District Contingent Plan

KRISHI VIGYAN KENDRA
RAYAGADA (GUNUPUR)

(At/PO: Gunupur, Dist.: Rayagada (Odisha), Pin – 765022)

ODISHA UNIVERSITY OF AGRICULTURE & TECHNOLOGY

BHUBANESWAR -751003

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Agriculture Contingency Plan for Rayagada District

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Eastern ghats, hot moist sub humid eco-sub region		
	Agro-Climatic Zone (Planning Commission)	Eastern Plateau & hills region(VII)		
	Agro Climatic Zone (NARP)	North Eastern Ghat Zone		
	List all the districts falling under the NARP Zone*	Gajapati, Ganjam-I, Ganjam-II, Kandhamal and Rayagada		
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		$19^0$0' - $19^0$58' N	$82^0$54' - $84^0$2' E	300 - 1000 mt
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Regional Research & Technology Transfer Station G. Udayagiri, Kandhamal		
	Mention the KVK located in the district with address	KRISHI VIGYAN KENDRA, At/Po: Gunupur, Dist: Rayagada, Orissa, Pin:765022		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Krishi Vigyan Kendra, Rayagada, Gunupur		

1.2	Rainfall	Normal RF (mm)	Normal rainy days (nos.)	Normal Onset (week and month)	Normal Cessation (week and month)
	SW monsoon (June-Sep):	866.3	51	1st week of June	4th week of September
	NE Monsoon(Oct-Dec):	36.8	8	1st week of October	1st week of December
	Winter (Jan- Feb)	9.3	2	4th week of January	4th week of February
	Summer (Mar-May)	250.3	11	3rd week of March	4th week of May
	Annual	1162.71	73		

1.3	**Land use pattern of the district** (latest statistics)	Geographical area	Cultivable area	Forest area	Land under non-agricultural use	Permanent Pastures	Cultivable waste land	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	758.746	193.50	231.74	37.98	26.39	22.43	20.98	143.238	0	0

Source : District Agricultural Strategy Committee Meeting ,2023)

1. 4	Major Soils (common names)	Area ('000 ha)	Percentage of total(Major soils)
	1. Red loam soil	217.11	52.72
	2. Alluvial soil	104.35	25.34
	3. Mixed red & black soil	80.24	19.49
Source : Soil resource map of NBSS & Lup			
1.5	**Agricultural land use**	**Area ('000 ha)**	Cropping intensity %
	Net sown area	173.919	146
	Area sown more than once	52.78	
	Net Irrigated area	60.848	
	Gross cropped area	253.803	

1.6	**Irrigation**	Area (‘000 ha)		
	Net cultivated area	182.604		
	Net irrigated area	60.848		
	Gross cultivated area	218.39		
	Gross irrigated area	84.75		
	Rainfed area	133.625		
	Sources of Irrigation (Potential created)	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals 1) Major/Medium		13.806	7.13
	2) Minor		23.813	12.31
	Tanks	-	2.185	1.13
	Open wells	-	0.423	0.22
	Bore wells	-	0.68	0.35
	Lift irrigation	-	34.203	17.68
	Other Sources	-	9.637	4.98
	Total Irrigated Area	-	84.747	43.80 (of net cultivated area)
	Pump sets	141		
	No. of Tractors	32		
	Ground water availability and use	No. of blocks	(%) area	Quality of water
	Over exploited	NIL	-	-
	Critical	NIL	-	-
	Semi- critical	2	40	NA
	Safe	9	100	NA
	Wastewater availability and use	1	10	NA
	Ground water quality	Good		
*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 2020-21)

1.7	Sl. No.	Field Crops	Total Area('000 ha)	Irrigated('000 ha)	Rainfed('000 ha)
	1	Paddy	54.05	42.11	11.94
	2	Ragi	23.11	1.59	21.52
	3	Maize	16.33	3.74	12.59
	4	Arhar	15.52	-	15.52
	5	Sesame	4.94	0.95	3.99
	6	Cotton	38.75	7.39	31.36
	7	Niger	2.50	0	2.50

	Sl.No.	**Horticulture crops - Fruits**	**Area ('000 ha)**		
			Total	**Irrigated**	**Rainfed**
	1	Mango	11.513	**-**	11.513
	2	Guava	0.921	**-**	0.921
	3	Citrus	1.074	**-**	1.074
	4	Banana	1.276	1.276	-
	5	Litchi	0.292		0.292
		Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
	1	Sweet Potato	0.723	0.186	0.537
	2	Potato	0.622	0.62	**-**
	3	Onion	0.327	0.327	**-**
	4	Chilli	1.858	0.778	1.08
	5	Ginger	0.525	0.525	**-**
		Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	1	Not available	-	-	-
		Plantation crops	**Total**	**Irrigated**	**Rainfed**
	1	Cashew	2.149	**-**	2.149

	2	Coconut	0.432	-	0.432
		Fodder crops	**Total**	**Irrigated**	**Rainfed**
	1	Berseem	0.005	-.	0.005
	2	Oat	0.002	-	0.002
		Total fodder crop area	**0.007**	**-**	**0.007**
		Grazing land	26.39	**-**	**26.39**
		Sericulture etc	**-**	**-**	**-**
		Others (Agro-processing centre)	**8 nos.**	**-**	**-**
		Spices			
	1	Onion	0.327	0.327	-
	2	Chilli	1.858	0.778	1.08
	3	Ginger	0.525	0.525	-
	4	Turmeric	1.082	-	1.082
	5	Garlic	0.059	0.059	-

Source: District statistical survey 2020-21

1.8	**Livestock**	**Male ('000)**	**Female ('000)**	**Total ('000)**
	Cattle	NA	NA	232.535
	Buffaloes	NA	NA	44.640
	Commercial dairy farms	NA	NA	-
	Goat	NA	NA	142.327
	Sheep	NA	NA	20.435
	Others (Pig)	NA	NA	7.461
1.9	**Poultry**	**Total No. of birds ('000)**		
	Commercial	7.934		
	Backyard	487.891		
1.10	**Fisheries**			
	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)	
		Marine sources not available for Marine fisheries					
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
		5250		32		750	
	B. Culture						
				Water Spread Area (ha)		**Yield (t/ha)**	**Production ('000 tons)**
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			-		-	-
	ii) **Fresh water** (Data Source: Fisheries Department)			4187.09		0.248	1037.86

Source : District statistical survey 2020-21

1.11 Production and Productivity of major crops (Source : District statistical survey 2020-21)

1.11	**Major field crop**	**Kharif**		**Rabi**		**Summer**		**Total**	
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)
Crop 1	Paddy	270.68	5051	27.15	6047	248.845	5262	303.651	5618
Crop 2	Maize	52.36	5168	4.327	4710	-	-	56.597	3465
Crop 3	Ragi	28.94	2552	0.67	1379	-	-	40.48	1750
Crop 4	Cotton	68.207	1760	-	-	-	-	68.207	1760
Crop 5	Arhar	21.48	1384	-	-	-	-	21.48	1384
Crop 6	Sesame	0.884	350	0.968	400	-	-	1.85	374

Major Horticultural Crops									
Crop 1	Sweet Potato	3.76	7000	1.39	7500	-	-	5.15	7100
Crop 2	Potato	-	-	5.6	9000	-	-	5.6	9000
Crop 3	Chilli	1.14	1200	1.36	1500	-	-	2.5	1300
Crop 4	Onion			2.94	9000	-	-	2.94	9000
Crop 5	Ginger	2.1	400	-	-	-	-	2.1	400
Crop 6	Mango					101.9	10000	101.9	10000

Source : Odisha Agriculture statistics 2020-21

1.12	**Sowing window for 5 major field crops** (start & end of sowing period)	1: Paddy	2: Maize	3: Arhar	4: Cotton	5: Ragi
	Kharif- Rainfed	2nd wk June– 4th wk August	2nd wk June – 2nd wk July	2nd wk June – 2nd wk July	2nd wk June – 2nd wk July	1st wk July- 3rd wk July
	Kharif-Irrigated	4th wk June – 3rd wk July	2nd wk June – 2nd wk July	-	2nd wk June – 4th wk July	-
	Rabi- Rainfed	-	-	-	-	-
	Rabi-Irrigated	2nd wk Dec – 3rd wk Jan	4th wk Nov – 2nd wk Jan	-	-	

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			√
	Weed Parthenium (Gajar grass)		√	
	Pests and disease outbreak Fruit & shoot borer , leaf curl virus in vegetables ;Maize stem borer ; Mango hopper, Fruit flies, BLB in Paddy	√		

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

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition			**Suggested Contingency Measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 2 weeks (June 4th week)*	Low rainfall Shallow Red loam soil	a) Upland Paddy (MTU-1010, Swarna shreya, Lalat, Shabhagi,Bina-11) -- Fallow	No change	-	-
		b) Ragi - Fallow (Arjuna, Bhairavi & local)	No change	-	-
		c) Sesame local (Uma, Prachi)	No change	-	-
		d) Arhar (PRG-176, LRG-52, UPAS-120, BRG-1,Laxmi)	No change	-	-
		e) Maize (KalingaRaj, Shakti, Prabal , Hishell)	No change	-	-

		f) Kharif vegetables • Tomato(S-22, Laxmi) • Brinjal(Blue star, Akshita) • Cow pea(local,Kasi kanchan) . Chilli(Tejasvini,Surya) g) Blackgram(Prasad, Ujala,PU-30,) h) Cotton (Bunny,Tulasi)	No change No change No change	- - -	- - -
Condition			**Suggested Contingency Measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c] including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 4 weeks (July 2nd week)*	Low rainfall Shallow Red loam soil	a) Upland Paddy (MTU-1010, 1001, Lalat, Ankur) -- Fallow	Moisture stress tolerant upland paddy varieties such as Swarna Sreya, Sahabhagi Dhana, Khandagiri can be taken. Sprouted paddy seeds may be sown Upland paddy may be substituted with low water requiring crops like blackgram (PU31, T9), Greengram(IPM 02-14, Virat), cowpea(Utkal manik), etc. Ragi var. Arjuna, Vairabi,	Manage weeds by application herbicide, Strengthen field bunds, use 25% more seed than normal(i.e. 25kg/acre) for direct seeded rice, withheld nitrogen fertilizer application till receipt of rainfall Higher seed rate	For seed contact CRRI/OUAT/ OSSC Bhubaneswar

		b) Ragi - fallow (Arjun, Bhairabi & local)	Chilika may be taken; Intercropping of Ragi +Arhar in 2:1 ratio	@12 kg/ per ha for direct seeded & 6 kg/ha for line sowing	-do-
		c) Sesame local	Short duration Sesame var Prachi, Uma (75-80 days) may be taken	Apply 20kg Sulphur/ha during last land preparation, Sow 10 kg seeds/ha mixing with 50kg sand for uniform distribution	-do-
		d) Arhar (PRG-176,LRG-52, BRG-1)	Same varieties or PRG 176 may be grown. The legume based intercropping system like Maize (Prabal, Pinnacle) +Arhar (ICPL87, PRG 176); G.nut + Arhar (Devi, Smruti, Dharani); in the ratio of 1:1, , 2:1 respectively may be practiced	In acidic soil apply lime @ 0.15 to 0.25 LR (5q lime/PMS) mixed with FYM @ 5 t/ha in furrows at the time of sowing. Adopt Ridge and furrow method of planting Grow vegetative barriers in unbunded uplands to check soil erosion and conserve rain water	-do-
		e) Maize (Kalinga Raj ,BIO 9681, Pinnacle, Prabal , Hishell)	Maize (Hybrids) : Ganga-5, Daccan-103, Kalinga Raj; Maize (Sweet corn) like Sugar-75, Madhuri, Misti	Same as of Arhar – Spacing of 60x30 should be maintained Withhold basal dose of N, Top dressing	-do-

				when it rains	
		f) Kharif vegetables • Tomato(S-22) • Brinjal(Pinky,Kajal) • Cow pea(local) • Chilli (Tejasvini,Surya)	Growing of short duration vegetables like Tomato(BT-10), Brinjal(Utkal Anooshree) Cowpea(Utkal Manik, Utkal Gourav), Chilli (Utkal Ava)	Grow seedlings in raised bed method,Transplant at 3-4 leaf stage without delay.Devote 10 % area of a plot for construction of rain water collection	For seed contact OUAT, Bhubaneswar National Horticulture Mission in the District
		g) Blackgram(PU-30, Sarala)	Blackgram : T-9, PU31, PU 35,	Sowing with first shower of rain, Mix 200gm of Rhizobium & 40gm T .viridae culture per 10 kg of seed before sowing Use 25% more seeds(25 kg/ha in normal case) in case of direct sowing. Line sowing with 30x10cm spacing Cotton with spacing 90x30 cm & arhar in 90 cm row to row with Cotton	For seed contact CRRI/OUAT/ OSSC Bhubaneswar

		h) Cotton (Bunny)	Pure crop of Cotton(Bunny, Tulasi) or Intercropping Cotton + Arhar (PRG-176) in a ratio 8:2		Seeds from Cotton corporation, RKVY

Condition			**Suggested Contingency Measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks (July 4th week)*	Low rainfall Shallow Red loam soil	a) Upland Paddy (MTU-1010, 1001, 1075, 1061, Lalat, Ankur) -- Fallow	Short duration moisture stress tolerant upland paddy varieties such as Swarna shreya, Sahabhagi dhan, Khandagiri can be taken. Upland paddy may be substituted by suitable non-paddy crops such as: Ragi (Bhairabi, Arjuna); Pulses like Cowpea (Utkal Manik, Maharani), Blackgram (T-9, Pu-31) can be	Proper plant protection measures to avoid any germination failure due to delayed sowing. In-situ rain water conservation by contour bunding Harvesting of excess runoff water /Dose of N application be reduced by 40 % Management of termites by	Supply of seeds through OSSC , CRRI, NFSM, RKVY, OUAT Make linkage with ATMA, NFSM, RKVY

			grown upto last week of July	application of chloropyriphos@ 5ml/lit. Manage weeds by application of herbicides	
		b) Ragi - fallow (Nirmal ,Godavari & local)	Ragi var. Arjuna OR Crop substitution with short duration Blackgram var. PU-31	Sowing Ragi with 1st shower of rain Blackgram with higher seed rate @ 25 kg/ha. Withheld nitrogen fertilizer application till receipt of rainfall The field should be free of weeds for utilization of water and nutrients by the late sown crops. Withheld nitrogen fertilizer application till receipt of rainfall	Supply of seeds through OSSC , through NFSM, RKVY, OUAT, RRTTs
		c) Sesame local	Short duration Sesame Var .Uma, Prachi	Ploughing at the 1st rainfall and sowing along the cultivator or plough, Seed rate 10 kg/ha	Supply of seeds through OSSC , through NFSM, RKVY, OUAT

				Application of RDF with PP measures	
		d) Arhar (ICPL-87, PRG-176)	Arhar may be substituted with Horsegram(var.Radhey, Anegiri-1) or Raikia beans	Sowing of seeds in ridges with spacing 50x25cm ,Use of bulky organic matter @ 10 t/ha Thinning,	Supply of seeds through OSSC , through NFSM, RKVY, OUAT
		e) Maize (BIO 9681, Pinnacle, Prabal , Hishell)	Substituting Hybid maize with Composite var like Navjot or sweet corn Sugar-75, Madhuri to be marketed not as seed but for vegetable purpose	Sowing of seeds in ridges with spacing 50x25cm ,Use of bulky organic matter @ 10 t/ha Thinning,	Maize Research Instutute, New Delhi may be approached for seeds, OR RKVY, OUAT be contacted
		f) Kharif vegetables • Tomato(S-22) • Brinjal (Pinky, Kajal) • Cow pea (local) . Chilli (Tejasvini, Surya)	Short duration improved varieties Tomato (utkal shrabani, Rajani), Okra (Utkal Gourav, Arka abhaya), Cucumber (Pusa sanjog, Himani), Spinach (All Green, pusa Harit), Country	Mulching with paddy straw, Spray 1% urea in vegetables crops Transplanting older seedlings (40 day old with wider spacing	Seeds may be procured from RRTTS, OUAT, NHM in the concerned district

			bean (CO-10, pusa early prolific)	than recommendation Sowing of seeds in ridges, pits with proper seed treatment to avoid mortality	
		g) Blackgram (PU-30, Sarala)	Black gram var. PU-31, Ujala, T-9 may be selected	Broadcasting with seed rate @ 20-25 kg/ha with Rhizobium culture treatment @ 20gm/kg seed Broadcasting @ 25 kg/ha, or line sowing behind the plough	Seeds may be procured from OSSC, OUAT,
		h) Cotton (Bunny)	Cotton var. Tulasi, Takat in spacing of 90x30 cm	Sow along the furrows' for moisture conservation Fertilizer@ 30:60:60 Skip 1st top dressing & spray 2% urea	Seeds may be procured from Cotton corporation, Cotton scheme of Dist. Agril. office

Condition			Suggested Contingency Measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (August 2nd week)*	Low rainfall Shallow Red loam soil	a) Upland Paddy (MTU-1010, 1001, 1075, 1061, Lalat, Ankur) -- Fallow	Shifting from traditional crops/varieties to short duration low water requiring crops like cowpea, blackgram, greengram by substituting rice totally. If the main crop is failed cultivation or re-sowing with fodder (Berseem, Napier) is the best option. Fodders can be harvested at any stage keeping in view sowing of the next *rabi* season crop	The recommended dose of nitrogen application should be reduced by 40 % and should be applied, as basal and full-recommended dose of P and K should be placed as basal. Furrow sowing of crops at closure plant-to-plant(10 cm) distance with wider inter-row spacing (40-50 cm)is recommended.	Supply of seeds through OSSC , through NFSM
		b) Ragi - fallow (Nirmal ,Godavari & local)	Ragi- Arjuna, Bhairavi	Sowing behind the plough/ Broadcasting	Supply of seeds OSSC , RRTTS, OUAT

				Inoculation with azospirillum @20gm/kg	
		c) Sesame local	Sesame – Prachi, Uma, Usha	Sowing behind the plough/ Broadcasting Inoculation with azospirillum @20gm/kg ,Apply Sulphur@ 25 kg/ha, Seed rate 10kg/ha	Supply of seeds through OSSC , through RRTTS, OUAT
		d) Arhar (ICPL-87, PRG-176)	Arhar to be substituted with black gram (var. PU-31, T-9), green gram(IPM 02-14)	Seed rate of 20 kg/ha, Rhizobium culture treatment @ 20gm/kg seed, Spacing of 30x10 cm	Supply of seeds through OSSC , through RRTTS, OUAT
		e) Maize (BIO 9681, Pinnacle, Prabal , Hishell)	Substituting Hybrid maize with sweet corn var. Sugar-75, Madhuri to be marketed for vegetable purpose	Sowing along furrows at 50x20 cm spacing, Apply N fertilizer at 21 DAS along base of plant, Construction small pond in 10% area of cropped field, Harvesting at green cob stage	Supply of seeds through OSSC , through RRTTS, OUAT

		f) Kharif vegetables • Tomato (S-22) • Brinjal (Pinky, Kajal) • Cow pea (local) • Chilli (Tejasvini, Surya)	Cluster bean (Contender) / Cow pea (Utkal manik)/ Radish (Pusa desi)/Pumpkin (Pusa Biswas)	Mulching with HDPE sheets, In-situ moisture conservation, Construction of water harvesting structure, Foliar application of Urea, Application of Vermicompost in the base of plant& 2.5 t/ha.	Supply of seeds through NHM , through RRTTS, OUAT
		g) Blackgram (PU-30, Sarala)	Blackgram (T-9, Pu-31, Ujala)	Sowing behind the plough/ Broadcasting Inoculation with rhizobium Plough and sow the crops across the slope for moisture conservation Moisture conservation through mulching Liming @ 5 q/ha mixed with FYM @ 1.0 t/ha in furrows before sowing Broadcasting with application of rhizobium culture	Supply of seeds through OSSC , through NFSM

Condition					
Early season drought (normal onset)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Crop management**	**Soil nutrient & moisture conservation measure**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/ crop stand etc.	Low rainfall Shallow Red loam soil	a) Upland Paddy (MTU-1010, 1001, 1075, 1061 Lalat, Ankur)-Fallow	When there is more than 50% mortality, resow the crop up to July after receipt of sufficient rain water Intercropping with green gram / Horse gram / Cow pea in a ratio 2:1 or 2:2 The field should be free of weeds for utilization of water and nutrients by the late sown crops	Ridge and furrow methods of sowing as in-situ soil moisture conservation practices. Light irrigation during evening hours, Foliar application mixed fertilizer 19:19:19 @ 1 gm /lit. If possible mulching may be practiced using locally available material.	Farm pond under NREGS, IWMP, diesel pump sets and KB pumps in tankfed areas under RKVY and NFSM. Small nursery development under NHM.
		b) Ragi - fallow (Arjuna, Bharavi & local)	No change	The crop may withstand moisture distress for this period. With hold application of any fertilizers.	Seeds from RKVY, OSSC. RRTTS of OUAT, local DDA office
		c) Maize (BIO 9681, Pinnacle, Prabal, Hishell)	Maize should be resown as germinated seeds	Application of Bulky organic	Seeds from RKVY, OSSC

			fail to sustain	matter, Application of pre-emergence weedicide, Limited hoeing operation to conserve moisture, life saving irrigation Complete hoeing, weeding followed by ridging to the base of the crop Follow ridge and furrow method of sowing	
		d) Arhar (Luxmi)	Arhar may withstand this dry period, so no change. If at all crop fails resowing with ICPL-87 var. along the furrows with closer spacing at 45x20 cm.	Same as in case of Maize Mulching the inter row space with weeded plants Life saving irrigation	- Do-
		e) Kharif vegetables • Tomato(S-22) • Brinjal (Pinky, Kajal)	Cultivate vegetables-cowpea, guar, radish, runner bean, okra,	Mulching with	Seeds from NHM, OUAT

		• Cow pea(local) • Chilli (Tejasvini, Surya)	cauliflower, brinjal, tomato wherever possible	HDPE sheets or locally available material. Life saving irrigation, Construction of small farm pond to conserve water	
		f) Blackgram (PU-30, Sarala)	Resowing of same variety	Cultivate & mix the previous crop for organic matter content & moisture conservation	Seeds from OSSC, NFSM, RKVY
		g) Cotton (Bunny, Sabita)	Resowing with closer spacing 75x45 cm.	Light irrigation during evening hours, Foliar application mixed fertilizer 19:19:19 @ 1 gm /lit. mulching may be practiced using locally available material.	Seeds from district Agril. Office, cotton Corporation, RKVY

Condition			Suggested Contingency Measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Crop management**	**Soil nutrient & moisture conservation measure**	**Remarks on Implementation**
At vegetative stage	Low rainfall Shallow Red loam soil	Upland Paddy (MTU-1010, 1001, 1075, 1061, Lalat, Ankur) -- Fallow	Crops should be suitably thinned out. In-situ rain water conservation, harvesting of excess Run off for re-use and ground water recharge. Conserve rainwater by increasing bund height	Wherever economically viable, mulching should be practiced in between crop rows using locally available mulch material.	Supply of seeds from OSSC, OUAT Seeds may be procured from NFSM
		b) Ragi - fallow (Nirmal, Godavari & local)	Top dressing of fertilizers may be postponed till rainfall/ foliar application of nutrients	Application of weedicide on broad leaf weeds to minimize competition for water	Seeds may be procured from NFSM,RKVY
		c) Maize (BIO 9681, Pinnacle, Prabal, Hishell)	Hoeing soil & applying to the base, Thinning for optimum plant population	Withhold 1st top dressing till the rain resume, spray potasic fertilizer @ 2% to mitigate water stress	Seeds may be procured from NFSM, RKVY, ISOPOM

		d)Arhar (Luxmi, PRG-176) e) Kharif vegetables • Tomato(S-22) • Brinjal (Pinky, Kajal) • Cow pea (local) . Chilli (Tejasvini, Surya) f) Blackgram(PU-30, Sarala) g) Cotton (Bunny, Sabita)	-do- Spray 2% KCl + 0.1 ppm boron to overcome drought situations. Foliar application of 2% urea at pre-flowering and flowering stage is helpful to mitigate drought, Close spacing, 25 % more N as basal Top dressing of fertilizers may be postponed till rainfall Crops should be suitably thinned out. In-situ rain water conservation, harvesting of excess Run off for re-use and ground water recharge.	condition -do- Mulching along the rows with paddy straw or polythene Conserve rainwater by increasing bund height Spray potasic fertilizer @ 2% Withhold 1st top dressing till the rain resume Spray planofix or celmone 10 ppm (2 ml in 9 litre of water) at 45 days and 20 ppm (4 ml in 9 litre of water) 10 days later to prevent boll shedding in cotton	-do- Seeds from NHM & OUAT ATMA,IWDP NHM OSSC, RKVY Cotton scheme from SMS (Cotton) District Agriculture Office, Cotton Corporation

Condition			Suggested Contingency Measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Crop management**	**Soil nutrient & moisture conservation measure**	**Remarks on Implementation**
At reproductive stage	Low rainfall Shallow Red loam soil	Upland Paddy (MTU-1010, 1001, 1075, 1061, Lalat, Ankur) -- Fallow	Crops should be suitably thinned out, Life saving irrigation if possible. In-situ rain water conservation, harvesting of excess runoff for re-use and ground water recharge. Conserve rain water by increasing bund height	If fertilizers are to be applied, foliar application is recommended. Wherever economically viable, mulching should be practiced in between crop rows using locally available mulch material Application of weedicide on broad leaf weeds	Supply of seeds through OSSC, NFSM
		b) Ragi - fallow (Arjuna, Bhairavi & local)	Top dressing of fertilizers be postponed till rainfall/foliar application of nutrients	Life saving irrigation	-do-
		c) Maize	Irrigate on ridge	Application of	OSSC, RRTTS,

		(BIO 9681, Pinnacle, Prabal, Hishell)	and irrigate every alternate furrow on rotation.	weedicide on broad leaf weeds to minimize competition for water, For termite control soil drenching with chlorpyriphos 20 EC @ 4-5 ml/litre of water	OUAT
		d)Arhar (Luxmi, PRG-176)	Irrigate on ridge and irrigate every alternate furrow on rotation	-do-	OSSC, RRTTS, OUAT
		e) Kharif vegetables • Tomato(S-22) • Brinjal(Pinky,Kajal) • Cow pea(local) • Chilli (Tejasvini,Surya)	Spray 2% KCl + 0.1 ppm boron to overcome drought situations. Foliar application of 2% urea at pre-flowering and flowering stage is helpful to mitigate drought,Close spacing 25 % more N as basal	-do-	NHM, OUAT
		f) Blackgram(PU-30, Sarala)	Light & frequent Irrigation during evening hours In-situ rain water	Spray potasic fertilizer @ 2%	OSSC, OUAT, RKVY

		g) Cotton (Bunny, Sabita)	conservation, harvesting of excess runoff for re-use and ground water recharge	Spray planofix or celmone 10 ppm (2 ml in 9 litre of water) at 45 days and 20 ppm (4 ml in 9 litre of water) 10 days later to prevent boll shedding in cotton	Cotton scheme from SMS (Cotton) District Agriculture Office, Cotton Corporation

Condition			Suggested Contingency Measures		
Terminal drought	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
Early withdrawal of monsoon	Low rainfall Shallow Red loam soil	Upland rice-fallow based Arhar Ragi Maize Cotton Blackgram Vegetables	Harvest at physiological maturity Provide life saving irrigation if possible Life saving irrigation from harvested rainwater, wherever feasible, adopt micro-irrigation to save crop. May be harvested for vegetable purpose Harvesting at physiological maturity Green cobs may be marketed for vegetable purpose/plants as fodder Regular plucking at shorter interval without allowing overbursting Foliar spray of KCL @ 2% Spraying of 'K' fertilizer@2% Harvest tender fruits for market, give life saving irrigation at base of plant	Cowpea, Sunflower, Field bean, Horsegram, Blackgram, Linseed for month of October	Farm ponds from NREGS, RKVY Seeds from NHM, OSSC Sprinkler, Drip irrigation from NHM

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency Measures		
Delayed/ limited release of water in canals due to low rainfall	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
	1. Upland tube well/ canal Irrigated red loam soil	Upland rice-fallow based	Taking of medium duration rice var. like lalat, konark, monaswini, surendra etc in place of long duration var. If delayed by more than one month than Non paddy crops like Sesamum, sunflower may be taken up. High value vegetables may also be taken.	Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield Limited & life saving irrigation	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,
		Hybrid Maize	Take pulses like Cowpea, Blackgram, greengram	Sprinkler irrigation	-do-
		Arhar	Take short duration pulses like Cowpea, Blackgrm, Field pea	Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field.	-do-
		Cotton	Adopt intercropping with blackgram, Clipping tips to induce branching		-do-

	2. Medium land Canal irrigated shallow red loam soil	Upland rice-fallow based	Taking of medium duration rice var. like lalat, konark, monaswini, surendra etc in place of long duration var.If delayed by more than one month than Non paddy crops like Sesamum, sunflower may be taken up. High value vegetables may also be taken.	Limited & life saving irrigation Alternate furrow irrigation Drip irrigation Mulching, Irrigation in root zone	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,
		Hybrid Maize	Take pulses like Cowpea, Blackgram, greengram	Sprinkler irrigation	Seeds through OSSC, NFSM, Intercultural implements through,ATMA,
		Arhar	Take short duration pulses like Cowpea, Blackgrm, Field pea	Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field.	OSSC, NFSM Intercultural implements through , ATMA,
		Cotton	Adopt intercropping with blackgram, Clipping tips to induce branchingMaize, vegetable (Chilli, Tomato, Brinjal, Okra, Cauliflower)		Seeds through OSSC, NFSM, NHM ,

Condition			Suggested Contingency Measures		
Lack of inflows due to insufficient/ delayed onset of monsoon	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
	1. Upland tubewell/ canal Irrigated red soil	Upland rice-fallow based	Rice area during rabi should be reduced. Instead, low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum are preferred options. Use of early duration variety like Heera, Sneha (70-75 days) is well suited in rabi.	Irrigate the kharif rice with groundwater during dry spells only, if dry spell comes before release of canal water. Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. Irrigate the rabi rice at critical	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,

				stages only with groundwater.	
	2.Medium land Canal irrigated Alluvial soil	Medium land rice-fallow based Maize	Low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum	Same as above for kharif rice	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,
	3.Tube well/ pond irrigated Shallow Black soil	Vegetable –fallow	High yielding varieties with short duration	Delayed raising of nursery for delayed planting Limited & life saving irrigation Alternate furrow irrigation Drip irrigation	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,

Condition			**Suggested Contingency Measures**		
Insufficient ground water recharge due to law rainfall	**Major Farming situation[a]**	**Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
	Upland tubewell/ canal Irrigated Red soil	Upland rice-fallow based	Rice area during rabi should be reduced. Instead low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower,	Irrigate the kharif crops during dry spell with harvested rain water. Harvesting of kharif rice at physiological	Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA,

			sesamum.	maturity will realize 80-85% of normal yield. About 11-37 % run-off is generated even by the delayed monsoon and should be stored in the farm ponds or tanks. These will recharge ground water during normal or excessive rainfall year. Rainwater stored in self sealing or lined ponds can be used for irrigation if there is long break in the rainfall or for pre-sowing of the *rabi* crops to ensure proper germination.	

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

Condition	**Suggested contingency measures**			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvests[n]**
Crop1 Cotton	Provide drainage	Provide drainage	Drain water for drying Harvest at physiological maturity stage	Shifting to a safer place Dry in shade in a well ventilated space
Crop2 Paddy	No substantial problem as uplands do not maintain water logging condition for long time	Provide drainage If possible	Drain water for drying Harvest at physiological maturity stage	Shifting to a safer place Dry in shade in a well ventilated space
Crop3 Arhar	Provide drainage	Provide drainage	Drain water for drying Harvest for vegetable purpose	Safe storage against pest & diseases
Crop4 Ragi	Provide drainage	Provide drainage	Drain water for drying Harvest at physiological maturity stage	Shifting to a safer place Dry in shade in a well ventilated space Safe storage against pest & diseases
Crop5 Maize	Provide drainage Maintain ridge & furrow method	Provide drainage Maintain ridge & furrow method	Harvest at physiological maturity stage	Market for vegetable purpose
Horticulture				
Crop1 Fruits(Mango, Citrus etc)	Provide drainage Earthing up of plant base/root zone	Provide drainage Earthing up of plant base/root zone	Provide drainage Earthing up of plant base/root zone	Dry the fruits, Keep at safer place, may be sold at green stage

			In case of established tree, no problem	
Crop2 Banana, Papaya	Raising seedlings in sunken bed method	Provide drainage Earthing up of plant base/root zone	Harvested at green stage or table purpose, No problem for marketing as it has buyers' preference	Store for ripening in closed godowns for marketing
Crop3 Cucurbit vegetables	Seedling in raised nursery beds, drainage,	Vines should be staked along elevated frames	Ensure drainage Harvesting at tender stages	Ensure drainage Harvesting at tender stages
Crop4 Solanaceous/ cruciferous vegetables	Seedling in raised nursery beds, drainage,	Provide drainage Application of hormones to induce more flowering	Provide drainage	Ensure drainage Harvesting at tender stages
Heavy rainfall with high speed winds in a short span[2]				
Crop1 Paddy	In upland condition problem is not serious Small seedlings withstand the problem	Drainage if waterlogging persists	Lodged panicles may be harvested at physiological maturity stage	Ensure drainage Keep at dry open space under roof Take steps to prevent stored grain pest
Crop2 Cotton	Drainage if water logging persists Small seedlings withstand the problem	Plant protection measures against wilt & stem rotting	Harvesting of boles at physiological maturity stage	Take the boles toe safer & drier place, Drying under shade
Crop 3 Maize	In upland condition problem is not serious Small seedlings greatly affected by waterlogging,	Bundling of stalks Drainage if waterlogging persists for more than four hours	Harvesting at green cob stage	Market as vegetable purpose, may be used as fodder

		immediately drain the water			
Horticulture					
Crop 1	Brinjal	Drainage may be ensured as soon as possible to prevent wilting, covering the root zone with soil to prevent water logging	Drainage may be ensured as soon as possible to prevent wilting	Harvesting of tender & mature fruits, spraying 5% NSKE followed by Triazophos @ 2.5 ml/lit to prevent Fruit & shoot borer	May be sold in the market after proper grading
Crop 2	Cucurbits	Drainage may be ensured as soon as possible to prevent wilting/rotting	Staking through sticks to prevent lodging/spread in soil, take steps to manage fruit fly by installing poison bait	Plucking of fruits at tender stage Staking through sticks to prevent lodging/spread in soil, manage fruit fly by installing poison bait/trap	Both stem & fruit are marketed as vegetable purpose
Crop 3	Zinger	Make raised bed Drainage may be ensured as soon as possible to prevent wilting/rotting	Plant protection measures against RHIZOME ROT	Harvest at tender/premature stage of the crop	Shed dry at well ventilated place , clean the rhizomes from mud for better market price
Outbreak of pests and diseases due to unseasonal rains					
Crop1	Paddy	Spray tricyclazole against blast, Chlorantraniliprole against stem borer and Swarming caterpillar	Spray tricyclazole against blast, Chlorantraniliprole against stem borer and Swarming caterpillar, Profenophos against leaf folder	Malathion spray against Gundhy bug	Sun drying / disinfection of gunny bags with malathion or heat treatment to manage stored grain pests
Crop2	Maize	Spray Chlorantraniliprole against FAW	Spraying of Dimethoate against aphid	Wrapping of cobs against bird damage	Store in clean godown, disinfection of gunny

				bags / storage structure with malathion
Crop3 Arhar	Removal of infested tips and spray Profenophos to manage leaf webber	Hand picking & destruction of blister beetles	Spray of Flubendiamide against pod borer	Store in clean godown, disinfection of gunny bags / storage structure with malathion
Crop4 Blackgram Greengram	Installation of yellow sticky trap and spraying of Acetamiprid against YMV	Application of Fipronil against Flea beetle	Spray of Flubendiamide against pod borer	Disinfection of storage structure to manage stored grain pests
Crop 5 Cotton	Mancozeb against leaf spot disease & Imidacloprid against sucking pests	Removal of plant parts infested by boll worms, spraying of Chlorantraniliprole or Flubendiamide or Emamectin benzoate when 5 % of boll is affected	Spraying of Indoxacarb & Flubendiamide alternatively to manage Boll worm	Store in clean godown, disinfection of gunny bags / storage structure with malathion
Horticulture				
Crop1 Solanaceous vegetables	Spraying Fipronil against hadda beetle, hand collection of egg mass Soil drenching of COC & streptocycline against wilting	Application of Neem oil &tryozophos alternatively against brinjal fruit & shoot borer/ leaf curl virus	Spraying of Emamectin benzoate against fruit borer Metalaxyl against Anthracnose	Segregation of infested fruits & destruction
Crop2 Cucurbit vegetables	Spraying of Fipronil against Red pumpkin beetle, Collection & destruction of eggs/grubs, Soil drenching of COC & streptocycline against wilting	Spraying Profenphos against leaf eating caterpillars Metalaxyl against Powdery mildew, Carbendazim against leaf spot & blight	Poison baiting with Malathion & Jaggery against fruit fly	Destruction of overripe & infested fruits

2.3 Floods

Condition	Suggested contingency measures[o]			
Transient water logging/ partial inundation[1]	**Seedling/ nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop1 Paddy	Drainage of the Nursery bed, if not possibly go for resowing	Wet seeding of sprouted seeds (@75-80 kg/ha) of medium duration varieties (Lalat (120 days), Parijat (100 days), Konark (125 days), Surendra (135 days). 50% N and 50% K2O + full P may be applied as basal and rest 50% N + 50% K2O as top dressing during the tillering stage. In partially damaged field gap filling may be done by redistributing the tillers. Management of pests & diseases	If flood comes during reproductive stage, emphasis should be given on forthcoming rabi crops. Supply of seeds and other agro-inputs of *rabi* crops at subsidized rate, provision of bank loan etc Wet seeding of short duration varieties (Heera (60 days), Kalinga –III (90 days)) or medium duration varieties (Lalat (120 days), Parijat (100 days), Konark (125 days), Surendra (135 days) during forthcoming rabi season. Utilization of residual soil moisture and use of recharged soil profile for growing pulses Growing of vegetables after receding flood water and adoption of	If flood comes during reproductive stage, , emphasis should be given on forthcoming rabi crops Supply of seeds and other agro-inputs of *rabi* crops at subsidized rate, provision of bank loan etc Wet seeding of short duration varieties (Heera (60 days), Kalinga –III (90 days)) or medium duration varieties (Lalat (120 days), Parijat (100 days), Konark (125 days), Surendra (135 days) during forthcoming rabi season. Utilization of residual soil moisture and use of recharged soil profile for growing pulses Growing of cucurbits

			integrated farming system to obtain more income and to compensate the loss during kharif.	after receding flood water
Crop2 Maize	Drainage, if damping off then resowing	Ensure drainage, Make ridge & furrows	Ensure drainage, Make ridge & furrows	Harvest the cobs as soon as possible
Horticulture	**NOT A FEATURE OF FARMING SITUATION WHERE VEGETABLE IS GROWN**			
Crop1				
Crop2				
Continuous submergence for more than 2 days[2]	**NOT A FEATURE OF THE DISTRICT**			
Crop1				
Horticulture				
Crop1				
Sea water inundation[3]	**NOT A FEATURE OF THE DISTRICT DUE TO DISTANCE FROM SEA MORE THAN 200 KM**			
Crop1				

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

NOT a feature of the District

2.5. Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	▪ To establish fodder bank near forest areas ▪ To store surplus crop residues in fodder banks ▪ Excess fodder in flush season can be preserved ▪ Explore availability of unconventional / alternative feed resources ▪ Organizing training programme on feeding and management of animals	▪ Utilizing fodder from perennial trees and fodder bank reserves. ▪ Transporting excess fodder from adjoining districts. ▪ Utilizing the existing crops ▪ Use of unconventional livestock feed	▪ Supplementary feeding of remaining livestock and the replacement stock
Drinking water	▪ Preserving water in community tanks and ponds etc ▪ wells (bore wells or dug wells) may be constructed	▪ Attempt will be made to provide sanitized drinking water	▪ Availability of water will be ensured by digging of bore well
Health and disease management	▪ Livestock insurance ▪ Veterinary preparedness with vaccine and medicines.	▪ Conducting animal health camps and treating the affected animals ▪ Supplementation of mineral and vitamin mixtures	▪ Availing insurance ▪ Culling of unproductive livestock ▪ Proper disposal of dead animals
Floods			
Feed and fodder availability	Ensure procurement of feed ingredients / compound feed sufficient ahead as feed supply to the farm will hamper due to submergence of the connecting roads	Supply the compound feed to the poultry farm under submerged area	Supply will continued till the situation is under control
Drinking water	Protect the water sources from submergence	Attempt will be made to provide sanitized drinking water	Water sources will sanitized with bleaching powder or any water sanitizer

Health and disease management	▪ Procurement of vaccines and medicines. ▪ Feeding antibiotics ▪ Procurement of litter materials	▪ Continue feeding antibiotics ▪ Prevent entrance of flood water to the shed ▪ Replace wet litter ▪ Proper disposal of dead birds if any	▪ Disinfection of the farm premises. ▪ Feeding antibiotics And deworming. ▪ Replace wet litter ▪ Disinfection of sheds. Proper disposal of dead birds if any
Cyclone	**N O T P R E V A L E N T**		
Heat wave and cold wave	**N O T P R E V A L E N T**		

2.5.2 Poultry

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
Drought			
Shortage of feed ingredients	▪ Insurance of Poultry farms ▪ Ensure procurement of feed ingredients sufficient ahead ▪ Establish feed serve bank	▪ Feed utilization from feed bank ▪ Feed supplementation will be made to the farms	▪ Availing insurance ▪ Attempt will be made for available of feed ingredient or compound feed to the farmers
Drinking water	Check water source for ensuring sufficient potable water during draught	Attempt will be made to provide sanitized drinking water	Availability of water will be ensured by digging of bore well
Health and disease management	▪ Procurement of vaccines and medicines and antistress agent. ▪ Feeding antibiotics ▪ Procurement of litter materials	▪ Administration of vaccines ▪ Continue feeding of anti stress agent	Culling of affected birds

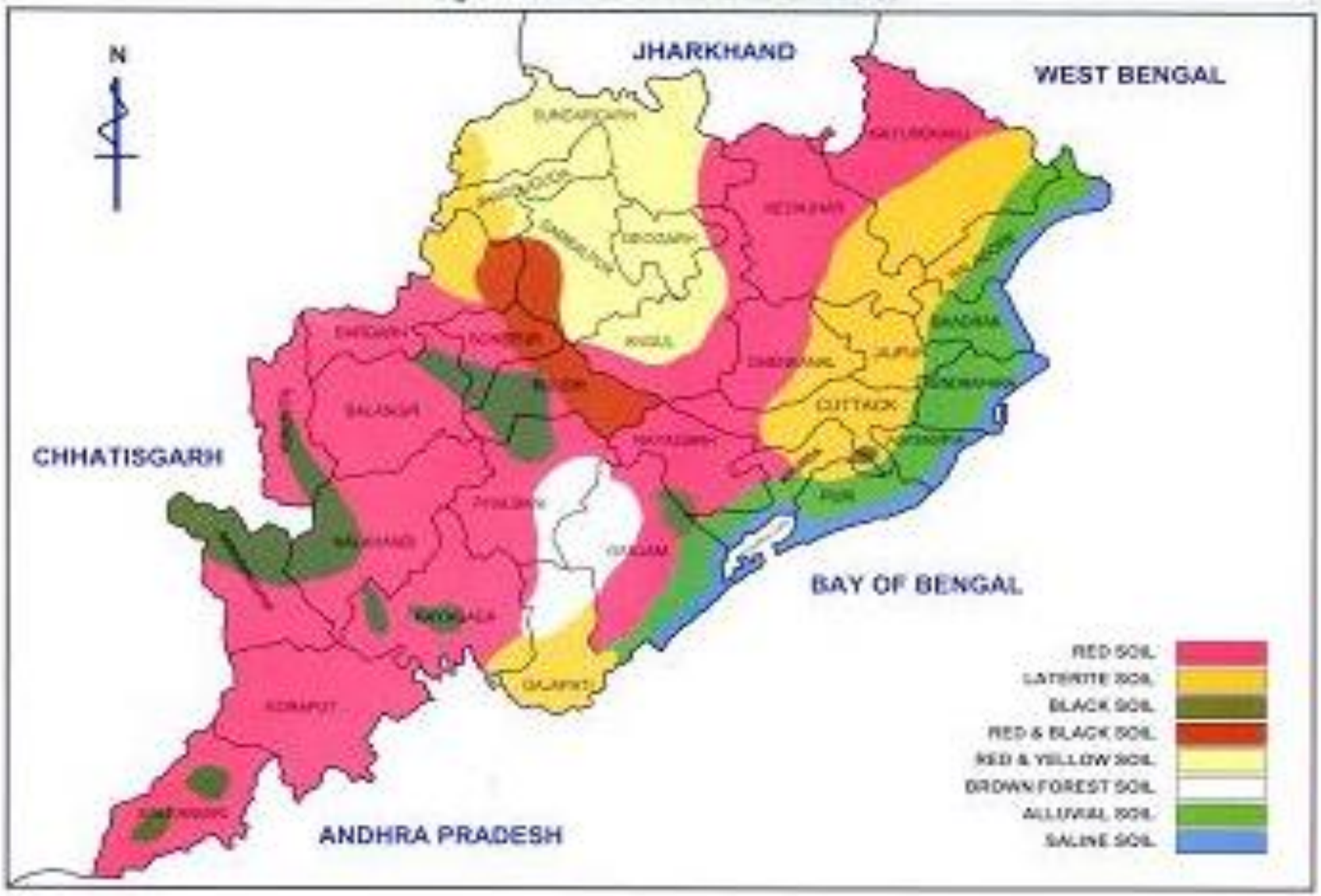
Floods			
Shortage of feed ingredients	Ensure procurement of feed ingredients / compound feed sufficient ahead as feed supply to the farm will hamper due to submergence of the connecting roads	Supply the compound feed to the poultry farm under submerged area	Supply will continue till the situation is under control
Drinking water	Protect the water sources from submergence	Attempt will be made to provide sanitized drinking water	Water sources will be sanitized with bleaching powder or any water sanitizer
Health and disease management	▪ Procurement of vaccines and medicines. ▪ Feeding antibiotics ▪ Procurement of litter materials	▪ Continue feeding antibiotics ▪ Prevent entrance of flood water to the shed ▪ Replace wet litter ▪ Proper disposal of dead birds if any	▪ Disinfection of the farm premises. ▪ Feeding antibiotics and de-worming. ▪ Replace wet litter ▪ Disinfection of sheds. disposal of dead birds
Cyclone	**N O T P R E V A L E N T**		
Heat wave and cold wave	**N O T P R E V A L E N T**		

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
Drought			
Shallow water in ponds due to insufficient rains/inflow	1. Restricted release of water from reservoir. 2. Supplementary water harvest structures like pond and tanks have to be developed. 3. Renovation and maintenance of existing water harvest structures	1. Restrict lifting of water for irrigation purpose of crops 2. Catch the stock, market the produce to reduce the density of population in ponds.	1. Excavate the ponds to increase the depth. 2. Try to release water into the pond if it rains in off-season

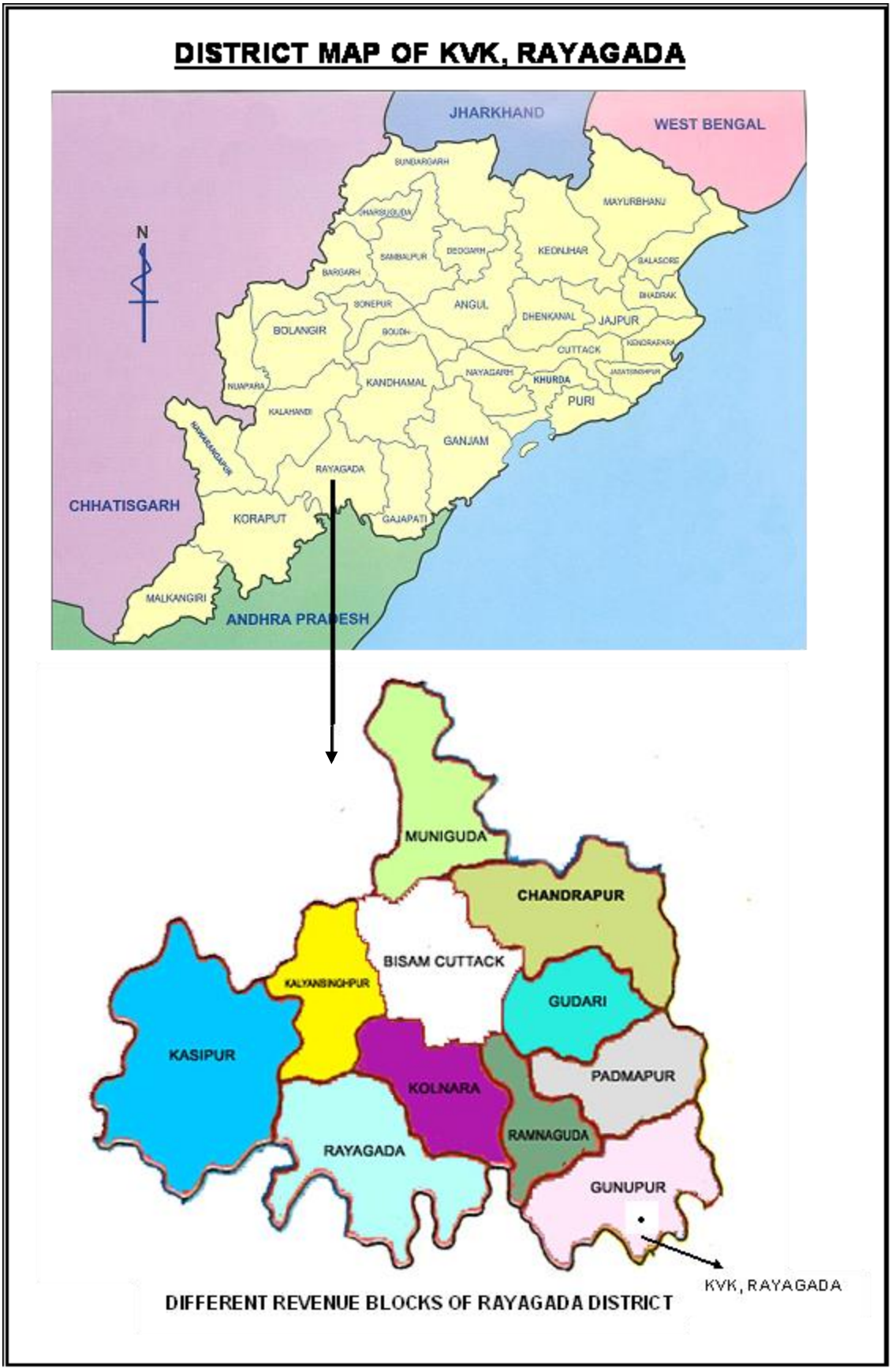
Impact of heat & salt load build up in ponds / change in water quality	1. Prepare to release water into the habitat	1. Mixing of water from the water harvest structure like ponds and tanks into the fish habitat.	1. Monitoring the water quality and health of aquatic organisms
Floods			
Inundation with flood waters	1. Construction of humane shelter. 2. Storage of sand filled bags for emergency use. 3. Repair and maintenance of bundhs. 4. Preparedness for relief 5. Insurance coverage provision for life and property	1. Timely broadcast and telecast and other types of announcement warning about the danger level with respect to water level. 2. Evacuation of people to flood shelter areas. 3. Relief operation.	1. Relief operation will continue. 2. Care of health of affected people 3. Settlement of insurance. 4. Financial support to other people.
Water contamination & change in BOD	Take appropriate measures to check seepage into pond e.g., Raising bunds to prevent entry of water	Check the water quality & take appropriate action	1. Application of lime and geolite 2. Application of Alum. 3. Application of KmnO4
Health and diseases management	Stock preventive medicines, vaccines	1. Prevent influx of diseased fish from outside source, Check through nets 2. Administer medicines through random catch 3. Disinfect water by lime KMnO4	1. Application of lime and KmnO4. 2. Assessment of the health status of fish and accordingly control measure should be taken. 3. Control on transport of brooders and seeds.
Cyclone	**N O T P R E V A L E N T**		
Heat wave and cold wave	**N O T P R E V A L E N T**		

Fig. : SOIL TYPE OF ORISSA



Annexure – I (A)

Annexure I (B) : Location map of district within State

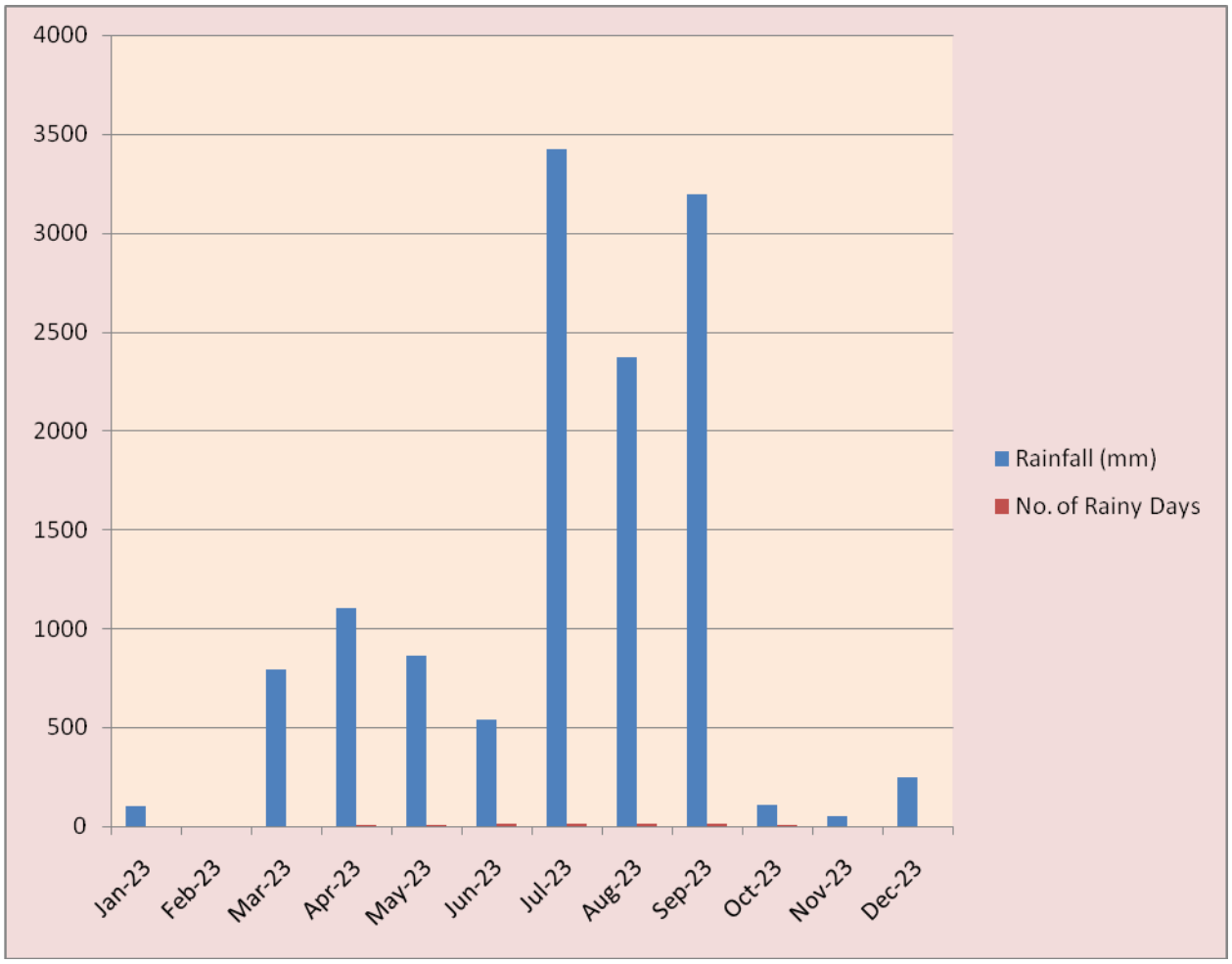


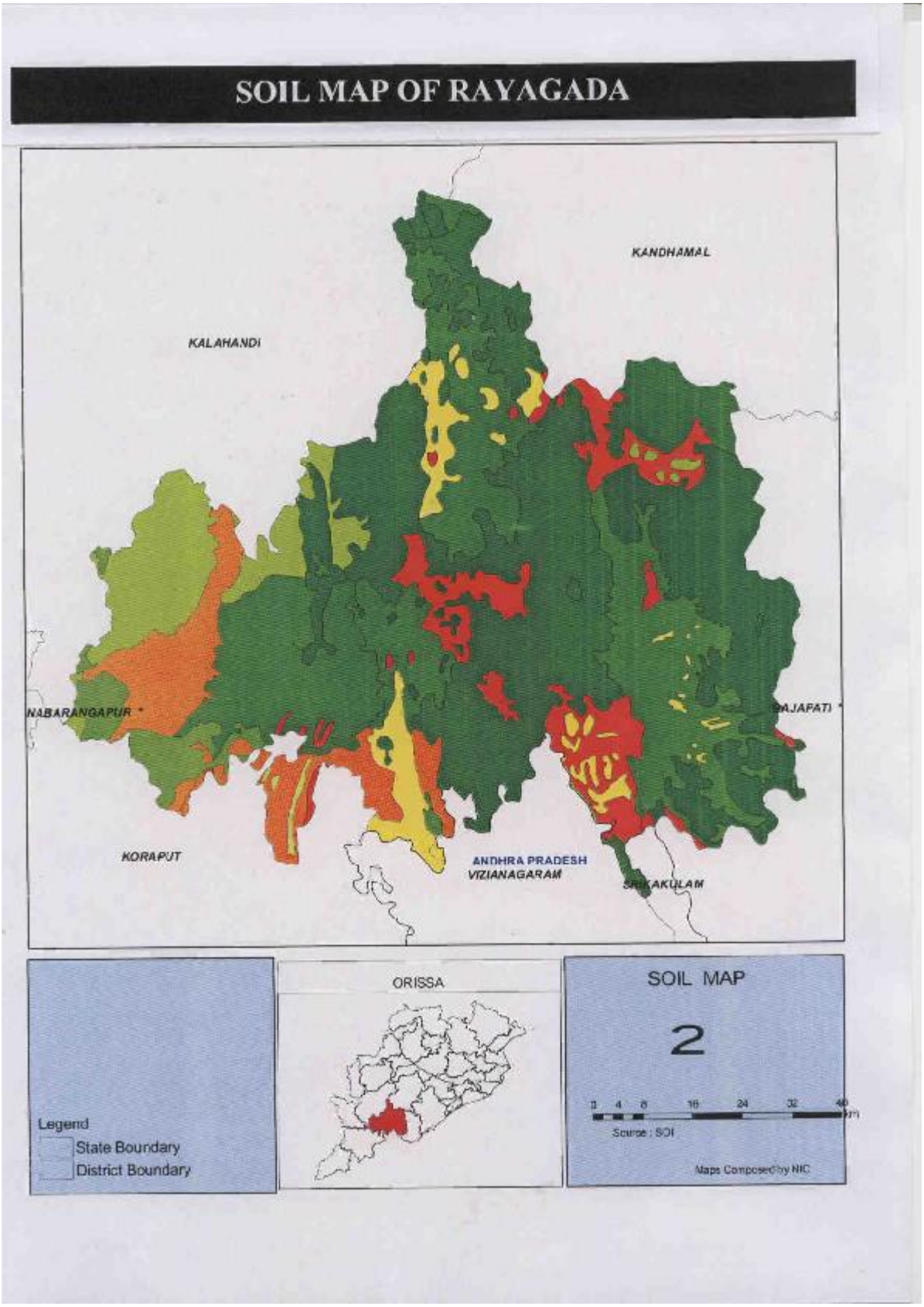
Annexure 2: (A) Block wise Mean annual rainfall distribution in

RAYAGADA DISTRICT

Annexure 2: (B) Average annual rainfall distribution in

RAYAGADA DISTRICT




SOIL MAP OF RAYAGADA
KANDHAMAL
KALAHANDI
NABARANGAPUR
KORAPUT
ANDHRA PRADESH
VIZIANAGARAM
ORISSA
SOIL MAP
2
Legend
State Boundary
District Boundary
Source : SOI
Maps Composed by NIC

Annexure - 3

Annexure 4 : Soil map