State: ORISSA

Agriculture Contingency Plan for District: JAGATSINGHPUR

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone	East & South coastal plain zone		
	Agro Ecological Sub Region (ICAR)	Eastern Coastal Plain, Hot Subhumid To Semihumid (18.4)		
	Agro-Climatic Zone (Planning Commission)	East Coast Plains and Hills Region (XI)		
	Agro Climatic Zone (NARP)	East and south eastern coastal plain zone (OR-4)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Jagatsinghpur, Kendrapada, Khordha, Nayagarh, Puri, Ganjam and Cuttack (OR-4)		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		20^0 16'.00 N	$86^0$10'.00 E	46m above mean sea level
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	Bhubaneswar		
	Mention the KVK located in the district with address	**Krishi Vigyan Kendra,** Jagatsinghpur (Tirtol). At-Nimakana, PO-Manijanga, Dist. Jagatsinghpur (Orissa) PIN- 754160		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Bhubaneswar (65kms from the district head quarters)		

1.2	**Rainfall**	**Normal RF(mm)**	**Normal Rainy days (number)**	**Normal Onset**	**Normal Cessation**
	SW monsoon (June-Sep):	1110.1	47.9	3rd week of June	4th week of September
	NE Monsoon(Oct-Dec):	239.7	8.9	1st week of November	2nd week of November
	Winter (Jan- March)	71.7	3.9	-	-
	Summer (Apr-May)	103.4	103.4	-	-
	Annual	1524.9	65.5	-	-

1.3	**Land use pattern of the district** (latest statistics)	Geographical area	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	167.0	13.0	13.0	7.0	6.0	4.0	13.0	9.0	7.0

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)**
	1. Laterite Soils	20500
	2. Deep Alluvial soils	89700
	3. Coastal saline soils	53700

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	100.0	188.1 %
	Area sown more than once	88.1	
	Gross cropped area	188.1	

1.6	**Irrigation**	Area (‘000 ha)		
	Net irrigated area	61.8		
	Gross irrigated area	93.7		
	Rainfed area	38.1		
	Sources of Irrigation	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals	2	34.7	52.2
	Tanks			
	Open wells	240		
	Bore wells	6592	20.3	30.5
	Lift irrigation schemes	234		
	Micro-irrigation	624		
	Other sources (please specify)		11.4	17.2
	Total Irrigated Area		66.59	
	Pump sets	451		
	No. of Tractors	1129		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	-	-	-
	Critical	-	-	-
	Semi- critical	-	-	-
	Safe	-	-	-
	Wastewater availability and use	-	-	-
	Ground water quality	Iron toxicity>1.0mg/l, Nitrate toxicity >45mg/l (CGWB), Salinity (7988ha)		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture (as per latest figures) (2008-09)

1.7	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Cereals	90.2	--	90.2	3.3	--	3.3	--	93.5
	Paddy	90.2	--	90.2	3.07	--	3.1	--	93.2
	Wheat	--	--	--	0.14	-	0.1	--	0.1
	Maize	--	--	--	0.09	-	0.1	--	0.1
	Ragi	--	--	--	0.006	--	0.006	--	0.006
	Pulses	--	--	--	19.7	28.8	49.1	--	49.0
	Mung	--	--	--	12.6	16.3	28.9	--	28.9
	Biri	--	--	--	7.1	10.1	17.2	--	17.2
	Kulthi	--	--	--	--	2.4	2.4	--	2.4
	Cow pea	--	--	--	0.5	--	0.5	--	0.5
	Gram	--	--	--	0.05	--	0.05	--	0.05
	Oilseeds	--	--	--	10.6	--	10.6	--	10.6
	Groundnut	--	--	--	6.9	--	6.9	--	6.9
	Mustard/Toria	--	--	--	2.8	--	2.8	--	2.8
	Til	--	--	--	0.4	--	0.4	--	0.4
	Sunflower	--	--	--	0.4	--	0.4	--	0.4
	Sugarcane	0.6	--	--	--	--	--	--	0.6
	Condiments & spices	5.3	--	--	--	--	--	--	5.3
	Chilli	0.3	--	--	--	--	--	--	0.3
	Turmeric	0.2	---	--	--	--	--	--	0.2
	Other spices	2.6	---	--	--	--	--	--	2.6
	Total condiments & spices	8.4	-	--	--	--	--	--	8.4

	S.No.	Horticulture crops - Fruits	Area ('000 ha)		
			Total	**Irrigated**	**Rainfed**
	A	**Fruits**	0.2	0.2	0.03
		Kagji lime	0.04	0.04	--
		Mango	0.04	0.02	0.03
		Banana	0.15	0.15	--
	B	**Horticulture crops - Vegetables**	**20.4**	**20.4**	**--**

		Potato	0.4	0.4	--
		Onion	1.7	1.7	-
		Other vegetables	18.3	18.3	-
	C	**Medicinal and Aromatic crops**	Total	Irrigated	Rainfed
		-	-	-	-
	D	**Plantation crops**	Total	Irrigated	Rainfed
		Coconut	75000 bearing coconut trees (0.43)	0.08	0.35
		Arecanut	0.03	-	0.03
		Cashew	0.490	0	0.490

	S.No.	**Horticulture crops - Fruits**	**Area ('000 ha)**		
			Total	**Irrigated**	**Rainfed**
	E	**Fodder crops**	Total	Irrigated	Rainfed
		Hybrid Napier	0.02	0.02	0.003
		Fodder oat	0.01	0.01	0
		Berseem	0.008	0.008	0
		Total fodder crop area	0.04	0.04	0.003
	F	**Grazing land**	7.4	--	7.4
	G	**Sericulture etc**	-		
	H	**Others (specify)**			

1.8	**Livestock**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Non descriptive Cattle (local low yielding)	54.8	190.8	245.7
	Crossbred cattle	15.1	56.1	71.2
	Non descriptive Buffaloes (local low yielding)	1.3	11.2	12.6
	Descript Buffaloes	0.1	0.9	1.0
	Goat	-	-	171.4
	Sheep	-	-	28.0
	Others (Camel, Pig, Yak etc.)			3.35
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial	-	282.0	

	Backyard	-	111.405

1.10	**Fisheries** (Data source: Chief Planning Officer)						
	A. Capture						
	i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		**Storage facilities (Ice plants etc.)**
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
	B. Culture						
				Water Spread Area (ha)		**Yield (t/ha)**	**Production ('000 tons)**
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			3826.5		1.5	4972.9
	ii) **Fresh water** (Data Source: Fisheries Department)			14811.5		3.0	5323.2
	Others						

1.11 Production and Productivity of major crops (Average of last 5 years: 2004, 05, 06, 07, 08; specify years)

1.11	Name of crop	**Kharif**		**Rabi**		**Summer**		**Total**		**Crop residue as fodder** ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Paddy	87.794	2064	3.7	3070	-	-	91.6	2890	
	Wheat	--	--	0.1	1806	--		0.1	1806	
	Maize	---	--	0.1	1891	--		0.1	1891	
	Ragi	--	--	0.006	833	--		0.006	833	
	Pulses	--	--			--				
	Gram	--	--	0.04	826	--		0.04	826	

	Mung	--	--	28.9	371	--		28.9	371	
	Biri	---	--	17.2	443	--		17.2	443	
	Kulthi	--	--	2.4	442	--		2.4	442	
	Cow pea	--	--	0.5	471	--		0.5	471	
	Oilseeds	--	--			--				
	Groundnut	--	--	6.9	2078	--		6.9	2078	
	Til	--	--	0.4	343	--		0.4	343	
	Sunflower	--	--	0.4	436	--		0.4	436	
	Mustard/Toria	--	--	2.8	250	--		2.8	250	
	Sugarcane	0.6	50083			--		0.6	50083	
Major Horticultural crops (Crops to be identified based on total acreage)										
	Potato			4.9	13006					
	Onion			16.1	9503					
	Other vegetables			243.1						
	Total veg.			264.0						
	Chilli	4.5			850					
	Ginger	0.5			1852					
	Turmeric	0.5			2238					
	Other spices	3.8								
	Total condiments & spices	9.3								

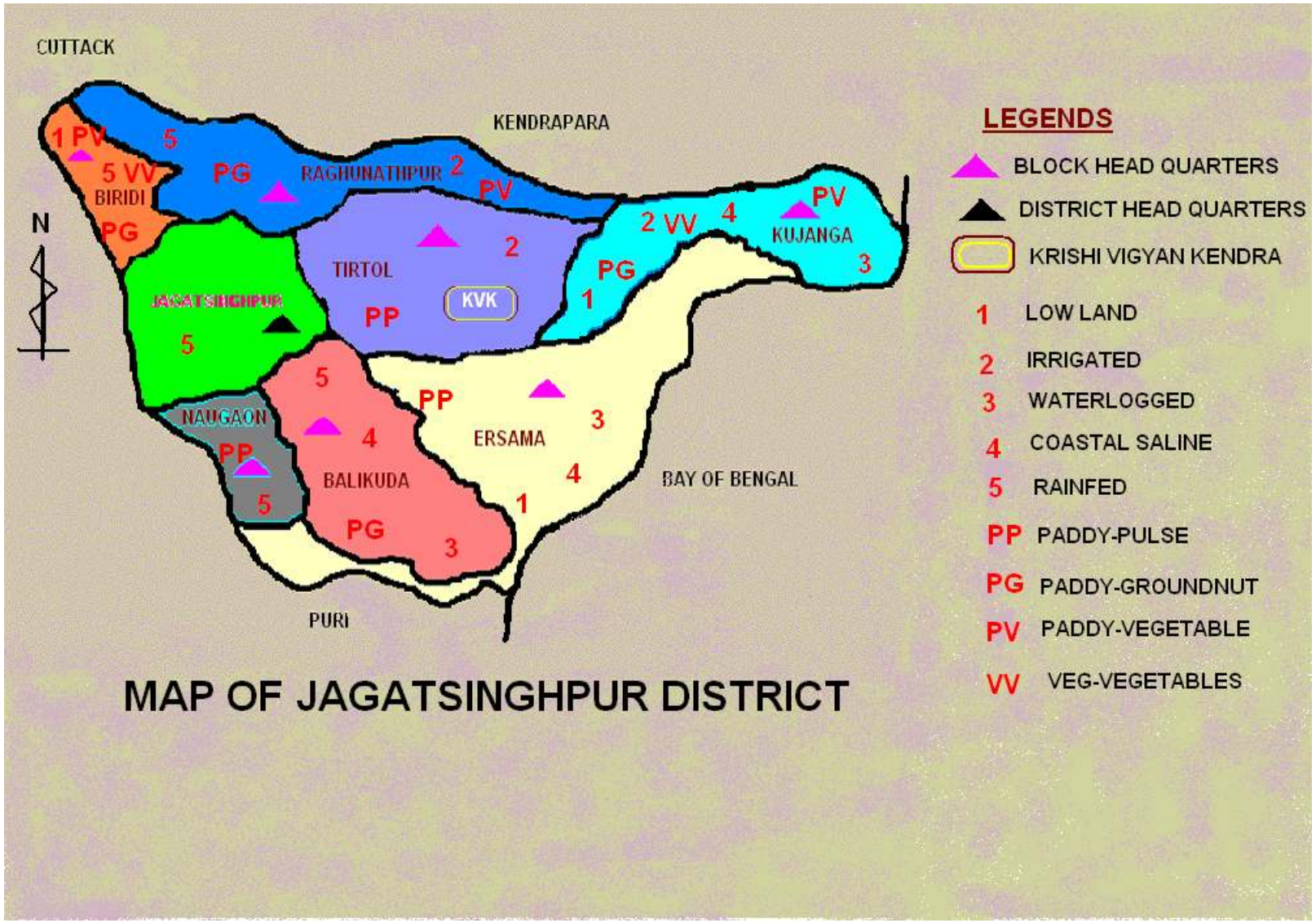
1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Paddy	Mung	Black gram	G. Nut	Horse gram
	Kharif- Rainfed	2nd Week of June- 1st week of July	-	-	-	-
	Kharif-Irrigated	4th week of June-2ndweek of July	-	-	-	-
	Rabi- Rainfed	-	2nd week of January	3rd week of January	2nd week of January	3rd week of January
	Rabi-Irrigated	4th week of December	-	-	4th week of January	-

1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought		✓	
	Flood		✓	
	Cyclone		✓	
	Hail storm		✓	
	Heat wave		✓	
	Cold wave			✓
	Frost			
	Sea water intrusion	✓		
	Pests and disease outbreak (specify)	✓ BPH, leaf folder, leaf eating caterpillar in green gram/black gram, aphids black headed caterpillar	Gall midge, Stem borer and locust attack.	
	Tsunami		✓	

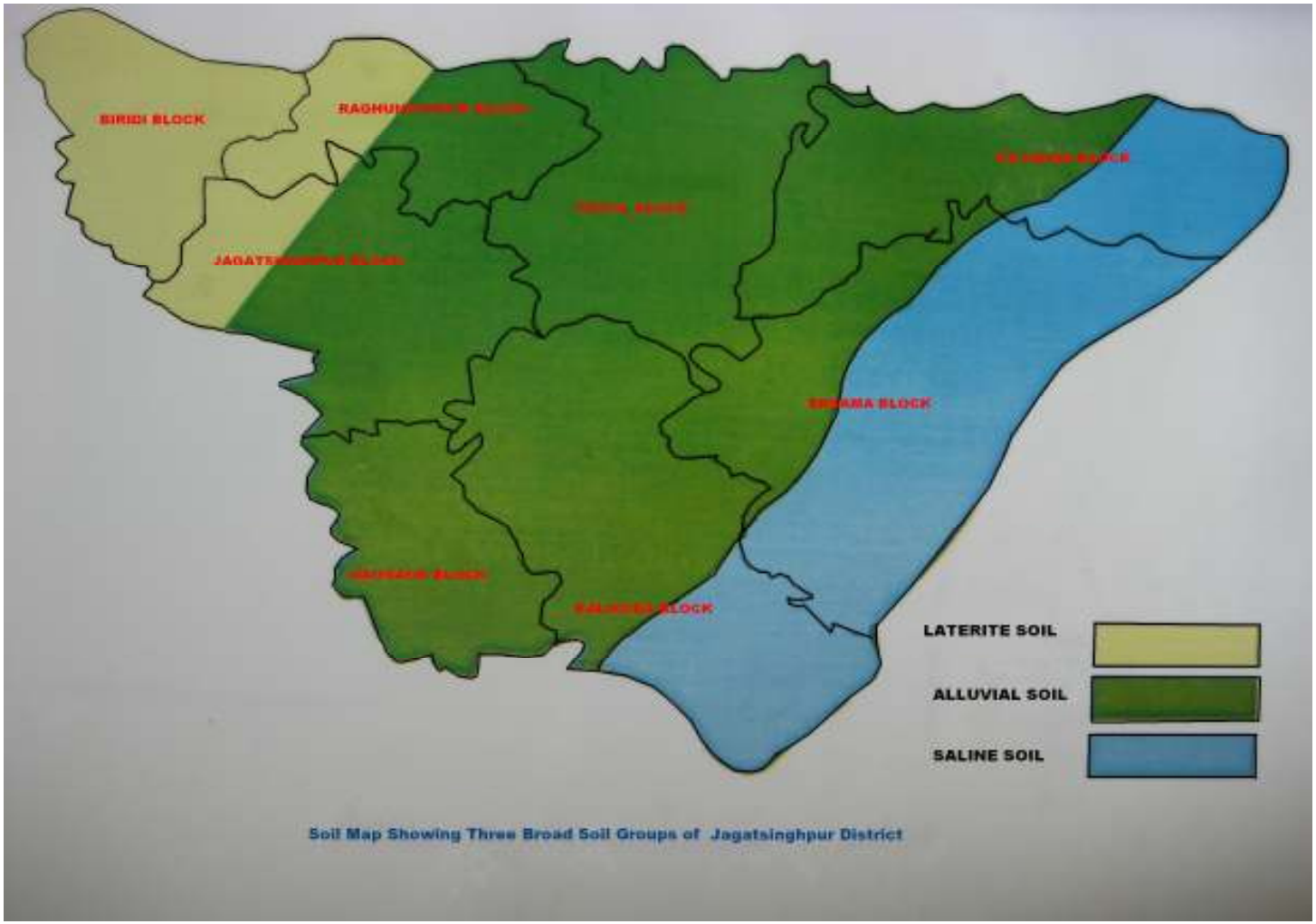
1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

LOCATION MAP OF JAGATSINGHPUR DISTRICT WITHIN ODISHA STATE

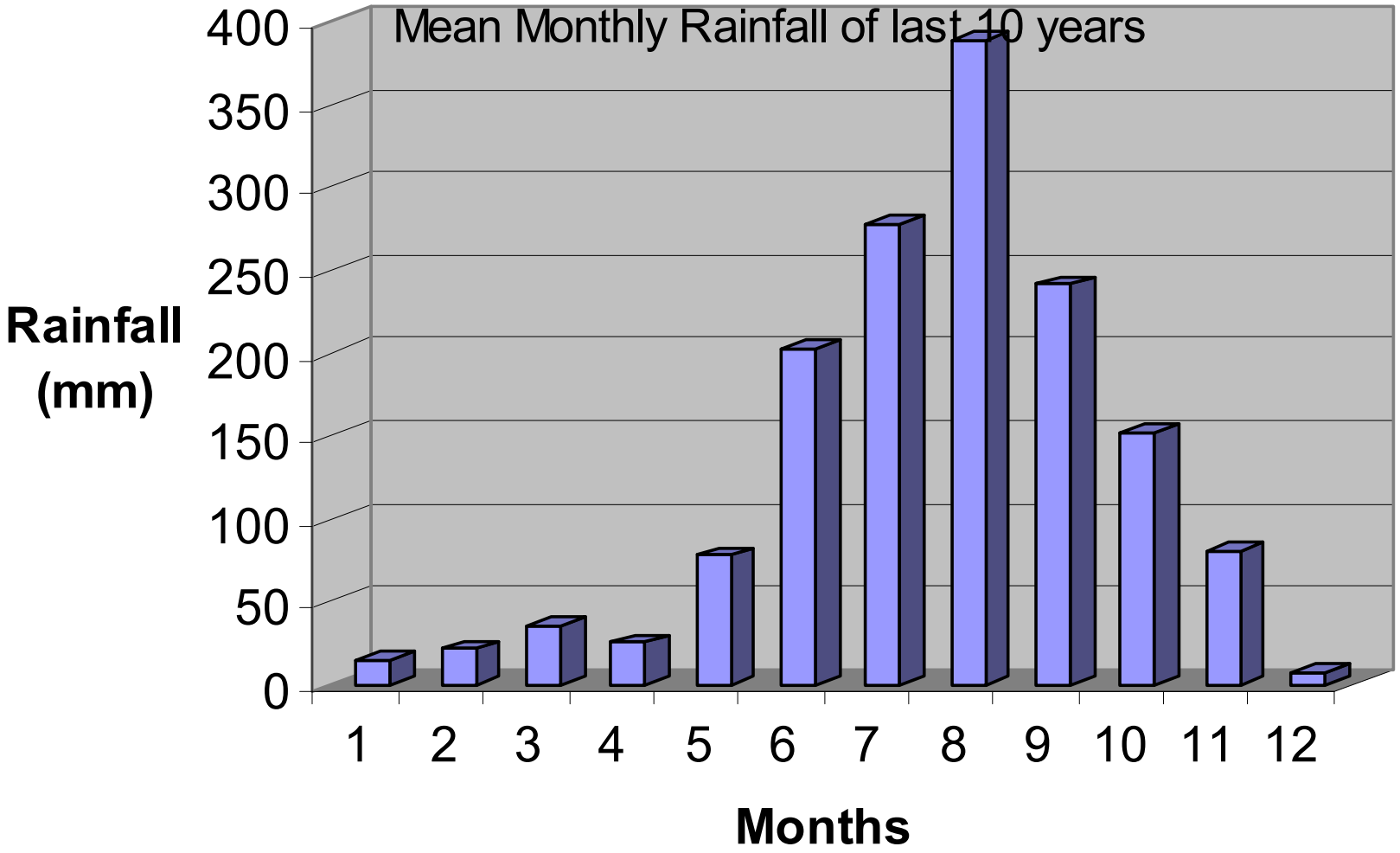
LOCATION MAP OF BLOCKS WITHIN JAGATSINGHPUR DISTRICT



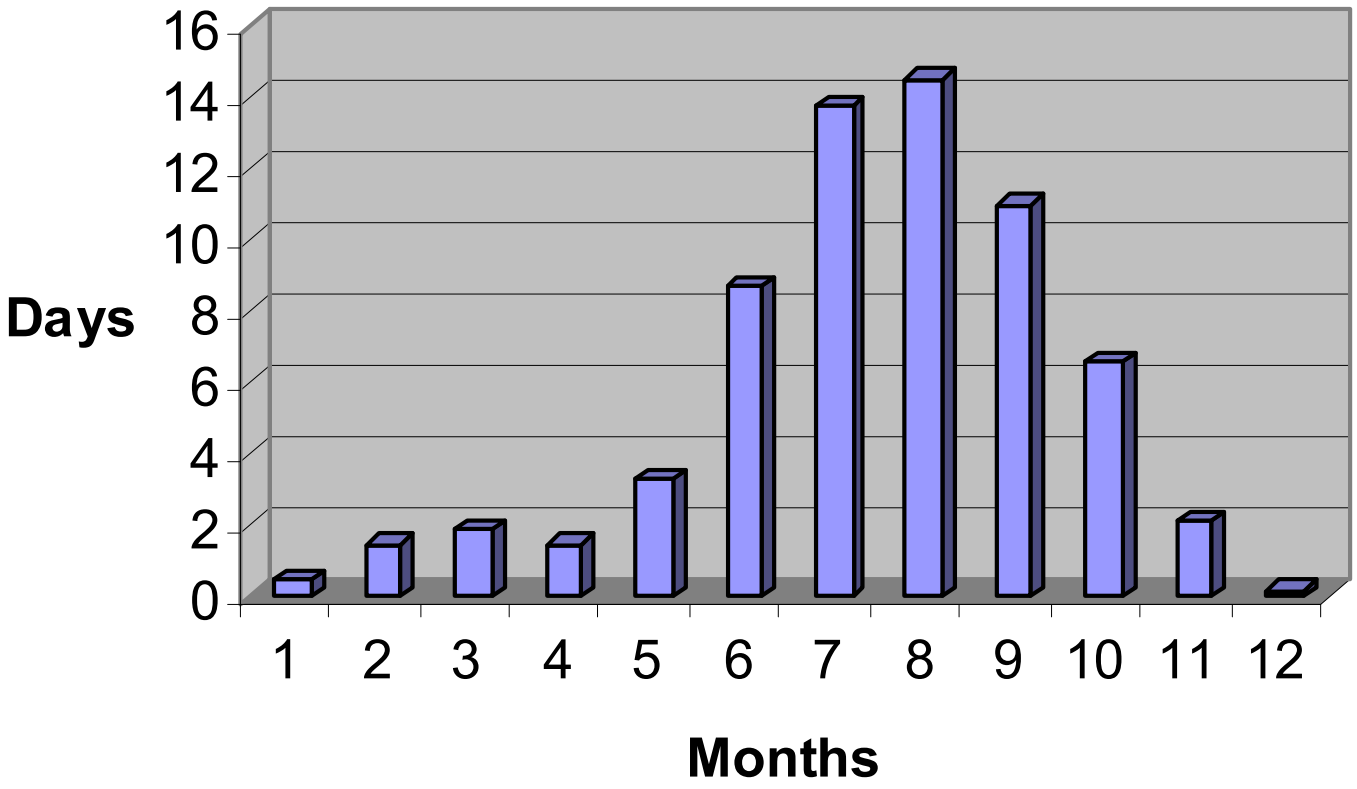
SOIL MAP OF JAGATSINGHPUR DISTRICT



MONTHLY AVERAGE RAINFALL (mm) OF LAST 10 YEARS OF JAGATSINGHPUR



MONTHLY AVERAGE RAINY DAYS OF LAST 10 YEARS OF JAGATSINGHPUR



2.0 Strategies for weather related contingencies
2.1 Drought
2.1.1 Rainfed situation

Condition	Suggested Contingency measures				
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (July 1st week)	Medium rainfall lateritic soils (Biridi block, parts of Jagatsinghpur and Raghunathpur block) Upland	Sole crop paddy i.e. Paddy-fallow	• Khandagiri/Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata)(4:2) Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row • Defer the sowing date in the nursery bed	Supports through NFSM, NREGS, IWMP, ISOPOM can be provided.
		Paddy – Greengram/Black gram/Horse gram/ Sesame			
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv- Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	• FYM in sufficient quantity should be applied in seed row • Soil mulching by polythene/ plant parts • Bed & furrow system of planting geometry.	

	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra,MTU-1010, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	Supports through NFSM, NREGS, IWMP, ISOPOM can be provided.
		Colocasia – Green gram/Black gram/Horse gram/ Sesame	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	• Black polythene mulching should be applied in the intra row spacing to avoid weed growth and moisture loss.	
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	• No change in crop or cropping system • Go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Defer sowing date to onset of monsoon. • Smruti,Devi, TMV-2,TAG-24 of groundnut	Ploughing of soil across the slope.	
		Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/Black gram/Horse gram/ Sesame	• Khandagir/ Parijat/ Pathara /Nilagiri/ Naveen / Dhala Heera/Shahabhagi/ JHU, etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row Defer the sowing date in the nursery bed	

			• Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.		
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.		
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, Vijeta, Konark, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
		Colocasia –Green gram/Black gram/ Horse gram	• Vegetables like colocassia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	• Black polythene mulching should be applied in the intra row spacing to avoid weed growth and moisture loss.	
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• No change in crop or cropping system • Go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	• Supply of seeds through OSSC.
	Medium rainfall	Sole crop of Horse	• Defer sowing date to onset of	Ploughing of soil across the	

	coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	gram, Black gram, etc.	monsoon.	slope.	
		Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Khandagir/ Parijat/ Pathara /Nilagiri/ Naveen /Shahabhagi/ JHU, etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Sanity tolerant paddy cv- Sonamani, Ragi, Horse gram are to be cultivated in salinity pockets.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row Defer the sowing date in the nursery bed	
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas • Paddy cv Lunishree, SR-26B, etc. are to be cultivated.	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• No change in crop or cropping system • Go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	• Supply of seeds through 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 Implementation**
Delay by 4 weeks (July 3rd week)	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow	• Kalinga-III (80d), Anjali (90d), Bandana(95d), Sidhant (96d), Virendra (90d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	• When the mortality of seedlings is less than 50% gap filling should be done and if more than 50% mortality, resow the crop with short duration high yielding low water requiring crops like green gram, black gram, horsegram (Urmi), Niger (Deomali) cow pea, sesame and castor after receiving the rainfall. • 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	Intercultural farm implements under RKVY. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).
		Paddy – Green gram/Black gram/Horse gram/ Sesame			
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra (cv-Utkal Gaurav), etc should be used. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	• Cultivate vegetables like okra, brinjal, tomato in ridges.	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and	Paddy – Green gram/ Black gram /Horse gram/Sesame	Paddy varieties like Manaswini(120d), Lalat (120d), MTU-1010(115d), Vijeta, Hazaridhan (120d), Sadabahar (105d), Chandan (120d), *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	Supports through NFSM, NREGS, IWMP, ISOPOM can be provided.

	Raghunathpur block)		rainfed areas		
		Colocasia – Green gram/ Black gram /Horse gram	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocasia can be done with sufficient rain water in the main field.	• Black polythene mulching should be applied in the intra row spacing to avoid weed growth and moisture loss.	
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy Green gram/ Black gram /Horse gram/Sesame	• No change in crop or cropping system • Go for little early varieties like Moti (145d), Krtakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Defer sowing date to onset of monsoon. • Smruti,Devi, TMV-2,TAG-24 of groundnut	Ploughing of soil across the slope.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
		Sole crop paddy i.e. Paddy-fallow in bunded upland	• Kalinga-III (80d), Anjali (90d), Bandana (95d), Sidhant (96d), Virendra (90d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2) Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row Defer the sowing date in the nursery bed	
		Paddy – green gram/black gram/horse gram/ sesame			
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like		

			gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.		
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – green gram/ black gram /horse gram/sesame	Paddy varieties like Manaswini(120d), Lalat (120d), MTU-1010(115d), Vijeta, Hazaridhan (120d), Sadabahar (105d), Chandan (120d), *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
		Colocasia –green gram/black gram/ Horse gram	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	• Black polythene mulching should be applied in the intra row spacing to avoid weed growth and moisture loss.	
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – green gram/ black gram /horse gram/sesame	• No change in crop or cropping system • Go for little early varieties like Moti (145d), Krtakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	• Supply of seeds through OSSC.
	Medium rainfall coastal saline upland situation (Parts of	Sole crop of Horse gram, Black gram, etc.	• Defer sowing date to onset of monsoon.	Ploughing of soil across the slope.	

	Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow	• Kalinga-III (80d), Anjali (90d), Bandana (95d), Sidhant (96d), Virendra (90d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row Defer the sowing date in the nursery bed	
		Paddy – Green gram/ Black gram /Horsegram/Sesame			
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse ram/Sesame	• Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra,MTU-1010, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas • Paddy cv Lunishree, SR-26B, etc. are to be cultivated.	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
	Medium rainfall coastal saline medium to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• No change in crop or cropping system • Go for little early varieties like Moti (145d), Krtakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	Defer the sowing date in nursery	• Supply of seeds through 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 Implementation**
Delay by 6 weeks (Aug 1st wk)	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow in bunded upland	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv-Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice.	• If possible grow nursery near water source or change raising paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram. • Foliar application of 2% urea at pre-flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice. • Remove the pest and disease infected plants from the main field.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
		Paddy – Green gram/ Black gram /Horse gram/Sesame			
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra (cv-Utkal Gaurav), etc should be used. Yam and elephant foot yam (cv- Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	Cultivate vegetables like okra, brinjal, tomato on ridges.	
	Medium rainfall lateritic medium land situation	Paddy – Green gram/ Black gram /Horsegram/Sesame	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan,	• Close the drainage hole and check the seepage loss in direct sown medium land rice regularly.	Seed drill under RKVY. Supply of seeds through ATMA,

	(Biridi block, parts of Jagatsinghpur and Raghunathpur block)		etc. in rainfed areas	• Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings at closer spacing of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas.	OSSC and NFSM • Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
		Colocasia – Green gram/ Black gram /Horse gram	• Vegetables like colocassia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.		
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	• No change in crop or cropping system • Go for medium duration varieties like Swarna (140d), Pratikshaya(142d), Ranidhan(142d), Surendra(135d), etc. in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep	Sowing in nursery with shorter duration varieties or else go for transplanting of 45 days old seedlings at closer spacing of Gayatri, Savitri, Sarala type of varieties in low land	
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Defer sowing date to onset of monsoon. • Smruti,Devi, TMV-2,TAG-24 of groundnut	Ploughing of soil across the slope.	
		Sole crop paddy i.e. Paddy-fallow	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame	• If possible grow nursery near water source or change raising paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram. • Foliar application of 2% urea at pre-	
		Paddy – Green gram/ Black gram /Horsegram/Sesame			

			(cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata)(4:2) Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice. • Remove the pest and disease infested plants from the main field.	
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system.	Cultivate vegetables like okra, brinjal, tomato on ridges.	
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds • Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. • Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings of Swarna, Pratikshya, Ranidhan of at closer spacing.	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
		Colocasia – Green gram/Blackgram/ Horse gram/ Sesame	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocasia can be done with sufficient rain water in the main field.		•
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of	Paddy – Green gram/ Black gram /Horsegram/Sesame	• No change in crop or cropping system • Go for medium duration varieties like Swarna (140d), Pratikshaya (142d), Ranidhan (142d), Surendra	Defer the sowing date in nursery	

	Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)		(135d), etc. in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep soils		
	Medium rainfall coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow	• Defer sowing date to onset of monsoon.	-	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
		Paddy – Green gram/ Black gram /Horsegram/Sesame	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv-Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata)(4:2) Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	• If possible grow nursery near water source or change raising paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram. • Foliar application of 2% urea at pre-flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice.. • Remove the pest and disease infected plants from the main field.	
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Defer the sowing date in the nursery beds. • Strengthening field bond dyke • Sow of peregrinated paddy seeds • Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. • Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings at closer spacing.	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.

	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	• No change in crop or cropping system • Go for medium duration varieties like Swarna (140d), Pratikshaya (142d), Ranidhan (142d), Surendra (135d), etc. in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep	• In case of damaged nursery fresh nursery prepared with shorter duration varieties. • Transplanting of 45 days old seedlings at closer spacing in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep.	

Condition	**Suggested Contingency measures**				
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks (Aug 3rd week)	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow	• Avoid paddy crop and sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv- Uma, Nirmala and Prachi) castor, in place of rice. • Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used	• If possible grow nursery near water source or change raising paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram.	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.

		Paddy- Green gram/ Black gram /Horsegram/Sesame	• Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice.	• Foliar application of 2% urea at pre flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice.. • Remove the pest and disease infected plants from the main field.	
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra (cv-Utkal Gaurav), etc should be used.	Cultivate vegetables like okra, brinjal, tomato on ridges.	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. • Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings of Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, at closer spacing.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
		Colocasia – Green gram/ Black gram /Horsegram/Sesame	• Transplant existing taro seedlings from the nursery at close spacing. • Avoid taro crop. Instead of it go for fresh nursery of short duration paddy like Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. or transplant 45 days old seedlings		• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	• No change in crop or cropping system • Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, Konark, *etc.* can be grown in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi,	• Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. • Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings of Swarna, Pratikshya,	

			Panidhan, etc. in medium deep soils	Ranidhan, etc. at closer spacing.	
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc*	• Defer sowing date to onset of monsoon. • Substitute groundnut with horse gram, black gram, etc..	Ploughing of soil across the slope.	
		Sole crop paddy i.e. Paddy- Paddy – Green gram/ Black gram /Horsegram/Sesame	• Avoid paddy crop and sow drought tolerant non paddy crops like black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2) Paddy + Black gram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	• If possible grow nursery near water source or change raising paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram. • Foliar application of 2% urea at pre-flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice.. • Remove the pest and disease infected plants from the main field.	
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system.	Cultivate vegetables like okra, brinjal, tomato on ridges.	
	Medium rainfall deep alluvium	Paddy – green gram/ black gram	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU,	• Defer the sowing date in the nursery beds.	• Seeds through NFSM, ISOPOM, NHM and

	medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	/horse gram/ sesame	*etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	• Strengthening field bond dyke • Sow of peregrinated paddy seeds • Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. • Withhold N fertilizer (top dressing) application up to receipt of rainfall. • Transplanting of 45 days old seedlings of Swarna, Pratikshya, Ranidhan, *etc.* at closer spacing.	state seed corporation (OSSC). • Intercultural farm implements under RKVY.
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – green gram/ black gram /horse gram/ sesame	• No change in crop or cropping system • Lalat, Manaswini, Surendra, Ajaya, Rajalaxmi, Geetanjali, Ketakijuha, Kshitish, etc.can be freshly sown in nursery instead of Swarna, • Pratikshya, Ranidhan, *etc*. in rainfed areas,MTU-1010, Vijeta, *etc.* can be grown in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation.	• Defer the sowing date in nursery till sufficient water is received • Already sown nursery should be given life saving irrigation. • 45days old seedlings of Swarna category or Gayatri type should be transplanted at closer spacing.	
	Medium rainfall coastal saline	Sole crop paddy i.e. Paddy-fallow	• Defer sowing date to onset of monsoon.	• If possible grow nursery near water source or change raising	

	upland situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	• Avoid paddy crop and sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB- Z, Utkal Manika), guar, sesame (cv- Uma, Nirmala and Prachi) castor, in place of rice. •Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used •Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. •Intercrops of Paddy + Green gram (PDM 54, Sujata)(4:2) Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	paddy crop rather skip to some drought tolerant vegetable crops. • Complete hoeing and weeding of non-paddy crops to provide dust mulch. • Post emergence spray of Quizalofop 5%EC @ 0.05 kg ai / ha in 500lt of water to control weeds in groundnut. • Spraying of 2% KCl + 0.1 ppm Boron to black gram. • Foliar application of 2% urea at pre-flowering and flowering stage of green gram. • Spray 1% urea in vegetable crops. • Top dressing of 25 % urea and potash after receipt of the rain for upland rice.. • Remove the pest and disease infected plants from the main field.	
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horsegram/Sesame	•Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	•Defer the sowing date in the nursery beds. •Strengthening field bond dyke •Sow of peregrinated paddy seeds •Close the drainage hole and check the seepage loss in direct sown medium land rice regularly. •Withhold N fertilizer (top dressing) application up to receipt of rainfall. Transplanting of 45 days old seedlings of Swarna, Pratikshya,	• Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). • Intercultural farm implements under RKVY.

				Ranidhan, *etc.* in rainfed areas at closer spacing.	
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• No change in crop or cropping system • Lalat, Manaswini, Surendra, Ajaya, Rajalaxmi, Geetanjali, Ketakijuha, Kshitish, etc.can be freshly sown in nursery instead of Swarna, • Go for medium duration varieties like Swarna (140d), Pratikshaya (142d), Ranidhan (142d), Surendra (135d), etc. in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep	• Defer the sowing date in nursery till sufficient water is received • Already sown nursery should be given life saving irrigation. • 45days old seedlings of Swarna category or Gayatri type should be transplanted at closer spacing.	

Condition	**Suggested Contingency measures**				
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow	• Use early paddy varieties, gap filling by splitting. • Thinning and gap filling of the existing crop if mortality is less than 50%. • Broadcasting sprouted seeds of short duration varieties. • Chemical weed control. • Reseeding of nursery beds • Resowing in severely damaged field with >50% mortality.	• Plug all seepage outlets. • Apply potassic fertilizer when ever soil moisture allows.	• Farm pond under NREGS, IWMP, diesel pump sets and KB pumps in tankfed areas under RKVY and NFSM. • Small nursery development under NHM.
		Paddy – Green gram/ Black gram /Horse gram/Sesame	-do-		

		Vegetables – Fallow	• Manual weeding from the inter rows. • Transplanting of old seedlings with higher nitrogen and potash application so as to induce fast growth after rain. • Stand by nursery should be prepared to get ready for complete crop failure • Thinning out of greens.	• Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for vegetable crops • Mulching of the inter row space in the transplanted crops	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Use of medium duration paddy varieties like Lalat, Manaswini, Naveen, Bejeta, MTU 1010, Konark, Jogesh and Surendra • Fresh transplanting of severely damaged field. • If rice population is less than 50% then resow the crop. • Select early maturing varieties (90d). • Sprouted seeds may be direct seeded in lines or fresh seedlings may be raised for transplanting • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide life saving irrigation as and when necessary.	•Use of sufficient organic matter / FYM / Compost •Green manuring & green leaf manuring. •Spray 2-4-D to decompose the sesbania plants	
		Colocassia – Green gram/ Black gram /Horse gram/Sesame	•Use black poly mulching. •Use drought tolerant variety like *Kujanga Kuji*		
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	•Gap filling of damaged field with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation. •Gapfiling with fresh seedlings of	•Plugging of all seepage holes.	

			Swarna, Pratikshya,Ranidhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field. • If rice population is less than 50% gap filling may be done fresh seedlings may be transplanted • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua)* • If the nursery is damaged then go for a 15-30days shorter duration paddy varieties. e.g. go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc. • Prefer direct seeding to transplanting in low lands. • Sow 5-7 seeds (*Punji*) per hill. • Use chemical herbicides like Butachlor, Pretilachlor, etc. as pre emergence application. • Never wait for beusaning . Go for hand weeding in direct seeding nurseries. Apply life saving irrigations in the nursery field. • Never go for planting in until sufficient water in field is accumulated • Prefer closer spacing and older seedlings of 45days and plant 5-6 seedlings/hill.		
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur,	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Smruti,Devi, TMV-2,TAG-24 of groundnut. • Sowing across the slope in developing ridges. • Use of pre soaked seeds for better germination.	Apply life saving irrigation from any available source.	Good quality seeds should be supplied by OSSC, ATMA, NFSM, etc.

	Kujanga, Ersama, Balikuda and Raghunathpur block)		• Sowing of seeds in field in evening hours followed by laddering. • Application of FYM : SSP @ 10:1 placed at seeding point to avoid seeding mortality		
		Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Select early varieties (90d) like Khandagiri, Anjali, Pathara, Vandana, etc. • Resow rice crop if population is less than 50% by varieties like Pathara, Khandagiri etc. • Sprouted seeds used for direct seeding (10 seeds at one pairly at 20X10cm spacing • Fresh seedlings of early varieties for transplanting if population of rice is more than 50% than weeding followed by k*helua* for clonal propagation • Raise community nursery at reliable water source	• Plug all seepage holes • Plough across slope • Addition of sufficient organic matter, P and K should be applied as basal.	
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Live mulch of dry plant parts should be applied.	Cultivate vegetables like okra, brinjal, tomato on ridges.	
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, MTU-1010, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas. • If rice population is less than 50% then resow the crop. • Select early maturing varieties (90d). • Sprouted seeds may be direct seeded in lines or fresh seedlings may be		

			raised for transplanting • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide life saving irrigation as and when necessary.		
		Colocasia – Green gram/ Black gram /Horse gram/Sesame	• Vegetables like colocassia can be transplanted in the main field after getting sufficient water in the main filed. • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	Poly mulching can be used in the intra rows to check evaporation and	
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – green gram/ black gram /horsegram/sesame	• Gap filling of damaged field with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation. • Gapfiling with fresh seedlings of Swarna, Pratikshya,Rani dhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field. • If the nursery is damaged then go for a 15-30days shorter duration paddy varieties. e.g. go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc. • Never go for planting in until sufficient water in field is accumulated. • Prefer closer spacing and older seedlings of 45days and plant 5-6 seedlings/hill. • Prefer direct seeding to transplanting	• If rice population is less than 50% gap filling may be dawn. • Fresh seedlings may be transplanted • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (Khelua)	• Supply of seeds through OSSC.

			in low lands. • Sow 5-7 seeds (*Punji*) per hill. • Use chemical herbicides like Butachlor, Pretilachlor, etc. as pre emergence application. • Never wait for beusaning . Go for hand weeding in direct seeding nurseries. Apply life saving irrigations in the nursery field.		
	Medium rainfall coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Khandagir/ Parijat/ Pathara /Nilagiri/ Naveen /Shahabhagi/ JHU, etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv-SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Saline tolerant paddy cv-Sonamani, Ragi, Horse gram are to be cultivated in salinity pockets.	• Bed & furrow system of planting geometry. • *In-situ* rain water conservation • Full P&K & 20% N at basal along with FYM at seed row Defer the sowing date in the nursery bed	
		Vegetables – Fallow	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries with sufficient FYM.		• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda	Paddy – green gram/ black gram /horse gram/ sesame.	• Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, MTU-1010, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas.	• Use of sufficient organic matter / FYM / Compost • Green manuring & green leaf manuring.	

	block)		• If rice population is less than 50% then resow the crop. • Select early maturing varieties (90d). • Sprouted seeds may be direct seeded in lines or fresh seedlings may be raised for transplanting • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide life saving irrigation as and when necessary.	• Spray 2-4-D to decompose the sesbania plants	
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Gap filling of damaged field with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation. • Gapfiling with fresh seedlings of Swarna, Pratikshya,Ranidhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field. • If rice population is less than 50% gap filling may be done fresh seedlings may be transplanted • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua)* • If the nursery is damaged then go for a 15-30days shorter duration paddy varieties. e.g. go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc. • Prefer direct seeding to transplanting in low lands.	• Plugging of all seepage holes.	

			• Sow 5-7 seeds (*Punji*) per hill. • Use chemical herbicides like Butachlor, Pretilachlor, etc. as pre emergence application. • Never wait for beusaning . Go for hand weeding in direct seeding nurseries. Apply life saving irrigations in the nursery field. • Never go for planting in until sufficient water in field is accumulated • Prefer closer spacing and older seedlings of 45days and plant 5-6 seedlings/hill.		

Condition	**Suggested Contingency measures**				
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At vegetative stage	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Thinning and gap filling of the existing crop if mortality is less than 50%. • Broadcasting sprouted seeds of short duration varieties. • Resowing/transplanting with shorter duration varieties in severely damaged field with >50% mortality. • Thin out excess population from unit area and hill.	• Spraying of 2% urea • Broadbed and forrow planting for *in-situ* moister conservation • Rain water harvesting and recycling • Top dressing the crop after receipt of rain. • Check seepage loss by plugging the holes. • Application of potashic fertilizer.	CLDP, IWMP, NREGS, ISOPOM & NFSM
		Vegetables – Fallow	• Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for vegetable crops • Manual weeding from the inter rows. • Life saving irrigation at the	• Complete hoeing weeding and earthling up at 20 DAS for moisture conservation for vegetable crops	

			rhizosphere (basin). • Transplanting of old seedlings with higher nitrogen and potash application so as to induce fast growth after rain. • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Thinning out of greens.	• Mulching of the inter row space in the transplanted crops	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Fresh transplanting of severely damaged field • If rice population is less than 50% then resow the crop. • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide life saving irrigation as and when necessary. • Try to keep some seedlings in the nursery bed on community basis or in the main field individuality to cope with such eventuality in such early stage.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	
		Colocasia – Green gram/ Black gram /Horse gram/Sesame	• Use black poly mulching. • Use drought tolerant variety like *Kujanga Kuji.* • Gap filling with seedlings.		
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Gap filling of damaged field with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation. • Gapfiling with fresh seedlings of Swarna, Pratikshya, Ranidhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field.	• Plug all seepage outlets and low lying runoff passages. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	-

			• If rice plant population is less than 50% gap filling may be done fresh seedlings may be transplanted • If rice plant population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua)*		
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Withhold nitrogen fertilizer till sufficient rain water is received. • Uproot the entire crop of and use it for fodder crop in case of severely affected by negative moisture stress. • Sprinkling of water through sprinklers to avoid hardening of soil.		-
		Sole crop paddy i.e. Paddy-fallow	• Fresh seedlings of early varieties for transplanting if population of rice is more than 50% than weeding followed by *khelua* for clonal propagation • Raise community nursery at reliable water source for mitigating such eventuality. • Never go for beusaning in direct seeded rice if the age of the crop >45days. Prefer immediate hand weeding.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	
		Paddy – Green gram/ Black gram /Horse gram/Sesame			
		Vegetables – Fallow	• Live mulch of dry plant parts should be applied. • Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits. • Get ready for a catch crop in case of severe mortality.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received.	
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama,	Paddy -Green gram/ Black gram /Horse gram/Sesame	• Sprouted seeds may be direct-seeded in lines or fresh seedlings may be raised for transplanting • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide	• Plug all seepage outlets.	-

	Balikuda and Raghunathpur block)		life saving irrigation as and when necessary		
		Colocassia – Green gram/ Black gram /Horse gram/Sesame	• Use black poly mulching. • Use drought tolerant variety like *Kujanga Kuji.* • Gap filling of with seedlings.		
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Gap filling of damaged field in early vegetative stage with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, *etc*. in medium deep water situation after getting rain water. • Gapfiling with fresh seedlings of Swarna, Pratikshya, Ranidhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field after getting rain water. • Never wait for beusaning. Go for hand weeding in direct seeding nurseries. Apply life saving irrigations in the nursery field.	• If rice population is less than 50% gap filling may be dawn. • Fresh seedlings may be transplanted • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (Khelua)	• Supply of seeds through OSSC.
	Medium rainfall coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow	• Fresh seedlings of early varieties for transplanting if population of rice is more than 50% than weeding followed by *khelua* for clonal propagation • Raise community nursery at reliable water source for mitigating such eventuality. • Never go for beusaning in direct seeded rice if the age of the crop >45days. Prefer immediate hand weeding.	• *In-situ* rain water conservation	-
		Paddy – Green gram/ Black gram /Horse gram/Sesame			-
		Vegetables – Fallow	• Live mulch of dry plant parts should be applied. • Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits. • Get ready for a catch crop in case of severe mortality.		-

	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Sprouted seeds may be direct-seeded in lines or fresh seedlings may be raised for transplanting • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua*), plugging of drainage hole for checking seepage loss and to provide life saving irrigation as and when necessary.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	-
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Gap filling of damaged field with the same age seedlings of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep water situation. • Gap filing with fresh seedlings of Swarna, Pratikshya,Ranidhan, Sidhanta and Mahsuri varieties can be grown in severely damaged field. • If rice population is less than 50% gap filling may be done fresh seedlings may be transplanted • If rice population is more than 50 % carryout weeding and adjust the plant population by redistribution of hills (*Khelua)* • Never wait for beusaning. Go for hand weeding in direct seeding nurseries. Apply life saving irrigations in the nursery field.	• Plugging of all seepage holes.	-

Condition	Suggested Contingency measures				
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At flowering/ fruiting stage	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a shorter duration variety. • Harvest the crop at physiological maturity stage.	• Application of potassic fertilizer. • Rain water harvesting and recycling • Top dressing the crop after receipt of rain. • Check seepage loss by plugging the holes.	CLDP, IWMP, NREGS, ISOPOM & NFSM
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Intermittent spraying of water to keep the micro climate moist. • Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome droughtt. • Foliar application of 2% urea at pre-flowering and flowering stage is helpful. • Remove and destroy pest and disease affected plants • Crops like cow pea, green gram, black gram and vegetables may be harvested	• Poly mulch or live mulch to minimize evaporation. • Light hoeing to disturb capillaries for checking evaporation.	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety. • Harvest the crop at physiological maturity stage.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	-

		Colocassia – Green gram/ Black gram /Horse gram	• Use black poly mulching. • Use drought tolerant variety like *Kujanga Kuji.* • Gap filling with seedlings.		
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early variety. • Harvest the crop at physiological maturity stage.	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling • Apply potassic fertilizer when ever soil moisture allows.	-
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc.*	• Uproot the entire crop and use it for fodder crop in case of severely affected by negative moisture stress. • Sprinkling of water through sprinklers to avoid hardening of soil which decreases pegging in groundnut. • Crops like cow pea, green gram and black gram may be harvested.		-
		Sole crop paddy i.e. Paddy-fallow in bunded upland Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety.	• Plug all seepage outlets.	
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Light hoeing to disturb capillaries for checking evaporation. • Intermittent spraying of water to keep the micro climate moist.	• Plug all seepage outlets. • Poly mulch or live mulch to minimize evaporation.	

			• Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome drought. • Remove and destroy pest and disease affected plants • Crops like cow pea and vegetables may be harvested		
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety.	• Plug all seepage outlets.	
		Colocasia – Green gram/ Black gram /Horse gram/Sesame	• Use black poly mulching. • Use drought tolerant variety like *Kujanga Kuji.* • Gap filling of with seedlings.		
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety.	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling • Top dressing the crop after receipt of rain. • Apply potassic fertilizer when ever soil moisture allows.	CLDP, IWMP, NREGS, ISOPOM & NFSM
	Medium rainfall coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a shorter duration variety.	• *In-situ* rain water conservation	
		Paddy – Green gram/ Black gram /Horse gram/Sesame			
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to		

			mitigate complete crop failure and catch the season. • Poly mulch or live mulch to minimize evaporation. • Light hoeing to disturb capillaries for checking evaporation. • Intermittent spraying of water to keep the micro climate moist. • Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome droughtt. • Remove and destroy pest and disease affected plants • Crops like cow pea, green gram and black gram may be harvested		
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received. • Apply potassic fertilizer when ever soil moisture allows.	
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early variety.	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling • Top dressing the crop after receipt of rain. • Apply potassic fertilizer when ever soil moisture allows.	

Condition	**Suggested Contingency measures**				
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
	Medium rainfall lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Sole crop paddy i.e. Paddy-fallow	• Life saving irrigation should be applied. • If the standing crop fails then go for Horse gram/Green gran/ Cowpea/ Black gram/ Niger etc. as pre *rabi* crop. • Harvest the crop at physiological maturity stage.	• Check seepage loss by plugging the holes.	CLDP, IWMP, NREGS, ISOPOM & NFSM
		Paddy – Green gram/ Black gram /Horse gram/Sesame			
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Light hoeing to disturb capillaries for checking evaporation. • Intermittent spraying of water to keep the micro climate moist. • Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome droughtt. • Remove and destroy pest and disease affected plants • Crops like cow pea and vegetables may be harvested	• Mulching of the inter row space in the transplanted crops	
	Medium rainfall lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a early/extra early variety.	• Plug all seepage outlets. • Stop foliar application or top dressing of nitrogen till sufficient rain water is received.	
		Colocassia – Green gram/ Black gram	• Use black poly mulching. • Use drought tolerant variety like		

		/Horse gram/Sesame	*Kujanga Kuji.* • Harvesting of the rhizomes just after getting rain.		
	Medium rainfall lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a early variety.	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling • Top dressing the crop after receipt of rain.	
	Medium rainfall deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Sole crop of Horse gram, Black gram, groundnut, *etc*	• Uproot the entire crop of and use it for fodder crop in case of severely affected by negative moisture stress. • Sprinkling of water through sprinkliers to avoid hardening of soil which decreases pegging in groundnut. • Crops like cow pea, green gram, black gram and vegetables may be harvested. • Harvest the crop at physiological maturity stage.		
		Sole crop paddy i.e. Paddy-fallow Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a early/extra early variety.	• Plug all seepage outlets.	
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Light hoeing to disturb capillaries for checking evaporation.	• Plug all seepage outlets. • Poly mulch or live mulch to minimize evaporation.	

			• Intermittent spraying of water to keep the micro climate moist. • Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome droughtt. • Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful. • Remove and destroy pest and disease affected plants • Crops like cow pea and vegetables may be harvested		
	Medium rainfall deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of a early/extra early variety.	• Plug all seepage outlets.	
		Colocassia – Green gram/ Black gram /Horse gram	• Use black poly mulching. • Gap filling of with seedlings.		
	Medium rainfall deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	• Life saving irrigation should be applied. • If the crop is severely affected then go for transplanting of a early variety.	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling	CLDP, IWMP, NREGS, ISOPOM & NFSM
	Medium rainfall coastal saline upland situation (Parts of Kujanga, Ersama and Balikuda block)	Sole crop paddy i.e. Paddy-fallow in bunded upland	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then	• *In-situ* rain water conservation	CLDP, IWMP, NREGS, ISOPOM & NFSM
		Paddy – Green gram/ Black gram /Horse			

		gram/Sesame	dismantle the existing crop and gon for pre rabi crops like horse gram, green gram, black gram, cow pea, etc.		
		Vegetables – Fallow	• Life saving irrigation at the rhizosphere (basin). • Stand by nursery should be maintained on community basis to mitigate complete crop failure and catch the season. • Poly mulch or live mulch to minimize evaporation. • Light hoeing to disturb capillaries for checking evaporation. • Intermittent spraying of water to keep the micro climate moist. • Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome drought. • Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful. • Remove and destroy pest and disease affected plants • Crops like cow pea, green gram, black gram, etc. may be harvested		
	Medium rainfall coastal saline medium land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame.	• Life saving irrigation should be applied. • Sprinkling of water to minimize chaff ness of grains • If the crop is severely affected then go for transplanting of an early/extra early variety.	• Plug all seepage outlets.	
	Medium rainfall coastal saline medium low to low land situation (Parts of Kujanga, Ersama and Balikuda block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	-do-	• Plug all seepage outlets and low lying runoff passages. • Rain water harvesting and recycling	

2.1.2 Drought - Irrigated situation-Not experienced

Condition	Suggested Contingency measures				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed release of water in canals due to low rainfall	Canal irrigated lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/ Black gram /Horse gram/Sesame	Paddy/Fallow – Green gram/ Black gram /Horse gram/Sesame	Khandagiri/Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, etc. are to be used Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv- Uma, Nirmala and Prachi) castor, in place of rice. Intercrops of Paddy + Green gram (PDM 54, Sujata)(4:2) Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	-
		Vegetables – Fallow/ Green gram/ Black gram /Horse gram/Sesame	No change	Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. Yam and elephant foot yam (cv- Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	-
	Canal irrigated lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram / Vegetables /Sunflower	No change	Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra,MTU-1010, Vijeta, Konark, Yogesh, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	-
		Colocasia –Green gram/Black gram/	No change	Vegetables like colocassia can be transplanted in the main field after onset of normal monsoon	-

				Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	
	Canal irrigated lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram/	• No change	Go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Greengram /Black gram/Horse gram/ Sesame	Paddy/Ragi – Green gram/Black gram/Horse gram/ Sesame	Khandagir/ Parijat/ Pathara /Nilagiri/ Naveen / Dhala Heera/Shahabhagi/ JHU, etc. are to be used Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv- SEB-Z, Utkal Manika), guar, sesame (cv- Uma, Nirmala and Prachi) castor, in place of rice. Intercrops of Paddy + Green gram (PDM 54, -Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	-
		Vegetables – fallow/Green gram/Black gram/Horse gram/ Sesame	No change	Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. Yam and elephant foot yam (cv- Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	-
	Canal irrigated deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur,	Paddy – Green gram/Black gram/Horse gram/ Sesame	No change	Paddy varieties like Tapaswini, Manaswini, Ajay, Rajalaxmi, Lalat, Surendra, Vijeta, Konark, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	-
		Colocasia – Green	No change	Vegetables like colocassia can be	--

	Kujanga, Ersama, Balikuda and Raghunathpur block)	gram/Black gram/Horse gram/ Sesame		transplanted in the main field after onset of normal monsoon Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	
	Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	No change	Go for little early varieties like Gayatri, Savitri, Sarala, Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	-

Condition	**Suggested Contingency measures**				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Limited release of water in canals due to low rainfall	Canal irrigated lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Greengram/Black gram/ Sesame	Paddy/Fallow – Green gram/Black gram/ Sesame	• Kalinga-III (80d), Anjali (90d), Bandana(95d), Sidhant (96d), Virendra (90d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv-SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up.	-
		Vegetables – Fallow/ Green gram/Black gram/	Vegetables – Fallow/ Green gram/Black	• Drought tolerant, short duration varieties of vegetables like gourds,	

		Sesame	gram/ Sesame	pumpkin, guar, tomato, brinjal, chilli, okra (cv-Utkal Gaurav), etc should be used. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	
	Canal irrigated lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy Green gram/Black gram/ Vegetables /Sunflower	Paddy Green gram/Black gram	Paddy varieties like Manaswini(120d), Lalat (120d), MTU-1010(115d), Vijeta, Hazaridhan (120d), Sadabahar (105d), Chandan (120d), *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	
		Colocassia – Green gram/Black gram	No change	• Vegetables like colocassia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	
	Canal irrigated lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy Green gram/Black gram	-do-	• Go for little early varieties like Moti (145d), Krtakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	Paddy/ragi – Green gram/Black gram/ Horsegram/Sesame	• Kalinga-III (80d), Anjali (90d), Bandana (95d), Sidhant (96d), Virendra (90d), etc. are to be used • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv-SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2) Paddy + Blackgram (T9, Pant U -19, PU –30)	

				(4:2) can be taken up.	
		Vegetables – fallow/ Green gram/Black gram/Horse gram/ Sesame	No change	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	
	Canal irrigated deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/ Sesame	No change	Paddy varieties like Manaswini(120d), Lalat (120d), MTU-1010(115d), Vijeta, Hazaridhan (120d), Sadabahar (105d), Chandan (120d), *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	
		Colocassia – Green gram/Black gram/Horse gram	-do-	• Vegetables like colocassia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	
	6) Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	-do-	• No change in crop or cropping system • Go for little early varieties like Moti (145d), Krtakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	

Condition	Suggested Contingency measures				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of monsoon in catchment	Canal irrigated lateritic upland situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram/ Sesame	• Paddy/ Ragi– Horse gram/ green gram/black gram/ sesame • Paddy+ Green gram/Black gram – Fallow • Fallow – Green gram/Black gram/ Sesame	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used. • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv-SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2), Paddy + Blackgram (T9, Pant U -19, PU – 30) (4:2) can be taken up. • Rain water storage and recycling by reducing run off. • Ploughing across the slope. • Manual weeding in rice crop of >45days age without waiting for beusaning.	
		Vegetables – Fallow/ Green gram/\Black gram/ Sesame	No change	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra (cv-Utkal Gaurav), etc should be used. • Regular weeding. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	
	Canal irrigated lateritic medium land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur	Paddy – Green gram/ Black gram / Vegetables /Sunflower	Paddy – Green gram/ Black gram	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU, *etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas.	

	block)	Colocasia –Green gram/Black gram/	Colocasia –Green gram/Black gram/	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocasia can be done with sufficient rain water in the main field.	
	Canal irrigated lateritic medium low land situation (Biridi block, parts of Jagatsinghpur and Raghunathpur block)	Paddy – Green gram/Black gram	• Paddy – Green gram/Black gram	• Go for little early varieties like Moti (145d), Ketakijuha (145d), Nua Dhusura (145d), Nua Kala jeera (145d), Padmini (145d), Savitri (145d), Pooja in low land instead of Varshadhan, Chakaakhi, Panidhan, etc.	• Seed drill under RKVY. • Supply of seeds through ATMA, OSSC and NFSM
	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	• Paddy/ ragi– Horse gram/ Green gram/Black gram/ Sesame • Paddy+ Green gram/Black gram – Fallow • Fallow – Green gram/Black gram/ Sesame	• Kalinga-III (80d), Heera (75d), Dhala Heera (80d), etc. are to be used. • Sow drought tolerant non paddy crops like ragi (cv- Chilka), black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), Horse gram (Urmi), cow pea (cv-SEB- Z, Utkal Manika), guar, sesame (cv-Uma, Nirmala and Prachi) castor, in place of rice. • Intercrops of Paddy + Green gram (PDM 54, Sujata) (4:2) Paddy + Blackgram (T9, Pant U -19, PU –30) (4:2) can be taken up.	
		Vegetables–fallow/ Green gram/Black gram/Horse gram/ Sesame	No change	• Drought tolerant, short duration varieties of vegetables like gourds, pumpkin, guar, tomato, brinjal, chilli, okra(cv-Utkal Gaurav), etc should be used instead of changing the cropping system. • Yam and elephant foot yam (cv-Orissa Elite, Pusa Hemlata) can be planted as sole crop or at farm boundaries.	
	Canal irrigated deep alluvium	Paddy – Green gram/Black	Paddy – Green gram/Black gram/Horse	• Khandagiri/ Pathara /Nilagiri/ Naveen / Shahabhagi/ JHU,	

	medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	gram/Horse gram/ Sesame	gram/ Sesame	*etc.* can be taken up instead of Swarna, Pratikshya, Ranidhan, etc. in rainfed areas	
		Colocasia –green gram/black gram/ Horse gram	No change	• Vegetables like colocasia can be transplanted in the main field after onset of normal monsoon • Transplanting of '*Kujanga Kuji'* type of colocassia can be done with sufficient rain water in the main field.	
	Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – Green gram/Black gram/Horse gram/ Sesame	-do-	• Go for medium duration varieties like Swarna (140d), Pratikshaya (142d), Ranidhan (142d), Surendra (135d), etc. in low land instead of Gayatri, Savitri, Sarala type of varieties in low land and Varshadhan, Chakaakhi, Panidhan, etc. in medium deep	

Condition	**Suggested Contingency measures**				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Non release of water in canals under delayed onset of monsoon in catchment	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	No Change	Use of high organic matter to conserve moisture in situ. Judicious use of water	-
		Paddy – vegetables	-do-	Dry seeding in nursery bed, Use any other available water source for life saving irrigation -to the nursery bed.	
		Vegetables - vegetables	No change	Nursery are sown after water availability	-
	Canal irrigated deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda	Paddy – pulse	-do-	SRI method of cultivation	-
		Paddy – vegetables	-do-		-

Condition	Suggested Contingency measures				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
	and Raghunathpur block)				
	Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	-do-	Conserve water in the field	-

Condition	Suggested Contingency measures				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	No change	Use of high organic matter to conserve moisture in situ. Judicious use of water	-
		Paddy – vegetables	-do-	Dry seeding in nursery bed, Use any other available water source for life saving irrigation to the nursery bed.	-
		Vegetables - vegetables	-do-	Nursery are sown after water availability	-
	Canal irrigated deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	-do-	SRI method of cultivation	-
		Paddy – vegetables	-do-	-	-
	Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	-do-	Conserve water in the field, Apply irrigation in skip row pattern, deficit irrigation, limited area irrigation, mulching etc	-

Condition	Suggested Contingency measures				
	Major Farming situation	**Normal Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Insufficient groundwater recharge due to low rainfall	Canal irrigated deep alluvium upland situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	No change	Use of high organic matter to conserve moisture in situ. Judicious use of water	-
		Paddy – vegetables	-do-	Dry seeding in nursery bed, Use any other available water source for life saving irrigation to the nursery bed.	-
		Vegetables - vegetables	-do-	Nursery are sown after water availability	-
	Canal irrigated deep alluvium medium land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	-do-	SRI method of cultivation	-
		Paddy – vegetables	-do-		-
	Canal irrigated deep alluvium medium low land situation (Naugaon and Tirtol block, parts of Jagatsinghpur, Kujanga, Ersama, Balikuda and Raghunathpur block)	Paddy – pulse	-do-	Conserve water in the field, Apply irrigation in skip row pattern, deficit irrigation, limited area irrigation, mulching etc	-

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

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Paddy	Drainage of Excess water from the field.	Drainage of excess water	Harvesting at physiological	Safe storage & room drying of seeds to prevent viviparous

	Gap filling in damaged vacant space either by new seedlings of same variety remaining in hand after transplanting or Seedlings of the other variety or by splitting of the existing seedlings. Prophylactic spray to reduce any possible pest damage, Cultivate sub-1 varieties of Swarna and Sarala in the next year		maturity	germination and any possible damage
Pulse	Drainage of excess water	Drainage	Harvesting at physiological maturity	Safe storage & room drying of seeds
Horticulture				
Coconut	Drainage, earthing up	Drainage, earthing up, Prophylactic spray	Drainage, earthing up,	
Banana	-do-	-do-	-do-	Quick dispose / sale
Mango	-do-	-do-	-do-	-do-
Vegetables	Drainage, Gap filling, earthing up	-do-	-do-	-do-
Heavy rainfall with high speed winds in a short span				
Paddy	Gap filling, Prophylactic spray, Use dwarf varieties in those areas Apply potassic fertilizer	Drainageof excess water Apply potassic fertilizer	Harvesting at physiological maturity	Safe storage & room drying of seeds
Horticulture				
Coconut	Drainage, earthing up	Drainage, earthing up, Prophylactic spray	Drainage, earthing up,	
Banana	Drainage, earthing up, Wind breaks on north side	-do-	-do-	-do-
Mango	-do-	-do-	-do-	-do-
Vegetables	Drainage, Gap filling, earthing up	-do-	-do-	-do-
Outbreak of pests and diseases due to unseasonal rains				
Paddy	Drainages, prophylactic and curative sprays	Drainage and curative sprays	Harvesting at maturity	Shifting of harvested grains to safer place

2.3 Floods:

Condition	Suggested contingency measures			
Transient water logging/ partial inundation	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Paddy	Drainage of standing water Avoid nitrogenous fertilizer application	Drainage of standing water Avoid nitrogenous fertilizer application	Drainage apply potassic fertilizer	Drying of produce & threshing with power thresher
Horticulture				
Coconut	Drainage of standing water	Drainage of standing water	Drainage of standing water	
Banana	-do-	-do-	-do-	Quick dispose / sale
Mango	-do-	-do-	-do-	-do-
Vegetables	Drainage of standing water, Prophylactic spray	-do-	-do-	-do-
Continuous submergence for more than 2 days				
Paddy	Drainage, new nursery, SRI planting in main field, Prophylactic spray Use excess potash	Drainage, gap filling by splitting existing plants / seeding pre-germinated seeds / Transplanting over aged seedlings, adoption of sub-1 type of paddy varieties	Drainage	Drying of produce & threshing with power thresher
Horticulture				
Coconut	Drainage of standing water	Drainage of standing water	Drainage of standing water	
Banana	-do-	-do-	-do-	Quick dispose / sale
Mango	-do-	-do-	-do-	-do-
Vegetables	Drainage of standing water, Prophylactic spray	-do-	-do-	-do-
Sea water intrusion				
Paddy	Drainage of use water & washing out of salt by flooding sweet water from canal / STW / tank	Drainage, gap filling by splitting existing plants / seeding pre-germinated seeds / Transplanting over aged seedlings	Drainage	Harvest at physiological maturity stage

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

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave				
Paddy	Spraying of water, live fence barrier,	Irrigate the field with sufficient water	Keep sufficient water in the field, Spray water to avoid chaff seeds/grains	Harvest at physiological maturity stage to avoid crop damage due to excessive heat
Pulse	Irrigate the crop field to avoid water stress	Irrigate the crop	Irrigate the crop and spray water if necessary, provide live barrier to break the heat wind	Harvest early and keep in field for one day only to avoid shattering of grains in field itself
Horticulture				
Coconut	Shading with shade net	Wind break on north side, Water channels around the crop	Wind break on north side, Water channels around the crop, Spraying of water	
Banana	-do-	-do-	-do-	Quick dispose / sale
Mango	-do-	-do-	-do-	-do-
Vegetables	-do-	-do-	-do-	-do-
Cold wave	Not applicable			
Horticulture				
Coconut	Shading with shade net	Wind break on north side, Water channels around the crop	Wind break on north side, Water channels around the crop, Spraying of water	
Banana	-do-	-do-	-do-	Quick dispose / sale
Mango	-do-	-do-	-do-	-do-
Vegetables	-do-	-do-	-do-	-do-
Frost				
Paddy	Remove excess water and expose the beds to sun	Apply water to filed to avoid frost bite	Apply water to the field and set fire around the field to avoid damage, prophylactic spray to avoid pest out break	Harvest and store the grains in safer place after room drying
Pulse	Apply sufficient water to the field to maintain the latent heat of the crop	Apply excess water to the field	Maintain moisture and apply smoke in and around the field.	Harvest the produce and transfer it from the frost exposure

Horticulture				
Hailstorm				
Paddy	Cover the beds with polythene or paddy straw, sow extra seeds in sufficient quantity to mitigate the field needs	Split apart the remaining seedlings and fill up the gap or transplant some extra seedlings	Avoid lodging and trailing type of paddy varieties, Varieties with serpentine movement ability are better adopted in the field to reequip the damage afterwards with new shoots coming out from the nodes touching the soil	Collect the harvest produce and store in safe place with or without sun drying
Pulse	Sow some extra seeds if a major portion is lost due to hail storm	Mixed crop provides better protection against total crop failure	Go for fodder cultivation to avoid total crop loss	
Horticulture				
Cyclone				
Paddy	Drainage of excess water in dapog nursery method, SRI planting in main field	Gap filling by splitting existing plant / direct seeding of pre-germinated seed, prophylactic IPDM measures	• Drainage of excess water, • Prophylactic IPDM measures	Drainage & harvesting of rice
Horticulture				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought			
Feed and fodder availability	Stock procured by farmers	Stock procured by farmers	Stock procured by farmers
Drinking water	Natural resources & ponds & river etc.	Tube well, bore well & ponds	Tube well, bore well etc.
Health and disease management	Manage by local veterinary, Lis, VI & Gomitras	Manage by local veterinary, Lis	Manage by local veterinary, Lis
Floods			

Feed and fodder availability		There is provision of supply cattle feed, Kunda and fodder to affected animals after occurrence of event	
Drinking water	Manage by local veterinary, Lis, VI & Gomitras	There is provision of supply cattle feed, Kunda and fodder to affected animals after occurrence of event	
Health and disease management	Managed by Veterinary & para veterinary of Animal Husbandry department	Managed by Veterinary & para veterinary of Animal Husbandry department	Managed by Veterinary & para veterinary of Animal Husbandry department
Cyclone			
Feed and fodder availability			
Drinking water	-do-	-do-	Managed by Veterinary & para veterinary of Animal Husbandry department
Health and disease management	-do-	-do-	Managed by Veterinary & para veterinary of Animal Husbandry department
Heat wave and cold wave			
Shelter/environment management			
Health and disease management	Local veterinary & Para veterinary	Local veterinary & Para veterinary	Local veterinary & Para veterinary

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients	Store locally available feed like rice husk, chaffs, low cost dry fish, prophylactic vaccination, storage of safe drinking water	Protection against direct damage due to excessive heat and water shortage, provide water	Protection measures to avoid dehydration and sun/het scald., spray water in and around the unit, provide sufficient food and water	Farmers training in KVK, ATMA and libne departmebts
Drinking water	Digging of bore well			
Health and disease management	-			
Floods				
Shortage of feed ingredients	Safe storage to avoid damage due to flood	Provide disinfected water	Provide dried feed without fungal growth	Farmers training in KVK, ATMA and libne departmebts
Drinking water	Disinfection of tank, digging of bore well			
Health and disease management	Prophylactic medication		Take immediate medication in case of disease out break and press on the sanitation to check disease spread.	
Cyclone				
Shortage of feed ingredients	Keep in safe storage			
Drinking water	Store sufficient drinking water	Disinfected water supply	Disinfect the water and give then for drinking	
Health and disease management		Medication to avoid loose motion		
Heat wave and cold wave				
Shelter/environment management	Protect the unit by providing barrier around the farm	Give sufficient water and roof covering to maintain inside cool, heat bulbs are used to heat the brood chamber	Provide sufficient water	
Health and disease management			Take adequate step to avoid moratlity	

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow			
(ii) Changes in water quality			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	i. Addition of water from other sources ii. Fish harvesting		Excavation of pond
(ii) Impact of salt load build up in ponds / change in water quality	-do-		-do-
2) Floods			
A. Capture			
Marine			
Inland			
(i) No. of boats / nets/damaged			
(ii) No.of houses damaged			
(iii) Loss of stock			
(iv) Changes in water quality			
(v) Health and diseases			
B. Aquaculture			
(i) Inundation with flood water	Increase the height of pond dyke	Escaping the fish by using net as a fence Fish harvesting	Increase the height of pond dyke
(ii) Water contamination and changes in water quality	Use of lime Exchange of water Repairing of pond dyke	Use of lime	Repairing of pond dyke
(iii) Health and diseases	Use of lime	Use of lime & medicine	Exchange of water
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps,			

aerators, huts etc)			
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds	Increase the height of pond dyke	Escaping the fish by using the net as fence Harvesting of fish	Increase the height of pond dyke
(ii) Changes in water quality (fresh water / brackish water ratio)	Increase the height of pond dyke Harvesting	Harvesting	-do-
(iii) Health and diseases	Use of lime	Use of lime and medicine	Exchange of water Use of lime
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			