State: Uttar Pradesh

Agriculture Contingency Plan for District: Shahjahanpur

1.0 District Agriculture profile

1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Northern Plain, Hot Subhumib (Dry) Eco-Region (9.2)		
	Agro-Climatic Zone (Planning Commission)	Upper Gangetic plain zone (V)		
	Agro Climatic Zone (NARP)	Mid Western Plain zone (UP-4)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Pilibhit, Badaun, Jyotibaphule Nagar, Bareilly, Rampur, Bijnor , Muradabad		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		27^0 52' 45.590"N	79^0 55' 11.574"E	144mt
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS			
	Mention the KVK located in the district with address	K.V.K, Puvaya Road Niyamat pur Shahajan pur 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	IVRI Bareilly, State Sugarcane Institute Shahjan pur		

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):	890.8	65	2nd week of June	3rd week of Sept
	NE Monsoon(Oct-Dec):	52.8	13	3rd week of Dec	2nd week of Jan
	Winter (Jan- March)	89.6	20	-	-
	Summer (Apr-May)	25.3	7	-	-

	Annual	1058.4	105	-	-

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)	437.477	349.958	10.499	40.270	0.971	3.798	3.916	6.988	14.009	7.068

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total**
	Sandy loam soils	100.02	28.58
	Loam soils	121.61	34.75
	Clay loam soils	85.62	24.35
	Silt loam soils	39.62	11.32

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	349.958	175.04%
	Area sown more than once	262.600	
	Gross cropped area	61.258	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	331.095		
	Gross irrigated area	554.934		
	Rainfed area	18.863		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		10.845	3.27
	Tanks		0.373	0.11
	Open wells		1.167	0.352
	Bore wells		318.710	96.259
	Lift irrigation schemes	NIL		-
	Micro-irrigation			-
	Other sources (please specify)		-	-
	Total Irrigated Area			
	Pump sets			
	No. of Tractors			

	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils Block15	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	-	-	Not reported
	Critical	2	-	do
	Semi- critical	8	-	do
	Safe	5	-	do
	Wastewater availability and use	-	-	do
	Ground water quality			
*over-exploited: groundwater uSesameization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year _2008-09__ eg., 2008-09)

1.7	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Summer	Grand total
	Rice	162.992	-	162.992	-	-	-	-	162.992
	Wheat	-	-	-	253.928	-	253.928	-	253.928
	Sugarcane	-	-	-	49.860	-	49.860	-	49.860
	Pigeon pea	-	22.675	22.675	-	-	-	-	22.675
	Blackgram	-	9.267	9.267	-	-	-	-	9.267
	Sesame	-	7.028	7.208	-	-	-	-	7.208
	Groundnut	-	6.619	6.619	-	-	-	-	6.619
	Sorghum	-	2.691	2.691	-	-	-	-	2.691
	Pearl millet	-	4.722	4.722	-	-	-	-	4.722
	Maize	-	1.507	1.507	-	-	-	-	1.507
	Barley	-	-	-	-	3.295	3.295	-	3.295
	Mustard	-	-	-	-	14.219	14.219	-	14.219
	Toria	-	-	-	23.994	-	23.994	-	23.994
	Chickpea	-	-	-	-	2.384	2.384	-	2.384
	LenSesame	-	-	-	-	26.393	26.393	-	26.393

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	6.063	3.940	2.122
	Guava	3.569	2.319	1.249
	Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
	Potato	6.423	**6.423**	-

	Pea	0.925	**0.925**	-
	Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	Mentha	14.582	**14.582**	-
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
	Poplar	12.567	12.567	-
	Eucliptus	6.325	-	6.325
	Eg., industrial pulpwood crops etc.			
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
	Sorghum	32.675	-	32.675
	Pearl millet	28.547	-	28.547
	Berseem	6.452	6.452	-
	Total fodder crop area	**67.674**	**6.452**	**61.222**
	Grazing land	-	-	-
	Sericulture etc	-	-	-
	Others (specify)	-	-	-

1.8	**Livestock**	**Male (‘000)**	**Female (‘000)**	**Total (‘000)**
	Non descriptive Cattle (local low yielding)	101.003	233.849	334.852
	Improved cattle	NA	NA	NA
	Crossbred cattle	2.311	5.353	7.664
	Non descriptive Buffaloes (local low yielding)	87.767	232.205	319.972
	Descript Buffaloes	37.614	99.516	137.131
	Goat	66.584	107.931	174.515
	Sheep Indi + Exotic	(1.361+.036) 1.397	(1.685+.086) 1.771	3.168
	Others (Camel, Pig, Yak etc.)			766.961
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds (‘000)**	
	Commercial	0	0	
	Backyard		(29.042+32.091=61133) 61.133	
1.10	**Fisheries** (Data source: Chief Planning Officer)			
	A. Capture			

i) Marine (Data Source:	**No. of fishermen**	**Boats**	**Nets**	**Storage**

Fisheries Department)		Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	**facilities (Ice plants etc.)**
	-	-	-	-	-	-

ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**	**No. of Reservoirs**	**No. of village tanks**

B. Culture			
	Water Spread Area (ha)	**Yield (t/ha)**	**Production ('000 tons)**
i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	-	-	-
ii) **Fresh water** (Data Source: Fisheries Department)			
Others	-	-	-

1.11 Production and Productivity of major crops (Average of last 5 years: 2008-09)

1.11	Name of crop	**Kharif**		**Rabi**		**Summer**		**Total**		**Crop residue as fodder** ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Rice	425.246	2609	-	-	-	-	425.246	2609	548.25
	Wheat	-	-	915.410	3605	-	-	915.410	3605	1116.300
	Sugarcane	-	-	2960.487	59376	-	-	2960.487	59376	444.444
	Sesame	0.533	74	-	-	-	-	0.533	74	-
	Sorghum	2.228	828	-	-	-	-	2.228	828	2.778
	Pearl millet	6.181	1309	-	-	-	-	6.181	1309	8.653
	Maize	2.863	1900	-	-	-	-	2.863	1900	3.644

	Blackgram	3.623	391	-	-	-	-	3.623	391	4.347
	Groundnut	6.222	940	-	-	-	-	6.222	940	8.088
	Pigeon pea	23.582	1040	-	-	-	-	23.582	1040	-
	Barley	-	-	9.004	2733	-	-	9.004	2733	11.705
	Mustard	-	-	9.994	703	-	-	9.994	703	-
	Toria	-	-	22.024	918	-	-	22.024	918	-
	Chickpea	-	-	2.372	995	-	-	2.372	995	2.844
	Lentil	-	-	22.540	854	-	-	22.540	854	32.683

Major Horticultural crops (Crops to be identified based on total acreage)										
	Potato	-	-	212.171	33033	-	-	212.171	33033	-
	Pea	-	-	14.485	15660	-	-	14.485	15660	-
	Mango	-	-	-	-	-	-	116.780	1926	-
	Guava	-	-	-	-	-	-	29.478	820	-

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Rice**	**Wheat, Barley**	**Sugarcane**	**Sorghum /Pearl millet/Maize/ Sesame/Blackgram/ Pigeonpea**	**Mustard, Chickpea**	**Toria**	**Ground Nut**
	Kharif- Rainfed	-	-	-	July-Aug	Oct	-	July
	Kharif-Irrigated	June-July	-	Oct	June-July	Nov	-	-
	Rabi- Rainfed	-	Nov	-	-	-	Sep-Oct	June-July
	Rabi-Irrigated	-	Nov-Dec	March-April	-	-	Oct	-

1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought		√	

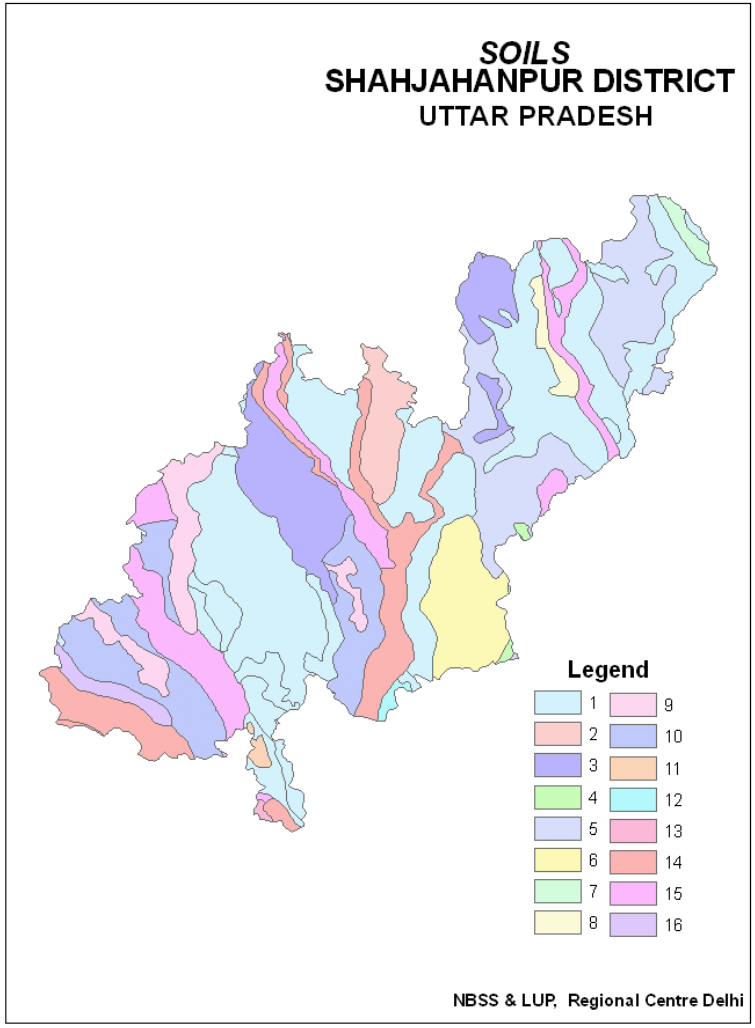
	Flood	x	√	x
	Cyclone	x	x	√
	Hail storm	x	√	x
	Heat wave	x	√	x
	Cold wave	x	√	x
	Frost		√	x
	Sea water intrusion	x	x	√
	Pests and disease outbreak (specify) stem borer, sheath blight, heleothis Rust ,wilt, late blight, Pyrilla etc.	√	x	x
	Others (specify) Fog	x	x	x

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

Annexure I


SHAHJAHANPUR
District Map
N
Pilibhit
Bareilly
Budaun
Hardoi
Farrukhabad
Lakhimpur Kheri
NH - 24
Sehramau
Deukali
Mohanpur
Banda
Khutar
Nahil
Khudaganj
Nigohi
Baragaon
Pawayan
Miranpur Katra
Jaitipur
Tilhar
Sindhauli
Shahwaznagar
Banthra
Madnapur
Shahganj
SHAHJAHANPUR
Kundaria
Rosa
Khandhar
Chandapur
Jalalabad
Rafiabad
Mirzapur
Allahganj
Ganga
Ramganga
www.mapsofindia.com
Map not to Scale
Copyright © 2007 Compare Infobase Limited
LEGEND
District Boundary
National Highway
Major Road
Railway
District Headquarter
Other Town
River

Annexure III



Legend	Description
1	Deep, loamy soils.
2	Deep, loamy soils and silty soils .
3	Deep, fine soils and loamy soils .
4	Deep, loamy soils and loamy soils (moderate salinity and sodicity anmoderate water logging).
5	Deep, silty soils and loamy soils
6	Deep, loamy soils and silty soils (slightly saline/sodic and moderately sodic).
7	Deep, silty soils.
8	Deep, silty soils and fine soils .
9	Deep, loamy soils(moderate water logging and slight salinity) and fine soils (slightly water logging)
10	Deep, stratified loamy soils (severe flooding) and loamy soils (severe flooding)
11	Deep, loamy soils (moderate water logging) and sandy soils (moderate water logging)
12	Deep, silty soils (moderately saline and sodic) and loam soils
13	Deep, stratified loamy soils (moderately flooding) .
14	Deep, sandy soils (moderate flooding) and loamy soils (slight flooding)
15	Deep,loamy soils (moderate flooding) and sandy soils (moderate flooding) .

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 including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks 4th week of June	**Deep soil, yellow colored alluvial loam soils**	**Maize/ Sorghum/ Pearl millet/ Pigeonpea**	**Maize:** Kanchan, Navin Navjyoti, Azad utam, Surya,Meerut pili,Ganga 2,11 Samrat etc **Sorghum:** CSH 14, 16, CSB 13, 15, SPB 1338 etc **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 ICMH-451 etc. **Pigeonpea:** UPAS 120, ICPL 151,Pusa 33 etc.	• Conservation furrow • Inter-cultivation • Sowing with multi seed drill • Wider spacing for pigeonpea	• Seed-drill under RKVY • Supply of seed through govt. agencies *ie*. NFSM,RKVY • Re-scheduling of canal calendar
Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks (Specify month) 2nd week of July	**Deep soil, yellow colored alluvial loam soils**	**Maize/ Pearl millet/ Sesame/ Blackgram**	**Maize:** Kanchan, Navin Navjyoti, Azad utam,Surya,Meerut pili,Ganga 2,11 Samrat etc **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451 **Sesame:** Pergati, shekar, TA-78, TA-12 **Blackgram:** Narender Blackgram-1, Pant U-30, 19, 35 etc	• Conservation furrow • Inter-cultivation • Sowing with multi seed drill	Seed-drill under RKVY Supply of seed through govt. agencies *ie*. NFSM
Condition			**Suggested Contingency measures**		

Early season drought	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks 4th week of July	**Deep soil, yellow colored alluvial loam soils**	**Blackgram/ Greengram Toria/ Pearl millet**	**Blackgram:** Narender Blackgram-1, Pant U-30, 19, 35**: Greengram** : Pantmung - 2, 3, Narender Greengram -1, 4, SML-668, PDM-11 **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451	• Sowing with multi seed drill	Re-scheduling of canal calendar

Condition			Suggested Contingency measures		
Early season drought	**Major Farming situation**		**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks 2nd week of August	**Deep soil, yellow colored alluvial loam soils**	**Toria**	**Toria:** P.T.-30, 507, 303, Bhawani, T-9	• Conservation furrow • Inter-cultivation • Sowing with multi seed drill	• Seed-drill under RKVY Supply of seed through govt. agencies *ie*. NFSM

Condition			Suggested Contingency measures		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Irrigated upland	**Rice:** PS 4, 5, PB 1, PRH 10 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284/ **Sorghum(Fodder):** Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 / **Ground nut /** **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451 / **Blackgram:** T 9, PU 19,30,35 / **Maize:** Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili parbhani krant i/ **Sorghum:** CSH 14, 16, CSB 13, 15, SPB 1338 etc / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati /	1. Thining, weeding and gap filling in existing crop. 2. Re sowing 3. Selection/nursery sowing of short duration rice cultivar	• Inter cultivation • Conservation furrow • Thinning and weeding • Mulching	• Supply of inter cultural implements through RKVY • Farm ponds through IWSM programme • Pulse crop seeds supply through NFSM

	Irrigated lowland	**Rice:** PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284			
	Un irrigated upland	**Pearl millet :** Local Merut pili / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati / **Pigeonpea:** UPAS 120, ICPL 151			
	Un irrigated lowland	**Pigeonpea:** UPAS 120, ICPL 151 / **Pearl millet:** Local Merut pili / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At vegetative stage	Irrigated upland	**Rice:** PS 4, 5, PB 1, PRH 10 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 / **Ground nut /** **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451 / **Blackgram:** T 9, PU 19,30,35 / **Maize:** Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili parbhani kranti / **Sorghum:** CSH 14, 16, CSB 13, 15, SPB 1338 etc / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati	1. Thining, weeding and gap filling in existing crop. 2. Re sowing 3.Postponement of top dressing 4.Life saving irrigation	• Inter cultivation • Conservation furrow • Thinning and weeding • Mulching	• Supply of inter cultural implements through RKVY • Farm ponds through IWSM programme • Pulse crop seeds supply through NFSM • Micro/drip/sprinkler irrigation under govt. schemes

	Irrigated lowland	**Rice:** PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2, / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284			
	Un irrigated upland	**Maize/ Sorghum/ Pearl millet(** Local Merut pili) / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati / **Pigeonpea:** UPAS 120, ICPL 151			
	Un irrigated lowland	**Pigeonpea:** UPAS 120, ICPL 151 / **Pearl millet:** Local Merut pili			

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	Irrigated upland	**Rice:** PS 4, 5, PB 1, PRH 10 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 / **Ground nut /** **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451 / **Blackgram:** T 9, PU 19,30,35 / **Maize:** Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili parbhani kranti / **Sorghum:** CSH 14, 16, CSB 13, 15, SPB 1338 etc / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati /	1. Thining, weeding and gap filling in existing crop. 2.Life saving irrigation 3. Weeding and weed mulching	Conservation furrow Thinning and weeding • Mulching • Urea spray or KCL spray	• Farm ponds through IWSM programme
	Irrigated lowland	**Rice:** PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2 /, **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284 /			

	Un irrigated upland	**Maize/Sorghum/Pearl millet(** Local Merut pili) / **Sesame:** T-4 ,T-12, T-13, T-78, Shaker, Pergati / **Pigeonpea:** UPAS 120, ICPL 151			
	Un irrigated lowland	**Pearl millet:** Local Merut pili / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati			

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Normal Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on Implementation**
Terminal drought (Early withdrawal of monsoon)	Irrigated upland	**Rice:** PS 4, 5, PB 1, PRH 10 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2, Pant Chari3, HC 308, 171 / **Ground nut /** **Pearl millet:** Raj-171,WCC-75,Pusa 23, 322 icmh-451 / **Blackgram:** T 9, PU 19,30,35 / **Maize:** Kanchan, Sweta, Navin, Surya, Azad uttam, Navjyoti, Jaunpuri, Meerut pili parbhani kranti / **Sorghum:** CSH 14, 16, CSB 13, 15, SPB 1338 etc / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati	1.Life saving irrigation 2. Picking/harvesting of pods/ear 3.Harvest at physiological maturity stage 4.Harvest for fodder	• Toria/mustard • Potato • Pea/gram • Barseem/oat • Land labeling	• Farm ponds through IWSM programme • Supply of seed through ISOPM • Harvesting and threshing implements through RKVY • Supply of land lazer labeler through CLDP or RKVY
	Irrigated lowland	**Rice:** PS 2,3, PB 1, Sarju 52, Pant 4, Narendra 359, Saket 4 / **Sorghum (Fodder):** Kanpuri, UP Chari 1,2 / **Sugarcane:** 64, 88230, 92254, 95255, COS 767, 8432, 97284			
	Un irrigated upland	**Maize/Sorghum / Pearl millet:** Local Merut pili / **Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati / **Pigeonpea:** UPAS 120, ICPL 151			
	Un irrigated	**Pigeonpea:** UPAS 120, ICPL 151 / **Pearl millet:** Local Merut pili /			

	lowland	**Sesame:**T-4 ,T-12, T-13, T-78, Shaker, Pergati			

2.1.2 Drought Irrigated situation

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Normal Crop/ cropping syste[m]**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall	Upland sandy loam soils	Rice (Basmati)-Wheat	Replace rice with maize or aerobic rice	• Use short duration varieties e.g. Rice: PS 4, 5, PB 1, PRH 10 Maize: Kanchan, Sweta, Navin, Surya Pearl millet:Wcc-75,Raj-171,Pusa-23,Pusa-322 • Light irrigation with tube well water • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane/maize	• Seed through KSSC and NFSM • Adequate supply of electricity/diesel should be ensured by the Govt. agencies.
		Sorghum (Fodder)/ Maize-Potato/ Wheat	Pearl millet/Greengram/ Blackgram - Potato/ Wheat		
		Sugarcane +cucurbits –Ratoon-Wheat	No change		
	Lowland clay loam soils	Rice-wheat	Basmati rice -Wheat	• Use short duration varieties e.g. Rice: PS 4, 5, PB 1, PRH 10 Kanchan, Sweta, Navin, Surya Pearl millet (Fodder): Wcc-75,Raj-171,Pusa-23,Pusa-322 • Light irrigation with tube well water • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation	• Seed through KSSC and NFSM • Adequate supply of electricity/diesel should be ensured by the Govt. agencies.
		Sorghum Fodder-Wheat	Pearl millet-Wheat		
		Sugarcane-Ratoon-Wheat	No change		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/ cropping syste[m]**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
				• Mulching in sugarcane	

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Limited release of water in canals due to low rainfall	Upland sandy loam soils	Rice (Basmati)-Wheat	No change	• Light irrigation with tube well water at critical stages only e.g CRI, Tillelring &.Flowering stage • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane/maize	• Adequate supply of electricity/diesel should be ensured by the Govt. agencies.
		Sorghum (Fodder)/Maize-Potato/ Wheat	No change		
		Sugarcane +cucurbits –Ratoon-Wheat	No change		
	Lowland clay loam soils	Rice-wheat	No change	• Light irrigation with tube well water at critical stages only e.g CRI, Tillelring &.Flowering stage • Follow alternate wetting and drying schedule of irrigation in rice • Alternate Furrow irrigation • Mulching in sugarcane	• Supply of inter cultural implements through RKV • Adequate supply of electricity/diesel should be ensured by the Govt. agencies.
		Sorghum Fodder-Wheat	No change		
		Sugarcane-Ratoon-Wheat	No change		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of	Upland tube well irrigated canal sandy loam soil	Basmati rice	Maize/ Arabic Rice	• Limited irrigation • Alternate Furrow irrigation • Drip irrigation	• Seed through KSSC and NFSM • Supply of inter
		Sorghum/ Maize	Pearl millet / Pigeonpea/ Blackgram		
		Sugarcane +Cucurbits	Sugarcane		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
monsoon in catchment				• Mulching	cultural implements through RKVY •
	Lowland tube well irrigated canal clay loam soil	Rice	Pearl millet/ Blackgram/ Greengram	• Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching • Alternate furrow irrigation	• Seed through KSSC and NFSM • Harvesting and threshing implements through RKVY
		Sorghum Fodder	Pearl millet/ Sorghum Fodder		
		Sugarcane + Cucurbits	Sugarcane		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	1) Farming situation:	**Cropping system 1:**	NA	NA	NA

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Insufficient groundwater recharge due to low rainfall	Upland tube well irrigated canal sandy loam soil	Basmati rice	Maize/Arabic Rice /Vegetable (Tomato, Brinjal, cucrbits etc)	• Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching	• Seed through KSSC and NFSM • Harvesting and threshing implements through RKVY
		Sorghum/ Maize	Pearl millet / Pigeonpea/ Blackgram		
		Sugarcane +Cucurbits	Sugarcane		
	Lowland tube well irrigated canal clay loam soil	Rice	Pearl millet/ Blackgram/ Greengram	• Limited irrigation • Alternate Furrow irrigation • Drip irrigation • Mulching • Alternate furrow irrigation	• Seed through KSSC and NFSM • Micro/drip/sprinkler irrigation under govt. schemes • Supply of inter cultural implements
		Sorghum Fodder	Pearl millet/ Sorghum Fodder		
		Sugarcane + Cucurbits	Sugarcane		

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
					through RKVY

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[l]**	**Crop maturity stage**	**Post harvest**
Maize + Blackgram bean/Greengram bean/cucurbits	Provide drainage	Provide drainage	Drain out excess water, Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Sugarcane	Provide drainage	NA	Drain out excess water and harvest the lodged crop as early as possible	Supply to sugar mills /crusher as early as possible or shift to safer place and cover the cane with trash materials
Blackgram or Greengram	Provide drainage	Provide drainage	Drain out excess water Harvesting at physiological maturity stage.	Safe storage against storage pest and disease
Horticulture				
Okra	Provide drainage	Provide drainage	Picking of vegetables at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Cucurbits	Provide drainage	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage and picking of cucurbits crop.	Shift to safer place & dispose of produce as early as possible
Brinjal	Provide drainage	Provide drainage	Picking at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Tomato	Provide drainage	Provide drainage	Picking at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Mango	-	-	Spray of 2% urea + Carbendazim 0.02% solution	-
Guava	-	-	Spray of 2% urea + Carbendazim 0.02% solution	-
Heavy rainfall with high speed winds in a short span				
Sugarcane	• Ear thing	NA	Drain out excess water and harvest the	Supply to sugar mills /crusher

	• Tying		lodged crop as early as possible	as early as possible or shift to safer place and cover the cane with trash materials
Maize/Sorghum	Provide drainage	Provide drainage Use Wind breaks	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Blackgram/ Greengram	• Provide drainage	Provide drainage Use Wind breaks	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Rice basmati	Provide drainage	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Pigeonpea	• Provide drainage • Sowing on raised bed	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Horticulture				
Okra	• Provide drainage • Sowing on raised bed	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Brinjal	• Provide drainage • Sowing on raised bed	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Tomato	• Provide drainage • Sowing on raised bed • Stacking	Provide drainage Use Wind breaks Stacking	Drain out excess water & Harvesting at physiological maturity stage Stacking	Shift to safer place & dispose of produce as early as possible
Cauliflower	• Provide drainage • Sowing on raised bed	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Cucurbits	• Provide drainage • Sowing on raised bed	Provide drainage	Drain out excess water & Harvesting at physiological maturity stage	Shift to safer place & dispose of produce as early as possible
Mango	Use Wind breaks	Use of NAA spray	Use of NAA spray	-
Guava	Use Wind breaks	Use of NAA spray	Use of NAA spray	-
Outbreak of pests and diseases due to unseasonal rains				
Rice basmati Sugarcane	Need based plant protection IPDM for	Need based plant	Do not use strong pesticide at maturity stage	Shift to safer place & dispose

Sorghum fodder	Rice/pluses	protection IPDM for Rice/pluses		of produce as early as possible
Blackgram/ Greengram				
Pigeonpea				
Horticulture				
Okra	Need based plant protection IPDM for Rice/pluses	Need based plant protection IPDM for Rice/pluses	Do not use strong pesticide at maturity stage	Shift to safer place & dispose of produce as early as possible
Brinjal				
Tomato				
Cucurbits				
Cauliflower				

2.3 Floods

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice basmati	• Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed	• Provide drainage	• Provide drainage	Shift to safer place
Sugarcane	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place
Sorghum fodder	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place
Blackgram/ Greengram	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place
Pigeonpea	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place
Horticulture				
Okra	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Brinjal	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Tomato	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place

Continuous submergence for more than 2 days				
Rice	• Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed	• Provide drainage	• Provide drainage	Shift to safer place
Horticulture	NA	NA	NA	NA
Okra	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Brinjal	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Tomato	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Mango	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place
Sea water intrusion[3]	NA	NA	NA	NA
Crop1				

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

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice basmati	• Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Sugarcane	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Sorghum fodder	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Blackgram\ Greengram	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Pigeonpea	• Direct sowing	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Horticulture				

Okra	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Brinjal	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Tomato	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Continuous submergence for more than 2 days[2]				Shift to safer place & dispose of produce as early as possible
Rice	• Re sowing of nursery • Direct sowing of rice • Sowing of nursery on raised bed	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Horticulture				Shift to safer place & dispose of produce as early as possible
Okra	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Brinjal	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Tomato	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Mango	• Re sowing of nursery • Sowing of nursery on raised bed • Re transplanting	• Provide drainage	• Provide drainage	Shift to safer place & dispose of produce as early as possible
Sea water intrusion	NA	NA	NA	NA

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	• Fodder crop Insurance • Making of feed blocks • Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland • Establishing fodder banks, encouraging fodder crops in irrigated area • Making silage or hay of excess fodder. • Statistics regarding feed/fodder availability and requirement should be updated by the concerned deptt. • Seed production and development of drought resistant crops and their varieties of fodder crops. • Encourage farmers to adopt sprinkler irrigation system. • Training to the farmers and extension functionaries for production and long term storage of feed and fodder.	• Utilizing fodder from perennial trees/shrubs/fodder bank reserves for small ruminant. • Utilizing stored fodder as silage, hay, feed blocks & mixture etc. • Migration of herd /flock to other places. • Establishment of communication and linkage with other state agencies.	• Availing crop insurance • Cultivation of fast growing green fodder crops. • Development of drought resistance fodder. • Increase the no. of Fodder Banks for future use.
Drinking water	• Preserving water in the pond/tank for drinking purpose. • Excavation of bore well/creation of tanks or ponds. • De-silting of village ponds on regular basis and adopt water harvesting techniques through water shed approach. • Filling of the ponds with canal/tube well water during lean period.	• Using preserved water in the tanks for drinking • Available ground water should be used for drinking on priority basis.	•Recharge of well/ Tanks etc.
Health and disease management	• Farmers should be encouraged to avail Livestock insurance	• Conduction mass animal health camp and treating the effected animals.	• Availing insurance benefits. • Followed standard Livestock

	• Training to livestock owners regarding natural calamities. • Veterinary preparedness with medicines and vaccines. • Vaccination	• Mass campaigning though different media regarding possible outbreak of diseases and their management.	management practices. • Proper health care & treatment.
Floods			
Feed and fodder availability	• Fodder crop Insurance • Making of feed blocks • Encourage farmers to allocate some lands for cultivating perennial fodder (Napier grass, Subabul), specially on bunds and wasteland • Establishing fodder banks, encouraging fodder crops. • Making silage or hay of excess fodder and that should be stored on up land. • Statistics regarding feed/fodder availability and requirement should be updated by the concerned deptt. • Seed production and development of crops and their varieties of fodder crops for water logged conditions. • Training to the farmers and extension functionaries for production and long term storage of feed and fodder. .	• Utilizing fodder from perennial tress/shrubs/fodder bank reserves. • Use of feed mixture/block hay etc • Migration of flock /herds • Establishment of communication and linkage with other state agencies	• Availing crop insurance • Cultivation of fast growing green fodder crops
Drinking water	• Making suitable provision for safe drinking surface water including excavation of bore well/hand pump (India mark—II) at community level. • Make farmers aware not to use contaminated/ flood water for drinking purpose.	• Contaminated flood water should not be used for drinking.	• Open sources of drinking water (tank/well) should be further treated with potassium per magnate.
Health and disease management	• Live stock Insurance • Training to livestock owners regarding natural calamities. • Veterinary preparedness with medicines and vaccines. • Vaccination •	• Conduction mass animal health camp and treating the effected animals. • Training to livestock owners regarding natural calamities. • Establishment of Co-ordination with other Agencies. • Use of mass media to spread expat advice • .	• Culling sick animals • Availing insurance benefits. • Culling unproductive livestock • Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases.

Cyclone **N.A**	**N.A**	**N.A**	**N.A**
Heat wave and cold wave			
Shelter/environment management	• Avoid use of GI sheet for roofing in the animal shed • Create adequate sources for additional supply of water to protect the animals from heat waves. • Establishment of modern shelter sheds. • As far as possible grow shade trees such as Neem, Pilkhan, Karanj etc near the animal sheds. • Make provision for adequate no. of fans/coolers /heaters according to the situation, if possible	• Provide the thatches/ tarpaulins/ rags in the animal sheds to protect against direct entry of hot/ cold waves • Provide proper bedding to prevent from cold and proper ventilation to prevent from heat. • Provide drinking water to animal frequently during heat wave • Watch the forecast of weather department. • 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	• Repair and maintenance of additional facilities
Health and disease management	• Insure the animals • Training to livestock owners/ para-vets regarding preventive measure against extreme weather conditions • Veterinary preparedness with medicines and vaccines etc. • Vaccination against FMD &Cold	• Organize village level animal health camps • Consult veterinary officer immediately if any adverse symptoms are noticed • Use of ITKs for food supplements	• Proper after care of animals. • Availing insurance benefits. • Proper disposal of corpse of dead bodies to prevent the spread of contagious diseases.

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event[a]	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients	• Making and storage of feed concentrates • Awareness regarding traditional feed banks. • Feed requirement data should be generated • Prepare the feed requirement data base of poultry farm. • Store the feed ingredients	• Use of feed concentrates/ mixture/blocks etc •Establishment of communication with other state agencies. • Use of locally available feed recourses. •Import the feed recourse form other states.	• Availing insurance • Increase the no. of feed banks for future use	
Drinking water	• Making extra facility for drinking water. • Repair & maintenance of water resources	• Frequent supply of drinking water		
Health and disease management	• Veterinary preparedness with medicines and vaccines. • Vaccination • Training to poultry Growers regarding natural calamities.	• Treatment of affected poultry birds	• Culling of flock • Availing insurance benefits • Proper disposal of corpse of dead bodies to prevent the pared of contagious diseases	
Floods				
Shortage of feed ingredients	• Sufficient quantity of feed ingredients should be stored	• Use of stored feed in balanced form • Prevent the feed from moisture.	• Cleaning of feed store & repair if any. • Moist feed should be dried &treated as per requirement	
Drinking water	• Make provision of ground water for drinking	• Use only Ground water obtained from India Mrka II or Tubewell	•Repair, maintenance and cleaning of water recourse	

			• Sanitation of open Wells	
Health and disease management	• Veterinary preparedness with medicines and vaccines • Vaccination	• Migration of flock if required • Treatment	• Availing insurance benefits. • Culling of unproductive flock	
Cyclone	NA	NA	NA	
Shortage of feed ingredients	• Storage and making of feed concentrates • Proper feed requirement data base	• Establishment of communication with other state agencies • Use of stored feed ingredient • Import of feed from other areas	• Repair and maintenance of feed store	
Drinking water	• Make provision of ground water for drinking	• Use only Ground water obtained from India Mrka II or Tubewell	• Repair and maintenance of water recourse	
Health and disease management	• Training to poultry growers regarding natural calamities. • Veterinary preparedness with medicines and vaccines.	• Treatment of injured poultry birds.	• Culling of flock • Availing insurance benefits. • Proper disposal of corpse of dead bodies to prevent the pared of contagious diseases.	
Heat wave and cold wave				
Shelter/environment management	• Making sufficient provision of shelter to protect live stock from heat and cold waves • Establishment of alternate resource for water supply. • Modern shelter sheds.	• Keep the birds in appropriate shelter • Provide proper bedding to prevent from cold and proper ventilated to prevent from heat • Provide drinking water to birds frequently. • Adopted proper management practices. • Watch the fore cast of weather department.	• Making of modern shelter sheds • Increase the plantation of trees	
Health and disease management	• Insurance • Veterinary preparedness with medicines and vaccines • Training to poultry growers regarding natural calamities	• Provide proper treatment as per requirement • Treatment of injured poultry	• Availing insurance benefits • Culling of unproductive flock • Proper disposal of corpse of dead bodies to prevent the pared of contagious diseases	•

[a] based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine	_	_	_
Inland			
(i) Shallow water depth due to insufficient rains/inflow	• Adopt appropriate measures to reduce water seepage or infiltration	• Harvest the crop partially	• Re stock
(ii) Changes in water quality	• Regular observation to check the water quality and remove the pollutants if any.	• Add oxy-flow to improve oxygen • Churning of pond water	• Maintain appropriate level of water if possible • Check the water quality and remove the pollutants if any.
(iii) Any other	_	_	_
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	• Adopt appropriate measures to reduce water seepage or infiltration from ponds • Avoid any kinds of water pollution and maintain water pH	• Ensure the Oxygen availability into ponds for the survival of fish • Avoid any kind of water pollution • Add oxy-flow to improve oxygen into ponds. • Churning of pond water	• Maintain appropriate level of water in ponds • Check the water quality and remove the pollutants if any.
(ii) Impact of salt load build up in ponds / change in water quality	• Add some fresh water from other source like cannel etc	• Add oxy-flow to improve oxygen into ponds. • Churning of pond water • Add fresh water into pond for life saving and to reduce salt load	• Add fresh water into pond for life saving and to reduce salt load • Maintain appropriate level of water in ponds • Check the water quality and remove the pollutants if any.
(iii) Any other	_	_	--
2) Floods			
A. Capture			
Marine	--	--	--
Inland			
(i) No. of boats / nets/damaged		• Close supervision of flood condition	• Damaged boat or nets should be repaired

	• Boats, nets etc should be taken out from water bodies		
(ii) No. of houses damaged	–	–	• Repair the damaged house.
(iii) Loss of stock	–	–	• Sanitation and proper disposal of corpse
(iv) Changes in water quality	• Increase the hight of bunds.	--	--
(v) Health and diseases	--	• Treatment if possible	--
B. Aquaculture			
(i) Inundation with flood water	• Repair the bunds to prevent the inflow of water • If inflow water is not polluted then place the net at inlet and outlet • Raise the height of bunds • Plan a proper drainage system at farm • Plantation of soil binding plants at bund	• Avoid inflow of flood water from outside. • If inflow water is not polluted that can be permitted to flow through net placed at inlet and outlet of pond. • Fencing of net required in case of overflow to avoid the migration of fish	• Repair the damaged bunds • Check water quality • Change the water if it is polluted
(ii) Water contamination and changes in water quality	• Limeing @300 kg/ha	• Stop inflow of contaminated water	• Maintain appropriate level of water in ponds • Check the water quality and remove the pollutants if any.
(iii) Health and diseases	• Limeing @300 kg/ha • Vaccination	• Diagnostic measures and provide appropriate medicines	• Limeing and medication as per requirement • Use Cifex to control ulcerative syndromes
(iv) Loss of stock and inputs (feed, chemicals etc)	• Marketable stock should be sold	• Immediately remove the dead fishes from ponds and do sanitation	• After sanitation add new stock
(v) Infrastructure damage (pumps, aerators, huts etc)	• Dommageable infrastructures should be secured	• Do not supplié Electric in flood éd area	• Repaire and service the damage infrastructure
(vi) Any other			
3. Cyclone / Tsunami	NA	NA	NA
A. Capture	--	--	--
B. Aquaculture	--	--	--
4. Heat wave and cold wave			

A. Capture			
B. Aquaculture			
(i)Changes in pond environment (water quality)	• Maintain appropriate level of water in ponds *i.e.* 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any	• Maintain appropriate level of water in ponds *i.e.* 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any	• Maintain appropriate level of water in ponds *i.e.* 1.75m in 2m deep ponds • Check the water quality and remove the pollutants if any
i) Health and Disease management	• Limeing@300kg/ha	• Medication as per requirement	• Remove the dead fishes from ponds and add new stocks to compensate • the production
(ii) Any other			

[a] based on forewarning wherever available