

State: JHARKHAND

Agriculture Contingency Plan for District: Latehar

1.0 District Agriculture profile			
1.1	Agro-Climatic/Ecological Zone		
	Agro Ecological Sub Region (ICAR)	Moderately To Gently Sloping ChattisgarhMahanadi Basin, Hot Moist/Dry Subhumid Transitional ESR With Deep Loamy To Clayey Red And Yellow Soils (11.0)	
	Agro-Climatic Zone (Planning Commission)	Eastern Plateau and Hills Region (VII)	
	Agro Climatic Zone (NARP)	Western Plateau Zone (BI-5)	
	List all the districts or part thereof falling under the NARP Zone	Garhwa, Palamu, Latehar, Gumla, Simdega, Lohardaga,	
	Geographic coordinates of district headquarters	Latitude	Longitude
		23 ⁰ 75'N	84 ⁰ 5'E
	Altitude	1073'	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ZRS, Medininagar,Chianki, Palamu,Jharkhand	
	Mention the KVK located in the district	Krishi Vigyan Kendra, Seed Multiplication Farm, Balumath, Distt. Latehar	

1.2	Rainfall	Normal RF(mm)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep)	1167	2 nd week of June	1 st week of October
	NE Monsoon(Oct-Dec)	98	2 nd week of October	3 rd week of December
	Winter (Jan- March)	9		
	Summer (Apr-May)	67		
	Annual	1340		

1.3	Land use pattern of the district	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)	379.1	86	162.4	13.6	1.124	6.5	6.1	24.7	45.8	33.3

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Deep fine loamy soils	1.06	29
	Gravelly loamy soils	0.9	26
	Fine loamy soils	0.9	25
	Deep fine soils with clayey surface	0.1	4.2

Source – Fertilizer and agril. Statistics eastern region 2003-04

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	59.6	121
	Area sown more than once	12.6	
	Gross cropped area	32.3	

Source – SREP

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	247		
	Gross irrigated area	-		
	Rainfed area	895		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals			
	Tanks			
	Open wells			
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			

	Total Irrigated Area			
	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

1.7	Major field crops cultivated	Area ('000 ha)							
		<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Paddy			16.6					
	Maize			14.6					
	Pigeonpea			9.9					
	Wheat			1.9					
	Blackgram			2.1					

Source – Agriculture statistics of Jharkhand at a glance 2004

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Lemon	324		
	Mango	141		
	Guava	140		
	Horticulture crops - Vegetables	Total		

	Tomato	321		
	Potato	1205		
	Bhindi	646		
	Brinjal	477		
	Chilli	353		
	Medicinal and Aromatic crops			
	Plantation crops			
	Fodder crops			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)			
	Non descriptive Cattle (local low yielding)						
	Crossbred cattle						
	Non descriptive Buffaloes (local low yielding)						
	Graded Buffaloes						
	Goat			170.2			
	Sheep						
	Others (Camel, Pig, Yak etc.)			44.1			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial						
	Backyard						
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)								

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 identified based on total acreage)										
	Paddy	11.6						11.6	700	
	Maize	25.6						25.6	1750	
	Pigeonpea	8.2						8.2	825	
	Wheat	-	-	2.1	1105			2.1	1105	
	Blackgram	0.5	225					0.5	225	

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Rice	Maize	Pigeonpea	Wheat	Blackgram
	Kharif- Rainfed	2 nd week of June- 2 nd week of August	2 nd week of May- 2 nd week of July	2 nd week of June – 4 th week of July		2 nd week of June – 2 nd week of July
	Kharif-Irrigated					
	Rabi- Rainfed				2 nd week of November – 2 nd week of December	

	Rabi-Irrigated					
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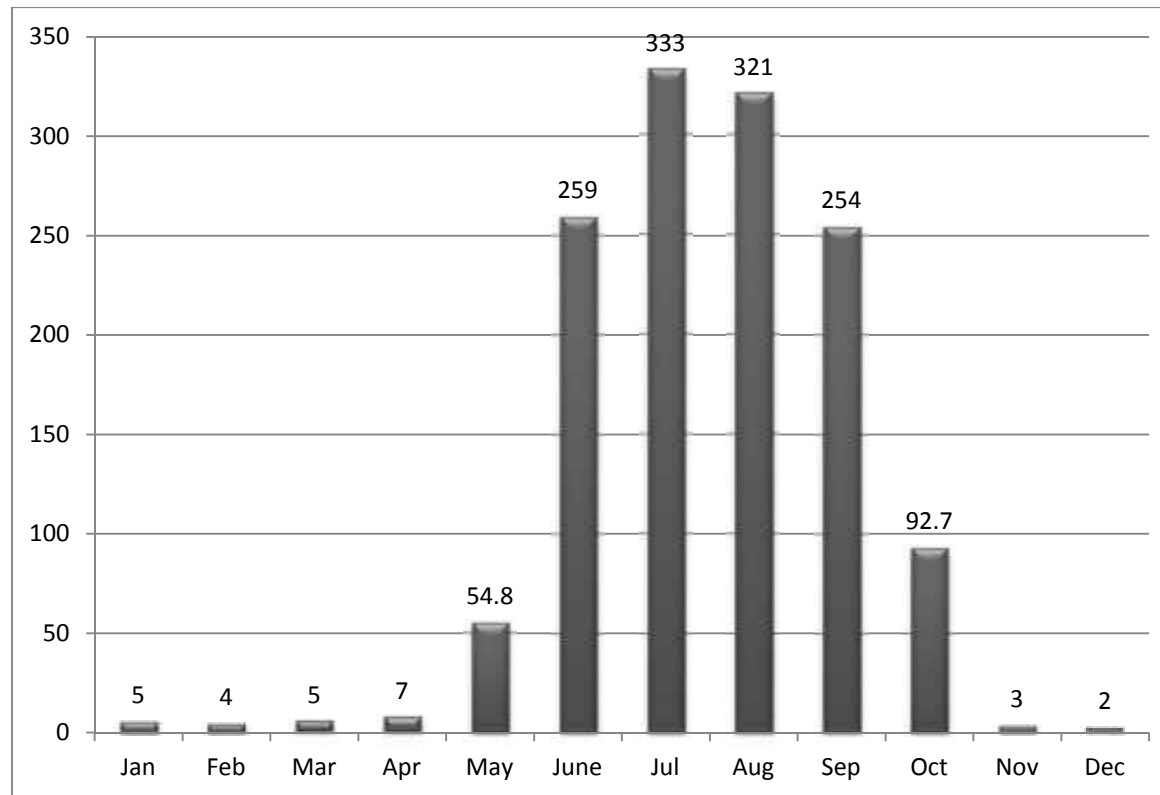
1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought	✓		
	Flood			✓
	Cyclone			✓
	Hail storm			✓
	Heat wave		✓	
	Cold wave		✓	
	Frost		✓	
	Sea water intrusion			✓
	Pests and disease outbreak		✓	

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-II	Enclosed: Yes
		Soil map as Annexure-III	Enclosed: Yes

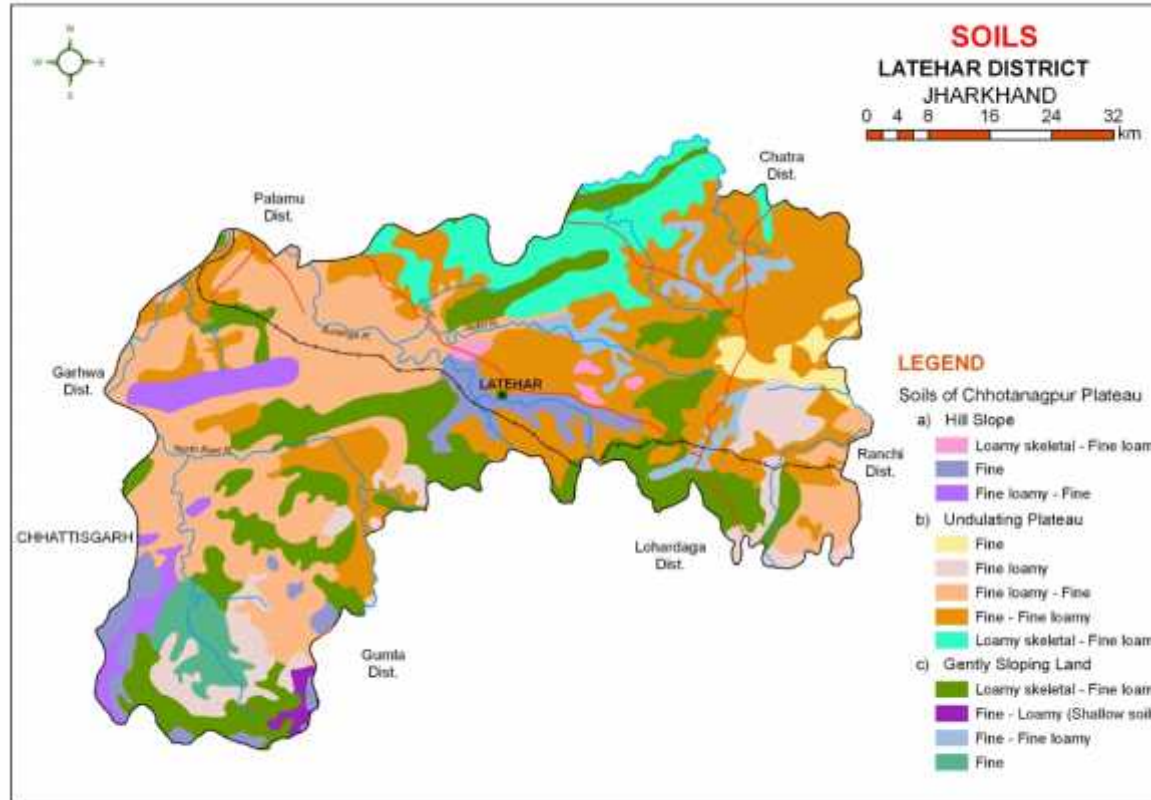
Annexure I



Annexure II



Annexure III



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) June 4 th week	Up land	Up land paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek	Seed sowing behind the plough, Hand weeding 20-25 DAS	
		Maize	Variety- Birsa vikash maize-,Suwan composite	Ploughing across the slope	
		Blackgram	Variety-Pant Urd 19, Birsa Urd-1,	Two hand weedings at 20 and 40 DAS	
		Pigeonpea	Variety – Upas 120,ICPH 2671	Ploughing across the slope, Earthing up 40-45 DAS after weed control, Two hand weeding at 25 and 45 DAS, Spraying of Endosulfan 35 EC or Nuvacron 40EC @0.2 to 0.3 % solution	
		Finger millet	Variety- Birsa marua 2, A.404	Transplanting 3-4 weeks after seedling	
		Tomato	Variety- Pusa rubi, Arka abha		
	Medium land	Paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek	Seed sowing behind the plough Hand weeding at 20-25 DAS	
		Soybean	Variety- Birsa Soybean1, JS 335,	Weed management – 20 and 45 DAS	
		Sesame	Variety -Kanke safed, Krishana		

	Low land paddy	Paddy	Variety- Lalat,IR_64	Seed sowing behind the plough	
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Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		Remarks on Implementation
			Change in crop/cropping system	Agronomic measures	
Delay by 4 weeks July 2 nd week	Up land	Up land paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek		Seed supply through NFSM
		Maize	Variety- Birsa vikash maize2 ,Suwan composite	Ploughing across the slope	
		Blackgram	Variety – Pant Urd 19, Birsa Urd 1,		
		Pigeonpea	Variety – Upas 120,ICPH 2671	Ploughing across the slope, Earthing up 40-45 DAS after weed control, Two hand weeding 25 and 45 DAS, Spraying of endosulfan 35 EC or Nuvacron 40EC @0.2 to 0.3 % solution	
		Finger millet	Variety- Birsa marua 2, A.404	Seed rate@ 8-10 kg /ha, Transplanting 3-4 weeks after seedling, Weed management- 25-30 DAT	
		Tomato	Variety- Pusa rubi, Arka abha	Mulching	
	Mid land	Paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek	Hand weeding at 20-25 DAS	
		Soybean	Variety- Birsa Soybean1, JS 335,		
		Sesame	Variety -Kanke safed, Krishana	Two weeding at 20-25 and 40-45 DAS	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks July 4 th week	Up land	Up land paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek	Hand weeding at 20-25 DAS	Seed supply through NFSM Implement supply through RKVY
		Maize	Variety- Birsa vikash maize-2 ,Suwan composite	Ploughing across the slope	
		Blackgram	Variety – Pant Urd 19, Birsa Urd 1,		
		Pigeonpea	Variety – Upas 120,ICPH 2671	-Ploughing across the slope -Earthing up 40-45 DAS after weed control -Two hand weeding 25 and 45 DAS -Spraying of Indosulfan 35 EC or Nuvacron 40EC @0.2 to 0.3 % solution	
		Finger millet	Variety- Birsa marua 2, A.404		
		Tomato	Variety- Pusa rubi, Arka abha		
		Paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek	Seed sowing behind the plough	
		Soybean	Variety- Birsa Soybean1, JS 335		
		Sesame	Variety -Kanke safed, Krishana	Two weeding at 20-25 and 40-45 DAS	
		Paddy	Variety- Lalat,IR_64	Seed sowing by Drum seeder	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 8 weeks August 2 nd week	Up land	Up land paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108,		Seed supply through NFSM

			Vandana, Anjali, Abhishek		and NHM
		Maize	Variety- Birsa vikash maize2 ,Suwan composite	Ploughing across the slope	
		Blackgram	Variety – Pant Urd 19, Birsa Urd 1,		
		Pigeonpea	Variety – Upas 120,ICPH 2671	1- Ploughing across the slope 2- Earthing up 40-45 DAS after weed control 3- Two hand weeding 25 and 45 DAS 4- Spraying of Indosulfan 35 EC or Nuvacron 40EC @0.2 to 0.3 % solution	
		Finger millet	Variety- Birsa marua 2, A.404		
		Tomato	Variety- Pusa rubi, Arka abha		
	Mid land	Paddy	Variety- Birsa vikas dhan 109,110, Birsa dhan 108, Vandana, Anjali, Abhishek		
		Soybean	Variety- Birsa Soybean1, JS 335,		
		Sesame	Variety -Kanke safed, Krishana		
			Tomato . Variety- Pusa rubi, Arka abha		
	Brinjal. Variety- pusa purple, pusa long Cauliflower. Variety- Pusa ketki, Pusa deepali, 2585 S				
	Lowland	Paddy	Variety- Lalat,IR_64	Seed sowing by drum seeder	

Condition	Major Farming situation	Normal Crop/cropping	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation	Remarks on Implementation
Early season drought (Normal					

onset)		system		measures	
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Up land /medium land/Low land	As above in Upland/medium land/Low land	1- Thinning and gap filling in the Pigeon pea 2- Re sowing of Maize 3- Direct seeding of paddy 4- Gap filling of Paddy		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	Up land/medium land/Low land	As above in Upland/medium land/Low land	1- Thinning and gap filling in the Pigeon pea 2- Re sowing of Maize 3- Direct seeding of paddy Gap filling of Paddy		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell)					
At flowering/ fruiting stage	Up land/medium land/Low land	As above in Upland/medium land/Low land	1- Thinning and gap filling in the Pigeon pea 2- Re sowing of Maize 3- Direct seeding of paddy Gap filling of Paddy		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)					

	Up land	As above in Upland/medium land/Low land	Life saving irrigation	Field preparation for Horse gram, Field pea, Mustard, Chick pea, Lentil, Linseed	
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2.1.2 Drought - Irrigated situation- Not applicable

Condition	Suggested Contingency measures				Remarks on Implementation ^j
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	
Limited release of water in canals due to low rainfall	Not applicable				
Non release of water in canals under delayed onset of monsoon in catchment					
Lack of inflows into tanks due to insufficient /delayed onset of monsoon					
Insufficient groundwater recharge due to low rainfall					

1.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Pigeonpea	Provide drainage , Ridge making	Provide drainage		
Rice	Bund making	Provide drainage	Provide drainage	

Horticulture				
Cucurbits	Staking	Provide drainage	Provide drainage	
Vegetables	Sowing on ridge			
Outbreak of pests and diseases due to unseasonal rains				
Pulses	Leaf hoper/Caterpillar Control- Monocrotophos @ 1 ml/lit			
Maize	Stem borer control- Phorate 10G@ 20 kg/ha	Sheath blight control- Hexaconazole 1.0 lit in 500 lit water/ha		
Rice		Blast diseases control- Tricyclazole (0.05 %)	False Smut control- Propiconazole 0.1 % or Copper oxy chloride -50 (2 kg/ha)	
Bhendi		Yellow mosaic virus Control- Carbofuran 3G @ 3 gm/m ²		
French bean	Rust disease control- Mancozeb 2.5 kg/ ha			

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation ¹				
Continuous submergence for more than 2 days ²	Not Applicable			
Sea water intrusion ³				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest

Hailstorm	Not applicable			
Heat Wave				
Wheat	Life saving irrigation	Life saving irrigation	Life saving irrigation (Terminal heat)	
Cold wave				
Wheat	Irrigation Balanced fertilizer application Foliar spray of nutrients	Light irrigation Mulching with crop residue \ weeds Fertilizer application	Irrigation, fertilizer application	
Vegetables	Raising of seedling in Poly house, re sowing if damaged	Light irrigation Mulching with crop residue \ weeds Disease and pest control, care for chilling injury or replanting	Quick harvesting	Grading, quick disposal for marketing
Pigeonpea		Light irrigation Mulching with crop residue \ weeds		
Frost				
Wheat		Light irrigation Mulching with crop residue \ weeds		
Pigeonpea	Exposure of crop to smoke by burning waste material during night time	Exposure of crop to smoke by burning waste material during night time Light sprinkler irrigation	Exposure of crop to smoke by burning waste material during night time Light sprinkler irrigation	Exposure of crop to smoke by burning waste material during night time
Tomato & Potato		Earth up to 15cm ht. Irrigation Intercultivation, Mulching with weeds		Harvest in dry weather

Horticultural crops (fruit crops)	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available
Cyclone	Not applicable

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			
Feed and fodder availability	Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging fodder crops in irrigated area Silage – using excess fodder for silage	Utilizing fodder from perennial trees and Fodder bank reserves Utilizing fodder stored in silos Transporting excess fodder from adjoining districts Use of feed mixtures	Availing Insurance Culling unproductive livestock
Drinking water	Preserving water in the tank for drinking purpose Excavation of Bore wells	Using preserved water in the tanks for drinking Wherever ground water resources are available priority for drinking purpose	
Health and disease management	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	Culling sick animals

^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	Insurance & Integration Establishing geed serve Bank	Utilizing from feed serve banks	Availing insurance Strengthening feed Reserve Banks	

Shortage of feed ingredients				
Drinking water	Emergency Veterinary preparedness with medicines vaccination to birds	Campaigne and Mass Vaccination	Culling affected birds	

^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	Not Applicable		
2) Floods			
3. Cyclone / Tsunami			
4. Heat wave and cold wave			

^a based on forewarning wherever available