

State: KARNATAKA

Agriculture Contingency Plan for District: KOLAR

1.0 District Agriculture profile Kolar district					
1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Central Karanantaka Plateau, hot, moist semi-arid eco-subregion (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	Latitude	Longitude	Altitude	
		13°08'00.00"N	78°08'01.69"E	918m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Agricultural Research Station , Kurubur farm , Chintamani- 563125			
Mention the KVK located in the district	Krishi Vigyan Kendra,Chintamani-563 125 Kolar Dist				
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-September):	356.3	-	July 2nd week	2 nd week of September
	NE Monsoon(October-December):	231.5	-	1 st week of October	2 nd week of November
	Winter (January- February)	12.2	-		
	Summer (March-May)	43.4	-		
	Annual	643.4	-		

1.3	Land use pattern of the district (latest statistics)	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)	375.0	20.6	45.7	39.4	6.4	7.0	28.9	41.3	12.8

1.4	Major Soils (common names like shallow red soils etc.,)	Area ('000 ha)	Percent (%) of total
	Red loamy soils	225.0	60%
	Red sandy loam soils	131.2	35%
	Lateritic soils	18.7	5%
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	287.2	102.8 %
	Area sown more than once	8.2	
	Gross cropped area	295.4	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	71.9		
	Gross irrigated area	79.9		
	Rainfed area	215.4		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	-	-	-
	Tanks	-	-	-
	Open wells	-	-	-
	Bore wells	2767	71.9	100.0

Lift irrigation	-	-	-
Micro-irrigation	-	-	-
Other sources	-	-	-
Total Irrigated Area	-	71.9	100.0
Pump sets	-	-	-
No. of Tractors	7494	-	-
Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	
Over exploited	All blocks		
Critical	-	-	
Semi- critical	-	-	
Safe	-	-	
Wastewater availability and use	-	-	
Ground water quality	Fluorides and Nitrates Problem		
*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)					
		<i>Kharif</i>		<i>Rabi</i>		Summer	Total
		<i>Irrigated</i>	<i>Rainfed</i>	<i>Irrigated</i>	<i>Rainfed</i>		
1	Ragi	-	61.5	-	-	-	61.5
2	Groundnut	-	10.8	-	-	-	10.8
3	Paddy	9.0	-	-	-	-	9.0
4	Redgram	-	2.7	-	-	-	2.7
5	Maize	-	0.8	-	-	-	0.8
6	Sunflower	0.1	-	-	-	-	0.1
7	Bajra	-	0.03	-	-	-	0.03
8	Other pulses	-	9.5	-	-	-	9.5
9	Other Oilseed crops	-	1.1	-	-	-	1.1
10	Other cereals and minor millets	-	0.3	-	-	-	0.3

		Horticulture crops - Fruits	Total area
1		Mango	27.8
2		Banana	5.0
3		Grapes	0.1
4		Sapota	1.2
5		Jack	1.5
6		Guava	1.5
7		Jamun	1.0
		Horticultural crops - Vegetables	Total area
1		Tomato	6.8
2		Potato	5.2
		Total Vegetables	14.4
		Medicinal and Aromatic crops	-
		Plantation crops	23.4
1		Tamarind	12.3
2		Cashew	5.4
3		Coconut	3.3
		Fodder crops	-
		Total fodder crop area	-
		Grazing land	39.4
		Sericulture etc (Mulberry)	19.0

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	45.9	42.5	88.5
	Crossbred cattle	4.0	147.7	151.7
	Non descriptive Buffaloes (local low yielding)	1.7	47.9	49.6
	Graded Buffaloes			
	Goat	-	-	88.1
	Sheep	-	-	366.4
	Others (Camel, Pig, Yak etc.)	-	-	15.3
	Commercial dairy farms (Number)			
1.9	Poultry	No. of farms	Total No. of birds ('000)	

	Commercial	-	-			
	Backyard	-	982.6			
1.10	Fisheries (Data source: Chief Planning Officer)					
	A. Capture: Not applicable					
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets	Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	
	NA					
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs	No. of village tanks	
	B. Culture: Not available					
		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 (Average of last 5 years: 2004, 05, 06, 07, 08)

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 to be identified based on total acreage)										
1	Finger millet	289	2177	-	-	-	-	289	2177	-
2	Groundnut	11	788	-	-	-	-	11	788	-
3	Paddy	43	3830	-	-	-	-	43	3830	-
4	Horsegram	-	-	7.0	734	-	-	7.0	734	-
Major Horticultural crops (Crops to be identified based on total acreage)										
1	Banana	-	10000	-	-	-	-	-	10000	-
2	Mango	-	4000	-	-	-	-	-	4000	-
3	Cashew	-	1200	--	-	-	-	-	1200	-
4	Grapes	--	10000	-	-	-	-	-	10000	-
5	Sapota	-	10000	-	-	-	-	-	10000	-
6	Guava	-	10000	-	-	-	-	-	10000	-
7	Tomato		40000	-	40000	-	40000	-	40000	-
Others	Potato				25000					

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Ragi	Maize	Paddy	Redgram
	Kharif- Rainfed	July 2 nd week to August 2 nd week	May 4 th week – September 2 nd week	June 3 rd week – September 2 nd week	May 4 th week – July 2 nd week
	Kharif-Irrigated	June 1 st week to September 2 nd week	May 2 nd week to September 2 nd week	June 3 rd week – October 1 st week	-
	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 intrusion			√
	Pests and diseases Diseases: Early blight , Late blight, Root rots – Pythium, Phytophthora Pests: Thrips, Mites, melaly bug, Leaf minor & Lepidopteral insects	√		

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

2.0 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	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 2 weeks (July 4 th week)	Red soils/ sandy loam soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	No change	Contour cultivation, small section bunds	Supply of seeds through UAS(B) & KSSC Link with Watershed/ Sujala programmes
		Groundnut +Pigeonpea	No change	Contour cultivation, small section bunds, Conservation furrow	
		Maize	No change	Ridges and furrows , tied ridges	
		Sole pigeonpea	No change	-do-	

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 4 weeks (August 2 nd week)	Red soils/ sandy loam soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	Continue up to mid August with -GPU -28, HR-911, PR-202, GPU-26	Staggered nursery, seed hardening, contour cultivation, small section bunds ,Dry sowing 8-10 days before rains with 15-20% higher seed rate	Supply of seeds through UAS(B) & KSSC

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
		Groundnut + Pigeonpea	-do-	Contour cultivation, small section bunds	Supply of seed drill through RKVY
		Maize	Prefer Maize varieties Nithyashree, NAC-6004	Contour cultivation, ridges and furrows, tied ridges	Link with Watershed/Sujala programmes
		Sole pigeonpea	Continue with BRG-2	Contour cultivation, small section bunds	

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 (August 4 th week)	Red soils/ sandy loam soils	Finger millet mixed cropping	Prefer short duration Ragi varieties : GPU-45, GPU-46, PR 202	Staggered nursery , seed hardening, contour cultivation , small section bunds ,Dry sowing 8-10 days before rains with 15-20% higher seed rate	Supply of seeds through UAS(B) & KSSC
		Groundnut +Pigeon pea	Change to finger millet	Same as above	Supply of seeddril through RKVY
		Maize	Continue Nithyashree, NAC-6004	Contour cultivation, ridges and furrows, tied ridges	Link with Watershed/Sujala programmes
		Sole pigeon pea	Shift to Cowpea/Soybean/ Horsegram	Contour cultivation, small section bunds	

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 (September 2 nd	Red soils/ sandy loam	Finger millet mixed cropping	-	-	Supply of seeds through UAS(B)

Condition			Suggested Contingency measures		
Early season drought (delayed onset) week)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
	soils	Groundnut + Pigeonpea	Shift to Cowpea/Horse gram	-	& KSSC
		Maize	Powdery mildew resistant variety (Nithyashree NAC-6004)	-	Link with Watershed/Sujala programmes
		Sole pigeon pea	Shift to Cowpea/Soybean/Horsegram	-	

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Red soils/ Sandy loamy soils	Finger millet mixed cropping	Gap filling using exclusive seedlings , dibbling of Cowpea seeds in borders and gaps	Small section bunds , repeated intercultivation, thinning and gap planting with Cowpea, top dressing after stress alleviation	Link with National Rural Employment Guarantee programme (NREG) and
		Groundnut +Pigeon pea	Fill up the gaps with Cowpea.	Small section bunds, furrow between paired rows,	Link with Watershed/Sujala programmes
		Maize	Gap filling , re-sowing if plant stand is very poor	Ridges and furrows and tied ridges , top dressing after stress alleviation	Supply of seeds through UAS(B) & KSSC
		Sole pigeon pea	Gap filling, re-sowing if plant stand is very poor	Ridges and furrows and tied ridges	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At vegetative stage	Red soils/ Sandy loamy soils	Finger millet mixed cropping	Thinning, Gap Filling with Cowpea, top dressing after stress alleviation @ 12.5 kg N / ha	-	Supply of inter cultural implements Farm ponds construction through IWSM
		Groundnut +Pigeon pea	-	Conservation furrow between paired rows	
		Maize	Top dressing after stress alleviation @ 25kg N / ha	Ridges and furrows and tied ridges	Link with National Rural Employment Guarantee programme (NREG)
		Sole pigeon pea		-do-	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At flowering/ fruiting stage	Redsoils/ sandy loamy soils	Finger millet mixed cropping	Second top dressing after stress alleviation @ 12.5kg N/ ha	Repeated interculture	Farm ponds through IWSM programme
		Groundnut +Pigeonpea	-	Small section bunds, furrow between paired rows, Repeated interculture	
		Maize	Top dressing after stress alleviation @25kg N/ha May be used for fodder	Ridges and furrows and tied ridges	
		Sole Pigeon pea		Ridges and furrows and tied ridges (Width of the ridge - 30cm Width of the furrow – 30 cm in normal cases using KMB Plough. In early sown crop, Width of the ridge – 45 cm and Width of the furrow – 45 cm using	

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

Condition			Suggested Contingency measures		
Terminal drought	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
	Redsoils/ sandy loamy soils	Finger millet mixed cropping	Life saving irrigation	-	-
		Groundnut +Pigeon pea	Pigeon pea harvested for vegetable purpose Harvest at physiological maturity stage	-	
		Maize	May be used for fodder	-	
		Sole pigeon pea	harvested for vegetable purpose	-	

2.1.2 Irrigated situation:

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall			NA		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall			NA		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal 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			NA		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal 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			NA		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Red soils irrigated	Paddy (Long / Medium duration)	Medium duration paddy IR-64, Thella Hamsa, Thanu, MTU-1001, MTU-1010, KRH-2 Short duration paddy Mangala , CTH-1, CTH-3	Punji cultivation which will be converted into puddled condition after sufficient inflow or Staggered nursery and Direct transplanting under puddle conditions	
		Vegetables	No change	Drip irrigation/Alternate furrow irrigation	-
		Grapes	No change	-do-	-
		Flowers (Marigold, Rose etc.,	No change	-do-	-
		Hybrid Maize	No change	-do-	-
		Fodder Maize + cowpea	No change	Drip irrigation/Alternate furrow irrigation	-
		Hybrid Napier	No change	-do-	-
		Lucerne	No change	-do-	-

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				
Finger millet	-	-	Delay harvesting	Make rain proof heaps
Groundnut	Provide adequate drainage and drain	Provide adequate drainage	Delay harvesting , Harvest	Groundnut plants are

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
	out excess water through grassed water ways Go in for top dressing with @ 25%RFD or foliar application of NPK water soluble fertilizer.	and drain out excess water through grassed water ways	immediately after rains	heaped
Maize	-do-	-do-	-do-	Cover the heap with tarpaulin in threshing yards
Pigeonpea	-do-	-do-	-do-	-do-
Paddy	Water is let out			-do-
Horticulture				
Vegetables	Set right staking, Collect fallen fruits Go in for top dressing with @ 25%RFD or foliar application of NPK water soluble fertiliser.	Set right staking, Collect fallen fruits	Set right staking, Collect fallen fruits	-
Perennial crop : Cashew , Mango	Remove broken branches, paste with Copper Oxy Chloride (COC)	Remove broken branches paste with COC	Remove broken branches paste with COC	
Heavy rainfall with high speed winds in a short span				
Finger millets			Delay harvesting	
Groundnut	Provide adequate drainage and drain out excess water through grassed water ways Go in for top dressing with @ 25% Recommended Fertilizer Dose or foliar application of NPK water soluble fertilizer	Provide adequate drainage and drain out excess water through grassed water ways	Delay harvesting , Harvest immediately after rains	
Maize	-do-	-do-	-do-	
Sole Pigeonpea	-do-	-do-	-do-	

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Paddy	Water is let out	Water is let out	Water is let out	
Horticulture				
Vegetables	Set right staking, Collect fallen fruits Go in for top dressing with urea @ 25% Recommended Fertilizer Dose or foliar application of NPK water soluble fertilizer.	Set right staking, Collect fallen fruits	Set right staking, Collect fallen fruits	
Perennial crop : Cashew , Mango	Remove broken branches, paste with COC	Remove broken branches paste with COC	Remove broken branches paste with COC	
Outbreak of pests and diseases due to unseasonal rains				
Horticulture				
Potato-Late blight	Take up immediately plant protection measures by alternate spraying in the order of 0.2 % Ridomyl MZ , 0.2% Kurzet , 0.4% Sectin (0.2% Agrovat + 0.2 % Polyram)	No change same plant protection measures may be followed		
Tomato –Late blight	Take up immediately plant protection measures by alternate spraying in the order of 0.2 % Ridomyl MZ , 0.2% Kurzet , 0.3% Sectin,(0.2% Agrovat + 0.2 % Polyram)	-do-		
Brinjal – Fruit rot	Take up immediately plant protection measures by spraying 0.2% Mancozeb or 0.2% Chlorothalonil	No change same plant protection measures may be followed	No change same plant protection measures may be followed	
Banana -Sigatoka	Take up immediately plant protection measures by spraying	Take up immediately plant protection measures by	Remove infected plant parts, prophylactic plant protection	

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
	0.1%Trythanate methyl	spraying 0.1%Trythanate methyl	measures	

2.3 Floods:

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation				
Continuous submergence for more than 2 days	NA			
Sea water inundation	NA			

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
Heat Wave	NA			
Horticulture	NA			
Cold wave	NA			
Frost	NA			
Hailstorm	NA			
Cyclone				
Ragi			Delay harvesting	-
Groundnut	Drain out excess water through grassed water ways	Drain out excess water through grassed water ways	Delay harvesting , Harvest immediately after rains	-
Maize	-do-	-do-	-do-	-
Sole Pigeon pea	-do-	-do-	-do-	-

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Paddy	Water is let out	Water is let out	Water is let out	-
Horticulture				
Vegetables	Provide staking, Collect fallen fruits	Provide staking, Collect fallen fruits	Provide staking, Collect fallen fruits	-
Perennial crop : Cashew , Mango	Remove broken branches, apply COC Paste	Remove broken branches, apply COC Paste	Remove broken branches, apply COC Paste	-

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	<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>Available Bajra/sorghum stover and groundnut haulms should be properly stored for future use.</p> <p>Encourage silage making with available maize fodder in the villages</p> <p>Collection of groundnut haulms and groundnut cake for use as feed supplement during drought</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</p>	<p>Harvest and use biomass of dried up crops (Bajra, Groundnut, Paddy, Maize, Green gram, Balckgram, Horse gram, Cowpea, soybean etc.,) material as fodder.</p> <p>Use of unconventional and locally available cheap feed ingredients especially groundnut cake and haulms as protein supplement for livestock during drought</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>

	<p>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>		
Floods	NA		
Cyclone	<p>Harvest all the possible wetted grain (Bajra, Groundnut, Paddy, Maize, Green gram, Balckgram, Horse gram, Cowpea, soybean 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</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>

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

2.5.2

Poultry

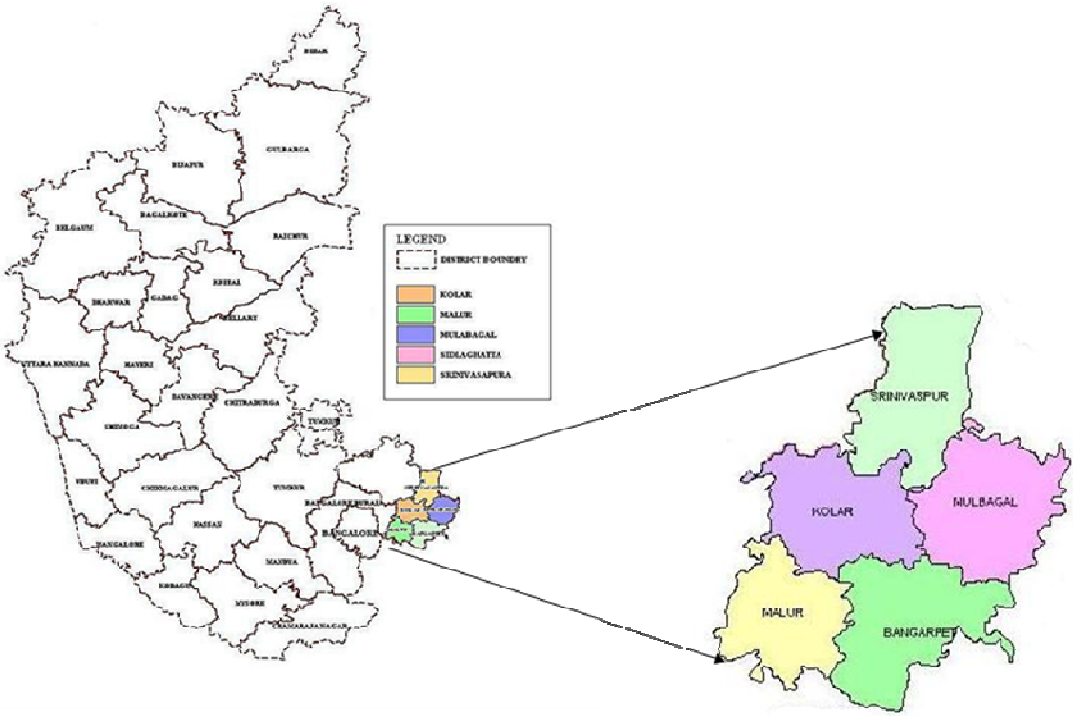
	Suggested contingency measures		
	Before the event ^a	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation 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	NA		
Cyclone	NA		
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 Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness	Disposal of dead birds by burning / deep burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c)
Heat & Cold wave	NA		

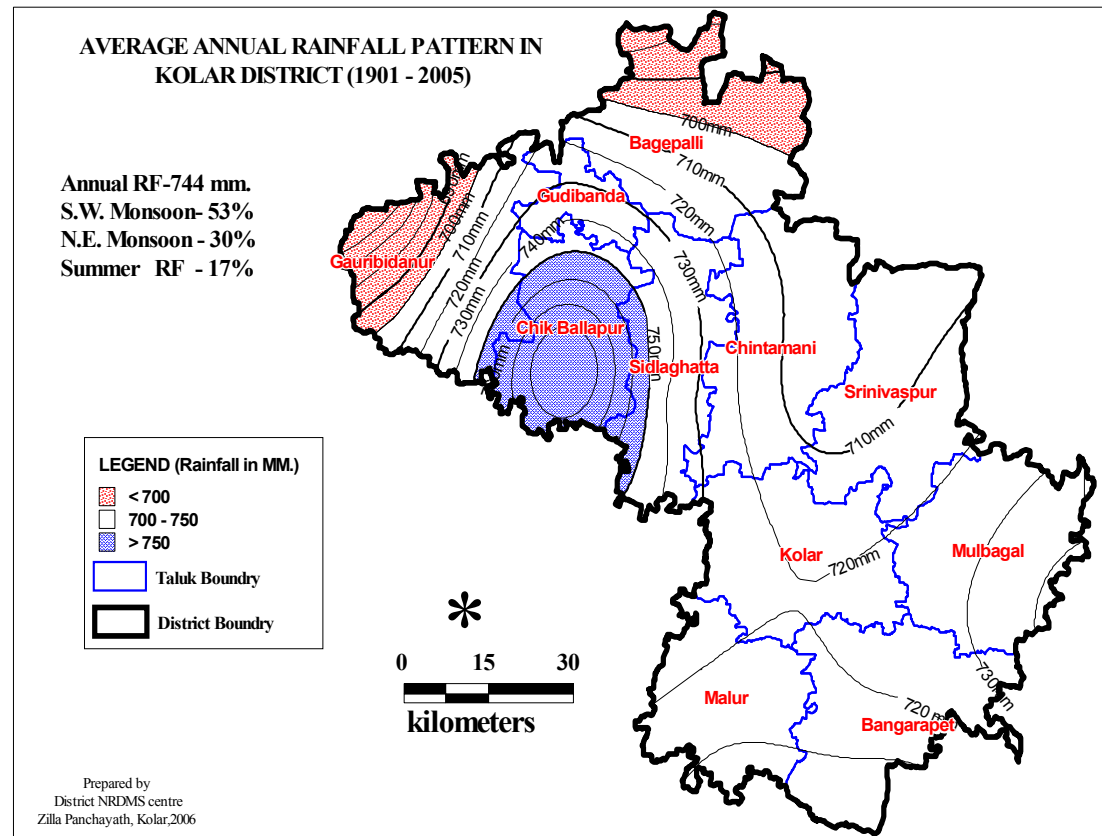
2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
1. Drought	NA		
2. Floods	NA		
3. Cyclone / Tsunami	NA		
4. Heat wave and cold wave	NA		

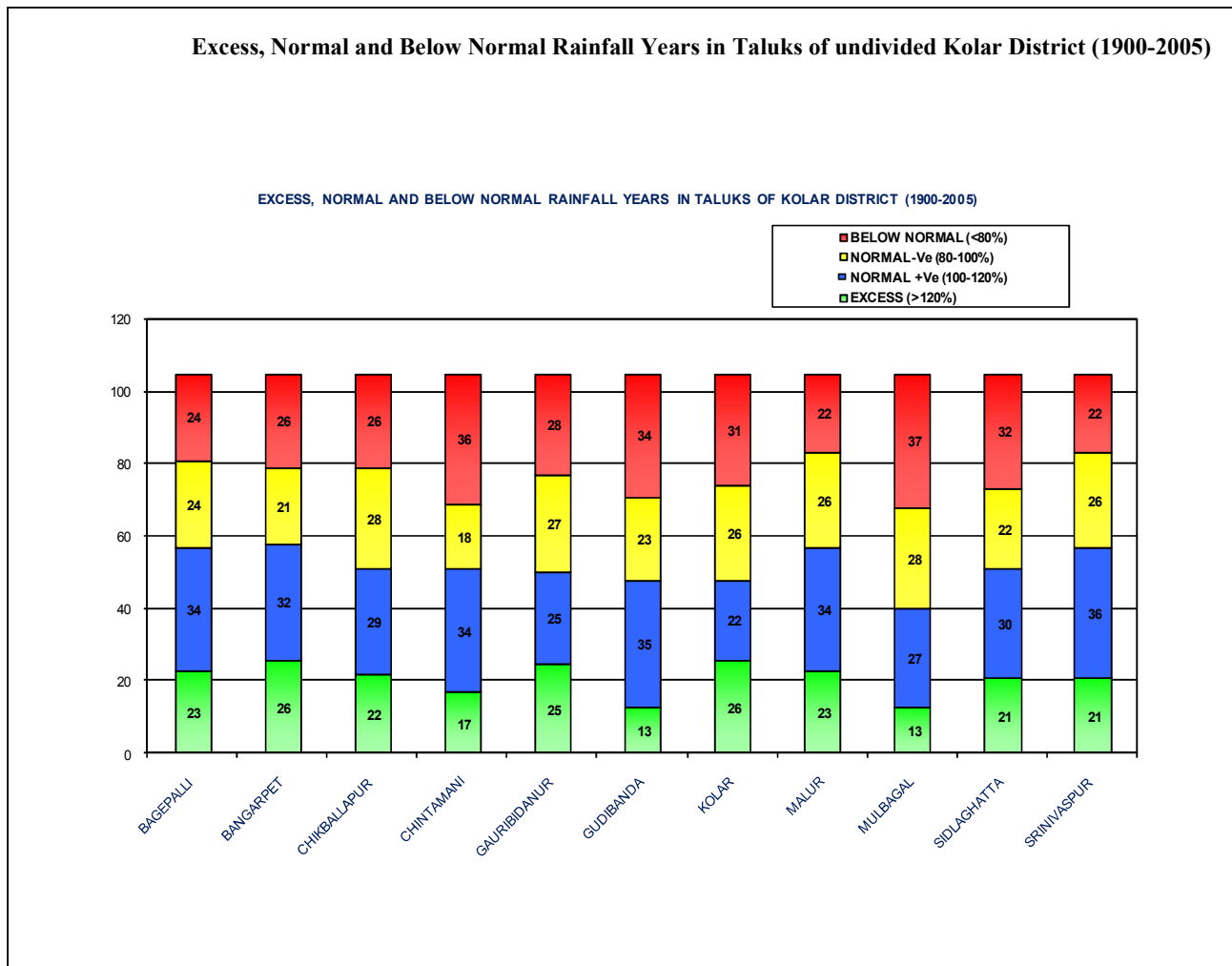
Annexure 1: Location Map of Kolar district with in State



Annexure –II Mean Annual Rainfall of Undivided Kolar District



Annexure II :Average Annual Rainfall Pattern in Undivided Kolar District (1901-2005)



Annexure III: Soil Map of Undivided Kolar District

