

STATE: ASSAM
AGRICULTURE CONTINGENCY PLAN: CHIRANG DISTRICT

1.0 District Agriculture profile				
1.1	Agro –Climatic Region (Planning Commission)	Eastern Himalayan Region		
	Agro- Climatic/ Ecological Zone	Lower Brahmaputra Valley Zone, Assam		
	Agro Ecological Sub Region (ICAR)	Assam & Bengal Plain, hot perhumid ecosystem with alluvium derived soils		
	Agro Climatic Zone (NARP)*	011 Lower Brahmaputra Valley Zone		
	List all the districts falling under the NARP Zone	Kamrup, Nalbari, Barpeta, Bongaigaon, Baska, Chirang, Kokrajhar, Dhubri, Goalpara		
	Geographic Coordinates of district	Latitude	Longitude	Altitude
		26°28' to 26° 54' North	89.42° to 90°06' East	31 m MSL
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	Regional Agricultural Research Station, AAU, Gossaigaon		
Mention the KVK located in the district	Krishi Vigyan Kendra, Chirang, Assam Agricultural University, Kajalgaon -783385			

1.2	Rainfall	Average (mm)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep'2013)	1961.4	1 st week of June	4 th week of September
	NE Monsoon (Oct-Dec'2013)	171.6		
	Winter (Jan- Feb'2013)	34.6		
	Summer (March-May'2014)	670.5	1 st week of April	4 th week of may
	Annual	2838.1		

Source: <http://www.agriassam.in/rainfall/districtwise-rainfall-during-2012.pdf>

*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	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land Under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area (000' ha)	109.0	9.7	7.0	6.8	2.6	1.6	0.5	4.1	0.5

(Source: SREP Chirang district)

1.4	Major Soils	Major soil description	Total Area ('000 ha)	Percent (%) of total
	1. Light grey soil	Sandy loam to silty loam in texture	39.35	11.79
	2. Red soil (Mixed)	High in Fe & Al oxides & well drained	12.61	36.79
	3. Sandy soil	Light textured soils	9.57	8.95
	4. Sandy loam soil	Medium textured soils	34.65	32.39
	5. Clay loam soil	Heavy textured soil & poor external as well as internal drainage	7.74	7.24
	6. Problem soil			
	Soil erosion	Severe soil erosion problem	0.14	0.13
	Water logging condition	Severe water logging condition	0.11	0.10
	Others (specify):	-	2.80	2.61
1.5	Agricultural land use	('000 ha)	Cropping intensity (%)	
	Area sown more than once	27.91	153	
	Gross cropped area	80.95		

(Source: SREP Chirang district & C-DAP, Chirang 2009)

1.6	Irrigation	Area ('000 ha)	Percent (%)	
	Net cultivated area	53.04	48.81	
	Net irrigated area	4.45	4.09	
	Gross cultivated area	80.95	-	
	Gross irrigated area	11.99	-	
	Rainfed area	31.05	28.57	
	Sources of irrigation	Number	Area ('000 ha)	% area
	Canals/channels	-	7.85	65.42
	Tanks	16	0.016	0.13
	Open wells / Bore wells	2009	4.02	33.50

STW	-		
Lift irrigation	45	0.090	0.75
Other sources	12	0.024	0.20
Total	2082	12.00	-
Pump sets	-	-	-
Micro-irrigation	-	-	-
Groundwater availability and use	No. of blocks	% area	Quality of water
Over exploited	-	-	-
Critical	-	-	-
Semi critical	-	-	-
Safe	-	-	-
Wastewater availability and use	-	-	-

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

(Source: SREP Chirang district & C-DAP, Chirang 2009)

1.7. Area under major field crops & horticulture etc.:

A.	Major field crops	Total area(000'ha)	Kharif (ha)		Rabi (ha)		Summer (ha)	
			Irrigated	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed
1	Rice (Sali)	36.284	-	36.284	-	-	-	-
2	Rice (Ahu)	15.622	-	-	-	-	5.654	10.622
3	Rice (Boro)	1.713	-	-	1.713	0.230	-	-
4	Rapeseed & mustard	8.557	-	-	1.420	7.337	-	-
5	Sesamum	0.383	-	0.383	-	-	-	-
6	Linseed	0.227	-	-	-	0.227	-	-
7	Niger	0.371	-	-	-	0.371	-	-
8	Blackgram	0.806	-	0.806	-	-	-	-
9	Green gram	0.143	-	-	-	-	-	0.143
10	Lentil	1.382	-	-	-	1.382	-	-
11	Pea	0.317	-	-	-	0.317	-	-
12	Other pulses	0.508	-	0.073	-	0.435	-	-
13	Wheat	1.064	-	-	-	1.064	-	-
14	Jute	1.416	-	-	-	-	-	1.416

15	Maize	0.478	-	-	-	0.478	-	-
16	Arahar	0.329	-	0.329	-	-	-	-
	Total area:	69.600	-	-	-	-	-	-
B.	Horticulture crops- Fruits	Total area(000'ha)	Irrigated		Rainfed			
1	Pineapple	0.461	-	-	-	0.461	-	-
2	Jackfruit	-	-	-	-	-	-	-
3	Litchi	-	-	-	-	-	-	-
4	Papaya	0.155	-	-	-	0.155	-	-
5	Mango	-	-	-	-	-	-	-
6	Orange	1.039	-	-	-	1.039	-	-
7	Coconut	0.453	-	-	-	0.453	-	-
8	Banana	0.418	-	-	-	0.850	-	-
9	Assam lemon	0.608	-	-	-	0.608	-	-
10	Guava	-	-	-	-	-	-	-
C.	Horticultural crops- Vegetables	Total area	Irrigated		Rainfed			
1	Kharif vegetables	2.544	-	-	-	2.544	-	-
2	Rabi vegetables	7.541	7.541	-	-	-	-	-
	Medicinal and Aromatic crops	Total area	Irrigated		Rainfed			
1	Total Medicinal and Aromatic crops	-	-	-	-	-	-	-
	Plantation crops	Total area	Irrigated		Rainfed			
	Sugarcane	0.092	-	-	-	0.092	-	-
	Fodder crops	Total area	Irrigated		Rainfed			
	Total fodder crop area	-	-	-	-	-	-	-
	Grazing land	6.842	-	-	-	-	-	-

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

(Source: Director of Agriculture, Khanapara, Guwahati & C-DAP, Chirang 2009)

1.8	Livestock	Number ('000)		
	Cows	Cross breed: 0.462	Indigenous: 36.952	
	Buffaloes total	Cross breed: 0.194	Indigenous: 0.666	
	Commercial dairy farms			
	Goat		46.971	
	Sheep		6.167	
	Others (Camel, Pig, Yak etc.)	Pig:	Cross breed: 32.753	Indigenous: 70.650
1.9	Poultry	Chicken:	Duck:	

	Commercial	255.913		
	Backyard	68.320		
1.10	Inland Fisheries	Area ('000 ha)	Yield (t/ha)	Production (tones)
	Brackish water	-	-	-
	Fresh water	0.256	0.25	64.0
	Ponds and Tanks	0.332	2.15	713.8
	Water logged / beels	6.201	0.345	2139.3
	Swamps	-	-	-
	Low lying areas	0.621	1.47	913.5
	Others			
Forest fishery	0.00085	5.41	4.6	
Others	0.211	0.175	36.9	

(Source: SREP Chirang district)

1.11	Production and productivity of major crops	Kharif		Rabi		Summer		Total	
		Production ('000.ton)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)
Crop1	Rice	57.482 (Sali rice)	1584 (Sali rice)	4.240 (Boro rice)	2475 (Boro rice)	15.765 (Ahu rice)	1009 (Ahu rice)	77.487	1689.33
Crop 2	Toria	-	-	3.438	402	-	-	3.438	402
Crop 3	Jute	-	-	-	-	13.329	1694	13.329	1694
Crop 4	wheat	-	-	1.755	1649	-	-	1.755	1649
Crop 5	Vegetables	-	-	-	-	-	-	-	-
Others	Lentil	-	-	0.714	517	-	-	0.714	517
	Maize	-	-	2.910	609	-	-	-	-

1.12	Sowing window for 5 major crops (Start and end of sowing period)	Crop1: Rice	2: Toria	3: Jute	4:Vegetables	5: Wheat
	Kharif- Rainfed	25 th may to 30 th sept	-	15 th March – 15 th May	15 th Feb to 15 th April	-
	Kharif- irrigated	-	-	-	-	-
	Rabi-Rainfed	-	15 th Oct-15 th Nov	-	-	-
	Rabi- irrigated	15 th Nov to 15 th Jan	-	-	15 th Oct to 30 th Nov	-
	Rabi-Rainfed	-	-	-	-	5 th Nov to 15 th Dec
	Rabi- irrigated	15 th feb to 15 th March	-	-	-	-

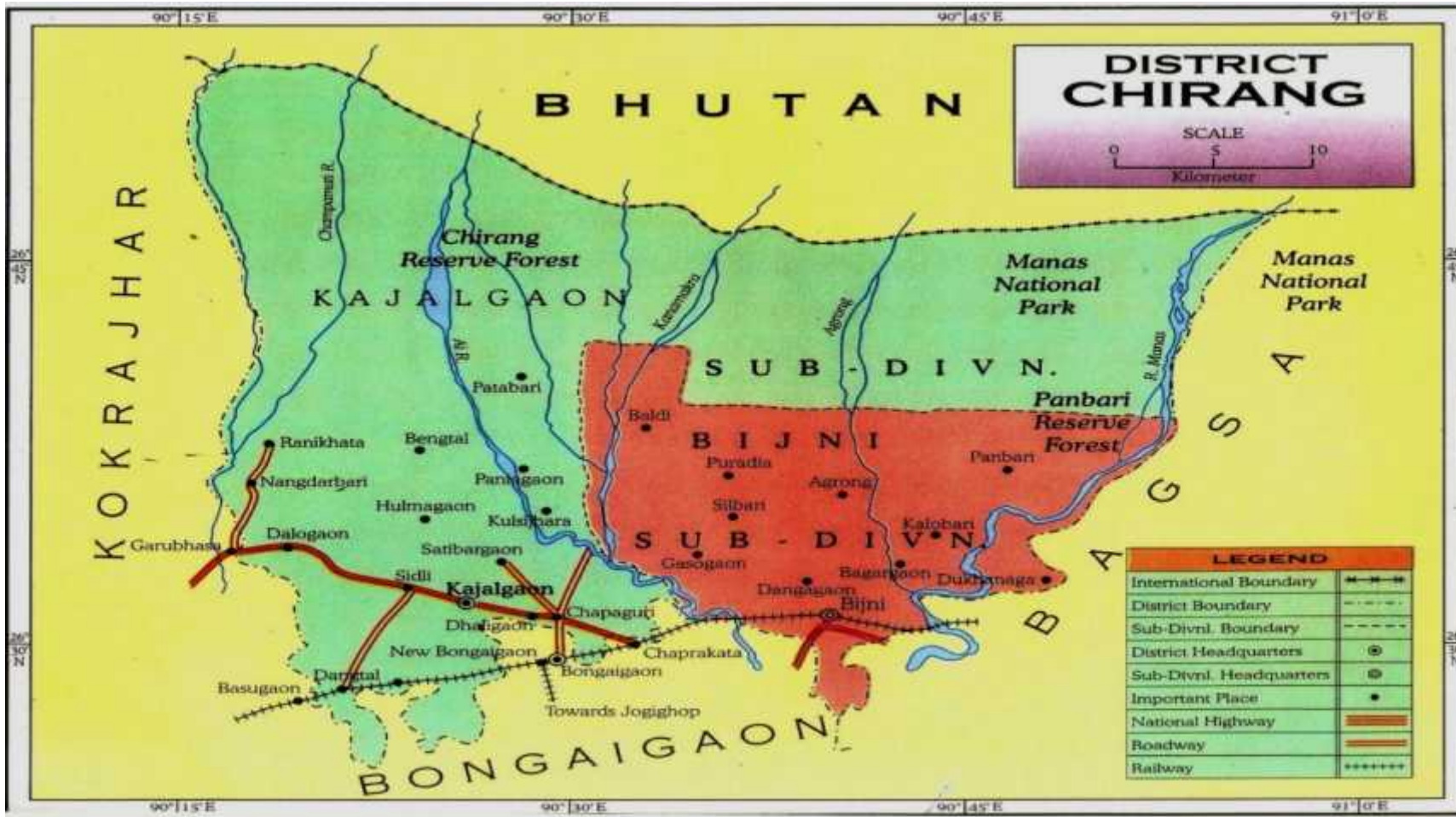
1.13	What is the major contingency the district is prone to? (Tick mark)	Regular*	Occasional	None
	Drought			
	Flood			
	Cyclone			
	Hail storm			
	Heat wave			
	Cold wave			
	frost			
	Sea water intrusion			
	Snowfall			
	Landslide			
	Earthquake			
	Pests and disease outbreak (specify)		(rice stem borer, leaf folder, sheath blight, late blight, aphid)	
	Others (like fog, cloud bursting etc.)			

*when contingency occurs in six out of 10years.

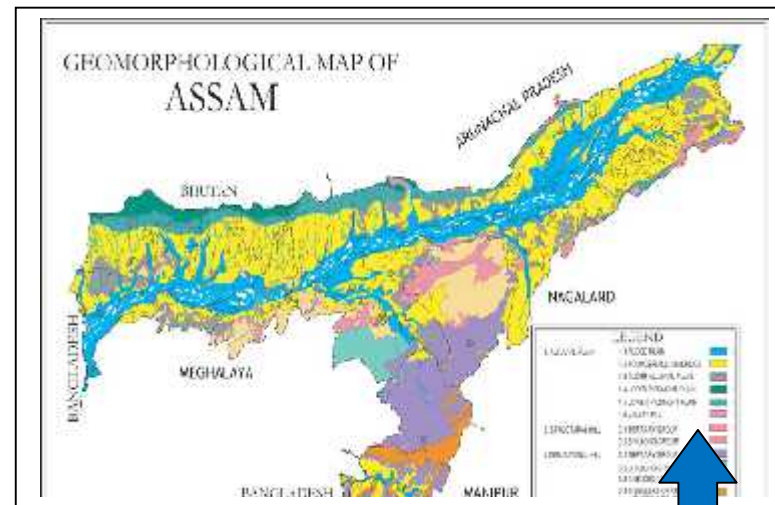
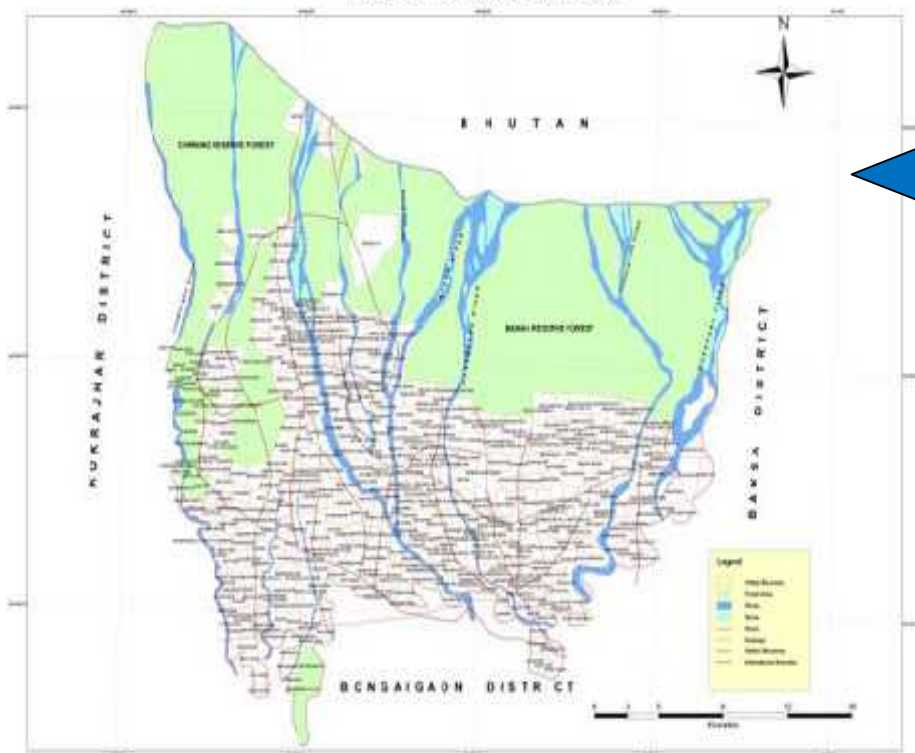
1.14	Include Digital maps of the district for	Location map of district with in State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure : I

Location map of Chirang district in Assam



MAP OF CHIRANG DISTRICT



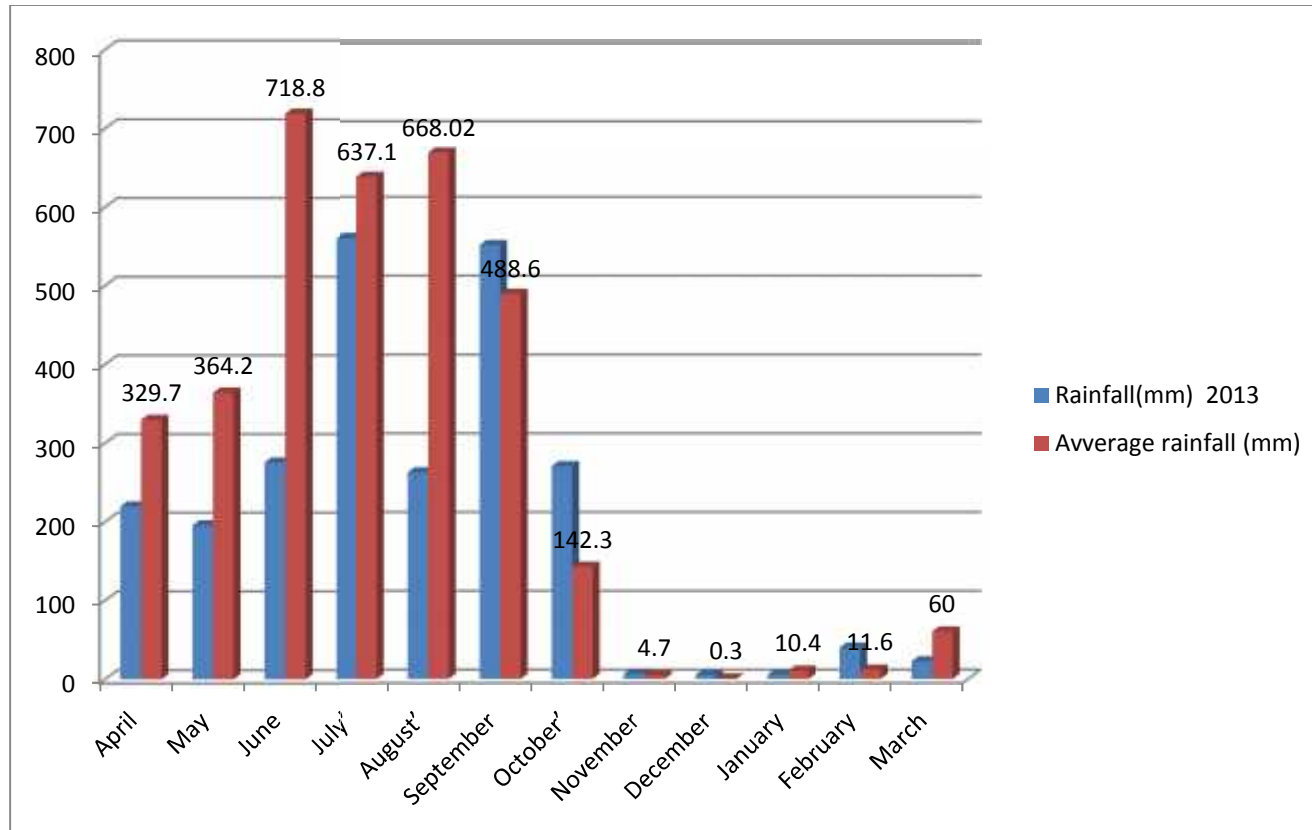
DIGITAL MAP OF CHIRANG DISTRICT OF ASSAM



Annexure :II



Annexure :II Mean Annual Rainfall of Chirang District



Annexure : III Soil Map



2.0. Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation:

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 2 weeks (Specify month)* Month: 3rd week of June (REFER TO THE MATRIX TAPLE)	Rainfed upland	-Rice (DS)- Toria /Lentil/ Wheat /Potato/ Rabi vegetables	No change	-Life saving supplemental irrigation at critical growth stages -Weeding at critical stages of growth of rice -straw mulching in rabi crops - Use of herbicide -Practicing minimum tillage	-water harvesting structures under NREGA have been made for life saving irrigation
		Summer vegetables/ Blackgram/Sesame (kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change	-Life saving supplemental irrigation -Weeding at critical stages of growth.	-water harvesting structures under NREGA have been made for life saving irrigation
	Rainfed medium land	Rice(Kharif)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change	-Growing of medium duration rice varieties such as Satyaranjan, Basundhara, Baismuthi etc. --Prepare dry, well banded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m --Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of	-water harvesting structures under NREGA have been made for life saving irrigation - KVK, RARS are producing foundation & certified seeds

				rice.	
	Rainfed lowland	Rice (kharif) as monocropping	No change	<p>Growing of high yielding varieties like Ranjit, Bahadur, Mahsuri, Satyaranjan, Basundhara, Baismuthi, Ketekijoha etc.</p> <p>--Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>--Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation in the nursery bed of rice</p>	<p>-water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>
		Rice (kharif) – rice (rabi/summer)	No change	<p>Growing of high yielding varieties like Ranjit, Bahadur, Mahsuri, Satyaranjan, Basundhara, Baismuthi, Ketekijoha etc.</p> <p>--Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>--Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation in the nursery bed of rice</p>	<p>-water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>
		Rice(Kharif) monocropping	No change	<p>-Growing of high yielding varieties like Ranjit, Bahadur, Mahsuri, Satyaranjan, Basundhara, Baismuthi, Ketekijoha etc.</p> <p>--Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>--Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and</p>	<p>-water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>

				sowing -Supplemental irrigation in the nursery bed of rice	
	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change	-Supplementary life saving irrigation at critical crop stages	-water harvesting structures under NREGA have been made for life saving irrigation
		Rice(Kharif) as mono cropping	No change	<p>-If transplanting is possible within July, select suitable varieties like Ranjit, Bahadur, Piolee, Mahsuri, etc.</p> <p>-If flood water recedes early and transplanting can be done by mid August, select varieties like Kushal, Prasadbhog, etc.</p> <p>-Select suitable rice varieties such as Satyaranjan, Basundhara, Luit and Kapilee (transplanting up to last part of August) where flood water is expected recede by the last part of August.</p> <p>-For chronically flood affected areas, select submergence tolerant rice varieties such as Jalashree, Jalkuwari and Plaban (12-15 days submergence tolerance) which can be transplanted in June-July.</p> <p>-Spraying of Chloropyriphos or Monochrotophos or Quinolphos @ 2ml/l against case worm and leaf folder infestation in rice.</p> <p>-Where bacterial leaf blight appears in rice, avoid top dressing of N- fertilizer and apply K-fertilizer @ 10 kg /ha as top dressing or 5kg/ha as 3% foliar spray.</p> <p>- Spraying of Chloropyriphos or Quinolphos @ 2ml/l and apply 5 % Malathion dust in field bunds against rice swarming caterpillar.</p>	- KVK, RARS are producing foundation & certified seeds

Condition		Suggested Contingency measures			
Early season drought (delayed onset)	Major Farming situation	Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks (Specify month)* Month: 1st week of July (REFER TO THE MATRIX TAPLE)	Rainfed upland	Rice (DS)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change	-Life saving supplemental irrigation -Weeding at critical stages of growth of rice - Supplemental irrigation in the nursery bed of Rabi vegetables - Provision of drainage where necessary	-water harvesting structures under NREGA have been made for life saving irrigation
		Summer vegetables/ Blackgram/Sesame (kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change	-Life saving supplemental irrigation -Weeding at critical stages of growth. - Supplemental irrigation in the nursery bed of Rabi vegetables - Provision of drainage where necessary	-water harvesting structures under NREGA have been made for life saving irrigation
	Rainfed medium land	Rice (Kharif)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	Rice (Kharif)- Toria/Lentil/ Wheat/Potato/Rabi vegetables -Growing of medium & short duration rice varieties such as Jaya, Pankaj, Manohar Sali, Luit, Kopilee etc.varieties like prafulla & Gitesh can be chosen for staggered planting.	--Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 40g MOP per bed of 10mx1.25m --Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice.	-water harvesting structures under NREGA have been made for life saving irrigation - KVK, RARS are producing foundation & certified seeds
		Rice (Kharif) monocropping	Rice (Kharif) – Toria/Lentil/ Wheat/Potato/Rabi	Transplanting is to be done with in July. -Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed	water harvesting structures under NREGA have been made for life saving

			<p>vegetables</p> <p>-Growing of high yielding varieties like Ranjit, Bahadur, Mahsuri, Satyaranjan, Basundhara, Baismuthi, Ketekijoha etc</p>	<p>of 10mx1.25m</p> <p>--Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation for land preparation in the nursery bed of rice</p> <p>- Life saving irrigation in the rabi crops & vegetables</p>	<p>irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>
Rainfed low land	Rice (Kharif) – Rice (Rabi/Summer)	<p>No change</p> <p>Growing of high yielding varieties like Ranjit, Bahadur, Mahsuri, Satyaranjan, Basundhara, Baismuthi, Ketekijoha etc.</p>	<p>Transplanting is to be done with in July.</p> <p>-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>--Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation for land preparation in the nursery bed of rice</p>	<p>water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>	
Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	<p>No change</p> <p>Toria Var. TS-36, TS-38, Lentil Var. B-77, Potato Var. Kufri Megha, Kufri Sinduri, Wheat var. Sonalika, HUW-406, DBW-14 etc should be chosen.</p>	<p>-Supplementary life saving irrigation at critical crop growth stages</p>	<p>water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK, RARS are producing foundation & certified seeds</p>	
	Rice (Kharif) as mono cropping	<p>Rice (Kharif)- Rice (Boro/Summer)</p> <p>-Varieties like Joymoti, Kanaklata, Dinanath, Swarnabh should be chosen as Boro rice</p> <p>-Select suitable rice varieties such as Satyaranjan,</p>	<p>-If transplanting is possible within July, select suitable varieties like Ranjit, Bahadur, Piolee, Mahsuri, etc.</p> <p>-If flood water recedes early and transplanting can be done by mid August, select varieties like Kushal, Prasadbhog, etc.</p> <p>-For chronically flood affected areas, select submergence tolerant rice varieties such as Jalashree, Jalkuwari and Plaban (12-15 days submergence tolerance) which can be transplanted in June-July.</p> <p>-Spraying of Chloropyriphos or Monochrotophos or</p>	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- KVK & RARS are producing foundation & certified seeds</p>	

			Basundhara, Luit and Kapilee (transplanting up to last part of August) where flood water is expected recede by the last part of August.	Quinolphos @ 2ml/l against case worm and leaf folder infestation in rice. -Where bacterial leaf blight appears in rice, avoid top dressing of N- fertilizer and apply K-fertilizer @ 10 kg /ha as top dressing or 5kg/ha as 3% foliar spray. - Spraying of Chloropyriphos or Quinolphos @ 2ml/l and apply 5 % Malathion dust in field bunds against rice swarming caterpillar.	
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CONDITION		SUGGESTED CONTINGENCY MEASURES			
Early season drought (delayed onset)	Major Farming situation	Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks (Specify month)* Month: 3rd week of July (REFER TO THE MATRIX TABLE)	Rainfed upland	Rice (DS)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change- Toria Var. TS-36, TS-38, Lentil Var. B-77, Potato Var. Kufri Megha, Kufri Sinduri, Wheat var. Sonalika, HUW-406, DBW-14 etc should be chosen.	-Life saving supplemental irrigation during germination & at critical growth stages -Weeding at critical stages of growth of rice - Supplemental irrigation in the nursery bed of Rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation - KVK & RARS are producing foundation & certified seeds
		Summer vegetables/ Blackgram/Sesame (Kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables	Summer vegetables/ Blackgram/Sesame (kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables -Toria Var. TS-36, TS-38, Lentil Var. B-77, Potato Var. Kufri Megha, Kufri Sinduri, Wheat var. Sonalika, HUW-406, DBW-14	-Life saving supplemental irrigation -Weeding at critical stages of growth. - Supplemental irrigation in the nursery bed of Rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation - KVK & RARS are producing foundation & certified seeds

			etc should be chosen.		
Rainfed medium land	Rice (Kharif)- Torja/Lentil/ Wheat/Potato/Rabi vegetables	Rice (Kharif)- Torja/Lentil/ Wheat/Potato/Rabi vegetables -Torja Var. TS-36, TS-38, Lentil Var. B- 77, Potato Var. Kufri Megha, Kufri Sinduri, Wheat var. Sonalika, HUW-406, DBW-14 etc should be chosen.	- Select suitable rice varieties such as Satyaranjan, Basundhara, Luit and Kapilee (transplanting up to last part of August). -Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. - Rabi vegetables like tomato, brinjal, chilli can be grown with suitable varieties - Supplemental irrigation in the nursery bed of rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation - KVK & RARS are producing foundation & certified seeds	
	Rice (Kharif) monocropping	No change	-Growing of high yielding varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August. -Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice -Short duration rice varieties like Luit , Kapilee, Kalong etc can also be selected. - Manohar Sali, Biraj, Prasadbhog, Govinda bhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August. - Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)	- water harvesting structures under NREGA have been made for life saving irrigation - KVK & RARS are producing foundation & certified seeds	
Rainfed low land	Rice (Kharif) monocropping	Rice (Kharif) – Rice (Summer) / Torja/Lentil/ Wheat/Potato/Rabi	-Growing of high yielding varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August. -Prepare dry, well bunded, flat seedbed with adequate	- water harvesting structures under NREGA have been made for life saving	

			vegetables	<p>FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>-Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation in the nursery bed of rice</p> <p>-Short duration rice varieties like Luit , Kapilee, Kalong etc can also be selected.</p> <p>- Manohar Sali, Biraj, Prasadbhog, Govinda bhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August.</p> <p>- Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)</p>	<p>irrigation</p> <p>- KVK & RARS are producing foundation & certified seeds</p>
Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	No change		-Supplementary life saving irrigation at critical crop stages	- water harvesting structures under NREGA have been made for life saving irrigation
	Rice (winter) as mono cropping	<p>Late Sali (winter) – Rice (summer)</p> <p>- Short duration rice varieties like Luit , Kapilee, Kalong etc can be transplanted up to last part of August</p> <p>- Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)</p>		<p>-If transplanting is possible within July, select suitable varieties like Ranjit, Bahadur, Piolee, Mahsuri, etc.</p> <p>-If flood water recedes early and transplanting can be done by mid August, select varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August.</p> <p>- Manohar Sali, Biraj, Prasadbhog, Govindbhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August.</p> <p>-For chronically flood affected areas, select submergence tolerant rice varieties such as Jalashree, Jalkuwari and Plaban (12-15 days submergence tolerance) which can be transplanted in June-July.</p> <p>-Spraying of Chloropyriphos or Monochrotophos or Quinolphos @ 2ml/l against case worm and leaf folder infestation in rice.</p> <p>-Where bacterial leaf blight appears in rice, avoid top dressing</p>	- KVK & RARS are producing foundation & certified seeds

				of N- fertilizer and apply K-fertilizer @ 10 kg /ha as top dressing or 5kg/ha as 3% foliar spray. - Spraying of Chloropyriphos or Quinolphos @ 2ml/l and apply 5 % Malathion dust in field bunds against rice swarming caterpillar.	
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Condition		Suggested Contingency measures			
Early season drought (delayed onset)	Major Farming situation	Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 8 weeks (Specify month)* MONTH: 1ST WEEK OF AUGUST (REFER TO THE MATRIX TAPLE)	Rainfed upland	Rice (DS)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	Rice (DS)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	-Life saving supplemental irrigation -Weeding at critical stages of growth of rice - Supplemental irrigation in the nursery bed of Rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation
		Summer vegetables/ Blackgram/ Sesame (Kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables	Summer vegetables/ Blackgram/sesame (kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables	-Life saving supplemental irrigation -Weeding at critical stages of growth. - Supplemental irrigation in the nursery bed of Rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation
	Rainfed medium land	Rice (Kharif)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	Rice (Kharif)- Toria/Lentil/ Wheat/Potato/Rabi vegetables - Select suitable rice varieties such as Satyaranjan, Basundhara, Luit and Kapilee (transplanting up to last part of August).	-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. - Select potato varieties like Kufri Sinduri and Kufri Megha - Rabi vegetables like tomato, brinjal, chilli can be grown with suitable varieties - Supplemental irrigation in the nursery bed of rabi vegetables	- water harvesting structures under NREGA have been made for life saving irrigation - KVK & RARS are producing foundation & certified seeds

		Rice (Kharif) monocropping	Rice (Kharif) monocropping -Short duration rice varieties like Luit , Kapilee, Kalong etc can also be selected.	-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Growing of high yielding varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August. - Manohar Sali, Biraj, Prasadbhog, Govinda bhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August. - Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds
	Rainfed low land	Rice (Kharif) monocropping	No change -Short duration rice varieties like Luit , Kapilee, Kalong etc can also be selected.	-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Growing of high yielding varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August. - Manohar Sali, Biraj, Prasadbhog, Govinda bhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August. - Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds
	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	-Supplementary life saving irrigation at critical crop stages	- water harvesting structures under NREGA have been made for life

					saving irrigation
		Sali (Kharif) as mono cropping	Late Sali (Kharif) - Short duration rice varieties like Luit , Kapilee, Kalong etc can also be transplanted up to last part of August.	<p>-If flood water recedes early and transplanting can be done by mid August, select varieties like Satyaranjan, Basundhara etc. which can be transplanted up to last part of August.</p> <p>Crop should be transplanted at closer spacing with recommended dose of fertilizer as basal.</p> <p>- Manohar Sali, Biraj, Prasadbhog, Govinda bhog etc. and traditional coarse grain photosensitive varieties with 45-60 days old seedlings can be transplanted with 6-8 seedlings per hill up to last part of August.</p> <p>- Select delayed planting varieties like Prafulla and Gitesh (60 days old seedlings)</p> <p>-For chronically flood affected areas, select submergence tolerant rice varieties such as Jalashree, Jalkuwari and Plaban (12-15 days submergence tolerance) which can be transplanted in June-July.</p> <p>-Spraying of Chloropyriphos or Monochrotophos or Quinolphos @ 2ml/l against case worm and leaf folder infestation in rice.</p> <p>-Where bacterial leaf blight appears in rice, avoid top dressing of N- fertilizer and apply K-fertilizer @ 10 kg /ha as top dressing or 5kg/ha as 3% foliar spray.</p> <p>- Spraying of Chloropyriphos or Quinolphos @ 2ml/l and apply 5 % Malathion dust in field bunds against rice swarming caterpillar.</p>	- KVK & RARS are producing foundation & certified seeds

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Crop Management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset	Rainfed upland	Rice (DS)-	Increase the seed rate upto 30% during dry		- water harvesting

<p>followed by 15-20 days dry spell after sowing leading to poor germination/ crop stand etc.</p>		<p>Toria/Lentil/ Wheat/Potato/Rabi vegetables</p>	<p>spell Weeding at critical stages of growth. -Application of sufficient quantity of FYM or compost in the main field. -Top dressing of additional quantity of K fertilizer in rice. - Supplemental irrigation in the nursery bed of Rabi vegetables</p>	<p>-Life saving supplemental irrigation</p>	<p>structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds</p>
		<p>Summer vegetables/ Blackgram/Sesame (Kharif) - Toria/Lentil/ Wheat/Potato/Rabi vegetables</p>	<p>Weeding at critical stages of growth. - Application of sufficient quantity of FYM or compost in the main field - Supplemental irrigation in the nursery bed of Rabi vegetables -Two to three spraying of Dimethoate or Endosulfan @ 2ml/l starting from 10 days after germination at 15 days interval against YMV in blackgram/ greengram -Spraying of Karathane @ 0.5 g/l or Kethane @ 1 ml/l against mites in vegetables. -Spraying of Chloropyriphos @ 1ml/l or application of Malathion 5% dust @ 20-25 kg/ha against termite attack.</p>	<p>-Life saving supplemental irrigation -</p>	<p>- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of Pumpset for irrigation is made under RKVY & NFSM</p>
	<p>Rainfed medium land</p>	<p>Rice (winter)- Toria/Lentil/ Wheat/Potato/Rabi vegetables</p>	<p>-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Application of sufficient quantity of FYM or compost in the nursery bed and main field.</p>	<p>- Green manuring practice during summer</p>	<p>- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds</p>

			<p>-Where germination is severely affected, re-sowing of rice seed may also be recommended.</p> <p>-Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice.</p> <p>- Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice.</p> <p>--Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p> <p>-Select suitable varieties of wheat such as Sonalika, UP262, WH291 etc</p>		
		Rice (winter) monocropping			

	Rainfed low land	Rice (winter) – rice (autumn/ summer)	<ul style="list-style-type: none"> -Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Application of sufficient quantity of FYM or compost in the nursery bed and main field. -Where germination is severely affected, re-sowing of rice seed may also be recommended. -Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice. - Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice. --Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug. -Select suitable varieties of wheat such as Sonalika, UP262, WH291 etc 	- Green manuring practice during summer	
	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables		-Supplementary life saving irrigation at critical crop stages	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds

		<p>Sali rice as mono cropping</p>	<p>-Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m</p> <p>-The gap of 30 cm between two beds may be converted into channel to supply water to keep the raised beds moist in the event of drought occurs.</p> <p>-Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing</p> <p>-Supplemental irrigation in the nursery bed of rice.</p> <p>-Application of sufficient quantity of FYM or compost in the nursery bed and main field.</p> <p>-Where germination is severely affected, re-sowing of rice seed may also be recommended.</p> <p>In chronically flood affected areas where high silt deposition occurs, there may not be any need of fertilizer application. However, in occasionally flood affected areas, a basal application of fertilizer @ 40:20:20 kg/ha for semi-dwarf varieties and 20:10:10 kg/ha for tall varieties of N: P: K is recommended.</p>	<p>-Supplementary life saving irrigation at critical crop stages</p>	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>-- KVK & RARS are producing foundation & certified seeds</p>
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Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (> 2.5 mm) period)	Rainfed upland	Rice (DS)- Torla/Lentil/ Wheat/Potato/Rabi vegetables	-Application of mulching in vegetable crops -Weeding at critical stages of growth. -Application of sufficient quantity of FYM or compost in the main field. -Top dressing of additional quantity of K fertilizer in rice.	-Life saving supplemental irrigation	- water harvesting structures under NREGA have been made for life saving irrigation
		Summer vegetables/ Blackgram (Kharif)/Sesame - Torla/Lentil/ Wheat/Potato/Rabi vegetables	-Weeding at critical stages of growth. - Application of sufficient quantity of FYM or compost in the main field - Thinning to maintain optimum plant population. -Two to three spraying of Dimethoate or Endosulfan @ 2ml/l starting from 10 days after germination at 15 days interval against YMV in blackgram/ greengram -Spraying of Karathane @ 0.5 g/l or Kethane @ 1 ml/l against mites in vegetables. -Spraying of Chloropyriphos @ 1ml/l or application of Malathion 5% dust @ 20-25 kg/ha against termite attack.	-Life saving supplemental irrigation	-- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds
	Rainfed medium land	Rice (Kharif)- Torla/Lentil/ Wheat/Potato/Rabi vegetables	-Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice	-Life saving supplemental irrigation at critical stages of crop growth	- water harvesting structures under NREGA have been made for life

			<p>if and when drought appears.</p> <p>-Top dressing of urea may be delayed up to heading stage of rice if drought prevails at the stages of top dressing</p> <p>-Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice.</p> <p>- Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice.</p> <p>-Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>		saving irrigation
		Rice (Kharif) monocropping	<p>Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice</p> <p>-Spraying of 2% KCL solution on leaves of rice if and when drought appears.</p> <p>-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing</p> <p>Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice.</p> <p>- Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice.</p> <p>-Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>	<p>-Life saving supplemental irrigation at critical stages of crop growth</p> <p>-</p>	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>-- KVK & RARS are producing foundation & certified seeds</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>
	Rainfed low land	Rice (Kharif) monocropping	<p>-Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice</p> <p>-Spraying of 2% KCL solution on leaves of rice</p>	<p>-Life saving supplemental irrigation at critical stages of crop growth</p>	<p>- water harvesting structures under NREGA have been made for life</p>

			<p>if and when drought appears.</p> <p>-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing</p> <p>-Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice.</p> <p>- Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice.</p> <p>-Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>		<p>saving irrigation</p> <p>-- KVK & RARS are producing foundation & certified seeds</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>
	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables		-Supplementary life saving irrigation at critical crop stages	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>
		Sali (Kharif) as mono cropping	<p>-Application of sufficient quantity of FYM or compost in the nursery bed and main field.</p> <p>-Supplementary life saving irrigation at critical crop stages</p> <p>--Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice</p> <p>-Spraying of 2% KCL solution on leaves of rice if and when drought appears.</p> <p>-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing</p>		<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>

Condition		Suggested Contingency measures			
		Major Farming situation	Crop/ cropping system	Crop Management	Soil nutrient & moisture conservation measures
At reproductive stage	Rainfed upland	Rice (DS)- Torja/Lentil/ Wheat/Potato/Rabi vegetables	-Weeding at critical stages of growth. -Top dressing of additional quantity of K fertilizer in rice	-Life saving supplemental irrigation	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
		Summer vegetables/ Blackgram (Kharif)/Sesame - Torja/Lentil/ Wheat/Potato/Rabi vegetables	-Weeding at critical stages of growth. - Thinning to maintain optimum population. --Two to three spraying of Dimethoate or Endosulfan @ 2ml/l starting from 10 days after germination at 15 days interval against YMV in blackgram/ greengram -Spraying of Karathane @ 0.5 g/l or Kethane @ 1 ml/l against mites in vegetables. -Spraying of Chloropyriphos @ 1ml/l or application of Malathion 5% dust @ 20-25 kg/ha against termite attack.	-Life saving supplemental irrigation	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
	Rainfed medium land	Rice (Kharif)- Torja/Lentil/ Wheat/Potato/Rabi vegetables	-Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if and when drought appears.	-Life saving supplemental irrigation at critical stages of crop growth	- water harvesting structures under NREGA have been made for life saving irrigation

			<p>-Top dressing of urea may be delayed up to heading stage of rice if drought prevails at the stages of top dressing</p> <p>-Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>		<p>-- KVK & RARS are producing foundation & certified seeds</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>
	Rainfed low land	Rice (Kharif) monocropping	<p>-Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice</p> <p>-Spraying of 2% KCL solution on leaves of rice if and when drought appears.</p> <p>-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing</p> <p>-Spraying of Mancozeb @ 2.5g/l or Edinophos 2 1ml/l or Carbendazim @ 1g/l against brown spot disease in rice.</p> <p>- Spraying Carbendazim @ 1g/l followed by Mancozeb @ 2.5g/l against sheath rot disease in rice.</p> <p>-Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>	-Life saving supplemental irrigation at critical stages of crop growth	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>-- KVK & RARS are producing foundation & certified seeds</p> <p>- arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY</p>
		Rice (Kharif) monocropping	<p>-Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice</p> <p>-Spraying of 2% KCL solution on leaves of rice if and when drought appears.</p> <p>-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing</p> <p>- -Spraying of phosphamidon @ 1-1.5 ml/l against rice mealy bug.</p>	Life saving supplemental irrigation at critical stages of crop growth	<p>- water harvesting structures under NREGA have been made for life saving irrigation</p> <p>-- KVK & RARS are producing foundation & certified seeds</p>

	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables		-Supplementary life saving irrigation at critical crop stages	- water harvesting structures under NREGA have been made for life saving irrigation
		Sali (Kharif) as mono cropping	<ul style="list-style-type: none"> -Application of sufficient quantity of FYM or compost in the nursery bed and main field. -Supplementary life saving irrigation at critical crop stages --Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if and when drought appears. -Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing 		- water harvesting structures under NREGA have been made for life saving irrigation

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Crop management	Rabi crop planning	Remarks on Implementation
Terminal drought	<i>Rainfed upland</i>	Rice (DS)- Toria/Lentil/ Wheat/Potato/Rabi vegetables	<ul style="list-style-type: none"> -Life saving supplemental irrigation - Pre-sowing irrigation for nursery raising and life saving irrigation after transplanting 	<ul style="list-style-type: none"> - Early rabi cropping with Cabbage (Golden Acre, Pride of India) and Cauliflower (Pusa Deepali, Early Kunwari) - Growing of Tomato, Brinjal, and Leafy vegetables like Spinach, Radish etc. --Growing of rabi field crops like toria, lentil, wheat in time with presowing irrigation if required. 	<ul style="list-style-type: none"> - water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of

					pumpset, sprayer, weeder are made under NFSM & RKVY
		Summer vegetables/ Blackgram/ Sesame (Kharif) - Torja/Lentil/ Wheat/Potato/Rabi vegetables	-Life saving supplemental irrigation -Harvesting of kharif crops at physiological maturity stage. - Pre-sowing irrigation for nursery raising and life saving irrigation after transplanting .Select quick growing sesame varieties such as Madhavi, Gauri and Vinayak. -Spraying of Mancozeb @ 2.5g/l or Carbendazim @ 2.0g/l against leaf blight disease in oilseed and pulse crop.	-Growing of Cole crops like Cabbage, Cauliflower, Tomato, Brinjal, Chilli etc. --Growing of rabi field crops like toria, lentil, and wheat in time with pre sowing irrigation if required.	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
	Rainfed medium land	Rice (Kharif)- Torja/Lentil/ Wheat/Potato/Rabi vegetables	-Life saving supplemental -irrigation - Pre-sowing irrigation for nursery raising and life saving irrigation after transplanting - Harvesting of kharif crops at physiological maturity stage.	-Growing of rabi vegetables like Cabbage, Cauliflower, Knolkhol, Tomato, Brinjal, Pea, Carrot etc. -Growing of rabi field crops like toria, lentil, wheat in time with presowing irrigation if required.	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
		Rice (Kharif) monocropping	-Life saving supplemental irrigation - Harvesting of kharif crops at physiological maturity stage.	-Application of sufficient quantity of FYM or compost in the nursery bed and main field. -Supplementary life saving irrigation at critical crop stages --Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in	- water harvesting structures under NREGA have been made for life saving irrigation - arrangement of pumpset, sprayer,

				<p>rice</p> <ul style="list-style-type: none"> -Spraying of 2% KCL solution on leaves of rice if and when drought appears. -Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing 	<p>weeder are made under NFSM & RKVY</p>
	Rainfed lowland	Rice (Kharif) monocropping	<ul style="list-style-type: none"> -Life saving supplemental irrigation - Harvesting of kharif crops at physiological maturity stage. 	<ul style="list-style-type: none"> -Application of sufficient quantity of FYM or compost in the nursery bed and main field. -Supplementary life saving irrigation at critical crop stages --Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if and when drought appears. -Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing 	<ul style="list-style-type: none"> - water harvesting structures under NREGA have been made for life saving irrigation - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
	Flood prone	Summer vegetables – Toria/Lentil/ Wheat/Potato/Rabi vegetables	<ul style="list-style-type: none"> -Life saving supplemental irrigation - Pre-sowing irrigation for nursery raising and life saving irrigation after transplanting 	<ul style="list-style-type: none"> -Growing of Cole crops like Cabbage, Cauliflower, Tomato, Brinjal, Chilli etc. -Growing of rabi field crops like toria, lentil, and wheat in time with presowing irrigation if required. 	<ul style="list-style-type: none"> -- KVK & RARS are producing foundation & certified seeds - arrangement of pumpset, sprayer, weeder are made under NFSM & RKVY
		Sali (Kharif) as mono cropping	Late Sali (Kharif)	<ul style="list-style-type: none"> -Application of sufficient quantity of FYM or compost in the nursery bed and main field. -Supplementary life saving irrigation at critical crop stages --Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if and when drought appears. 	<ul style="list-style-type: none"> - water harvesting structures under NREGA have been made for life saving irrigation

				-Top dressing of urea may be delayed upto heading stage of rice if drought prevails at the stages of top dressing	
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2.12 Irrigated situation

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Change in Crop/ cropping system	Agronomic measures	Remarks on Implementation
Delayed/ limited release of water in canals due to low rainfall	Rainfed upland	Summer vegetables - Wheat/Potato/Rabi vegetables	-Select short duration HYVs -Inclusion of legume crops such as lentil, pea, rajmah etc. in the existing cropping sequence. -Select suitable varieties of wheat such as Sonalika, UP262, WH291 etc - Select suitable varieties of potato	-Use of higher seed rate in wheat. -Application of sufficient quantity of well rotten FYM or compost. -Placement of fertilizers -Use of mulch material in potato and rabi vegetables - Life saving irrigation at critical stages of crop growth.	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds
		Wheat/Potato/Rabi vegetables			
	Rainfed medium land	Rice (Boro)- Rice (Sali)	No change	- Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Life saving irrigation at critical stages of crop growth. -Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if moisture scarce situation prevails due to limited supply of water -Top dressing of urea may be delayed upto heading stage of rice if moisture	- water harvesting structures under NREGA have been made for life saving irrigation -- KVK & RARS are producing foundation & certified seeds
		Rice (Early ahu)- Rice (Sali)	No change		

				<p>scarce situation prevails due to limited supply of water.</p> <ul style="list-style-type: none"> -Adoption of green manuring practice. -Adoption recommended water management practice in rice. 	
		Rice (Sali)- Wheat/Potato/Rabi vegetables	<p>-No change</p> <ul style="list-style-type: none"> --Select short duration HYVs -Inclusion of legume crops such as lentil, pea, rajmah etc. in the existing cropping sequence. -Select suitable varieties of wheat such as Sonalika, UP262, WH291 etc - Select suitable varieties of potato 	<ul style="list-style-type: none"> -For rice, it is same as above. -Use of higher seed rate in wheat. -Application of sufficient quantity of well rotten FYM or compost. -Placement of fertilizers -Use of mulch material in potato and rabi vegetables - Life saving irrigation at critical stages of crop growth. 	<ul style="list-style-type: none"> - water harvesting structures under NREGA have been made for life saving irrigation
	Rainfed low land	Rice (kharif) – rice (rabi/summer)	- No change	<ul style="list-style-type: none"> - Prepare dry, well bunded, flat seedbed with adequate FYM(30 kg), 80g urea, 80g SSP and 80g MOP per bed of 10mx1.25m -Seed treatment with 4% MOP (600ml/kg of seed) for 24 hrs, dry it in shade for 24 hrs and sowing -Supplemental irrigation in the nursery bed of rice. -Life saving irrigation at critical stages of crop growth. -Top dressing of additional quantities of MOP @ 37.5 kg/bigha and incorporation is recommended in rice -Spraying of 2% KCL solution on leaves of rice if moisture scarce situation prevails due to limited supply of water -Top dressing of urea may be delayed upto heading stage of rice if moisture scarce situation prevails due to limited supply of water. -Adoption of green manuring practice. 	<ul style="list-style-type: none"> - water harvesting structures under NREGA have been made for life saving irrigation - arrangement of pumpset & sprayer are made under NFSM & RKVY

				-Adoption recommended water management practice in rice.	
	Flood prone	Same as above	Same as above		
		Rice (Early ahu)- Wheat/Potato/Rabi vegetables	Same as above	Same as above	- water harvesting structures under NREGA have been made for life saving irrigation - arrangement of pumpset & sprayer are made under NFSM & RKVY

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Change in Crop/ cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	NOT APPLICABLE				
Lack of inflows into tanks due to insufficient/ delayed onset of monsoon	NOT APPLICABLE				

Condition	Major Farming situation	Suggested Contingency measures			
		Crop/ cropping system	Change in Crop/ cropping system	Agronomic measures	Remarks on Implementation

Insufficient groundwater recharge due to low rainfall	NOT APPLICABLE
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2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measures			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Maize	-Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m -Light hoeing and weeding	Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m	Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m	Proper drying of grains to maintain optimum moisture percentage for storage
Black gram/ Sesame	-Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m -Light hoeing and weeding	Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m	Excess rain water to be drained out through surface drainage channel of 25cm wide, 15cm deep spaced at 6 m	Proper drying of grains to maintain optimum moisture percentage for storage
Rice	-Sow rice seed in raised nursery bed with 30cm gap between two beds. -Light hoeing and weeding	Excess rain water to be drained out through surface drainage channel to avoid submergence	Excess rain water to be drained out through surface drainage channel to avoid submergence	Proper drying of grains to maintain optimum moisture percentage (12-14%) for storage
Vegetables	-Adoption of proper measures to drain out excess water -Light hoeing and weeding	Adoption of proper measures to drain out excess water	Adoption of proper measures to drain out excess water	-Drying of the produce

2.3 Floods

Condition	Suggested contingency measures			
	Seedling/ Nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water				

logging/ partial inundation				
Paddy	<p>–Make provision for drainage channel in between two beds. If not possible go for re -sowing if time permits</p> <p>*Note–In areas where flood occurs regularly, start cultivation of rice from last part of August onward depending on flood situation.</p> <p>– Selection of suitable varieties Timely sown HYVs should be avoided.</p> <p>–Photo insensitive short duration varieties with young seedlings.</p> <p>–Photosensitive long duration varieties with old seedlings.</p> <p>–Direct seeding of short duration varieties.</p>	<p>–Drainage of excess water. Apply 25% N as top dressing during the tillering stage.</p> <p>–In partially damaged field. Gap filling may be done by redistributing the tillers.</p> <p>–Management of pests & diseases</p> <p>– If crop is fully damaged Transplanting of medium duration HYVs like ‘Satyaranjan’ and ‘Basundhara’ can be transplanted up to last part of August.</p> <p>–In chronically flood affected areas where flood water is expected to recede by the last part of August, short duration varieties like Luit, Kapilee, Kalong, Disang etc. can be transplanted up to first week of September.</p> <p>–In absence of these varieties, traditional photoperiod sensitive course grain Sali varieties can be transplanted with old seedlings up to 1st week of September.</p> <p>–In areas where crop is damaged before mid September or where there is no time for seedling raising, sprouted seeds of extra early varieties such as Luit, Kapilee, Kalong, Disang etc. or any traditional photoperiod sensitive course grain varieties can be broadcast in puddle soil.</p>	<p>–Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops.</p> <p>–Utilization of residual soil moisture and use of recharged soil profile for growing pulses</p> <p>–Growing of vegetables after receding flood water to compensate the loss during kharif.</p> <p>–In areas where crop is damaged before mid September or where there is no time for seedling raising, sprouted seeds of extra early varieties such as Luit, Kapilee, Kalong, Disang etc. or any traditional photoperiod sensitive course grain varieties can be broadcast in puddle soil.</p>	<p>–Drainage of excess water. If flood comes during reproductive stage, emphasis should be given on forthcoming rabi vegetables and field crops.</p> <p>–Supply of seeds and other agro-inputs of <i>rabi</i> crops at subsidized rate, provision of bank loan etc.</p> <p>–Utilization of residual soil moisture and use of recharged soil profile for growing pulses.</p> <p>–In areas where irrigation facilities available farmers can opt for summer paddy with HYV.</p>

Maize	Ensure drainage facility, sowing should be done in ridges. If crop is damaged then re-sow.	Drain out the excess water, Make ridge & furrows.	Ensure drainage, Make ridge & furrows.	Harvest the cobs as soon as possible.
Pulses and Oilseeds	Make provision for drainage, re-sow the seeds if time permits	Ensure drainage facility.	Drain out the excess water.	–Harvest the crop as soon as possible. – If the crop is fully damaged go for upland crops during rabi season.
Horticulture	NA			
Sea water inundation	NA			

2.3 Extreme events: Heat wave/ Cold wave/ Frost/ Hailstorm/ Cyclone:

Extreme event type	Suggested contingency measures			
	Seedling/Nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave	NA			
Cold wave	NA			
Frost	NA			
Hailstorm	NA			
Cyclone	NA			

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Feed and fodder availability	<ul style="list-style-type: none"> -Encourage fodder cultivation during rainy season. On boundaries of agricultural field, fodder trees or shrubs like Sesbania, Subabul, etc. should be planted. Encourage cultivation of fodder grass like napier, Oat, Gunie & Dinanath and excess fodder may be stored as hay/silage. -Establishment of fodder bank by excess production of improved variety of fodder grass in nearby forest areas. -Improvement of mineral content of paddy straw by treatment with Urea & Molasses. -encourage cultivation of Azolla in artificial pond as well as in paddy field. -Training & awareness camp among extension personnel for needful at time of exigencies. -Insurance of Livestock. 	<ul style="list-style-type: none"> -Utilizing fodder from perennial trees and fodder bank reserves. -Transporting excess fodder from adjoining districts. -Use of unconventional livestock feed such as paddy straw, rice bran, banana plant, crop residues, edible weeds and other tree leaves etc. -Using Urea -Molasses treated straw , urea-molasses mineral block etc to feed the livestock. -Provision for health care. 	<ul style="list-style-type: none"> -Avail insurance facility Supplementary feeding of remaining livestock and the replacement stock -Provision for health care.
Drinking water	<ul style="list-style-type: none"> Preserve water in community tanks, ponds etc. with sanitization, Wells or dug wells may be constructed in advance, Training & awareness camp among extension personnel 	<ul style="list-style-type: none"> -Animals not to be exposed to outside rather they should be commonly fed. -Provide drinking water from the sources created before the occurrence of the event. -Provision for health care. 	<ul style="list-style-type: none"> Plan accordingly for next year.
Health and diseases management	<ul style="list-style-type: none"> Veterinary preparedness with vaccines & medicines. -Training & awareness camp among extension personnel including NGOs, SHGs and Gopal Mitras. 	<ul style="list-style-type: none"> -Organise animal health camps and treating the affected animals. -Supplementation of mineral and vitamin mixtures. 	<ul style="list-style-type: none"> -Culling of unproductive livestock, -Proper disposal of dead animals
Floods			

Feed and fodder availability	<ul style="list-style-type: none"> -Encourage fodder cultivation during rainy season. On boundaries of agricultural field, fodder trees or shrubs like Sesbania, Subabul, etc. should be planted, Excess fodder may be stored as hay/silage, Establish fodder bank near forest areas, Training & awareness camp among extension personnel for needful at time of exigencies. -Insurance of Livestock. 	<ul style="list-style-type: none"> -Utilizing fodder from perennial trees and fodder bank reserves. -Transporting excess fodder from adjoining flood free areas. -Use of unconventional livestock feed such as paddy straw, rice bran, banana plant, crop residues, and other tree leaves etc. -Improve quality of poor roughages by ammonia treatment, urea treatment, urea molasses mineral block etc and feeding them. -Provision for health care. 	Provision of supplementary feeding (concentrate / Roughage) with vitamin & minerals.
Drinking water	<ul style="list-style-type: none"> -Preserve safe drinking water in community tanks. -Provision for chlorine tablets for sanitization of water and bleaching powder for disinfection of habitats & shelter places -Training & awareness camp among extension personnel 	Provide clean and safe drinking water to the animals.	Provision of clean drinking water.
Health and diseases management	<ul style="list-style-type: none"> -Construction of shelter places in elevated points -Vaccination of livestock -Keep the emergency service kit (first Aid Requisites) ready always containing Cotton wool, Bandages, Surgical gauze, old cotton sheets, Rubber tubing (for tourniquet), Surgical scissors – Curved and made of stainless steel, Forceps, Splints or Split bamboos (for fractures), Clinical thermometers, Potassium permanganate, Acriflvin, Dettol, Savlon, Tannic acid powder (for poisons) and Jelly (for burns) Antibiotic eye drops, Epsom salts, copper sulphate, Treacle, oil of turpentine (for bloat), Obstetric ropes, chains and hooks, Tincture of iodine, tincture of Benzoin Co.(for wounds), Cotton rope, halters (for restraint) & the like. 	<ul style="list-style-type: none"> -Engage one veterinarian for 3 to 4 villages to work with the help of local volunteers. -The team should be well equipped with contingent items like bandages, tourniquet ropes, drugs including painkillers, antiseptics, antibiotics, anti-venom and anti-shock drugs etc. -Keep the animals loose in paddock (sheltered or unsheltered) -Release animals from the unnatural and harmful position or situation, binding broken limbs, administering painkillers, anti-poison and anti-shock drugs. 	<ul style="list-style-type: none"> -Prompt and appropriate attention to injuries by providing necessary medicines to the livestock owners. -Vaccination campaign against common endemic diseases of the areas (like H.S. B.Q, Anthrax etc.) must be taken up urgently. – Necessary steps should be taken for the control of non-specific digestive and respiratory infections in consultation of local veterinary personals. -Improving shed hygiene especially in the farmers household through cleaning and disinfection
Cyclone	NA		
Heat wave and cold wave	NA		

2.5.2 Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	<ul style="list-style-type: none"> -Procurement of feed ingredients well ahead of time -Establish feed serve bank -Insurance of Poultry farms -Production of feed ingredients locally 	<ul style="list-style-type: none"> -Feed utilization from feed bank -Provision for supplementation of feed -Mixing feed as per norms with locally available ingredients. 	<ul style="list-style-type: none"> -Avail insurance as per the norms -Make feed ingredient or compound feed available to the farmers
Drinking water	<ul style="list-style-type: none"> -Identify water source for ensuring sufficient potable water during draught -Preserve safe drinking water in community tank. 	Provide sanitized drinking water	Plan accordingly for the next year
Health and diseases management	<ul style="list-style-type: none"> -Procurement of vaccines and medicines and antistress agent. -Feeding antibiotics -Procurement of low cost litter materials 	<ul style="list-style-type: none"> -Administration of vaccines timely -Continue feeding of antistress agent 	Culling of affected birds
Floods			
Shortage of feed ingredients	Ensure procurement of feed ingredients / compound feed well ahead	Supply the compound feed to the poultry farm under submerged area	Supply will continued till the situation is under control
Drinking water	<ul style="list-style-type: none"> -Preserve safe drinking water in community tanks. -Provision for chlorine tablets for sanitization of water and bleaching powder for disinfection of habitats & shelter places 	Provide sanitized drinking water along with preventive dose of water soluble antibacterial agent	Sanitization of water sources with bleaching powder or any water sanitizer
Health and diseases management	<ul style="list-style-type: none"> -Procurement of vaccines and medicines. -Feeding antibiotics -Procurement of litter materials 	<ul style="list-style-type: none"> -Continue feeding antibiotics -Replace wet litter -Proper disposal of dead birds if any 	<ul style="list-style-type: none"> -Disinfection of the farm premises. -Feeding antibiotics and deworming agent Replace wet litter -Disinfection of sheds. Proper disposal of dead birds if any
Cyclone	NA		
Heat wave and cold wave	NA		

2.5.3 Fisheries

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought (Aquaculture)			
Shallow water in ponds due to insufficient rains/inflow	<ul style="list-style-type: none"> –Restricted release of water from reservoir. –Supplementary water harvest structures like pond and tanks have to be developed. –Renovation and maintenance of existing water harvesting structures 	<ul style="list-style-type: none"> –Restrict lifting of water for irrigation purpose of crops –Catch the stock, marketing of the produce to reduce the density of population in ponds. 	<ul style="list-style-type: none"> –Excavate the ponds to increase the depth. –Try to release water into the pond if it rains in off-season
Impact of heat & salt load build up in ponds / change in water quality	Prepare to release water into the habitat	Mixing of water from the water harvest structure like ponds and tanks into the fish habitat.	Monitoring the water quality and health of aquatic organisms
Floods			
Inundation with flood waters	<ul style="list-style-type: none"> –Construction of human shelter. –Storage of sand filled bags for emergency use. –Repair and maintenance of bunds. –Preparedness for relief –Insurance coverage provision for life and property 	<ul style="list-style-type: none"> –Timely broadcast and telecast and other types of announcement warning about the danger level with respect to water level. – Evacuation of people to flood shelter areas. – Relief operation. 	<ul style="list-style-type: none"> – Relief operation will continue. – Care of health of affected people – Settlement of insurance. – Financial support to other people.
Water contamination & change in water quality	Take appropriate measures to check seepage into pond e.g. Raising bunds to prevent entry of water	Check the water quality & take appropriate action	<ul style="list-style-type: none"> – Application of lime and geolite. – Application of Alum. – Application of $KMnO_4$
Health and diseases management	Stock preventive medicines and vaccines	<ul style="list-style-type: none"> –Prevent influx of diseased fish from outside source, Check through nets –Administer medicines through random catch Disinfect water by lime , $KMnO_4$ 	<ul style="list-style-type: none"> – Application of lime and $KMnO_4$ –Assessment of the health status of fish and accordingly control measure should be taken. –Control on transport of brooders and seeds.
Cyclone	NA		
Heat wave and cold wave	NA		