

State: KARNATAKA
Agricultural Contingency Plan for District: KODAGU

1.0 District Agriculture profile					
1.1	Agro-Climatic / Ecological Zone				
	Agro Ecological Region / Sub Region (ICAR)		Western Ghats And Coastal Plain, Hot Humid-Perhumid Eco-Region (19.2)		
	Agro-Climatic Region (Planning Commission)		West Coast Plains & Ghats Region (XII)		
	Agro Climatic Zone (NARP)		Coastal zone (KA-10)		
	List all the districts or part thereof falling under the NARP Zone		Chitradurga, Davanagere, Tumkur, Hasan, Chickmagalur, Shimoga, Mysore, Kodagu		
	Geographic coordinates of district		Latitude	Longitude	Altitude
			12°19'45 N	75°53'44 E	900m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS		Agricultural Research Station (ARS), Ponnampet, Agricultural Research Station (ARS), Madikeri, University of Agricultural Sciences (Bangalore), PIN; 571216		
	Mention the KVK located in the district		Krishi Vigyan Kendra, Gonicoppal Kodagu District PIN; 571236		
AMFU Station		Recently formed district, so data not available			
1.2	Rainfall	Average (mm)	Normal rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	Recently formed district, so data not available				
	SW monsoon (June-Sep):	-	-	1 st Week of June	2nd week of September
	NE Monsoon(Oct-Dec):	-	-	1 st week of October	Second Week of November
	Winter (Jan- March)	-	-	-	-
	Summer (Apr-May)	-	-	-	-
Annual	-	-	-	-	

1.3	Land use pattern of the district (latest statistics)	Geographical area	Forest area	Cultivable 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)	410.7	134.597	167.352	23.961	14.774	9.128	23.452	31.010	2.738	-

Source: DACNET-2007-08.

1.4	Major Soils	Area ('000 ha)	Percent (%) of total geographical area
	Recently formed district, so data not available		
	Deep black soil	-	-
	Red clayey soils	-	-
	Alluvial soils	-	-
	Sandy soils	-	-
	Sandy loam soils	-	-
	Lateritic soils & miscellaneous		
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	-	
	Area sown more than once	-	-
	Gross cropped area	-	

1.6	Irrigation	Area ('000 ha)	Percent (%) of total geographical area	
	Net irrigated area	-	-	
	Gross irrigated area	-	-	
	Rainfed area	-	-	
	Sources of Irrigation	-	Area ('000 ha)	% area
	Canals	-	-	-
	Tanks	-	-	-
	Open wells	-	-	-
	Bore wells	-	-	-
	Lift irrigation	-	-	-
	Other sources(Reservoirs)	-	-	-
	Total	-	-	-
	Pumpsets	-	-	-
	Micro-irrigation	-	-	-
	Groundwater availability and use	No. of blocks	% area	Quality of water
	Over exploited	-	-	-
	Critical	-	-	-
	Semi- critical	-	-	-
	Safe	-	-	-
Wastewater availability and use	-	-	-	

*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%

1.7 Area under major field crops & horticulture etc.

1.7	Major Field Crops cultivated	Area ('000ha)*					
		Kharif		Rabi		Summer	Total
		Irrigated	Rainfed	Irrigated	Rainfed		
	Horticulture crops - Fruits	Total area		Irrigated		Rainfed	
	Banana	1.483		-			

	Citrus	1.122		
	Mango	0.104		
	Guava	0.072		
	Sapota	0.062		
	Horticulture crops - Vegetables		Irrigated	Rainfed
	Sweet potato	0.128		
	Knol- khol	0.096		
	Potato	0.085		
	Tapoica	0.047		
	Radish	0.034		

	Medicinal and Aromatic crops	Total area	Irrigated	Rainfed
	Plantation & Spice crops	Total area	Irrigated	Rainfed
	Coffee	103.325		
	Cardamum	9.043		
	Pepper	8.880		
	Areca nut	2.994		
	Ginger	2.729		
	Flower crops	Total area	Irrigated	Rainfed
	Anthurium	0.024		
	Total fodder crop area			
	Grazing land			
	Sericulture etc			

Source: Department of Horticulture, Statistical wing, Lalbagh, Bangalore 2008-09

1.8	Livestock	Number ('000) DATA NOT AVAILABLE		
1.9	Poultry			
1.10	Fisheries	Area (ha)	Yield (t/ha)	Production (tones)

1.11	Production and Productivity of major crops (2008-09)	Kharif		Rabi		Summer		Total	
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)
	Coffee	-	-	-	-	-	-	106.410	1004
	Cardamom	-	-	-	-	-	-	0.542	60
	Pepper	-	-	-	-	-	-	3.135	350
	Banana	-	-	-	-	-	-	39.075	26350
	Areca nut	-	-	-	-	-	-	3.743	1250

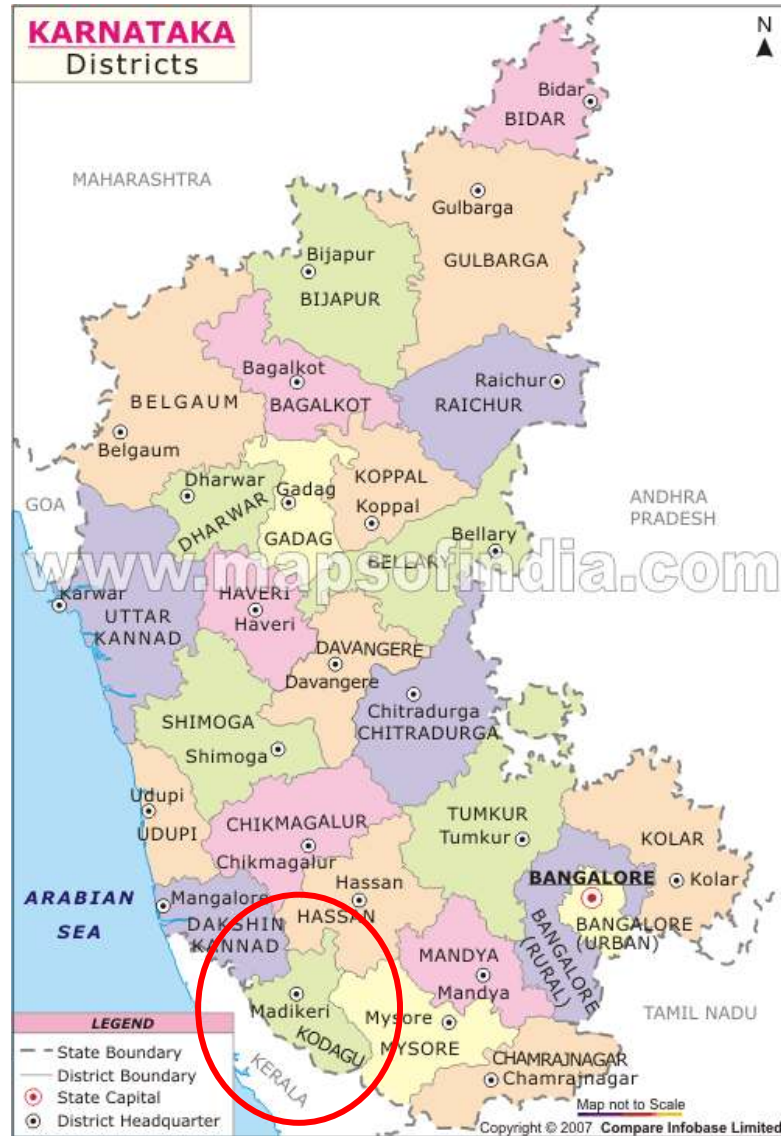
1.12	Sowing window for 5 major crops (start and end of sowing period)	Coffee	Cardamom	Pepper	Banana	Arecanut
	Khariif- Rainfed	June (<i>Khariif</i>) to August)	June to August	June to August	June to July	May to June
	Khariif-Irrigated	-		-	-	August to September
	Rabi- Rainfed	-	-	-	-	-
	Rabi-Irrigated	-	-	-	-	-

1.13	What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period)	Regular	Occasional	None
	Drought		√	
	Flood			√

	Cyclone			√
	Hail storm			√
	Heat wave			√
	Cold wave			√
	Frost			√
	Sea water inundation			√
	Pests and diseases (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: NA
		Soil map as Annexure 3	Enclosed: NA

Annexure – 1: LOCATION MAP OF KODAGU DISTRICT IN KARNATAKA



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 2,4,6 &8 weeks (June 3 rd ,July 1 st , July 3 rd and August 1 st week)	Red sandy loam soils	1. Coffee +Pepper +Jungle trees /Silver oak /Erythrina. Coffee: 1R, 2R,3R, Cauveri,. Pepper: Karimunda, Punniyur Hybrid 1	No change in crop / cropping system.	-	1. Supply of inputs through coffee board. 2. Supply of inputs through NHM,
		2. Cardamom +Jungle wood trees Cardamom :M1, CCS1, SKP14,Clone 37, Nalyanigold	No change in crop / cropping system.	-	
	Sandy clay loam soils	3. Banana +pepper + Coffee Banana :Puttabale, Naendran, Robusta, Budubale	No change in crop / cropping system.	-	
	Sandy clay loam soils	4. Arecanut+Pepper +Cocoa +Banana +Nutmeg. Arecanut :Thirthahalli Cocoa :NC.23 ,NC.29.	No change in crop / cropping system.	-	
	Red sandy soils	4. Arecanut+Pepper +Cocoa +Banana +Nutmeg. Arecanut :Thirthahalli Cocoa :NC.23 ,NC.29.	No change in crop / cropping system.	-	

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil management	Remarks on Implementation
Early season drought (Normal onset, followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.)	Red sandy loam soils	1. Coffee +Pepper +Jungle trees /Silver oak /Erythrina. Coffee: 1R, 2R,3R, Cauveri,. Pepper: Karimunda, Punniyur Hybrid 1	Coffee 1.Pruning & Training 2.Shade management 3. Weed management 4. Sprinkler irrigation to induce flowering. 5. Harvest at physiological maturity stage Pepper 1. Weed management 2. Fertilizer management. 3.Provide proper support 4. Harvest at physiological maturity stage	1.FYM and compost to be added in adequate quantities to the soil 2.Supplement soils with calcium rich fertilizers 3.Apply Trichoderma to the soil	1.Supply of inter cultural implements through RKVY . 2.Farm ponds through IWSM programme
		2. Cardamom +Jungle wood trees Cardomum :M1, CCS1, SKP14,Clone 37, Nalyanigold	Cardamom 1.Maintain proper spacing. 2.Supplemental irrigation. 3. Fertilizer management. 4. Shade management. 5. Mulching of the soil to be done to conserve moisture. 6. Harvest at physiological maturity stage	1.Application of calcium and magnesium sulphate	1.Supply of inter cultural implements through RKVY. 2.Farm ponds through IWSM programme

Condition	Major Farming situation	Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil management	Remarks on Implementation
	Sandy clay loam soils	3. Banana +pepper + Coffee Banana :Puttabale, Naendran, Robusta, Budubale	Banana: 1. Use of sword suckers/tissue culture plants for planting 2. Disease free planting material. 3. Earthing up 2-3 times. 4. Raise of windbreaks /shelter belts 5. Harvest at physiological maturity stage	Apply organic manure and fertilizers	1. Supply of inter cultural implements through RKVY . 2. Farm ponds through IWSM programme
	Sandy clay loam soils	4. Arecanut+Pepper +Cocoa +Banana +Nutmeg. Arecanut :Thirthahalli Cocoa :NC.23 ,NC.29	Arecanut 1. Maintain proper spacing 2. Fertilizer management. 3. Raise of windbreaks /shelter belts 4. Mulching of the soil to be done to conserve moisture 5. Harvest at physiological maturity stage	1. Application of calcium and magnesium sulphate	1. Supply of inter cultural implements through RKVY. 2. Farm ponds through IWSM programme.
Mid season drought (long dry spell, consecutive 2 weeks rainless At vegetative stage.	As above-				
Mid season drought (long dry spell)	As above-				

Condition	Suggested Contingency measures				
	Major Farming situation	Crop/cropping system	Crop management	Soil management	Remarks on Implementation
At reproductive stage.					

Condition	Suggested Contingency measures				
	Major Farming situation	Crop/cropping system	Crop management	Rabi planning	Remarks on Implementation
Terminal drought	Not available				

2.1.2 Irrigated situation

Condition	Suggested Contingency measures				
	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed/ limited release of water in canals due to low rainfall	Data not available				
Non release of water in canals under delayed onset of monsoon in catchment	Data not available				

Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Data not available
Insufficient groundwater recharge due to low rainfall	Data not available

2.2 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				
1. Coffee +Pepper +Jungle trees /Silver oak /Erythrina. Coffee: 1R, 2R,3R, Cauveri,. Pepper: Karimunda, Punniyur Hybrid 1	Provide drainage	Provide drainage	Drain out excess water Harvesting at physiological maturity stage	Shift to safer place
2. Cardamom +Jungle wood trees Cardamom :M1, CCS1, SKP14,Clone 37, Nalyanigold	Provide drainage	Provide drainage	Drain out excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade and turn frequently
3. Banana +pepper + Coffee Banana :Puttabale, Naendran, Robusta, Budubale	Provide drainage	Provide drainage	Drain out excess water	Safe storage against storage pest and disease

4. Arecanut+Pepper +Cocoa +Banana +Nutmeg. Arecanut :Thirthahalli Cocoa :NC.23 ,NC.29	Provide drainage	Provide drainage	Drain out excess water	Safe storage against storage pest and disease
Outbreak of pests and diseases due to unseasonal rains				
Coffee	1.Coffee white borer: Control: Lindase 300ml / 200 liters of water 2.Leaf rust: Bordeaux mixture 1 % 3. Rust: - Resistant varieties. - Cultural practices like wider spacing, medium shade. -Pruning of unproductive shoots. - Bordeaux mixture 0.5 %.	1.Black rot:-Thinning of overhead shade. -Removing of cris cross branches. - Bordeaux mixture 1 %. 2. Pink disease: -Thinning of shade. - Bordeaux mixture 1 %.	1.Coffee berry borer: - Phytosanitation and proper drying of the harvested berries. - Endosulfan 340 ml /200 liters 2.Die back: : Bordeaux mixture 1 % 3.Berry blotch: Bordeaux mixture 1 % 4. Stalk rot of berries. - Provide good drainage - Maintain thin over shade. - Removal of mulch to expose the soil around the plants. - Bordeaux mixture 0.5 %	Safe storage against storage pest and diseases
Areca nut	1.Spindle bug: Phorate 10 g/plant 2.Foot rot:-Provide drainage. - Phytosanitation. - Isolation of palms should be maintained. - Root feeding with 125 ml of 1.5% calixin. - Soil drenching with captan 0.3%. - Apply neem cake 2- 2.5 kg.	1.Inflorescence caterpillar : Endosulphon 2ml /liter 2. Hidimundige:- Provide drainage. - Apply copper sulphate and lime to the soil. - Soil application of borax @25 g/palm.	1. Yellow leaf disease: IDM practices i.e. – Application of additional dose of phosphorous 800g/palm/year. - Organic manure @ 12kg / palm /year. - Provide drainage. - Use resistant or tolerant varieties. 2. Nut splitting: - Application of potash fertilizer. - Spray Bordeaux mixture 2 % -- Provide proper drainage.	Safe storage against storage pest and diseases

Cardamom	<p>1. Thrips: IPM Practices. Regulation of shade in thickly shaded areas. - Removal of collateral hosts. - Dimethioate 0.05%.</p> <p>2.Katte disease: Dimethoate 0.05% 6. Damping off: - Spray Bordeaux mixture 1 %.</p>	<p>1.Thrips:IPM Practices Regulation of shade in thickly shaded areas. - Removal of collateral hosts. - Dimethioate 0.05%.</p>	<p>1. Thrips: IPM Practices-Regulation of shade in thickly shaded areas. - Removal of collateral hosts. - Dimethioate 0.05%.</p> <p>2.Shoot &fruit borer: monocrotophos 0.05% 3.Capsule rot:- Bordeaux mixture 1 % - Application of neem cake - Shade regulation. -Phytosanitation.</p>	Safe storage against storage pest and diseases
Banana	<p>1. Pseudostem borer: - Clean cultivation. - Application of Mephosfolan 5% granulation at 50 g/plant. - 3g of carbofuran granuals /stool.</p> <p>2. Rhizome weevil: -Pit application of phorate 10 g/plant. - Biological control agents like fungal pathogens are useful.</p>	<p>1.Bunchy top: Matasystox 0.1 to 0.5 % 2.Banana aphid: 1% Monocrotophos 3. Thrips: Apply Dichlorovos @19%. 4. Pseudo stem heart rot:-plant sanitation. - Good drainage. - Provide proper spacing. - Spray Captan or D-M-45.</p>	<p>1. Sigatoka leaf spot: D-M 45 1% or spraying with 24% Fenbuconazol. 2.Bacterial soft rot: Drench with bleaching powder at 2g /l.</p>	Safe storage against storage pest and diseases
Pepper	<p>1. Bacterial leaf spot:- Chloramphenicol 200 ppm. - Bordeaux mixture 1 % - Phytosanitary condition.</p>	<p>1.Pollu beetle : Endosulfan 0.05%</p>	<p>1. Quick wilt: Phytosanitation. - Lopping of branches of shade trees. - Pruning of runner shoots. - Provide drainage. - Bordeaux mixture 1 % - Apply trichoderma @50 g / plant.</p>	Safe storage against storage pest and diseases

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			
Horticulture				
Sea water inundation ³				

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

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave ^p	Not applicable			
Cold wave ^d				
Frost				
Hailstorm				
Cyclone				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event

<p>Drought</p>	<p>As the district is occasionally prone to drought the following measures to be taken to ameliorate the fodder deficiency</p> <p>Sowing of cereals (Sorghum/Bajra) and leguminous crops (Lucerne, Berseem, Horse gram, Cowpea) during North-East monsoon under dry land system for fodder production.</p> <p>Encourage silage making with available maize fodder in the villages</p> <p>Chopping of fodder should be made as mandatory in every village through supply and establishment of good quality chaff cutters.</p> <p>Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon</p> <p>Proper drying, bailing and densification of harvested grass from previous season</p> <p>Creation of permanent fodder, feed and fodder seed banks in all drought prone villages</p>	<p>Harvest and use biomass of dried up crops (Paddy, Black gram, Green gram, Cowpea etc.,) material as fodder.</p> <p>Concentrate ingredients such as Grains, brans, chunnies & oilseed cakes, low grade grains etc. unfit for human consumption should be procured from Govt. Godowns for feeding as supplement for high productive animals during drought</p> <p>Continuous supplementation of mineral mixture to prevent infertility</p> <p>Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS).</p> <p>Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals</p> <p>Advise the farmers about the practice of mixing available kitchen waste with dry fodder while feeding</p>	<p>Training/educating farmers for feed & fodder storage.</p> <p>Maintenance / repair of silo pits and feed/fodder stores.</p> <p>Encourage progressive farmers to grow fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAIN T BAJRA, L-74, K-677, Ananad/African Tall etc., on their own lands & supporting them with assisting infrastructures like seeds, manure.</p> <p>Supply of quality fodder seed (multi cut sorghum/bajra/maize varieties) and fodder slips of Napier, guinea grass well before monsoon</p> <p>Replenish the feed and fodder banks</p>
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<p>Floods</p>	<p>In case of early forewarning (EFW), harvest all the crops (Paddy, Black gram, Green gram, Cowpea etc.) that can be useful as fodder in future (store properly)</p> <p>Don't allow the animals for grazing if severe floods are forewarned</p> <p>In flood prone mandals, arrange for storing minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods</p> <p>Keep stock of bleaching powder and lime</p> <p>Carry out Butax spray for control of external parasites</p> <p>Identify the Clinical staff and trained paravets and indent for their services as per schedules</p> <p>Identify the volunteers who can serve in need of emergency</p> <p>Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations</p> <p>Capacity building and preparedness of the stakeholders and official staff for the unexpected events</p> <p>Capacity building and preparedness of the stakeholders and official staff for the unexpected events</p>	<p>Transportation of animals to elevated areas</p> <p>Stall feeding of animals with stored hay and concentrates</p> <p>Proper hygiene and sanitation of the animal shed</p> <p>In severe floods, un-tether or let loose the animals</p> <p>Emergency outlet establishment for required medicines or feed in each village</p> <p>Spraying of fly repellants in animal sheds</p>	<p>Repair of animal shed</p> <p>Bring back the animals to the shed</p> <p>Cleaning and disinfection of the shed</p> <p>Bleach (0.1%) drinking water / water sources</p> <p>Deworming with broad spectrum dewormers</p> <p>Vaccination against possible disease out breaks like HS, BQ, FMD and PPR</p> <p>Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit</p> <p>Drying the harvested crop material and proper storage for use as fodder.</p>
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Cyclone	<p>Harvest all the possible wetted grain (Paddy, Black gram, Green gram, Cowpea etc.,) and use as animal feed.</p> <p>Stock of anti-diarrheal drugs and electrolytes should be made available for emergency transport</p> <p>Don't allow the animals for grazing in case of early forewarning (EFW) of cyclone</p> <p>Incase of EFW of severe cyclone, shift the animals to safer places.</p>	<p>Treatment of the sick, injured and affected animals through arrangement of mobile emergency veterinary hospitals / rescue animal health workers.</p> <p>Diarrhea out break may happen. Health camps should be organized</p> <p>In severe cases un-tether or let loose the animals</p> <p>Arrange transportation of highly productive animals to safer place</p> <p>Spraying of fly repellants in animal sheds for control of mosquitoes</p>	<p>Repair of animal shed</p> <p>Deworm the animals through mass camps</p> <p>Vaccinate against possible disease out breaks like HS, BQ, FMD and PPR</p> <p>Proper dispose of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit</p> <p>Bleach / chlorinate (0.1%) drinking water or water resources</p> <p>Collect drowned crop material, dry it and store for future use</p> <p>Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant</p> <p>Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production.</p>
Heat & Cold wave	NA		
Health and Disease management	<p>List out the endemic diseases (species wise) in that district</p> <p>Procure and stock emergency medicines and vaccines for important endemic diseases of the area</p> <p>All the stock must be immunized for endemic diseases of the area</p> <p>Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district</p>	<p>Constitution of Rapid Action Veterinary Force</p> <p>Performing ring vaccination (8 km radius) in case of any outbreak</p> <p>Restricting movement of livestock in case of any epidemic</p> <p>Rescue of sick and injured animals and their treatment</p> <p>Rescue of sick and injured animals and their treatment</p>	<p>Conducting mass animal health camps</p> <p>Conducting fertility camps</p> <p>Mass deworming camps</p>

Drinking water	Identification of water resources Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals)	Restrict wallowing of animals in water bodies/resources	Bleach (0.1%) drinking water / water sources Provide clean drinking water
Insurance	Encouraging insurance of livestock	Listing out the details of the dead animals	Submission for insurance claim and availing insurance benefit Purchase of new productive animals

2.5.2. Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds	Supplementation to all survived birds
Drinking water		Use water sanitizers or offer cool hygienic drinking water	
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and IBD	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water)	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Floods			

Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc,	Use stored feed as supplement Don't allow for scavenging Culling of weak birds	Routine practices are followed Deworming and vaccination against RD
Drinking water		Use water sanitizers or offer cool hygienic drinking water	
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD
Cyclone			
Shortage of feed ingredients	In case of EFW, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Use stored feed as supplement Don't allow for scavenging Protect from thunder storms	Routine practices are followed
Drinking water		Use water sanitizers or offer cool drinking water	
Health and disease management	In case of EFW, add antibiotic powder in drinking water to prevent any disease outbreak	Sanitation of poultry house Treatment of affected birds Prevent water logging surrounding the sheds Assure supply of electricity	Disposal of dead birds by burning / deep burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem

		Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness	Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c)
Heat & Cold wave	NA		

2.5.2 Fisheries

Condition: Drought (Inland)

Particulars	Suggested Contingency Measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Shallow water depth due to insufficient rains/inflow	Not allow to use the water for other purpose	Not allow to use the water	-	-
Changes in water quality	Harvest all the fishes and dispose	Chemically treat the water according to the need Harvest all the fishes and dispose	Remove old water and refill with fresh water	

Fisheries

Condition: Drought (Aquaculture)

Particulars	Suggested Contingency Measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Shallow water in ponds due to insufficient rains/inflow	Not allow to use the water from the pond for other purpose	Recycling of existing pond water	-	-

Impact of salt load build up in ponds / change in water quality	Dilution with fresh water	Dilution with fresh water	-	-
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Fisheries

Condition: Floods (Aquaculture)

Particulars	Suggested Contingency Measures				Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event		
Inundation with flood water	Provide proper drainage Increase the height of pond dykes	Provide proper drainage Increase the height of pond dykes	-	-	
Water continuation and changes in water quality	Safe diversion of water ways	Safe diversion of water ways	Treat the water with suitable measures	-	
Health and diseases	Liming	-	Treat the water with suitable measures	-	
Loss of stock and inputs (feed, chemicals etc)	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-	
Infrastructure damage (pumps, aerators, huts etc)	Remove pumps and aerators Construct the huts at elevated places	Remove pumps and aerators	Reinstall pumps and aerators	-	

Fisheries

Condition: Cyclones (Aquaculture)

Particulars	Suggested Contingency Measures				Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event		

Overflow / flooding of ponds	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-
Changes in water quality (fresh water / brackish water ratio)	Increase the height of pond dykes Safe diversion of inflow water	Increase the height of pond dykes Safe diversion of inflow water	Addition of saline/fresh water for specific salinity	-
Loss of stock and inputs (feed, chemicals etc)	Cover the net at the outlet point Increase the height of pond dykes	Cover the net at the outlet point Increase the height of pond dykes	-	-
Infrastructure damage (pumps, aerators, shelters/huts etc)	Remove pumps and aerators Construct the huts at elevated places	Remove pumps and aerators	Reinstall pumps and aerators	-