STATE: KARNATAKA

AGRICULTURE CONTINGENCY PLAN FOR DISTRICT: BENGALURU RURAL

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Eastern Ghats And TamilNadu Uplands And D (8.2)		
	Agro-Climatic Region (Planning Commission)	Southern Plateau and Hills Region (X)		
	Agro Climatic Zone (NARP)	Eastern Dry Zone (KA-5)		
	List all the districts or part thereof falling under the NARP Zone	Tumkur, Bengaluru Rural, Bengaluru Urban, Ramanagara, Kolar, Chikkaballapur		
	Geographic coordinates of district (HQ: Bangalore)	Latitude	Longitude	Altitude
		12^0 15' – 13^0 35'N	77^0 5' - 78^0 E	507 m AMSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Agriculture Research Station, GKVK, Bengaluru - 560065		
	Mention the KVK located in the district	Krishi Vigyan Kendra, Hadonahalli ,Thubagere hobli, Doddaballapura Taluk, Bengaluru Rural District - 561 205,		

1.2	**Rainfall**	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	415	-	1st Week of June	2nd week of October
	NE Monsoon(Oct-Dec):	223	-	3rd week of October	2nd Week of November
	Winter (Jan- March)	18	-	-	-
	Summer (Apr-May)	149	-	-	-
	Annual	805	49	-	-

1.3	**Land use pattern of the district** (2008-09)	Geographical 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)	658.9	81.1	28.8	3.4	2.0	0.3	24.8	40.1	10.0

1. 4	**Major Soils (common names like shallow red soils etc.,)**	**Area ('000 ha)**	**Percent (%) of total**
	Red clayey soils	-	44
	Lateritic soils	-	20

1.5	**Agricultural land use***	Area	Cropping intensity %
	Net sown area	243.0	103.6
	Area sown more than once	8.8	
	Gross cropped area	251.7	

1.6	**Irrigation**	Area		
	Net irrigated area (‘000 ha)	63.8		
	Gross irrigated area	69.0		
	Rainfed area	179.1		
	Sources of Irrigation	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals	-	3.4	5.0
	Tanks	128	0.2	0.2
	Open wells	55		
	Bore wells	24571	63.5	94.3
	Lift irrigation	43		
	Micro-irrigation			
	Other sources	-		
	Total Irrigated Area	24.8		
	Pump sets	56965		
	No. of Tractors	6079		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	
	Over exploited	-	-	
	Critical	-	-	
	Semi- critical	-	-	
	Safe	-	-	
	Wastewater availability and use	-	-	
	Ground water quality	good		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture etc. (2008-09)

1.7		**Major Field Crops cultivated**	**Area ('000 ha)**					
			Kharif		***Rabi***		**Summer**	**Total**
			Irrigated	***Rainfed***	***Irrigated***	***Rainfed***		
	1	Ragi	-	44.2				44.2
	2	Maize	-	10.3	-	-	-	10.3
	3	Paddy	2.23	-				2.2
	4	Redgram	-	1.3	-	-	-	1.3
	5	Groundnut	-	0.7	-	-	-	0.7
	6	Sunflower	-	0.3	-	-	-	0.3
	7	Sugarcane	0.093	-	-	-	-	0.09
	8	Bengalgram	-	-	0.082	-		0.08
		Horticulture crops - Fruits	**Total area**					
		Total fruits	10.3					
		Horticultural crops - Vegetables	**Total area**					
		Total vegetables	6.5					
		Medicinal and Aromatic crops						
		Plantation crops	-					
		Fodder crops	-					
		Total fodder crop area	-					
		Grazing land	-					
		Sericulture etc	5373.8					
		Others (Specify) Fisheries	1250					

1.8	**Livestock ***	**Male ('000)**	**Female ('000)**	**Total**
	Cattle			
	Non descriptive Cattle (local low yielding)(indigenous)	20.8	29.8	50.6
	Exotic	1.5	112.6	114.2
	Buffaloes			
	Non descriptive Buffaloes (local low yielding, indigenous)	0.733	27.9	28.6
	Graded Buffaloes			
	Sheep			
	indigenous			94.6
	Exotic			
	Cross bred			
	Goat	-	-	142.0
	Others *			7.46
	Pig			
	Rabbits			
	Dogs			
	Others			
	Total Livestock			
	Commercial dairy farms (Number)	-	-	

1.9	**Poultry***	**No. of farms**	**Total No. of birds**
	Commercial	-	4083795
	Backyard	-	-

1.10	**Fisheries** (Data source: Chief Planning Officer)
	A. Capture - NA

	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**	
		17		2		510	
	B. Culture						
		Water Spread Area (ha)		**Yield (t/ha)**		**Production**	
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)	-		-		-	
	ii) **Fresh water** (Data Source: Fisheries Department)	1.08		-			
	Others						

1.11 Production and Productivity of major crops (Average of last 5 years: 2004, 05, 06, 07, 08)

1.11	**Production and Productivity of major crops** (Average of last 3 years: 2006, 07, 08)	**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)
1	Paddy	43	3830					43	3830
2	Finger millet	289	2177					289	2177
3	Ground nut	11	788					11	788
4	Horse gram			7.0	734			7.0	734
5	Field bean	2.0	157					2.0	157

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Finger millet	Maize	Paddy	Redgram
	Kharif- Rainfed	2nd week of June to 3rd week of October	4th week of May to 1st week of October	-	4th week of May to 1st week ofJanuary

	Kharif-Irrigated	3rd week of August to 4th week of November	4th week of May to 1st week of October	3rd week of June to 1st week of October	-
	Rabi- Rainfed	-	-	-	-
	Rabi-Irrigated	2nd week of December to 2nd week of March	3rd week of November to 4th week of March	3rd week of November to 4th week of March	-

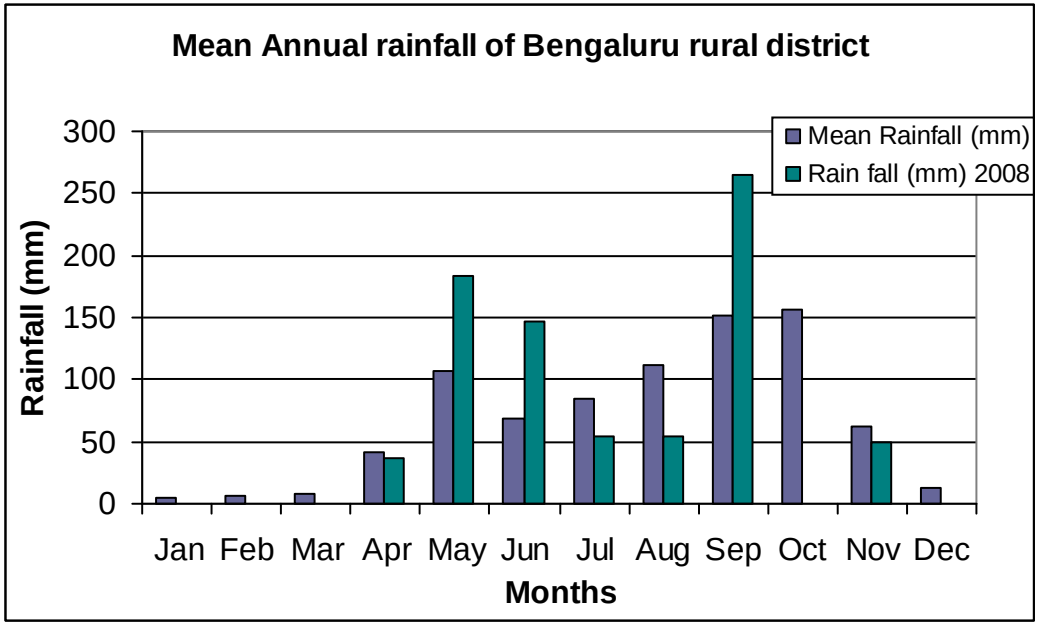
1.13	**What is the major contingency the district is prone to?** (Tick mark and mention years if known during the last 10 year period)	**Regular**	**Occasional**	**None**
	Drought		Ĕ	
	Flood			Ĕ
	Cyclone			Ĕ
	Hail storm			Ĕ
	Heat wave			Ĕ
	Cold wave			Ĕ
	Frost			Ĕ
	Sea water intrusion			Ĕ
	Pests and diseases (specify) Thrips Borers		Ĕ	
	Others			Ĕ

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: Yes

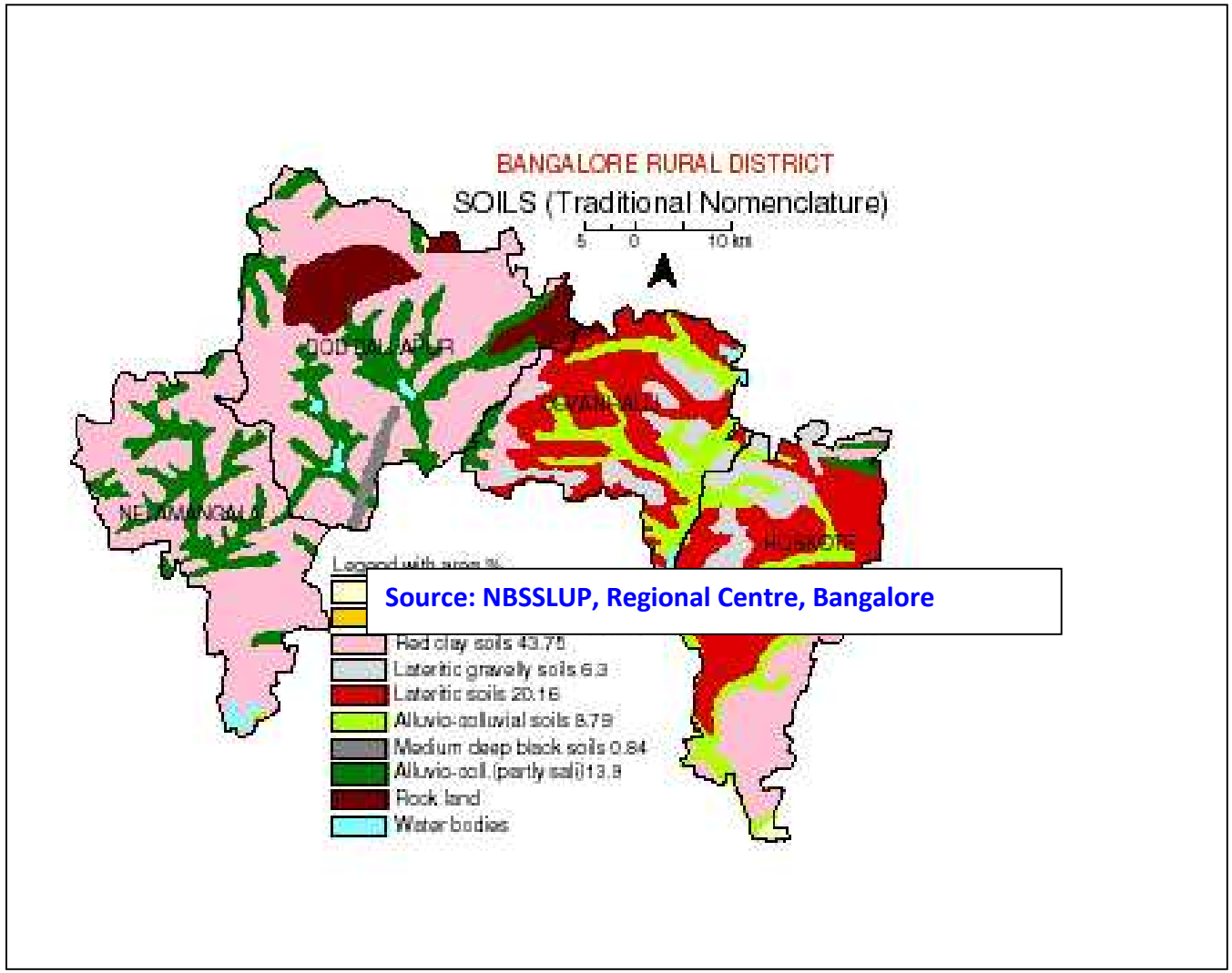
Annexure – 1: LOCATION MAP OF BENGALURU RURAL DISTRICT IN KARNATAKA

Source: mapsofindia.com

Annexure – 2: MEAN ANNUAL RAINFALL OF BENGALURU RURAL DISTRICT



Annexure – 3: SOIL MAP OF Bengaluru Rural District , KARNATAKA



Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks June 3rd week	Shallow red soils	Finger millet	a. Finger millet + Pigeon pea (8:2) b. Figer millet + Field bean (4:1) c. Fingermillet + Niger (4:1) d. Finger millet : MR-1, MR-6 L-5,	• Wider spacing • (90cm x 30 cm) for Pigeon pea • Conservation furrow	Supply of seeds through KSSC
		Maize	Maize Maize + redgram (3:1) Maize + French bean (3:1)	• Use of Downey mildew and leaf sheath blight resistant maize hybrids(NAH 2049,NAH 1137)**.**Seed treatment with Metalaxyl @ 4g./kg	
		Groundnut:	No change	• Seed treatment with Rhizobium soil application of Gypsum, earthing up, $ZnSO_4$ application @ 10 kg/ha.	
		Pigeon pea :	Pigeonpea : BRG-2	• Thinning, Conservation furrow	
		Cowpea:	No change		
		Sunflower	No change	-	
Delay by 4weeks July 1st week	Shallow red soil	a.Finger millet + Pigeon pea b.Figer millet + Field bean c.Fingermillet + Niger	• Continued up to July end for finger millet based system • Finger millet : • MR-1, MR-6 , L-5, HR 911 • Maize sole crop • Maize + red gram (3:1)	• In Finger millet : • Dry sowing 8-10 days before rains with 15-20% higher seed rate • Nursery-transplanting (Long duration varieties of Finger millet) • Seed hardening-(18 hrs. soaking in water followed by 24 hrs. shade drying) • Thinning to retain one seedling at 30 cm • Intercultivation • Conservation furrow • In Groundnut :	Supply of seeds through KSSC
		Maize	No change		
		Pigeon pea	Pigeon pea : TTB-7,BRG-2,		
		Field bean	No change		
		Niger	No change		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
		Groundnut + Pigeonpea	Continued up to July 15th Groundnut: TMV-2, JL-24, GPBD-4, K-134, VRI-2	• Seed treatment with Rhizobium soil application of Gypsum, earthing up, $ZnSO_4$ application @ 10 kg/ha. • In Maize: • Use of DM (Downy mildew) & LB (Leaf blight) resistant hybrid • Use BRG-2 as intercrop	
		Sunflower	Nochange		
		Field bean local	Nochange		
Delay by 6 Weeks July 3rd week	Shallow red soil	Finger millet	No change Finger millet GGPU-28 Little millet: CO-2, PRC-3 Foxtail millet: RS-118, K-221-1	• In Finger millet : • Dry sowing 8-10 days before rains with 15-20% higher seed rate • Nursery-(Medium duration) transplanting • Seed hardening-(18 hrs. soaking in water followed by 24 hrs. shade drying)	Supply of seeds through KSSC
		Maize	Maize intercropped with pulses crops viz., cowpea, blackgram, greengram, fieldbean	• In Maize: • Seed treatment with Metalaxyl @ 4 g/kg	
		Pigeon pea	No change:	• Thinning to retain one seedling at 30 cm	
		Ground nut:	No change	• In Groundnut : • Seed treatment with Rhizobium soil application of Gypsum, earthing up, $ZnSO_4$ application @ 10 kg/ha.	
		Sunflower	Sunflower: BSH-1& morden		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks August 1st week	Shallow red soil	Finger millet : GPU-28,	Finger millet : GPU-28 GPU-26 GPU-48	In Finger millet : • Dry sowing 8-10 days before rains with 15-20% higher seed rate • Nursery-(Medium and short duration) transplanting • Seed hardening-(18 hrs. soaking in water followed by 24 hrs. shade drying 4 Thinning to retain one seedling at 30 cm • Inter cultivation Conservation furrow • Thinning	• Seed drills under RKVY • Supply of seeds through KSSC • Supply of seeds through NFSM • Sunflower: Breeder seeds supply-UAS(B) • F1 seeds supply – KSSC
		Maize	Ragi, Cowpea,Soybean, Sunflower, Blackgram		
		Little millet: CO-2, PRC-3 Foxtail millet: RS-118, K-	-		
		Sunflower: BSH-1 and	-		
		Field bean	Field bean HA-3 &HA-4 Cowpea: TVX-944, IT-38956-1,		

Condition			Suggested Contingency measures		
Early season drought (Normal onset, followed by 15-20 days dry spell after sowing leading to poor germination/ crop stand etc.)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil management**	**Remarks on Implementation**
	Shallow red soil	Finger millet Finger millet + Pigeon pea (8 :2) Figer millet + Field bean (4:1) Fingermillet + Niger (4:1)	Thinning and gap filling	• Soil mulching and weed management practices. If possible protective irrigation, re-sowing • Intercultivation, soil mulching and weed management practices. If possible protective irrigation, • Intercultivation • Inter cultivation, Early season stress induces uniform flowering, weed management • Conservation Furrow	
		Maize Maize +Redgram (3:1) Maize + French bean (3:1) Maize + Cowpea (3:1)			
		Pigeon pea			
		Field beanl			
		Groundnut Groundnut + Pigeonpea BRG2 (8:2)			
		Niger			
		Sunflower			
		Sesame: TMV-3, T-7& Navelle-1			
		Cowpea			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil management**	**Remarks on Implementation**
At vegetative stage	Shallow red soil	Finger millet Finger millet + Pigeon pea (8 :2) Figer millet + Field bean (4:1) Fingermillet + Niger (4:1)	Finger millet- Thinning, Grazing leaf tips, postponement of top dressing (till optimum moisture is available)	Intercultivation (soil mulching) Conservation Furrow	Supply of inter cultural implements Farm ponds construction/ method of irrigation (sprinkler/drip etc.)
		Maize Maize +Redgram (3:1) Maize + French bean (3:1)		Soil mulch, inter cultivation, weed management, reducing plant population.	
		Pigeon pea		-	
		Field bean		Opening of conservation furrows at an interval of 10-15m	
		Groundnut			
		Niger			
		Sunflower			
		Sesame			
		Cowpea			
		Ground nut + Pigeon pea Groundnut	Earthing up, apply Gypsum after receipt of rains, Life saving irrigation	Intercultivation (soil mulching) Conservation Furrow	Farm ponds construction
		Horse gram	Thinning	Intercultivation (soil mulching)	

Condition			Suggested Contingency measures		
Terminal drought	**Major Farming situation**	**Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
	Shallow red soil	Finger millet : MR-1, MR-2,MR-6 ,L-5, HR-911 Finger millet + Pigeon pea (8 :2) Figer millet + Field bean (4:1) Fingermillet + Niger (4:1)	Life saving irrigation Harvest at physiological maturity stage (Pigeonpea and fieldbean) .	Cowpea, Field bean Horse gram - - -	
		Maize Maize +Redgram (3:1) Maize + French bean (3:1) Maize + Cowpea (3:1)	Protective irrigation, Maize crop to be harvested for table purpose, redgram to be harvested as green pods, topping of maize if grain filling stage completed	-	
		Pigeon pea :	-		
		Field bean :	Fieldbean to be harvested as green pods		
		Groundnut +redgram	Redgram to be harvested as green pods		
		Niger :	-		
		Sunflower :	If possible protective irrigation, application of 0.1% borax		
		Sesame:			
		Cowpea			

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	Low lands, canal irrigated red sandy soils and loamy soils	Paddy	No change	Short duration varieties Rasi, Mangala, KRH-1, IR-20, Jyoti, SRI method	
	Red sandy soils		Aerobic Paddy		

Condition			Suggested Contingency measures		
	Major Farming situation	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of monsoon in catchment	Low lands, canal irrigated red sandy soils and loamy soils	Paddy (Upland)	Maize, Sunflower, Groundnut	Rain water harvesting methods, cover crops, Conjunctive use of water	-

Condition			Suggested Contingency measures		
	Major Farming situation	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Low lands, tank irrigated red sandy soils and loamy soils	Paddy	Cowpea, Field bean (HA – 3 & 4) blackgram, greengram, Niger and Sunflower	Rain water harvesting	-

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Insufficient groundwater recharge due to low rainfall	-NA-				

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**
Finger millet	Drainout excess water, Weeding and top dressing with urea	Provide drainage	Drain out excess water, Tying up of lodged plants Harvesting at physiological maturity stage	Proper drying and storage of grains
Maize	Safe disposal of excess water -	Safe disposal of excess water	Safe disposal of excess water	Proper drying and storage pest management
Groundnut		Drain out excess water, Earthing up	Drain out excess water, Harvesting and drying of plants	Shift to safe place dry in shade and turn heap frequently
Pigeon pea		Drain out excess water; Spraying with NAA @ 25 ppm	Drain out excess water, Harvesting and drying of plants PP measures for control of pod borer and other pests	Proper drying, storage and pest management
Sunflower		Drain out excess water, Earthing up -	Drain out excess water, Harvesting and drying of earheads Take up Mancozeb spray @ 0.2% to prevent flower/head rot -	Proper drying and storage of grains
Paddy				Safe storage against storage pest and disease

Outbreak of pests and diseases due to unseasonal rains				
Finger millet	Finger millet –Neck and finger blast			Proper drying and storage of grains
Maize-	Shoot fly, stem borer, downey mildew, turcicum leaf blight			
Groundnut	Tikka, Leaf spot			
Pigeon pea	Pod borer, mosaic			
Sunflower	Powdery mildew, Necrosis			
Paddy	Paddy- Blast, Stem borer, Neck blast, Rice weevil			

2.3 Floods -Not applicable

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Continuous submergence for more than 2 days				
		-	-	-

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

Drought	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Feed and Fodder availability	• As the district is occasionally prone to drought the following measures to be taken • Encourage silage making in the villages as maize is one of the major crop grown in the district • Establish silvi-pastoral system in CPRs with ***Stylosanthus hamata*** and ***Cenchrus ciliaris*** as grass with ***Leucaena leucocephala*** as tree component • Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in CPRs with the monsoon pattern for higher biomass production • Increase area under short duration fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAINT BAJRA, L-74, K-677, Ananad/African Tall, Kisan composite, Moti, Manjari, B1-7 • Chopping of fodder should be made as mandatory in every village through supply and establishment of good quality crop cutters. • Establishment of backyard production of Azolla • Avoid burning of maize stover • Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon • Proper drying, bailing and densification of harvested grass • Creation of permanent fodder, feed and fodder seed banks in all drought prone areas	• Harvest and use all the failed crop (finger millet, maize, groundnut, cowpea) material as fodder. • Harvest the top fodder (Neem, Subabul, Acasia, Pipol etc) and unconventional feeds resources available and use as fodder for livestock (LS). • Silage should be used as supplement in severe drought • Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals • **Mild drought:** hay should be transported to the drought affected villages • **Moderate drought:** hay, silage and vitamin & minerals mixture should be transported to the drought affected villages • **Severe drought:** UMMB, hay, concentrates and vitamin & mineral mixture should be transported to the drought affected villages. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS • Herd should be split and supplementation should be given only to the highly productive and breeding animals • Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock) • Available kitchen waste should be mixed with dry fodder while feeding • Arrangements should be made for mobilization of small ruminants across the districts where no drought exits • Unproductive livestock should to be culled during severe drought • Create transportation and marketing facilities for the culled and unproductive animals (10000-20000 animals) • Subsidized loans (5-10 crores) should be provided to the livestock keepers	• Short duration fodder crops of Sorghum / Bajra / Maize (UP Chari, Pusa Chari, HC-136, HD-2/Rajkoo, Gaint Bajra, L-74, K-6677, Ananand / African tall, Kissan composite, Moti, Manjari, BI-7) should be sown in unsown and crop failed areas • Capacity building to stake holders on drought/flood mitigation in livestock sector • Flushing the stock to recoup • Replenish the feed and fodder banks

Cyclone	**NA**		
Floods	**NA**		
Heat & Cold wave	**NA**		
Health and Disease management	• Timely vaccination (as per enclosed vaccination schedule) against all endemic diseases • Procure and stock emergency medicines vaccines for important endemic diseases of the area • Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district	• Carryout deworming to all animals entering into relief camps • Identification and quarantine of sick animals • Constitution of Rapid Action Veterinary Force • Performing ring vaccination (8 km radius) in case of any outbreak • Restricting movement of livestock in case of any epidemic • Rescue of sick and injured animals and their treatment • Organize with community daily lifting of dung from relief camps	• Keep close surveillance on disease outbreak. • Undertake the vaccination depending on need • Keep the animal houses clean and spray disinfectants Farmers should be advised to breed their milch animals during July-September so that the peak milk production does not coincide with mid summer
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
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) • Construction of drinking water tanks in herding places/village junctions/relief camp locations	• Restrict wallowing of animals in water bodies/resources	• Bleach (0.1%) drinking water / water sources • Provide clean drinking water

Vaccination schedule in small ruminants (Sheep & Goat)

Disease	**Season**
Foot and mouth disease (FMD)	Preferably in winter / autumn
PPR	All seasons, preferably in June-July
Black quarter (BQ)	May / June
Enterotoxaemia (ET)	May
Haemorrhagic septicaemia (HS)	March / June
Sheep pox (SP)	December / march

Vaccination programme for cattle and buffalo

Disease	**Age and season at vaccination**
Anthrax	In endemic areas only, Feb to May
HS	May to June
BQ	May to June
FMD	November to December

2.5.2 Poultry

Drought	**Suggested contingency measures**		
	Before the event[a]	**During the event**	**After the event**
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds	Supplementation to all
Drinking water	Rain water harvesting	Sanitation of drinking water	Give sufficient water as per the bird's requirement
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and fowl pox	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water	Hygienic and sanitation of poultry house Disposal of dead birds by burning/ burying with line powder in pit
Floods	NA		
Cyclone	NA		
Heat wave & cold wave	NA		

2.5.3 Fisheries

	Suggested contingency measures		
	Before the event*	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine	NA		
Inland			
(i) Shallow water depth due to insufficient rain/inflow	Observe water level. Advice fishermen to harvest as much as possible fish live stock	Harvest the complete fish live stock	Report the loss to Revenue & Fisheries Dept.
(ii) Changes in water quality	Observe water quality like dis- solved Oxygen & pH	Report the matter to Revenue & Fisheries Dept.	
(iii) Any other	To explore the possibility of shifting the live stock to other water resources		
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rain/inflow	Observe water level. Advice for fishermen to harvest maxi-mum fish live stock.	Addition of water, lime for tackling salt load	
(ii) Impact of salt load build up in ponds/change in water quality		Report the matter to Revenue & Fisheries Dept.	Report the loss to Revenue & Fisheries Dept.
(iii) Any other			
2) Floods			
A. Capture			
Marine	NA		
(i) Average compension paid due to loss of fishermen life	Help the district administration in providing the necessary help concerned with Revenue Dept. authorities.		
(ii) Avg no.of boats/nets/damaged			
(iii)_ Avg no.of boats damaged			

Inland			
(i) Average compension paid due to loss of human life	Revenue authorities pay the compension to boats / nets / houses / fish live stock damaged	Addition of water, lime for tackling salt load	Report the loss to Revenue & Fisheries Dept.
(ii) No.of boats/nets/damaged			
(iii) No.of houses damaged		Report the matter to Revenue & Fisheries Dept.	
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases	should be reported to Revenue Dept.authorities.	-	
B. Aquaculture			
(i) Inundation with flood water	Monitor the floods and harvest maximum fish live stock before floods. Report the loss to Revenue and Fisheries Dept. authorities.	-	
(ii) Water continuation and changes in water quality			
(iii) Health and Diseases			
(iv) Loss of stock and inputs (ffed, chemicals etc.)			
(v) Infrastructure damage (pumps, aerators, huts etc.)			
(vi) Any other	-	-	
3. Cyclone / Tsunami	NA		
A. Capture			
Marine			

Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackishwater ratio)			
(iii) Health and Diseases			
(iv) Loss of stock and inputs (feed, chemicals etc.)	Help the district administration in providing the necessary help concerned with Revenue Dept. authorities.		
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			

4. Head wave and Cold Wave	NA		
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in ponds environment (water quality)			
(ii) Health and disease management			
(iii) Any other			