State: Assam

Agriculture Contingency Plan for District: Golaghat

1.0 District Agriculture profile					
1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Assam And Bengal Plain, Hot Subhumid To Humid (Inclusion Of Perhumid) Eco-Region. (15.4)			
	Agro-Climatic Zone (Planning Commission)	Eastern Himalayan Region (II)			
	Agro Climatic Zone (NARP)	Hill Zone (AS-6)			
	List all the districts or part thereof falling under the NARP Zone	Tinsukia, Dibrugarh, Sivasagar, Jorhat and Golaghat			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		26° and 27° North	93° and 64° 18 '' East	80-90 m from MSL	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Regional Agricultural Research Station, Titabor; Sugarcane Research Station, Buralikson			
	Mention the KVK located in the district	KVK, Golaghat, Khumtai			
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):	1155.7 mm	70	1st week of June	Last week of Sept and 1st week of October
	NE Monsoon(Oct-Dec):	159.4	10	Occasional	-
	Winter (Jan- March)	179.8	10	-	-
	Summer (Apr-May)	495.6	15	-	-
	Annual	1990.5		-	-

1.3	**Land use pattern of the district** (latest statistics)	Geographical area (‘000 ha)	**Cultivable area (‘000 ha)**	**Forest area (‘000 ha)**	Land under non-agricultural use (‘000 ha)	Permanent Pastures (‘000 ha)	Cultivable wasteland (‘000 ha)	Land under Misc. tree crops and groves (‘000 ha)	Barren and uncultivable land (‘000 ha)	Current Fallows (‘000 ha)	Other fallows (‘000 ha)	Land put or non agricultural use
	Area (‘000 ha)	350.2	143.79	**136.29**	29.46	6.3	3.8	13.3	11.0	3.9	2.3	29.46

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area (‘000 ha)**	**Percent (%) of total**
	1 Red clayey soils /Alluvial soil	-	**80% of total area**
	2 Lateritic soils	-	**5% “**
	3 Alluvial colluvial soils (partly saline)	-	-
	4 Alluvial-colluvial soils	-	-
	5 Lateritic gravelly soils	-	-
	6 Rock land and water bodies	--	-
	7 Medium deep black soils	-	-
	8 Red gravelly loam soils	-	-
	9 Red gravelly clay loam soils	-	-
	Others (specify): inceptisol Entisol Ultisol		70% 25% 5%
	Loamy sand (block Medziphema)		
	Sandy loam (block Dhansiripar, Niuland, Kuhuboto)		

*** mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS&LUP). : ENCLOSED SOIL MAP**

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	143.79	153.7%
	Area sown more than once	52.6	
	Gross cropped area	221.14	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	11.07		
	Gross irrigated area	11.07		
	Rain fed area	132.72		
	Sources of Irrigation	**Number**	**Area (ha)**	**% of total irrigated area**
	Canals**			
	Tanks	120 nos.	60 ha	0.54%
	Open wells**			
	Bore wells	1195 nos.	1195 ha	10.8%
	Lift irrigation schemes**			
	Micro-irrigation**			
	Other sources (please specify) Drip Irrigation	40	40 ha	0.36%
	Total Irrigated Area			
	Pump sets	5536 nos.	738 ha	
	No. of Tractors	165 nos.	400 ha/day	
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)**	**No. of blocks/ Tehsils**	**(%) area**	**Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)**
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			

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

** Information not available

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2007-08)

1.7a	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Jhum paddy								
	TRC/WRC Paddy			107.29			107.29	3.08	110.36
	Maize			0.28			0.151		0.431
	Soybean								
	Linseed						0.01		0.01
	Rapeseed/mustard						5.39		5.39

1.7b	Horticulture crops - Fruits			
		Total	Irrigated	Rainfed ('000 ha)
	Pineapple	0.254		0.254
	Banana	2.812		2.812
	Lemon	1.461		1.461
	Orange	0.176		0.176

1.7c	Horticulture crops - Vegetables	Total area ('000 ha)	Irrigated area ('000 ha)	Rainfed area ('000 ha)

	Cabbage	1.076	-		-
	Chilli	0.209	-		-
	Lai patta		**-**		**-**
	Colocasia	**1.012**	**-**		**-**
	Tomato	**1.295**	**-**		**-**
1.7d	**Medicinal and Aromatic crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**		**Rainfed area ('000 ha)**
	Agar	0.8			0.8
	Amla	0.025			0.025
	Carrambolla	0.015			0.015
	Black pepper	0.485	0.01		0.495
1.7e	**Plantation crops**	**Total area ('000 ha)**	**Irrigated area ('000 ha)**		**Rainfed area ('000 ha)**
1					
2					
Others (Specify)	Eg., industrial pulpwood crops etc.				
1.7f	**Fodder crops**	**Total area (ha)**	**Irrigated area ('000 ha)**	**Rainfed area ('000 ha)**	**Re marks**
1	Maize	100.00	**-**	0.1	

2					
Others (Specify)					
1.7g	**Grazing land**				**Information not available**
1.7h	**Sericulture etc**		**-**		**-**
	Muga	101.00		0.101	
	Mulbery	18.00		0.018	
	Eri	4.00		0.004	
1.7i	**Others (specify)**				

1.8	**Livestock (in number)**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)	260012	219676	480288
	Crossbred cattle	1169	1515	2684
	Non descriptive Buffaloes (local low yielding)	28939	20630	41569
	Graded Buffaloes	-	-	-
	Goat	89256	148748	238004
	Sheep	11	25	36
	Others (Camel, Pig, Yak etc.)			
	(i) Pig	44581	44557	89138
	(ii) Mithun	-	-	-
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial	6873		-

	Backyard	-	626873

1.10 Fisheries (Data source: Chief Planning Officer of district)

A. Capture

i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		**Storage facilities (Ice plants etc.)**
		Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	Not applicable					

ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**	**No. of Reservoirs**	**No. of village tanks**	**No of ponds& tanks**
	6836 Nos.		240 Nos. (Community Tanks)	6836 Nos.

B. Culture

	Water Spread Area (ha)	**Yield (t/ha)**	**Production ('000 tons)**
i) Brackish water (Data Source: MPEDA/ Fisheries Department)	-	-	-
ii) Fresh water (Data Source: Fisheries Department)	80992.60 ha	0.09803 MT	7940 MT
Others			

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)										

	Autumn rice	4.678	1697	-	-	-	-	4.678	1697	
	Winter rice	134.686	1922	-	-	-	-	134.686	1922	
	Summer Rice	-	-	-	-	7.163	1966	7.163	1966	
	Rapeseed & Mustard	-	-	2.231	521	-	-	2.231	521	
	Potato	-	-	12192.00	5473	-	-	12192.00	5473	
	Sugarcane	92.614	56514	-	-	-	-	92.614	56514	
Major Horticultural crops (Crops to be identified based on total acreage)										
	Banana							37.956	13848	
	Papaya							3.678	16213	
	Pineapple							3.825	13090	
	Orange							0.629	10120	
	Turmeric							0.161	3000	
	Ginger							14.7	15000	
	Tomato							18.0	20000	

√

1.12	**Sowing window for 5 major field crops (start and end of normal sowing period)**	**Winter paddy**	**Summer Paddy**	**Rapeseed/Mustard**	**Sugarcane**	**Greengram/Blackgram**
	Kharif- Rainfed	Jun-Aug	Jun- July	-	March - April	July-August
	Kharif-Irrigated	-	-	-	-	-
	Rabi- Rainfed	-	-	Oct-Nov	-	-
	Rabi-Irrigated	-	-	-	-	-

1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought		✓	
	Flood	✓	✓	

	Cyclone			
	Hail storm		✓	
	Heat wave			
	Cold wave			
	Frost			
	Sea water intrusion			
	Pests and disease outbreak (specify)	✓		
	Others (specify)			

6 out of 10 years = Regular

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: no
		Soil map as Annexure 3	Enclosed: Yes

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rain fed situation - the monsoon is normal not delayed

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay **by 2 weeks (June 3rd week)**	Upland (sandy to sandy loam soil, loamy high rainfall, acidic)	Summer vegetables, like okra, ridge gourd, bitter gourd, cucumber, snake gourd	No change	Organic manure using mulch materials, irrigation	Collaboration with Technology mission
		Sugarcane	No change	Irrigation	Do
		Banana, Pineapple,	No change	Mulching material	Do
		Pea	No change	Irrigation	Do

	Medium & low land (clay to clay loam, acidic, high rainfall)	Winter rice, var-Ranjit, Bahadur, Mahshury, other local varieties	No change	Sowing delay, irrigation for timely sowing at nursery bed	Use of STW

The monsoon is normal not delayed

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by **4 weeks** (Specify month) **July 1st week**	Upland (sandy to sandy loam soil, loamy high rainfall, acidic	Summer vegetables, Seasamum, Blackgram, green gram	No change as the vegetables attain maturity stage	Land preparation for blackgram, green gram, seasamum. Use of mulching and irrigation, harvesting of vegetables Irrigation	Collaboration with Technology mission, RKVY
		Sugarcane	No change	Mulching, Irrigation Irrigation	Do
		Banana ,pineapple	No change		Do
		Pea	No change		Do
	2) Medium & low land (clay to clay loam, acidic, high rainfall)	Winter paddy, var: Ranjit, Bahadur, Mahshuri, local variety	Use of varieties like Prafulla, Gitesh available at AAU, Jorhat for staggard planting	Irrigation for seed bed preparation, use of community nursery, res-owing if necessary	STW with the help of RKVY, NFSM

The monsoon is normal not delayed

Condition			**Suggested Contingency measures**		
Early season drought(delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**

Delay by **6 weeks** (Specify month) **July 3rd week**	Upland (sandy to sandy loam soil, loamy high rainfall, acidic	Blackgram, Green gram, Seasamum	Blackgram, greengram, seasamum, varieties are available with AAU.	Go for line sowing, intercrop of seasamum with blackgram and green gram	Collaboration with RKVY
		Sugarcane	No change	Irrigation	Do
		Banana, Pineapple	No change	Irrigation, fertilization	NHM & RKVY
		Pea	No change	irrigation	
	2) Medium & low land (clay to clay loam, acidic, high rainfall)	Winter rice Var: HYV and local	Growing of photoperiod sensitive varieties like Manohar Sali, Andrew Sali, Biraj	Irrigation for nursery, planting in closer spray and increased no. of seedling per hill.	RKVY, NFSM

The monsoon is normal not delayed

Condition			**Suggested Contingency measures**		
Early season drought(delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (Specify month) **August 1 st week**	Upland (sandy to sandy loam soil, loamy high rainfall, acidic	Summer vegetables, Blackgram, Green gram, Seasamum	Instead of summer vegetables go for early rabi vegetables like cabbage, cauliflower, radish etc.	Black gram, green gram, seasamum, sowing, thining	RKVY
		Sugarcane	No change	Irrigation	
		Banana, pineapple	No change	-	
		Pea	No change	Irrigation	RKVY, NFSM
	2) Medium & low land (clay to clay loam, acidic, high rainfall)	Winter rice, Var: Local	Short duration HYV & photoperiod sensitive varieties like Luit, Kapili, Manohar Sali, Andrew sali	Direct seeding of germinated seed/transplanting of varieties like Luit, Kapili at closer spacing	RKVY, NFSM

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measures[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	**1)Upland(High rainfall, sandy loam to sandy clay loam)**	Summer vegetables - Rabi vegetables Kharif pulse/oilseed - Rabi pulse/ Oilseed	Mulching is necessary for vegetable seedling Re -sowing is advocated if germination is poor Life saving irrigation for rabi crops	Application of organic manure is necessary for rabi crops Application of organic manure is necessary for rabi crops	-
	2. Medium & Low land (High rainfall, Sandy clay loam to clay loam)	Winter rice-Fallow Winter rice-Rabi vegetables Winter rice-Rabi oilseed/pulses	Life saving irrigation for rabi crops		

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	1) **Upland(High rainfall, sandy loam to sandy**	Summer vegetables - Rabi vegetables	Mulching may be provided, irrigation if possible	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-

	clay loam)	Kharif pulse/oilseed - Rabi pulse/ Oilseed	Mulching may be provided, irrigation if possible	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-
	2. Medium & Low land (High rainfall, Sandy clay loam to clay loam	Winter rice-Fallow Winter rice-Rabi vegetables Winter rice-Rabi oilseed/pulses	Irrigation if possible Irrigation for rabi vegetables/oilseed/pulses	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measrues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	1) **Upland(High rainfall, sandy loam to sandy clay loam)**	Summer vegetables - Rabi vegetables	Irrigation if possible, weeding & thinning	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-
		Kharif pulse/oilseed - Rabi pulse/ Oilseed	Irrigation if possible, weeding & thinning	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-
	2. Medium & Low land (High rainfall, Sandy clay loam to clay loam	Winter rice-Fallow Winter rice-Rabi vegetables Winter rice-Rabi oilseed/pulses	Irrigation if possible, spraying of chemicals to enhance maturity	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measrues[d]**	**Remarks on Implementation[e]**
	1) **Upland(High rainfall, sandy loam to sandy clay loam)**	Summer vegetables - Rabi vegetables	Irrigation if possible, weeding & thinning	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-
		Kharif pulse/oilseed - Rabi pulse/ Oilseed	Irrigation if possible, weeding & thinning	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-
	2. Medium & Low land (High rainfall, Sandy clay loam to clay loam	Winter rice-Fallow Winter rice-Rabi vegetables Winter rice-Rabi oilseed/pulses	Irrigation if possible, spraying of chemicals to enhance maturity	Spraying of anti-transpirant, avoid use of remaining dose of fertilizer, spray of Kcl	-

2.1.2 Drought - Irrigated situation-- not applicable

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Delayed release of water in canals due to low rainfall	**1) Farming Situation**				

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Limited release of water in canals due to low rainfall					
Non release of water in canals under delayed onset of monsoon in catchment					
Lack of inflows into tanks due to insufficient /delayed onset of monsoon					
Insufficient groundwater recharge due to low rainfall					

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[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Winter rice	No problem	Flag leaf and panicle is above the water level, no problem	Spraying of chemicals to enhance flowering for early harvesting	Steps for quick threshing and drying
Rape seed and mustard	Excess water to be drained out	Excess water to be drained out	Immediate harvest	Steps for quick threshing and drying
Black gram/green gram	Excess water to be drained out	Excess water to be drained out	Drain out excess water and harvest immediately	Steps for quick threshing and drying

Potato	Excess water to be drained out followed by light hoeing	Excess water to be drained out	Immediate harvesting	Drying/ grading and store in cool place.
Pea	Excess water to be drained out followed by light hoeing	Excess water to be drained out	Immediate harvesting	-
Sugarcane	Drain out excess water	No problem	No problem	-
Seasamum	Excess water to be drained out	Excess water to be drained out	Drain out excess water and harvest immediately	Steps for quick threshing and drying
Banana	Excess water to be drained out followed by light hoeing	Excess water to be drained out followed by light hoeing	Immediate harvesting	-
Heavy rainfall with high speed winds in a short span[2]				
Crop1				
Horticulture				
Crop1 (specify)				
Outbreak of pests and diseases due to unseasonal rains				
Rice, Black gram/Green gram, Rape seed/ Mustard, Vegetables	IPM and IDM measure to be taken up	IPM & IDM measure to be taken up	IPM & IDM measure to be taken up	-
Horticulture				
Crop1 (specify)				

2.3 Floods:

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Summer and autumn rice	-	-	Spraying of chemicals to hasten ripening	Harvest immediately and dry

Winter Rice	Excess water to be drained out. Adapt submergence tolerant var: Jalashree, Jalkunwari	Proper inter cultural operation after recession of flood. To compensate heavy damage second time planting of short duration varieties: Luit, Kapili	Spraying of chemicals to hasten ripening	Harvest immediately and dry
Rapeseed/ Mustard	Re-sowing	-	-	-
Black gram	Proper drainage facility, re-sowing	Drain out excess water	Spraying of hormone to enhance ripening	Harvest immediately and dry
Green gram	Proper drainage facility, re-sowing	Drain out excess water	Spraying of hormone to enhance ripening	Harvest immediately and dry
Summer vegetables	Proper drainage of the field, If damaged completely re-sowing or alternate crop may be taken up.	Drain out excess water	Immediate harvesting	Harvest immediately and dry
Continuous submergence for more than 2 days[2]				
Summer and autumn rice	-	-	Spraying of chemicals to enhance maturity	Harvest immediately and dry
Winter Rice	Excess water to be drained out. Adapt submergence tolerant var: Jalashree, Jalkunwari , staggard planting	Proper inter cultural operation after ceasation of flood. Replanting of short duration varieties: Luit, Kapili	Spraying of chemicals to enhance maturity	Harvest immediately and dry
Rapeseed/ Mustard	Re-sowing	-	-	-
Black gram	Proper drainage facility, re-sowing	Drain out excess water, light hoeing	Spraying of hormone to enhance ripening	Harvest immediately and dry
Green gram	Proper drainage facility, re-sowing	Drain out excess water	Spraying of chemicals to hasten maturity	Harvest immediately and dry
Summer vegetables	Proper drainage, If damaged re-sowing or alternate crop may be taken up.	Drain out excess water	Immediate harvesting	Harvest immediately and dry
Sea water intrusion[3]				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone: Not encountered

Extreme event type	Suggested contingency measure[r]			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave[p]				
Cold wave[q]				
Frost				
Hailstorm				
Cyclone				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	During the event	After the event
Drought			
Feed and fodder availability	1) Fodder cultivation and it's preservation in the form of hay, silage, etc. approx. 70 – 100 q (Local varieties available at different Chaporis) 2) Storage of paddy straws 3) Preparation of urea treated paddy straw and it's storage 4) Azolla cultivation and it's storage 5) Storage of adequate quantity of concentrate feed, approx 500q 6) Awareness camp on drought like situation	1) Harvesting and supply of all the field crops 2) Feeding of stored processed fodder(50 – 70 q), urea treated paddy straw, dried azolla, concentrate feed, approx 500q,etc. 3) Feeding of fodder trees 4) Feeding of mineral mixture and vitamins	1) Feeding of fodder(20-30q) 2)Feeding of mineral mixture and vitamins 3) Training on annual and perennial fodder cultivation, preparation of concentrate mixture, preparation of hay, silage, etc., preparation of urea treated paddy straw, azolla cultivation
Drinking water	1) Preservation of clean drinking water in reservoirs	1) Using clean drinking water from reservoirs	1) Strengthening of water reservoirs, ponds, tanks, etc.

	2)Rain water harvesting and it's storage		
Health and disease management	1) Make available (i) Anti-stress drugs-27300 litres/day (approx.) (ii) ORS/ parenteral liquid-27300 litres/day(approx.) (iii) Antibiotics (iv) Vitamin and mineral supplements (v)Temporary shed 83 nos. (approx.) 2)Vaccination of animals 3) De-worming of animals 4) Insurance of animals	Supply of (i) Anti-stress drugs (ii) ORS/ parenteral liquid (iii) Antibiotics where necessary (iv) Vitamin and mineral supplements (v)Temporary shed through Health Camps	1) Vaccination and de-worming of animals 2) Segregation and treatment of sick animals 3)Health Camps
Floods			
Feed and fodder availability	1) Fodder cultivation in high/upland areas. 2) Fodder cultivation especially para grass and it's preservation in the form of hay, silage, etc. approx. 100 q (Local varieties available at different Chaporis) 3) Storage of paddy straws 4) Preparation of urea treated paddy straw and it's storage 5) Azolla cultivation and it's storage 6) Storage of adequate quantity of concentrate feed, approx 500q 7) Arrangement for storage of above feeds and fodders in elevated areas	1) Harvesting and supply of all the field crops except para grass 2) Transportation and feeding of stored processed fodder urea treated paddy straw, dried azolla, concentrate feed, approx etc. 3) Feeding of mineral mixture and vitamins	1) Feeding of para fodder 2)Feeding of mineral mixture and vitamins 3) Training on fodder cultivation, preparation of concentrate mixture, preparation of hay, silage, etc., preparation of urea treated paddy straw, azolla cultivation
Drinking water	1) Preservation of clean drinking water in high reservoirs 2)Rain water harvesting and it's storage 3) Excavation of bore wells	1) Using clean drinking water from reservoirs	1) Cleaning and disinfection of water reservoirs, ponds, tanks, etc.
Health and disease	1) Make available	1) Transportation of animals to	1) Vaccination and deworming of

management	(i) Antistress drugs-27300 litres/day (approx.) (ii) ORS/ parenteral liquid-27300 litres/day(approx.) (iii) Antidiarrhoeals (2000 kg/day) (iv) Antibiotics (v) Vitamin and mineral supplements (vi)Temporary shed 83 nos. (approx.) 2)Vaccination of animals 3) Deworming of animals 4) Insurance of animals 5) Provision of Community shelters at safe places	elevated areas 2)Supply of (i) Antistress drugs (ii) ORS/ parenteral liquid (iii) Antibiotics where necessary (iv) Vitamin and mineral supplements (v)Temporary shed through Health Camps	animals 2) Segregation and treatment of sick animals 3)Proper disposal of dead animals 4)Health Camps
Cyclone		**Not a cyclone prone district**	
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave		**Not a wave prone district**	
Shelter/environment management			
Health and disease management			

[s] based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event[a]	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients	1)Storing sufficient concentrate feeds 2) Azolla cultivation and it's storage 3) Awareness camp on drought like situation	1)Make available concentrate feeds from storage	1) Strengthening of storage facilities 2)Supply of vitamin and mineral mixture	
Drinking water	1) Preservation of clean drinking water in reservoirs 2)Rain water harvesting and it's storage	1) Supply of clean drinking water from reservoirs	1)Cleaning and disinfection of water reservoirs	
Health and disease management	1) Make available (i) Anti-stress drugs (ii) Antibiotics (v) Vitamin and mineral supplements 2) Vaccination of birds	1) Feeding of vitamin and mineral supplements 2) Give anti-stress drugs and antibiotics where necessary	1) Identification and culling of sick birds 2) Feeding of vitamin and mineral supplements 3)Vaccination of birds	
Floods				
Shortage of feed ingredients	1)Storing sufficient concentrate feeds in dry condition to avoid fungal infection 2) Azolla cultivation and it's storage 3) Awareness camp on drought like situation	1)Make available concentrate feeds from storage 2) Check for fungal growth in feeds	1) Supply of vitamin and mineral mixture 2) Cleaning and disinfection of feed stores	

Drinking water	1) Preservation of clean drinking water in reservoirs 2)Rain water harvesting and it's storage 3) Excavation of bore wells	1) Supply of clean drinking water from reservoirs	1)Cleaning and disinfection of water reservoirs	
Health and disease management	1) Make available (i) Anti-stress drugs (ii) Antibiotics (v) Vitamin and mineral supplements 2) Vaccination of birds 3) Poultry houses to be built at a higher level to prevent seepage of water	1) Feeding of vitamin and mineral supplements 2) Give anti-stress drugs and antibiotics where necessary 3) Sprinkle anti-caking powder/lime to prevent ammonia accumulation due to dampness	1) Identification and culling of sick birds 2) Feeding of vitamin and mineral supplements 3)Vaccination of birds 4) Disinfection of poultry houses	
Cyclone		**Not a cyclone prone district**		
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave		**Not a wave prone district**		
Shelter/environment management				
Health and disease management				

[a] based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine	Nil	Nil	Nil
Inland			
(i) Shallow water depth due to insufficient rains/inflow	No inland capture fisheries in Golaghat district	No inland capture fisheries in Golaghat district	No inland capture fisheries in Golaghat district
(ii) Changes in water quality			
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	* Suggest for shallow tube well * Conservation and storage of water from ponds/reservoirs * Supplementary water harvest structures has to be developed * Maintenance of proper record for claiming compensation.	• Use stored water • Catch the stock, market the produce to reduced the density of population in the ponds	• Need based monitoring through research plan • Strengthening the water reservoirs • Excavation of bore wells • Restock the pond • Claim compensation with the support of record and documents
(ii) Impact of salt load build up in ponds / change in water quality	• Restrict dumping of solid, liquid and other kinds of waste in water resources. • Be prepared with stock of chemicals, disinfectants and therapeutic drugs	• Check the water quality by using different scientific equipment and suggest technical measures to rectify the water quality as and when needed	• Strict legislative measures on maintenance of water quality

		• Application of disinfectants and other drugs including bio remedial measures	
(iii) Any other			
2) Floods			
A. Capture			
Marine	Nil	Nil	
Inland (i) Average compensation paid due to loss of human life (ii) No. of boats / nets/damaged (iii) No.of houses damaged (iv) Loss of stock (v) Changes in water quality (vi) Health and diseases	No inland capture fisheries in Golaghat district	No inland capture fisheries in Golaghat district	No inland capture fisheries in Golaghat district
B. Aquaculture			
(i) Inundation with flood water	* Suggest to cover the tank boundary with synthetic nets to prevent escape of fish from the tank * plantation crops on the embankment to prevent erosion * Sufficient bamboo pole and nylon nets to be kept ready. * sale out the fishes attaining marketable size to minimize loss * Maintenance of proper record for claiming compensation	* release excess water from the height of T * lower the water level in culture facilities * Supply sufficient food to fishes to reduce tendency of escaping from the pond	* Restock the pond if original stock escapes * Removal of unwanted/ predator fish from pond before stocking * Claim compensation with the support of record and documents
(ii) Water contamination and changes in water quality	• Precaution to prevent the entry of water from outside	Check the water quality by using different scientific equipments and	• Immediate cleaning of water bodies

	• Precaution of prevent the entry of contaminated water from nearby agricultural land • Apply lime regularly as per recommendation	suggest technical measures to rectify the water quality as and when needed	• Frequent water monitoring of water bodies • Apply preventive agents before onset of winter
(iii) Health and diseases	• Stock emergency medicines	• Identifications of type of disease outbreak , immediate removal of disease causing agents/ dead fish • Use of disinfectants, chemicals and therapeutic drugs	• Diagnosis of diseased fish , generation of data about type/ kind of disease spread. • Proper disposal of dead fish • Loss assessment and insurance claim
(iv) Loss of stock and inputs (feed, chemicals etc)	• Keep the stock and inputs for emergency purpose	• Bring inputs from areas not affected by flood	• Strengthening of stocks • Assessment of total loss • Insurance claims
(v) Infrastructure damage (pumps, aerators, huts etc)	* Training for the repair of the infrastructure * Follow flood control management plan * Infrastructure insurance	* immediate management of release supplies	* Locate backup equipment and verify its operations * Loss assessment and insurance claims
(vi) Any other			
3. Cyclone / Tsunami	Not a cyclone affected district	Not a cyclone affected district	Not a cyclone affected district
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			

Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave	Not a heat wave and cold wave affected district	Not a heat wave and cold wave affected district	Not a heat wave and cold wave affected district
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			

[a] based on forewarning wherever available

Annexure: I

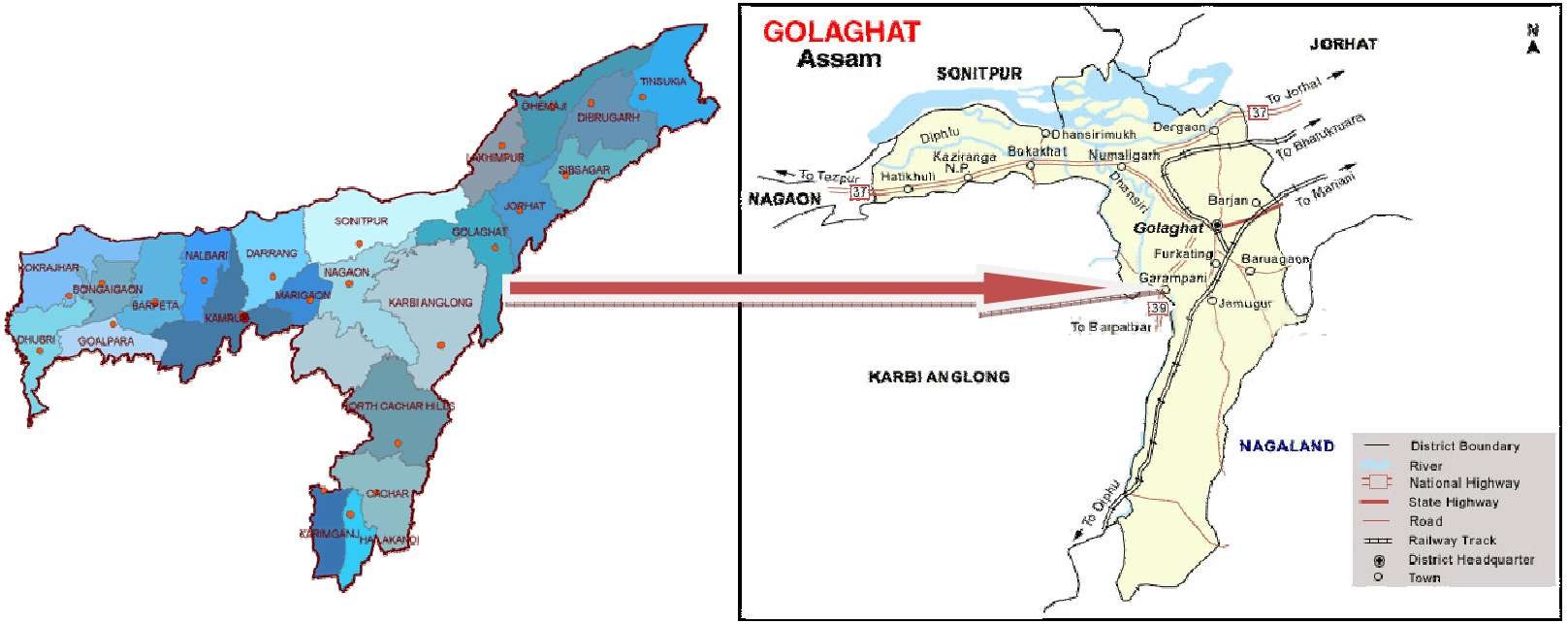

Fig 1: Location Map of District within the State