Contingency Plan of Ganjam District

Odisha

2017-18

State: ODISHA

Agricultural Contingency Plan: GANJAM District

1.0 District contingency Profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Eastern Ghats Hot Moist Sub Humid Eco Sub region (12.2)		
	Agro-Climatic region (Planning Commission)	East coast plains and hill region(XI)		
	Agro climatic Zone (NARP)	East and South East Coastal Plain zone (OR-4)		
	List all the Districts falling under the NARP zone	Kandhamal, Rayagada, Gajapati and parts of Ganjam and small patches of Koraput		
	Geographical coordinates of district	**Latitude**	**Longitude**	**Altitude**
		$19^0 4'$ to $20^0 17'$	$84^0 7'$ to $85^0 12'$	-
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	Central Pulse Research Station, Ratanpur, Berhampur, Ganjam Regional Research and Technology Transfer Station, G. Udayagiri, Kandhamal		
	Mention the KVK located in the district	Krishi Vigyan Kendra, Ganjam-II & I, Berhampur & Bhanjanagar		
1.2	**Rainfall**	**Avg. rainfall (mm)**	**Normal Onset (specify week and month)**	**Normal Cessation (Specify week and month)**
	SW monsoon (June-Sep)	763.6	June 2nd week = 763.6	September 4th week
	NE Monsoon (Oct-Dec)	83 .7	October 3rd week=835.7	December 1st week
	Winter (Jan-Mar)	8.0	Jan 2nd week=8.0	March 1st week
	Summer (Apr-May)	90.5	April 3rd week= 90.5	May 2nd week

1.3	**Land use pattern of the district (Latest Statistics)**	**Geographic 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)	821	315	21	20	11	22	20	17	6

Source: Odisha Agriculture Statistics 20213-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

1.4	Major Soils	Area ('000ha)	Percent (%) of total
	1. Coastal Alluvial command and	71.0	21
	2. Rain fed Laterite	-	-
	3. Red soil	232.00	71
	4. Coastal Alluvial Saline	26.0	8

Source: Annual Report KVK, Ganjam, 2014-15

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	389.00	181
	Area sown more than once	306.00	
	Net irrigated area	163.34	
	Gross cropped area	704.38	

Source: Odisha Agriculture Statistics 2013-14: Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

1.6	IRRIGATION	Area ('000ha)	Percent (%)	
	Net cultivated area	389.00		
	Net irrigated area	163.34		
	Gross irrigated area	214.18		
	Rain-fed area	164.00		
	Sources of Irrigation	**Number**	**Area('000ha)**	**% Area**
	Canals	252	256.82	69.63
	Tanks	981	93.481	0.59
	Open wells	15002	7.805	0.04
	Bore wells	16249	8.458	1.42
	Lift irrigation	1283	19.416	11.88
	Other sources	5357	14.289	16.41
	Total	**39124**	**400.269**	**99.97**
	Pump sets			
	Micro-irrigation			
	Groundwater availability and use	**No. of Blocks**	**% area**	**Quality of water**
	Over expired			

	Critical			
	Semi-critical			
	Safe			
	Waste water availability and use			

Source: Odisha Agriculture Statistics 2013-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

1.7 AREA UNDER MAJOR FIELD CROPS AND HORTICULTURE (*as per latest figures of 2013-14***)**

Sl. No	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	Rain-fed	Total	Irrigated	Rain-fed	Total	Summer	Grand total
1.	Rice	196.97	78.8	275.77	0.11	-	-	-	275.88
2.	Groundnut	-	8.28	8.28	14.53	-	14.53		22.81
3.	Sesamum	2.09	-	18.71	0.13	9.77	10.90	-	29.61
4.	Greengram	2.23	1.63	3.86	0.13	118.08	118.21	-	122.07
5.	Blackgram	2.22	17.51	19.73	0.11	28.86	28.97	-	48.70
6.	Ragi	15.58	26.27	41.85	1.90	-	1.90	-	43.75
7.	Arhar	-	13.54	13.54	-	-	-	-	13.54
8.	Kulthi	-	-	-	-	10.52	10.52	-	10.52
9.	Maize	3.73	5.14	8.87	0.41	-	0.41	-	9.28
10.	Cowpea	-	4.77	4.77	-	0.66	0.66		5.43
11.	Sun hemp	-	-	2.47	-	-	-	-	2.47
12.	Field pea	-	-	-	-	1.95	1.95	-	1.95
13.	Mustard	-	-	-	-	0.94	0.94	-	0.94
14.	Small millet	-	1.61	1.61	-	-	-	-	1.61
15.	Jowar	-	0.24	0.24	-	-	-	-	0.24
16.	Bajara	-	0.10	0.10	-	-	-	-	0.10

Source: Odisha Agriculture Statistics 2013-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

	Horticultural crops – fruits	Total Area ('000 ha)	Irrigated ('000 ha)	Rain-fed ('000 ha)
1	Mango	10.56		
2	Guava	0.15		

3	Cashew	9.56		
4	Papaya	0.03		
5	Pineapple	0.02		
6	Banana	0.79		
7	Citrus	2.52		
	Horticultural crops – Vegetables	**Total Area**	**Irrigated**	**Rainfed**
1	Potato	0.15	-	0.15
2	Onion	0.76	-	0.76
3	Sweet potato	8.68	-	8.68
4	Other vegetables	37.23	-	37.23
5	Chilli	4.31	-	4.31
	Medicinal and Aromatic crops	**Total Area**	**Irrigated**	**Rainfed**
1	Safed Musli, Patala			
2	Garuds, Neem			
3	Karanj, Brahmi etc.			
5				
	Plantation crops	**Total Area**	**Irrigated**	**Rainfed**
1	Coconut	5.16		
2				
	Fodder crops	**Total Area**	**Irrigated**	**Rainfed**
1	Hybrid Napier			
2				
3				
4				
5				
	Total Fodder Crop area			
	Grazing Land	18.295		

Source: Odisha Agriculture Statistics 2013-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

1.8	Livestock	Number
	Cattle	589570
	Buffaloes total	64428
	Commercial dairy farms	-
	Goat	227049
	Sheep	156350
	Others (pig)	5725
1.9	**Poultry**	**793145**
	Layer	555500
	Broiler	237645

Source: 19th Livestock Census 2012

1.10	Inland Fisheries	Area ('000 ha)	Yield (t/ha)	Production ('000 tonnes)
	Brackish water	4.142	0.4493	2.37
	Fresh water	16.133	3.1	40.15
	Others (marine)	60 km coast line		6.778

Source: Annual Report-2015-16; DFO-cum-CEO, FFDA, Ganjam, Berhampur

1.11	production and productivity of major crops	Kharif		Rabi		Summer		Total	
		Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)	Production ('000t)	Productivity (kg/ha)
Crop 1	Paddy	708.0	2567	0.4	2374			708.26	2567
Crop 2	Maize	27.66	2282	3.64	3914			12.60	1357
Crop 3	Greengram	1.63	455	81.19	521			82.8	520
Crop 4	Blackgram	7.63	466	15.35	468			22.98	467
Crop 5	Sugarcane							226.04	76625
Others	Groundnut	14.25	1250	36.02	1928			50.27	1671
Others	Ragi	40.28	895	2.44	1003			42.72	901

Source: Odisha Agriculture Statistics 2013-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

	Horticultural crops	Kharif		Rabi		Summer		Total	
Crop 1	Brinjal	110.12	17589	19.04	2911			129.16	25750
Crop 2	Tomato			63	18000			63	18000
Crop 3	Cauliflower			75	25000			75	25000
Crop 4	Cowpea			2.7	4500			2.7	4500
Others									

Source: Odisha Agriculture Statistics 2013-14, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar

1.12	**Sowing window for 5 major crops (start and end of sowing period)**	Crop 1: Paddy	2:Groundnut	3:Blackgram	4:Greengram	5: Sugarcane
	Kharif – Rainfed	June-July	June-July	June-July	June-July	
	Kharif – irrigated	July –Aug	June-July	June-July	June-July	
	Rabi – Rainfed			Sept-Oct	Sept-Oct	
	Rabi- irrigated	Dec-Jan	Jan-Feb	Jan-Feb	Jan-Feb	Jan-Feb

1.13	**What is the major contingency the district is prone to? (Tick mark)**	**Regular**			**Sporadic specify month of occurrence in brackets**			**None**
		Severe	**Moderate**	**Mild**	**Severe**	**Moderate**	**Mild**	
	Drought			**√**				
	Flood		**√**			**Sept to Nov**		
	Cyclone			**√**		**Sept to Nov**		
	Hall storm							
	Heat wave		**√**					
	Cold wave							
	Frost							
	Sea water inundation		**√**					
	Pest and disease (specify) Rice blast		**√**		**Aug - Sept**			

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**

2.0 Strategise for weather Related contingencies

2.1 Drought

2.11 Rainfed situation

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 implementations**
Delay by 2 weeks **(REFER TO THE MATRIX TABLE)** **July 1ST WEEK**	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Paddy Greengram Groundnut Sesamum Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina-11. Drought tolerant variety – Sahbhagidhan TARM-1, Sujata, Durga, DM-11, PDM-54 Var. Devi, Smruti, TAG-24 Uma, Nirmala and Prachi Radish (Pusa chetki, Japanese white), okra (Utkal gourav), Brinjal (Utkal tarini Utkal Anushree), Cowpea (Utkal manika), Chilli (Utkal ava, Pusa Jwala)	1. Closer spacing with high seed rate. 2. Hoeing, weeding 20 DAS. 3. Summer ploughing. 4. Organic mulching in vegetable. 5. Ridge & furrow in groundnut. 6. Inter-culture & thinning to maintain plant population.	1. Supply of seeds through ATMA, OSSC, NFSM and NSC.

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 implementations**
	2. Rainfed red and lateritic sandy loam to clay loam soil	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala & Sarala Urmi Radish (Pusa chetki, Japanese white), okra (Utkal gourav), Brinjal (Utkal tarini), Cowpea (Utkal manika), Chilli (Utkal ava, Pusa Jwala)	1. Complete hoeing, weeding followed by ridging to the base of the crop at 20 DAS for in-situ moisture conservation in vegetable and groundnut crop. 2. Conservation of furrow. 3. In-situ rain water conservation. 4. Organic mulching in vegetable.	1. Supply of seeds through ATMA, OSSC, NFSM and NSC.

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 implementations**
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala & Sarala Urmi Radish (Pusa chetki, Japanese white), okra (Utkal gourav), Brinjal (Utkal tarini), Cowpea (Utkal manika), Chilli (Utkal ava, Pusa Jwala)	1. Ridge and furrow method in groundnut. 2. Conservation of furrow. 3. In-situ rain water conservation. 4. Closer row and plant spacing.	1. Supply of seeds through ATMA, OSSC, NFSM and NSC.
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala & Sarala Radish (Pusa chetki, Japanese white), okra (Utkal gourav), Brinjal (Utkal tarini), Cowpea (Utkal manika), Chilli (Utkal ava, Pusa Jwala)	1. Top dressing of 25% N after receiving of the rain. 2. Remove the pest and disease infected plant from main field. 3. spray 2% KCl_2 + B 0.1% to Blackgram	1. Supply of seeds through ATMA, OSSC, NFSM and NSC.

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 implementations**
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 PU-19, PU-30, Ujala & Sarala Radish (Pusa chetki, Japanese white), okra (Utkal gourav), Brinjal (Utkal tarini), Cowpea (Utkal manika), Chilli (Utkal ava, Pusa Jwala)	1. Top dressing of 25% N after receiving of the rain. 2. Remove the pest and disease infected plant from main field. 3. Spray 2% KCl_2 + B 0.1% to Blackgram. 4. Organic matter addition and in-situ rain water conservation.	1. Supply of seeds through ATMA, OSSC, NFSM and NSC.
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land variety *Ranidhan, Mahsuri, Pratikshya)* Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 Devi, Smruti, TAG-24	1.Raise community nursery near water source. 2. In-situ rain water conservation. 3. Weed control in pulses and oilseed to check transpiration loss. 4. Ridging in groundnut to conserve moisture in furrow. 5. Close the drainage hole and check the seepage loss. 6. Strengthen of field bund height in paddy.	Supply of seeds through ATMA, OSSC, ISOPOM, NFSM and NSC
	2. Rainfed red and lateritic sandy	paddy	Medium duration paddy (125 days) Variety – Lalat	1. Raise community nursery near water source.	

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 implementations**
	loam to clay loam soil.		*Surendra, Swarna sub-1, Manaswini.* (Medium low land variety *Ranidhan, Mahsuri, Pratikshya)*	2. In-situ rain water conservation. 3. Planting 25 days old seedling of rice. 4. Close the drainage hole and check the seepage loss. 5. Strengthen of field bund height in paddy.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land variety *Ranidhan, Mahsuri, Pratikshya)*	1. Raise community nursery near water source. 2. Close the drainage hole and check the seepage loss. 3. Strengthen of field bund height in paddy.	Supply of seeds through ATMA, OSSC, ISOPOM, NFSM and NSC
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Raise community nursery near water source. 2. In-situ rain water conservation. 3. Apply full P, K & 20% N of recommended dose along with the well decomposed organic matter. 4. Close the drainage hole and check the seepage loss. 5. Strengthen of field bund height in paddy.	Supply of seeds through ATMA, OSSC, ISOPOM, NFSM and NSC ATMA

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 implementations**
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Raise community nursery near water source. 2. Apply full P, K & 20% N of recommended dose along with the well decomposed organic matter	Supply of seeds through ATMA, OSSC, ISOPOM, NFSM and NSC

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 implementations**
lay by 4 weeks (Specify month) **July 3rd week**	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Groundnut Greengram Sesamum Kharif vegetables Chilli Brinjal Cow pea Okra Radish	1. Varietal substitutions of drought tolerant varieties of the sole crops i.e. sahbhagidhan Smruti,Devi, TAG-2 Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 Uma, Prachi *Utkal ava, Pusa Jwala* Utkal tarini,Utkal anushree Utkal Manika Utkal Gourav Pusa chetki, Japanese white 2. Intercropping of arhar + groundnut (2 : 5) Arhar (var. UPAS 120) Groundnut(Smruti, Devi) 2.Arhar + Sesamum (2:4). Sesamum (var. Prachi) Maize + Cow pea (2:2) Maize (var. Navjot)	1. Provide irrigation to the nursery beds. 2. Organic mulching should be applied in inter row spacing to avoid weed growth and moisture loss. 3. Complete hoeing weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetables and groundnut.	1. Intercultural implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).

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 implementations**
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala & Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Mulching, hoeing & interculuture in vegetable crops. 2. Complete hoeing, weeding followed by ridging to the base of the crop at 20 DAS for in-situ moisture conservation in vegetable and groundnut crop. 3. Apply life saving irrigation to maintain nursery seedling.	1. Intercultural farm implements under RKVY. 3. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala & Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*	1. Ridge and furrow system of planting geometry in groundnut. 2. In-situ rain water conservation. 3. Full P & K and 20% N at basal along with FYM at seed row.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation.

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 implementations**
			,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*U.ava, Puisa jwala)*		
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala & Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* , Brinjal (*Utkal tarini),* Chilli (*Utkal ava, Pusa Jwala)*	1. Organic matter addition. 2. In-situ rain water conservation	1. Intercultural farm implements under RKVY. 2.Seeds through NFSM, ISOPOM, NHM and state seed corporation
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Kamdev, TARM-1, Sujata, Durga, DM-11, PDM-54 PU-19, PU-30, Ujala & Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*U.ava)*	1. Organic matter addition. 2. In-situ rain water conservation	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).

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 implementations**
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (medium low land var.*Ranidhan, Mahsuri, Pratikshya*) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Provide irrigation to nursery bed. 2. Strengthening of field bond height to store rain water and conserve moisture. 3. Hoeing, weeding and intercultural operations in Groundnut and Greengram. 4. Spray 2% KCl and 0.1% B in Blackgram.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Blackgram	Medium duration paddy (125 days) Variety – Lalat, *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var: *Ranidhan,Mahsuri,Pratikshya*) Dhauli, Kamdev, Durga Sarala, Prasad, Ujala	1. Provide irrigation to nursery bed. 2. Raise community nursery at reliable water source to save the further delay of transplanter rice. 3. Hoeing, weeding and intercultural operations in Greengram and Blackgram	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (for medium low land	1. Provide irrigation to nursery bed. 2. Raise community nursery at reliable water source to save the further delay of	

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 implementations**
			var.*Mahsuri, pratikshya, Ranidhan*)	transplanter rice. 3. Transplant 3 to 4 seedlings/ hill with closer spacing. 4. Close the drainage hole and check the seepage loss. 5. Strengthen of field bund height in paddy.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Strengthening of field bond height. 2. Raise community nursery. 3. Transplant 3 to 4 seedlings/ hill with closer spacing. 4. Provide life saving irrigation at critical stage. 5. Close the drainage hole and check the seepage loss.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	5. Coastal Saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Basal organic matter addition. 2. Raise community nursery. 3. Addition of recommended dose of FYM during land preparation and growing dhanicha as pre-kharif crop before rice.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).

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 implementations**
				4. Provide life saving irrigation at critical stage 5. Close the drainage hole and check the seepage loss. 6. Strengthen of field bund height in paddy.	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation [a]**	**Normal Crop/cropping system [b]**	**Change in crop/cropping system [c]**	**Agronomic measures [d]**	**Remarks on Implementation [e]**
Delay by 6 weeks (Specify month) **August 1st week**	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Paddy Greengram Groundnut Blackgram Sesamum Vegetables	Suitable drought tolerant short duration variety of the non-paddy crops may be grown. Kamdev, Sujata, PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 Ujala, PU-30, PU-19, Sarala, Uma, Nirmala and Prachi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava,*	1. Complete hoeing and weeding of non-paddy crop for moisture conservation. 2. Post emergence Spray of quizolfop @ 0.05kg ai/ha in 500 lts of water to control weeds in groundnut. 3. Remove the pest and disease infected plants from the field. 4. Spray .5% urea in vegetable. 5. Spray 2 % KCl and 0.1% B in Blackgram. 6. Spray 2 % urea in pre flowering stage of greengram.	

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]**
			Pusa Jwala) yam		
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable drought tolerant short duration variety of the non-paddy crops may be grown. Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 Pant U-19 &30,Ujala,Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*,Brinjal(*Utkal tarini),* Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala),yam*	1. Complete hoeing and weeding of non-paddy crop for moisture conservation. 2. Post emergence Spray of quizolfop @ 0.05kg ai/ha in 500lts of water to control weeds in groundnut. 3. Remove the pest and disease infected plants from the field. 4. Spray .5 % urea in vegetable. 5. Spray 2% KCl and 0.1% B in Blackgram. 6. Spray 2% urea in pre flowering stage of Greengram	Tractor power tiller and rotavator under RKVY.

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]**
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable drought tolerant short duration variety of the non-paddy crops may be grown. Var. Devi, Smruti, TAG-24 PU-19, PU-30,Ujala,Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala),elephantfoot yam*	1. Complete hoeing and weeding of non-paddy crop for moisture conservation. 2. Post emergence Spray of quizolfop @ 0.05kg ai/ha in 500lts of water to control weeds in groundnut. 3. Remove the pest and disease infected plants from the field. 4. Spray .5 % urea in vegetable.	
	4. Coastal saline alluvium with sandy loam to clayey soil	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwal,yambean*	1. Complete hoeing and weeding. 2. Grow some short duration vegetables. 3. Spray .5% Urea in vegetable crop. 4. Remove pest and disease infected plants from the main field.	

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]**
	5. Coastal saline alluvium mixed black, red and black soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	1. Remove the pest and disease infected plant from main field. 2. spray 2% KCl_2 + B 0.2% to Blackgram 3. Addition of organic matter and paper mill sludge as per soil test report during land preparation.	
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Mahsuri, Ranidhan, pratikshya*) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Close the drainage hole and check the seepage loss in medium land rice regularly. 2. Spraying of tricyclazole against blast in rice. 3. Withhold N fertilizer (top dressing) application up to receipt of rainfall. 4. Transplanting 3 to 4 seedlings per hill with closer spacing. 5. Post emergence spray of quizolfop @ 0.05kg ai/ha in 500lt of water to control weeds in groundnut. 6. Follow need based plant protection measures against stem borer.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	2. Rainfed red and		Medium duration paddy (125	1. Close the drainage hole and check	1. Intercultural

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]**
	lateritic sandy loam to clay loam soil.	Paddy Greengram Blackgram	days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Mahsuri, pratikshya, Ranidhan*) Dhauli, Kamdev, Durga Sarala, Prasad, Ujala	the seepage loss in medium land rice regularly. 2. Spraying of tricyclazole against blast in rice. 3. Withhold N fertilizer (top dressing) application up to receipt of rainfall. 4. Transplanting 3 to 4 seedlings per hill with closer spacing. 5. Follow need based plant protection measures against stem borer. 6. Weeding intercultural in greengram & Blackgram for moisture conservation	farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	3. Rainfed lateritic loamy sand to sandy loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Mahsuri, pratikshya, Ranidhan*)	1. Withhold N fertilizer application up to receive of rainfall. 2. Transplanting of 3 to 4 seedlings/ hill at closer spacing. 3. Close the drainage hole and check the seepage loss. 4. Raising the bund height. 5. Use of conoweeder for weed control.	
	4. Coastal saline	Paddy	Luna suvarna, Lunisree	1. Close the drainage hole and check	

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]**
	alluvium with sandy loam to clayey soil.			the seepage loss. 2. Strengthen of field bund height in paddy. 3. Transplanting of 3 to 4 seedlings/ hill at closer spacing.	
	5. Coastal Saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Close the drainage hole and check the seepage loss. 2. Strengthen of field bund height in paddy. 3. Transplanting of 3 to 4 seedlings/ hill at closer spacing.	

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 3rd week	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Paddy, Greengram Groundnut	Suitable drought tolerant short duration variety (shabhagi dhan) of the non-paddy crops may be grown. Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24	1. Provide life saving irrigation. 2. Remove the pest and disease infected plants from the field. 3. Spraying of tricyclazole against blast in rice.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).

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]**
		Sesamum Vegetables	Uma, Nirmala and Prachi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	4. Complete weeding and hoeing of non-paddy crop to provide dust mulch.	
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable drought tolerant short duration variety of the non-paddy crops may be grown. Kamdev,Sujata,PDM-11, PDM-54, Durga Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	1. Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetable and groundnut crop. 2. Apply lifesaving irrigation to maintain nursery seedling.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).

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]**
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Short duration drought tolerant variety of non-paddy crops may be grown. Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Complete hoeing and weeding of non-paddy crop for moisture conservation. 2. Post emergence Spray of quizolfop @ 0.05kg ai/ha in 500lts of water to control weeds in groundnut. 3. Remove the pest and disease infected plants from the field. 4. Spray .5% urea in vegetable.	

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]**
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala*	1. Complete hoeing and weeding of non-paddy crop to provide dust mulch. 2. Foliar application of 2% urea at flowering stage of Blackgram. 3. Provide lifesaving irrigation at	

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]**
				critical stage.	
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Kamdev, Sujata,PDM-11,PDM-54, Durga PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava,pusa jwala)*	1. Remove pest and disease infected plant. 2. Provide lifesaving irrigation at critical stage. 3. Organic mulching in vegetables.	
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Pratikshya, ranidhan, Mahasuri*) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. 2. Spraying of tricyclazole against blast in rice. 3. Withhold N fertilizer (top dressing) application up to receipt of rainfall. 4. Transplanting of 3 to 4 seedlings per hill at closer spacing. 5. Strengthen field bund to check seepage loss.	1. Intercultural farm implements under RKVY. 2. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
	2. Rainfed red and lateritic sandy		Medium duration paddy (125 days) Variety – Lalat	1. Close the drainage hole and check the seepage loss in direct	

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]**
	loam to clay loam soil.	Paddy Greengram Blackgram	*Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Pratikshya, ranidhan, Mahasuri*) Dhauli, Kamdev, Durga Sarala, Prasad, Ujala	sown medium land rice regularly. 2. Withhold N fertilizer application till receipt of rainfall. 3. Transplant of 3 to 4 seedlings per hill at closer spacing. Follow need based plant protection measures against steam borer and blast. 4. Use tractor, power tiller, rotavator for speedy land preparation. 5. Apply full P, K and 20 % N at the time of transplanting. 6. Apply lifesaving irrigation as and when necessary. 7. Spraying of tricyclazole against blast in rice.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.*Pratikshya, ranidhan, Mahasuri*)	1. Apply lifesaving irrigation. 2. Transplanting 3 to 4 seedlings per hill at closer spacing. 3. Withhold N fertilizer (Top dressing) till receiving of rainfall. 4. Close the drainage hole and check the seepage loss.	

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]**
				5. Strengthen of field bund height in paddy.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1.Close the drainage hole and check the seepage loss in direct sown medium land rice regularly 2. Apply lifesaving irrigation. 3. Transplanting 3 to 4 seedlings per hill at closer spacing. 4. Withhold N fertilizer (Top dressing) till receiving of rainfall.	
	5. Coastal Saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. 2. Transplanting 3 to 4 seedlings per hill at closer spacing. 3. Withhold N fertilizer (Top dressing) till receiving of rainfall.	

Normal onset (month and week)	**Month and week for specifying condition of early season drought due to delayed onset of monsoon**			
	Delay in onset of monsoon by			
	2nd week	**4th week**	**6th week**	**8th week**
June 1st week	June 3rd week	July 1st week	July 3rd week	Aug 1st week
June 2nd week	June 4th week	July 2nd week	July 4th week	Aug 2nd week

June 3rd week	July 1st week	July 3rd week	Aug 1st week	Aug 3rd week
June 4th week	July 2nd week	July 4th week	Aug 2nd week	Aug 4th week
July 1st week	July 3rd week	Aug 1st week	Aug 3rd week	Sep 1st week
July 2nd week	July 4th week	Aug 2nd week	Aug 4th week	Sep 2nd week

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Sole crop under rainfed unbunded upland. Paddy Greengram Groundnut Sesamum Vegetables	Varietal substitution suitable drought tolerant short duration variety of sole crop. Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina-11. Drought tolerant variety – Sahbhagidhan Kamdev, Sujata,PDM-11, PDM-54, Durga Var. Devi, Smruti, TAG-24 Uma, Nirmala and Prachi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava,*	1. Thinning and gap filling of the existing crop if mortality is less than 50%. 2. Resow the crop if the mortality is more than 50%. 3. Complete hoeing weeding and earthing up at 20 DAS for moisture conservation for groundnut and vegetable crops. 4. Organic mulching in vegetables for moisture conservation.	• Farm pond under NREGS, IWMP, and diesel pump sets and KB pumps in tank fed areas under RKVY and NFSM. • Small nursery development under NHM.

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
			Pusa Jwala)		
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),* Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Thinning and gap filling of the existing crop if mortality is less than 50%. 2. Reshown the crop if the mortality is more than 50%. 3. Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for groundnut and vegetable crops. 4. Organic mulching in vegetables for moisture conservation.	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*, Brinjal(*Utkal tarini)* ,Cowpea (*Utkal manik*a), Chilli (*Utkal ava),*	1. Thinning and gap filling of the existing crop if mortality is less than 50%. 2. Resow the crop if the mortality is more than 50%. 3. Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for groundnut and vegetable crops. 4. Organic mulching in vegetables for moisture conservation.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*, Brinjal(*Utkal tarini),* Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Application of paper mill sludge (PMS) @ 5 q/ha, potash and boron and FYM during final land preparation for obtaining higher yield. 2. Addition of organic matter. 3. In-situ rain water conservation.	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Sujata,PDM-11,PDM-54, Durga PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*, Brinjal(*Utkal tarini),* Cowpea (*Utkal manik*a), Chilli (*U.ava)*	1. Addition of organic matter 2. In-situ rain water conservation. 3. Crop residue mulching for moisture conservation in vegetables. 4. Lifesaving irrigation as and when necessary.	
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat, Surendra, Swarna sub-1, Tejaswani, Manaswini. (medium low land var.Pratikshya, Mahsuri, Ranidhan) *TARM-1, Sujata, Durga,* *PDM-11, PDM-54* Devi, Smruti, TAG-24	1. If rice population is less than 50% gap filling may be done. 2. In-situ rain water conservation. 3. Lifesaving irrigation as and when necessary. 4. Weeding and hoeing in Blackgram and Greengram 5. Close the drainage hole and check the seepage loss. 6. Strengthen of field bund height in paddy.	1. Supply of seed drills and intercultural implements through RKVY. 2. Good quality seeds through NFSM and OSSC.

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy	Medium duration paddy (125 days) Variety – *Lalat Surendra, Swarna sub-1, Tejaswani, Manaswini* (medium low land var.*Pratikshya, Mahsuri, Ranidhan*)	1. If rice population is more than 50 % carry out weeding and adjust the plant population by redistribution of hills (Khelua), 2. Plugging of drainage hole for checking seepage loss.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy	Medium duration paddy (125 days) Variety – *Lalat Surendra, Swarna sub-1, Tejaswani, Manaswini* (medium low land var. *Pratikshya, Mahsuri, Ranidhan*)	1. If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (Khelua). 2. Plugging of drainage hole for checking seepage loss and to provide lifesaving irrigation as and when necessary.	
	4. Coastal saline alluvium with sandy loam to	Paddy	Luna suvarna, Lunisree	1. If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	clayey soil.			of hills (Khelua). 2. Plugging of drainage hole for checking seepage loss and to provide lifesaving irrigation as and when necessary.	
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. If rice population is less than 50% gap filling may be done and if more than 50 % carryout weeding and adjust the plant population by redistribution of hills (Khelua). 2. Fresh seedlings may be transplanted. 3. Before transplanting addition recommended dose of organic matter and growing *dhaincha* as pre-kharif crop may be taken. 5. Close the drainage hole and check the seepage loss.	
Condition			**Suggested Contingency measures**		

Mid-season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation[a]	Normal Crop/cropping system[b]	Crop management[c]	Soil nutrient & moisture conservation measues[d]	Remarks on Implementation[e]
At vegetative stage	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Sole crop under rainfed unbunded upland. Paddy Greengram Groundnut Sesamum Vegetables	Varietal substitution suitable drought tolerant short duration variety Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Var. Devi, Smruti, TAG-24 Uma, Nirmala and Prachi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Inter-cultivation (Soil mulching). 2. Conservation furrow. 3. Organic mulching with previous crop residues in case of vegetable crops. 3. Follow ridge and furrow method of planting for groundnut and vegetable crops. 4. Weed control in pulses and oilseeds.	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Gap filling of using seedling of same age. 2. Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for groundnut and vegetable crops. 3. Provide lifesaving irrigation.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram	Varietal substitution suitable drought tolerant short duration variety *Sneha, pathara, heera* Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala	1. Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for groundnut and vegetable crops. 2. Provide lifesaving irrigation at critical stage.	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
		Horsegram Vegetables	Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav),*Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	3. Gap filling of using seedling of same age. 4. Organic mulching for moisture conservation	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Weed out the field. 2. Organic mulching for moisture conservation. 3. Hoeing, earthing up for weed control.	
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Sujata,PDM-11,PDM-54, Durga PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*,Brinjal(*Utkal tarini)* Cowpea (*Utkal manik*a), Chilli (*U.ava)*	1. Weed out the field. 2. Crop residue mulching in vegetable for moisture conservation. 3. Hoeing, earthing up for weed control.	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Strengthen the field bund height & check the seepage loss. 2. Hoeing, earthing up for weed control. 3. Withhold N application 4. Follow plant protection measures.	• Supply of seed drills and intercultural implements through RKVY. • Good quality seeds through NFSM and OSSC.
	2. Rainfed red and lateritic sandy loam to clay loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan)	1. Strengthen the field bund height & close the holes. 2. Hoeing, earthing up for weed control. 3. Withhold N application 4. Follow plant protection measures	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	3. Rainfed lateritic loamy sand to sandy loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan)	1. Strengthen the field bund height & check the seepage loss. 2. Hoeing, earthing up for weed control. 3. Withhold N application 4. Follow plant protection measures	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Strengthen the field bund height & check the seepage loss. 2. Hoeing, earthing up for weed control. 3. Withhold N application 4. Follow plant protection measures	
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Strengthen the field bund height & check the seepage loss. 2. Hoeing, earthing up for weed control. 3. Withhold N application 4. Follow plant protection measures	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	Sole crop under unbunded upland Paddy Ragi Greengram Groundnut Sesamum Vegetables	Varietal substitution suitable drought tolerant short duration paddy variety *sneha, pathara, heera.* Bhairabi, chilika, suvra *Sujata,PDM-11, PDM-54, Durga* *Var. Devi, Smruti, TAG-24* *Uma, Nirmala and Prachi* Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Spray 2% KCl + 0.1% boron to non-paddy crops to overcome drought. 2. Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful. 3. Provide irrigation at critical stages at flowering and grain filling stage. 4. Harvesting of rain water and recycling for irrigation.	
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut Blackgram	Varietal substitution suitable drought tolerant short duration paddy variety *sneha, pathara, heera* *Sujata,PDM-11,PDM-54, Durga* *Var. Devi, Smruti, TAG-24* PU-19, PU-30, Ujala, Sarala	1. Spray 2% KCl + 0.1% boron to non-paddy crops to overcome drought. 2. Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful. 3. Provide irrigation at critical stages at flowering and grain filling stage. 4. Harvesting of rain water and	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
		Horsegram Vegetables	*Urmi* Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini utkal anushree),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala,utkal rashmi)*	recycling for irrigation.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan *Var. Devi, Smruti, TAG-24* PU-19, PU-30, Ujala, Sarala *Urmi* Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala,Utkal rashmi)*	1. Spray 2% KCl + 0.1% boron to non-paddy crops to overcome drought. 2. Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful. 3. Provide irrigation at critical stages at flowering and grain filling stage. 4. Harvesting of rain water and recycling for irrigation.	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala,)*	1. Weed out the field. 2. Crop residue mulching in vegetable for moisture conservation. 3. Hoeing, weeding & earthing up in vegetables. 4. Provide irrigation at critical stage.	
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	*Sujata,PDM-11,PDM-54, Durga* PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Ut*	1. Weed out the field. 2. Crop residue mulching in vegetable for moisture conservation. 3. Hoeing, weeding & earthing up in vegetables. 4. Provide irrigation at critical stage.	

Condition			Suggested Contingency measures		
Mid-season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period. 2. Raising the field bund height & check the seepage loss and conserve rain water. 3. Lifesaving irrigation at critical stage. 4. Weed control in oilseed & pulses. 5.Follow plant protection measures	1. Supply of seed drills and intercultural implements through RKVY. 2. Good quality seeds through NFSM and OSSC.
	2. Rainfed red and lateritic sandy loam to clay loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan)	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period. 2. To control stem borer and Gandhi bug, spray trizofop @ 0.2%. 3. Provide lifesaving irrigation.	

Condition			Suggested Contingency measures		
Mid-season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	3. Rainfed lateritic loamy sand to sandy loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (Medium low land var.Pratikshya, Mahasuri, ranidhan)	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period. 2. Weed out the field 3. Follow plant protection measures 4. Provide protective irrigation through harvested rain water 5. Raising the field bund height & check the seepage loss and conserve rain water.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation and plugging of drainage holes. 2. Organic matter addition and green manuring of *dhaincha* before planting of rice. 3. Raising the field bund height & check the seepage loss and conserve rain water.	
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation and plugging of drainage holes. 2. Organic matter addition and green manuring of *dhaincha* before planting of rice. 3. Raising the field bund height &	

Condition			Suggested Contingency measures		
Mid-season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
				check the seepage loss and conserve rain water.	

Condition			Suggested contingency measures		
Mid-season drought (long dry spell)	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
At reproductive stage	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	**Sole crop under unbunded upland** Paddy, Greengram Groundnut Sesamum Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 Uma, Nirmala and Prachi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Use the water collected in WHS 2. Spray urea 2% to paddy 3. Providing mulching for soil moisture conservation in vegetables. 4. Lifesaving irrigation at critical stages and harvesting at physiological maturity stage.	
	2. Rainfed red and lateritic	Paddy	Suitable short duration variety: Khandagiri, Jogesh, Sidhant &	1. Use the water collected in	

Condition			Suggested contingency measures		
Mid-season drought (long dry spell)	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
	sandy loam to clay loam soil.	Greengram Groundnut Blackgram Horsegram Vegetables	Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	WHS 2. Spray urea 2% to paddy 3. Providing mulching for soil moisture conservation in vegetables. 4. Lifesaving irrigation at critical stages and harvesting at physiological maturity stage.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea	1. Use the water collected in WHS 2. Spray urea 2% to paddy 3. Providing mulching for soil moisture conservation in vegetables. 4. Lifesaving irrigation at critical stages and harvesting at	

Condition			Suggested contingency measures		
Mid-season drought (long dry spell)	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
			(*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	physiological maturity stage.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Use the water collected in WHS for irrigation. 2. Providing mulching for soil moisture conservation in vegetables. 4. Lifesaving irrigation at critical stages and harvesting at physiological maturity stage.	
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Sujata,PDM-11,PDM-54, Durga PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	1. Use the water collected in WHS for irrigation. 2. Providing mulching for soil moisture conservation in vegetables. 3. Lifesaving irrigation at critical stages and harvesting at physiological maturity stage.	

Condition	Suggested contingency measures

Mid season drought (long dry spell)	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on implementation
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (medium low land paddy var. Pratikshya, ranidhan, mahsuri) *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period. 2. Raising the field bund height & check the seepage loss. 3. Lifesaving irrigation at critical stage. 4. Weed control in oilseed & pulses. 5. Follow plant protection measures	1. Supply of seed drills and intercultural implements through RKVY. 2. Good quality seeds through NFSM and OSSC.
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Tejaswani, Manaswini.* (medium low land paddy var. Pratikshya, ranidhan, mahsuri)	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period. 2. Weed out the field 3. Follow plant protection measures 4. Provide lifesaving irrigation at critical stage 5. Withhold N application	
	3. Rainfed lateritic loamy sand to sandy	Paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Manaswini.*	1. Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice	

Condition			Suggested contingency measures		
Mid season drought (long dry spell)	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
	loam soil.			during this period. Weed out the field 2. Follow plant protection measures 3. Provide lifesaving irrigation at critical stage. 4. Withhold N application.	
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation and plugging of drainage holes. 2. Organic matter addition and green manuring of *dhaincha* before planting of rice. 3. Close the drainage hole and check the seepage loss. 4. Strengthen of field bund height in paddy.	
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation and plugging of drainage holes. 2. Organic matter addition and green manuring of *dhaincha* before planting of rice. 3. Close the drainage hole and check the seepage loss. 4. Strengthen of field bund height in paddy.	

Condition			Suggested contingency measures		
Terminal drought	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on implementation**
Early withdraw of monsoon	**Upland** 1. Rainfed alluvial with loamy sand to sandy clay loam soil	**Sole crop under unbunded upland** Paddy, Greengram Groundnut Sesamum Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina.-11 Drought tolerant variety – Sahbhagidhan *Sujata,PDM-11,PDM-54, Durga* *Devi, Smruti, TAG-24* *Uma, Nirmala and Prachi* Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Utilization of residual moisture of early sowing of pre-rabi crop like cow pea (*Utkal manika),* greengram (*durga)*, Blackgram(*Ujala)*, Brinjal(*Utkal tarini)* and leafy vegetables to be sown for conserve soil moisture. 2. Provide lifesaving irrigation. 3. Harvest crops at physiological maturity stage. 4. Mulching of vegetable for moisture conservation.	
	2. Rainfed red and lateritic sandy loam to clay loam soil.	Paddy Greengram Groundnut	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Sujata,PDM-11,PDM-54, Durga Var. Devi, Smruti, TAG-24	1. Utilization of residual moisture of early sowing of pre-rabi crop like cow pea(*Utkal manika),* greengram (*durga)*, Blackgram(*Ujala)*, Brinjal(utkal tarini*)* and leafy vegetables to be sown for conserve soil moisture	

Condition			Suggested contingency measures		
Terminal drought	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on implementation**
		Blackgram Horsegram Vegetables	PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	2. Provide lifesaving irrigation at critical stage. 3. Irrigate the crop from harvest rain water. 4. Harvest crops at physiological maturity stage. 5. Mulching of vegetable for moisture conservation.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	Paddy Groundnut Blackgram Horsegram Vegetables	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Var. Devi, Smruti, TAG-24 PU-19, PU-30, Ujala, Sarala Urmi Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Utilization of residual moisture of early sowing of pre-rabi crop like cow pea(*Utkal manika),* greengram (*durga)*, Blackgram(*Ujala)*, Brinjal(*Utkal tarini)* and leafy vegetables to be sown for conserve soil moisture and provide lifesaving irrigation. 2. Provide lifesaving irrigation at critical stage. 3. Irrigate the crop from harvest rain water. 4. Harvest crops at physiological maturity stage. 5. Mulching of vegetable for moisture conservation.	

Condition			Suggested contingency measures		
Terminal drought	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on implementation**
	4. Coastal saline alluvium with sandy loam to clayey soil.	Blackgram Vegetables	PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava, Pusa Jwala)*	1. Utilization of residual moisture of early sowing of pre-rabi crop like cow pea(*Utkal manika),* Blackgram(*Ujala)*, Brinjal(*Utkal tarini)* and leafy vegetables to be sown for conserve soil moisture 2. Provide lifesaving irrigation. 3. Weed control in pulses and vegetables. 4. Mulching of vegetable for moisture conservation.	
	5. Coastal saline alluvium mixed black, red and black soil.	Greengram Blackgram Vegetables	Sujata,PDM-11,PDM-54, Durga PU-19, PU-30, Ujala, Sarala Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	1. Utilization of residual moisture of early sowing of pre-rabi crop like cow pea(*Utkal manika),* Blackgram(*Ujala)*, Brinjal(*Utkal tarini)* and leafy vegetables to be sown for conserve soil moisture. 2. Provide lifesaving irrigation. 3. Weed control in pulses and vegetables. 4. Mulching of vegetable for moisture conservation.	

Condition			Suggested contingency measures		
Terminal drought	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on implementation**
	Medium land/Low land 1. Rainfed alluvial with loamy sand to sandy clay loam soil.	Paddy Greengram Groundnut	Medium duration paddy (125 days) Variety – Lalat , *Surendra, Swarna sub-1, Manaswini.* *TARM-1, Sujata, Durga, PDM-11, PDM-54* Devi, Smruti, TAG-24	1. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 2. Raising field bund height and checking seepage loss in paddy. 3. Weeding and ridging in groundnut.	
	2. Rainfed red and lateritic sandy loam to clay loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat, *Surendra, Swarna sub-1, Manaswini.*	1. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 2. Raising field bund height and checking seepage loss in paddy.	
	3. Rainfed lateritic loamy sand to sandy loam soil.	paddy	Medium duration paddy (125 days) Variety – Lalat *Surendra, Swarna sub-1, Manaswini.*	1. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 2. Raising field bund height and checking seepage loss in paddy.	

Condition			Suggested contingency measures		
Terminal drought	**Major farming situation**	**Crop/cropping system**	**Crop management**	**Rabi crop planning**	**Remarks on implementation**
	4. Coastal saline alluvium with sandy loam to clayey soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 2. Raising field bund height and checking seepage loss in paddy.	
	5. Coastal saline alluvium mixed black, red and black soil.	Paddy	Luna suvarna, Lunisree	1. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 2. Raising field bund height and checking seepage loss in paddy.	

2.1.2 Drought - Irrigated Situation

Condition			Suggested contingency measures		
	Major farming situation	**Normal Crop/cropping system**	**Change in Crop / Cropping management system**	**Agronomic measures**	**Remarks on implementation**

Delayed / limited release of water in canals due to low rainfall	**Upland** Alluvial soil low rainfall high irrigation	Paddy Groundnut Horsegram Sesamum Vegetable	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Smruti, Devi, TAG-24 Urmi Prachi, Uma Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	1. Irrigate the kharif rice with ground water during dry spell only. If dry spell comes before release of canal water reduction of conveyance losses while irrigating the light texture soil. 2. Organic mulching for moisture conservation in vegetable. 3. Weeding and ridging in groundnut.	NFSM
	Black soil moderate rainfall high irrigation	Paddy Ragi Blackgram Greengram	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Chilika, Suvra PU-30, Prasad, Ujala Durga, PDM-11, PDM-54	1. Irrigate the kharif rice with ground water during dry spell only. If dry spell comes before release of canal water reduction of conveyance losses while irrigating the light texture soil. 2. Weed control in paddy, Ragi and pulses. 3. Organic mulching for moisture conservation in vegetable.	NFSM, Horticulture Mission
	Coastal irrigated alluvium sandy loam to clay loam	Paddy Greengram Vegetable	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Durga, PDM-11, PDM-54 Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)*	1. Irrigate the kharif rice with ground water during dry spell only. If dry spell comes before release of canal water reduction of conveyance losses while irrigating the light texture soil. 2. Weed control in paddy, Ragi and pulses.	NFSM

		Groundnut	,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*, Potato (Kufri chandramukhi) Smruti, Devi, TAG-24	3. Organic mulching for moisture conservation in vegetable.	
Condition			**Suggested contingency measures**		
	Major farming situation	**Normal Crop/cropping system**	**Change in Crop / Cropping management system**	**Agronomic measures**	**Remarks on implementation**
Delayed / limited release of water in canals due to low rainfall	**Medium/Low land** Alluvial soil low rainfall high irrigation	Paddy Groundnut	Medium duration paddy like Surendra, Manaswini, Lalat Smruti, Devi, TAG-24	1. Reduction of conveyance losses while irrigating the life texture soil. 2. Increase the bund height to conserve the rain water. 3. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 4. Checking the seepage and drainage of rain water in paddy.	NFSM
	Black soil moderate rainfall high irrigation	Paddy	Medium duration paddy like Surendra, Manaswini, Lalat	1. Reduction of conveyance losses while irrigating the life texture soil. 2. Increase the bund height to conserve the rain water. 3. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 4. Checking the seepage and drainage of rain water in paddy.	NFSM, Horticulture Mission

	Coastal irrigated alluvium sandy loam to clay loam	Paddy	Medium duration paddy like Surendra, Manaswini, Lalat	1. Reduction of conveyance losses while irrigating the life texture soil. 2. Increase the bund height to conserve the rain water. 3. Provide lifesaving irrigation from harvested rain water at reproductive stage and conserve soil moisture, harvest the crop at physiological maturity. 4. Checking the seepage and drainage of rain water in paddy.	NFSM

Condition			**Suggested contingency measures**		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping management**	**Agronomic measures**	**Remarks on implementation**
Non release of water in canals under delayed onset of monsoon in catchment	**Upland** Alluvial soil low rainfall high irrigation	Paddy Groundnut Horsegram Sesamum Vegetable	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Smruti, Devi, TAG-24 Urmi Prachi, Uma Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava),*tuber crops	1. Reduction of conveyance losses while irrigating light texture soil. 2. Crop residue mulching in vegetables to conserve moisture. 3. Weeding and ridging in groundnut and vegetables. 4. Weed control in oilseed and pulses.	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping management**	**Agronomic measures**	**Remarks on implementation**
	Black soil moderate rainfall high irrigation	Paddy Ragi Blackgram Greengram	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Chilika, Suvra PU-30, Prasad, Ujala Durga, PDM-11, PDM-54	1. . Reduction of conveyance losses while irrigating light texture soil 2. Raising the bund height in paddy to conserve rain water. 3. Weeding and ridging in groundnut. 4. Life saving irrigation at critical stage 5. Checking the seepage and drainage of rain water in paddy.	
	Coastal irrigated alluvium sandy loam to clay loam	Paddy Greengram Vegetable Groundnut	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Durga, PDM-11, PDM-54 Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*, Potato(Kufri chandramukhi),pumpkin(guamal) Smruti, Devi, TAG-24	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Life saving irrigation at critical stage. 3. Rain water harvesting and recycling in irrigation. 4. Weeding and ridging in groundnut.	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping management**	**Agronomic measures**	**Remarks on implementation**
	Medium/Lowland Alluvial soil low rainfall high irrigation	Paddy- Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Reduction of conveyance losses while irrigating light texture soil. 2. Increase the bund height to conserve rain water in paddy. 3. Checking the seepage and drainage of rain water in paddy. 4. Lifesaving irrigation at critical stage. 5. Checking the seepage and drainage of rain water in paddy.	
	Black soil moderate rainfall high irrigation	Paddy- Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Reduction of conveyance losses while irrigating light texture soil. 2. Raising the bund height in paddy to conserve rain water. 3. Weeding and ridging in groundnut. 4. Lifesaving irrigation at critical stage. 5. Checking the seepage and	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping management**	**Agronomic measures**	**Remarks on implementation**
				drainage of rain water in paddy.	
	Coastal irrigated alluvium sandy loam to clay loam	Paddy- Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Reduction of conveyance losses while irrigating light texture soil. 2. Increase the bund height to conserve rain water in paddy. 3. Checking the seepage and drainage of rain water in paddy.	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping system**	**Agronomic measures**	**Remarks on implementation**
Insufficient/delayed onset of monsoon	**Upland** Alluvial soil low rainfall high irrigation	Paddy Groundnut Horsegram Sesamum	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Go for second crop with low water requiring short duration varieties of oilseeds and pulse. Smruti, Devi, TAG-1 Urmi Prachi, Uma	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Lifesaving irrigation at critical stage. 3. Rain water harvesting and recycling for irrigation. 4.Organic mulching in vegetables. 5. Lifesaving irrigation at critical	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping system**	**Agronomic measures**	**Remarks on implementation**
		Vegetable	Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*	stage.	
	Black soil moderate rainfall high irrigation	Paddy Ragi Blackgram Greengram	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Suvra, chilika PU-30, Prasad, Ujala Durga, PDM-11, PDM-54	1. Lifesaving irrigation at critical stage. 2. Rain water harvesting and recycling for irrigation. 3. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 4. Weed management.	
	Coastal irrigated alluvium sandy loam to clay loam	Paddy Greengram Vegetable	Suitable short duration variety: Khandagiri, Jogesh, Sidhant & Bina. Drought tolerant variety – Sahbhagidhan Durga, PDM-11, PDM-54 Radish (*Pusa chetki, Japanese white)*, okra (*Utkal gourav)* ,Brinjal(*Utkal tarini),*Cowpea (*Utkal manik*a), Chilli (*Utkal ava)*, Potato (Kufri chandramukhi)	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Lifesaving irrigation at critical stage. 3. Rain water harvesting and recycling in irrigation. 4. Weeding and ridging in groundnut.	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping system**	**Agronomic measures**	**Remarks on implementation**
		Groundnut	Smruti, Devi, TAG-24		
	Medium/Lowland Alluvial soil low rainfall high irrigation	Paddy Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Weeding and ridging in groundnut. 3. Lifesaving irrigation at critical stage. 4. Raising the bund height in paddy to conserve rain water. 5. Checking the drainage and seepage loss of water in paddy.	
	Black soil moderate rainfall high irrigation	Paddy- Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Weeding and ridging in groundnut. 3. Lifesaving irrigation at critical stage. 4. Raising the bund height in	

Condition			Suggested contingency measures		
	Major farming situation	**Crop/cropping system**	**Change in Crop/cropping system**	**Agronomic measures**	**Remarks on implementation**
				paddy to conserve rain water. 5. Checking the drainage and seepage loss of water in paddy.	
	Coastal irrigated alluvium sandy loam to clay loam	Paddy- Groundnut	Surendra, manaswini Smruti, Devi, TAG-24	1. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. 2. Weeding and ridging in groundnut. 3. Lifesaving irrigation at critical stage. 4. Raising the bund height in paddy to conserve rain water. 5. Checking the drainage and seepage loss of water in paddy.	

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

Condition		Suggested contingency measures		
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post-harvest**
Crop1 paddy	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Drying
Crop2 Groundnut	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Drying
Crop3 Blackgram	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Drying
Horticulture				
Tomato	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption
Brinjal	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption
Cow pea	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover

Condition		Suggested contingency measures		
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post-harvest**
				the crops to protect from moisture absorption
Lady's finger	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption.
Chilli	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity.	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption.
Tomato	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity.	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption.
Brinjal	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity.	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption.
Cow pea	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity.	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover

Condition		Suggested contingency measures		
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post-harvest**
				the crops to protect from moisture absorption.
Lady's finger	Provide drainage	Provide drainage	Drain out excess water, harvest at physiological maturity	Shift the produce to half covered threshing floor and other safer places for post-harvest operations and cover the crops to protect from moisture absorption
Outbreak of pests and diseases due to unseasonal rains				
Crop1 (paddy)	Swamping caterpillar - apply chloropyrophus Case worm – apply triazophos BLB. Apply plantomycin spray fuji-on/beem/hinosan against blast.	BPH – apply imidachloropid		
Crop2 (Greengram/Blackgram)	Mancozeb 0.3% against leaf spot diseases.	Spraying of Rogor 0.2% against aphids.		
Crop3 cotton	For sucking pest apply thiomethoxin	Application of pheromone trap and trichocard to manage boll worms.		
Crop4 oilseed	Apply traizophos for			

Condition		Suggested contingency measures		
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post-harvest**
	leaf minor			
Crop5				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3 vegetables	Drench the soil with streptocycline +blitox against rahizome rot.			
Crop4 Turmeric				
Crop5 Ginger				

2.3 Floods

Condition		Suggested contingency measures		
Transient water logging partial inundation	**Seedling/nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop1 - paddy	1. Provide drainage. 2. Select *swarna sub-1, sarasa, CR1014, mahsuri. do not go for beushaning in partially damage plot.* . Weed out rice the field.	1.Provide drainage 2. Transplant 3 to 4 seedling/hill.	1. Apply chemicals to manage blast, BLB, BPH and swarming caterpillar. 2.Provide drainage	1. Provide drainage 2.Don't harvest immediately if water not up to grain
Crop2- Groundnut	Well drainage Manage termite by application of 0.2% chloropyrophos and wilting by saff 20%.	1. Provide drainage 2. Manage termite	1. Provide drainage 2. Step measures not to sprout in the field through drainage	
Horticulture				
Crop1 (mango)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated dryer place.

Condition		Suggested contingency measures		
Transient water logging partial inundation	**Seedling/nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop2 (cashewnut)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated dryer place.
Crop3 (citrus)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated dryer place.
Crop4 (coconut)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated dryer place.
Crop5 (vegetables)	Raised bed nursery	1. Manage wilting. 2. Drain the water having efficient drainage, linning of canals to check seepage.	1. Spraying of planofix before flowering. 2. Irrigation during flowering stage.	1. Drain the field immediately
Continuous submergence for more than 2 days				
Crop1 (paddy)	Well drainage	Well drainage	Well drainage	Drainage
Crop2 (Groundnut)	Well drainage	Well drainage	Well drainage	Drainage
Crop3 (Blackgram)	Well drainage	Well drainage	Well drainage	Drainage
Crop4 (Greengram)	Well drainage	Well drainage	Well drainage	Drainage
Crop5 (sesamum)	Well drainage	Well drainage	Well drainage	Drainage
Horticulture				
Crop1 (Mango)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated drier place
Crop2 (Cashew)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated drier place

Condition		Suggested contingency measures		
Transient water logging partial inundation	**Seedling/nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop3 (Coconut)	Drainage system should be developed	Drainage system should be developed	Drainage system should be developed	Keeping fruits in a well ventilated drier place
Sea water inundation				
Crop1 (paddy)	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed
Crop2 (Blackgram)	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed. 2. Irrigate with fresh water	1. Drainage system should be developed

2.4 Extreme events: Heat wave / cold wave / frost / hailstone / cyclone

Extreme event type	Suggested contingency measures			
	Seedling nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat wave				
Crop 1(Paddy)	Frequent irrigation	Frequent irrigation	Frequent irrigation	NA
Crop 2 (groundnut)	Light Irrigation at 10 days interval	Light Irrigation at 10 days interval	Light Irrigation at 10 days interval	NA
Crop 3 (groundnut)				
Crop 4 (groundnut)				
Horticulture				
Crop1(Mango))	Sprinkling water	Drip/sprinkler irrigation with soil mulching	Drip/sprinkler irrigation with soil mulching	Drip/sprinkler irrigation with soil mulching
Crop2 (litchi)	Sprinkling water	Drip/sprinkler irrigation	Drip/sprinkler irrigation	Drip/sprinkler irrigation

Extreme event type	Suggested contingency measures			
	Seedling nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat wave				
		with soil mulching	with soil mulching	with soil mulching
Cold wave				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Crop4	NA	NA	NA	NA
Crop5	NA	NA	NA	NA
Horticulture				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Frost				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Crop4	NA	NA	NA	NA
Crop5	NA	NA	NA	NA
Horticulture				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Hailstorm				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Crop4	NA	NA	NA	NA
Crop5	NA	NA	NA	NA
Horticulture				

Extreme event type	Suggested contingency measures			
	Seedling nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat wave				
Crop1	NA	NA	NA	NA
Crop2	NA	NA	NA	NA
Crop3	NA	NA	NA	NA
Cyclone				
Crop1(Paddy)	In case of rain associated with cyclone provide drainage.	In case of lodging drag with a rope to have uniformity.	In case of lodging drag with a rope to have uniformity.	Provide support to avoid lodging/drag with a rope to have uniformity.
Crop2(Blackgram)	-	Provide drainage if associated with rain	Provide drainage if associated with rain	Provide drainage if associated with rain
Crop3(Groundnut)	-	Provide drainage if associated with rain	Provide drainage if associated with rain	Provide drainage if associated with rain
Crop4(Greengram)	-	Provide drainage if associated with rain	Provide drainage if associated with rain	Provide drainage if associated with rain
Crop5 (Sesamum)	-	Provide drainage if associated with rain. Spraying of 2% urea.	Clean the field from damaged plants, leaves. Earthing up to the root zone. In case of heavy damage uproot the crop.	Provide support, harvest at physiological maturity stage.
Horticulture				
Crop1(Mango)	Provide drainage	Provide drainage Earthing up the base	Provide drainage Earthing up the base	Provide drainage Earthing up the base
Crop2(Cashew)	Provide drainage	Provide drainage Earthing up the base	Provide drainage Earthing up the base	Provide drainage Earthing up the base
Crop3(Banana)	Provide drainage	Provide drainage	Provide drainage	Provide drainage

Extreme event type	Suggested contingency measures			
	Seedling nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat wave				
		Earthing up the base	Earthing up the base	Earthing up the base
Crop4(Citrus)	Provide drainage	Provide drainage Earthing up the base	Provide drainage Earthing up the base	Provide drainage Earthing up the base
Crop5(Coconut)	Provide drainage	Provide drainage Earthing up the base	Provide drainage Earthing up the base	Provide drainage Earthing up the base

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			
Drought	1. Livestock insurance 2. On boundaries of agricultural field trees or shrubs like Sesbania, Subabul, Neem etc should be planted. 3. Explore the possibilities of availability of unconventional / alternative feed resources during draught. 4. Up gradation of desi cow through artificial insemination and upgradation of local good breeds (Ganjam, Black Bengal through cross breeding with improved breeds)	1. Conducting animal health camps and treating the affected animals 2. Regular de-worming with vaccination of cows with need based treatments against ailments. 3. Regular de-warming for vaccination for goats against PPR, FMD with intensive care and treatment for ailments. 4. Low cost housing with stake arrangement	1. Availing insurance 2. Culling of unproductive livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
		5. Preventive measures against early kid mortality by external/ artificial feeding arrangement.	
Feed and fodder availability	1. It is essential to establish fodder bank near forest areas. 2. Provision is also necessary to store surplus crop residues in fodder banks, which can be made available during draught. 3. Excess fodder in flush season can be preserved as hay / silage. 4. Encourage perennial fodder production on river beds and tank bed on community basis. 5. Village gauchar (grazing) lands should be developed for fodder production.	1. Utilizing fodder from perennial trees and fodder bank reserves. 2. Transporting excess fodder from adjoining districts. 3. Utilizing the existing crops which fail to grow adequately due to failure of monsoon for feeding of animals. 4. Use of unconventional livestock feed such as sugar cane top, sugar cane bagasse, and banana plant Crop residues such as cassiatora water hyacinth and other like tree pods and seeds etc. Improving poor quality roughages by ammonia treatment, urea treatment, urea molasses mineral block etc and feeding them.	1. Supplementary feeding of remaining livestock and the replacement stock. 2. Addition of calcium, mineral mixture and multi-vitamin supplement @ 40 g/cow/day with home prepared feed (rice and wheat bran: groundnut oilcake at 9:1 ratio mixed with kitchen waste) + 40 kg green fodder/cow/day 3. Stall feeding with home prepared feed (mixture of maize + Mahua cake + rice/wheat bran @ 6:1:3 ratio in kitchen waste) + mineral and multi-vitamin supplement (25 g/goat/day). Sufficient browsing for at least four hours per day
Drinking water	1. Preserving water in community tanks and ponds etc for drinking purpose by excavation and sanitization of these resources. In addition, wells (bore wells or dug wells) may be constructed ahead	1. Water sources of Temples, Churches, Gurdwaras, Jain temples and Maszids are generally ideal sources during draught.	1. Pure drinking water and vaccines to be given

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
	of possible event of draught.		
Health and disease management	1. Organizing training programme of persons connected with A.H. on feeding and management of animals during draught. 2. Veterinary preparedness with vaccine and medicines.	1. Supplementation of mineral and vitamin mixtures 2. Campaign and mass vaccination	1. Proper disposal of dead animals
FLOODS			
Feed and fodder availability	1. Procured feeds and fodders to be used for feeding all animals.	1. Straw and stover that got soaked during flood need not be thrown away out right. They can be fed to animals as long as rotting or fungal growth has not set in. Partial drying, chopping and sprinkling concentrate mixture can improve intake and utility. 2. Priorities animals as suckling animals, suckling animals along with their nursing mothers, producing and working animals, sick and old animals, adult open and non-producing animals as the feed and water may be in short supply.	

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
Drinking water	1. Drinking water be made available to the animals in any kind of clean container available with the farmer	1. Drinking water be made available to the animals in any kind of clean container available with the farmer	1. Provision of clean drinking water
Health and disease management	1. Training to the farmers about care of their animals when catastrophe strives, so that they are prepared for the situation. Preparation and distribution of leaflets or booklets in simple local language for care of livestock in disaster. 2. Keeping track of weather forecast and prior information through radio and TV Etc. 3. Prior construction of animal shelters in disaster prone areas. 4. Temporary relief camps on spots can be set up at short notice to provide shelter to animals on roads, railway line embankments, other earthen embankments, upland etc. 5. Variation of livestock before onset of rainy season 6. Temporary camps may be started to herd or flocks animals of 25-50 animals in each group. Inside the camp the animals can be just left free within the paddock/ barricades created with wooden pole. 7. If no trees or sheds are available shelter the animals under a tent / tarpaulins held aloft by	1. Supplementation of mineral and vitamin mixtures 2. Campaign and mass vaccination	1. Proper disposal of dead animals

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
	supporting poles or temporary sheds with coconut leaf roof. 8. Keep the emergency service kit (first Aid Requisites) ready always containing Cotton wool, Bandages, Surgical gauze, old cotton sheets, Rubber tubing (for torniquet), Surgical scissors – Curved and made of stainless steel, Forceps, Splints or Split bamboos (for fractures), Clinical thermometers – two or three, Disinfectants – potassium permanganate, Dettol, Savlon, Tannic acid powder (for poisons) and Jelly (for burns) Antibiotic eye drops, Epsom salts, copper sulphate, oil of turpentine (for bloat), Obstetric ropes, chains and hooks, Tincture of iodine, tincture of Benzoin Co.(for wounds), Cotton rope, halters (for restraint), Trocar and canola (for bloat), Pocket Knife (for cutting, strangulating ropes etc.)		
CYCLONE			
Shortage of feed ingredients	Procurement of feed	1. Supply the compound feed to the poultry farm under cyclone affected area	1. Supply will continued till the situation is under control.
Drinking water	-	1. Attempt will be made to provide sanitized drinking water	1. Water sources will sanitized with bleaching powder or any water sanitizer.
Health and	Procurement of medicine and vaccine	1. Vaccination of birds against	1. Water sources will sanitized with

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
disease management		different diseases. 2. Provision should be made for available of sanitized water.	bleaching powder or any water sanitizer.
HEAT WAVE AND COLD WAVE			
Shelter/environment management		1. Green cover (trees plantation, land scaping) 2. Proper sheltering / housing white painting outside the roof and black painting inside the roof. 3. Washing / wallowing / sprinkling/ splashing / showering 4. Provision of cool drinking water (in earthen pitches) 5. Cooling devices : fans, wet curtains or panels, air cooler if possible	
Health and disease management		1. Feeding Green fodder/ silage/ hay 2. Provision for night feeding 3. Grazing only if green pastures/ grass lands available 4. Graze early in the morning and late in the afternoon	1. Protection of dry / milch cows/ buffaloes/ breeding bulls and teasers against thermal stress 2. Heat detection with young teasers 3. Close observation of all open cows 4. Study of cervical mucous 5. Heat detection and AI during

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
			cooler parts of the day. 7. Insemination at optimal time with good quality semen.

2.5.2 POULTRY

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
Shortage of feed ingredients	1. Breed (OUAT synthetic, Banaraja, Gramapriya/ Kalinga Brown, Giriraja) 2. Ensure procurement of feed ingredients sufficient ahead	1. Feed supplementation will be made to the farms. 2. Free range system (Self feeding in the back yard) depending on local household waste	1. Attempt will be made for available of feed ingredient or compound feed to the farmers. 2. Regular vaccination starting from day old chick. Immediately isolating the birds affected by infectious diseases from the flock. Protecting birds from dog, wild cat, jackle, fox etc.
Drinking water	1. Check water source for ensuring sufficient portable water during draught	1. Attempt will be made to provide sanitized drinking water	1. Availability of water will be ensured by digging of bore well
Health and disease management	1. Procurement of vaccines and medicines and anti-stress agent. 2. Feeding antibiotics. 3. Procurement of litter materials.	1. Continue feeding of anti-stress agent	
FLOODS			
Shortage of feed ingredients	1. Feed & fodder may be stored in shape of hay silage, rice bran, straw.	1. Feeding of Boti, Chuni, Rice bran, urea treated straw	1. Normal feeding of 8kg roughages (green +straw) daily along with

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
			concentrates
Drinking water	1. Protect the water sources from submergence/ contamination	1. Attempt will be made to provide sanitized drinking water	1. Water sources will sanitized with bleaching powder or any water sanitizer
Health and disease management	1. Procurement of vaccines and medicines. 2. Feeding antibiotics. 3. Procurement of litter materials.	1 Continue feeding antibiotics. 2. Prevent entrance of flood 3. Water to the shed. 3. Replace wet litter. 4. Proper disposal of dead birds if any.	1. Disinfection of the farm premises. 2. Feeding antibiotics And deworming. 3. Replace wet litter. 4. Disinfection of sheds. Proper disposal of dead birds if any.
CYCLONE			
Shortage of feed ingredients	1. Procurement of feed.	1. Supply the compound feed to the poultry farm under cyclone affected area.	1. Supply will continued till the situation is under control.
Drinking water	-	1. Attempt will be made to provide sanitized drinking water	1. Water sources will sanitized with bleaching powder or any water sanitizer
Health and disease management	1. Procurement of medicine and vaccine.	1. Vaccination of birds against different diseases. 2. Provision should be made for available of sanitized water	1. Water sources will sanitized with bleaching powder or any water sanitizer.
HEAT WAVE			
Shelter/environment management	1. Pruning of big trees in the farm. 2. Putting curtains on open sides of the shed. 3. Procurement of electrical accessories 4. Providing shed to poultry houses. Providing proper ventilation.	1. Attempt will be made for cooling of poultry shed by adapting different cooling methods 2. Thickness of litter should be reduced 3. Ventilation to the house should be increased by providing ceiling fans and exhaust fan	1. Provision should be made to ensure proper ventilation to the house
Health and disease	Procurement of anti-stress drugs	Supplementation of anti-stress drug	Vaccination of birds against RD

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
DROUGHT			
management			
Cold wave			
Shelter/environment management	1. Procurement of curtains to cover open sides of the shed. 2. Heating arrangement kept ready	1. Close the open sides of the shed by curtain in such a way that ventilation should not be hampered. 2. Provide heat if necessary depending on the temperature and age of the birds	1. Remove the curtains. 2. Discontinue heating.
Health and disease management	1. Procurement of Anti-stress drugs and vaccine.	1. Feeding of anti-stress drugs in drinking water Vaccination with fowl pox	1. Vaccination against IBD and RD

2.5.3 Fisheries/aquaculture:

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine	-	-	-
Inland			

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
(i) Shallow water depth due to insufficient rains/ inflow	1. Restricted release of water from reservoir. 2. Supplementary water harvest structures like pond and tanks has to be developed. 3. Renovation and maintenance of existing water harvest structures.	1. Application of rice bran + groundnut oil cake + vitamins or 80kg urea + 40kg SSP/ha/yr. Raw cow dung @ 5tons/ha + micronutrients to enhance the production of phytoplankton and zoo plankton.	1. Using CIFAX @ 1lt/ha or lime and turmeric powder 10:1 ratio applied @ 200kg/ha during the month of November and January to control ulcerative disease syndrome (UDS) and epicortical ulcerative syndrome.
(ii) Changes in water quality	1. Prepare to release water into the habitat.	1. Mixing of water from the water harvest structure like ponds and tanks into the fish habitat.	1. Monitoring the water quality and health of aquatic organisms.
(iii) Any other	-	-	-
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/ inflow	1. Building deep ditches in culture ponds for shelter of the fish to overcome high temperature	1. Recharge the ponds with bore well water or water from other sources. 2. Partial harvesting of the stock to reduce stocking density. 3. Artificial shelter by putting aquatic floating weeds in 1/3rd area.	-
(ii) Impact of salt load build up in ponds/ change in water quality	1. Application of organic manure in culture system	1. Recharge the ponds with bore well water or water from other sources	1. Application of organic manure in culture system

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
(iii) Any other	-	-	-

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
2) Floods			
A. Capture			
Marine	-	-	-
Inland			
(i)Average compensation paid due to loss of humane life	1. Construction of humane shelter. 2. Storage of sand filled bags for emergency use. 3. Repair and maintenance of bundhs. 4. Preparedness for relief 5. Insurance coverage provision for life and property	1. Timely broadcast and telecast and other types of announcement warning about the danger level with respect to water level. 2. Evacuation of people to flood shelter areas. 3. Relief operation.	1. Relief operation will continue. 2. Care of health of affected people 3. Settlement of insurance. 4. Financial support to other people.
(ii) No. of boats / nets	1. The boats has to be secured safely to river/ reservoir banks.	1. Checking of the safety of the boats / nets.	1. Maintenance of the boats

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
damaged	2. Non operation of fixed bag nets in streams and rivers. 3. Insurance coverage for nets and boats.	2. An inventory logbook with name of crewmembers should be maintained. 3. Number of crew and load should be much below the marked tonnage.	and nets. 2. Assessment and settlement of insurance.
(iii) No. of houses damaged	1. Insurance coverage for houses.	-	1. Settlement of insurance.
(iv) Loss of stock	-	-	1. Assessment of stock (fish population) and replenishment if stock is depleted. 2. Habitat restoration for the stock remaining.
(v) Changes in water quality	-	-	1. Application of lime in tanks. 2. Application of fertilizer.
(v) Health and diseases	-	-	1. Observation of the health status of fish and accordingly control measure should be taken. 2. Control on transport of brooders and seeds

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
B. Aquaculture			
(i) Inundation with flood water	1. Strengthening and increase in dyke height. 2. The pond should be constructed with inlet and out let facility.	1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond.	1. Repairing and strengthening of dyke if required.
(ii) Water contamination and changes in water quality	1. Application of lime.	-	1. Application of lime and geolite. 2. Application of Alum. 3. Application of KmnO4
(iii) Health and diseases	1. Application of lime	-	1. Application of lime and KmnO4. 2. Assessment of the health status of fish and accordingly control measure should be taken. 3. Control on transport of brooders and seeds.
(iv) Loss of stock and inputs (feed, chemicals ets)	1. Strengthening and increase in dyke height. 2. Before flood the stock should be	1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond. 2. Water should be diverted from the	1. Stock assessment and restocking with advanced fingerlings or yearling if required.

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
	harvested and sold in flood prone areas. 3. Transport of feed and chemicals to safer place. 4. Purchase of feeds and chemicals on weekly or fortnightly basis. 5. Insurance coverage for stock.	main stream. 3. Sand bags can be used for protection of dykes. 4. Storing of feed and chemicals to safer place.	2. Repairing of dykes. 3. Assessment of quality of feed and fertilizer. 4. Assessment and settlement of insurance.
(v) Infrastructure damage (pumps, aerators, huts etc.)	1. Construction of flood shelter for pumps, aerators etc.	-	1. Repairing of pumps, aerators if required. 2. Repairing of damaged hut.
(vi) Any other	-	-	-

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
3. Cyclone/ Tsunami			
A. Capture			
Marine			
(i)Average	1. Repeated broadcast and telecast of	1. Provision of relief.	1. Assessment and settlement

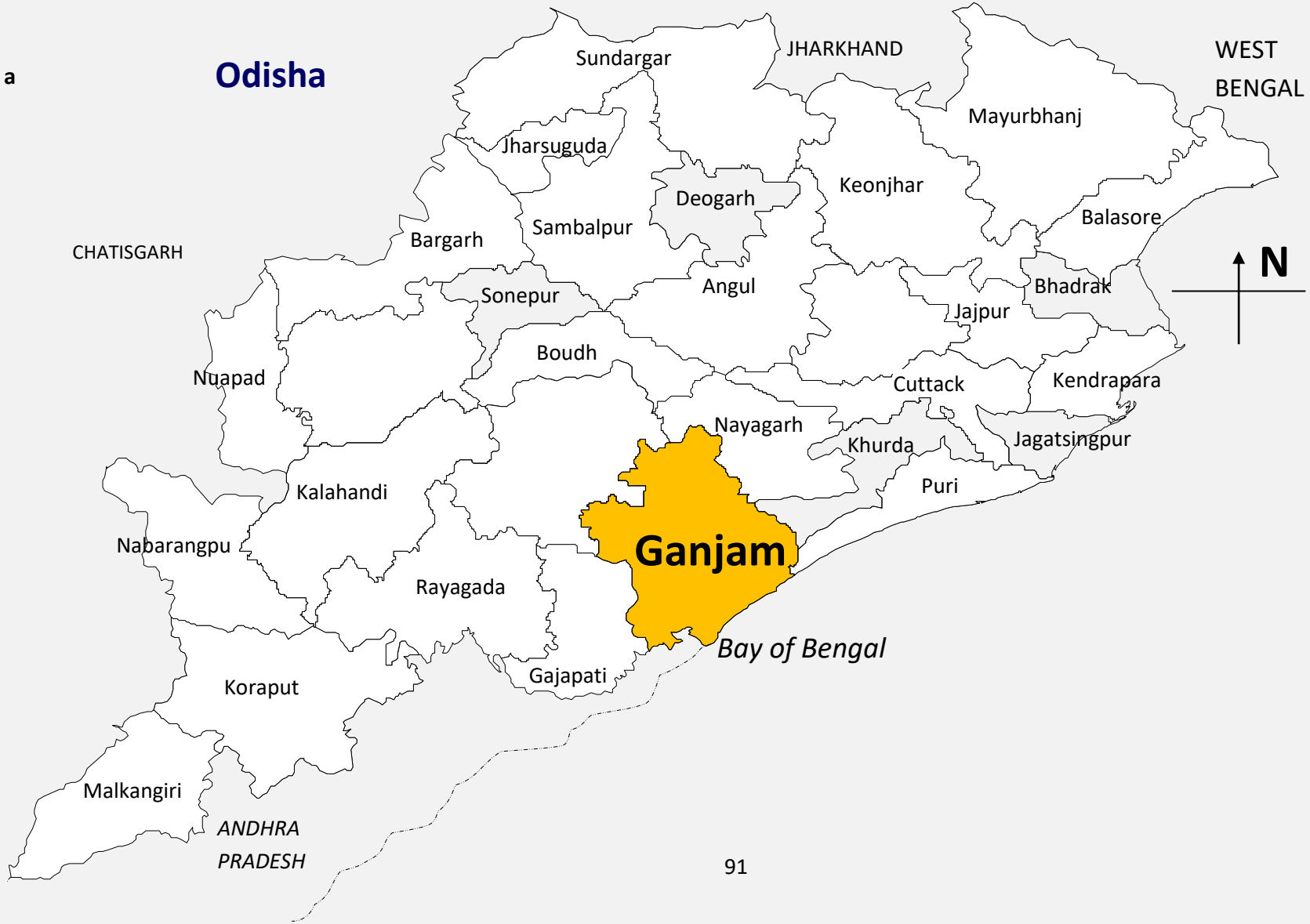
	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
compensation paid due to loss of fishermen lives	warning. 2. Sea venture should be avoided 3. Insurance coverage for lives of fishermen.	2. Evacuation of people to safer areas.	of insurance.
(ii) No. of boats / nets damaged	1. The boats has to be secured safely to river/ reservoir banks. 2. Insurance coverage for nets and boats.	1. Checking of the safety of the boats / nets. 2. An inventory logbook with name of crewmembers should be maintained.	1. Maintenance of the boats and nets. 2. Assessment and settlement of insurance.
(iii) No. of houses damaged	1. Insurance coverage for houses.	-	1. Settlement of insurance.
Inland			
B. Aquaculture			
(i) Over flow/ flooding of ponds	1. Strengthening and increase in dyke height. 2. The pond should be constructed with inlet and out let facility.	1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond.	1. Repairing and strengthening of dyke if required.
(ii) Changes in water quality (fresh water / brackish water ratio)			

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
(iii) Health and diseases	-	-	1. Application of lime and KmnO4. 2. Assessment of the health status of fish and accordingly control measure should be taken. 3. Control on transport of brooders and seeds.
(iv) Loss of stock and inputs (feed, chemicals ets)	1. Strengthening and increase in dyke height. 2. Transport of feed and chemicals to safer place. 3. Insurance coverage for stock.	1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond. 2. Storing of feed and chemicals to safer place.	1. Stock assessment and restocking with advanced fingerlings or yearling if required. 2. Repairing of dykes. 3. Assessment of quality of feed and chemicals. 4. Assessment and settlement of insurance.
(v) Infrastructure damage (pumps, aerators, shelters/ huts etc.)	-	-	1. Repairing of pumps, aerators if required. 2. Repairing of damaged hut.

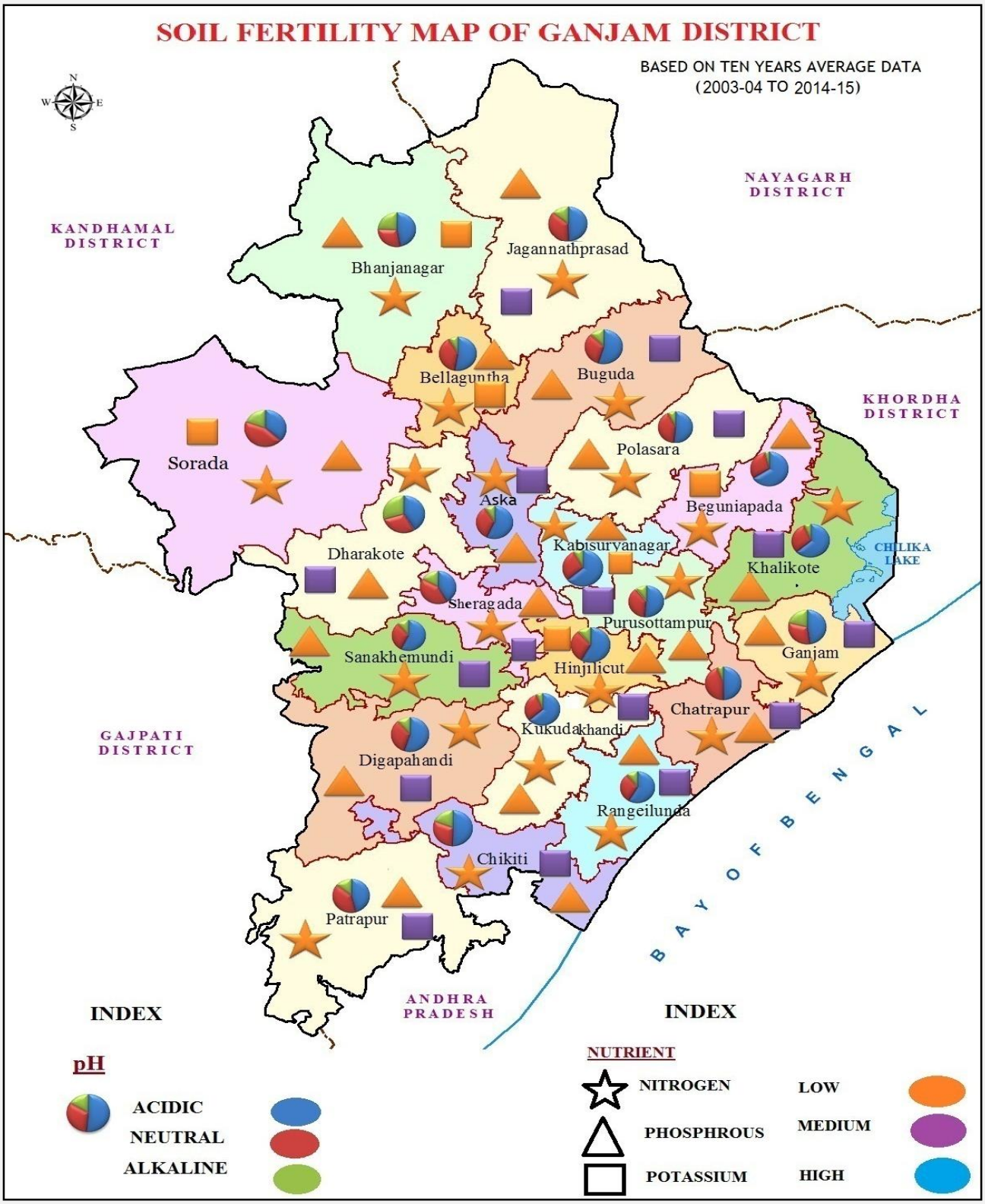
	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
(vi) Any other	-	-	-
4. Heat Wave and Cold Wave			
A. Capture			
Marine	-	1. During hot waves night fishing should be done. 2. During hot waves preservation by cold chain should be increased.	-
Inland	-	1. During hot waves night fishing should be done. 2. Preservation by cold chain should be increased during hot waves.	-
B. Aquaculture			
(i) Change in pond environment	1. During hot waves adequate water depth should be maintained.	1. During hot waves mixing of water with fresh water should be done. 2. The culture system should be provided with aeration to avoid oxygen depletion due to high temperature during hot waves. 3. Partial harvesting can be done to avoid loss of crop.	-

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
(ii) Health and disease management	1. Application of lime and turmeric.	1. Feeding should be stopped. 2. If cold waves persists EUS outbreak takes place	1. Application of CIFAX to control EUS disease in fish.
(iii) Any other	-	-	-

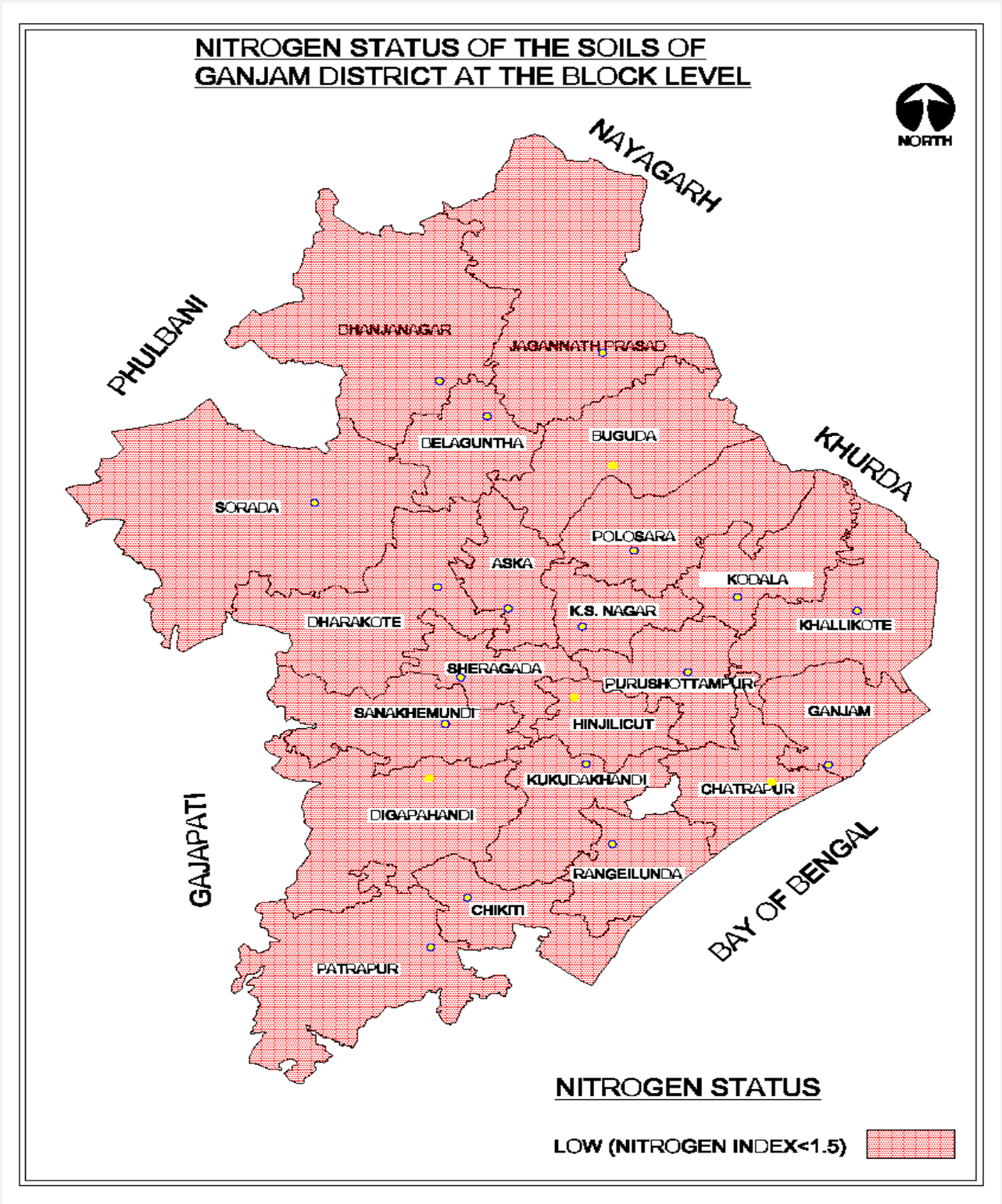
Annexure –I, DIGITAL MAP OF THE DISTRICT GANJAM INSIDE THE STATE ODISHA



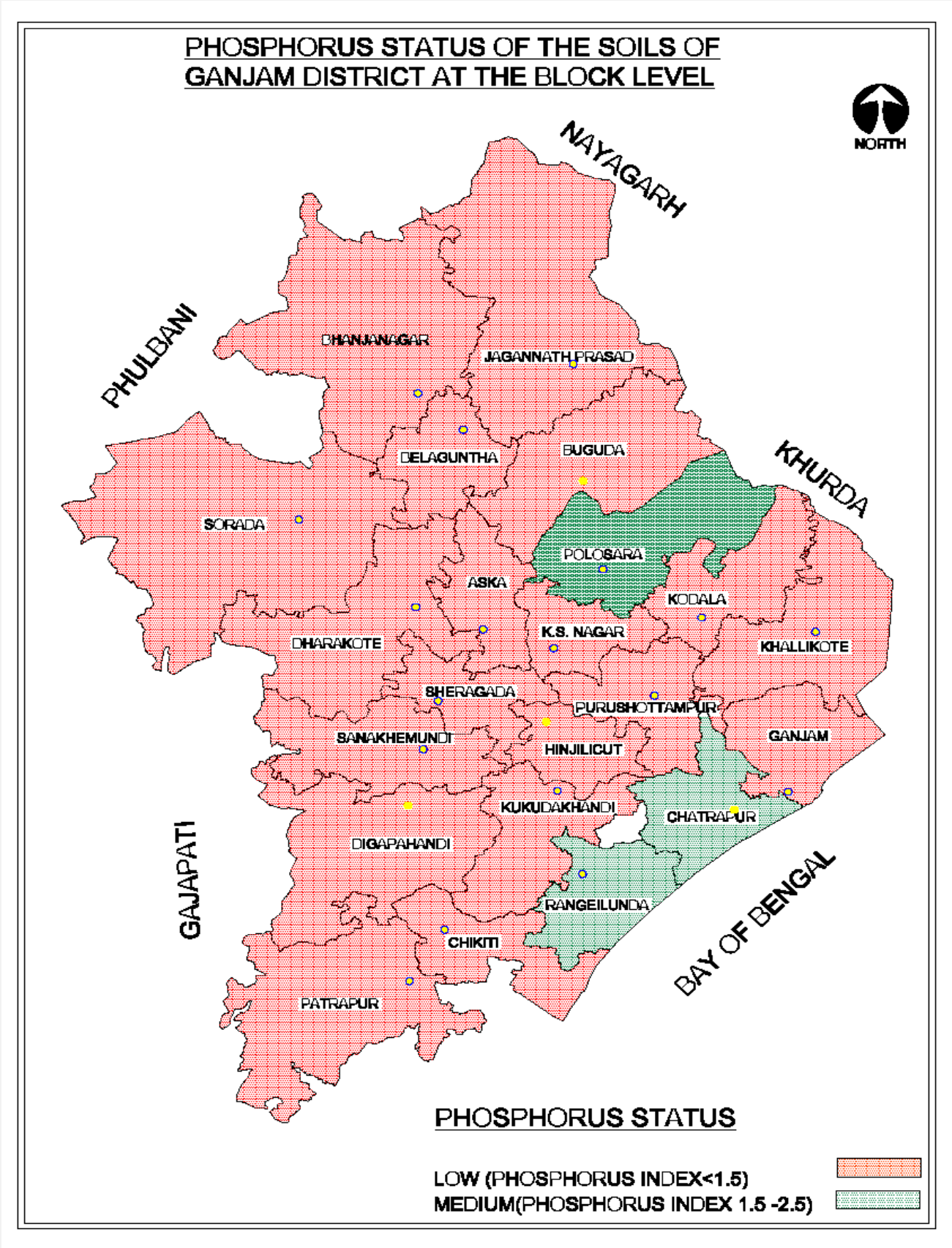
ANNEXURE – II – SOIL MAP OF GANJAM DISTRICT



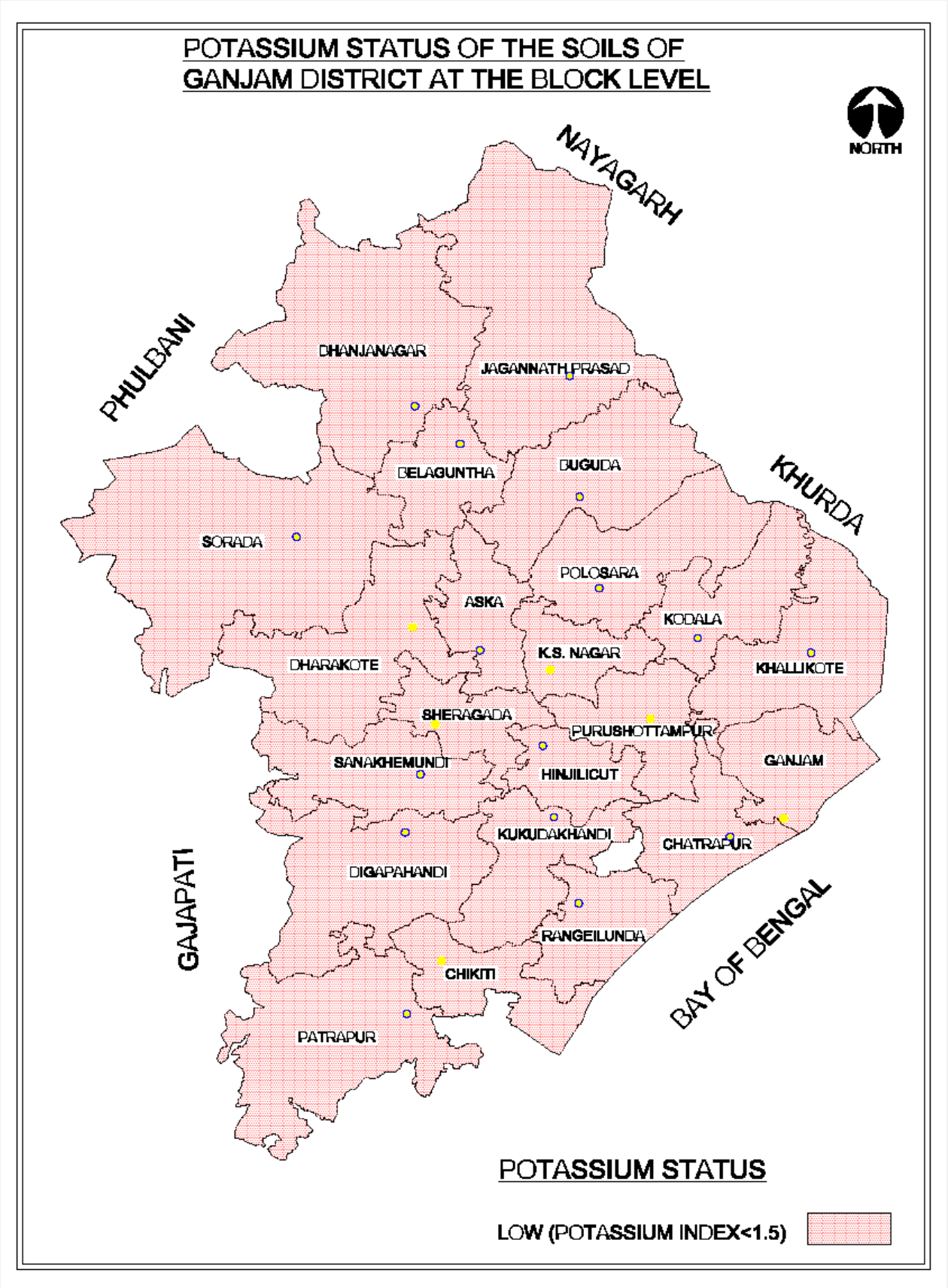
ANNEXURE – III – BLOCLWISE NITROGEN OF GANJAM DISTRICT



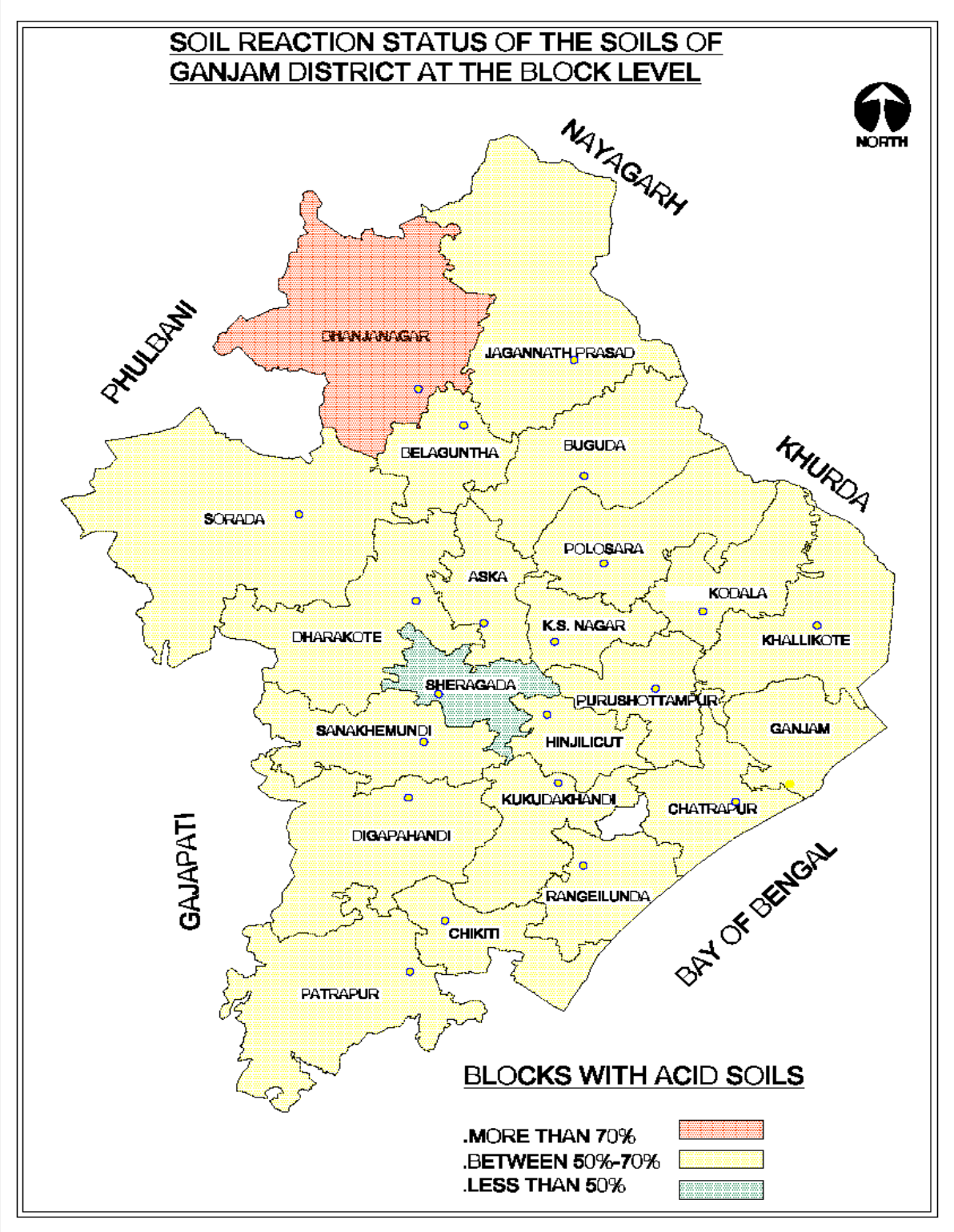
ANNEXURE – III –SOIL MAP OF GANJAM DISTRIC



ANNEXURE – III –SOIL MAP OF GANJAM DISTRICT



ANNEXURE – III –SOIL MAP OF GANJAM DISTRICT



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