State: Assam

Agriculture Contingency Plan for District: Lakhimpur

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 (15.2)		
	Agro-Climatic Region (Planning Commission)	Eastern Himalayan Region (VII)		
	Agro-Climatic Zone (NARP)*	North bank Plain Zone		
	List all the districts falling under the NARP Zone	Lakhimpur, Dhemaji, Sonitpur, Darrang		
	Geographic coordinates of district	Latitude	Longitude	Altitude
		$26^0 45^{"}$ & $27^0 35^{"}$	$93^0 40^{"}$ & $94^0 53^{"}$	102 above MSL
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	RARS, Boisa Garumuria, North Lakhimpur – 787032		
	Mention the KVK located in the district	KVK, Lakhimpur		
1.2	**Rainfall**	**Average (mm)**	**Normal onset (specify week and month)**	**Normal Cessation (specify week and month)**
	SW monsoon (June – Set.)	2014.7	4^{th} week March	4^{th} week October
	NE monsoon (Oct – Dec.)	220.4	-	-
	Winter (Jan – March)	195.9	-	-
	Summer April – May)	613.0	-	-
	Annual	3044.0	-	-

* If a district falls in two NARP zones, mention the zone in which more than 50% area falls

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 (,000ha)	235.156	157.97	13.097	32.342	3.818	7.367	9.175	-	6.457	14.739

1.4	Major Soils	Area ('000 ha)	Percent (%) of total
	1. Sandy soil	33.97	16.19
	2. Sandy loam	121.73	70.83
	3. Other type of soil	40.37	15.18
	Others (specify)		
1.5	**Agriculture land use**	**Area ('000 ha)**	Cropping intensity %
	Net sown area	148.161	144.66
	Area sown more than once	67.30	
	Gross cropped area	214.323	

1.6	Irrigation	Area ('000 ha)	Percent (%) of total	
	Net irrigated area	7.668	5.18	
	Gross irrigated area	10.00	6.75	
	Rainfed area	140.493	94.82	
	Sources of Irrigation	**Number**	**Area(,000 ha)**	**% area**
	Canals	-	0.272	3.55
	Tanks	986	0.133	1.73
	Open wells	-	-	
	Bore wells	2142	3.831	49.96
	Lift irrigation	1120	1.153	15.04
	Micro-irrigation	-	-	

	Other sources	30	0.579	7.55
	Total irrigated area	4278	7.668	
	Total Pump sets	2274	NA	
	No of tractors	143		
	Groundwater availability and use	**No. of blocks**	**% area**	**Quality of water**
	Over exploited	NA		
	Critical	NA		
	Semi-critical	NA		
	Safe	NA		
	Waste water availability and use	NA		

* Over exploited: ground water utilization > 100%; Critical : 90-100%; semi critical : 70-90%; Safe : < 70%

1.7 Area under major field crops & horticulture etc.

	Field crops	**Total area (ha)**	**Irrigated**	**Rainfed**
	Winter Rice	89550		-
	Summer Rice	43629.85		-
	Autumn Rice	17532		-
	Wheat	673		-
	Sugarcane	334	NA	
	Sesame	690		
	Tur	59		
	Rapeseed and mustard	19474		-
	Greengram	314		-
	Blackgram	1635		-
	Cotton	15		-
	Jute	412		-
	Castor	128		-
	Lentil	1282		-
	Linseed	19		-
	Niger	7		-

	Maize	243		-
	Other rabi pulse	5332		-
19	Gram	14		-
20	Others	175		-
1.7	**Horticulture crops -Fruits**	**Total area**		**Rainfed**
	Banana	2040		All crops rainfed
	Pine apple	293		
	Orange	95		
	Papaya	71		
	Assam Lemon	545		
	Guava	140		
	Litchi	142		
	Jackfruit	857		
	Mango	96		
	Other fruits	153		
1.7	**Horticulture crops vegetables**	**Total area (Ha)**		**Rainfed**
	Potato			-
	Sweet potato	75		-
	Tapioca	31		
	Chillies	635		
	Turmeric	561		
	Onion	230		
	Ginger	700		
	Coriander	362		
	Garlic	512		-
	Black pepper	310		-
	Other spices	52		-
	Kharif vegetables	9157		-
	Rabi vegetables	10885		-
1.7	**Medicinal and Aromatic crops**	**Total area (ha)**	**Irrigated**	**Rainfed**
	Medicinal	0.4		All crops rainfed
	Aromatic crops	0.4		

1.7	Plantation crops	Total area (ha)	Irrigated	Rainfed
1	Tea	6724	NA	NA
2	Small Tea Growers plantation	351.45		All crops rainfed
3	Eri	595		
4	Muga	7174		
5	Mulberry	6719		
6	Arecanut	2290		
7	Coconut	251		
1.7	**Fodder crops**	**Total area (ha)**	**Irrigated**	**Rainfed**
1	NA	NA	NA	NA
	Total fodder crop area	NA	NA	NA
	Grazing land	0.32	-	-

* If break-up- data (irrigated, rainfed) is not available, give total area

1.8	Livestock	Male(,000)	Female(,000)	Total('000)
	Cattle	NA	NA	3,95,418
	Buffaloes total	NA	NA	29,435
	Commercial dairy farms	NA	NA	-
	Goat	NA	NA	1,23,674
	Sheep	NA	NA	-
	Others (Camel, Pig, Yak etc)	NA	NA	81,532
1.9	**Poultry**	**No of farms**		**Total no of birds**
	Commercial	NA		3,93,903 nos.
	Backyard			
1.10	**Inland Fisheries**	Number & Water spread area (ha)		Production
	Brackish water	11 nos (14310ha)		44.56 (Fish seed)
	Fresh water	8 nos (355ha)		11,787 (Fish)
	Others	-		

1.11 Production and Productivity of major crops

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)										
	Rice	257929	2408			128990	2530	386919	2469	
	Rapeseed & Mustard			11197	575			11197	575	
	Rabi pulse			1191	504			1191	504	
	Black gram	834	510					834	510	
	Green gram	136	441						441	
Major Horticultural crops (Crops to be identified based on total acreage)										
	Vegetables	73950	8060	81964	7550			155914	7805	
	Ginger	94231	12050					94231	12050	
	Turmeric	14179	18050					14179	18050	
	Chillies			1644	5860			1644	5860	
	Banana							218	7500	
	Assam lemon							8208	15060	
	Potato			470829	110627			470829	110627	

1.12	**Sowing window for 5 major field crops (start and end of normal sowing period)**	**paddy**	**Rapeseed & Mustard**	**Rabi pulse (Pea/lentil)**	**Black gram**	**Ginger**	**Turmeric**
	Kharif- Rainfed	June -July			Mid july-Mid August/Mid Aug-Mid Sept.	March-April	March-April
	Kharif-Irrigated	June -July					
	Rabi- Rainfed		Mid Oct- Mid Nov	Mid Oct			
	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: No
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: No

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation - the monsoon is normal not delayed

Condition	Major Farming situation [a]	Normal Crop/cropping system [b]	Suggested Contingency measures		
Early season drought (delayed onset)			Change in crop/cropping system [c]	Agronomic measures [d]	Remarks on Implementation [e]
Delay by 2 weeks (Specify month) i.e. June 3rd Week	**Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	Ginger	No change	-Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk	Quality planting material available at Diphu
		Turmeric	No change	Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk	Megha turmeric-1 available at KVK,lakhimpur
		Assam lemon	No Change	-Mulching with waste material - Weeding followed by mulching - Providing pitcher drip irrigation	Development of water harvesting structure under NREGS
		Banana	No change	Weeding followed by Mulching	--Do-
		Pine apple	No change	-Mulching with waste material - Weeding followed by mulching	
		Arecanut/Betelvine	No change	- Weeding followed by mulching - Providing pitcher drip irrigation	
		Summer vegetables		- Weeding followed by mulching - Provide life saving irrigation	

	Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Winter paddy-fallow Winter paddy-Toria Winter rice-rabi vegetable Black gram/Green gram	No change No change No change No change	-Growing of medium duration rice varieties like Satyaranjan, Basundhara, Mulagabharu and TTB 404e etc. -Application of high dose of FYM in nursery bed - Supplemental irrigation in the nursery bed. -	-
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Winter rice-fallow	No change	-Application of high dose of FYM in nursery bed -Seed treatment with 4% MOP(600ml/kg seed) for 24 hrs, dry in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed.	-
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu rice +Bao rice)-fallow	No change No change	Regular Weeding and thining Regular Weeding and thining	

Condition	**Major Farming situation** [a]	**Normal Crop/cropping system** [b]	**Suggested Contingency measures**		
Early season drought (delayed onset)			**Change in crop/cropping system** [c]	**Agronomic measures** [d]	**Remarks on Implementation** [e]
Delay by 4 weeks (Specify month)	**1. Foot hills/Upland (High**	Ginger	No change	Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water	Quality planting material available at Diphu

July 1st week	**rainfall, loamy, sandy loam soil, acidic soil)**			hycianth/rice husk	
		Turmeric	No change	-Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk	Megha turmeric-1 available at Diphu
		Assam lemon	No Change	-Mulching with waste material -Weeding followed by mulching - Providing pitcher drip irrigation	Development of water harvesting structure under NREGS
		Banana	No change	-Weeding followed by Mulching - Providing pitcher drip irrigation	--Do-
		Pine apple	No change	-Mulching with waste material -Weeding followed by mulching -Spray 1% lime	
		Arecanut/Betelvine	No change	- Weeding followed by mulching - Providing pitcher drip irrigation	
		Summer vegetables	No change	- Weeding followed by mulching -Apply more FYM -Provide life saving irrigation	
	Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Winter paddy-fallow Winter paddy-Toria	No change	-staggered planting with variety (Var - profulla /gitesh) -Planting with local varieties which planting time can be extended. -planting/direct sowing with the photo insensitive varieties like Luit/Kapili	Seed available at RARS,LAkhimpur
		Black gram/Green gram	No change	-	Seed available at KVK,Nagaon

	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Winter rice-fallow Winter rice-rabi vegetable	No change	-Planting of photo insensitive HYV like Monohar Sali -Staggered planting (Var. - profulla / gitesh) with old seedling -Planning for early rabi vegetables	Seed available at RARS,LAkhimpur -
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu rice +Bao rice)-fallow	No change No change	Timely Weeding and hoeing Timely Weeding and hoeing	

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 (Specify month) July 3rd weeks	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	Ginger	No change	Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk	
		Turmeric	No change	Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk	Megha turmeric-1 available at Diphu

		Assam lemon	No Change	-Mulching with waste material - Weeding followed by mulching - Providing pitcher drip irrigation	Development of water harvesting structure under NREGS
		Banana	No change	-Weeding followed by Mulching -Providing pitcher drip irrigation	--Do-
		Pine apple	No change	-Mulching with waste material -Weeding followed by mulching	
		Arecanut/Betelvine	No change	- Weeding followed by mulching - Providing pitcher drip irrigation	
		Summer vegetables	No change	- Weeding followed by mulching -Apply more FYM -Provide life saving irrigation	
	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Winter paddy-fallow Winter paddy-Toria	No change	-Planting with local varieties which planting time can be extended. -Staggered planting (Var - profulla / gitesh) with old seedling -planting/direct sowing with the photo insensitive varieties like Luit/Kapili	Seed available at RARS,LAkhimpur
		Black gram/Green gram	No change	-	Seed available at KVK,Nagaon
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Winter rice-fallow Winter rice-rabi vegetable	No change	-staggered planting with variety (Var - profulla /gitesh) -Planting with local varieties which planting time can be extended.	Seed available at RARS,LAkhimpur

				-planting/direct sowing with the photo insensitive varieties like Luit/Kapili	
	4.Deep water situation(High rinfall, loamy soil)	Bao rice-fallow (Ahu rice +Bao rice)-fallow	No change No change	Timely Weeding and hoeing Timely Weeding and hoeing	

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**	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	Ginger	No Change	-Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk -If possible provide life saving irrigation	Quality planting material available at Diphu
		Turmeric	No change	-Providing partial shade by planting Arahar/Dhaincha as intercrop. -Mulching with rice straw/water hycianth/rice husk -If possible provide life saving	Megha turmeric-1 is available at Diphu

				irrigation	
		Assam lemon	No Change	-Mulching with waste material - Weeding followed by mulching	Development of water harvesting structure under NREGS
		Banana	No change	Weeding followed by Mulching - Providing pitcher drip irrigation	--Do-
		Pine apple	No change	-Mulching with waste material - Weeding followed by mulching -Spraying with 1% lime	
		Arecanut/Betelvine	No change	2. Weeding followed by mulching 3. Providing pitcher drip irrigation	
	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Winter paddy-fallow Winter paddy-Toria Black gram/Green gram	No change No change No change	-Staggered planting (Var - profulla / gitesh) with old seedling -planting/direct sowing with the photo insensitive varieties like Luit/Kapili -Closer spacing and more no of seedling/hill -Application of life saving irrigation if possible -Avoid top dressing of urea Summer plouhging to conserve moisture	- - Seed available at KVK,Nagaon

	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Winter rice-fallow Winter rice-rabi vegetable	No change No change	-Staggered planting (Var - profulla / gitesh) with old seedlings. -Closer spacing andmore seeding /hill -Avoid top dressing of urea --planting/direct sowing with the photo insensitive varieties like Luit/Kapili -Planing for early rabi vegetables	-
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu rice+ Bao rice)-fallow	No change No change	Timely weeding Timely weeding	

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	**Major Farming situation [a]**	**Normal Crop/cropping system [b]**	**Crop management**	**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. **June 1st week**	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	**Cropping system 1** Ginger, Turmeric , Banana, Pineapple, Assam lemon as mono crop **Cropping system 2** Arecanut and betelvine as mixed crop **Cropping system 3** Cucumber, ridgegourd, snakegourd,ashgourd okra,bottlegourd, bittergourd	Weeding, , earthing up and Removal of water sucker in case of assam lemon, and banana -Weeding, earthing up. -Earthing up -Providing proper support for climbers -Taking up proper plant protection measures	-Application of sufficient amount of organic manures -Mulching with organic waste - Providing life saving irrigation if possible -Moisture conservation by organic mulching and application of FYM -Providing pitcher drip irrigation -Mulching with organic mulch -Providing life saving irrigation if possible	-

	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Cropping system1 Winter paddy-fallow Cropping system2 Winter paddy-Toria Cropping system3 Black gram/Green gram	weeding and if necessary Resowing weeding and if necessary Resowing -	-Application of more FYM to nursery -Provide life saving irrigation to nursery bed in side drains Application of more FYM to nursery -Provide life saving irrigation to nursery bed in side drains -	
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Cropping system1 Winter rice-fallow Cropping system2 Winter rice-rabi vegetable	Weeding and if necessary resowing Weeding and if necessary resowing	-Application of more FYM to nursery bed -Provide life saving irrigation to nursery bed -Application of more FYM to nursery bed -Provide life saving irrigation to nursery bed	
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu +Bao rice)-fallow	Weeding at critical stageand thinning Weeding at critical stage and thinning	Weeding and hoeing Weeding and hoeing	

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**	**Soil nutriment & moisture conservation measures [d]**	**Remarks on Implementation [e]**
At vegetative stage June 3rd wk	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	**Cropping system 1** Ginger, Turmeric , Banana, Pineapple, Assam lemon as mono crop **Cropping system 2** Arecanut and betelvine as mixed crop **Cropping system 3** Cucumber ,ridge gourd ,snakegourd,ashgourd okra,bottlegourd, bittergourd	-Weeding and muching -Thinning the plant population -Spray of anti-transpirants -Mulching with organic waste -Plant protection measures as and when necessary -Weeding, earthing up. -Earthing up -Providing proper support for climbers -Taking up proper plant protection measures	-Application of sufficient amount of organic manures -Mulching with organic waste -Provide drip irrigation for Assam lemon and banana -Moisture conservation by organic mulching and application of FYM -Providing pitcher drip irrigation -Mulching with organic mulch -Providing life saving irrigation if possible	-
	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Cropping system1 Winter paddy-fallow Cropping system2 Winter paddy-Toria Cropping system3	weeding and if necessary Resowing weeding and if necessary Resowing	-Application of more FYM to nursery -Provide life saving irrigation to nursery bed in side drains Application of more FYM to nursery -Provide life saving irrigation to nursery bed in side drains	

		Black gram/Green gram	-	-	
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Cropping system1 Winter rice-fallow Cropping system2 Winter rice-rabi vegetable	Weeding and if necessary resowing Weeding and if necessary resowing	-Application of more FYM to nursery bed -Provide life saving irrigation to nursery bed -Application of more FYM to nursery bed -Provide life saving irrigation to nursery bed	
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu +Bao rice)-fallow	Weeding at critical stageand thinning Weeding at critical stage and thinning	Weeding and hoeing Weeding and hoeing	

Condition	**Major Farming situation** [a]	**Normal Crop/cropping system** [b]	**Suggested Contingency measures**		
			Crop management	**Soil nutriment & moisture conservation measures** [d]	**Remarks on Implementation** [e]

Mid season drought (long dry spell) **at flowering/ fruiting stage**	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	**Cropping system 1** Ginger, Turmeric , Banana, Pineapple, Assam lemon as mono crop **Cropping system 2** Arecanut and betelvine as mixed crop **Cropping system 3** Cucumber ,ridge gourd ,snakegourd,ashgourd okra,bottlegourd, bitter gourd	-Harvest at physiological maturity stage -Weeding and mulching -Harvest at physiological maturity stage Harvest at physiological maturity stage	-Provide life saving supplement irrigation -Urea and kcl spray -Spraying of anti-transpirants -Avoid remaining split dose of fertilizer application -Providing pitcher drip irrigation -Mulching with organic waste -Provide life saving supplement irrigation -Avoid remaining split dose of fertilizer	Avail the benefit of NREGS for development of irrigation structure as well as drip irrigation
	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	**Cropping system1** Winter paddy-fallow **ropping system2** Winter paddy-Toria **Cropping system3** Black gram/Green gram	- Harvest at physiological maturity stage - Harvest at physiological maturity stage Harvest at physiological maturity stage	-Provide life saving irrigation. -Avoid remaining split dose of fertilizer application -Provide life saving irrigation -Avoid remaining split dose of fertilizer application -Provide life saving irrigation	
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	**Cropping system1** Winter rice-fallow **Cropping system2** Winter rice-rabi vegetable	Harvest at physiological maturity stage -Harvest at physiological maturity	-Provide life saving irrigation -Avoid remaining split dose of fertilizer application -Provide life saving irrigation -Avoid remaining split dose of	

			stage -Prepare land for early rabi vegetables	fertilizer application	
	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu +Bao rice)-fallow	Harvest at physiological maturity stage	-Weeding and thinning	

Condition	**Major Farming situation** [a]	**Normal Crop/cropping system** [b]	**Suggested Contingency measures**		
			Crop management	**Rabi Crop planning**[d]	**Remarks on Implementation** [e]
Terminal drought (September-October)	**1. Foot hills/Upland (High rainfall, loamy, sandy loam soil, acidic soil)**	Ginger, Turmeric , Banana, Pineapple, Assam lemon as mono crop Arecanut and betelvine as mixed crop Cucumber ,ridge gourd ,snakegourd,ashgourd okra,bottlegourd, bitter gourd	-Providing life saving irrigation/pitcher irrigation - Mulching with waste material/ pieces banana pseudo stem - Harvest at physiological maturity stage -Harvest at physiological maturity stage - Providing pitcher drip irrigation - Avoid remaining split dose of fertilizer application -Harvest at physiological maturity stage	- -	Avail the benefit of NREGS for development of irrigation structure as well as drip irrigation

			- Provide life saving supplement irrigation	-	
	2. Medium land (moderate to high rainfall, loamy sandy loam soil, acidic soil)	Winter paddy-fallow Winter paddy-Toria Black gram/Green gram	- Harvest at physiological maturity stage - Avoid remaining split dose of fertilizer application -Spray urea and KCL - Harvest at physiological maturity stage - Avoid remaining split dose of fertilizer application - Harvest at physiological maturity stage -Need based application of plant protection measures	-Make field ready for sowing of Toria seeds . Raising Seedling for Rabi vegetables ,	- Avail the benefit of NREGS for development of irrigation structure
	3. Low Land (High rainfall, loamy sandy loam soil, acidic soil)	Winter rice-fallow Winter rice-rabi vegetable	- Harvest at physiological maturity stage - Avoid remaining split dose of fertilizer application - Harvest at physiological maturity stage - Avoid remaining split dose of fertilizer application	-Raising Seedling for Rabi vegetables -Preparation of land for rabi vegetables	Avail the benefit of NREGS for development of irrigation structure

	4.Deep water situation(High rainfall, loamy soil)	Bao rice-fallow (Ahu +Bao rice)-fallow	- Harvest at physiological maturity stage - Avoid remaining split dose of fertilizer application -Weeding and thinning		

2.1.2 Drought - Irrigated situation: Not applicable

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

Condition			**Suggested Contingency measures**

	Major Farming situation [f]	Normal Crop/cropping system [f]	Change crop/cropping system	Agronomic measures [f]	Remarks on Implementation [f]
Non release of water in canals under delayed onset of monsoon in catchment					

Condition			Suggested Contingency measures		
	Major Farming situation [f]	Normal Crop/cropping system [f]	Change crop/cropping system	Agronomic measures [f]	Remarks on Implementation [f]
Lack of inflow into tanks due to insufficient/ delayed onset of monsoon					

Condition			Suggested Contingency measures		
	Major Farming situation [f]	Normal Crop/cropping system [f]	Change crop/cropping system	Agronomic measures [f]	Remarks on Implementation [f]

Insufficient groundwater recharge due to low rainfall	
Any other condition (specify)	

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	**Suggested Contingency Measures**			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stagg[er]**	**Post harvest[n]**
Crop 1: Rice	-Draining out of stagnating water. -Need based intercultural operation and plant protection measures	-Drainage of excess water - Need based plant protection measures	-Drain out excess water -Harvesting immediately at physiological maturity	-Sun drying to bring moisture to optimum level to avoid loss from stored grain pest -Store the produce at raised platform and at dry place -mechanical drying if possible
Crop 2: Black gram, Greengram, Sesemum, Toria	-Draining out of stagnating /excess water. -Need based intercultural operation and plant protection measures.	-Drainage of excess water -Need based plant protection	--Drain out excess water -Harvesting immediately at physiological maturity	- Sun drying to bring moisture to optimum level to avoid attack of stored grain pest -Storing the produce at dry place
Crop 3 :Potato	-Drainage --Need based intercultural operation and	-Drainage --Need based intercultural	--Drain out excess water	- Dry the produce to remove excess moisture content

	plant protection measures specially against Late blight -Earthing up	operation and plant protection measures specially against Late blight -Earthing up	-Harvesting immediately at physiological maturity stage	-Store the produce at raised platform with proper ventilation
Horticulture				
Assam lemon, Pineapple, etc.	-Draining out of stagnating /excess water. -Need based intercultural operation and plant protection measures like spraying of Bordeaux mixture	-Proper drainage, - Application of hormones, spraying of Bordeaux mixture to prevent flower drop.	--Drain out excess water -Harvesting immediately at physiological maturity stage	-Shifting of the produce to drier place, -store in Cold storage if possible. - processing and value addition of produces if possible
Ginger, Turmeric	-Draining out of stagnating /excess water. -Need based intercultural operation and plant protection measures.	-	-Drain out excess water -Harvesting immediately at physiological maturity	-keep the produce at dry place. -sun dry or mechanically dry the produce if possible -value addition of the produce if possible
Cucurbitaceous crops, Cowpea. Tomato	-Draining out of stagnating /excess water. -Need based intercultural operation and plant protection measures	-Drainage - Application of hormones to prevent flower drop and plant protection measures	-Drain out excess water -Harvesting immediately at physiological maturity	Keep the produce at dry place -Keep the produce in cold storage if possible
Crop 4 :,Cabbage ,Cauliflower	- Draining out of stagnating /excess water. -Need based intercultural operation and plant protection measures	-Drainage - Adopt proper plant protection measures	-Drain out excess water -Harvesting immediately at physiological maturity stage	-Keep the produce to drier place, -Store the produce at Cold storage for long duration if possible.
Heavy rainfall with high speed winds in	-	-	-	-

a short span[2]				
Horticulture				
Crop 1: Assam lemon, Pineapple, banana etc.	- Provide proper Drainage facility – Provide proper propping.	- Provide proper Drainage facility – Provide proper propping.	-Drain out excess -Harvest the crop at physiological maturity stage	-Shifting of the produce to drier place, -Cold storage of produces if possible.
Crop 2 Ginger, Turmeric	- Provide proper Drainage facility to remove excess water -Propping. - Earthing up properly	-	-Drain out excess -Harvest the crop at physiological maturity stage	-Harvest the crop as soon as possible -keep the produce at dry place. -sun dry or mechanically dry the produce if possible -value addition of the produce if possible
Crop 3 Cucurbitaceous crops, Tomato	-Provide proper Drainage facility. - Earthing up the standing crop properly -Provide strong support for cucurbitaceous crop - Provide proper stacking for tomato	-Provide proper Drainage facility. - Earthing up the standing crop properly -Provide strong support for cucurbitaceous crop - Provide proper stacking for tomato	-Drain out excess -Harvest the crop at physiological maturity stage	-Dispose off the produce immediately, -Keep in Cold storage for long duration. -Value addition of the produce if possible specially for tomato
Outbreak of pests and diseases due to unseasonal rains				

Crop1- Paddy	- Spray Carbendazim @ 1 g/lit of water at tillering stage(30 days after transplanting) against Blast disease -Spray Mancozeb @ 2.5 g/lit of water or carbendazim @ 1 g/lit of water at initial symptom development stage against Brown spot -Insect pest: a)Caseworm-drain out excess water - moving of kerosinized rope over the standing crop - spray Monocrotophos 40 EC @ 3ml/lit water , b) Stem borer, hispa: Spray monocrotophos 40EC @ 3ml/lit of water or Chloropyriphos 20 EC @ 2.5 ml/lit of water -Provide bamboo perch for birds to control insect pests	-Blast:-Subsequent two sprays of Ediphenphos @ 1ml/lit of water at panicle initiation stage and when the tip of panicle just comes out. Rice bug: Apply Malathion 5% dust @ 20 kg /ha - hanging of rotten frog or crab in the crop field	Harvesting immediately at physiological maturity stage	-Process the produce immediately and dry the produce to bring moisture content at requisite level to bring down loss against stored grain pest Sore the produce in proper godown
Crop2- Black gram/green gram	- Against insects a)Jassids and flea beetle- spray Malathion 0.1% b) Spray Rogor 2ml/lit against white fly to control further spread of YMV. c) Spray Monocrotophos 40EC @ 3ml/lit against pod borer -Against diseases a)Spray Carbendazim 0.05% against leaf spot and blight b)Spray wettable sulfure 0.2% against powdery mildew	- Against insects a)Jassids and flea beetle-spray Malathion 0.1% b) Spray Rogor 2ml/lit against white fly to control further spread of YMV.	Harvesting immediately at physiological maturity stage	- drying either in sun or mechanical dryer to bring moisture to optimum level to avoid attack of stored grain pest -Storing the produce at dry place

Crop 3- Toria	Diseases: -Spray Bavistin 2gm/lit of water against Alternaria blight and downy mildew -Spray Rogor 2ml/lit against mustard saw fly	Diseases: -Spray Bavistin 2gm/lit of water against Alternaria blight and downy mildew -Spray chloropyriphos 20EC @ 2ml/lit of water against aphid -Spray Rogor 2ml/lit against mustard saw fly	Diseases: -Spray Bavistin 2gm/lit of water against Alternaria blight and downy mildew -Spray chloropyriphos 20EC @ 2ml/lit of water against aphid -Spray Rogor 2ml/lit against mustard saw fly -harvest at physiological maturity stage	-Drying to remove excess moisture - Store in dry place
Horticulture				
Summer vegetables	Downy Mildew: Spray Bavistin @ 1gm/ltr of water. Powdery Mildew: Spray Karathane @ 1gm/ltr of water. Root rot: Drenching of soil around roots with Bordeux mixture. Insect pest: Spray Malathion 50EC @2ml/ltr water with 1 % gur against leaf eating bettle	Downy Mildew: Spray Bavistin @ 1gm/ltr of water. Powdery Mildew: Spray Karathane @ 1gm/ltr of water. Root rot: Drenching of soil around roots with Bordeaux mixture. Insect pest: Spray Malathion 50EC @2ml/ltr water with 1 % gur against leaf eating bettle as well as against fruit fly	Downy Mildew: Spray Bavistin @ 1gm/ltr of water. Powdery Mildew: Spray Karathane @ 1gm/ltr of water. Root rot: Drenching of soil around roots with Bordeaux mixture. Insect pest: Spray Malathion 50EC @2ml/ltr water with 1 % gur against leaf eating bettle as well as against fruit fly	-Remove and destroy the disease infected leaf and plant parts including fruits -Harvest the crop at physiological maturity stage -Dispose off the produce as early as possible
Rabi vegetables	Disease:Spray Mancozeb@2.5 gm/ltr water or Blitox @ 2.5 gm/ltr water against leaf spot and blight -Drench the root zone with Captan @3	Disease:Spray Mancozeb@2.5 gm/ltr water or Blitox @ 2.5 gm/ltr water against leaf	Disease:Spray Mancozeb@2.5 gm/ltr water or Blitox @ 2.5 gm/ltr water against	-Destroy the infected/ damagedvegetables. -dispose off the produce as early as possible

	gm/ltr water against damping off and root rot Insect pest: Spray : Spray Malathion 50EC @2ml/ltr water against leaf eating caterpillar and other pest	spot and blight Insect pest: Spray : Spray Malathion 50EC @2ml/ltr water against leaf eating caterpillar and other pest	leaf spot , blight and fruit rot Insect pest: Spray : Spray Malathion 50EC @2ml/ltr water against leaf eating caterpillar and other pest	-Store the produce at Cole storage if possible
Crop 4 Coconut/Arecanut/betelvine	Disease: Spray 1% Bordeaux mixture against crown rot of coconut and blight of betelvine -Drench the root zone with 1% Bordeaux mixture against root rot of Arecanut and Betelvine -Apply *Trichderma harzianum* along with oilcake against root rot of betelvine or Arecanut.	Disease: Spray 1% Bordeaux mixture against crown rot of coconut and blight of betelvine -Drench the root zone with 1% Bordeaux mixture against root rot of Arecanut and Betelvine -Apply *Trichderma harzianum* along with oil cake against root rot of betelvine or Arecanut.	Disease: Spray 1% Bordeaux mixture against crown rot of coconut and blight of betelvine -Drench the root zone with 1% Bordeaux mixture against root rot of Arecanut and Betelvine -Apply *Trichderma harzianum* along with oilcake against root rot of betelvine or arecanut.	-Harvest the crop at physiological maturity stage - dispose off the produce as early as possible - Remove and destroy the infected parts.

2.3 Floods

Condition	Suggested Contingency Measures[0]			
Transient water logging/partial inundation[1]	Seeding/ nursery stage	Vegetative stage	Reproductive stage	At harvest
Crop 1 :Rice	Drainage of the Nursery bed, If not possible go for re -sowing	Drainage of excess water. Apply 50% N + 50% K_2O as top dressing during the tillering stage. In partially damaged field. gap filling may be done by redistributing the tillers. Wet seeding of sprouted seeds (@75-80 kg/ha) of Kmj 1-19-1, Kmj 1-17-2, Dhirendra, Mitrasali, Andrewsali and Monoharsali. If transplanting is not possible before mid September, then early varieties such as Sonamukhi, Luit, Culture 1, Chandmoni may be grown as direct seeded rice. Closure planting to check late tillers in case of late planting. Management of pests & diseases	Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops. Utilization of residual soil moisture and use of recharged soil profile for growing pulses and oilseeds Growing of vegetables after receding flood water and adoption of integrated farming system to obtain more income and to compensate the loss during kharif.	Drainage of excess water. If flood comes during reproductive stage, , emphasis should be given on forthcoming rabi crops Supply of seeds and other agro-inputs of *rabi* crops at subsidized rate, provision of bank loan etc. Wet seeding of short duration Utilization of residual soil moisture and use of recharged soil profile for growing pulses and oilseeds Growing of boro rice after receding flood water
Crop 2 :Black gram, Green gram, Sesame	Drain out excess water. Resowing of the crop	-Drain out excess water. - Need based plant protection measure	-Drain out excess water. - Need based plant protection measure	--Harvest the crop at physiological maturity stage - Shift the bundles to drier place like roof top for drying -Sun drying to attain proper

				moisture level of grains.
Horticulture				
Assam lemon , Pineapple, , Arecanut and betelvine Banana	Clear the existing trenches/furrows in between ridges to drain out the excess water.	Clear the existing trenches/furrows in between ridges to drain out the excess water. -Earthing up - Adopt necesary PP measures	Clear the existing trenches/furrows in between ridges to drain out the excess water. -Earthing up - Adopt necessary PP measures	-Harvest the crop at physiological maturity stage
Ginger and Turmeric	Drain out excess water	Drain out excess water Earthing up Adopt necesary PP measures	Drain out excess water Earthing up Adopt necesary PP measures	Harvest the crop at physiological maturity stage Dry the crop as soon possible
Kharif vegetables	-Resowing if crop fails totally -Go for early rabi vegetables	-drain out the excess water by providing proper drainage from the existing crop -earthing up for the existing crop	- drain out the excess water by providing proper drainage from the existing crop - earthing up for the existing crop	Harvest the crop at physiological maturity stage
Continuous submergence for more than 2 days[2]				
Crop 1: **Rice**	-Drain out excess water as soon as possible. --Raising of Community nursery for late planting with the old seedlings of the varieties like Profulla and Gitesh (If more than 50% damaged) or nursery raising of the	Drain out excess water as soon as possible. -Need based plant protection measure -Gap filling -late and staggered planting with the old seedlings of the varieties like Profulla and Gitesh with more no. of	-Drain out excess water as soon as possible. -Direct seeding with the photo insensitive short duration variety like Luit (If the crop is totally damaged)	-Harvest the crop at physiological maturity stage - Shift the bundles to drier place and Hang the bundles on bamboo line for sun drying -Sun drying of grains to attain proper moisture

	photo insensitive short duration variety like Luit for replanting (in case of total damage) -upland nursery should be encouraged	seedlings per hill and closure spacing (If the field is heavily damaged). - Replanting /Direct seeding with the photo insensitive short duration variety like Luit (If the crop is totally damaged)		content
Assam lemon , Pineapple, arecanut and betalvine Banana	-Drain out excess water as soon as possible -Replanting of betelvine if crop fails.	-Drain out excess water as soon as possible -earthing up	-Drain out excess water as soon as possible -earthing up	- Harvest the crop like Assam lemon, betelvine at physiological maturity stage
Ginger, Turmeric	-Drain out excess water as soon as possible -earthing up the existing crops after cessation of water	-Drain out excess water as soon as possible -earthing up the existing crops after cessation of water	-Drain out excess water as soon as possible -earthing up the existing crops after cessation of water	- Harvest the crop immediately -dry the crop as soon as possible
Kharif vegetables	-Drain out excess water as soon as possible -resowing the crop	-Drain out excess water as soon as possible -earthing up the existing crops after cessation of water – Adopt necessary plant protection measures	-Drain out excess water as soon as possible -earthing up the existing crops after cessation of water – Adopt necessary plant protection measures	- Harvest the crop at physiological maturity stage
Sea water inundation[3]				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone: Does not arise

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 in Lakhimpur district:

2.5.1 Livestock:

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought			
Feed and Fodder availability	1. The district should have available reserves of concentrate mixture, stocks of silage and hay, adequate quantity of vitamin and mineral mixture well ahead before drought like situation. 2. Increase area under fodder cultivation. 3. Develop cultivation practices of short duration fodder crops like oat, maize, dinanath etc. 4. Selection and plantation of deep rooted, drought tolerant bushes, trees & grasses for feeding livestock.	1. Harvesting and use of all the failed crops like paddy, maize etc in the field as a source of fodder material to the livestock. 2. Feeding of fodder tree leaves like neem, subabul, mango, jackfruit, bamboo leaves etc. 3. Feeding of urea treated paddy straws and UMMB, hay, concentrates along with vitamin & mineral mixture. 4. If possible arrangements should be made for mobilization of small	1 Cultivation of short duration fodder crops (sorghum, maize). 2. Providing concentrates as well as vitamin and mineral mixture to all animals supplementary feed. 3. Feeding of molasses. 4. Allowing rest to selected pastures or delay grazing in all pastures

	5. Establishment of backyard production of Azolla as a source of animal feed. 6. Preventing the practice of burning paddy straw, maize stover and sugarcane tress. 7. Establishment of permanent fodder plots and makes availability of fodder seed bank in all drought prone areas. 8. Improvement of the cattle feed manufacturing units to cope up with the demand of concentrate feed. 9. Balancing animal numbers with available feed resources and reducing animal numbers through destocking of unproductive livestock.	ruminants across the districts where no drought exits. 5. Adopting special care and feed management measures for lactating, pregnant & productive animals. 6. Utilization of crop byproducts like sugarcane tops and bagasse for animal feeding.	periodically.
Drinking water	1. Identification of natural water resources and their use in a planned way. 2. Creation of water reserves in grazing land.\ 3. Rain water harvesting for water conservation 4. Improvement of natural pastures/ grazing land by *in situ* rain water conservation. 5. Improvement of natural pastures/ grazing land by *in situ* rain water	1. Prevent water wastage 2. Prevent wallowing by animals in water bodies/ resources	1.Identification of place/ area for establishment of drinking water reserves 2.Community water tank facilities.

	conservation. 6. Use of drip irrigation in agriculture to prevent wastage of ground water.		
Health and Disease managemenT	1. seasonal vaccination against all dreaded viral and bacterial diseases like Foot and mouth disease (FMD), Black quarter (BQ), Enterotoxaemia (ET) Haemorrhagic septicaemia (HS) Swine fever(SF), Anthrax etc. 2. Surveillance and disease monitoring network establishment. 3. Collaboratio n of the district veterinary officials to handle endemic animal diseases. 4. Creation of repositories to store a sizeable stock of veterinary medicines for emergencies. 5. Provision for preservation of thermolabile animal and poultry vaccines with maintenance of the cold chain. 6. Establishing well-organized quarantine facilities for disease suspected and affected animals.	1. Rescue and isolation of sick and injured animals and their treatment accordingly. 2. Conducting mass animal health camps. 3. Keep on eye in better nutrition of the animals by feeding of vitamin and mineral supplements. 4. Balanced feeding of the productive animals by inclusion of suitable concentrates to maintain sound health condition. 5. Segregation of suspicious and disease animals from the herd and their early treatment. 6. Regular health monitoring of the animal herd within the endemic areas.	1. Conducting mass animal health camps and deworming camp 2. Feeding of vitamin and mineral supplements for recovering earlier health condition. 3. Culling of unproductive livestock to improve economic status of livestock owners.
Floods			
Feed and Fodder availability	1. Making availability of concentrate feed and cultivation of green grasses like Sateria, Napier, Maize, Para, Gunie etc. 2. The district should have available	1. Transportation of animals to elevated areas 2. Stall feeding of animals with stored hay and concentrates	Concentrates supplementation, green grasses along with vitamin & mineral

	reserves of concentrate mixture, stocks of silage and hay, adequate quantity of vitamin and mineral mixture before flood. 3. Avoid wastage of feed and paddy straws. 4. Arrangement for storing minimum required quantity of hay and concentrates per animals in farmer / LS keepers' house / shed for feeding animals during floods.	3. Feeding of fodder tree leaves like neem, subabul, mango, jackfruit, bamboo leaves etc. 4. Feeding of urea treated paddy straws and UMMB, hay, concentrates along with vitamin & mineral mixture. 5. Community shelter.	mixture should be provided to all the animals.
Drinking water	1. Overhead storage of water tank.	1. Utilization of chemical treated(Chlorinted) water as well as boiled water	1. Community water tank establishment.
Health and Disease managemen	1. Seasonal vaccination against all dreaded viral and bacterial diseases like Foot and mouth disease (FMD), Black quarter (BQ), Enterotoxaemia (ET) Haemorrhagic septicaemia (HS) Swine fever (SF), Anthrax etc. 2. Surveillance and disease monitoring network establishment.	1. Rescue and isolation of sick and injured animals and their treatment accordingly. 2. Conducting mass animal health camps. 3. Proper hygienic and sanitation of the animal shed 4. Keep on eye in better nutrition of the animals by feeding of vitamin and mineral supplements. 5. Spraying of fly repellants in animal she	1. Post flood disease management like conducting mass animal health camps, vaccination camp against probable outbreak and deworming of the animals etc. 3. Feeding of vitamin and mineral supplements for recovering earlier health condition.
Heat & Cold wave			
Shelter/Environment	1.Arrangement for protection from **heat wave**	**Heat wave** : 1. Allow the animals early in the	1. Supplementation of feed and adequate

management	i) Plantation around the shed ii) Water sprinklers / foggers in the shed **iii)** Application of white reflector paint on the roof. 2. Provision of community shelter. **Cold wave :** Covering all the wire meshed walls / open area with gunny bags/ polyethylene sheets (with a mechanism for lifting during the day time and putting down during night time)	morning or late in the evening for grazing during heat waves. 2. Put on the foggers / sprinklers during heat weave. 3. Arrangement of wallowing tank for relieving from summer stress in case of animals like buffalo and pigs. 4. Supply adequate pure and clean drinking water during heat waves. 5. In severe cases of heat stress, vitamin 'C' and electrolytes should be added in drinking water to the animals. **Cold wave :** 1. Allow for grazing between 10AM to 3PM during cold waves. 2. Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves 3. Fed more concentrates to the animal during cold waves.	drinking water to the animals as per routine schedule. 2. Allow the animals for grazing (normal timings)
Health and Disease management	1. Conducting seasonal vaccination programme against all possible viral and bacterial diseases. 2. Surveillance and disease monitoring network establishment.	1. Antistress management. 2. Rescue of sick and injured animals and their treatment 3.Conducting mass animal health camps	Conducting mass animal health camps and mass deworming camps

Cyclone	Not applicable for Lakhimpur district

2.5.2 Poultry:

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
Drought			
Shortage of feed ingredients	1. Storing of concentrate feed for the bird. 2. Use of good quality poultry feed to obtain optimum growth, body weight gain and productivity. 3. Use of good quality poultry feed to obtain optimum growth, body weight gain and productivity.	1. Supplementation of household grains to poultry. 2. Supplementation of shell girit/ calcium to the laying birds 3.Utilization of kitchen wastes for feeding small sized backyard poultry flocks 4. Prompt marketing of the meat type birds with optimum body weight gain. 5. Selling of poultry wastes and gunny bags to contribute for the feed costs. 6. Minimizing the feed wastage.	1. Supplementation of household grains to the birds. 2.Use of good quality poultry feed to obtain optimum growth 3. Proper storage of poultry feed.
Drinking water	1. Rain water harvesting. 2. Provision for storage of drinking water. 3. Utilization of ground water reserves for drinking purposes after purification.	1. Judicious use of drinking water. 2. Minimizing wastage of drinking water.	1. Providing water ad-libitum. 2. Developing drinking water storage facilities.
Health and disease management	1. Culling of weak and diseased birds.	1. Regular supplementation of necessary vitamins to the birds for improving productivity.	1. Maintenance of proper hygiene and sanitation in the

	2. Timely de-worming. 3. Vaccination against endemic diseases especially Ranikhet disease. 4. Insurance of birds. 5. Arrangement of brooding facilities for young chicks. 6. Construction of good quality poultry houses or farms to minimize disease incidences and to avoid predation by carnivores. 7. Proper waste disposal system in poultry farms possessing large flocks. 8. Provision for balanced feeding of productive birds.	2. Immediate segregation of disease affected and suspicious birds from the flock. 3. Maintenance of proper hygiene and sanitation in the commercial poultry farms. 4. Regular cleaning of poultry houses to minimize disease incidence. 5.Restricting trade of poultry, poultry meat and eggs during outbreak of a disease having potential to take an epidemic form.e.g. Bird flu. 6. Restriction against needless movement of individuals in the farm premises. 7. Use of fly proof netting in poultry sheds to prevent arthropod borne diseases. 8.Use of foot baths in front of the farm entrance to minimize disease transmission.	poultry sheds. 2.Disposal of dead birds by burning or by deep burial with lime in pits of optimum sizes. 3. Timely vaccination of all the birds. 4. Culling of unproductive poultry. 5. Timely marketing of meat type poultry and poultry eggs to minimize losses due to mortality.
Floods			
Shortage of feed ingredients	1. Storing of concentrate feed for the bird. 2. Culling of weak birds.	1. Use stored feed as supplement. 2. Don't allow for scavenging.	Supplementation of concentrates as well as vitamin and minerals to all the birds.
Drinking water	Supply of adequate pure and clean drinking water.	Supply of adequate pure and clean drinking water.	Supply of adequate pure and clean drinking water.
Health and disease management	1. Culling of sick birds. 2. Routine deworming and vaccination against dreaded viral diseases like RD, IBD,	1. Sanitation of poultry house 2. Treatment of affected birds 3. Prevent water logging surrounding the sheds 4. Sprinkle lime powder to prevent ammonia	1. Feeding of vitamin and mineral supplements

	fowl pox etc. 3. In case of susceptible birds add antibiotic powder in drinking water to prevent any bacterial disease outbreak.	accumulation due to dampness	2. Disposal of poultry manure to prevent protozoal problem 3. Supplementation of antibiotics and coccidiostats in feed. 4. Routine vaccination programme.
Heat wave and cold wave			
Heat wave			
Shelter/environment management	Provision of proper shelter with good ventilation	In severe cases, foggers/water sprinklers/wetting of hanged gunny bags should be arranged	Routine practices are followed.
Health and disease management	Routine deworming and vaccination against dreaded viral diseases like RD, IBD, fowl pox etc.	1. Supplementation of concentrates as well as vitamin and minerals to all the birds.	Routine practices are followed
Cold wave			
Shelter/environment management	1. Provision of proper shelter 2. Arrangement for brooding 3. Assure supply of continuous electricity	1. Close all openings with polythene sheets 2. In severe cases, arrange heaters	Routine practices are followed
Health and disease management	Arrangement for protection from chilled air	1. Supplementation of grains 2. Antibiotics in drinking water to protect birds from pneumonia	Routine practices are followed

[a] based on forewarning wherever available

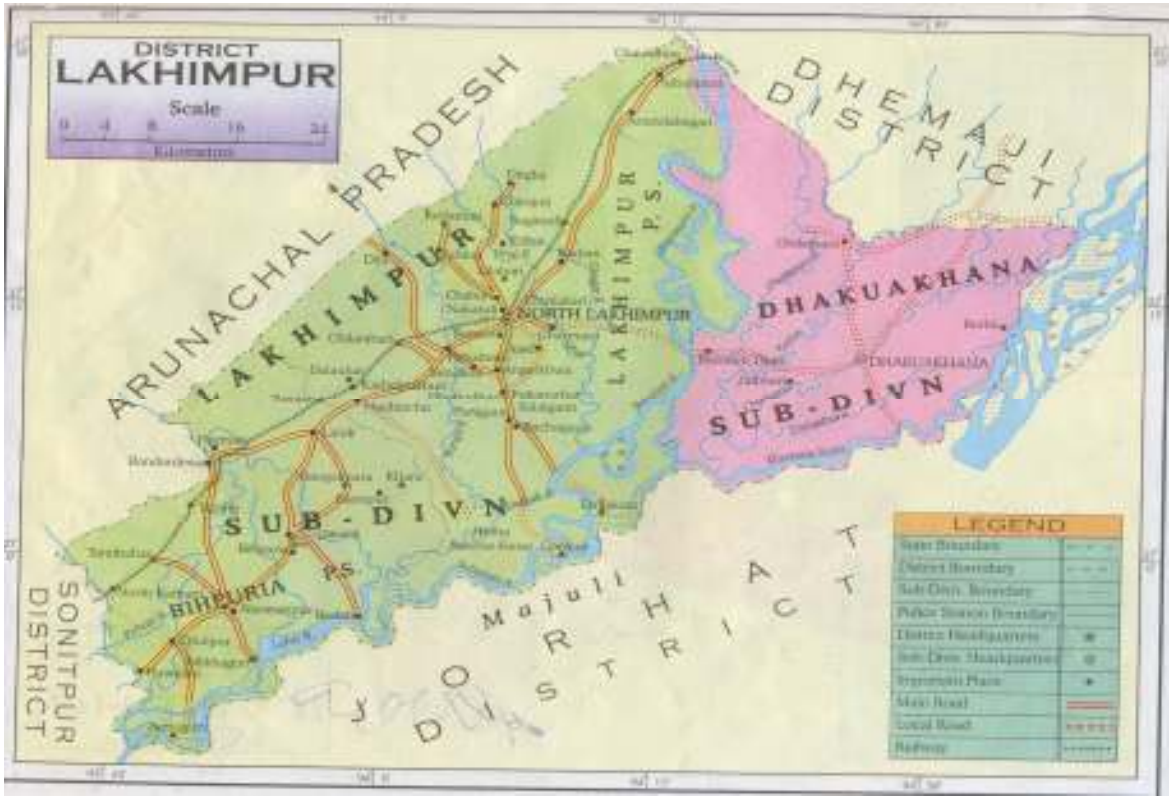
2.5.3 Fisheries/ Aquaculture

Conditions	Suggested contingency measures		
	Before the event [a]	**During the event**	**After the event**
1) Drought			
A. Capture			
B. Aquaculture			
(i) Shallow water depth due to insufficient rains/ inflow	1.Reduce the stocking density of fish by harvesting the marketable sized fishes 2.A portion of the pond should be made more deeper so that during drought fishes can take shelter . 3.If possible pump water into the pond from other sources 4.Encourage air breathing fishes like magur culture rather IMC 5.Provide mechanical aerator if possible.	1.Application of feed and FYM should be restricted 2.Aeration should be done either manually or mechanically at least two times in a day 3.Netting over pond can be made against attack of predatory birds 4.Frequent netting activities should be restricted 5.Lime should be applied at little higher dose than normal dose 6.KmnO4 can also be applied @ 2-4 ppm	1.After drought one partial harvesting should be done to check the fish health. If any symptoms of disease notice , measures should be taken immediately consulting Fishery personnel 2. Lime should be applied at proper dose 3.Restock the pond with bigher fingerlings if available. 4.If water quality and fish health is good enough then start feeding
(ii) Impact of salt load build up in ponds/ change in water quality	a.Encourage Azolla pinnata to check eutrophication and excessive evaporation b. Lime should be applied according to PH of water	a.Don't disturb the pond by netting, application of feed and FYM etc b.Activities like bathing by human/domestrict animal,washing of cloths should be totally stopped	a. After drought check water quality and health of fish b.As soon as water quality and fish health become normal start feeding and other regular activities
2) Floods			
A. Capture			
B. Aquaculture			
(i) Inundation with flood water	a. Repair broken/damage dykes of pond b.Increase height of pond dyke so	a.Place bamboo screen or nylon nets around the pond dyke b.Stop application of feed,	a.Apply lime at proper dose at rugular intervals b.Repeated netting should be

	that flood water can't enter c.Keep bamboo screen or nylon nets ready for sudden rise of flood water level d.Check the condition of inlets and out lets of pond, if require make necessary repairement e.Marketable sized fishes should be harvested	fertilizer and lime c.As soon as flood water level decreases apply KmnO4 @ 2-4ppm	done to check fish health and prevent entry of any unwanted and ptredatory birds c.Apply KmnO4 @2-4 ppm
(ii) Water continuation and changes in water quality	Reduce the stocking density of fish by harvesting the marketable sized fishes b.Stop application of feed, fertilizer and manure c.Lime should be applied at proper dose	a. Stop feeding to fish b.Stop application of manure	a.Examine water quality and then undertake application of lime, manuare and feeding
(iii) Health and diseases	**a.** Lime should be applied at proper dose b.Apply KmnO4 @ 2-4 ppm frequently	Stop feeding, manuaring and netting activities	a.Check fish health by netting b.Lime should be applied at proper dose c. Apply CIFAX
(iv) Loss of stock and inputs (feed, chemicals, etc)			
(v) infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			
3) Cyclone/ Tsunami	**Not applicable**		
A. Capture			
B. Aquaculture			
4. Heat wave and cold wave			
A. Capture			
B. Aquaculture			

[a] based on forewarning wherever available

Annexure I
Map of the district North lakhimpur



Annexure II

Mean annual rainfall as Annexure -II

Monthly Rainfall (2000 - 2010) at KVK Lakhimpur

Months	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
January	50.7	15.1	9.4	11.5	72.2	54.6	10.9	9.1	73	33.2	0.3
February	29.3	5.9	31.4	67.1	89	109.4	161.7	81.1	31.9	9.7	3.3

March	58.9	16.3	50	56	172.2	195.4	44.9	37.5	181.4	14.8	191.5
April	253.9	124.5	217.5	96.6	190.6	235.7	231.9	326.2	157.5	187.3	382.3
May	156.4	234.6	323.6	282.1	777.5	248.8	441.3	292.8	318	124	340.5
June	475.8	323.3	272	352.8	384.3	349.5	554.9	812.5	891.6	418	780.1
July	388.7	263	513.9	720	437.1	464.5	416.1	782.3	529.1	497.8	500.8
August	448.1	533.9	416.7	413.3	515.7	473.1	320.6	241.8	435.6	720.5	509.4
September	1423.2	328	407.1	420.9	305.9	134.5	152.2	517.2	267.1	65.7	765.5
October	44.6	151.8	69.1	220.7	396.4	70.3	199.4	86.7	220.8	199.4	41.9
November	21	52.9	33.4	34.1	0	33.7	85.6	20.9	0	23.1	107.8
December	0	12.2	0	7.3	46.5	0	9.4	10.1	5.5	14	13.6
Total	3350.6	2061.5	2344.1	2682.4	3387.4	2369.5	2628.9	3218.2	3111.5	2307.5	3623.1