pulses crops & Intercropping	Supplemental irrigation & Mulching	
		Tree bean/ Perennial plantation	Intercropping with pulses crops		
		Pigeon pea/ Intercropping	Dwarf & drought resistant variety		
	Medium lands	Banana	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	
		Paddy	Upland rice/ Mixed cropping	Decrease spacing & Mulching	
		Chilli	King Chilli with pulses crops	Bamboo drip irrigation & mulching practice	

Condition			Suggested Contingency measures		
Non release of water in canals under delayed onset of monsoon in catchment	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
	Uplands	Upland rice	Pulses	Decrease spacing & Mulching	-
		Maize		Mulching	
		King Chilli		Bamboo drip irrigation	
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Orange/ Perennial plantation	Intercropping with pulses crops to conserve soil & moisture	Cover crop & Mulching	
		Pigeon pea/ Intercropping	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	

Condition			Suggested Contingency measures		
Lack of inflows into tanks due to insufficient/ delayed onset of monsoon	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
	Uplands	Upland rice	Upland rice/ Mixed cropping	Decrease spacing & Mulching	-
		Maize	Maize short duration var.	Mulching	
		King Chilli	Pulses crops & Intercropping	Bamboo drip irrigation	
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Orange/ Perennial plantation		Cover crops & Mulching	
		Pigeon pea/ Intercropping	Dwarf & drought resistant variety	Supplemental irrigation & Mulching	

Condition			Suggested Contingency measures

Insufficient groundwater recharge due to low rainfall	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
	Uplands	Upland rice	Upland rice/ Mixed cropping	Decrease spacing & Mulching	-
		Maize	Pulses crops & Mixed cropping	Mulching	
		King Chilli	King Chilli/Mixed cropping	Bamboo drip irrigation & Mulching	
	Medium lands	Tree bean/ Perennial plantation	Intercropping with pulses crops	Supplemental irrigation & Mulching	
		Orange/Perennial plantation			
		Pigeon pea/ Intercropping	Dwarf & drought resistant variety		

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

Condition	**Suggested contingency measure**			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Paddy	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Maize	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Colocasia	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Horticulture				
Orange	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place

King chilli	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Banana	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Ginger	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Turmeric	Provide drainage	Provide drainage	Drain out Harvesting at physiological maturity stage	Shift to safer place
Heavy rainfall with high speed winds in a short span[2]				

Condition	**Suggested contingency measure**			
	Vegetative stage	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Outbreak of pest and diseases due to unseasonal rains	**-**			

2.2 Floods- Not applicable

Condition	**Suggested contingency measure[o]**			
Transient water logging/partial inundation[1]	**Seedling/nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Continuous submergence for more than 2 days[2]	**Not applicable**			
Sea water intrusion[3]				

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

Extreme event type	**Suggested contingency measure**			
	Seedling/nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat wave	**Not applicable**			
Cold wave				
Frost	**Not applicable**			

Hailstorm				
Cyclone	**Not applicable**			

2.5 Contingency strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measure		
	Before the event[s]	**During the event**	**After the event[s]**
Drought			
Feed and fodder availability	1. Storage of straw 2. Making hay and silage out of locally available fodder/grasses	1. Rationale use of stored feed 2. Use of unconventional feed resources like tree leaves, banana plantame and other edible leaves.	1. Awareness for preparedness to the farmers.
Drinking water	-	-	-
Health and disease management	1. Timely vaccination against the dangerous diseases prevalent in the region. 2. Regular de-warming 3. Good feeding and nutritional management for better performance	1. Mineral and vitamin supplement to supplement deficiencies may occur due to unavailability or less availability of grass/fodder. 2. More attention towards bio-security	
Floods	Sometimes occur in the river bank where habitats are not present. It may cause damage to the agricultural crops. Usually the grassland/fodderland is not affected. It is also not necessary to take special care for drinking water or health related problems.		
Feed and fodder availability	-	-	-
Drinking water	-	-	-
Health and disease management	-	-	-
Cyclone	-	-	-
Feed and fodder availability	-	-	-
Drinking water	-	-	-
Health and disease management	Proper housing for animals to protect them from such incidence.	-	-
Heat wave and Cold wave			
Shelter/environment management	1. Housing with proper ventilation 2. Construction of animal house	1. Use jute sac/gunny bag to covet animals' body	Take necessary steps to alleviate stress to the animals

	under shady trees. 3. Stocking fire wood, charcoal, paddy husk	2. Burning of charcoal, burning of paddy husk,	
Health and disease management	-	-	-

2.5.2 Poultry

	Suggested contingency measure			**Convergence/ linkages with ongoing programs, if any**
	Before the event[s]	**During the event**	**After the event**	
Drought				
Shortage of Feed ingredients	Storage of concentrated feed available in the market or prepared by the locally available ingredients in cool & dry place with proper packing	1. Supply stored feed mixing with locally available feed ingredients and or tender leaves of wild vegetable. 2. Supply of multi vitamin and multi minerals preparation. 3. For layers- supply of calcium sources like shell grit, limestone etc. through feed.	Proper management of the birds including feeding	
Drinking water	Clean drinking water	Clean drinking water	Clean drinking water	
Health and disease management	1. Maintain hygienic measures at the farm premises 2. Vaccine at different stage of their life	1. Supply of clean & cool drinking water 2. Supplementation of multivitamins to alleviate stress		
Floods	-	-	-	-
Shortage of Feed ingredients	-	-	-	-
Drinking water	-	-	-	-

Health and disease management	-	-	-	-
Cyclone	-	-	-	-
Shortage of Feed ingredients	-	-	-	-
Drinking water	-	-	-	-
Health and disease management	-	-	-	-
Heat wave and Cold wave	-	-	-	-
Shelter/environment management	1. Housing with proper ventilation 2. Construction of animal house under shady trees. 3. Stocking fire wood, charcoal, paddy husk	1. Burning of charcoal, burning of paddy husk to provide heat 2. Proper ventilation	Take necessary steps to alleviate stress to the animals	
Health and disease management	1. Use of antibiotics during first week of their life. 2. Vaccine at different stage of their life	-	-	

2.5.3 Fisheries/Aquaculture- not applicable

	Suggested contingency measures		
	Before the event[s]	**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 depth due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds/Changes in water quality			

(iii) Any other			
2. Floods			
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			
(ii) Water continuation 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			
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen life			
(ii) Average no. of boats/nets damaged			
(iii) Avg. no. of houses damaged			
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases			
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			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Change in pond environment (water quality)			
(ii) Health and diseases Management			
(iii) Any other			