State: Madhya Pradesh

Agriculture Contingency Plan for District: Dewas

1.0 District Agriculture profile

1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Sub region No.13,AE Sub region 5.2, Agro ecological region :I_5D_2& I_5 C_3			
	Agro-Climatic Zone (Planning Commission)	Sub Zone 24, ACZ 9.3,Region:Central Plateau,PCS3			
	Agro Climatic Zone (NARP)	Malwa Plateau Agroecological Zone(X)			
	List all the districts or part thereof falling under the NARP Zone	Neemach, Mandsour, Rajgarh, Ujjain,Indore, Dewas, Shajapur, Ratlam,Part of Dhar district (Badanawar and Sardarpu tehsil) and Jhabua district(Petalawad tehsil			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		70'34"East	22'58"N	545	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Agricultural Research Station, College of Agriculture, Indore 452 001			
	Mention the KVK located in the district	Krishi Vigyan Kendra, P.O. Balgarh Farm, Dewas 455 111			
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):	925	48	3rd week of June	4th week of Sep.
	NE Monsoon(Oct-Dec):	110	05		
	Winter (Jan- March)	30	02	-	-
	Summer (Apr-May)	-		-	-
	Annual	1065	55	-	-

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)	702	624.5	206.6	46.7	-	55.3	0	1.25	0.8	1.4

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
	1. Deep soil	363.60	51.81
	2. Medium deep soil	125.60	17.95
	3. Shallow soil	212.00	30.24

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	388.4	160.8
	Area sown more than once	236.2	
	Gross cropped area	624.6	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	193.64		
	Gross irrigated area	193.6		
	Rainfed area	430.9		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	15	6.76	.3.49
	Tanks	169	4.76	2.46
	Open wells	36531	65.9	34.04
	Bore wells	23119	93.1	48.08
	Lift irrigation schemes		-	-
	Micro-irrigation and Other sources (please specify)		23.09	11.93
	Total Irrigated Area		193.6	
	Pump sets	70022		
	No. of Tractors	1006		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	**No. of blocks/ Tehsils**	**(%) area**	**Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)**
	Over exploited			
	Critical			
	Semi- critical			
	Safe		66%	
	Wastewater availability and use			
	Ground water quality	68.97%		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

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

S.No.	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Summer	Grand total
1	Soybean	-	295.9	-	-	-	-	-	295.9
2	Cotton	-	32.6	-	-	-	-	-	32.6
3	Maize	-	10.94						10.94
4	Jowar		8.44						8.44
5	wheat	-	-	-	53.5	-	-	-	53.5
6	Gram	-	--	-	109.2		-	-	109.2
Others (specify)									
	Horticulture crops - Fruits								
	Mango								0.351
	Guava								0.57
	orange								0.14
	Lemon								0.395
	Pomegranate								0.08
	Aamla								0.474
	Papaya								0.095
	Others								0.31
	Horticulture crops - Vegetables								
	Tomato								1.7
	Potato								6.57
	Onion								3.274
	Ladys Finger								1.045
	Brinjal								0.895
	Green Peas								2.825
	Cauliflower								1.06
	Cabbage								0.535
	Kaddu Vargoya								1.855
	Others								2.555
	Horticulture crops - Spices								
	Coriander								1.784
	Chilly								1.887
	Garlic								6.051
	Turmeric								
	Ginger								
	Fenugreek seed								0.225

S.No.	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Others								1.285
	Horticulture crops - Medicinal and Aromatic								
	Ashwa Gandha								0.162
	Chandra Sur								
	Basil								0.015
	Lkalmegh								0.095
	Musli								0.046
	Others								0.076
	Horticulture crops - Flowers								
	Rose								0.147
	Mari Gold								0.329
	Glardiya								0.381
	Bijli								0.21
	Guldawadi								0.018
	Others								0.133
	Plantation crops	**Total**			**Irrigated**			**Rainfed**	
1	Mango	400							
2	Guvava	125							
3									
Others (Specify)	Eg., industrial pulpwood crops etc.								
	Fodder crops	**Total**			**Irrigated**			**Rainfed**	
1									
2									
3									
Others (Specify)									
	Total fodder crop area								
	Grazing land								
	Sericulture etc								
	Others (specify)								

1.8	**Livestock**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)	133.9	142.48	276.41
	Crossbred cattle	-		
	Non descriptive Buffaloes (local low yielding)	2.35	91.78	94.13
	Graded Buffaloes	-	-	
	Goat	-	-	125.09
	Sheep	-	-	0.22
	Others (Camel, Pig, Yak etc.)	-	-	17.08
	Commercial dairy farms (Number)			

1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**
	Commercial		86.55
	Backyard		

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**	
		-		-		-	
	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: 2004, 05, 06, 07, 08; specify years)

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Soybean	375.1	1268	-	-	-	-	375.1	1268	
Crop 2	Cotton	48.76	1493	- -	- -	-	-	48.76	1493	
Crop 3	Maize	11.26	1030					11.26	1030	
Crop 4	Sorghum	13.62	1614	-	-	-	-	13.62	1614	
Crop 5	wheat			104.38	1950	-	-	104.38	1950	
	Gram			125.59	1150	-	-	125.59	1150	
Others										
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	**Horticulture crops - Fruits**									
Crop 2	Mango							9.36	2666.67	
	Guava							82.74	14515.79	
	orange							22.79	16278.57	
	Lemon							58.33	14767.09	
	Pomegranate							8.58	10725.00	
	Aamla							34.56	7291.14	
	Papaya							20.03	21084.21	
	Others							17.77	5732.26	
	Horticulture crops-Vegetable									
	Tomato							534.51	31441.76	
	Potato							1152.17	17536.83	
	Onion							536.89	16398.59	
	Ladys Finger							196.22	18777.03	
	Brinjal							138.18	15439.11	
	Green Peas							146.46	5184.42	
	Cauliflower							160.57	15148.11	
	Cabbage							73.33	13706.54	
	Kaddu Vargoya							296.12	15963.34	
	Others							172.06	6734.25	
	Horticulture									

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)	
	crops - Spices									
	Coriander							18.06	1012.33	
	Chilly							29.45	1560.68	
	Garlic							896.98	14823.67	
	Turmeric								12328.24	
	Ginger								17928.57	
	Fenugreek seed							11.34	5040.00	
	Others							10.19	793.00	
	Horticulture crops - Medicinal and Aromatic									
	Ashwa Gandha							1.17	722.22	
	Chandra Sur							0.55	1000.00	
	Basil							0.21	1400.00	
	Lkalmegh							0.066	69.47	
	Musli							0.092	200.00	
	Others							0.29	381.58	
	Horticulture crops – Flowers									
	Rose							5.75	3911.56	
	Mari Gold							26.98	8200.61	
	Glardiya							73.78	19364.83	
	Bijli							49.3	23476.19	
	Guldawadi							2.08	11555.56	
	Others							16.22	12195.49	

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Crop 1: Soybean**	**2: Cotton**	**3:Jowar**	**4: Wheat**	**5:Gram**
	Kharif- Rainfed	2nd Fortnight of June	2nd Fortnight of June	2nd Fortnight of June		
	Kharif-Irrigated					
	Rabi- Rainfed					Ist week of Oct.
	Rabi-Irrigated				I st week Nov.	4 th Week of October

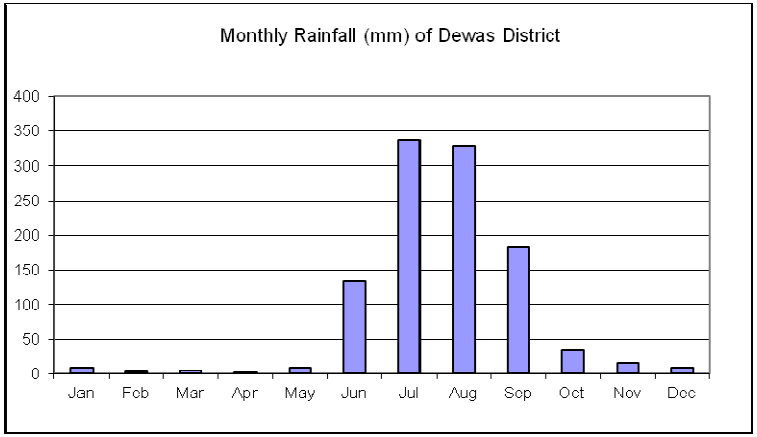
1.13	**What is the major contingency the district is prone to** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought		Yes	
	Flood			*
	Cyclone			*
	Hail storm			*
	Heat wave		Yes	
	Cold wave		Yes	
	Frost		Yes	
	Sea water intrusion			*
	Pests and disease outbreak (specify)		Yes, (tobaccom cater piller)*	
	Others (specify)			

1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

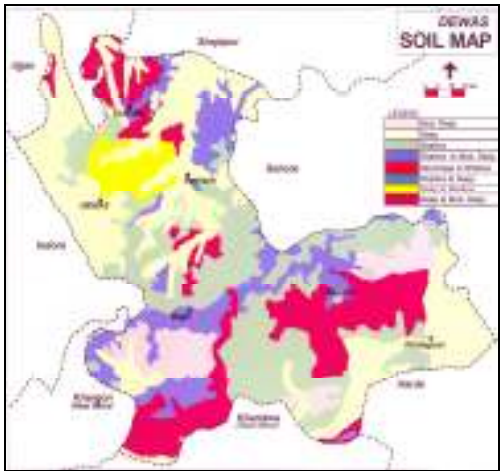
Annexure I

Location map

Annexure II
Mean annual rainfall



Annexure III
Soil map



(Source: NBSS&LUP, Amravati Road, Nagpur)

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[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system[c] including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
Delay by 2 weeks (2nd week of july)* **(REFER TO THE MATRIX TABLE)**	Shallow black soil	Soybean	JS-335,JS- 9560, JS- 9305	Use water conservation measure Sowing of crop against the slope Use Ridge/ BBF sowing of Kharif crop Seed treatment with thirum+bavistin in equal ratio @3 gm/kg seed	Link Seed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies for good quality seed. Link KVK. ATMA for proper training and guidance to the farmers
		Jowar	JJ1041, JJ1022		
		Maize	CsH 13,CSH-14,Jm-421 Jm-216		
		Arhar	ICPL-87, Pusa-33,Ja-4, Jkm-7,Asha		
		Cotton	Bt cotton Varieties		
		Jowar	JJ-1041, JJ-1022		
		Maize	JM-216		
		Arhar	Jkm-189, Icpl-87-119		
	Moderate Deep black soil	Soybean	Soybean (early) JS 95-60, / Black gram USA16, Safflower JSF 7, JSF73	Use Ridge/ BBF for sowing of Kharif crops Select short duration varieties for sowing Seed treatment with thirum+bavistin in equal ratio @3 gm/kg seed Increase seed rate by 10% and reduce inter row spacing (30cm) Cultivate the filed on receiving pre monsoon.	
		Pigeon Pea	Pigeon Pea (medium) JA-4+ Soybean (early) JS 95-60		
		Pigeon Pea+ Soybean	Sorghum JJ938, JJ1041+early soybean JS 95-60		
	Deep black soil	Soybean -Chickpea	Black gram-chick pea/wheat		
		Soybean – Wheat	Soybean (early) / Black gram - Potato (Kufari early)		
		Soybean - Sugarcane	Soybean - Sugarcane		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
Delay by 4 weeks (4th week of July month)	Shallow black soil	Soybean	JS- 9560, JS- 9305	Use Ridge/ BBF sowing of Kharif crops Increasing seed rate up to 25% Select short duration varieties for sowing	Link Seed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies for good quality seed. Link KVK. ATMA for proper training and guidance to the farmers
		Jowar	JJ1041, JJ1022		
		Maize	Jm-216,JM-421		
		Arhar	ICPL-87, Pusa-33,JA-4, Jkm-7, Asha		
		Cotton	Bt cotton Varieties		
		Jowar	JJ-1041, JJ-1022		
		Maize	JM-216		
		Arhar	Jkm-189, Icpl-87-119		
	Moderate deep black soil	Soybean	Soybean (early) JS 95-60, / Black gram USA16, Safflower JSF 7, JSF73		
		Pigeon Pea	Pigeon Pea (medium) JA-4+ Soybean (early) JS 95-60		
		Pigeon Pea+ Soybean	Sorghum JJ938, JJ1041+early soybean JS 95-60		
	Deep black soil	Soybean -Chickpea	Black gram-chick pea/wheat		
		Soybean – Wheat	Soybean (early) / Black gram - Potato (Kufari early)		
		Soybean - Sugarcane	Soybean - Sugarcane		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
Delay by 6 weeks (Specify month)	Shallow black soil	Soybean	JS- 9560, JS- 9305	Use Ridge/ BBF sowing of Kharif crop Select short duration varieties for sowing Seed treatment with thirum+bavistin in equal ratio @3 gm/kg seed Increase seed rate by 10% and reduce inter row spacing (30cm) Cultivate the field on receiving pre monsoon Weed control practises to be applied	Link Seed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies for good quality seed. Link KVK. ATMA for proper training and guidance to the farmers
		Jowar	JJ1041, JJ1022		
		Maize	Jm-216,JM-421		
		Arhar	ICPL-87, Pusa-33,JA-4, Jkm-7, Asha		
		Cotton	Bt cotton Varieties		
		Jowar	JJ-1041, JJ-1022		
		Maize	JM-216		
		Arhar	Jkm-189, Icpl-87-119		
	Moderate deep black soil	Soybean	Soybean (early) JS 95-60, / Black gram USA16, Safflower JSF 7, JSF73		
		Pigeon Pea	Pigeon Pea (medium) JA-4+ Soybean (early) JS 95-60		
		Pigeon Pea+ Soybean	Sorghum JJ938, JJ1041+early soybean JS 95-60		
	Deep black soil	Soybean -Chickpea	Black gram-chick pea/wheat		
		Soybean – Wheat	Soybean (early) / Black gram - Potato (Kufari early)		
		Soybean - Sugarcane	Soybean - Sugarcane		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/ cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
Delay by 8 weeks (Specify month)	Shallow black soil	Soybean	JS- 9560, JS- 9305	Use Ridge/ BBF sowing of Kharif crops Select short duration varieties for sowing Seed treatment with thirum+bavistin in equal ratio @3 gm/kg seed Increase seed rate by 10% and reduce inter row spacing (30cm Cultivate the field on receiving pre monsoon Weed control practices to be applied	Link Seed village programme, Suraj Dhara, Seed exchange programme, State seed corporation, Cooperative societies for good quality seed. Link KVK/ATMA forproper training and guidance to the farmers
		Jowar	JJ1041, JJ1022		
		Maize	Jm-216,JM-421		
		Arhar	ICPL-87, Pusa-33,JA-4, Jkm-7, Asha		
		Cotton	Bt cotton Varieties		
		Jowar	JJ-1041, JJ-1022		
		Maize	JM-216		
		Arhar	Jkm-189, Icpl-87-119		
	Moderate deep black soil	Soybean	Soybean (early) JS 95-60, / Black gram USA16, Safflower JSF 7, JSF73		
		Pigeon Pea	Pigeon Pea (medium) JA-4+ Soybean (early) JS 95-60		
		Pigeon Pea+ Soybean	Sorghum JJ938, JJ1041+early soybean JS 95-60		
	Deep black soil	Soybean -Chickpea	Black gram-chick pea/wheat		
		Soybean – Wheat	Soybean (early) / Black gram - Potato (Kufari early)		
		Soybean - Sugarcane	Soybean - Sugarcane		

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

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

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop / Cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measure[s]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Shallow black soil	Soybean Jowar Maize Arhar Cotton Jowar Maize Arhar	Spray 2% urea during the drought spell Maintain optimum plant population by gap filling Timely weed control	Break upper crust of soil by dora, hand hoe Dust mulch through frequent interculture Life saving irrigation from rainwater conservation	LinkSeed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies. For good quality seed Link watersheds and MGNREGS for the support of farm pond technology
	Moderate Deep black soil	Soybean Pigeon Pea Pigeon Pea+ Soybean	Spray 2% urea during the drought spell Maintain optimum plant population by gap filling	Break upper crust of soil by dora, hand hoe Dust mulch through frequent interculture Life saving irrigation through farm pond water	
	Deep black soil	Soybean -Chickpea Soybean – Wheat Soybean - Sugarcane	Spray 2% urea during the drought spell maintain optimum plant population by gap filling	Break upper crust of soil by dora, hand hoe Dust mulch through frequent interculture Life saving irrigatin through farm pond water	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
At vegetative stage	Shallow black soil	Soybean Jowar Maize Arhar Cotton Jowar Maize Arhar	Remove weeds with interculture Maintain optimum plant population by gap filling Spray 2% urea or MOP during the dry spell Need based plant protection measure	Break upper crust of soil by dora, hand hoe Mulching with green/plastic material in crop rows Supplementary irrigation through farm pond Alternate furrow irrigation or micro irrigation system if feasible	Link Seed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies. For good quality seed Link watersheds and MGNREGS for the support of farm pond technology
	Moderate Deep black soil	Soybean Pigeon Pea Pigeon Pea+ Soybean	Remove weeds with interculture Maintain optimum plant population by gap filling Spray 2% urea or MOP during the dry spell Need based plant protection measures		
	Deep black soil	Soybean -Chickpea Soybean – Wheat Soybean - Sugarcane	Remove weeds with interculture Maintain optimum plant population by gap filling Spray 2% urea or MOP during the dry spell Need based plant protection measures		

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/ cropping system[b]**	**Crop management**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
At flowering/ fruiting stage	Shallow black soil	Soybean	Spray 2% urea on foliage maintain optimum plant population by thinning in alternate row	Use of organic mulch / plastic mulching to conserve moisture Supplementary irrigation if available	Seed village programme, Suraj Dhara, Seed exchange programme , State seed corporation, Cooperative societies. Proper training and guidance to the farmer by the extension officers and through media circulate the technical advice and information
		Jowar			
		Maize			
		Arhar			
		Cotton			
		Jowar			
		Maize			
		Arhar			
	Moderate Deep black soil	Soybean			
		Pigeon Pea			
		Pigeon Pea+ Soybean			
	Deep black soil	Soybean -Chickpea			
		Soybean – Wheat			
		Soybean - Sugarcane			

Condition			Suggested Contingency measures		
Terminal drought	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
1	2	3	4	5	6
(Early withdrawal of monsoon)	Shallow black soil	Soybean	Spray 2% urea to the folage Supplementary irrigatin through farm pond water	If the damage is severe, plan for land preparation of rabi crops like Toria, Mustard, Chicpea .	Link watersheds for the support of farm pond technology
		Jowar			
		Maize			
		Arhar			
		Cotton			
		Jowar			
		Maize			
		Arhar			
	Moderate Deep black soil	Soybean	Spray 2% urea to the folage Supplementary irrigatin through farm pond water		
		Pigeon Pea			
		Pigeon Pea+ Soybean			
	Deep black soil	Soybean -Chickpea	Spray 2% urea to the folage Supplementary irrigatin through farm pond water		
		Soybean – Wheat			
		Soybean - Sugarcane			

2.1.2 Drought - Irrigated situation

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**
1	2	3	4	5	6
Delayed release of water in canals due to low rainfall	Shallow black soil	Pea / Safflower	Safflower – JSI -7, JSF-1, JSI-73, JSI-97 Pea like Arkel and Bornville	Proper field preparation Seed priming with water for 6-8 hours before sowing life saving irrigation with drip or sprinkler system Apply bio-fertilizers	Link KVK,ATMA to create awareness and to acquire skills of relevant technologies
	Moderate Deep black soil	Gram / Wheat	Increase Gram area with drought tolerant varieties such as JG-130 ,JG-218, JG- 226		
	Deep black soil	Gram / Wheat / Pea	Select less water required varieties ike sujata Amar Horshita , Amrata etc.		

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**
1	2	3	4	5	6
Limited release of water in canal due to low rainfall	Shallow black soil	Pea / Safflower	Safflower – JSI -7, JSF-1, JSI-73, JSI-97 Pea like Arkel and Bornville	Mulching in crop rows Seed priming with water for 6-8 hours before sowing Ridge and furrow system planting Irrigation at critical crop growth stages Alternate furrow irrigation Life saving irrigation with sprinkler/drip if feasible Apply bio-fertilizers	Link KVK,ATMA to create awareness and to acquire skills of relevant technologies among the farmers
	Moderate Deep black soil	Gram / Wheat	Increase Gram area with drought tolerant varieties such as JG-130 ,JG-218, JG- 226		
	Deep black soil	Gram / Wheat / Pea	Select less water required varieties ike sujata Amar Horshita , Amrata etc.		

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]**
1	2	3	4	5	6
Non release of water in canals under delayed onset of monsoon in catchment	Shallow soil	Pea / Safflower	No change	Safflower – JSI -7, JSF-1, JSI-73, JSI-97 Pea like Arkel and Bornville Seed priming with water for 6-8 hours before sowing Follow moisture conservation practices like ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater	Link KVK,ATMA to create awareness and to acquire skills of relevant technologies among the farmers
	Moderate Deep black soil	Gram / Wheat		Increase Gram area with drought tolerant varieties such as JG-130 ,JG-218, JG- 226 Seed priming with water for 6-8 hours before sowing Follow moisture conservation practices like ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater	
	Deep black soil	Gram / Wheat / Pea	.	Select less water required varieties ike sujata Amar Horshita , Amrata etc Seed priming with water for 6-8 hours before sowing Follow moisture conservation practices like ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater	

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]**
1	2	3	4	5	6
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Shallow soil	Pea / Safflower	Safflower – JSI -7, JSF-1, JSI-73, JSI-97 Pea like Arkel and Bornville	Seed priming with water for 6-8 hours before sowing Ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater Mulching in crop rows	Link KVK,ATMA to create awareness and to acquire skills of relevant technologies among the farmers
	Moderate Deep black soil	Gram / Wheat	Increase Gram area with drought tolerant varieties such as JG-130 ,JG-218, JG- 226	Seed priming with water for 6-8 hours before sowing Follow moisture conservation practices like ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater	
	Deep black soil	Gram / Wheat / Pea	Select less water required varieties ike sujata Amar Horshita , Amrata etc.	-do-	

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]**
1	2	3	4	5	6
Insufficient groundwater recharge due to low rainfall	Shallow soil	Pea / Safflower	Safflower – JSI -7, JSF-1, JSI-73, JSI-97 Pea like Arkel and Bornville	Seed priming with water for 6-8 hours before sowing Follow moisture conservation practices like ridges and furrows life saving irrigation from rainwater harvesting Alternate furrow irrigation of rainwater	Link KVK,ATMA to create awareness and to acquire skills of relevant technologies among the farmers
	Moderate Deep black soil	Gram / Wheat	Increase Gram area with drought tolerant varieties such as JG-130 ,JG-218, JG- 226		
	Deep black soil	Gram / Wheat / Pea	Select less water required varieties ike sujata Amar Horshita , Amrata etc.		

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

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Soybean	• Drain excess water • Top dressing with N 10-20 kg/ha at optimum soil moisture	• Drain excess water • Intercultivation to loosen the soil and improve aeration • Foliar spray with 2% urea/DAP to regain lost vigour	• Drain excess water • Harvesting on a clear sunny day • Shift the produce to safer place	Maintain optimum moisture content in grain910-12%) by drying before bagging and marketing
Cotton	• Drain excess water • Top dressing with N 10-20 kg/ha at optimum soil moisture or • Foliar spray with 2% urea after cessation of rains • Intercultivation at optimum soil moisture to loosen the soil and improve aeration	• Drain excess water • Remove and destroy *Parthenium hysterophorus* and other weeds to minimize the incidence of mango mealy bug • Multinutrient or hormonal spray to promote flowering • Adopt need based plant protection measures	• Drain excess water • Timely picking of cotton	• Protect picked cotton in storage from drenching and soiling • Drying of wet cotton and marketing
Maize	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Harvest green cobs from dislodged plants for immediate marketing	• Harvest the cobs after they are dried up properly • Dry the grain to optimum moisture content before storage
Sorghum	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Harvest the earheads after they are dried up properly or use ear head drier	Dry the grain to optimum moisture content before storage

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Horticulture				
Crop1 Tomato,				
Crop2 Cabbage				
Crop3 **chilly**	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. • Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. • In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up.	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible.	• Drain the excess water as soon as possible • Harvest the matured fruits in a clear sunny day.	• Dry the pods on concrete floor immediately after the appearance of sunlight (or). • Use poly house solar driers for quick drying • Grade the pods and market as soon as possible. • Do not store such produce for long periods.
Crop4				
Crop5				
Heavy rainfall with high speed winds in a short span[2]				
Crop1 Soybean	• Drain excess water • Top dressing with N 10-20 kg/ha at optimum soil moisture	• Drain excess water • Intercultivation to loosen the soil and improve aeration • Foliar spray with 2% urea/DAP to regain lost vigour	• Drain excess water • Harvesting on a clear sunny day • Shift the produce to safer place	Maintain optimum moisture content in grain910-12%) by drying before bagging and marketing
Crop2 Jowar	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Harvest the earheads after they are dried up properly or use ear head drier	Dry the grain to optimum moisture content before storage

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Crop3 Maize	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N / ha after draining of excess water	• Drain excess water as early as possible • Intercultivation with hoe • Apply 25 kg additional N /ha after draining of excess water	• Drain excess water as early as possible • Harvest green cobs from dislodged plants for immediate marketing	• Harvest the cobs after they are dried up properly • Dry the grain to optimum moisture content before storage
Crop4 Arhar	• Open field channels to drain excess water and avoid surface ponding • Interculture at optimum soil moisture to improve aeration	• Open field channels to drain excess water and avoid surface ponding • Interculture at optimum soil moisture to improve aeration	• Drain excess water as early as possible • Allow the crop to dry completely before harvesting	• Spread the bundles drenched in the rain on field bunds / drying floors to quicken drying • Thresh bundles after they are dried properly • Dry the grain to proper moisture content before bagging and storing
Crop5 Cotton				
Horticulture				
Crop1 (**Tomato,**	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 12 kg MOP + 30 kg Urea per acre as soon as possible. • Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. • In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up. •	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 10 kg MOP + 30 kg Urea per acre as soon as possible.	• Drain the excess water as soon as possible • Harvest the marketable fruits in a clear sunny day’	• Store the harvested fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible.

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Crop2 **Cabbage,**				
Crop3 **chilly**	Drain the excess water as soon as possible Spray Urea 2% solution 2-3 times. Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up.	Drain the excess water as soon as possible Spray Urea 2% solution 2-3 times. Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible.	Drain the excess water as soon as possible Harvest the matured fruits in a clear sunny day.	Dry the pods on concrete floor immediately after the appearance of sunlight (or). Use poly house solar driers for quick drying Grade the pods and market as soon as possible. Do not store such produce for long periods.
Crop1 (specify)Tomato	• Drain excess water • Need based disease and pest management • Gap filling with the seedlings • Apply 10-20kg N/ha to regain lost vigor	• Drain excess water • Need based disease and pest management • Staking of plants • Apply 20-30 kg N/ha after draining excess water	• Drain excess water • Need based disease and pest management • Harvesting of produce on clear sunny day • Staking of plants	• Drain excess water • Shifting produce to safer places • Grading & packing
Crop5				
Outbreak of pests and diseases due to unseasonal rains				
Crop1 Soybean	• Early planting to minimize the incidence of girdle beetle and green semilooper • Foliar spray with 5% NSKE or dimethoate 30EC 1 ml/l to protect against semilooper	• Monitor adult moth activity of Spodoptera through pheromone traps (10 traps/ha) • Apply Quinalphos 25 EC 2ml/l or Emamectin benzoate 5 SG 4g/10 lit to control spodoptera		

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Crop2 Jowar	Whorl application of phorate 10G or carbofuran 3 G @ 8-10 kg/ha to control shoot borer attack -	Spray of mancozeb @ 0.25-0.4% at 8-10 days interval to control leaf blight	Trichoderma mixed with FYM @10g/kg at 10 days prior to its use in the field can be applied to control stalk rot incidence which is likely during post flowering	
Crop3 Maize	Whorl application of phorate 10G or carbofuran 3 G @ 8-10 kg/ha to control shoot borer attack	Spray of mancozeb @ 0.25-0.4% at 8-10 days interval to control *Turcicum* leaf blight	Trichoderma mixed with FYM @10g/kg at 10 days prior to its use in the field can be applied to control stalk rot incidence which is likely during post flowering	
Crop4 Arhar	Soil application of *Trichoderma harzianum* along with FYM as side dressing to prevent *Fusarium* wilt	• Drenching of carbendazim 0.1% at plant base to control wilt • Foliar application of acephate 1.5 gm / lt or Miticide to prevent sterility mosaic virus	Drench with carbendazim 0.1% at plant base to control wilt	Quick drying to prevent molds
Crop5 Cotton	Protect against incidence of wilt and root rot. Drenching of Copper oxy chloride (COC) 0.3% or carbendazim 0.1%	• When marginal yellowing of leaves due to jassid injury is seen, spray neem oil 0.3% with sticker or imidacloprid 0.6 ml / lit or acetamiprid 0.1-0.2 ml /lit • Protect against Bacterial leaf blight (BLB) with foliar application of streptocycline sulphate 6 gm + 30 gm COC for every 10 lt of water	To control grey mildew and boll rot, apply carbendazim 1 gm/ lit or mancozeb 3 gm / lit	Proper storage of seed cotton to prevent wetting and incidence of molds

Condition	Continuous high rainfall in a short span leading to water logging			
	Suggested contingency measure			
1	2	3	4	5
	Vegetative stage[k]	Flowering stage[l]	Crop maturity stage[m]	Post harvest[n]
Horticulture				
Crop1 (**Tomato,**	Spraying of contact insecticide for control of caterpillar Stacking for protecting fungal diseases	Spraying of contact insecticide for control of caterpillar/ fruit borer Stacking for protecting fungal diseases		
Crop2 **Cabbage,**				
Crop3 **chilly**	Drench the nursery beds with coc3 g/l to prevent damping off	Spray coc 30g+1g streptocycline in 10 lit. of water, 2-3 times against bacterial leaf spot and blight	Spray carbondizim 0.1% to control fruit rot	Quick drying of fruit to prevent fruit rot
Crop4				
Crop5				

2.3 Floods; Not occur in the district

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop1 (specify)				
Crop2				
Crop3				
Crop4				
Crop5				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				
Continuous submergence for more than 2 days[2]				
Crop1				
Crop2				
Crop3				
Crop4				
Crop5				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				
Sea water intrusion[3]				
Crop1				
Crop2				
Crop3				
Crop4				
Crop5				

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

Extreme event type	Suggested contingency measure[r]			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave[p]				
Crop1 Soybean	Sowing of crop in Proper moisture Light irrigation Provision of wind breaks	Reduce Et Spray fertilizer Reduce leaf water temp	Apply water for saving of crop Used ant transparent	Harvest of crop after proper drying
Crop2 Jowar	Sowing of crop in Proper moisture Light irrigation Provision of wind breaks			
Crop3 Cotton	Sowing of crop in Proper moisture Light irrigation Provision of wind breaks			
Crop4 Gram	Sowing of crop in Proper moisture Light irrigation Provision of wind breaks			
Crop 5				
Horticulture				
Crop1Fruits)	Protect the seedlings by providing the shed Wind breaks	Bordeaux paste to exposed bark branches of the tree to protect from sunscoring Mulching around base of the trunk of the tree	Bordeaux paste to exposed bark branches of the tree to protect from sunscoring Mulching around base of the trunk of the tree	Harvest the crop as early as possible Store the produce in the shed or safe place
Crop2 Vegetables	Protect the seedlings by providing the shed Wind breaks	Light irrigation at night hours		Harvest the crop as early as possible Store the produce in the shed or safe place
Crop3				
Cold wave[q] Soybean	Irrigate the crop smoking in the night	Apply foliar spray of dilute 1% (commercial grade)Sulfuric acid	Save the crop by irrigation	Harvest the crop as early as possible Store the produce in the

Extreme event type	Suggested contingency measure[r]			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
		Smoking around the field & Change micro climate		shed or safe place
Crop1 Jowar				
Crop2 Cotton				
Crop3 Wheat				
Crop4 Gram				
Crop 5				
Horticulture		L		
Crop1 (specify)	Light irrigation Smoking during the night	Light irrigation Smoking during the night	Light irrigation Smoking during the night	
Crop2				
Crop3				
Frost				
Crop1				
Crop2				
Crop3				
Crop4				
Crop 5				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				
Hailstorm				
Crop1				
Crop2				
Crop3				
Crop4				
Crop 5				
Horticulture				
Crop1 (specify)				

Extreme event type	Suggested contingency measure[r]			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop2				
Crop3				
Cyclone				
Crop1				
Crop2				
Crop3				
Crop4				
Crop 5				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				

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Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

Drought	**Suggested contingency measures**		
	Before the event[s]	**During the event**	**After the event**
Feed and fodder availability	• Adoption of fodder bank , • use of surplus fodder for silage , • urea treatment :4kg Urea 75 litter of water 100 kg fodder. Insurance	• Use of reserve fodder • Use of stored silage • Balance ration • Use of chaffed fodder • Transportation of fodder from ad joining districts if excess there	• Regularly Sprinkling of water on live stock body . • use of wet bhusa. • Availing the insurance . • Separation of unproductive livestock .
Drinking water	• Provision of hygienic supply of water . • Storage of water in the tank for drinking • Excavations of bore wells .	• Judicious use of stored water . • Use of potassium permanganate 1ppm , • Heat treatment of Water before use.	• Ensure the cleanlinell of drinking water
Health and disease management	• Deworming , • regular vaccination of HS , BQ and FMD • provision of mineral mixture ,	• Treatment of sick animal through camp. • Isolation of sick animals .	• Culling of sick animal
Floods			
Feed and fodder availability	Adoption of fodder bank Insurance. Repair of animal shed Shifting of animals from the flood area	Use of reserve fodder Balance ration Use of chaffed fodder Transportation excess fodder from ad joining district	Regularly Sprinkling of water on live stock body .use of wet bhusa. Availing the insurance . Separation of unproductive livestock farm .
Drinking water	Ensure availability of clean hygienic water	Clean water Water after boiling / alum treatment .	Ensure the cleanliness of drinking water
Health and disease management	• Regular vaccination of HS , BQ and FMD • provision of mineral mixture , • preparation of water proof shed • provision of dry fodder , • Deworming	• Treatment of sick animal through camp. • Isolation of sick animals. • Treatment of sick animals	Culling of sick animal
Cyclone	NA	NA	NA
Feed and fodder availability			
Drinking water			
Health and disease management			

Drought	Suggested contingency measures		
	Before the event[s]	During the event	After the event
cold wave			
Shelter/environment management	• Plan of proper housing , • Collection of waste gunny bags for shelter.	• Use of gunny bag to cover the window.	• To obtain the milk production level with curative measure
Health and disease management	• Vaccination • Storage of balanced ration rage of medicines	• Treatment of sick animals • Balanced ration • Use of warm water • Inhalation of *Eucalyptus* water	of sick animals
Heat wave			
Shelter/environment management	Provision of proper shade Provision of trees Reflector paints over roof	Provision of cold water	
Health and disease management			

based on forewarning wherever available

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	Insurance of birds			
Shortage of feed ingredients	• Storage of food ingredients			
Drinking water	• Storage of drinking water			
Health and disease management	Deworming Vaccination Deticking of shed Provision of rapid growing strain	Use of high weight gain breeding stock Treatment of sick birds	Culling of sick birds	
Floods				
Shortage of feed ingredients	Storage of poultry feed Storage of mineral mixture	Use of stored feed Offer dry feed Avoid dampness in feed to minimize the chances of aflotoxins	Optimum feeding to maintain egg production and proper weight	
Drinking water	Storage of clean drinking water			
Health and disease management	Provision of Vaccination Deworming	Proper Vaccination	Culling of sick birds	

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event[a]	**During the event**	**After the event**	
Cyclone				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave				
Shelter/environment management	Repair of sheds Use of sprinklers for maintenance of temperature	Protection of birds from heat		Culling of sick birds
Health and disease management	Deworming Vaccination	Vaccination		
		Deworming		
		Deticking		

[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	• Harvesting of fish • Shifting of small sized fishes to in small storage water bodies such as Plastic or cemented structures	• Harvesting of fish • Shifting of small sized fishes to in small storage water bodies such as Plastic or cemented structures • Provision of net-shed over the tank	• Safe disposal of first event of runoff for storage of only clean water • Waste ware should be protected by net for stay of fishes in the tank.
(ii) Changes in water quality	Apply the lime to neutralize the concentrated water	Apply the lime to neutralize the concentrated water	-
(iii) Any other	-	-	-
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds / change in water quality			
(iii) Any other			

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
2) Floods			
A. Capture			
Marine			
Inland			
(i) Average compensation paid due to loss of human life			
(ii) No. of boats / nets/damaged			
(iii) No.of houses damaged			
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases			
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination and changes in water quality			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			
3. Cyclone / Tsunami : No any possibilities of event in the district			
A. Capture	-	-	-
Marine	-	-	-
(i) Average compensation paid due to loss of fishermen lives	-	-	-
(ii) Avg. no. of boats / nets/damaged	-	-	-
(iii) Avg. no. of houses damaged	-	-	-
Inland	-	-	-

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
B. Aquaculture	-	-	-
(i) Overflow / flooding of ponds	-	-	-
(ii) Changes in water quality (fresh water / brackish water ratio)	-	-	-
(iii) Health and diseases	-	-	-
(iv) Loss of stock and inputs (feed, chemicals etc)	-	-	-
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)	-	-	-
(vi) Any other	-	-	-
4. Heat wave and cold wave			
A. Capture			
Marine	-	-	-
Inland	Net-shed	-	-
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			