

State: Jammu and Kashmir
Agriculture Contingency Plan for District: Bandipora

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 Arid Humid		
	Agro Climatic Zone (NARP)	Humid Western Himalayan Region		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Srinagar, Kupwara, Ganderbal, Shopian, Kulgam, Budgam, Pulwama, Anantnag, Baramulla		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		34 ⁰ -25 'N	74 ⁰ -38' E	5541 ft
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RRS Wadura		
	Mention the KVK located in the district with address	KVK-Baramulla		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Davison of Agronomy SKUAST-K, Shalimar 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	1476.2	86	-

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)	34.280	20.347	0.330	3.482	2.668	2.582	0.390	2.114	1.663	0.504

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Silty Clay loam	4.465	70
	Sandy loam	1.914	30

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	20.563	116
	Area sown more than once	1.217	
	Gross cropped area	21.780	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	11.580		
	Gross irrigated area	11.890		
	Rainfed area	5.895		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	289		89
	Tanks			
	Open wells			

	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area	14.245		
	Pump sets	45		
	No. of Tractors	19		
	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 2008-09)

1.7	Major field crops cultivated	Area ('000 ha)							Summer	Grand total
		<i>Kharif</i>			<i>Rabi</i>					
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total			
	Paddy	9.733								
	Maize		5.083							
	Pulses		1.758							
	Fodder	1.181								

	Oil seed					0.525			
	Millets		0.271						

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Apple	4.329		
	Walnut	1.612		
	Almond	0.209		
	Peach	0.006		
	Pear	0.101		
	Cherry	0.069		
	Horticulture crops - Vegetables	Total	Irrigated	Rainfed
	Medicinal and Aromatic crops	Total	Irrigated	Rainfed
	Plantation crops	Total	Irrigated	Rainfed
	Fodder crops	Total	Irrigated	Rainfed
	Total fodder crop area	1.181		
	Grazing land			

	Sericulture etc			
	Others (specify)			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)			
	Non descriptive Cattle (local low yielding)			20.490			
	Improved cattle			26.446			
	Crossbred cattle						
	Non descriptive Buffaloes (local low yielding)			0.486			
	Descript Buffaloes						
	Goat			55.204			
	Sheep			185.476			
	Others (Camel, Pig, Yak etc.)			17.861			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial		411.000				
	Backyard		237.429				
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

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)							
Major Field crops (Crops to be identified based on total acreage)										
	Paddy	0.680	4500							
	Maize	0.250	2600							
	Pulses	0.050	1000							
	Fodder	1.000	20000							
	Oilseed			0.290	1000					
Major Horticultural crops (Crops to be identified based on total acreage)										

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Rice	Maize	Pulses	Oil Seed	Millets
	Kharif- Rainfed	-	3 rd week of April to 4 th week of May	3 rd week of May to 3 rd week of June	-	

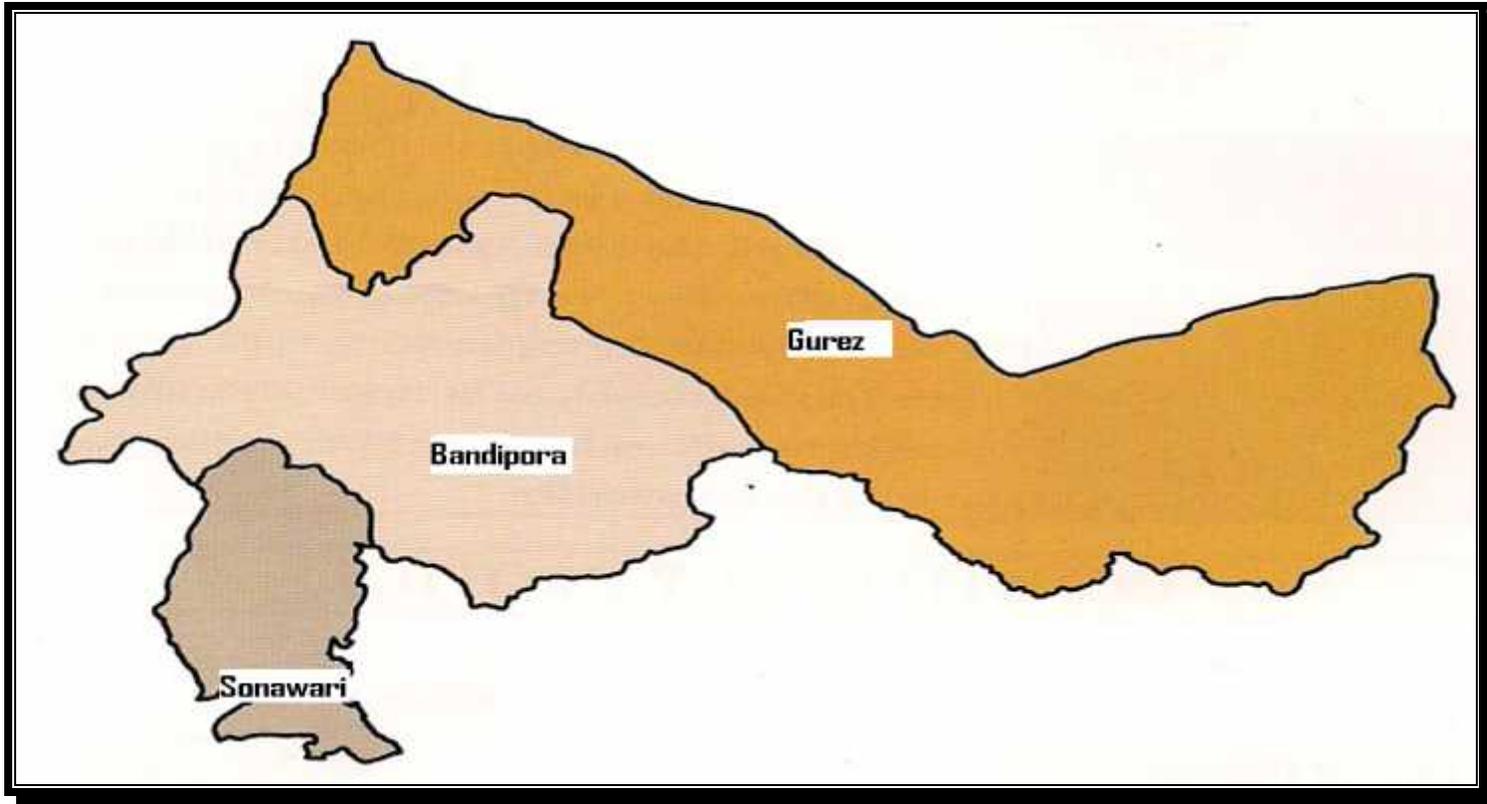
	Kharif-Irrigated	3 rd week of April to 2 nd week of May	1 st week of April to 4 th week of May	3 rd week of May to 3 rd week of June	-	
	Rabi- Rainfed				1 st week of October to 3 rd week of October	
	Rabi-Irrigated					

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)			✓

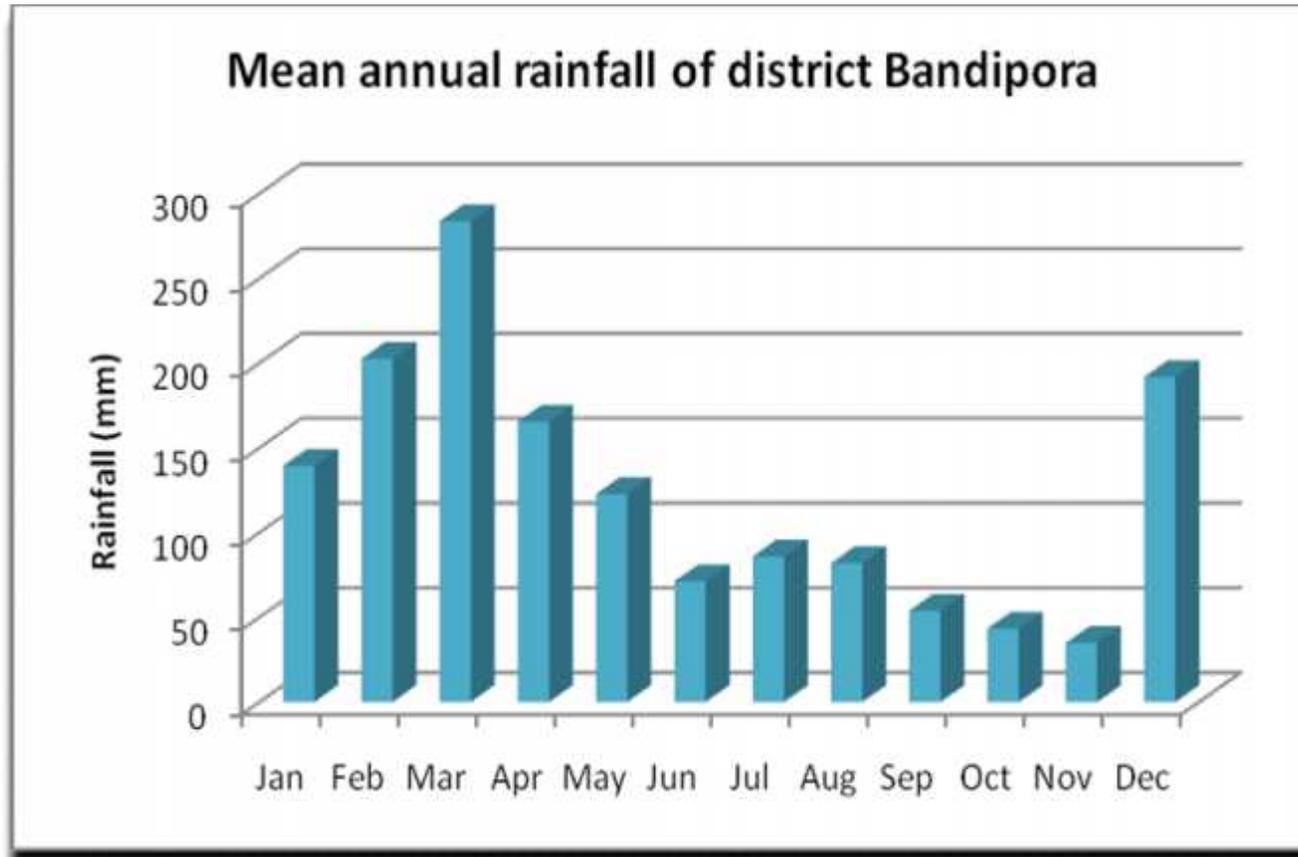
1.14	Include Digital maps of the district for		
		Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Bandipora



Annexure II



2.0 Strategies for weather related contingencies

2.1 Drought –Not Applicable

2.1.1 Rained situation

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
Delayed by two weeks 3 rd 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		
		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	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
Delayed by four weeks and six week 1st week of February & 3 rd 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	<ul style="list-style-type: none"> • 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		
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Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)					
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 Oats (sabzar)	Maize(local)-Fallow Maize(local) +Beans-Fallow Maize(local) + Greengram/cowpea-Fallow Maize-local/ Beans-Canadian red/ Cowpea local	<ul style="list-style-type: none"> • Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of 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	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)	Pleistocene soil medium rainfall precipitation Shallow soils high rainfall (high altitude)	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	<ul style="list-style-type: none"> • Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of organic manure 	
		Oats (sabzar) Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Maize-local/ Beans-Canadian red/ Cowpea local Maize(local)-Fallow/ Maize(local)+ Beans-Fallow/ Maize(local)+Greengram /Cowpea-fallow		

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Early season drought (Normal onset)					
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	<ul style="list-style-type: none"> • Thinning 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		
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Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	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	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Mid season drought (long dry spell)	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C ₆ , C ₈ Greengram: Shalimar moong-1 Rajmash: Canadian red	<ul style="list-style-type: none"> Life saving irrigation Tillage mulch Weeding Organic mulch Thinning of plant stand to rationalize available moisture 	<ul style="list-style-type: none"> Spray micro nutrients and urea and potash as KCl Mulching 	
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red			

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Rabi Crop planning ^d	Remarks on Implementation ^e
Terminal drought (Early withdrawal of monsoon)/ Western disturbance	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	Lentil, brown sarson wheat vetch to be sown in the	

		Oats (sabzar)	Harvest greengram and beans for vegetable purpose	month of October followed by pre-sowing irrigation	
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Harvest maize for fodder purpose and save excessive biomass as hay		

2.1.2 Drought - Irrigated situation

Condition	Major Farming situation ^f	Normal Crop/cropping system ^g	Suggested Contingency measures		
			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	Dealyed released of water is not situation as at early stages whatever snow is available water is released	<ul style="list-style-type: none"> • 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			
	2. Farming situation Tail ends of irrigated area.	a. Rice-brown sarson	Not required		
		b. Rice-fodder oats			
		c. Rice- wheat			
3 Farming situation .Mid to high altitude Pleistocene soils	a. Rice-brown sarson				
	b.Rice-fodder oats				
	c.Rice- wheat				

Condition					
	Major Farming situation ^f				
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	<ul style="list-style-type: none"> •Pre-sowing irrigation •Plant local varieties. •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 ⁱ
Non release of water in canals under delayed onset of western disturbance in catchment	1.Farming Situation low land. snow melt Streams.Alluvial Soils	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	Cropping System:1			
		Condition 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
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			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Continuous high rainfall in a short span leading to water logging				
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 span²				
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			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
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 ^f			
	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	<ul style="list-style-type: none"> - Necessary arrangements to grow fodder on bunds/orchards and irrigated area as need based - Use excessive fodder for making hay and silage 	<ul style="list-style-type: none"> -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	-	<ul style="list-style-type: none"> 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 ^a	During the event	After the event	
Drought				
Shortage of feed ingredients	Ensure stock of feed	Utilise 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				
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	<ul style="list-style-type: none"> • 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