State: Jammu and Kashmir

Agriculture Contingency Plan for District: Kupwara

1.0 District Agriculture profile					
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Western Himalayas, Warm Subhumid (To Humid With Inclusion Of Perhumid) Eco-Region (14.2)			
	Agro-Climatic Zone (Planning Commission)	West Himalayan Zone (I)			
	Agro Climatic Zone (NARP)	Mid to High altitude temperate zone (JK-3)			
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Srinagar,Ganderbal,Shopian,Bandipora,Kulgam,Budgam,Pulwama,Anantnag,Baramulla			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		$75^0$31' N	$74^0$15'	5371 ft	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RRS, Wadura			
	Mention the KVK located in the district with address	KVK, Kupwara			
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU, Srinagar, IMD Srinagar			
1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset (specify week and month)**	**Normal Cessation (specify week and month)**
	SW monsoon :				
	NE Monsoon:				
	Annual	1052.4	84	-	-

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)	66.594	45.651	0.340	5.166	5.191	2.575	0.189	3.338	2.467	3.338

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total**
	1. Clay to clay loam	56.361	90
	2. Sandy loam	7.951	10

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP)

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	45.651	112
	Area sown more than once	5.52	
	Gross cropped area	51.171	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	25.405		
	Gross irrigated area	25.405		
	Rainfed area	20.246		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		21.085	14
	Tanks		0.746	
	Open wells		0.065	
	Bore wells			
	Lift irrigation schemes			

	Micro-irrigation			
	Other sources (please specify)		0.265	
	Total Irrigated Area		22.851	
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (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 > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture (as per latest figures) 2008-09

1.7	**Major field crops cultivated**	**Area ('000 ha)**							
		Kharif			***Rabi***				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Rice	15.605		-	-	-	-	-	-
	Maize	-	24.687	-	-	-	-	-	-
	Pulses	-	0.511	-	-	-	-	-	-
	Fodder	-	0.051	-	--	-	-	-	-
	Oil seeds	-		-	1.209	-	-	-	-

	Millets	-	0.091	-	-	-	-	-	-

	Horticulture crops - Fruits	**Area ('000 ha)**		
		Total	**Irrigated**	**Rainfed**
	Apple	17.367	-	-
	Cherry	0.100	-	-
	Pear	0.396	-	-
	Apricot	0.051	-	-
	Peach	0.035	-	-
	Plum, Cherry, Walnut, Almound	0.039, 0.105, 8.584, 0.013		
	Horticulture crops	**Total**	**Irrigated**	**Rainfed**
	Walnut	8.175	-	-
	Almond	0.012	-	-
	Apricot	0.031	-	-
	Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
	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)	-	-	182.3
	Improved cattle	-	-	142.042
	Crossbred cattle	-	-	-
	Non descriptive Buffaloes (local low yielding)	-	-	2.10
	Descript Buffaloes	--	-	0.951
	Goat	-	-	42.9
	Sheep	-	-	73.5
	Others (Camel, Pig, Yak etc.)	-	-	
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial			
	Backyard		620.000	

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**
	62/08ha		

	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)

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	502	6200	-	-	-	-	-	-	-
	Maize	110	2000	-	-	-	-	-	-	-
	Oilseed	-	-	78	600	-	-	-	-	-
	Fodder	-	-	2975	17500	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	1088	8500	-	-	-	-	-	-	-
	Walnut	35	2300	-	-	-	-	-	-	-
	Peach	-	-	-	--	-	-	-	-	-
	Cherry	-	-	-	-	-	-	-	-	-

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Rice**	**Maize**	**Pulses**	**Oil Seeds**	**Rice**

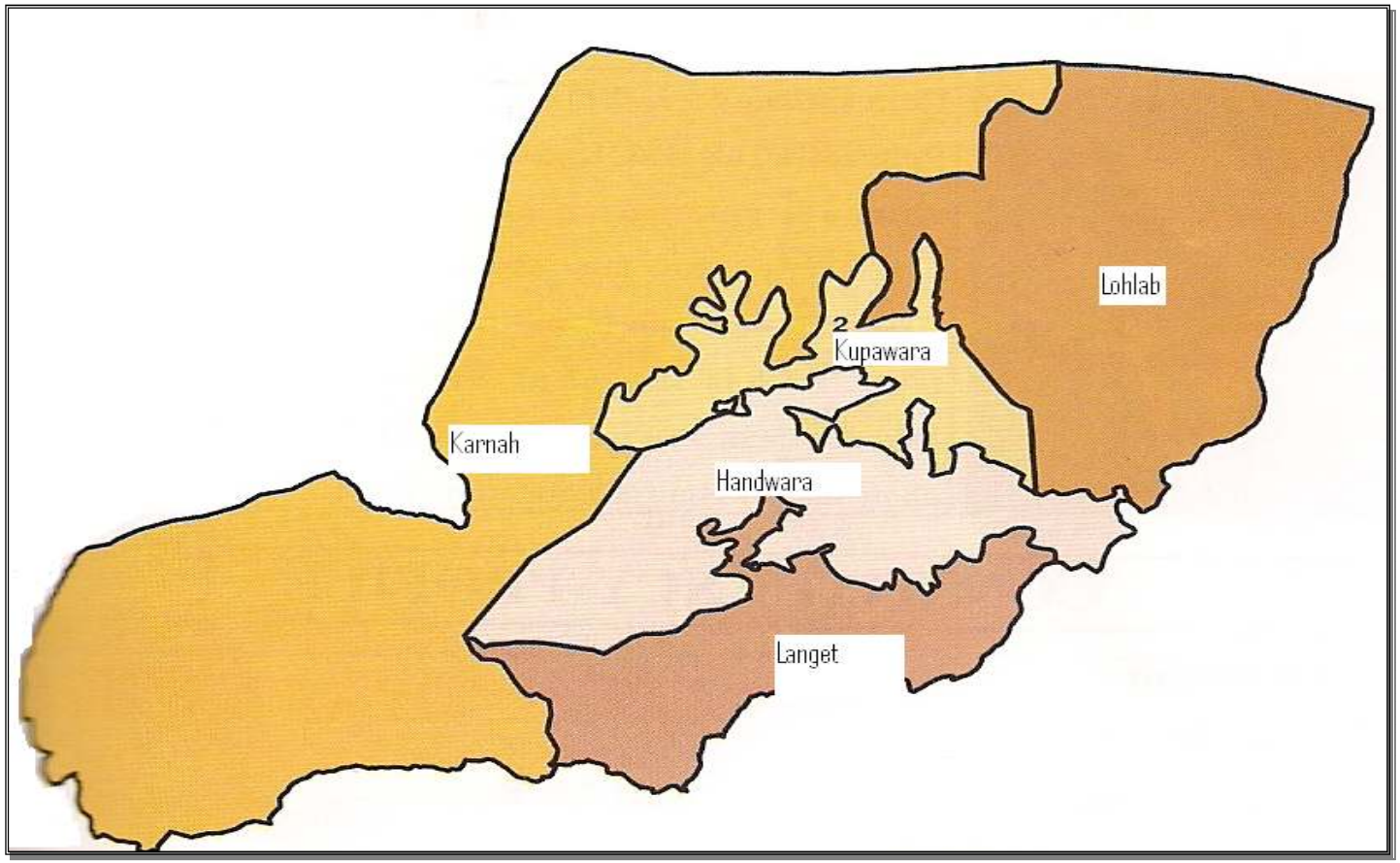
	Kharif- Rainfed	-	2nd week of April to 3rd week of May	3rd week of May to 3rd week of June	-	-
	Kharif-Irrigated	3rd week of April to 2nd week of May	1st week of April to 3rd week of May	3rd week of May to 3rd week of June	-	-
	Rabi- Rainfed	-	--	-	1st week of October to 2nd week of October	-
	Rabi- Irrigated	-	-	-	-	-

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)		√	

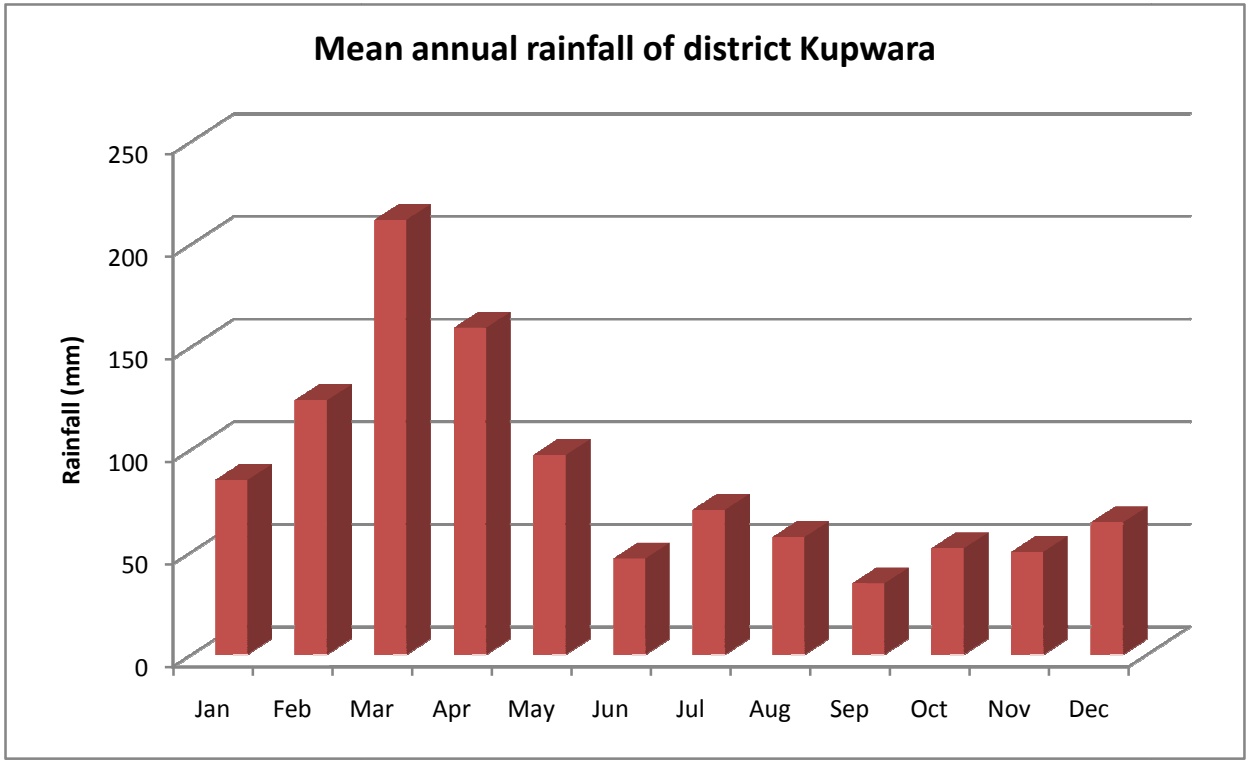
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Kupwara



Annexure II


Mean annual rainfall of district Kupwara
Rainfall (mm)
250
200
150
100
50
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 **Greengram:-** 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 **Greengram:-** 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	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** **C_6 , C_8** **Rajmash:-** Canadian red **Greengram:-** Shalimar, moong-1	**Maize(local)-fallow** **Maize(local)+beans-fallow** **Maize(local)+greengram/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**	
	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	**Maize(local)-fallow** **Maize(local)+beans-fallow** **Maize(local)+greengram/cowpea-fallow**		

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	a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash **Maize:-** **C_6 , C_8** **Rajmash:-** Canadian red **Greengram:-** 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**	
	Shallow soils high rainfall	a. Oats b .Maize			

	(high altitude)	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 **Greengram:-** 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 rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**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 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	a. Maize + Rajmash b. Maize + Moong c.Maize + Rajmash **Maize:- C_6 , C_8** **Rajmash:-** Canadian red **Moong:-** Shalimar moong-1	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	
	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**		
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		

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
		c.Rice- wheat	MP cherry		

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 western disturbance in catchment	low land. snow melt Streams.Alluvial Soils	**Conditions not applicable**			

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**	**Condition not applicable**			

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping syste**	**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/Moong	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[2]	--	-	-	-
Outbreak of pests and diseases due to unseasonal rains				

		Need based plant protection IPDM for pluses		Safe storage against storage pest and diseases

2.3 Floods : Not experienced / encountered

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation	**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**
Continuous submergence for more than 2 days	-	-	-	-
Sea water intrusion	-	-	-	-

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	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	
Frost				
Hailstorm				
Cyclone				

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	-	-	-
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	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	**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