

State: Uttar Pradesh  
Agriculture Contingency Plan for District: Shamli

1.0 District Agriculture profile					
1.1	Agro-Climatic/ Ecological Zone				
	Agro-Ecological Sub Region(ICAR)		Northern Plain, Hot Subhumib (Dry) Eco-Region (9.1)		
	Agro-Climatic Zone (Planning Commission)		UPPER GANGETIC PLAIN REGION (V)		
	Agro-Climatic Zone (NARP)		UP-2 Mid-western Plain Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)				
	Geographical coordinates of district headquarters		Latitude	Longitude	Altitude
			26.55N	81.12E	
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS				
	Mention the KVK located in the district with address		Swami Kalyan Dav K.V.K. Begra M. Nagar of S.V.P.U.A.T Meerut		
	Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone		S.V.P.U.A.T Meerut		

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)	855.9	47	4th Week of June 2nd Week of Sep	4th Week of June 2nd Week of Sep
	NE monsoon (Oct-Dec)	49.4	12	3rd Week of Dec 2nd Week of Jan	3rd Week of Dec 2nd Week of Jan
	Winter (Jan-March)	42.3	13		
	Summer (Apr-May)	16.5	7		
	Annual	964.0			

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)	307.0	250.9	1.4	40.7	2.4	6.9	10.2	11.5	24.1	15.6

1.4	Major Soils	Area('000 ha)	Percent(%) of total
	Sandy loam soils	115.0	
	Loam soils	95.0	
	Clay loam soils	40.9	
	Silt loam soils	-	

1.5	Agricultural land use	Area('000 ha)	Cropping intensity (%)
	Net sown area	194.1	153.60 %
	Area sown more than once	104.	
	Gross cropped area	298.1	

1.6	Irrigation	Area('000 ha)		
	Net irrigation area	173.4		
	Gross irrigated area	266.1		
	Rain fed area	20.7		
	Sources of irrigation	Number	Area('000 ha)	Percentage of total irrigated area
	Canals		133.7	50.3
	Tanks		0.03	0.01
	Open wells		0	
	Bore wells		132.4	49.7
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources		0	
	Total Irrigated Area		266.138	
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited			
	Critical			
	Semi-critical			
	Safe			
	Waste water availability and use			
	Ground water quality			

\*over-exploited groundwater utilization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%

**1.7 Area under major field crops & (As per latest figures 2013-14)**

1.7	Major field crops cultivated	Area('000 ha)							Summer	Total
		Kharif			Rabi					
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total			
	Wheat	0	0	0	125.8	0.005	125.8	0	125.8	
	Rice	117.9	0.3	118.2	0	0	0	0.002	118.2	
	Pulses	0	5.0	5.0	1.5	12.6	14.1	4.4	23.5	
	Oilseeds	0	4.1	4.1	2.7	0.4	3.1	0.01	7.2	
	Millets	0	4.7	4.7	0	0	0	0	4.7	
	Total	117.9	14.1	132.0	129.9	13.0	142.9	4.5	279.4	

**1.8 Production and productivity of major crops (Average of last 5 years)**

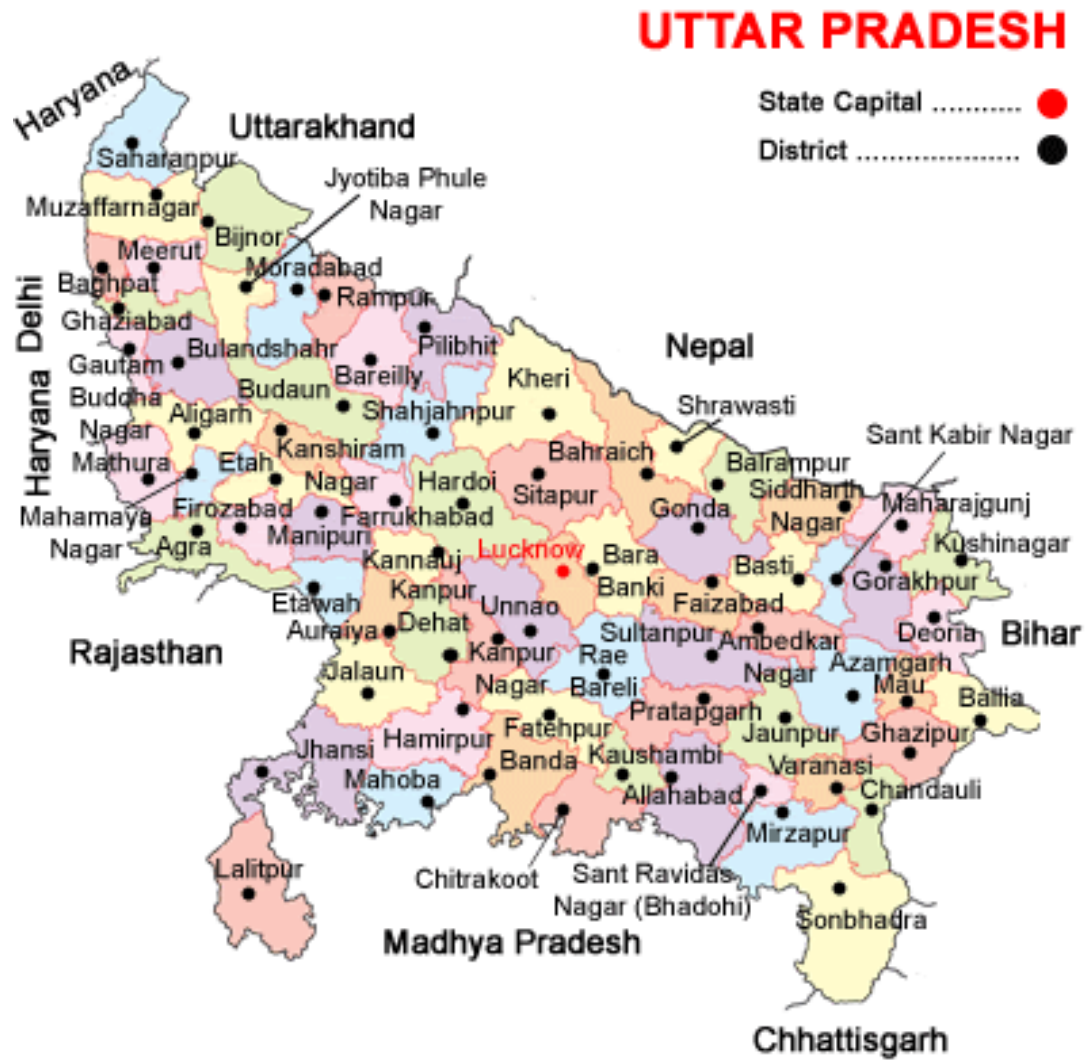
1.8	Major field crops cultivated	Area('000 ha)								
		Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 T)	Productivity (KG/HA)	Production ('000 T)	Productivity (KG/HA)	Production ('000 T)	Productivity (KG/HA)	Production ('000 T)	Productivity (KG/HA)	
	Rice	277.004	2312	0	0	0.002	2500	277.006	2312	-
	Wheat	0	0	364.637	2911	0	0	364.637	2911	-
	Pulses	2.429	489	14.008	1002	2.581	561	19.282	813	-
	Oilseeds	0.117	197	2.345	792	0.026	1418	2.496	697	-
	Millets	2.193	934	0	0	0	0	2.193	934	-
	Foodgrain	283.619	2185	469.240	2525	2.691	576	668.865	2437	-

<b>1.8</b>	<b>Sowing window for 5 major field crops</b>	Rice	Wheat	Maize	Black gram	Green gram
	Kharif –Rainfed	-	-	June	June-July	June-July
	Kharif - Irrigated	June- July	-	June	June-July	June-July
	Rabi –Rainfed	-	Nov-Dec	-	-	-
	Rabi - Irrigated	-	Nov-Dec	-	-	-

<b>1.9</b>	<b>What is the major contingency the district is prone to?</b>	<b>Regular</b>	<b>Occasional</b>	<b>None</b>
	Drought		√	
	Flood			√
	Cyclone			√
	Hail storm			√
	Heat wave		√	
	Cold wave		√	
	Frost		√	
	Sea water intrusion			√
	Sheath Blight, Stemborrer , Pyrilla loos smut, Heliothis, Rust etc white grub.	√		

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

Annexure I  
Location map of Shamli district



## 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 systems	Change in crops/ Cropping systems	Agronomic measures	Remark on implementation
Delay by 2 weeks 4 <sup>th</sup> week of June	-	Bajra, jowar	Bajra- ICTP-8203, JBV-2, Pusa-23 and 86M86 Jowar-CSV-13, SCV-15	Short duration varieties Conservation of soil moisture, Use multi crop planter	-
Delay by 4 weeks 4 <sup>nd</sup> week of July	-	Til, Urd, Moong	Til- Pragti, Shekhar, T-78, Urd- Pant-40, Pant-35, IPM94-1 KU-91 Moong- PDM-139,K-851, Vaibhav	Conservation of soil moisture, Mixed farming, Use multi crop planter	-
Delay by 6 weeks 4 <sup>th</sup> week of July	-	Til, Urd, Moong	Til- Pragti, Shekhar, T-78, Urd- Pant-40, Pant-35, IPM94-1 KU-91 Moong- PDM-139,K-851	Mixed farming, Use multi crop planter	-
Delay by 8 weeks 2nd week of August	-	Toria	Toria- PT-303, PT-507, Bhawani, T-9	Use multi crop planter	-

Condition			Suggested contingency measures		
Early season drought (Normal onset)	Major farming situation	Normal crop/ Cropping systems	Crop management	Soil nutrient & moisture conservation measures	Remark on implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/ op stand	Irrigated upland	Rice, Black gram, Green gram	1-Thining , weeding and gap filing in existing crop. 2- Re sowing 3- Selection/nursery sowing of short duration rice	Inter cultivation, Conservation of soil moisture, Thining weeding Mulching.	-
	Irrigated lowland	Rice jowar, Bajra Pigeon Pea			
	Un Irrigated upland	Til, Urd, Moong, Pigeon pea			
	Un Irrigated lowland	Til, Urd, Moong Pigeon pea			
Mid season drought (Long dry spell consecutive 2 weeks rainless( .2.5mm period)					
At vegetative stage	Irrigated upland	Rice, Black gram, Green gram	1-Thining , weeding and gap filing in	Inter cultivation, Conservation of soil	-

	Irrigated lowland	Rice jowar, Bajra Pigeon Pea	existing crop. 2- Re sowing 3- Selection/nursery sowing of short duration rice	moisture, Thining weeding Mulching.	
	Un Irrigated upland	Til, Urd, Moong, Pioeon pea			
	Un Irrigated lowland	Til, Urd, Moong Pioeon pea			
At flowering / fruiting stage	Irrigated upland	Rice, Black gram, Green gram	1-Thining , weeding and in existing crop. 2- Life saving irrigation.	Thining weeding Mulching. Urea spray Conservation of soil moisture	-
	Irrigated lowland	Rice jowar, Bajra Pigeon Pea			
	Un Irrigated upland	Til, Urd, Moong, Pioeon pea			
	Un Irrigated lowland	Til, Urd, Moong Pioeon pea			
		<b>Normal crop/ Cropping systems</b>	<b>Crop management</b>	<b>Rabi Crop planning</b>	<b>Remark on implementation</b>
Thermal drought (Early withdrawal of monsoon)	Irrigated upland	Rice, Black gram, Green gram	Life saving irrigation, Picking/ harvesting of pods/ear, Harvest at physiological maturity stage,	Toriamustard, Pea,	-
	Irrigated lowland	Rice jowar, Bajra Pigeon Pea			
	Un Irrigated upland	Til, Urd, Moong, Pioeon pea			
	Un Irrigated lowland	Til, Urd, Moong Pioeon pea			

### 2.1.2 Drought –Irrigated situation

Condition			Suggested contingency measures		
Early season drought (delayed onset)	Major farming situation	Normal crop/ Cropping systems	Change in crops/ Cropping systems	Agronomic measures	Remark on implementation
Delayed release of water in canals due to low rainfall	Upland soils	Rice-Wheat	Short duration Rice Varieties-Wheat	Light irrigation with tube well water, Follow alternate wetting and drying schedule of irrigation in rice, Alternate Furrow irrigation,	Adequate supply of electricity/ diesel should be ensured by Govt. Agencies. Use solar power Irrigation .
		Jowar/Bajra - Pea	No change		
		Black gram/green gram-	No change		
	Lowland soils	Rice-Wheat	Short duration Rice Varieties-Wheat		

		Kharif pulses-Wheat	No change	alternate wetting and drying schedule of irrigation in rice, Alternate Furrow irrigation,	
		Kharif pulses- Rabi Pulses	No change		
Limited release of water in canals due to low rainfall	Upland soils	Rice-Wheat	Short duration Rice Varieties-Wheat	Light irrigation with tube well water, Follow alternate wetting and drying schedule of irrigation in rice, Alternate Furrow irrigation,	Adequate supply of electricity/ diesel should be ensured by Govt. Agencies. Use solar power Irrigation .
		Kharif pulses-Wheat	No change		
		Kharif pulses- Rabi Pulses	No change		
	Lowland soils	Rice-Wheat	Short duration Rice Varieties-Wheat		
		Kharif pulses-Wheat	No change		
		Kharif pulses- Rabi Pulses	No change		
Non release of water in canals under delayed onset of monsoon in catchment	Upland tube well irrigated canal Sandy Loam soils	Rice	Replace rice with Jowar/Bajra	-	-
		Jowar/Bajra	No change	-	-
		Urd/Moong/Pigeon Pea-Wheat	No change	-	-
	Lowland tube well irrigated canal clay loam soils	Rice	Bajra/Blackgram/Greengram	-	-
		Jowar/Bajra	No change	-	-
		Urd/Moong/Pigeon Pea-Wheat	No change	-	-



## 2.2 Unusual rains –(Untimely, unseasonal etc)

Condition			Suggested contingency measures	
<b>Continuous high rainfall in a short span leading to water logging</b>	<b>Vegetative stage</b>	<b>Flowering stage</b>	<b>Crop maturity stage</b>	<b>Post harvest</b>
Til /Black gram/ Green gram/Pigeon Pea	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Shift to safer place& dispose of produce as early as possible
Black gram/ Green gram/	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Safe storage against storage pest and disease
Condition			Suggested contingency measures	
<b>Heavy rainfall with high speed winds in a short span</b>	<b>Vegetative stage</b>	<b>Flowering stage</b>	<b>Crop maturity stage</b>	<b>Post harvest</b>
Til /Black gram/ Green gram/Pigeon Pea	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Shift to safer place& dispose of produce as early as possible
Black gram/ Green gram/	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Safe storage against storage pest and disease
Rice Basmati	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Safe storage against storage pest and disease
Pigeon pea	Provide drainage, Sowing on raised bed	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Safe storage against storage pest and disease
Condition			Suggested contingency measures	
<b>Outbreak of pests and diseases due to unseasonal rains</b>	<b>Vegetative stage</b>	<b>Flowering stage</b>	<b>Crop maturity stage</b>	<b>Post harvest</b>
Rice Basmati	Need based plant protection IPDM for Rice/ Pulses	Need based plant protection IPDM for Rice/ Pulses	Do not use strong pesticides at maturity stage	Shift to safer place & dispose of produce as early as possible
Pigeon pea				
Black gram/ Green gram/				

## 2.3 Floods

Condition	Suggested contingency measures			
<b>Transient water logging/ partial inundation</b>	<b>Seedling/Nursery stage</b>	<b>Vegetative stage</b>	<b>Reproductive stage</b>	<b>At harvest</b>
Rice (Basmati)	• Re sowing of nursery	Provide drainage	Provide drainage	Shift to safer place & dispose of

	<ul style="list-style-type: none"> <li>• Direct sowing of rice</li> <li>• Sowing of nursery on raised bed</li> </ul>			produce as early as possible
Black gram/ Green gram/	<b>Direct sowing</b>	Provide drainage	Provide drainage	Shift to safer place & dispose of produce as early as possible
Pigeon pea	<b>Direct sowing</b>	Provide drainage	Provide drainage	Shift to safer place & dispose of produce as early as possible
Sorghum	<b>Direct sowing</b>	Provide drainage	Provide drainage	Shift to safer place & dispose of produce as early as possible

## 2.5 Contingent strategies for Livestock, Poultry & Fisheries

### 2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
<b>Drought</b>			
Feed and fodder availability	<ul style="list-style-type: none"> <li>• Fodder crop Insurance</li> <li>• Making of feed blocks</li> <li>• Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland</li> <li>• Establishing fodder banks, encouraging fodder crops in irrigated area</li> <li>• Making silage or hay of excess fodder.</li> <li>• Statistics regarding feed/fodder availability and requirement should be updated by the concerned deptt.</li> <li>• Seed production and development of drought resistant crops and their varieties of fodder crops.</li> <li>• Encourage farmers to adopt sprinkler irrigation system.</li> <li>• Training to the farmers and extension functionaries</li> </ul>	<ul style="list-style-type: none"> <li>• Utilizing fodder from perennial trees/shrubs/fodder bank reserves for small ruminant.</li> <li>• Utilizing stored fodder as silage, hay, feed blocks &amp; mixture etc.</li> <li>• Migration of herd /flock to other places.</li> <li>• Establishment of communication and linkage with other state agencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Availing crop insurance</li> <li>• Cultivation of fast growing green fodder crops.</li> <li>• Development of drought resistance fodder.</li> <li>• Increase the no. of Fodder Banks for future use.</li> </ul>

	for production and long term storage of feed and fodder.		
Drinking water	<ul style="list-style-type: none"> <li>• Preserving water in the pond/tank for drinking purpose.</li> <li>• Excavation of bore well/creation of tanks or ponds.</li> <li>• De-silting of village ponds on regular basis and adopt water harvesting techniques through water shed approach.</li> <li>• Filling of the ponds with canal/tube well water during lean period.</li> </ul>	<ul style="list-style-type: none"> <li>• Using preserved water in the tanks for drinking</li> <li>• Available ground water should be used for drinking on priority basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Recharge of well/ Tanks etc.</li> </ul>
Health and disease management	<ul style="list-style-type: none"> <li>• Farmers should be encouraged to avail Livestock insurance</li> <li>• Training to livestock owners regarding natural calamities.</li> <li>• Veterinary preparedness with medicines and vaccines.</li> <li>• Vaccination</li> </ul>	<ul style="list-style-type: none"> <li>• Conduction mass animal health camp and treating the effected animals.</li> <li>• Mass campaigning though different media regarding possible outbreak of diseases and their management.</li> </ul>	<ul style="list-style-type: none"> <li>• Availing insurance benefits.</li> <li>• Followed standard Livestock management practices.</li> <li>• Proper health care &amp; treatment.</li> </ul>
<b>Floods</b>			

Feed and fodder availability	<ul style="list-style-type: none"> <li>• Fodder crop Insurance</li> <li>• Making of feed blocks</li> <li>• Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland</li> <li>• Establishing fodder banks, encouraging fodder crops.</li> <li>• Making silage or hay of excess fodder and that should be stored on up land.</li> <li>• Statistics regarding feed/fodder availability and requirement should be updated by the concerned deptt.</li> <li>• Seed production and development of crops and their varieties of fodder crops for water logged conditions.</li> <li>• Training to the farmers and extension functionaries for production and long term storage of feed and fodder.</li> </ul>	<ul style="list-style-type: none"> <li>• Utilizing fodder from perennial tress/shrubs/fodder bank reserves.</li> <li>• Use of feed mixture/block hay etc</li> <li>• Migration of flock /herds</li> <li>• Establishment of communication and linkage with other state agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Availing crop insurance</li> <li>• Cultivation of fast growing green fodder crops</li> </ul>
Drinking water	<ul style="list-style-type: none"> <li>• Making suitable provision for safe drinking surface water including excavation of bore well/hand pump (India mark—II) at community level.</li> <li>• Make farmers aware not to use contaminated/ flood water for drinking purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated flood water should not be used for drinking.</li> </ul>	<ul style="list-style-type: none"> <li>• Open sources of drinking water (tank/well ) should be further treated with potassium per magnate.</li> </ul>
Health and disease management	<ul style="list-style-type: none"> <li>• Live stock Insurance</li> <li>• Training to livestock owners regarding natural calamities.</li> <li>• Veterinary preparedness with medicines and vaccines.</li> <li>• Vaccination</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Conduction mass animal health camp and treating the effected animals.</li> <li>• Training to livestock owners regarding natural calamities.</li> <li>• Establishment of Co-ordination with other Agencies.</li> <li>• Use of mass media to spread expat advice</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Culling sick animals</li> <li>• Availing insurance benefits.</li> <li>• Culling unproductive livestock</li> <li>• Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases.</li> </ul>
<b>Cyclone</b>	<b>N.A</b>	<b>N.A</b>	<b>N.A</b>

<b>N.A</b>			
<b>Heat wave and cold wave</b>			
Shelter/environment management	<ul style="list-style-type: none"> <li>• Avoid use of GI sheet for roofing in the animal shed</li> <li>• Create adequate sources for additional supply of water to protect the animals from heat waves.</li> <li>• Establishment of modern shelter sheds.</li> <li>• As far as possible grow shade trees such as Neem, Pilkhan, Karanj etc near the animal sheds.</li> <li>• Make provision for adequate no. of fans/coolers /heaters according to the situation, if possible</li> </ul>	<ul style="list-style-type: none"> <li>• Provide the thatches/ tarpaulins/ rags in the animal sheds to protect against direct entry of hot/ cold waves</li> <li>• Provide proper bedding to prevent from cold and proper ventilation to prevent from heat.</li> <li>• Provide drinking water to animal frequently during heat wave</li> <li>• Watch the forecast of weather department.</li> <li>• As for as possible the animal should be allowed to wallow in pounds/ canals/ river or give bath once or twice in a day during heat waves</li> </ul>	<ul style="list-style-type: none"> <li>• Repair and maintenance of additional facilities</li> </ul>
Health and disease management	<ul style="list-style-type: none"> <li>• Insure the animals</li> <li>• Training to livestock owners/ para-vets regarding preventive measure against extreme weather conditions</li> <li>• Veterinary preparedness with medicines and vaccines etc.</li> <li>• Vaccination against FMD &amp; Cold</li> </ul>	<ul style="list-style-type: none"> <li>• Organize village level animal health camps</li> <li>• Consult veterinary officer immediately if any adverse symptoms are noticed</li> <li>• Use of ITKs for food supplements</li> </ul>	<ul style="list-style-type: none"> <li>• Proper after care of animals.</li> <li>• Availing insurance benefits.</li> <li>• Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases.</li> </ul>

## 2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event <sup>a</sup>	During the event	After the event	
<b>Drought</b>				
Shortage of feed ingredients	<ul style="list-style-type: none"> <li>• Making and storage of feed concentrates</li> <li>• Awareness regarding traditional feed banks.</li> <li>• Feed requirement data should be generated</li> <li>• Prepare the feed requirement data base of poultry farm.</li> <li>• Store the feed ingredients</li> </ul>	<ul style="list-style-type: none"> <li>• Use of feed concentrates/ mixture/blocks etc</li> <li>• Establishment of communication with other state agencies.</li> <li>• Use of locally available feed recourses.</li> <li>• Import the feed recourse form other states.</li> </ul>	<ul style="list-style-type: none"> <li>• Availing insurance</li> <li>• Increase the no. of feed banks for future use</li> </ul>	
Drinking water	<ul style="list-style-type: none"> <li>• Making extra facility for drinking water.</li> <li>• Repair &amp; maintenance of water resources</li> </ul>	<ul style="list-style-type: none"> <li>• Frequent supply of drinking water</li> </ul>		
Health and disease management	<ul style="list-style-type: none"> <li>• Veterinary preparedness with medicines and vaccines.</li> <li>• Vaccination</li> <li>• Training to poultry Growers regarding natural calamities.</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment of affected poultry birds</li> </ul>	<ul style="list-style-type: none"> <li>• Culling of flock</li> <li>• Availing insurance benefits</li> <li>• Proper disposal of corpse of dead bodies to prevent the pared of contagious diseases</li> </ul>	
<b>Floods</b>				
Shortage of feed ingredients	<ul style="list-style-type: none"> <li>• Sufficient quantity of feed ingredients should be stored</li> </ul>	<ul style="list-style-type: none"> <li>• Use of stored feed in balanced form</li> <li>• Prevent the feed from moisture.</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaning of feed store &amp; repair if any.</li> <li>• Moist feed should be dried</li> </ul>	

			&treated as per requirement	
Drinking water	<ul style="list-style-type: none"> <li>• Make provision of ground water for drinking</li> </ul>	<ul style="list-style-type: none"> <li>• Use only Ground water obtained from India Mrka II or Tubewell</li> </ul>	<ul style="list-style-type: none"> <li>•Repair, maintenance and cleaning of water recourse</li> <li>•Sanitation of open Wells</li> </ul>	
Health and disease management	<ul style="list-style-type: none"> <li>• Veterinary preparedness with medicines and vaccines</li> <li>• Vaccination</li> </ul>	<ul style="list-style-type: none"> <li>• Migration of flock if required</li> <li>• Treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Availing insurance benefits.</li> <li>• Culling of unproductive flock</li> </ul>	
<b>Cyclone</b>	NA	NA	NA	
Shortage of feed ingredients	<ul style="list-style-type: none"> <li>• Storage and making of feed concentrates</li> <li>• Proper feed requirement data base</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of communication with other state agencies</li> <li>• Use of stored feed ingredient</li> <li>• Import of feed from other areas</li> </ul>	<ul style="list-style-type: none"> <li>• Repair and maintenance of feed store</li> </ul>	
Drinking water	<ul style="list-style-type: none"> <li>• Make provision of ground water for drinking</li> </ul>	<ul style="list-style-type: none"> <li>• Use only Ground water obtained from India Mrka II or Tubewell</li> </ul>	<ul style="list-style-type: none"> <li>• Repair and maintenance of water recourse</li> </ul>	
Health and disease management	<ul style="list-style-type: none"> <li>• Training to poultry growers regarding natural calamities.</li> <li>• Veterinary preparedness with medicines and vaccines.</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment of injured poultry birds.</li> </ul>	<ul style="list-style-type: none"> <li>• Culling of flock</li> <li>• Availing insurance benefits.</li> <li>• Proper disposal of corpse of dead bodies to prevent the pared of contagious diseases.</li> </ul>	
<b>Heat wave and cold wave</b>				
Shelter/environment management	<ul style="list-style-type: none"> <li>• Making sufficient provision of shelter to protect live stock from heat and cold waves</li> <li>• Establishment of alternate resource for water supply.</li> <li>• Modern shelter sheds.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep the birds in appropriate shelter</li> <li>• Provide proper bedding to prevent from cold and proper ventilated to prevent from heat</li> <li>• Provide drinking water to birds frequently.</li> </ul>	<ul style="list-style-type: none"> <li>• Making of modern shelter sheds</li> <li>• Increase the plantation of trees</li> </ul>	

		<ul style="list-style-type: none"> <li>• Adopted proper management practices.</li> <li>• Watch the fore cast of weather department.</li> </ul>		
Health and disease management	<ul style="list-style-type: none"> <li>• Insurance</li> <li>• Veterinary preparedness with medicines and vaccines</li> <li>• Training to poultry growers regarding natural calamities</li> </ul>	<ul style="list-style-type: none"> <li>• Provide proper treatment as per requirement</li> <li>• Treatment of injured poultry</li> </ul>	<ul style="list-style-type: none"> <li>• Availing insurance benefits</li> <li>• Culling of unproductive flock</li> <li>• Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases</li> </ul>	•

### 2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
<b>1) Drought</b>			
<b>A. Capture</b>			
(i) Shallow water depth due to insufficient rains/inflow	<ul style="list-style-type: none"> <li>• Adopt appropriate measures to reduce water seepage or infiltration</li> </ul>	<ul style="list-style-type: none"> <li>• Harvest the crop partially</li> </ul>	<ul style="list-style-type: none"> <li>• Re stock</li> </ul>
(ii) Changes in water quality	<ul style="list-style-type: none"> <li>• Regular observation to check the water quality and remove the pollutants if any.</li> </ul>	<ul style="list-style-type: none"> <li>• Add oxy-flow to improve oxygen</li> <li>• Churning of pond water</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water if possible</li> <li>• Check the water quality and remove the pollutants if any.</li> </ul>
(iii) Any other	–	–	–
<b>B. Aquaculture</b>			
(i) Shallow water in ponds due to insufficient rains/inflow	<ul style="list-style-type: none"> <li>• Adopt appropriate measures to reduce water seepage or infiltration from ponds</li> <li>• Avoid any kinds of water pollution and maintain water pH</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the Oxygen availability into ponds for the survival of fish</li> <li>• Avoid any kind of water pollution</li> <li>• Add oxy-flow to improve oxygen into ponds.</li> <li>• Churning of pond water</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds</li> <li>• Check the water quality and remove the pollutants if any.</li> </ul>
(ii) Impact of salt load build up in ponds /	<ul style="list-style-type: none"> <li>• Add some fresh water from other source</li> </ul>	<ul style="list-style-type: none"> <li>• Add oxy-flow to improve oxygen</li> </ul>	<ul style="list-style-type: none"> <li>• Add fresh water into pond for</li> </ul>



change in water quality	like cannel etc	into ponds. <ul style="list-style-type: none"> <li>• Churning of pond water</li> <li>• Add fresh water into pond for life saving and to reduce salt load</li> </ul>	life saving and to reduce salt load <ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds</li> <li>• Check the water quality and remove the pollutants if any.</li> </ul>
(iii) Any other	--	--	--
<b>2) Floods</b>			
<b>A. Capture</b>			
(i) No. of boats / nets/damaged	<ul style="list-style-type: none"> <li>• Boats, nets etc should be taken out from water bodies</li> </ul>	<ul style="list-style-type: none"> <li>• Close supervision of flood condition</li> </ul>	<ul style="list-style-type: none"> <li>• Damaged boat or nets should be repaired</li> </ul>
(ii) No. of houses damaged	--	--	<ul style="list-style-type: none"> <li>• Repair the damaged house.</li> </ul>
(iii) Loss of stock	--	--	<ul style="list-style-type: none"> <li>• Sanitation and proper disposal of corpse</li> </ul>
(iv) Changes in water quality	<ul style="list-style-type: none"> <li>• Increase the hight of bunds.</li> </ul>	--	--
(v) Health and diseases	--	<ul style="list-style-type: none"> <li>• Treatment if possible</li> </ul>	--
<b>B. Aquaculture</b>			
(i) Inundation with flood water	<ul style="list-style-type: none"> <li>• Repair the bunds to prevent the inflow of water</li> <li>• If inflow water is not polluted then place the net at inlet and outlet</li> <li>• Raise the height of bunds</li> <li>• Plan a proper drainage system at farm</li> <li>• Plantation of soil binding plants at bund</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid inflow of flood water from outside.</li> <li>• If inflow water is not polluted that can be permitted to flow through net placed at inlet and outlet of pond.</li> <li>• Fencing of net required in case of overflow to avoid the migration of fish</li> </ul>	<ul style="list-style-type: none"> <li>• Repair the damaged bunds</li> <li>• Check water quality</li> <li>• Change the water if it is polluted</li> </ul>
(ii) Water contamination and changes in water quality	<ul style="list-style-type: none"> <li>• Limeing @300 kg/ha</li> </ul>	<ul style="list-style-type: none"> <li>• Stop inflow of contaminated water</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds</li> <li>• Check the water quality and remove the pollutants if any.</li> </ul>
(iii) Health and diseases	<ul style="list-style-type: none"> <li>• Limeing @300 kg/ha</li> </ul>	<ul style="list-style-type: none"> <li>• Diagnostic measures and provide appropriate medicines</li> </ul>	<ul style="list-style-type: none"> <li>• Limeing and medication as per requirement</li> </ul>

	<ul style="list-style-type: none"> <li>• Vaccination</li> </ul>		<ul style="list-style-type: none"> <li>• Use Cifex to control ulcerative syndromes</li> </ul>
(iv) Loss of stock and inputs (feed, chemicals etc)	<ul style="list-style-type: none"> <li>• Marketable stock should be sold</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately remove the dead fishes from ponds and do sanitation</li> </ul>	<ul style="list-style-type: none"> <li>• After sanitation add new stock</li> </ul>
(v) Infrastructure damage (pumps, aerators, huts etc)	<ul style="list-style-type: none"> <li>• Damageable infrastructures should be secured</li> </ul>	<ul style="list-style-type: none"> <li>• Do not supplié Electric in flood éd area</li> </ul>	<ul style="list-style-type: none"> <li>• Repaire and service the damage infrastructure</li> </ul>
(vi) Any other			
<b>3. Cyclone / Tsunami</b>	NA	NA	NA
<b>4. Heat wave and cold wave</b>			
<b>A. Capture</b>			
<b>B. Aquaculture</b>			
(i)Changes in pond environment (water quality)	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds</li> <li>• Check the water quality and remove the pollutants if any</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds</li> <li>• Check the water quality and remove the pollutants if any</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain appropriate level of water in ponds <i>i.e.</i> 1.75m in 2m deep ponds</li> <li>• Check the water quality and remove the pollutants if any</li> </ul>
i) Health and Disease management	<ul style="list-style-type: none"> <li>• Limeing@300kg/ha</li> </ul>	<ul style="list-style-type: none"> <li>• Medication as per requirement</li> </ul>	<ul style="list-style-type: none"> <li>• Remove the dead fishes from ponds and add new stocks to compensate</li> <li>• the production</li> </ul>