State: Jammu and Kashmir

Agriculture Contingency Plan for District: Pulwama

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,Shopian,Bandipora,Kulgam,Budgam,Anantnag,Baramulla			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		33^0 - 54' N	74^0-53' E	5273 ft	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	FRS, Bandipora			
	Mention the KVK located in the district	Pulwama			
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	641	79		
	Annual	658.1	79		

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)	60.772	57.389	0.412	7.494	6.447	3.758	1.065	2.592	5.866	0.757

1. 4	**Major Soils**	**Area (‘000 ha)**	**Percent (%) of total**
	Clay Soil	37.41	70
	Sandy Loam	14.71	30

1.5	**Agricultural land use**	**Area (‘000 ha)**	**Cropping intensity %**
	Net sown area	32.381	176
	Area sown more than once	25.008	
	Gross cropped area	57.389	

1.6	**Irrigation**	**Area (‘000 ha)**		
	Net irrigated area	21.319		
	Gross irrigated area	38.858		
	Rainfed area	20.453		
	Sources of Irrigation	Number	**Area (‘000 ha)**	**% of total irrigated area**
	Canals/Small Canals		4.594	
	Tanks			
	Open wells		0.088	
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation		3.060	
	Other sources (please specify)			
	Total Irrigated Area		10.193	100 %

	Pump sets	132		
	No. of Tractors	27		
	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: groundwater utilization; safe: <70%**				

1.7 Area under major field crops & horticulture (Specify year 2008-2009)

1.7a	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***			**Summer**	**Grand total**
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**		
	Paddy	16.728	-	-	-	-	-	-	-
	Maize	-	5.365	-	-	-	-	-	-
	Pulses	-	0.366	-	-	-	-	-	-
	Fodder	3.501	-	-	-	-	-	-	-
	wheat	-	-	-	0.334	-	-	-	-
	Dyes and tanning material	2.381	-	-	-	-	-	-	-
1.7b	**Horticulture crops - Fruits**								
		Total			**Irrigated**			**Rainfed ('000 ha)**	

	Apple	7.593	-	-
	Pear	0.421	-	-
	Apricot	0.080	-	-
	Peach	0.022	-	-
	Plum	0.040	-	-
	Cherry	0.014	-	-

1.7c	**Horticulture crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**	**Rainfed area ('000 ha)**
	Walnut	3.284		
	Almond	7.158		
	Other Dry Fruit	0		

1.7d	**Medicinal and Aromatic crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**	**Rainfed area ('000 ha)**
	Medicinal and Aromatic crops	**Not applicable**		
1.7e	**Plantation crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**	**Rainfed area ('000 ha)**
Not applicable				
1.7f	**Fodder crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**	**Rainfed area ('000 ha)**
1.7g	**Grazing/Pasture land**			**-**
1.7h	**Sericulture etc**	-	-	**-**

1.8	**Livestock (in number)**	**Male (‘000)**	**Female (‘000)**	**Total (‘000)**
	Non descriptive Cattle (local low yielding)			189.4
	Crossbred cattle (Crossbred + Local)			18.150
	Non descriptive Buffaloes (local low yielding)			
	Sheep			137.4
	Others (Camel, Yak etc.)			
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds (‘000)**	
	Commercial		504.297	
	Backyard (Local)	-	130.351	

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	75.95	4900	-	-	-	-	-	-	-
	Maize	2.75	2500	-	-	-	-	-	--	-
	Fodder	132.6	20000	33.00	1500	-	-	--	-	-
	Pulses	1.09	1500		150	-	-	-	-	-
	Oilseeds	16.75	400	1.09	600	-	-	-	-	-
	Wheat			0.306		-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	90.732	-	-	-	-	-	-	--	-
	Pear	1.260	-	-	-	-	-	-	-	-
	Apricot	1.069	-	-	-	-	-	-	-	-
	Peach	0.053	-	-	--	-	-	-	-	-
	Plum, Almond	0.117,5.045	-	-	-	-	-	-	-	-
	Cherry, Walnut	0.054,6.379	-	-	-	-	-	-	-	-

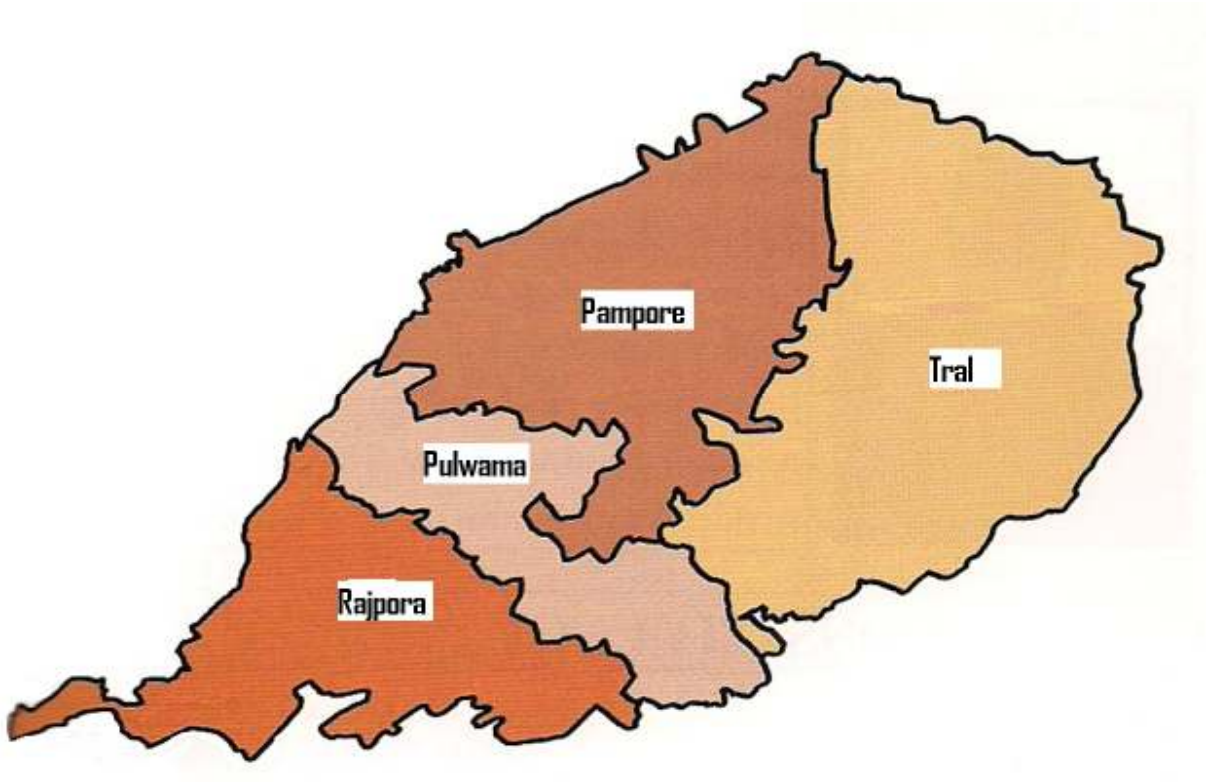
1.12	**Sowing window for 5 major field crops (start and end of normal sowing period)**	**Rice**	**Maize**	**Pulses**	**Oil Seed**	**Millets**
	Kharif- Rainfed	-	2rd week of April to 4th week of May	3rd week of April to 2nd week of June	-	-
	Kharif-Irrigated	3rd week of April to 2nd week of May	1st week of April to3rd week of May	3rd week of April to 2nd week of June	-	-
	Rabi- Rainfed	-	-	-	1st week of October to 2rd 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)		✓	
	Locusts, Codling moth Aphids			✓

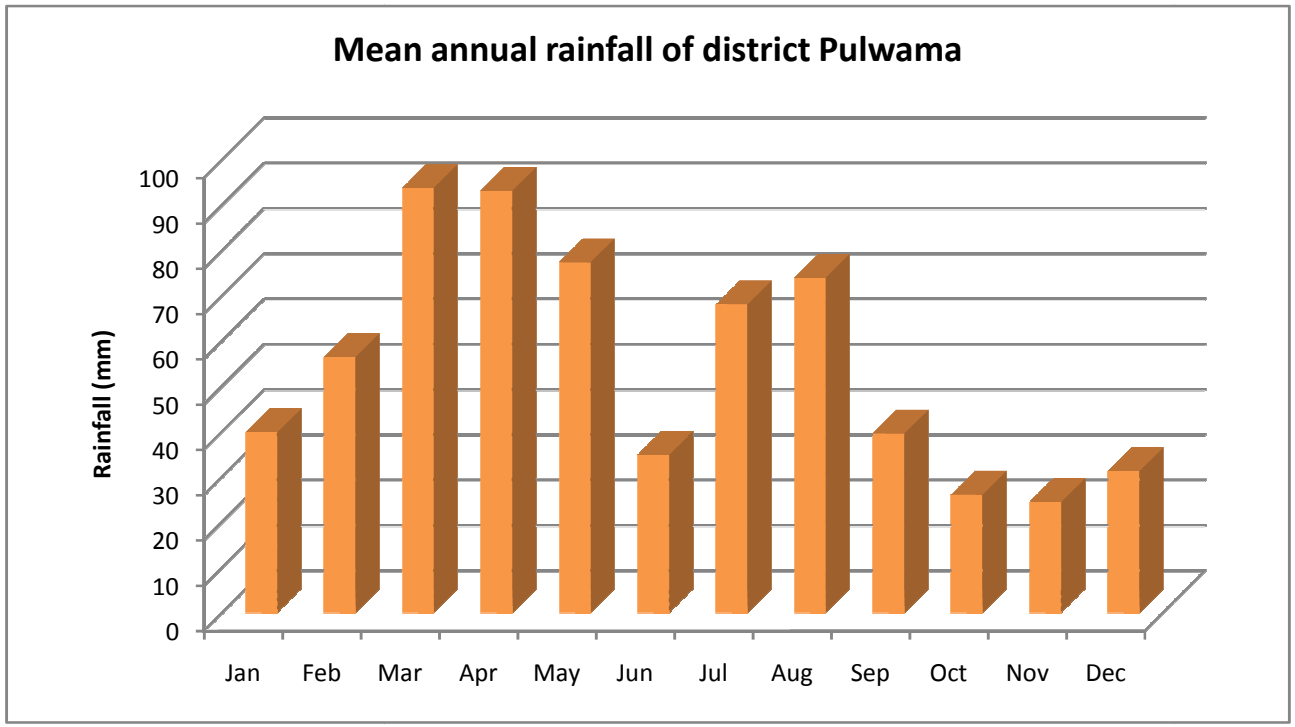
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Pulwama



Annexure II


Mean annual rainfall of district Pulwama
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**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delayed by two weeks 3rd week of January	Pleistocene medium rainfall precipitation	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** C_6 , C_8 **Rajmash:-** Canadian red **Moong:-** Shalimar, moong-1	No change		
	Shallow soils high rainfall (high altitude)	a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	No change		

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**

Delayed by four weeks and six week 1st week of February & 3rd week of February	Pleistocene medium rainfall precipitation	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** **C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar, moong-1	No change	• **Increase sowing depth of maize** • **Furrow sowing across the slope** • **Early sowing** • **Thinning in brown sarson and use as organic mulch**	
	Shallow soils high rainfall (high altitude)	a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	No change		

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**

Delayed by 8th weeks 1st week of March	Pleistocene medium rainfall precipitation Shallow soils high rainfall (high altitude)	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** C_6 , C_8 **Rajmash:-** Canadian red **Moong:-** Shalimar, moong-1 a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	Maize(local)-fallow Maize(local)+beans-fallow Maize(local)+greengram/Cowpea-fallow Maize-local Beans-canadian red Cowpea local 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	

Condition			**Suggested Contingency measures**		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Early season drought (delayed onset)	Pleistocene medium rainfall precipitation Shallow soils	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** C_6 , C_8 **Rajmash:-** Canadian red **Moong:-** Shalimar, moong-1	Maize(local)-fallow Maize(local)+beans-fallow Maize(local)+moong/cowpea-fallow Maize-local Beans-canadian red Cowpea local	• Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches Increase quantity of organic manure	

	high rainfall (high altitude)	a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	Maize(local)-fallow Maize(local)+beans-fallow Maize(local)+moong/cowpea -fallow		

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 20 day dry spell	Pleistocene medium rainfall precipitation	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** **C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar, moong-1	• Thining and gap filling • Reseeding /gap filling Reseeding if germination fails	• Tillage mulching	
	Shallow soils high rainfall (high altitude)	a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation**	**Remarks on Implementation**

rainless (>2.5 mm) period)				**measues**	
	Pleistocene medium rainfall precipitation Shallow soils high rainfall (high altitude)	a.Maize + Rajmash b. Maize + Moong c.Maize + Rajmash **Maize:- C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar moong-1 a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	Life saving irrigation Weeding &mulching Delay application of N dose	Prepare furrow across the slope Spray urea	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measrues**	**Remarks on Implementation**

	Pleistocene medium rainfall precipitation Shallow soils high rainfall (high altitude)	a. Maize + Rajmash b. Maize + Moong c.Maize + Rajmash **Maize:- C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar moong-1 a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red	Life saving irrigation Tillage mulch Weeding Organic mulch Thing of plant stand to rationalize available moisture	Spray micro nutrients and urea and potash as Kcl mulching	

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)/ western disturbance	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
	Pleistocene medium rainfall precipitation	a. Maize + Rajmash b. Maize + Moong c.Maize + Rajmash **Maize:- C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar moong-1	Life saving irrigation from water storages Harvest moong 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 irribgation	
	Shallow soils high rainfall (high altitude)	a. Oats b .Maize c. Maize + Rajmash **Oats:** sabzar **Maize**: C15,SKG1, SKG2, Shalimar, maize hybrid1 **Rajmash:** Canadian red			

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall/snowfall	low land snow melt Streams.Alluvial soils	a.Rice-brown sarson	Dealyed 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 rice fields • Irrigate rice after disappearance of ponded water. • Plastering of bunds	
		b.Rice-fodder oats			
		c.Rice- wheat			
	Tail ends of irrigated area.	a. Rice-brown sarson	Not required		
		b. Rice-fodder oats			
		c. Rice- wheat			
	Mid to high altitude Pleistocene soils	a. Rice-brown sarson			
		b.Rice-fodder oats			
		c.Rice- wheat			

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/snowfall		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	
		a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson		
		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			

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping syste[h]	Agronomic measures	Remarks on Implementation
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	Flowering stage	Crop maturity stage	Post harvest

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 craking join splits by nuts and bolts to save trees			
Heavy rainfall with high speed winds in a short span				
Crop1				
Horticulture				
Crop1				
Outbreak of pests and diseases due to unseasonal rains				
		Need based plant protection IPDM for pluses		Safe storage against storage pest and diseases
Horticulture				
Crop1				

2.3 Floods : Not experienced / encountered

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Rice	**NA**	-Remove slit from the effected parts of field -Drain water from field	-Staking of lodged plants -Remove slit -Drain water -Prophylactic spray to control diseases	-Drain field -Remove slit -Harvest and take produce to safer place
Horticulture				
Crop1				
Continuous submergence for more than 2 days				
Crop1				
Horticulture				
Crop1				
Sea water intrusion				
Crop1				

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

Extreme event type	**Suggested contingency measure**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave	NA			
Cold wave				
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				
Crop1				
Frost				
Crop1				

Horticulture				
Crop1				
Hailstorm				
Crop1				
Horticulture				
Crop1				
Cyclone				
Crop1				
Horticulture				
Crop1				

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/orchars 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 management	Arrangement and preparedness with required medicine stock	Vaccination for foot and mouth disease and other required dosage and vaccination if not done earlier	Culling sick and 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			
Heat wave and cold wave			

[s] 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				
Shortage of feed ingredients	Ensure stock of feed	Utilisse damaged food grains Utilise 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				
Cyclone				
Heat wave and cold wave				

[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	-
B. Aquaculture			
2) Floods			
A. Capture			
B. Aquaculture			
3. Cyclone / Tsunami			
A. Capture			
B. Aquaculture			
4. Heat wave and cold wave			
A. Capture			

B. Aquaculture			

[a] based on forewarning wherever available