State: **Jammu and Kashmir**

Agriculture Contingency Plan for District: Shopian

1.0 District Agriculture profile					
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Northern Western Himalayan Region			
	Agro-Climatic Zone (Planning Commission)	Cold Humid			
	Agro Climatic Zone (NARP)	Humid Western Himalayan Region			
	List all the districts or part thereof falling under the NARP Zone	Srinagar,Kupwara,Ganderbal,Bandipora,Kulgam,Budgam,Pulwama,Anantnag,Baramulla			
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**	
		33^0 43' N	74^0 49' E	6731 ft	
	Name and address of the concerned **ZRS/ ZARS/ RARS/ RRS/ RRTTS**	**FRS Bandipora**			
	Mention the KVK located in the district	Malangpora			
1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset (specify week and month)**	**Normal Cessation (specify week and month)**
	No concept of SW and NE Monsoon. Precipitation in the form of Snow and Rain				
	Annual	658.1 mm	60		

1.3	Land use pattern of the district (latest	Geographical area (‘000 ha)	Cultivable area (‘000 ha)	Forest area (‘000	Land under non-agricultural use	Permanent Pastures (‘000 ha)	Cultivable wasteland (‘000 ha)	Land under Misc.	Barren and uncultivable land (‘000	Current Fallows (‘000 ha)	Other fallows (‘000

	statistics)			ha)	('000 ha)			tree crops and groves ('000 ha)	ha)		ha)
	Area ('000 ha)	36.834	25.186	0.249	4.543	3.909	2.278	0.645	1.571	3.605	0.492

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total**
	Clay to clay loam	33.260	90
	Sandy Loam	4.574	10
		-	

1.5	**Agricultural land use**	**Area ('000 ha)**	**Cropping intensity %**
	Net sown area	19.542	128%
	Area sown more than once	5.643	
	Gross cropped area	25.185	

1.6	**Irrigation**	**Area ('000 ha)**		
	Net irrigated area	13.261		
	Gross irrigated area	18.392		
	Rainfed area	11.925		
	Sources of Irrigation	Number	**Area ('000 ha)**	**% of total irrigated area**
	Canals/Small Canals		12.979	
	Tanks		0.192	
	Open wells		0.043	
	Bore wells		3.060	
	Lift irrigation schemes			
	Micro-irrigation		4.594	
	Other sources (please specify)		48	

	Total Irrigated Area		13.262	100 %
	Pump sets	145		
	No. of Tractors	175		
	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			
	Wastewater availability and use			
	Ground water quality			
***over-exploited: 70-90%; safe: <70%**				

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2008-2009)

1.7	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***			**Summer**	**Grand total**
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**		
	Paddy	0.556							
	Maize		1.479						
	Pulses		0.206						
	Fodder	0.167							
	oilseed					3.649			
Others (specify)									
1.7	**Horticulture crops -**								

	Fruits	Total	Irrigated	Rainfed (‘000 ha)
	Apple	**19.770**		-
	Cherry	0.798		-
	Pear	**0.408**		-
	Plum	**0.005**		-
	Peach, Apricot	**0.006,0.15**		-
	Almond/walnut	**0.064,3.720**		**-**

1.7c	**Horticulture crops - Vegetables**	**Total area (‘000 ha)**	**Irrigated area (‘000 ha)**	**Rainfed area (‘000 ha)**
1.7d	**Medicinal and Aromatic crops**			
	Medicinal and Aromatic crops			
1.7e	**Plantation crops**			
	N. A			
1.7f	**Fodder crops**			
1.7g	**Grazing/Pasture land**			
1.7h	**Sericulture etc**	-	-	**-**
1.7i	**Others (specify)**			

1.8	**Livestock (in number)**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)			64.7
	Crossbred cattle (Crossbred + Local)			3.2
	Non descriptive Buffaloes (local low yielding)			3.0
	Graded Buffaloes			83.3
	Goat			3.8
	Sheep			
	Others (Camel, Yak etc.)			Total 158.0
	Commercial dairy farms (Number)			

1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**
	Commercial		113
	Backyard (Local)	-	

1.10 Fisheries (Data source: Chief Planning Officer of district) N/A

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)										
	Paddy	35.08	4000							
	Maize	87.48	2000							
	Fodder	420.00	19000							
	Pulses									
	Oilseeds									
	Wheat									
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	190.477								
	Cherry	4.600								
	Pear	2.819								
	Plum	0.33								
	Peach, Almond	0.018,0.069								
	Apricot,Walnut	0.150,7.557								

1.12	**Sowing window for 5 major field crops (start and end of normal sowing period)**	**Rice**	**Maize**	**Pulses**	**Oil Seeds**
	Kharif- Rainfed	-	3rd week of April to 4th week of May	3rd week of May to 3rd week of June	-
	Kharif-Irrigated	3rd week of April to 2nd week of May	1st week of April to 4th week of May	3rd week of May to 3rd week of June	-
	Rabi- Rainfed				1st week of October – 3rd week of October

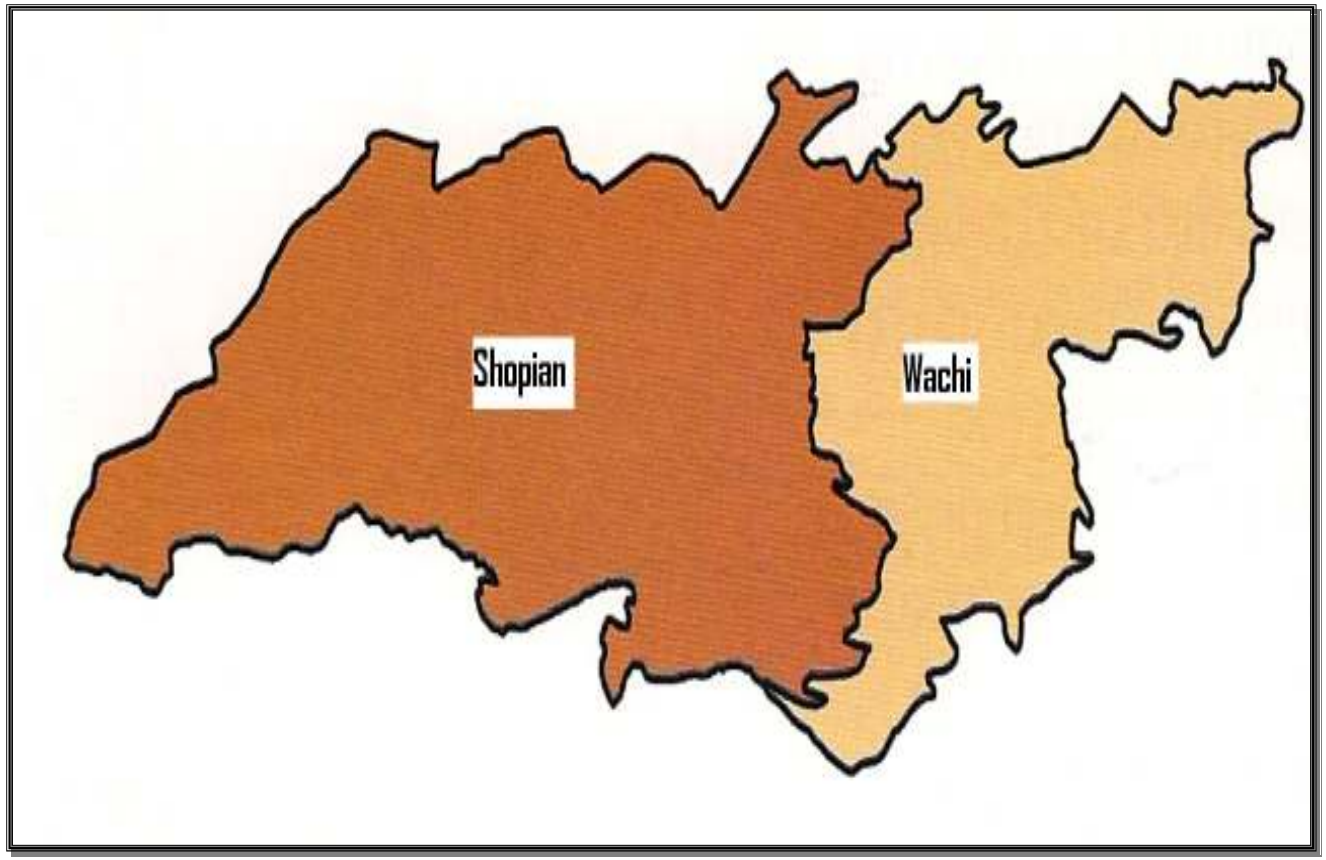
1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought		✓	
	Flood			
	Cyclone			
	Hail storm			✓
	Heat wave			✓
	Cold wave	✓		
	Frost		✓	
	Sea water intrusion			✓
	Pests and disease outbreak (specify)		✓	
	Others (specify) Locusts, Codling moth Aphids			✓

6 out of 10 years = Regular

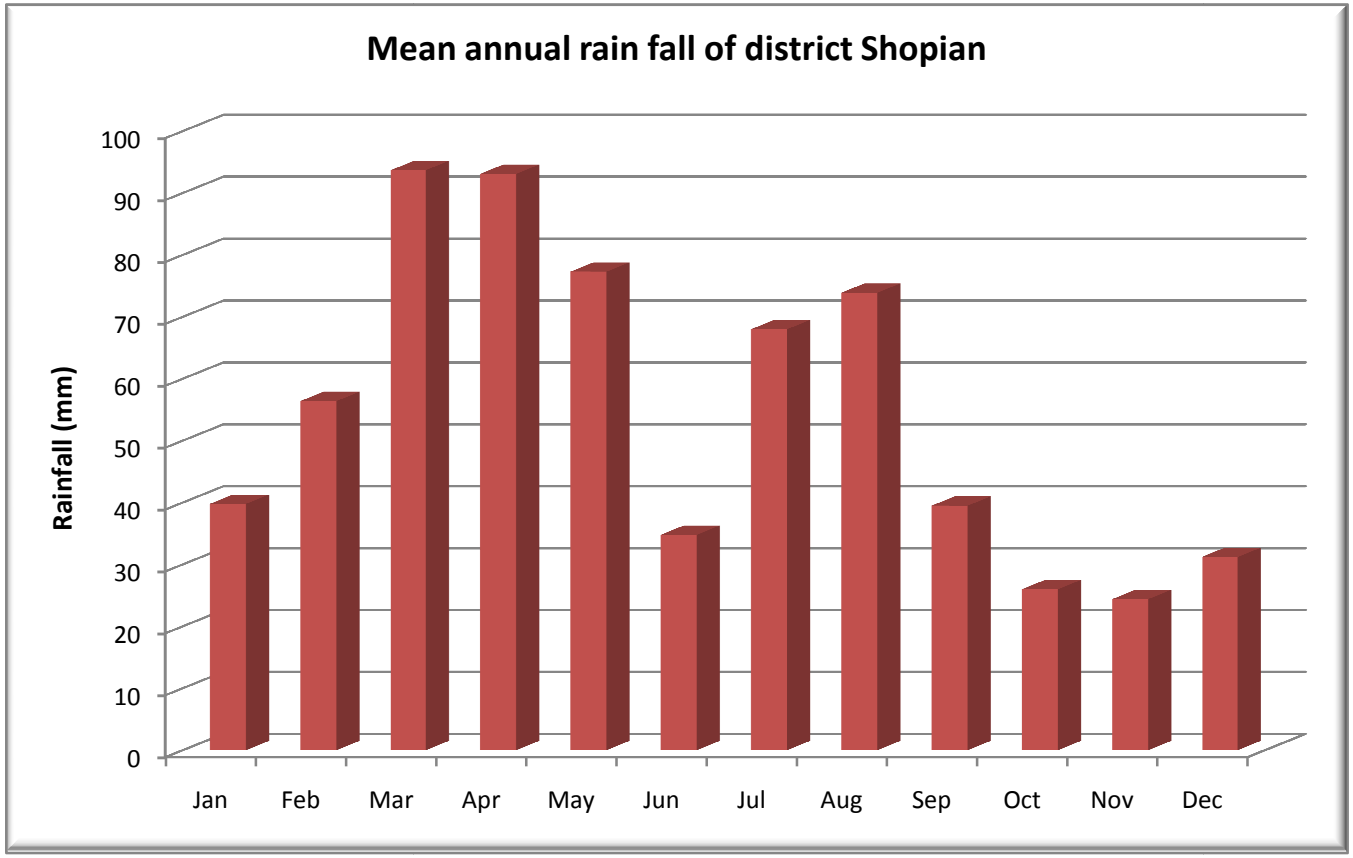
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Shopian



Annexure II


Mean annual rain fall of district Shopian
Rainfall (mm)
100
90
80
70
60
50
40
30
20
10
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

2.0 Strategies for weather related contingencies

2.1 Drought – Not Applicable

2.1.1 Rained 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]**
Delayed by two weeks 3rd week of January	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	No change is recommended	• Increase sowing depth of maize • Furrow sowing across the slope • Early sowing • Thinning in brown sarson and use as organic mulch	
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	No change is recommended		
Delayed by four weeks and six week 1st week of February and 3rd week of February	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	No change is recommended		
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	No change is recommended		

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]**
Delayed by 8th weeks 1st week of March	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	Maize(local)-Fallow Maize(local) +Beans-Fallow Maize(local) + Greengram/cowpea-Fallow	• Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of organic manure	
		Oats (sabzar)	Maize-local/ Beans-Canadian red/ Cowpea local		
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Maize(local)-Fallow/ Maize(local)+ Beans-Fallow/ Maize(local)+Greengram/Cowpea-fallow		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]** Pleistocene soil medium rainfall precipitation	**Normal Crop/cropping system[b]** Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	**Change in crop/cropping system[c]** Maize(local)-Fallow Maize(local) +Beans-Fallow Maize(local) + Greengram/cowpea-Fallow	**Agronomic measures[d]** • Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches Increase quantity of	**Remarks on Implementation[e]**

		Oats (sabzar)	Maize-local/ Beans-Canadian red/ Cowpea local	organic manure	
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Maize(local)-Fallow/ Maize(local)+ Beans-Fallow/ Maize(local)+Greengram/Cowpea-fallow		

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 measures[d]**	**Remarks on Implementation[e]**
Normal onset followed by 20 day dry spell	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	• Thining and gap filling • Reseeding /gap filling	• Tillage • Mulching	
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Reseeding if germination fails		

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 measures[d]**	**Remarks on Implementation[e]**

	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	Life saving irrigation Weeding &mulching Delay application of N dose	• Prepare furrow across the slope • Spray urea	
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measrues[d]**	**Remarks on Implementation[e]**
	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	Life saving irrigation Tillage mulch Weeding Organic mulch Thinning of plant stand to rationalize available moisture	Spray micro nutrients and urea and potash as Kcl Mulching	
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red			

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)/ Western disturbance	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red	Life saving irrigation from water storages Harvest greengram and beans for vegetable purpose Harvest maize for fodder purpose and save excessive biomass as hay	Lentil, brown sarson, wheat, vetch to be sown in the month of October followed by pre-sowing irrigation	
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red			

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[j]**
Delayed release of water in canals due to low rainfall/snowfall	Low land. snow melt Streams.Alluvial soils	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat	Delayed released of water Is not situation as at early stages whatever snow is available water is released	• Pre-sowing irrigation • Proper puddling in rice fields • Irrigate rice after disappearance of ponded water • Pre-sowing irrigation • Proper puddling in	
	Tail ends of irrigated area.	a. Rice-brown sarson b. Rice-fodder oats c. Rice- wheat	Not required		

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]**
	Mid to high altitude Pleistocene soils	a. Rice-brown sarson b.Rice-fodder oats c.Rice- wheat		rice fields • Irrigate rice after disappearance of ponded water. • Plastering of bunds	
Limited release of water in canals due to low rainfall/snowfall	Low land. snow melt Streams.Alluvial soils	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson	• Pre-sowing irrigation • Plant local varities. • Early sowing recommended • Increase organic manure as per availability	
	Tail ends of irrigated area.	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson		
	Mid to high altitude Pleistocene soils	a. Rice-brown sarson	Maize		
		b.Rice-fodder oats	Fodder maize		
		c.Rice- wheat	MP cherry		

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]**
Non release of water in canals under delayed onset of western disturbance in catchment		**Conditions not applicable**			

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]**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	**1) Farming Situation**	**Condition not applicable**			
Insufficient groundwater recharge due to low rainfall	**1) Farming Situation**	**Condition not applicable**			

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[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Maize+ Beans	Provide surface drainage along the slope	Provide surface drainage	Drain field. Provide staking if lodging is seen. Harvest around at physiological maturity	Spread crop at dry and safer place
Beans/ Greengram	do	do	Harvest crop by uprooting Not by picking	do
Fodder maize	do	Harvest crop as and when workable	-	
Rice	Drain excessive water	Provide drainage and take measures against rice blast(prophylactic measures)		
Horticulture				
Apple	At dormant stage in case of heavy snowfall remove snow from trees In case of trunk cracking			

	join splits by nuts and bolts to save trees			
Heavy rainfall with high speed winds in a short span[2]				
Horticulture				
Outbreak of pests and diseases due to unseasonal rains		Need based plant protection IPDM for pluses		Safe storage against storage pest and diseases
Horticulture				

2.3 Floods: Not experienced / encountered

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice	**NA**	-Remove silt from the effected parts of field -Drain water from field	-Staking of lodged plants -Remove silt -Drain water -Prophylactic spray to control diseases	-Drain field -Remove silt -Harvest and take produce to safer place
Horticulture				
Continuous submergence for more than 2 days[2]				
Horticulture				
Sea water intrusion[3]				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone: Not experienced / encountered

Extreme event type	**Suggested contingency measure[r]**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave[p]	NA			

Horticulture				
Cold wave[q]				
Rice	At nursery stage use low polythene tunnel to grow rice nursery as standard method	Increase water level in the paddy fields	Keep water level up	
Horticulture				
Frost				
Horticulture				
Hailstorm				
Horticulture				
Cyclone				
Horticulture				

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	Necessary arrangements to grow fodder on bunds/orchards and irrigated area as need based - Use excessive fodder for making hay and silage	• Keep animals under shade • Use urea molasses treated roughage • Use feed blocks prepared from crop residue • and apple pomace • Ensure availability of mineral mixture	
Drinking water	Ensure storage of drinking water in storage tanks	Ensure storage of water	
Health and disease	Arrangement and preparedness with required	Vaccination for foot and mouth disease and	Culling sick and

management	medicine stock	other required dosage and vaccination if not done earlier	unproductive livestock.
Floods			
Feed and fodder availability	-	Take animals to safer places -Use feed blocks prepared from crop residue And apple pomace -Spread wet fodder at safer places to dry	
Drinking water			
Health and disease management			
Cyclone			
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave			
Shelter/environment management	Provide heating and proper ventilation	Ensure live stock is not subjected to direct cold	
Health and disease management			

[s] based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures	**Convergence/linkages with ongoing programs, if any**

	Before the event	During the event	After the event	
Drought				
Shortage of feed ingredients	Ensure stock of feed	Utilize damaged food grains Utilize stored feed	Culling of affected birds	
Drinking water	Storage in water reservoirs	Use stored water	-	
Health and disease management	Preparedness and arrangement of vaccination	Mass vaccination	Culling of diseased birds	
Floods				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Cyclone				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave				
Shelter/environment management				
Health and disease management				

[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	Prepare additional water reservoirs and exigency ponds	Protect brood stock by making deep trenches in the middle of ponds. Sale of additional stock Provide aeration Stop feeding/restrict feeding Give chilling treatment	-
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow			
(ii) Changes in water quality			
(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			
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			
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			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			

(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			

[a] based on forewarning wherever available