State: Jammu and Kashmir

Agriculture Contingency Plan for District: Srinagar

1.0 D	istrict Agriculture profile						
1.1	Agro-Climatic/Ecological Zone						
	Agro Ecological Sub Region (ICAR)	Western Hima	alayas, Warm Su	ıbhumid (To Hı	umid With Inclusion	Of Perhumid) Ec	co-Region (14.2)
	Agro-Climatic Zone (Planning Commission)	West Himalay	va Zone (I)				
	Agro Climatic Zone (NARP)	Mid to high a	titude temperat	e zone (JK-3)			
	List all the districts or part thereof falling under the NARP Zone	Kupwara,Ganderbal,Shopian,Bandipora,Kulgam,Budgam,Pulwama,Anantnag,Baramulla					
-	Geographic coordinates of district	Latitude			Longitude	Altitude	
	headquarters	34 ⁰ -0.3′ N			74 ⁰ - 48 ⁷ E		5211 ft
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	SKUAST-K S	buhama Ganderb	pal			
	Mention the KVK located in the district	KVK Shuham	a, Ganderbal				
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)		Normal Cess (specify weel	ation k and month)
	No concept of SW and NE Monsoon. Precipitation in the form of Snow and Rain	663	78	1 st week of Ja	1 st week of January		
	Annual	676.7					

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

							groves ('000 ha)			
Area ('000 ha)	11.703	6.785	0.700	1.328	0.687	2.242	0.712	0.503	0.545	0.221

1.4	Major Soils	Area ('000 ha)	Percent (%) of total
	Clay to clay loam	5.328	80
	Sandy loam	1.332	20

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	4.767	
	Area sown more than once	2.018	148%
	Gross cropped area	6.785	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	4.116		
	Gross irrigated area	5.547		
	Rainfed area	1.431		
	Sources of Irrigation	Number	Area (ha)	% of total irrigated area
	Canals/Small Canals		3.264	
	Tanks		25	
	Open wells		25	
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)Power tillers	8	76	
	Total Irrigated Area			100 %
	Pump sets	751		
	No. of Tractors	166		

Groundwater availability and use* (Day source: State/Central Ground water Department /Board)	ta No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
Over exploited	4	54.59	
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 (2008-2009)

1.7a	Major field crops cultivated	Area ('000 ha)									
			Kharif	harif		Rabi		Summer	Grand		
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		total		
	Rice	2.511	-	-	-	-	-	-	2.511		
	Maize	-	0.101	-	-	-	-	-	0.101		
	Oilseeds	-	-	-	-	0.434		-	0.434		
	Fodders	-	-	-	0.284	-	-	-	0.284		
	Pulses	0.073	-	-	-		-	-	0.073		
	Wheat	-	-	-	-	0.003	-	-	0.003		
	Dyes & tanning material	0.081	-	-	-		-	-	0.081		

1.7b	Horticulture crops – Fruits			
		Total (ha)	Irrigated	Rainfed ('000 ha)

Cherry, walnut, almond	1.223, 0.654, 0.914	-	1.223, 0.654, 0.914
Plum	0.253	-	0.253
Peach	0.061	-	0.061
Pear	0.464	-	0.464
Apricot	0.156	-	0.156
Apple	2.260	-	2.260

1.7c	Horticulture crops - Vegetables	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
	Tomato	0.216	100%	-
	Brinjal	-	-	-
	Cauliflower	-	-	-
1.7d	Medicinal and Aromatic crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1.7e	Plantation crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
	Eg., industrial pulpwood crops etc.			
1.7f	Fodder crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
1		284	-	-
	Condiments and spices	103	-	-

1.8	Livestock (in number)			Male ('000)		Female ('000)		То	otal (*000)	
	Non descriptive Cattle (local lo	w yielding)		12.6		55.6			125.5	
	Crossbred cattle (Crossbred + L	ocal)		38.884		-			-	
	Non descriptive Buffaloes (loca	l low yieldi	ing)			-			-	
	Graded Buffaloes					-			-	
	Goat			25.5		-			-	
	Sheep			98.9		-			-	
	Others (Camel, Yak etc.)			-		-			-	
	Commercial dairy farms (Numb	er)								
1.9	Poultry			No. of farms		Tota	al No. of b	oirds ('000)		
	Commercial			-			-			
	Backyard (Local)			-			169.	.5		
.10	Fisheries (Data source: Chief Planning Officer of district) 6									
	A. Capture									
	i) Marine (Data Source: No. of Fisheries Department)		f fishermen Boats		ats	Nets		Storage facilities (Ice plants etc.)		
	Tisieres Department)			Mechanized	Non- mechanized	Mechanized (Trawl nets, Gill nets)	(Shor	echanized e Seines, & trap nets)		
	ii) Inland (Data Source: Fisheries Department)	N	o. Farmer ow	ned ponds	No. of R	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: Department)									
	Others									

1.11 Production and Productivity of major crops

1.11	Name of crop		Kharif	K	Rabi	Su	mmer	Т	otal	Crop
		Production ('000 t)	Productivity (kg/ha)	residue as fodder ('000 tons)						
Major	Field crops (Crops to	be identified based	on total acreage))						
	Paddy	0.587	5500	-	-	-	-	0.587	5500	-
	Maize	0.059	1180	-	-	-	-	0.059	1180	-
	Oilseed	-	-	0.588	700	-	-	0.588	700	-
	fodder	1.776	12000	-	-	-	-	1.776	12000	-
	Buck wheat	0.240		-	-	-	-	-	-	-
Major	Horticultural crops (C		ed based on total a	acreage)		•		•		
	Apricot	0.065	-	-	-	-	-	0.065	-	-
	Apple	20.055	-	-	-	-	-	20.055	-	-
	Walnut	1.922	-	-	-	-	-	1.922	-	-
	Pear	2.342	-	-	-	-	-	2.342	-	-
	Cherry	2.536	-	-	-	-	-	2.536	-	-
	Peach	0.062	-	-	-	-	-	0.062	-	-
	Almond	0.081	-	-	-	-	-	0.081	-	-

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

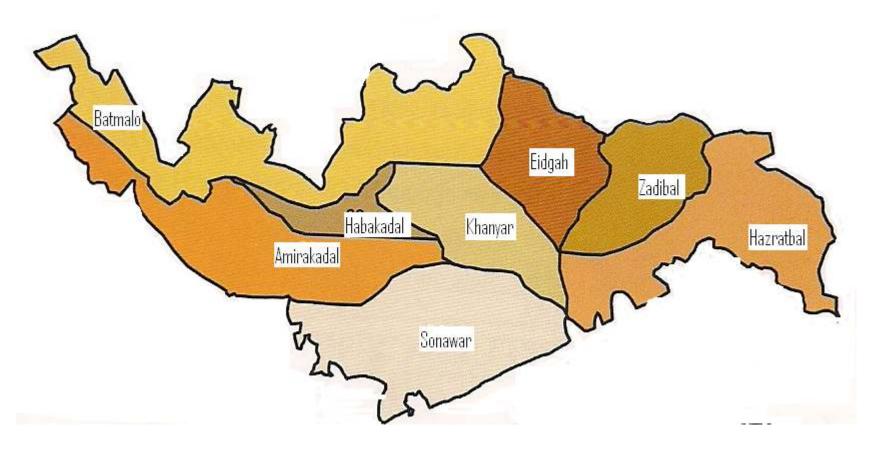
.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought		\checkmark	
	Flood		✓	
	Cyclone			\checkmark
	Hail storm		✓	
	Heat wave			\checkmark
	Cold wave	✓		
	Frost		✓	
	Sea water intrusion			\checkmark
	Pests and disease outbreak (specify)		✓	
	Others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

6 out of 10 years = Regular

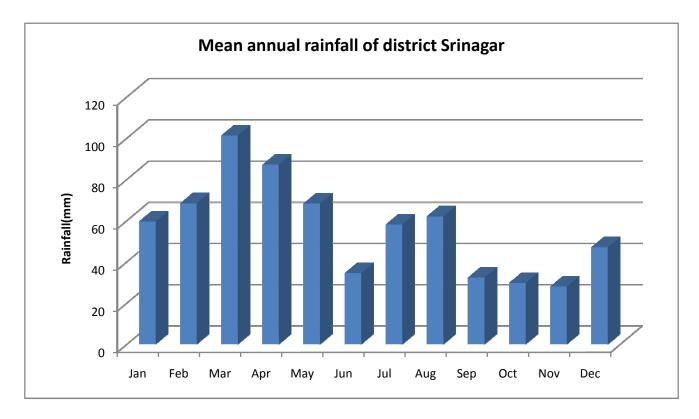
1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Srinagar District



Annexure II



2.0 Strategies for weather related contingencies

2.1 Drought- Not applicable

2.1.1 Rained situation

Condition			Suggested Contingency measures		
Early season	Major Farming	Normal Crop / Cropping system	Change in crop / cropping	Agronomic	Remarks on
drought	situation		system including variety	measures	Implementat

(delayed onset)				ion
Delayed by two weeks 3 rd week of January	Pleistocene medium rainfall precipitation	 a. Maize + Rajmash b. Maize + Greengram c. Maize + Rajmash Maize:- C₆, C₈ 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	Major Farming	Normal Crop / Cropping system	Change in crop / Agronomic measures Remarks		
drought	situation		cropping system		Implementat
(delayed onset)			including variety		ion

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

Condition			Suggested Contingency measures		
Early season	Major Farming	Normal Crop / Cropping system	Change in crop / cropping	Agronomic	Remarks on
drought	situation		system including variety	measures	Implementat
(delayed onset)					ion

weeks Ist week of Marchmedium rainfall precipitationb. Maize + Greengram c. Maize + RajmashMaize(local)+beans-fallow Maize(local)+greengram/Cow pea-fallowvarietiesMarchMaize:- C_6, C_8 Rajmash:- Canadian red Moong:- Shalimar, moong-1Maize-local Beans-canadian red Cowpea local• Follow water harvestingShallow soils high rainfall (high altitude)a. Oats b. Maize c. Maize + RajmashMaize(local)-fallow Maize-local Beans-canadian red Maize(local)-fallow Maize(local)-fallow Maize(local)-fallow Maize(local)+greengram/cow pea-fallow• Follow water harvestingMaize: Oats: hybrid1 Rajmash: Canadian reda. Oats b. Maize c. Maize + Rajmash Maize(local)+greengram/cow pea-fallow• Maize(local)-fallow Maize(local)+greengram/cow pea-fallow		medium rainfall precipitation Shallow soils high rainfall	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	pea-fallow Maize-local Beans-canadian red Cowpea local Maize(local)-fallow Maize(local)+beans-fallow Maize(local)+greengram/cow	 harvesting Increase sowing depth Early sowing Use mulches Increase quantity of 	
--	--	--	---	---	--	--

Condition			Suggested Co	ntingency measures	
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementa tion
Early season drought (delayed onset)	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 - Chi Guerra - Chi Care - Chi Care 	Maize(local)-fallow Maize(local)+beans-fallow Maize(local)+moong/cowpea -fallow Maize-local Beans-canadian red Cowpea local Maize(local)-fallow Maize(local)+beans-fallow	 Use local varieties Follow water harvesting Increase sowing depth Early sowing Use mulches Increase quantity of organic manure 	
		Maize: C15,SKG1, SKG2, Shalimar,	Maize(local)+moong/cowpea		

	maize hybrid1 Rajmash: Canadian red	-fallow	

Condition			Suggested Contin	igency measures	
Early season drought (Normal onset)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementati on
Normal onset followed by 20 day dry spell	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	 Thining and gap filling Reseeding /gap filling Reseeding if germination fails 	• Tillage mulching	

Condition			Sug	gested Contingency	measures
Mid season drought	Major Farming	Normal Crop/cropping system	Crop	Soil nutrient &	Remarks on
(long dry spell,	situation		management	moisture	Implementation
consecutive 2 weeks				conservation	
rainless (>2.5 mm)				measues	
period)					

Pleistocene medium	a.Maize + Rajmash		Life saving	Prepare furrow	
rainfall precipitation	b. Maize + Moong		irrigation	across the slope	
	c.Maize + Rajmash			Ĩ	
			Weeding	Spray urea	
	Maize:- C_6 , C_8		&mulching		
	Rajmash:- Canadian red		D I		
	Moong:- Shalimar moong-1		Delay		
			application of N dose		
Shallow soils high	a. Oats		uose		
rainfall (high altitude)	b.Maize				
	c. Maize + Rajmash				
	5				
	Oats: sabzar				
	Maize: C15,SKG1, SKG2,	Shalimar,			
	maize hybrid1				
	Rajmash: Canadian red				

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

Pleistocene medium rainfall precipitation	a. Maize + Rajmash b. Maize + Moong c.Maize + Rajmash	Life saving irrigation Tillage mulch	Spray micro nutrients and urea and potash as Kcl
	Maize:- C ₆ , C ₈ Rajmash:- Canadian red Moong:- Shalimar moong-1	Weeding Organic mulch	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	Thing of plant stand to rationalize available moisture	

Condition			Suggested	Contingency	measures
Terminal drought (Early	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
withdrawal of monsoon)/ western disturbance	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 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	

2.1.2 Drought - Irrigated situation

Condition			Suggest	ed Contingency measures	
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release	low land snow	a.Rice-brown sarson	Dealyed released of water	 Pre-sowing irrigation 	
of water in	melt	b.Rice-fodder oats	Is not situation as at early	 Proper puddling in 	
canals due to low rainfall/snowfall	Streams.Alluvial soils	c.Rice- wheat	stages whatever snow is available water is released	 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 	
	Tail ends of irrigated	a. Rice-brown sarson	Not required		
	area.	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			Suggester	d 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	low land snow melt Streams.Alluvial soils Tail ends of irrigated	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat a.Rice-brown sarson b.Rice-fodder oats	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson Maize+beans-brown sarson Maize+beans-oats	 Pre-sowing irrigation Plant local varities. 	
	area. Mid to high altitude Pleistocene soils	c.Rice- wheat a. Rice-brown sarson	Maize+moong/cowpea-brown sarson Maize		
		b.Rice-fodder oats	Fodder maize	1	

Condition			Suggested Contingency measures		
	Major Farming	Normal Crop/cropping	Change in crop/cropping	Agronomic measures	Remarks on
	situation	system	system		Implementation
		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		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	Flowering stage	Crop maturity stage	Post harvest	
Maize+beans	Provide surface	Provide surface drainage	Drain field.	Spread crop at dry and safer place	

Deeme/Creen group	drainage along the slope	do	Provide staking if lodging is seen. Harvest around at physiological maturity	
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				
2.2 Electer Net an entered / mean toned				

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					
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	During the event	After the event	
Drought				
		-Keep animals under shade		
		-Use urea molasses treated roughage		
	- Necessary arrangements to grow fodder on	-Use feed blocks prepared from crop residue		
	bunds/orchards and irrigated area as need based	And apple pomace		
Feed and fodder availability	- Use excessive fodder for making hay and silage	-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 other	Culling sick	

management	medicine stock	required dosage and vaccination if not done earlier	and unproductive livestock.
Floods			
Feed and fodder availability Drinking water	-	Take animals to safer places -Use feed blocks prepared from crop residue And apple pomace -Spread wet fodder at safer places to dry	
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 ^a During the eventAfter the event			
Drought				
		Utilisse damaged food grains		
Shortage of feed ingredients	Ensure stock of feed	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