

State: Jammu and Kashmir

Agriculture Contingency Plan for District: Budgam

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 Region (I)			
	Agro Climatic Zone (NARP)		Mid to high altitude temperate zone (JK-3)			
	List all the districts or part thereof falling under the NARP Zone		Srinagar,Kupwara,Ganderbal,Shopian,Bandipora,Kulgam,Pulwama,Anantnag,Baramulla			
	Geographic coordinates of district headquarters		Latitude	Longitude	Altitude	
			34 ⁰ -01'N	74 ⁰ -47'E	5201 ft	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS		K.D. Research Station under SKUAST-K			
Mention the KVK located in the district		KVK Budgam				
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		63			
	Annual	655 mm				

1.3	Land use pattern of the district (latest statistics)	Geographical area ('000 ha)	Cultivable area ('000 ha)	Forest area ('000 ha)	Land under non-agricultural use ('000 ha)	Permanent Pastures ('000 ha)	Cultivable wasteland ('000 ha)	Land under Misc. tree crops and groves ('000 ha)	Barren and uncultivable land ('000 ha)	Current Fallows ('000 ha)	Other fallows ('000 ha)
	Area ('000 ha)	77.829	52.015	0.721	7.341	6.183	4.869	1.098	0.925	11.086	2.242

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Clay loam		Very limited area
	Sandy loam	9.640	Majority of area

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	40.838	126
	Area sown more than once	11.177	
	Gross cropped area	52.015	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	27.454		
	Gross irrigated area	35.383		
	Rainfed area	23.728		
	Sources of Irrigation	Number	Area ('000 ha)	% of total irrigated area
	Canals/Small Canals		27.124	99%
	Tanks		0.066	
	Open wells		0.002	
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
Other sources (please specify)Power tillers	8	57		
Total Irrigated Area		27.249	100 %	

	Pump sets	751		
	No. of Tractors	166		
	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	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

1.7a	Major field crops cultivated	Area ('000 ha)							Summer	Grand total
		<i>Kharif</i>			<i>Rabi</i>					
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total			
	Paddy	22.798								
	Maize		9.889							
	Pulses		1.757							
	Fodder					1.261				
	Wheat					0.263				
	oilseed					6.320				
	Dyes & tanning material	0.188								
1.7b	Horticulture crops -									

	Fruits	Total	Irrigated	Rainfed ('000 ha)
	Apple	13.605		
	pear	1.624		
	Apricot	0.051		
	Plum	0.939		
	Cherry	0.176		
	Peach	0.045		

1.7c	Horticulture crops	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)
	Walnut	6.677		
	Almond	7.346		
	Other dry fruit	0		
	Total dry fruit			
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)

1.8	Livestock (in number)	Male ('000)	Female ('000)	Total ('000)		
	Non descriptive Cattle (local low yielding)	0.174	0.756	171.7		
	Crossbred cattle (Crossbred + Local)					
	Non descriptive Buffaloes (local low yielding)	0.002	0.002	0.5		
	Graded Buffaloes					
	Goat			41.2		
	Sheep			105.9		
	Others (Camel, Yak, fowls, ducks etc.)			4.863		
	Commercial dairy farms (Number)					
1.9	Poultry	No. of farms	Total No. of birds ('000)			
	Commercial		15.96			
	Backyard (Local)	179400	2370.000			
1.10	Fisheries (Data source: Chief Planning Officer of district) 6					
	A. Capture					
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets	Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized		
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks

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)							
Major Field crops (Crops to be identified based on total acreage)										
	Paddy	7.500	5500							
	Maize	0.800	1000							
	Pulses									
	Fodder									
	Wheat									
	Other food crop									
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	64.695								
	pear	7.473								
	Apricot	0.104								
	Plum	0.755								
	Cherry	0.223								
	Peach	0.050								
	Total fresh fruit	Walnut, Almond	8.772,6.586							

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		-	
	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) Locusts, Codling moth Aphids				

6 out of 10 years = Regular

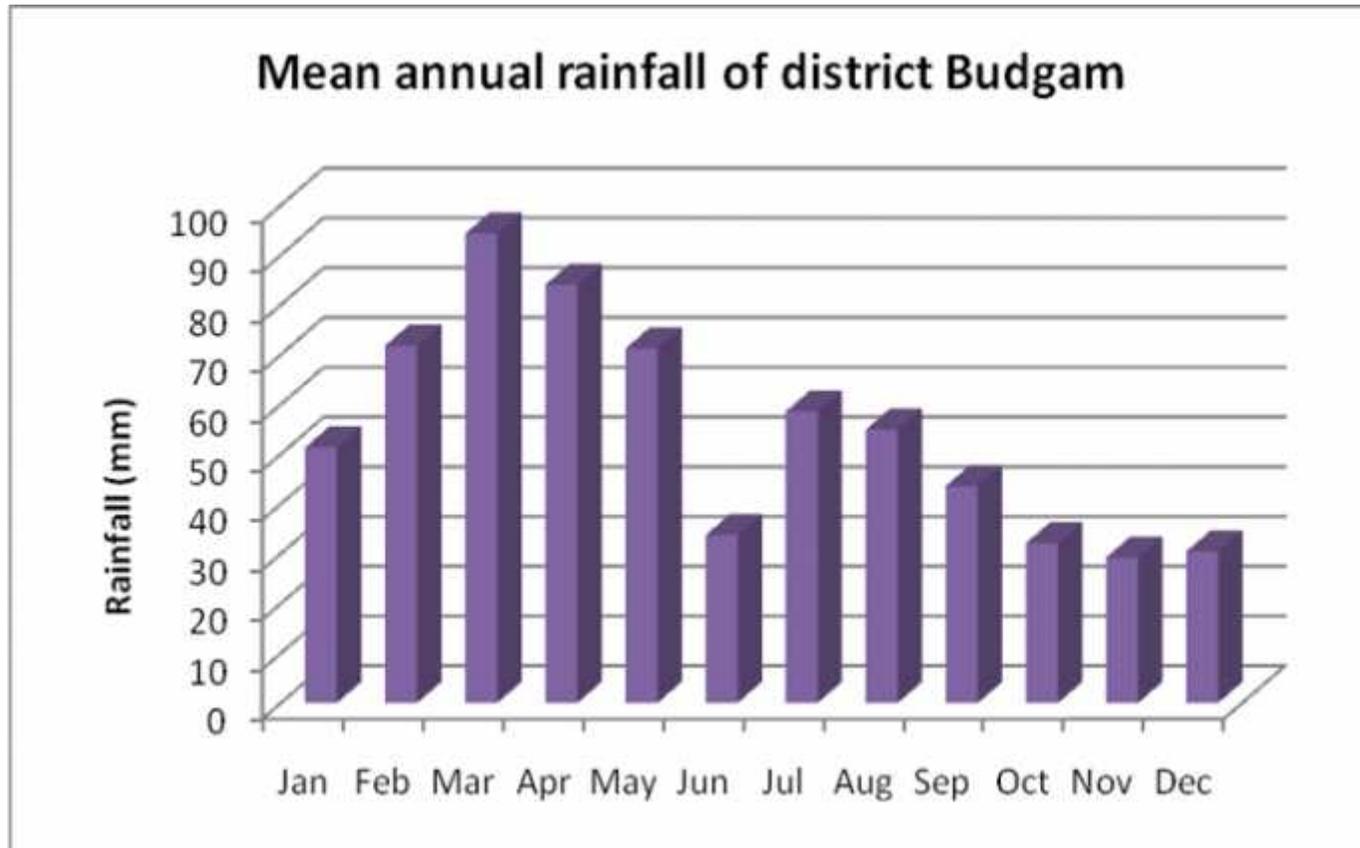
1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

Annexure I

Map of Budgam



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
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 feb	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		

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	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 	
		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	Maize(local)-Fallow/ Maize(local)+ Beans-Fallow/ Maize(local)+Greengram/Cow pea-fallow	quantity of organic manure	
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Suggested Contingency measures					
Condition	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	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-local/ Beans-Canadian red/ Cowpea local		
	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	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	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash	<ul style="list-style-type: none"> • Thining and gap filling • Reseeding /gap filling 	<ul style="list-style-type: none"> • Tillage Mulching 	
		Maize:- C₆ , C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1 a.Oats Oats-sabzar			
	Shallow soils high rainfall(high altitude)	M aize sole a.Maize b.M aize + Rajmash Maize-C15,SKG1 SKG2,Shalimar maize hybrid1 Rajmash:- Canadian red	Reseeding if germination fails		

Condition	Major Farming situation^a	Normal Crop/cropping system^b	Suggested Contingency measures		
			Crop management^c	Soil nutrient & moisture conservation measues^d	Remarks on Implementation^e
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
	Pleistocene soil medium rainfall precipitation	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize:- C₆ , C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1 a.Oats Oats-sabzar	Life saving irrigation Weeding & mulching Delay application of N dose	Prepare furrow across the slope Spray urea	

	2) Farming situation Shallow soils high rainfall (high altitude)	M aize sole a. Maize b. M aize + Rajmash Maize -C15, SKG1 SKG2, Shalimar maize hybrid1 Rajmash :- Canadian red			
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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)	1) Farming situation pleistocene soil medium rainfall precipitation	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize :- C ₆ , C ₈ Rajmash :- Canadian red Moong :- Shalimar moong-1	Life saving irrigation Tillage mulch Weeding Organic mulch Thin of plant stand to rationalize available moisture	Spray micro nutrients and urea and potash as KCl mulching	
		a. Oats Oats-sabzar			
	2) Farming situation Shallow soils high rainfall (high altitude)	M aize sole a. Maize b. M aize + Rajmash Maize -C15, SKG1 SKG2, Shalimar maize hybrid1 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	1) Farming situation pleistocene soil medium rainfall precipitation	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize:- C₆, C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1	Life saving irrigation from water storages	Lentil, brown sarson wheat vetch to be sown in the month of October followed by pre-sowing irrigation	
		a.Oats Oats-sabzar	Harvest moong and beans for vegetable purpose		
	2) Farming situation Shallow soils high rainfall (high altitude)	M aize sole a. Maize b. M aize + Rajmash Maize-C15, SKG1 SKG2, Shalimar maize hybrid1 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	1. Farming Situation low land. snow melt Streams. Alluvial soils	a. Rice-brown sarson	Delayed release 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 	
		b. Rice-fodder oats			
		c. Rice-wheat			
	2. Farming situation Tail ends of irrigated	a. Rice-brown sarson	Not required		
		b. Rice-fodder oats			

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
	area.	c. Rice- wheat		<ul style="list-style-type: none"> • Irrigate rice after disappearance of ponded water. • Plastering of bunds 	
	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	1.Farming situation	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 	
	2. Farming situation	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson		
	3 Farming situation	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	1.Farming Situation low land. snow melt Streams.Alluvial Soils				
		Conditions not applicable			

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
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	1) Farming Situation	Condition not applicable			

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
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/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 span²				
Crop1				
Horticulture				
Crop1 (specify)				
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 (specify)				

2.3 Floods : Not experienced / encountered

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation ¹				
Rice	NA	-Remove slit from the effected	-Staking of lodged plants	-Drain field

		parts of field -Drain water from field	-Remove slit -Drain water -Prophylactic spray to control diseases	-Remove slit -Harvest and take produce to safer place
Continuous submergence for more than 2 days ²				
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				
Horticulture				
Crop1 (specify)				
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	
Crop2				
Horticulture				
Crop1 (specify)				
Frost				
Crop1				
Horticulture				
Crop1 (specify)				
Hailstorm				
Crop1				
Horticulture				
Crop1 (specify)				

Cyclone				
Crop1				
Horticulture				
Crop1 (specify)				

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