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

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)	Western Himalayan Region (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,Kupwara,Ganderbal,Shopian,Bandipora,Kulgam,Budgam,Pulwama,Anantnag		
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		34.12° N	74.20° E	5207ft
	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	**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	1274 mm	130	-	-

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)	109.470	64.853	1.054	11.120	8.519	8.249	1.244	6.749	6.149	1.533

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**	**Percent (%) of total**
	Silty clay loam	-	60
	Sandy loam	-	30
	Silty loam	-	10

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	64.853	103
	Area sown more than once	2.295	
	Gross cropped area	67.148	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	29.409		
	Gross irrigated area	31.160		
	Rainfed area	11.137		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	198	-	89
	Tanks			
	Open wells			
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			

	Total Irrigated Area			
	Pump sets	1120		
	No. of Tractors	568		
	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)**							
		Kharif			***Rabi***				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Paddy	21.145	-					-	21.145
	Maize	22.145	-					-	22.145
	Greengram& Beans	2.496	-					-	2.496
	Peas		-					-	
	Fodder	1.263	-					-	1.263
	Oil Seed	-	-			1.243		-	1.243
	Wheat	-	-			0.039		-	0.039

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	**Irrigated**	**Rainfed**
	Apple	23.595		
	Pear	0.599		
	Cheery	0.207		
	Apricot	0.120		
	Horticulture crops			
	Walnut	3.088		
	Almond	0.264		
	Medicinal and Aromatic crops			
	Plantation crops			
	Eg., industrial pulpwood crops etc.			
	Fodder crops			
	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)			2821
	Improved cattle			84.207
	Crossbred cattle			150.239
	Non descriptive Buffaloes (local low yielding)			75
	Descript Buffaloes			
	Goat			969
	Sheep			2901
	Others (Camel, Pig, Yak etc.)			09.265
	Commercial dairy farms (Number)			

1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**
	Commercial		521.232
	Backyard		754.50

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)	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	84.5	4200	-	-	-	-	84.5	4200	-
	Maize	17.7	800					17.7	800	
	Pulses	0.87	500					0.87	500	
	Fodder	5.00	12500					5.00	12500	
	Oilseed	0.757	600					0.757	600	
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	482.951	1900					482.951	1900	
	Pear	1.989	300					1.989	300	
	Cheery	0.406	100					0.406	100	
	Olive	0.001	10					0.001	10	
	Walnut	6.720	200					6.720	200	
	Almond	0.003	10					0.003	10	

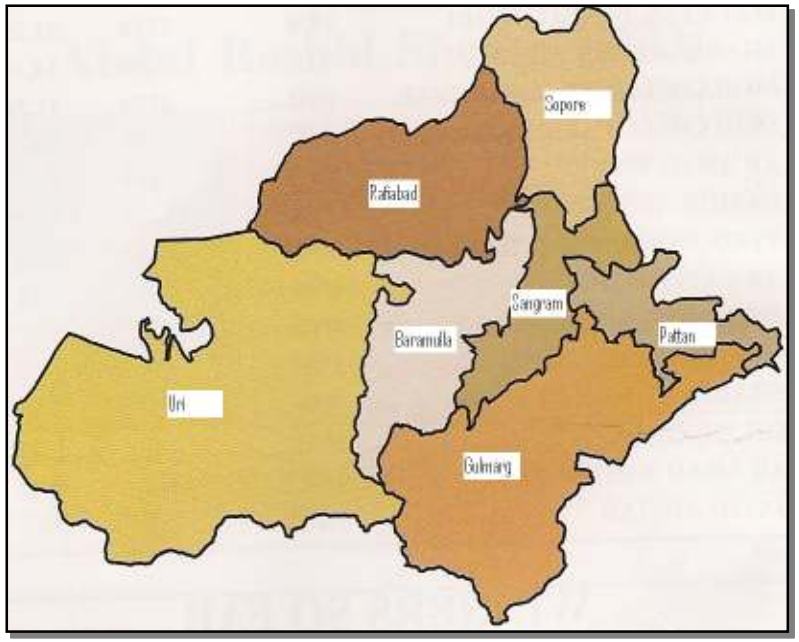
1.12	**Sowing window for 5 major field crops/** (start and end of normal sowing period)	**Rice**	**Maize**	**Pulses**	**Oil Seed**	**Rice**
	Kharif- Rainfed	-	2nd week of April-3rd week of May	2nd week of May – 2nd week of June	-	
	Kharif-Irrigated	3rd week of April-2nd week of May	1st week of April-3rd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

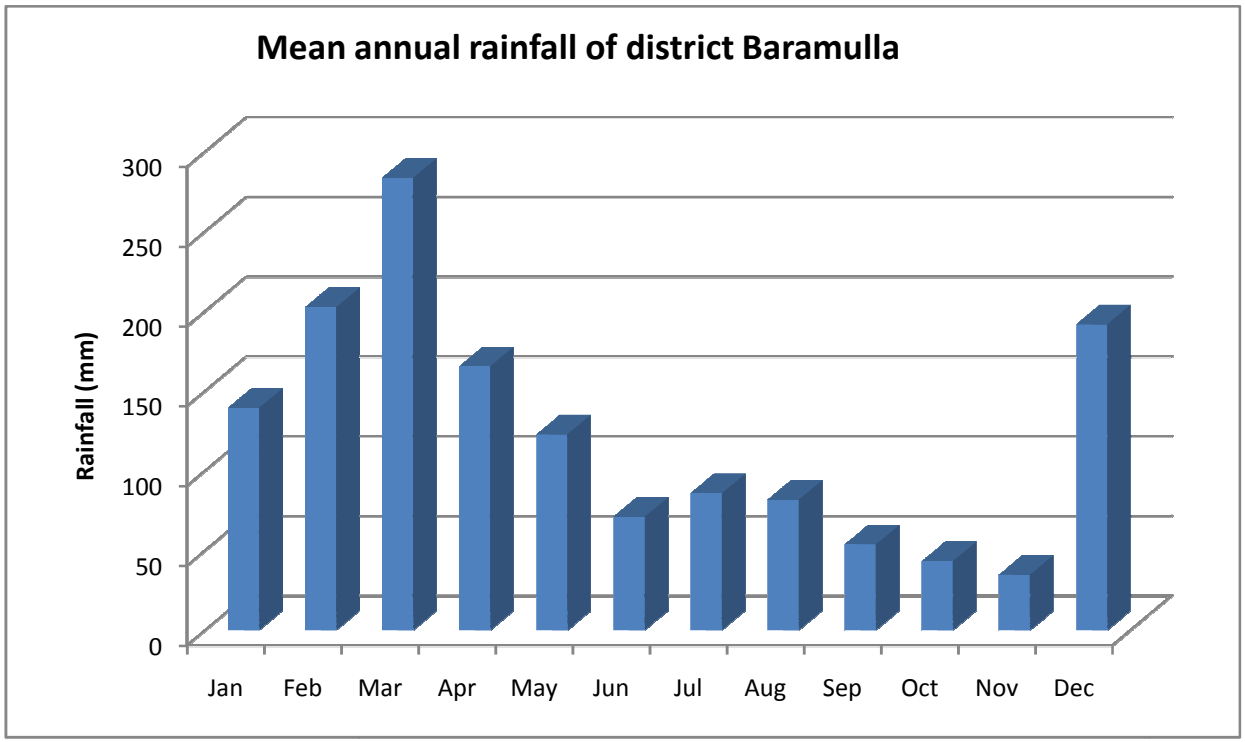
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Baramulla



Annexure II



2.0 Strategies for weather related contingencies

2.1 Drought -(Not Applicable

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]

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		
		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 4 & 6 weeks 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 Oats (sabzar)	No change is recommended	• Adjust the sowing depth of maize in moisture zone • Furrow sowing across the slope • Early sowing • Thinning in brown sarson and use as organic mulch	
	Shallow soils high rainfall(high altitute	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmah: 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 week	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1	Maize(local)-Fallow Maize(local) +Beans-Fallow Maize(local) + Greengram/cowpea-Fallow	• Use local varieties • Follow water	

1st week of March	Shallow soils high rainfall(high altitude)	Rajmash: Canadian red 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	harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of organic manure	

Condition			**Suggested Contingency measures**		
	Major Farming situation[a]	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Early season drought (delayed onset)	Pleistocene soil medium rainfall precipitation Shallowsoils high rainfall (high altitude)	Maize + Greengram/ Maize + Rajmash Maize: C_6 , C_8 Greengram: Shalimar moong-1 Rajmash: Canadian red Oats (sabzar) 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 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**		
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 Oats (sabzar)	• Thining and gap filling • Reseeding /gap filling	• Tillage mulching	
	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 measues[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 Oats (sabzar)	Life saving irrigation Weeding &mulching Delay application of N dose	Prepare furrow across the slope Spray urea	
	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 Thing 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**
	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 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 irrigation	
		Oats (sabzar)			
	Shallow soils high rainfall(high altitute	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	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**[i]	**Remarks on Implementation**
Delayed release of water in	Low land, snow melt	Rice-brown sarson	Dealyed released of water Is not situation as at early	Pre-sowing irrigation Proper puddling in rice	
		Rice-fodder oats			

Condition			Suggested Contingency measures		
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures[i]**	**Remarks on Implementation**
canals due to low rainfall/snowfall	Streams, Alluvial soils	Rice- wheat	stages whatever snow is available water is releaaed	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	
	Tail ends of irrigated area	Rice-brown sarson	Not required		
		Rice-fodder oats			
		Rice- wheat			
	Mid to high altitude Pleistocene soils	Rice-brown sarson			
		Rice-fodder oats			
		Rice- wheat			

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]**
Limited release of water in canals due to low rainfall/snowfall	Low land, snow melt Streams, Alluvial soils	Rice-brown sarson Rice-fodder oat Rice- wheat	Maize+beans-brown sarson Maize+beans-oats Maize+Greengram /Cowpea-brown sarson	• Pre-sowing irrigation • Plant local varities. • Early sowing recommended • Increase organic manure as per availability	
	Tail ends of irrigated area	Rice-brown sarson Rice-fodder oats 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		

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]**

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			
Lack of inflows into tanks due to insufficient /delayed onset of monsoon		**Condition not applicable**			
Insufficient groundwater recharge due to low rainfall		**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 craking 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				
Rice		Need based plant protection IPDM for pluses		Safe storage against storage pest and diseases
Brown sarson				
Maize				
Beans				
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 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				
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			
Crop1				
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/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			
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	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				
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			