

State: ANDHRA PRADESH

Agriculture Contingency Plan for District: ADILABAD

1.0 District Agriculture profile			
1.1	Agro-Climatic/Ecological Zone		
	Agro Ecological Region /Sub Region (ICAR)	Deccan Plateau, hot arid eco region (6.2)	
	Agro-Climatic Region (Planning Commission)	Southern Plateau and Hills Region (X)	
	Agro Climatic Zone (NARP)	North Telangana Zone (AP-4)	
	List the zones or part thereof falling under the NARP Zone	Adilabad, Karimnagar, Nizamabad, parts of Warangal, Medak, Khammam and Nalgonda	
	Geographic coordinates of district	Latitude	Longitude
		19°40'0"N	78°46'60"E
		Altitude	
		263 m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RARS, Jagtial 505 321	
	Mention the KVK located in the district	KVK, Adilabad dist-504 002	
1.2	Rainfall	Average (mm)	Normal Onset (specify week and month)
			Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	902	2 nd week of June
	NE Monsoon(Oct-Dec):	97	2 nd week of October
	Winter (Jan- March)	16	-
	Summer (Apr-May)	39	-
	Annual	1053	-

1.3	Land use pattern of the district (latest statistics)	Geographical 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)	1610.5	689.5	60.7	14.2	14.7	13.0	43.9	172.7	94.9

1.4	Major Soils	Area ('000 ha)	Percent (%) of total
	1. Red soils		15
	2. Black soils		80
	3. Others		5
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	551.6	106.9%
	Area sown more than once	38.3	
	Gross cropped area	589.9	

1.6	Irrigation	Area ('000 ha)	Percent (%)	
	Net irrigated area	88.1		
	Gross irrigated area	112.7		
	Rainfed area	463.6		
	Sources of Irrigation	Number	Area ('000 ha)	% area
	Canals		4.7	7.3
	Tanks		8.9	13.8
	Tube wells & filter points		49.7	77.2
	Lift irrigation			
	Other sources		1.0	1.7
	Total		64.3	100.0
	Pumpsets			
	Micro-irrigation			
	Groundwater availability and use	No. of blocks	% area	Quality of water
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			

Area under major field crops & horticulture etc.

*If break-up data (irrigated, rainfed) is not available, give total area

1.7		Major Field Crops cultivated	Area ('000 ha)*					
			Kharif		Rabi		Summer	Total
			Irrigated	Rainfed	Irrigated	Rainfed		
1	Cotton	-	292	-	-		292	
2	Soybean	-	120	-	-		120	
3	Redgram	-	53	9	-		62	
4	Paddy	20	1.93	8.9	-		30.8	
5	Jowar	-	18		29		47	
6	Bengal gram	-	-		27		27	
7	Wheat	-	-	4	-		4	
		Horticulture crops - Fruits	Total area					
1	Mango		54.0					
2	Orange & batavian		1.0					
		Horticultural crops - Vegetables	Total area					
1	Tomato		14.7					
2	Chillies		4.7					
3	Brinjal		2.7					
4	Cabbage		2.2					
5	Bhendi		2.1					
		Spices and Plantation crops	Total area					
1	Turmeric		8.5					
2	Coriander		3.0					

		Total fodder crop area			
		Grazing land		-----	
		Sericulture etc		3.4	
		Others (Specify)			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
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	Non descriptive Cattle (local low yielding)	529.4	489.3	1018.7			
	Crossbred cattle	1.5	2.9	4.4			
	Non descriptive Buffaloes (local low yielding)	65.7	318.8	384.5			
	Graded Buffaloes						
	Goat			579.3			
	Sheep			428.1			
	Others (Camel, Pig, Yak etc.)			17.98			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial		334890				
	Backyard		1605331				
1.10	Fisheries (Data source: Chief Planning Officer)						
	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	
		33	3		342		
	B. Culture						
		Water Spread Area (ha)		Yield (t/ha)		Production ('000 tons)	
	i) Brackish water	-		0.000			
	ii) Fresh water	32		0.013		0.415	
	Others					12.304	

1.11	Production and Productivity of major crops	Kharif		Rabi		Summer		Total	
		Production ('000 t)	Productivity (kg/ha)						

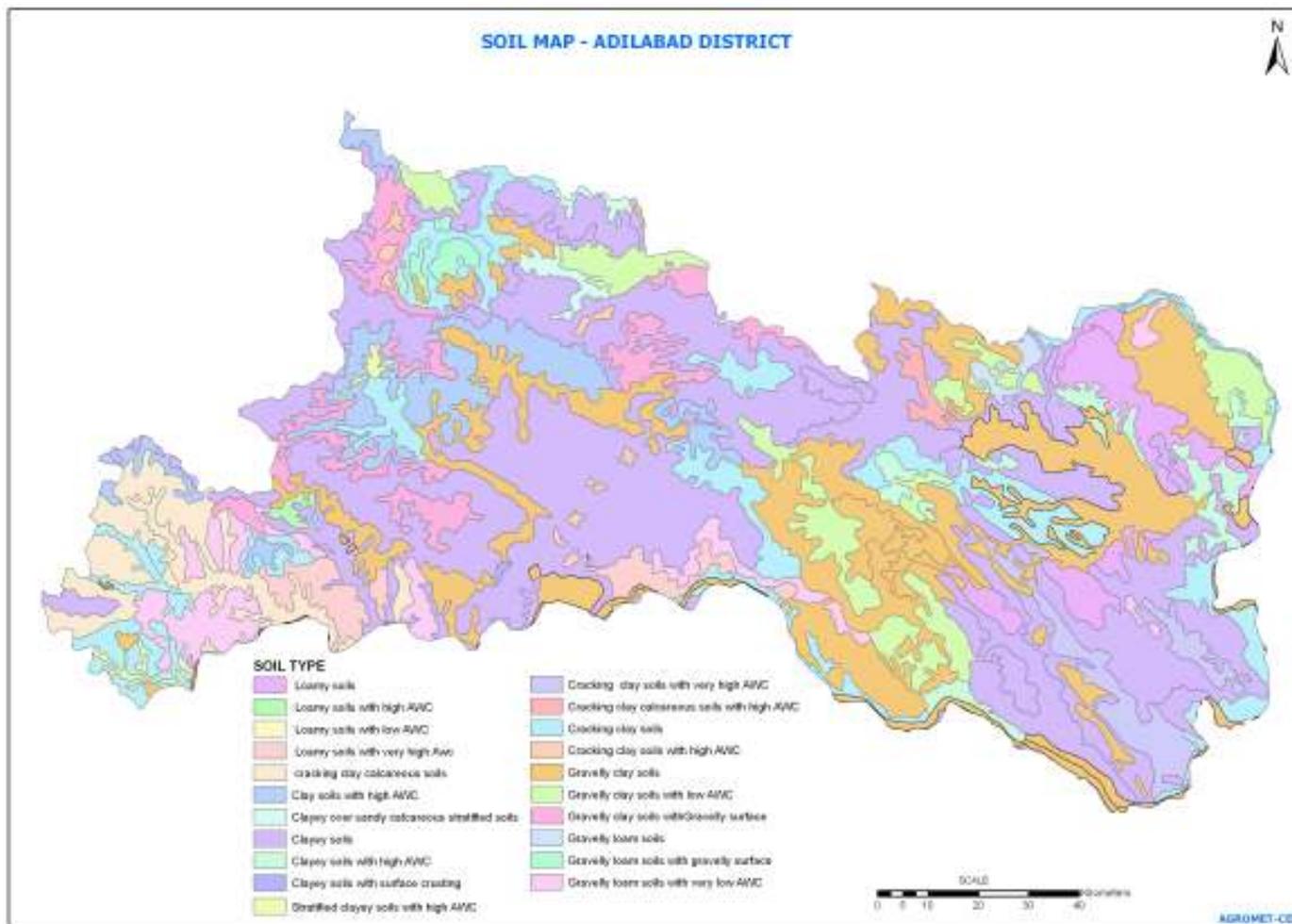
	(Average of last 5 years: 2004, 05,06, 07, 08)								
	Cotton	425	350	-	-	-	-	425	350
	Soybean	42.7	595	-	-	-	-	42.7	595
	Redgram	23	603	8.24	608	-	-	31.2	605
	Paddy	123	2608	30	3370	-	-	153	2797
	Jowar	42	1808	30	677	-	-	72	1076
	Bengal gram			23	1386			23	1386
	Wheat	-	-					-	-
	Major Horticultural crops							-	-
	Turmeric	59.8		-				60	-
	Chilles	26.0						26	-
	Onion	10.6						11	-
	Coriander							-	-

1.12	Sowing window for 5 major crops (start and end of sowing period)	Cotton	Soybean	Redgram	Paddy	Bengalgram	Jowar
	Khariif- Rainfed	June – July	June 15 to July 15	June 1 st week to last	--	---	

				week			
	Kharif-Irrigated	---		---	June – July	---	
	Rabi- Rainfed	---	---	--	--	2 nd F.N. of October to 1 st F.N. of November	September
	Rabi-Irrigated	--	--	---	---	October – November	

1.13	What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period)	Regular	Occasional	None
	Drought		✓	
	Flood			✓
	High intense storms			✓
	Cyclone		✓	
	Hail storm		✓	
	Heat wave			✓
	Cold wave		✓	
	Frost			✓
	Sea water inundation			✓
	Pests and diseases (specify)	✓		

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



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation	Crop normal /cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 2 weeks (June 4 th week)	Rainfed – black soils	Cotton	No Change	-	
		Soybean			
		Redgram			
Delay by 4 weeks (2 nd week July)	Rainfed – black soils	Cotton			
		Soybean			
		Redgram			
Delay by 6 weeks (July 4 th week)	Rainfed – black soils	Cotton			
		Soybean	Redgram ICPL-87119, 85063, LRG-38 and MRG-88	Adopt closer spacing (90x15)	
		Redgram	No Change	Adopt closer spacing	

Delay by 8 weeks (August 2 nd week)	Rainfed – black soils	Cotton	Redgram	Reduce row spacing to 90cm Spray 2% urea solution Apply booster dose of nitrogen @ 50kg/ha after receipt of rains	
		Redgram	No Change (Medium duration PRG 100, ICP 8863)	Adopt closer spacing (90x30cm)	
		Soybean	Frequent spraying of 2% urea solution	Reduce row spacing to 90cm	

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil management	Remarks on Implementation
Early season drought (Normal onset)					
15-20 days dry spell after sowing leading to poor germination/crop stand etc.)	Rainfed – black soils	Cotton	Gap fill with same cultivar. Delay the fertilizer application till sufficient soil moisture builds up through rains. Incidence of sucking pests may flare up. Take control measures. Since cotton is a major crop, a specific recommendation may be better. Can we specify as mealybugs and other sucking pests and what spray?	Frequent inter cultivation. Foliar application of 2% urea solution, 2-3 times @ 10-15 days interval. Apply 30 Kg N / ha immediately on receiving rains during vegetative stage.	-
		Soybean	2% urea foliar spray	Frequent inter cultivation with push hoe to control weeds and conserve soil moisture.	
		Redgram			

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil management	Remarks on Implementation
Mid season drought (long dry spell, > 2 consecutive weeks rainless (>2.5 mm) period)					
At vegetative stage	Rainfed – black soils	Cotton	<p>Delay the fertilizer application till sufficient soil moisture available.</p> <p>Incidence of sucking pests i.e. Aphids, Thrips may flare up. Spray Acephate @1.5g or Imidacloprid @0.4ml/lit of water.</p> <p>Foliar application of 2% urea solution + 1 to 1.5% MOP. 2-3 times @ 10-15 days interval.</p> <p>Apply 30 Kg N / ha immediately on receiving rains during vegetative stage.</p>	Frequent inter cultivation keeps the crop weed free and conserve soil moisture.	
		Soybean		Frequent inter cultivation	
		Redgram	Spray 2% urea solution and apply booster dose of urea 50 Kg/ ha immediately after receipt of rains.		

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil management	Remarks on Implementation
Mid season drought (long dry spell)					
At reproductive stage	Rainfed – black soils	Cotton	Alternate foliar application of 2% urea solution and 1%KNO ₃ , 2-3 times @ 10 days interval. Incidence of sucking pests i.e. Jassids, Aphids and Thrips will be more. Spray application of Acephate @1.5g or Imidacloprid @0.4 ml/lit of water.	Frequent intercultivation	
		Soybean	Foliar application of urea @ 2% at an interval of one week		
		Redgram			

Comments same as above

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi crop planning	Remarks on Implementation
Terminal drought	Rainfed – black soils	Cotton	Alternate foliar application of 2% urea solution and 1% KNO ₃ 2-3 times @ 10 days interval.	Sesame or soybean for seed purpose is suggested wherever assured irrigation is there	
		Soybean	Foliar application of 2% urea solution, 1 spray	Bengalgram mustard / fenugreek is recommended wherever subsidiary irrigation is there	
		Redgram	Foliar application of 2% urea solution, 2 times at an interval of 5 days	Sesame is suggested wherever assured irrigation is there	

2.1.2 Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed/ limited release of water in canals due to low rainfall	Black soils	Paddy	No Change	Take up transplanting of aged seedling with special management practices. 1. Short duration varieties like Erramallelu, Jagtiala Sannalu, WGL-44, JGL-3844, MTU-1010 and Tellahamsa	

Condition			Suggested Contingency measures		
	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	Black soils	Paddy	No Change	Alternate wetting and drying	

Condition			Suggested Contingency measures		
	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Black soils	Paddy	Greengram (MGG-295, LGG-460) Redgram (PRG-100)		

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Shallow black soils	Paddy	Irrigated crops Maize, Jowar	Irrigate available water in canals and tanks	

Condition	Suggested Contingency measures				
	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Black soils	Paddy	Short duration crops like Green gram, Balckgram,		

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

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Cotton	<ol style="list-style-type: none"> 1. Excess water from the field to be drained out 2. Intercultivate with gorru and apply a booster dose of 30kg urea+1% KNO₃ per acre <p>Delay in intercultural operation may harm the crop</p> <p>3Gap filling should be done</p> <ol style="list-style-type: none"> 4. In water logged areas spray with urea 2%+ MgSO₄ (1%) followed by Annabhedi 5g+Citric acid 0.5g/l 5.Spray and also drench with Copper oxychloride 6. Take up timely control measures against the out break of pests and diseases like 	<ol style="list-style-type: none"> 1. Drain the excess water as early as possible 2. Apply 30 kg N + 15 kg K /acre after draining excess water 3. Spray fungicides like Copper oxy chloride 0.3 % or Carbendazim 0.1 % or Mancozeb 0.25% two to three times by rotating the chemicals 5. Take up timely control measures against the out break of pests like Spodoptera, Helicoverpa 	<ol style="list-style-type: none"> 1. Drain the excess water as early as possible 2. To spray KNO₃ 1 % or water soluble fertilizers like 19-19-19, 20-20-20, 21-21-21 at 1% to support nutrition 3. Spray fungicides like Copper oxy chloride 0.3 % or Carbendazim 0.1 % or Mancozeb 0.25% two to three times by rotating the chemicals 4. Take up timely control measures against the out break of pests like Spodoptera, Helicoverpa etc. 	<ol style="list-style-type: none"> 1. Dry the produce properly before packing and sending to market

	Spodoptera, Helicoverpa and BLB (Black arm) etc.	etc.		
Maize	Drain out excess water Take up plant protection measures	Drain out excess water Timely plant protection measures are to be taken up	Drain out excess water	Shifting of cobs immediately after drying
Redgram	Drain out excess water Take up plant protection measures	Drain out excess water Take up plant protection measures	Drain out excess water	
Paddy	Drain out excess water Take up plant protection measures	Drain out excess water Take up plant protection measures	Drain out excess water	Spray salt solution to prevent germination of paddy

2.3 Floods -NA-

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

General contingency measures

Before the event	During the event	After the event
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Feed and fodder availability		
<p>1.Conserving fodder/crop residues/ forest grass by silage / hay making either by individual or on community basis</p> <p>2. Preparing complete diets and storing in strategic locations</p> <p>3. Organize procurement of dry foddors / feed ingredients from surplus areas</p> <p>4. Establish fodder banks and feed banks</p> <p>5. Livestock relief camps during floods/cyclones must be planned in the vicinity of relief camps for people</p> <p>6. Capacity building and preparedness</p>	<p>1.Organise relief camps 2.Supply silage / hay to farmers with productive stock on subsidized rates</p> <p>3.Segregate old, weak and unproductive stock and send for slaughter</p> <p>4. Supply mineral mixture to avoid deficiencies</p> <p>5. Dry fodder must be offered to the livestock in little quantities for number of times</p> <p>6.Concentrate feed or complete feed must be offered to only productive and young stock only</p>	<p>1. Capacity building to stake holders on drought /cyclone/flood mitigation in livestock sector</p> <p>2. Promote fodder cultivation.</p> <p>3. Flushing the stock to recoup</p> <p>4. Avoid soaked and mould infected feeds / foddors to livestock</p> <p>5. Replenish the feed and fodder banks</p> <p>6.Promote fodder preservation techniques like silage / hay making</p>
Drinking water		
<p>1.Construct drinking water tanks in herding places, village junctions and in relief camp locations</p> <p>2.Plan for sufficient number of tanks for water transportation</p> <p>3.Identify bore wells, which can sustain demand.</p> <p>4.Procure sufficient quantities of water Sanitizers</p>	<p>1.Regular supply of clean drinking water to all tanks 2.Cleaning the tanks in regular intervals</p> <p>3.Keep the livestock away from contaminated flood/cyclone/stagnated waters</p> <p>3.Add water sanitizers</p>	<p>1.Hand over the maintenance of the structures to panchayats</p> <p>2.Sensitize the farming community about importance of clean drinking water</p>
Health and disease Management		

<p>1. Procure and stock emergency medicines and vaccines for important endemic diseases of the area</p> <p>2. All the stock must be immunized for endemic diseases of the area</p> <p>3. Carry out deworming to all young stock</p> <p>4. Keep stock of bleaching powder and lime</p> <p>5. Carry out Butax spray for control of external parasites</p> <p>6. Identify the Clinical staff and trained paravets and indent for their services as per schedules</p> <p>7. Identify the volunteers who can serve in need of emergency</p>	<p>1. Keep close watch on the health of the stock</p> <p>2. Sick animals must be isolated and treated Separately.</p> <p>3. Carry out deworming and spraying to all animals entering into relief camps</p> <p>4. Clean the animal houses regularly and apply disinfectants.</p> <p>5. Safe and hygienic disposal of dead animal carcasses</p> <p>6. Organize with community daily lifting of dung from relief camps</p>	<p>1. keep close surveillance on disease outbreak.</p> <p>2. Undertake the vaccination depending on need</p> <p>3. Keep the animal houses clean and spray disinfectants</p>
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Detailed contingency measures for Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Feed and Fodder availability	<p>Establishment of silvi-pastoral system in CPRs with <i>Stylosanthus hamata</i> and <i>Cenchrus ciliaris</i> as grass with <i>Leucaena leucocephala</i> as tree component (or suggest suitable similar system to your district)</p> <p>Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in common property resources (CPRs) like temple lands, panchyat lands or private property resources (PPRs) like waste and degraded lands with the monsoon pattern for higher biomass production</p> <p>Promote cultivation of short duration fodder</p>	<p>Harvest and use biomass of dried up crops (Sorghum, Bajra, Maize, Rice, Wheat, Horse gram, Groundnut) material as fodder.</p> <p>Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS).</p> <p>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals</p> <p>UMMB, hay, concentrates and vitamin & mineral mixture should be transported to the needy areas from the reserves</p>	<p>Concentrates supplementation should be provided to all the animals.</p> <p>Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible</p>

	<p>crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAIN T BAJRA, L-74, K-677, Ananad/African Tall, Kisan composite, Moti, Manjari, B1-7</p> <p>Chopping of fodder should be made as mandatory in every village through supply and establishment of good quality chaff cutters.</p> <p>Avoid burning of wheat straw and maize stover</p> <p>Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon</p> <p>Proper drying, bailing and densification of harvested grass from previous season</p> <p>Creation of permanent fodder, feed and fodder seed banks in all drought prone areas</p>	<p>at the district level initially and latter stages from the near by districts. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS</p> <p>Herd should be split and supplementation should be given only to the highly productive and breeding animals</p> <p>Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock)</p> <p>Available kitchen waste should be mixed with dry fodder while feeding</p> <p>Arrangements should be made for mobilization of small ruminants across the districts where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds</p> <p>Unproductive livestock should to be culled during severe drought</p> <p>Create transportation and marketing facilities for the culled and unproductive animals</p> <p>Subsidized loans should be provided to the livestock keepers</p>	
Cyclone	NA		
Floods	<p>In case of early forewarning (EFW), harvest all the crops (Sorghum, Bajra, Maize, Rice, Wheat, Horse gram, Groundnut) that can be useful as fodder in future (store properly)</p> <p>Don't allow the animals for grazing if severe floods are forewarned</p> <p>In regularly flood prone mandals, arrange for storing minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods</p>	<p>Transportation of animals to elevated areas</p> <p>Stall feeding of animals with stored hay and concentrates</p> <p>Proper hygiene and sanitation of the animal shed</p> <p>In severe floods, un-tether or let loose the animals</p> <p>Emergency outlet establishment for required medicines or feed in each village</p> <p>Spraying of fly repellants in animal sheds</p>	<p>Repair of animal shed</p> <p>Bring back the animals to the shed</p> <p>Cleaning and disinfection of the shed</p> <p>Bleach (0.1%) drinking water / water sources</p> <p>Deworming with broad spectrum dewormers</p> <p>Vaccination against possible</p>

	Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations		disease out breaks like HS, BQ, FMD and PPR Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit Drying the harvested crop material and proper storage for use as fodder.
Heat & Cold wave	In villages which are chronically prone to heat waves the following permanent measures are suggested i) Plantation of trees like Neem, Pipal, Subabul around the shed ii) Spreading of husk/straw/coconut leaves on the roof of the shed iii) Water sprinklers / foggers in the animal shed iv) Application of white reflector paint on the roof to reduce thermal radiation effect Cold wave : Covering all the wire meshed walls / open area with gunny bags/ polyethylene sheets with a mechanism for lifting during the day time and closing during night	Allow the animals preferably early in the morning or late in the evening for grazing during heat waves Allow for grazing between 10AM to 3PM during cold waves Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves Add 25-50 ml of edible oil in concentrates per kg and fed to the animal during cold waves Put on the foggers / sprinklers during heat waves and heaters during cold waves in case of high productive animals In severe cases, vitamin 'C' (5-10ml per litre) and electrolytes (Electral powder @ 20g per litre) should be added in water during severe heat waves. Apply / sprinkle lime powder (5-10g per square feet) in the animal shed during cold waves to neutralize ammonia accumulation	Feed the animals as per routine schedule Allow the animals for grazing (normal timings)
Health and Disease management	List out the endemic diseases (species wise) in that district and store vaccines for those diseases Timely vaccination (as per enclosed vaccination schedule) against all endemic	Constitution of Rapid Action Veterinary Force Procurement of emergency medicines and medical kits Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any epidemic	Conducting mass animal health camps especially for HS, BQ and FMD Conducting fertility camps Mass deworming camps

	diseases Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district	Rescue of sick and injured animals and their treatment	
Insurance	Encouraging insurance of livestock	Listing out the details of the dead animals	Submission for insurance claim and availing insurance benefit Purchase of new productive animals
Drinking water	Identification of water resources Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)	Restrict wallowing of animals in water bodies/resources	Bleach (0.1%) drinking water / water sources Provide clean drinking water

Vaccination programme for cattle and buffalo:

Disease	Age and season at vaccination
Anthrax	In endemic areas only, Feb to May
Haemorrhagic septicaemia (HS)	May to June
Black quarter (BQ)	May to June
Foot and mouth disease (FMD)	July/August and November/December

Vaccination schedule in small ruminants (Sheep & Goat)

Disease	Season
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Foot and mouth disease (FMD)	Preferably in winter / autumn
Peste des Petits Ruminants (PPR)	Preferably in January
Black quarter (BQ)	May / June
Enterotoxaemia (ET)	May
Haemorrhagic septicaemia (HS)	March / June
Sheep pox (SP)	November

2.5.2 Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice, bajra etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds	Supplementation to all survived birds
Drinking water		Use water sanitizer or offer cool drinking water	
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and fowl pox	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water)	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Floods			
Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place	Use stored feed as supplement Don't allow for scavenging	Routine practices are followed Deworming and vaccination against RD

	Storing of house hold grain like maize, broken rice, bajra etc,	Culling of weak birds	
Drinking water		Use water sanitizers or offer cool drinking water	
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD
Cyclone	NA		
Heat wave and cold wave			
Heat wave			
Shelter/environment management	Provision of proper shelter with good ventilation	In severe cases, foggers/water sprinklers/wetting of hanged gunny bags should be arranged Don't allow for scavenging during mid day	Routine practices are followed
Health and disease management	Deworming and vaccination against RD and fowl pox	Supplementation of house hold grain Provide cool and clean drinking water with electrolytes and vit. C (5-10 ml per litre)	Routine practices are followed

		In hot summer, add anti-stress probiotics in drinking water or feed (Reestobal etc., 10-20ml per litre)	
Cold wave			
Shelter/environment management	Provision of proper shelter Arrangement for brooding Assure supply of continuous electricity	Close all openings with polythene sheets In severe cases, arrange heaters Don't allow for scavenging during early morning and late evening	Routine practices are followed
Health and disease management	Arrangement for protection from chilled air	Supplementation of grains Antibiotics (Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to protect birds from pneumonia	Routine practices are followed

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	Stocking of advanced fingerlings in half or even less than the normal stocking density or stocking of common carp seed	Immediate harvesting or decreasing the density commensurate with the water quantity.	De weeding and deepening of tank to ensure retention of water for a longer period and provision of employment under MGNREGP

(ii) Changes in water quality	Regular monitoring of water quality parameters and application of geolites, soil probiotics, etc to maintain water quality	Immediate harvesting or changing the water quality by application of sanitisers.	Removal of top layer, deep ploughing of tank and application of lime
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Crop holiday or going for stocking of yearlings by reducing the density according to availability of water	Harvesting of fish and leaving the pond fallow till next season	Removal of top layer, deep ploughing of tank and application of lime
(ii) Impact of salt load build up in ponds / change in water quality	Stocking of salinity tolerant fish / shrimp, application of geolites and other buffers	Frequent change of water with fresh water	Frequent draining of the pond with fresh water, removal of top layers
(iii) Any other			
2) Floods			
A. Capture			
Marine	No intervention	No intervention	No intervention
Inland			
(i) Average compensation paid due to loss of human life	Shifting the people from low lying areas to relief camps	Deployment of specially trained persons for rescue operations by providing life bouys, jackets, ropes, boats, etc	Payment sufficient ex-gratia to the families
(ii) No. of boats / nets/damaged	Shifting and relocating boats and nets to safer places when warnings are issued, to avoid fishing, etc	Shifting and relocating boats and nets to safer places	Assessment of damages to boats and nets and provision of boats and nets for restoration of livelihoods
(iii) No.of houses damaged	Avoidance of construction of houses in flood prone areas, construction of pucca houses at elevated places,	Shifting of people by relief boats to the relief camps	Assessment of damages to houses and provision of compensation in case of partial damage and sanction house under existing schemes
(iv) Loss of stock	Avoidance of surface species like catla, silver carp since they are vulnerable in tanks prone to floods, erection of nets across the spill way or just beyond it	Erection of nets at spill ways	Taking up compensatory stocking
(v) Changes in water quality		When dissolved oxygen levels go down, aerators, recirculation of	

		water, etc are to be attempted to maintain DO levels, going for partial harvest, etc	
(vi) Health and diseases	Sometimes there may be heavy accumulation of nutrients and organic matter.	There may be break out of Hemorrhagic septicemia. Addition of antibiotics like Chloro Tetra Cycline or Oxy Tetra Cycline to the feed to control the disease	Removal of weeds, top layer of soil, deep ploughing of tank and application of lime, exposing to sun light
B. Aquaculture			
(i) Inundation with flood water	Raising and rivetting the bunds, construction of spill way to release excess water, erection of nets to avoid escape of fish	Continuous pumping of excess water, erection of nets low lying areas	Strengthening of bunds, excavating channels along the sides of the ponds for free escape of water
(ii) Water continuation and changes in water quality		When dissolved oxygen levels go down, aerators, recirculation of water, etc are to be attempted to maintain DO levels, going for partial harvest, etc	
(iii) Health and diseases	Sometimes there may be heavy accumulation of nutrients and organic matter.	There may be break out of Hemorrhagic septicemia. Addition of antibiotics like Chloro Tetra Cycline or Oxy Tetra Cycline to the feed to control the disease	Removal of weeds, top layer of soil, deep ploughing of tank and application of lime, exposing to sun light
(iv) Loss of stock and inputs (feed, chemicals etc)	Advance erection of nets, strengthening of bunds where they are prone to breaches, harvesting or reducing the density	Suspension of feeding, application of organic manures	Compensatory stocking, assessment of values and payment of subsidy on inputs
(v) Infrastructure damage (pumps, aerators, huts etc)	Insuring pond, accessories, etc., Shifting of aerators, pumps soon after warnings are issued	Relocating pumps, aerators to elevated places	Assessment of damages and provision of them on subsidy
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Inland	Erection of protective nets across the surplus weir to prevent fish loss due	Continuous monitoring to prevent or minimise escape of fish along	Compensatory stocking of seed

	to overflows	with surplus water	
B. Aquaculture			
(i) Overflow / flooding of ponds	The design of the pond must be in such a manner as to bail out surplus water and to prevent loss of standing crop	Continuous monitoring to prevent or minimise escape of fish along with surplus water	Compensatory stocking of seed
(ii) Changes in water quality (fresh water / brackish water ratio)	Recirculation water to replenish and ensure sufficient dissolved oxygen levels in the pond. Maintenance of salinity levels by pumping in water from creeks.	Continuation of the same process.	Restoration of physical and chemical parameters
(iii) Health and diseases	Removal of stress causing factors to maintain the health of the animal	Removal of stress causing factors to maintain the health of the animal	Restoration of physical and chemical parameters
(iv) Loss of stock and inputs (feed, chemicals etc)	Preventive nets must be erected to minimise loss of stock	Continuation of the same process.	Compensatory stocking of seed
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)	Pumps, aerators, etc must be protected by moving them to safe locations	To avoid use of aerators, pumps and other appliances	Overhauling of the equipment to prevent from being damaged
(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Inland	Monitoring dissolved oxygen levels	Monitoring dissolved oxygen levels	No intervention
B. Aquaculture			
(i) Changes in pond environment (water quality)	Reduction of biomass by partial harvest in the event of heat as the DO levels will be very low.	Avoidance of fishing	Compensatory stocking of seed and restoration of all physical and chemical parameters
(ii) Health and Disease management	Removal of stress causing factors to maintain the health of the animal	Removal of stress causing factors to maintain the health of the animal	Compensatory stocking of seed and restoration of all physical and chemical parameters
(iii) Any other			