State: ASSAM

Agriculture Contingency Plan for District: SIVASAGAR

1.0 District Agriculture Profile					
1.1 District	Agro-Climatic/Ecological agriculture Profile 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)	Upper Brahmaputra Valey Zone(AS-2)			
	List a l the districts or part thereof faling under the NARP Zone	Tinsukia, Dibrugarh, Sivasagar, Jorhat, Golaghat			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		26.45^0 to 27.15^0 N	94.25^0 to $95.25^{`}$ E	86.6 m	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ZRS: AAU, Jorhat – 13 Regional Agricultural Research Station, Titabar Citrus Research Station, Tinsukia Sugarcane Research Station, Buralikson			
	Mention the KVK located in the district	Krishi Vigyan Kendra, Sivasagar			

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):	352.43	-	1st Week of June	2nd week of October
	NE Monsoon(Oct-Dec):	53.13	-	3rd week of October	2nd Week of November
	Winter (Jan- March)	59.93	-		
	Summer (Apr-May)	247.8	-		
	Annual	1478.1 mm	-		

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 Falows (‘000 ha)	Other falows (‘000 ha)
	Area (‘000 ha)	260.29	136.822	30.46	56.15	7.330	1.820	20.061	7.336	4.71	2.931

Source : Statistical Hand Book , ASSAM, 2011

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area (‘000 ha)	Percent (%) of total
1.	Inseptisol (Old alluvial soil)		
	Fine soil	6.932	3
	Fine Loamy	129.931	58
2.	Entisol (Recent alluvial soil)		
	Course loamy	20. 603	9
	Fine loamy	29.609	13
	Course silty	5.647	2
	Fine soil	32.666	15
	Others (specify):		

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source : SREP, Sivasagar District)

1.5	Agricultural land use	Area (‘000 ha)	Cropping intensity %
	Net sown area	136. 822	
	Area sown more than once	18.440	
	Gross cropped area	155.262	124

1.6	Irrigation	Area (‘000 ha)		
	Net irrigated area	3.874		
	Gross irrigated area			
	Rainfed area	106.871		
	Sources of Irrigation	Number	Area (‘000 ha)	% of total irrigated area
	Canals			
	Tanks			
	Shalow tubewel	224		
	Low lift pump	327		

	Deep tubewel	3		
	Open wels			
	Bore wels	7		
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify) (LLP)	327		
	Total Irrigated Area			
	Pump sets			
	No. of Tractors			
	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%				

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2009-10)

1.7a	Major field crops cultivated	Area ('000ha)							
		Kharif			Rabi			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Winter Rice	-	-	106. 726	-	-		-	106.726
	Autumn Rice	-	-	0.445 5	-	-		-	0.4455
	Summer Rice	-	-		-	-	0.01378	-	0.01378
	Wheat	-	-		-	-	0.0842	-	0.0842
	Greengram	-	-	0.0305	-	-		-	0.0305
	Blackgram	-	-	0.250	-	-		-	0.250
	Peas	-	-		-	-	0.333	-	0.333
	Rape and Mustard	-	-		-	-	1.263	-	1.263
	Sugarcane	-	-	0.087	-	-		-	0.087
	Jute	-	-	0.05875	-	-		-	0.05875

1.7b	Horticulture crops - Fruits	-		
		Total	Irrigated	Rainfed ('000 ha)
	Banana	1.887	-	1.887
	Orange	0.185	-	0.185
	Pine apple	0.1755	-	0.1755
	Papaya	0.151	-	0.151
	Arecanut	3.175	-	3.175

	Coconut	0.493	-	0.493
	Litchi	0.043	-	0.043
	Mango	0.089	-	0.089
	Jackfruit	0.445	-	0.445
	Assam lemon	0.810	-	0.810
	Onion	0.0805	---	0.0805
	Ginger	0.19627	-	0.19627
	Turmeric	0.23013	-	0.23013
	Chili	0.10034	-	0.10034
	Blackpepper	0.0422	-	0.0422
	Garlic	0.0395	-	0.0395
	Coriander	0.024	-	0.024
	Potato	0.945	-	0.945
Others (specify)	Other fruits	0.022	-	

Source: Deptt. of Agriculture, 2009-10

1.7c	Horticulture crops - Vegetables	Total area (‘000 ha)	Irrigated area (‘000 ha)	Rainfed area (‘000 ha)
1	Summer vegetable	1.882		
2	Winter vegetable	3.236		
1.7d	Medicinal and Aromatic crops	Total area (‘000 ha)	Irrigated area (‘000 ha)	Rainfed area (‘000 ha)
1				

Others (specify)				
1.7e	Plantation crops	Total area (‘000 ha)	Irrigated area (‘000 ha)	Rainfed area (‘000 ha)
1	areca nut	3.175		
2	Coconut	0.493		
Others (Specify)	Eg., industrial pulpwood crops etc.			
1.7f	Fodder crops	Total area (‘000 ha)	Irrigated area (‘000 ha)	Rainfed area (‘000 ha)
1	-	-	-	-
Others (Specify)	-	-	-	-
1.7g	Grazing land			
1.7h	Sericulture etc		-	
1	Eri	7.62334		
2	Muga	9.80154		
3	Mulbery	4.704		
1.7i	Others (specify)			

1.8	Livestock (in number) (Data source: SHA, 2011)	Male (‘000)	Female (‘000)	Total (‘000)
	Indigenous Cattle	-	-	308.222
	Cross bread cattle	-	-	14.834
	Buffaloes	-	-	16. 520
	Goat	-	-	75.488
	Others (Pig,	-	-	62.994
	Commercial dairy farms (Number)			-
1.9	Poultry	No. of farms		Total No. of birds (‘000)
	Fowl	-		408.658
	Duck	-		131.795

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, Gil 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

	B. Culture			
		No.	Yield (t/ha)	Production (‘000 tons)
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)			
	ii) Fresh water (Data Source: Fisheries Department)			
	Others			
	Reg. beel fisheries	23		
	Reg. river fisheries	9		

1.11 Production and Productivity of major crops (Average of 3 years, 205-06, 2006-07, 2007-08)

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as
		Production (‘000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	fodder (‘000 tons)
Major Field crops (Crops to be identified based on total acreage)										
1	Winter Rice	262.0378	3500							
2	Autumn Rice	0.53825	2056.667							
3	Summer Rice	0.10275	2333.333							
4	Wheat	0.0425	700							
5	Greengram	0.016425	650							
6	Blackgram	0.1275	700							
7	Peas	0.1555	573.3333							
8	Rape and Mustard	0.69125	696.6667							
9	Sugarcane	4.9125	60000							
10	Jute	0.45925	10416.67							
Major Horticultural crops (Crops to be identified based on total acreage)										

1	Banana	19.0085	15185							
2	Orange	0.134	1615							
3	Pine apple	2.45525	14550							
4	Papaya	1.53975	12511.67							
5	Arecanut	2.67025	1060							
6	Coconut		80 nuts /plant							
7	Litchi	0.1335	4270							
8	Mango	0.2785	4316.667							
9	Jackfruit	8.16475	24621							
10	Assam lemon	3.11875	6211.667							
11	Onion	0.117	2010							

12	Gin^{g}er	0.7965	5566.667							
13	Turmeric	0.11825	600							
14	Chili	0.0655	663.3333							
15	Blackpepper	0.01033	500							
16	Garlic	0.01675	586.6667							
17	Coriander									

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Sali Paddy	Rape & mustard	Potato	Wheat	Maize
	Kharif- Rainfed	June to July	Mid Oct to Mid November			March to April
	Rabi- Rainfed	-	-	Mid Oct to Mid November	Oct- Nov	Oct- Nov
	Rabi-Irrigated	-	-	-	-	

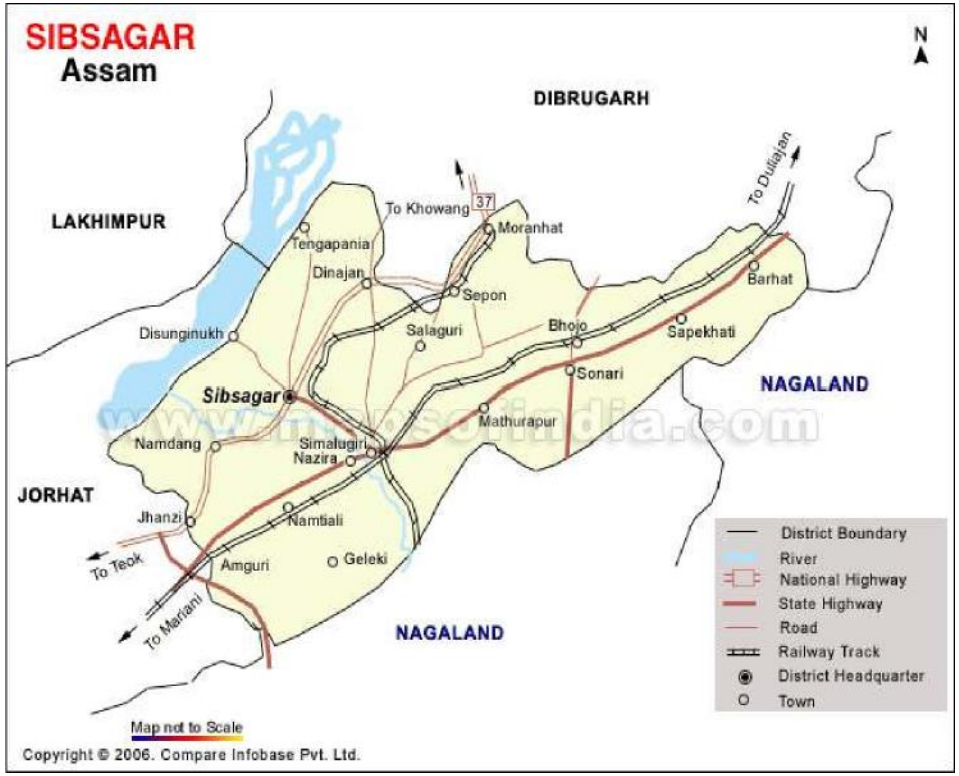
1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought			
	Flood			
	Cyclone			
	Hail storm			
	Heat wave			
	Cold wave			
	Frost			
	Sea water intrusion			
	Pests and disease outbreak (specify)			
	Others (specify)			
	Crop	Severe	Moderate	Mild
	Winter Rice		Stem borer, Case worm, Leaf folder, Gandhi bug, Rodent, Blast, Hispa, WBPH,BLB, Bakane,	BPH, GPH, False smut
	Rapseed & Mustard		Aphid and saw fly	
	Wheat		Rodent	
	Banana		Cercospora leaf spot	

	Vegetables	Bacterial wilt, , Late blight of potato/tomato	Fungal wilt, Damping off, anthracknose in chili, White grub, Fruit and shoot borer, TLCV Collar rot, blight,	

6 out of 10 years = Regular

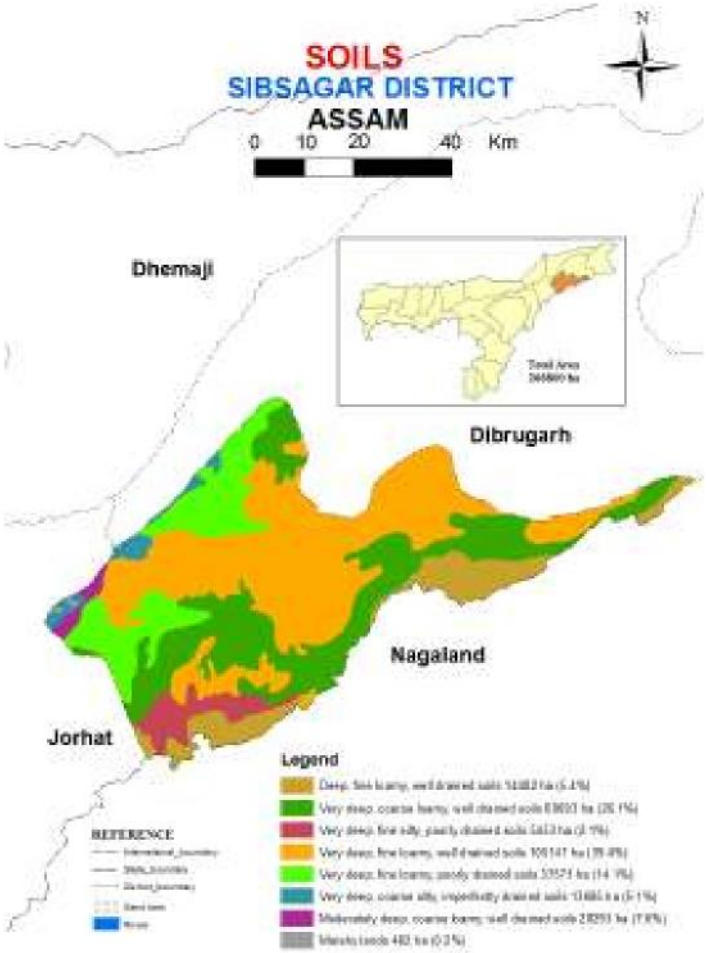
1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfal as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure – 1: LOCATION MAP SIVASAGAR DISTRICT



Annexure – 3: SOIL MAP OF Sivasagar

Source: NBSS & LUP, Regional Centre, Jorhat



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[a]	Normal Crop / Cropping system[b]	Change in crop / cropping system[c] including variety	Agronomic measures[d]	Remarks on Implementation[e]
Delay by 2 weeks June 3rd week	Rainfed medium land	a. Sali Rice	No need of change	-	-
	Rainfed low land situation	a. Bao Rice	-do-	1. Use of organic manure if possible	-
		b.Rice + Wheat	Grow Medium duration rice varieties like Lachit, Chilarai folowed by short duration wheat variety	Use closure spacing of 10cm x10 cm Use of organic manure like FYM	1. The seed should be made available through Seed Village or ASC, Assam, 2. Production of vermicompost or enriched compost may be promoted through community basis
	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation[a]	Normal Crop[p]/croppping system[b]	Change in crop[p]/croppping system[c]	Agronomic measures[d]	Remarks on Implementation[e]
Delay by 4 weeks (Specify month) July 1st week	Rainfed medium land	a. Sali Rice	No need of change		
	Rainfed low land situation	a. Bao Rice	-do-	1. Use of organic manure if possible 2. 3 % foliar spray of KCl	
		b.Rice + Wheat (DWR/Sonalika)	Grow Medium duration rice varieties like Lachit, Chilarai folowed by short duration wheat variety	1 .Use closure spacing 10cmx10cm 2.Use of sufficient organic manure	1. The seed should be made available through Seed Village or ASC, Assam, 2. Production of vermicompost or enriched compost may be promoted through community basis
	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	LLP may be provided on community basis

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation[a]	Normal Crop[p]/croppping system[b]	Change in crop[p]/croppping system[c]	Agronomic measures[d]	Remarks on Implementation[e]
Delay by 6 weeks (Specify month) July 3 rd week	Rainfed medium land	Sali Rice	Sowing of seeds for medium duration varieties like Jaya, Satyaranjan, Basundhara, Pankaj, IR 36 etc	1. Closure spacing of 10cmx10cm 2.Use organic manure 3.Provision of life saving irrigation if possible.	1. The seed should be made available through Seed Village or ASC, Assam, 2. Production of vermicompost or enriched compost may be promoted through community basis
	Rainfed low land situation	Bao Rice	-do-	1. Use of organic manure 2. 2 % foliar spray of KCl on leaves if drought appears.	

		b.Rice + Wheat	Grow Medium duration rice varieties like Lachit, Chilarai folowed by short duration wheat variety	1.Use closure spacing of 10cmx10cm 2.Use of organic manure 3.Provision of life saving irrigation if possible.	1.The seed should be made available through Seed Village or ASC, Assam, 2.Production of vermicompost or enriched compost may be promoted through community basis
	Up land situation	Kharif Maize	Nil	1. Use of organic manure 2..Mulching between the rows	LLP may be provided on community basis

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 1st week	Rainfed medium land	a. Sali Rice	1. Use of local Sali varieties i.e, Monohar Sali , Andrew Sali etc. 2. Use of short duration rice varieties like Luit, Disang as pre germinated direct seeding. 3. Use of staggered planting variety like Gitesh, Prafula etc.	1. Closure spacing of (10cm x 10cm)with 4-5 nos of seedling per hill	1. The seed should be made available through Seed Village or ASC, Assam, 2. The contingent varieties should be raised on community basis
	Rainfed low land situation	a. Bao Rice	1. Land should be prepared for Rape & mustard crop	1 .Use of high yielding oilseed variety(TS-36, TS-38)	Seeds and inputs should be made available at farmers doorstep
		b.Rice + Wheat (DWR/Sonalika)	The land should be prepared for early cultivation of wheat		1. The seed should be made available through ASC, Assam,

	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	LLP may be provided on community basis

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.	Rainfed medium land	Monocrop a. Sali Rice	• Sprinkle water manualy in nursery bed of rice since the area of nursery bed is very smal. • Re-sowing of rice seeds can be done since sowing time is stil available (upto July)	• Application of sufficient amount of organic manures in nursery bed before sowing • Balance fertilization in nursery bed	
	Rainfed low land situation	a. Bao Rice	Potash @3 % may be sprayed.		
		b.Rice + Wheat (DWR/Sonalika)	The land should be prepared for early cultivation of wheat		1.The seed should be made available through ASC, Assam,
	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	1.LLP may be provided on community basis

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm)	Major Farming situation[a]	Normal Crop/cropping system[b]	Crop management[c]	Soil nutrient & moisture conservation measues[d]	Remarks on Implementation[e]

Period)					
At vegetative stage	1) Farming Situation: Rainfed medium land	a. Sali Rice	• Proper weeding • Thining the plant population	• Application of sufficient amount of organic manures in nursery bed before sowing. • Stop top dressing of urea.	
	Rainfed low land situation	a. Bao Rice	Potash @3 % may be sprayed.		
		b.Rice + Wheat (DWR/Sonalika)	The land should be prepared for early cultivation of wheat		1.The seed should be made available through ASC, Assam,
	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	LLP may be provided on community basis

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	Rainfed medium land	a. Sali Rice	• Proper weeding • Thinning the plant population and • Spraying of KCl @ 3%	• Stop top dressing of urea. • Crop may used as fodder	KCl is to be made available to farmers
	Rainfed low land situation	a. Bao Rice	Spraying of KCl @ 3%		
		b.Rice + Wheat (DWR/Sonalika)	The land should be prepared for early cultivation of wheat		1.The seed should be made available through ASC, Assam,
	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	LLP may be provided on community basis

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation[a]	Normal Crop/cropping system[b]	Crop management[c]	Rabi Crop planning[d]	Remarks on Implementation[e]
	Rainfed medium land	a. Sali Rice	Spray 2% urea	• The crop may be used as fodder • Land should prepared for Toria and Potato	The seed should be made available through ASC, Assam
	Rainfed low land situation	a. Bao Rice			
		b.Rice + Wheat (DWR/Sonalika)	The land should be prepared for early cultivation of wheat		1.The seed should be made available through ASC, Assam,

	Up land situation	Kharif Maize	Nil	1. Use of organic manure if possible 2. Mulching between the rows	LLP may be provided on community basis

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
Delayed release of water in canals due to low rainfall	Major Farming situation[a]	Normal Crop/cropping system[b]	Crop management[c]	Rabi Crop planning[d]	Remarks on Implementation[e]
	Irrigated medium land	a. Sali Rice	Potato and toria	• Limited irrigation • Drip irrigation	The seed should be made available through ASC, Assam
		b.Rice + Wheat	The land should be prepared for early cultivation of wheat		1.The seed should be made available through ASC, Assam,

2.1.3 Pre monsoon flood and hailstorm under irrigated 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]
Pre monsoon flood	Irrigated medium land	a. Sali Rice	Adoption of short duration rice varieties like Luit, Disan[g]	• Limited irrigation • Drip irrigation	The seed should be made available through ASC, Assam

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]
Hail storm under irrigated condition	Irrigated medium land	a. Sali Rice			

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]
Crop : Rice	Provide Community drainage	Provide drainage	Harvesting at physiological maturity stage	Shift to saffer place
Rape & mustard	• Provide drainage • Harvest the crop for vegetable purpose	Provide drainage	Drain out excess water Harvesting at physiological maturity	Shift to safe place dry in shade and turn frequently
Wheat	Provide drainage	Provide drainage	Drain out excess water Harvest for vegetable purpose	Safe storage against storage pest and disease
potato	Provide drainage	Provide drainage	Drain out excess water Harvest immediately	• Safe storage against storage pest and disease • Dispose at early as possible
Maize	Provide drainage	Provide drainage	Drain out excess water	Safe storage against storage pest and disease
Horticulture				
Banana (specify)	Provide drainage	Provide drainage	Harvesting at physiological maturity stage	
Bhot Jalakia	Provide drainage	Provide drainage	Harvesting at physiological maturity stage	
Vegetables	Provide drainage	Provide drainage Application of hormones , nutrients etc to prevent flower drop	Harvesting at physiological maturity stage	
Heavy rainfall with high speed winds in a short span[2]				
Sali Rice	Provide Community drainage	Provide drainage The crop may be used as fodder	Harvesting at physiological maturity stage	Shift to safer place
Rape & mustard	• Provide drainage • Harvest the crop as vegetables	Provide drainage	Drain out excess water Harvesting at physiological maturity	Shift to safe place dry in shade and turn frequently
Horticulture				

Banana	Provide drainage	Provide drainage	Harvesting at physiological maturity stage	
Bhot Jalakia	Provide drainage, Plant protection measures	Provide drainage, Application of hormones	Harvesting at physiological maturity stage	
Vegetables	Provide drainage	Provide drainage Application of hormones , nutrients etc to prevent flower drop	Harvesting at physiological maturity stage	

Outbreak of pests and diseases due to unseasonal rains				
Sali Rice	• Need based plant protection measure • IPM and IDM Strategies	• Need based plant protection measure • IPM and IDM Strategies		
Rape and mustard	• Need based plant protection measure • IPM and IDM Strategies	• Need based plant protection measure • IPM and IDM Strategies		
Wheat	• Need based plant protection measure • IPM and IDM Strategies	• Need based plant protection measure • IPM and IDM Strategies		
Maize	• Need based plant protection measure • IPM and IDM Strategies	• Need based plant protection measure • IPM and IDM Strategies		
Potato	• Application of pesticides as prophylactic measures • IPM and IDM Strategies	• Application of pesticides as prophylactic measures IPM and IDM Strategies		

2.3 Floods : Not experienced / encountered

Condition	Suggested contingency measure			
Transient water logging/ partial inundation[1]	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Sali Rice	Re-sowing with short duration varieties like Luit, Disang, Kolong etc	Drain out on community basis	Preparedness for rabi crops	Preparedness for rabi crops
Rape and mustard	Re-sowing with late sown	Preparedness for short duration	Preparedness for other	• Harvest quickly before flood

	varieties like TS -36,TS-48 etc	vegetable crops like Amaranthus, French been etc	vegetables	inundation at physiological maturity, • Transfer the produce to safer places
Horticulture				
Continuous submergence for more than 2 days[2]				
Sali Rice				
Horticulture				
Sea water intrusion[3]				

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

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

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the events	During the event	After the event
Drought			
Feed and fodder availability	Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, encouraging fodder crops in irrigated area Silage – using excess fodder for silage	Utilizing fodder from perennial trees and Fodder bank reserves Utilizing fodder stored in silos Transporting excess fodder from adjoining districts Use of feed mixtures	Availing Insurance Culling unproductive livestock
Drinking water	Preserving water in the tank for drinking purpose Excavation of Bore wels	Using preserved water in the tanks for drinking Wherever ground water resources are available priority for drinking purpose	
Health and disease management	Veterinary preparedness with medicines and vaccines	Conducting mass animal Health Camps and treating the affected once in Campaign	Culling sick animals
Floods			
Feed and fodder availability	Silage preparation Mass awareness for unconventional feed and byproducts		
Drinking water		• Care for not to dring contaminated water • Provide quality water	Vaccination for various diseases
Health and disease management			
Cyclone			
Feed and fodder availability			
Drinking water			
Health and disease management			

Heat wave and cold wave
Shelter/environment manaᵍement
Health and disease manaᵍement

ₛbased on forewarninᵍ wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing ᴾrograms, if any
	Before the eventᵃ	During the event	After the event	
Drought	Insurance & Inteᵍration Establishinᵍ ᵍeed serve Bank	Utilizinᵍ from feed serve banks	Availinᵍ insurance Strenᵍthenᵢnᵍ feed Reserve Banks	
Shortaᵍe of feed inᵍredients				
Drinkinᵍ water	Emerᵍency Veterinary preparedness with medicines vaccination to birds	Campaiᵍn and Mass Vaccination	Culinᵍ affected birds	
Health and disease manaᵍement	Timely vaccination	Conductinᵍ animal health camp	Culinᵍ unproductive birds Availainᵍ insurance provision	Vaccination and animal health camp
Floods				
Shortaᵍe of feed inᵍredients	Storaᵍe of sufficient feed	Conductinᵍ animal health camp	Culinᵍ unproductive birds Availainᵍ insurance provision	
Drinkinᵍ water	Storinᵍ drinkinᵍ water	Isolation of seek birds	-	-
Health and disease manaᵍement	Timely vaccination	Conductinᵍ animal health camp	Culinᵍ unproductive birds Availainᵍ insurance provision	Vaccination and animal health camp
Cyclone				
Shortaᵍe of feed inᵍredients				
Drinkinᵍ water				
Health and disease manaᵍement				

Heat wave and cold wave
Shelter/environment manaᵍement
Health and disease manaᵍement

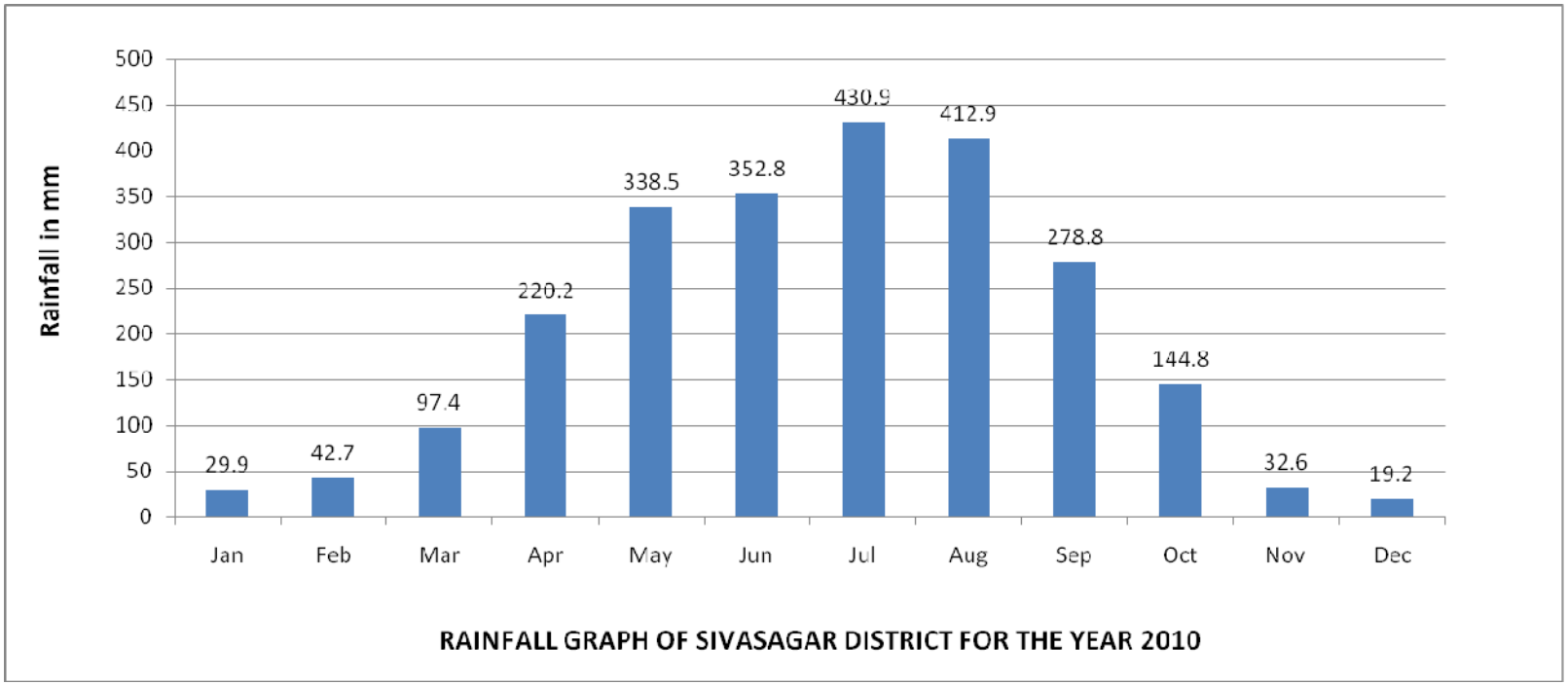
ₐ based on forewarninᵍ wherever available 2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	During the event	After the event
1) Drought			
A. Capture			
Marine	-	-	-
Inland			
(i) Shalow water depth due to insufficient rains/inflow	• Stop over exploitation	• Stop over exploitation • Finᵍerlinᵍs and brood fishes, if catched, to be released back to safer waters • Shift fish stock to deeper water, especialy in case of pens • Dryinᵍ of fish or production of value added fish products from the over harvested stock	• Re stockinᵍ, wherever possible.
(ii) Chanᵍes in water ᵠuality	• Thinninᵍ out of stock aᵍainst reduced dissolved oxyᵍen and space	-	-
(iii) Any other			
B. Aᵠuaculture			
(i) Shalow water in ponds due to insufficient rains/inflow	• For pond construction select soils with sufficient clay for retention of water. • Apply sufficient orᵍanic manure durinᵍ preparation to minimize water	• Pump in water from other water source (nearby sprinᵍ, stream, rivers etc) or ᵍround water, if any. • Reduce food for minimum	• Extended seed production • Restock the pond. • Inteᵍrated fish farminᵍ

	loss through seepage. • Insurance • Excavation of bore wels • Reduce biomass and stocking density through partial harvesting. • Sel out the fishes attaining marketable size to minimize loss. • Stock fishes that can thrive low water depth, like air breathing fishes. • Maintenance of proper record for claiming compensation, especialy in schemes assisted by Govt. or financial institutes. • Planning for rain water harvest.	metabolism. • Restrict fertilizer for preventing algal bloom and minimum stress. • Dig deep trench in convenient part of the pond to save brood fishes. • Careful observation on daily basis. • Scare away birds and other animals (attracted by shalow water to catch fish) – may be vector for diseases.	• Short duration culture of species that are fast growing in initial stage and can be marketed at small size (minor and medium carps). • Air breathing fish culture • Claim compensation with support of record and documents. • Paddy cum fish culture
(ii) Impact of salt load build up in ponds / change in water quality	• Thinning out of stock against reduced dissolved oxygen and space	• Recirculation of water and/or aeration. • Careful observation on daily basis.	-
(iii) Any other	-	-	-
2) Floods			
A. Capture			
Marine	-	-	-
Inland	• Preparation for pen and cage culture	• Pen & cage culture • Can get engaged in other related activities like net and gear making.	• Desilting & weed removal if possible
(i) No. of boats / nets/damaged			
(ii) No.of houses damaged			
(iii) Loss of stock			• Pen & cage culture
(iv) Changes in water quality			
(v) Health and diseases			

B. Aquaculture			
(i) Inundation with flood water	• Insurance • Repairing, turfing and compaction of peripheral embankments. • Horticulture on the embankment to prevent erosion. • Sufficient bamboo poles and nylon nets to be kept ready. • 'High stocking multiple harvesting' can be taken up. • Sel out the fishes attaining marketable size to minimize loss. • Maintenance of proper record for claiming compensation, especialy in schemes assisted by Govt. or financial institutes.	• Surround the pond with nets supported by bamboo poles to prevent escape of fish. • Supply sufficient food to fishes to reduce tendency of escaping from the pond. • •	• Desilting. • Restock the pond if original stock escapes. • Integrated fish farming • Short duration culture of species that are fast growing and can be marketed at small size. • Claim compensation with support of record and documents. • Removal of unwanted/ predatory fish from pond before stocking. • Paddy cum fish culture • • •
(ii) Water contamination and changes in water quality (iii) Health and diseases	• Prevent entry of water from outside. • Precaution to prevent entry of pesticide/insecticide laden water from nearby agricultural land. • Apply lime regularly as per recommendation.	• Apply lime regularly as per recommendation.	• Apply lime regularly as per recommendation. • Remove muck and debris, if entered with flood. • Apply preventive agents (eg. CIFAX) before on set of winter.
(iv) Loss of stock and inputs (feed, chemicals etc)			• After possibe repairing of the physical damage, take up late seed rearing to be stocked in the next year.
(v) Infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			• Smal scale homestead ornamental fish production, depending on the market.
4. Heat wave and cold wave	-	-	-
A. Capture	-	-	-

Marine	-	-	-
Inland	-	-	-
B. Aquaculture	-	-	-
(i) Changes in pond environment (water quality)	• Apply lime regularly as per recommendation. • Apply preventive agents (eg. CIFAX) before on set of winter.	• Apply lime regularly as per recommendation. • Restrict application of fertilizer as per requirement.	• Apply lime regularly as per recommendation.
(ii) Health and Disease management			



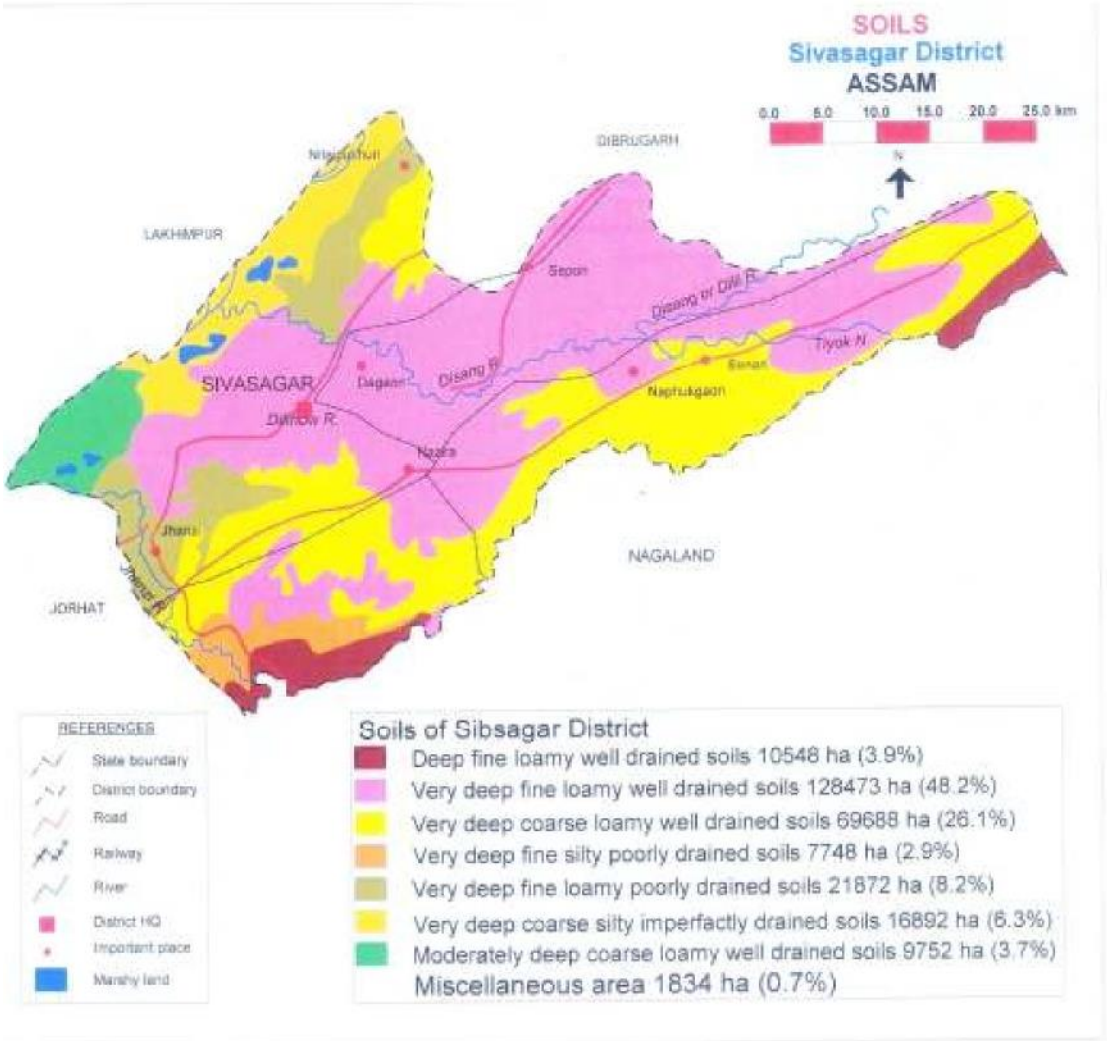
P. Nath

Programme Coordinator KVK, Sivasagar

AGRICULTURE CONTINGENCY PLAN

District : SIVASAGAR, ASSAM

Soil map


SOILS
Sivasagar District
ASSAM
0.0 5.0 10.0 15.0 20.0 25.0 km
N
DIBRUGARH
LAKHIMPUR
Sepon
Disang or Dikhow R.
Tiyok N
SIVASAGAR
Dikhow R.
Disang R.
Nazira
Naphuagam
NAGALAND
JORHAT
Jhanji
REFERENCES
State boundary
District boundary
Road
Railway
River
District HQ
Important place
Marshy land
Soils of Sibsagar District
Deep fine loamy well drained soils 10548 ha (3.9%)
Very deep fine loamy well drained soils 128473 ha (48.2%)
Very deep coarse loamy well drained soils 69688 ha (26.1%)
Very deep fine silty poorly drained soils 7748 ha (2.9%)
Very deep fine loamy poorly drained soils 21872 ha (8.2%)
Very deep coarse silty imperfactly drained soils 16892 ha (6.3%)
Moderately deep coarse loamy well drained soils 9752 ha (3.7%)
Miscellaneous area 1834 ha (0.7%)