

State: KARNATAKA

Agriculture Contingency Plan for District: CHICKBALLAPUR DISTRICT

1.0 District Agriculture profile					
1.1	Agro-Climatic/Ecological Zone	\			
	Agro Ecological Sub Region (ICAR)	Eastern Ghats and Tamilnadu uplands and Dry eco-subregion (8.1)			
	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	918 m	
	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):	413.2	-	July 2 nd week	4 th week of September
	NE Monsoon(October-December):	212.4	-	1 st week of October	2 nd week of November
	Winter (January- February)	1.9	-		
	Summer (March-May)	115.7	-		
	Annual	743.2	-		

1.3	Land use pattern of the district (latest statistics)	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)	404.5	170.7	49.7	31.9	59.5	6.1	6.5	34.3	37.0	8.7

1.4	Major Soils (common names like shallow red soils etc.,)	Area ('000 ha)	Percent (%) of total
	Red loamy soils	202	50%
	Red sandy loam soils	182	45%
	Lateritic soils	20	5%
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	170.7	102.0
	Area sown more than once	3.5	
	Gross cropped area	174.2	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	46.0		
	Gross irrigated area	-		
	Rainfed area	125		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	-	-	-
	Tanks	-	0.3	-
	Open wells	-	1.3	-
	Bore wells	-	37.9	96
	Lift irrigation	-	-	-
	Micro-irrigation	-	-	-
	Other sources	-	-	-
	Total Irrigated Area	-	40.5	100.0
	Pump sets	-	-	-

No. of Tractors	-		
Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	
Over exploited	All blocks	-	
Critical	Parts of Bagepalli	-	
Semi- critical	Parts of Bagepalli	-	
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	-	47.4	-	-	-	47.4
2	Groundnut	-	32.6	-	-	-	32.6
3	Maize	8.7	17.1	-	-	-	25.8
4	Redgram	-	4.4	-	-	-	4.4
5	Paddy	4.0	-	-	-	-	4.0
6	Sunflower	3.1	-	-	-	-	3.1
7	Bajra	-	-	-	-	-	-
8	Other cereals and minor millets	-	-	-	-	-	-
9	Other pulses	-	-	-	-	-	-
10	Other Oil seed crops	-	-	-	-	-	-
	Horticulture crops - Fruits	Total area					
1	Total fruits	13.7					
	Horticultural crops - Vegetables	Total area					
1	Total Vegetables	7.2					
	Medicinal and Aromatic crops	-					

	Plantation crops	-
	Fodder crops	-
	Total fodder crop area	-
	Grazing land	-
	Sericulture etc-Mulberry	12.4

1.8	Livestock	Male (no:)	Female (no:)	Total (no:)
	Non descriptive Cattle (local low yielding)	49,899	56073	1,05,972
	Crossbred cattle	1,515	1,29,118	1,30,633
	Non descriptive Buffaloes (local low yielding)	1.1	47.3	48.4
	Graded Buffaloes			
	Goat			166.3
	Sheep			420.5
	Others (Camel, Pig, Yak etc.)	-	-	107.4
	Commercial dairy farms (Number)			
1.9	Poultry	No. of farms	Total No. of birds ('000)	
	Commercial		360.8	
	Backyard		284.0	

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)	Non-mechanized (Shore Seines, Stake & trap nets)	

ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds	No. of Reservoirs	No. of village tanks
	NA		
B. Culture : Not available			
	Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)
i) Brackish water (Data Source: MPEDA/ Fisheries Department)	NA		
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	-
5	Maize	-	8000-9000	-	-	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
1	Banana(G-9)	-	10000	-	-	-	-	-	10000	-
2	Mango	-	4000	-	-	-	-	-	4000	-
3	Cashew	-	1200	-	-	-	-	-	1200	-
4	Grapes	-	10000	-	-	-	-	-	10000	-
5	Tomato	-	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 - 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 - September 2 nd week	May 2 nd week - September 2 nd week	June 3 rd week – October 1 st week	-
	Rabi- Rainfed	-	-	-	-
	Rabi-Irrigated	December 2 nd week to January 2 nd week	October 1 st week to January 2 nd week	January 2 nd week to February 4 th week	-

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	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Suggested Contingency measures	
Early season drought (delayed onset)				Agronomic measures	Remarks on Implementation
Delay by 2 weeks (July 4 th week)	Red soils/Sandy loamy soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	Continue up to mid August with -GPU -28, HR-911, L-5, GPU-66	Contour cultivation, small section bunds	Supply of seeds through UAS(B) & KSSC Link with Watershed/ Sujala programmes
		Groundnut +Pigeonpea	Continue JL-24, TMV-2	Contour cultivation, small section bunds, Conservation furrow	

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
		Maize	Continue Nithyashree, NAC-6004	Ridges and furrows , tied ridges	
		Sole Pigeonpea	Continue with BRG-2	Ridges and furrows, tied ridges	

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

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 based mixed cropping with Field bean, Fodder,	Prefer short duration varieties of Ragi : GPU-45, GPU-46, PR	Staggered nursery , seed hardening, contour cultivation , small section bunds ,Dry sowing 8-10 days before rains with 15-20% higher seed	Supply of seeds through UAS(B) & KSSC

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)		Sorghum, Niger, Mustard	202	rate	Supply of seed drill through RKVY Link with Watershed/Sujala programmes
		Groundnut +Pigeon pea	Prefer short duration varieties of Ragi : GPU-45, GPU-46, PR 202	Same as above	
		Maize	Continue Nithyashree, NAC-6004	Contour cultivation, ridges and furrows, tied ridges	
		Sole Pigeonpea	Shift to Cowpea/Soybean/ Horsegram	Contour cultivation, small section bunds	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop Management	Rabi crop planning	Remarks on Implementation
Delay by 8 weeks (September 2 nd week)	Red soils/ Sandy loam soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	-	-	Supply of seeds through UAS(B) & KSSC Link with Watershed/Sujala programmes
		Groundnut + Pigeonpea	Shift to Cowpea/Horse gram	-	
		Maize	Powdery mildew resistant variety (Nithyashree NAC-6004)	-	
		Sole Pigeonpea	Shift to Cowpea/Soybean/ Horsegram	-	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
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 based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	Gap filling using exclusive seedlings , dibbling of cow pea seeds in borders and gaps	Small section bunds , repeated intercultivation, thinning and gap planting with cow pea, 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	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			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	Red soils/ Sandy loamy soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	Thinning, gap planting with cow pea, top dressing after stress alleviation @ 12.5 kg N / ha	-	Supply of inter cultural implements
		Groundnut +Pigeon pea	-	Conservation furrow between paired rows	Farm ponds construction through IWSM
		Maize	Top dressing after stress alleviation @ 25kg N / ha	Ridges and furrows and tied ridges	Link with National Rural Employment

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
		Pigeon pea		Ridges and furrows and tied ridges	Guarantee programme (NREG)

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	Red soils/ Sandy loamy soils	Finger millet mixed cropping	Second top dressing after stress alleviation @ 12.5kg N/ ha,	Repeated interculture	Farm ponds through IWSSM 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	
		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 ridger)	

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought	Red soils/ Sandy loamy soils	Finger millet based mixed cropping with Field bean, Fodder, Sorghum, Niger, Mustard	Life saving irrigation	-	-
		Groundnut +Pigeon pea	Pigeon pea harvested for vegetable purpose Harvest at physiological maturity stage	-	
		Maize	Harvest for fodder	-	
		Sole pigeon pea	Harvested for vegetable purpose	-	

2.1.2 Irrigated situation:

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			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 fertilizer.	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 Pigeon pea	-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%Trithanate methyl	spraying 0.1%Trithanate 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	NA			
Ragi			Delay harvesting	-
Groundnut	Drain out excess water through grassed water ways	Drain out excess water through grassed water ways	Harvest immediately after rains	-
Maize	-do-	-do-	-do-	-
Pigeonpea	-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	Set right staking, Collect fallen fruits	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	-

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 frequently 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>Harvest and use biomass of dried up crops (Bajra, Groundnut, Maize, Paddy, Green gram, Balckgram, Soybean, Horse gram, Cowpea etc.,) material as fodder.</p> <p>Use of unconventional and locally available cheap feed ingredients especially soya meal waste and groundnut cake as 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>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>Conserve properly the available paddy straw/groundnut haulms/bajra stover</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>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>Replenish the feed and fodder banks</p>
Floods	NA		
Cyclone	<p>Harvest all the possible wetted grain (Bajra, Groundnut, Maize, Paddy, Green gram, Balckgram, Soybean, Horse 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>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>

	Incase of EFW of severe cyclone, shift the animals to safer places.		Collect drowned crop material, dry it and store for future use Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production.
Heat & Cold wave	NA		
Health and Disease management	List out the endemic diseases (species wise) in that district Procure and stock emergency medicines and vaccines for important endemic diseases of the area All the stock must be immunized for endemic diseases of the area Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district	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 Rescue of sick and injured animals and their treatment	Conducting mass animal health camps Conducting fertility camps Mass deworming camps
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

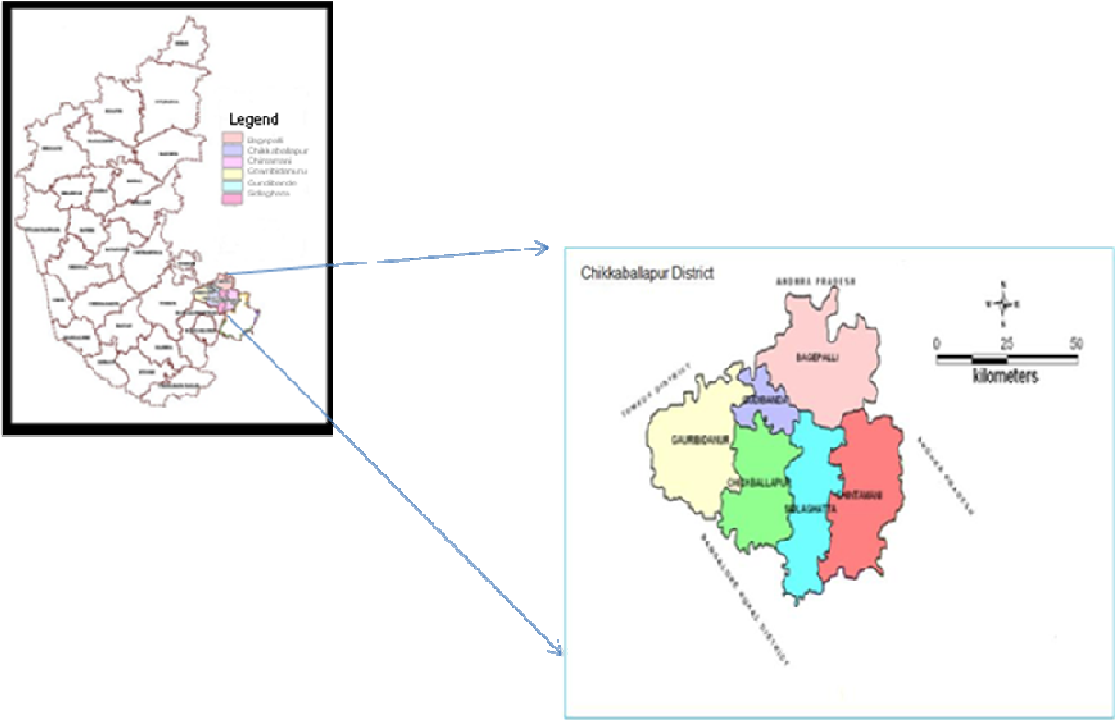
	Suggested contingency measures		
	Before the event ^a	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation 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			
Shortage of feed ingredients	In case of EFW, shift the birds	Use stored feed as supplement	Routine practices are followed

	to safer place Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Don't allow for scavenging Protect from thunder storms	
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		

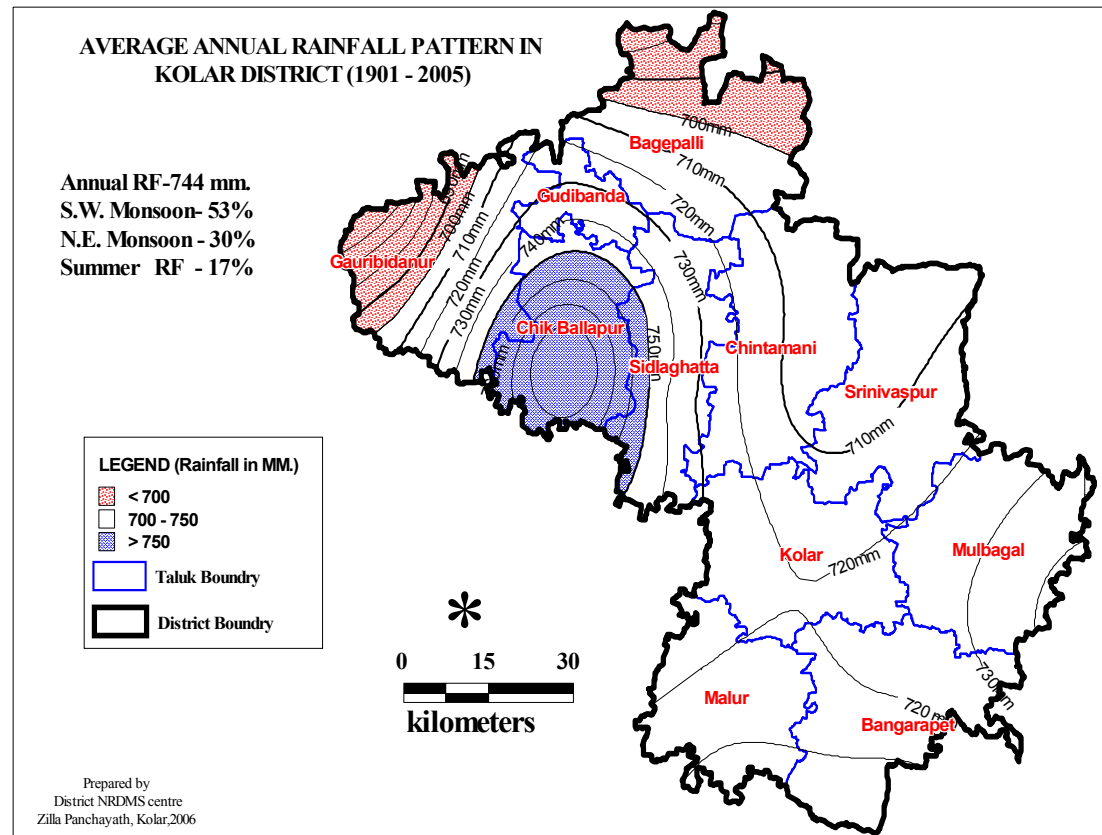
2.5.3 Fisheries/ Aquaculture : Not applicable

Annexure –I -Location Map of Chikkaballapur District within state





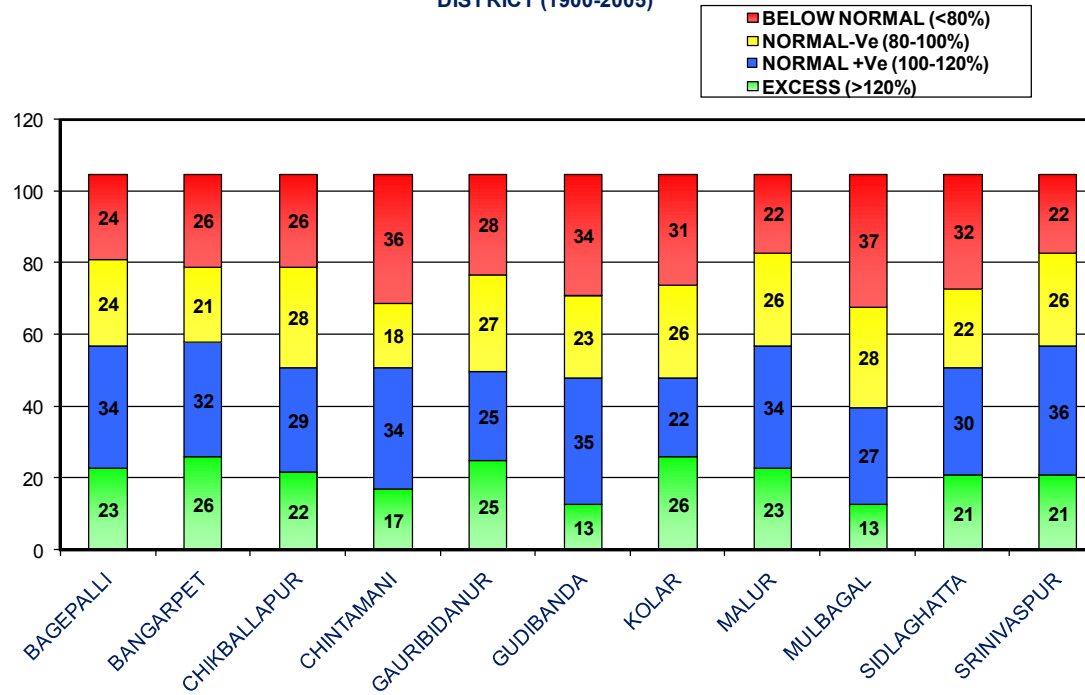
Annexure –II Mean Annual Rainfall of Undivided Kolar District



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

Excess, Normal and Below Normal Rainfall Years in Taluks of undivided Kolar District (1900-2005)

EXCESS, NORMAL AND BELOW NORMAL RAINFALL YEARS IN TALUKS OF KOLAR DISTRICT (1900-2005)



Annexure III: Soil Map of Undivided Kolar District

