AGRICULTURE CONTINGENCY PLAN FOR DISTRICT: SENAPATI
STATE: MANIPUR
KVK, SENAPATI, HENGBUNG, PO KANGPOKPI, 795129, MANIPUR

1.0 District Agriculture profile				
	Agro climatic /ecological zone	Temperate Sub-alpine Zone		
	Agro Ecological Sub Region (ICAR)	North Eastern Hills (Purvanchal), Warm Prehumid Eco-sub region		
	Agro-climatic Region (Planning Commission)	Eastern Himalayan Region		
	Agro Climatic Zone (NARP)	Sub-Tropical Hill zone (NEH 3)		
	List all the districts or part thereof falling under the NARP Zone	Nagaland in the north, Tamenglong in the west, Ukhrul in the east, Imphal in the south		
	Geographic coordinates of district	Latitude	Longitude	Altitude
		24º30'N to 25º45'N	93º30'E 94º30'E	800-2800 m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Krishi Vigyan Kendra-Senapati Hengbung Village, BPO Hengbung, P.O. Kangpokpi – 795129, Senapati District, Manipur		
	Mention the KVK located in the district	Hengbung Village, Senapati, District, Manipur		

1.2	Rainfall	Normal rainfall (mm)	Normal rainy days (nos.)	Normal onset	Normal cessation
	Pre monsoon	-	-	-	-
	SW monsoon (June-Sep)	1322.1	-	1st week of June	1st week of November
	NE Monsoon (Oct-Dec)	407.1	-		
	Winter (Jan-March)	58.6	-		
	Summer (Apr-May)	513.6	-		
	Annual	2301.4	-		

1.3	Land use pattern of the district (latest statistics)	Geograp hical area	Cultiva ble area	Forest area	Land under agril. use	Permanen t pastures	Cultivable waste land	Land under Misc tree crops and groves	Barren and uncultivab le land	Current fallows	Other fallows
	Area in hectare	327100	31928	196260	26250	4620	35115		26290	28795	174101

1.4	Major Soils (common names like shallow red soils etc.)	Area (‘000 ha)	Per cent of total
	Alluvial soils		
	Black soils		
1.5	Agricultural land use	Area (‘000 ha)	Cropping intensity %
	Net sown area	26.25	121
	Area under more than once		
	Gross cropped area		

1.6	Irrigation	Area (‘000 ha)	Percent (%)	
	Net irrigated area	-	-	
	Gross irrigated area	-	-	
	Rainfed area	Entire area	-	
	Sources of Irrigation	Number	Area (000’ ha)	% area
	Canal	-	-	

	Tanks	-	-	
	Open wells	-	-	
	Bore wells	-	-	
	Lift irrigation	-		
	Micro-irrigation	-		
	Other sources	-		
	Total Irrigated Area	-		
	Pump sets	-		
	No. of Tractors	-		
	Ground water availability and use	No of blocks	% area	Quality of water
	Over exploited	-		
	Critical	-		
	Semi-critical	-		
	Safe	-		
	Ground water quality	-		
	Wastewater availability and use	-		

1.7 Area under major field crops & horticulture etc

1.7	Major Field Crops cultivated	Area (‘000 ha)*			
		Kharif	Rabi	Summer	Total

		Irrigated	Rainfed	Irrigated	Rainfed		
	Rice	-	23.00	-	-	-	23.00
	Pea	-			0.82	-	0.82
	Potato	-			0.20	-	0.20
	Rapeseed-mustard	-			0.26	-	0.26
	Maize	-	1.97		-	-	1.97
	Other	- -	-	- -	- -	-	

1.7	Horticulture crops-Fruits	Total area (‘000 ha)*	Irrigated *	Rainfed *
	Pineapple	3.71	-	3.71
	Banana	0.80	-	0.80
	Passion fruit	3.06	-	3.06
	Lime/lemon	0.69	-	0.69
	Mango	0.29	-	0.29
	Other crops	1.45	-	1.45

*For Horticulture crops, only total area need to be given

1.7	Horticultural crops -Vegetables	Total area (‘000 ha) (2008-09)	Irrigated (‘000 ha)	Rainfed
	Cauliflower ; Variety: Snow Crown, White Flash, White Shot, Sweta	0.210	-	0.210

	Cabbage; Variety: Green Hero, Rare Ball, Wonder Ball, Green Express	1.53	-	1.53
	Tomato variety: RC- Mani khamenasinba-1, Hybrids from private seed company	0.261	-	0.261
	Pea	0.820	-	0.820
	Potato	0.360	-	0.360

1.7	Flowers	Total area	Irrigated	Rainfed
1.7	Medicinal and Aromatic crops	NA		
1.7	Spice & Plantation crops (000' ha)	NA		

1.7	Fodder crops	Total area ('000 ha)	Irrigated	Rainfed
	Sericulture etc	NA		
	Others (specify)	NA		

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	19235	25648	44883
	Crossbred cattle	NA		
	Non descriptive Buffaloes (local low yielding)	6673	9048	15721

	Graded Buffaloes	-	-	-
	Goat	-	-	12882
	Sheep	-	-	3717
	Others (Pig)	-	-	137775
	Commercial dairy farms (number)	-	-	-

1.9	Poultry	No. of farm (‘000)	Total No. of birds
	Commercial	-	-
	Backyard	-	227191

1.10	Fisheries (Data source : Chief Planning Officer)
	A. Capture -NA

	i) Marine (Data source: Fisheries Department) – Not available	No. of fishermen	Boats		Nets		Storage facilities (lce plants etc)
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake& trap nets)	
	ii) Inland (Data source: Fisheries Department)	No. of farmer owned ponds		No. of reservoirs		No. of village tanks	

	B. Culture NA			
		Water Spread Area (ha)	Yield (t/ha)	Production (‘000 tons)
	i) Brackish water (Data source: MPEDA/ Fisheries Dept)			
	ii) Fresh water (Data source: Fisheries Dept)			
	Others			

1.11 Production and productivity of major crops

1.11	Name of the 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)
	Major Field crops								

	Rice	48.13	2023					48.13	2023
	Maize	5.56	2822					5.56	2822
	Rapeseed-			2.18	820			2.18	820
	mustard								
	Pea			8.84	1025			8.84	1025
	Cabbage			99.95	11950			99.95	11950
	Cauliflower			33.25	11038			33.25	11038
	Potato			16.83	8500			16.83	8500
	Chilli	25.60	7130					25.60	7130
	Banana	10.98	13402					10.98	13402
	Tomato	31.03	10295					31.03	10295
	Ginger	52.43	15000					52.43	15000
	Turmeric	29.89	16000					29.89	16000

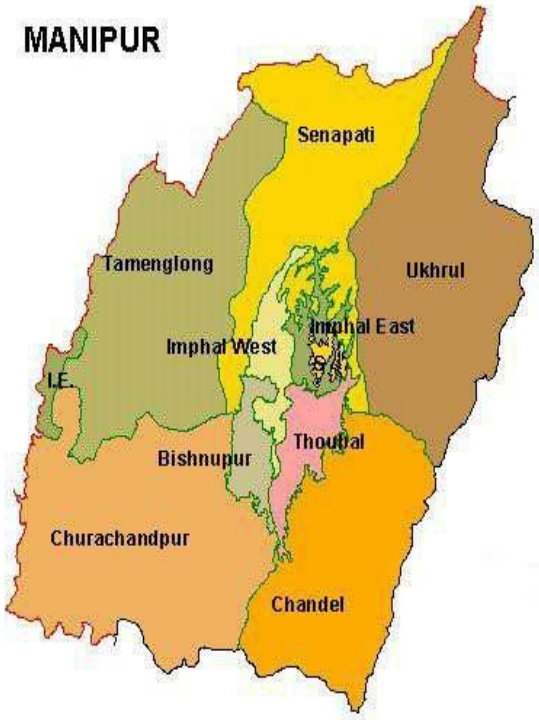
1.12	Sowing window for 5 major crops (start and end of sowing period)	Rice	Maize	Pea	Mustard	Cabbage	Cauliflower
	Kharif –Rainfed	June to July	April to May	-	-	Jul-Aug	March-April
	Rabi- Rainfed	-		October-November	October-November	Sep-November	October-November

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 diseases others(specify)	√		
	Rice	Brown spot, Blast, Leaf folder, Stem borer (10-16%)	Case worm & Gall Midge (5-8%)	Brown Hopper
	Maize	Downey mildew, Blight (8%) Cut worm, pod borer 912-15%)	Powdery mildew (4%) Stem borer (12-15%)	
	Cabbage	Damping off, Fruit rot (4-5%) DBM, Aphids, Cabbage caterpillar (12-15%)	Leaf bight, Club root (2%) Cut worm (5%)	

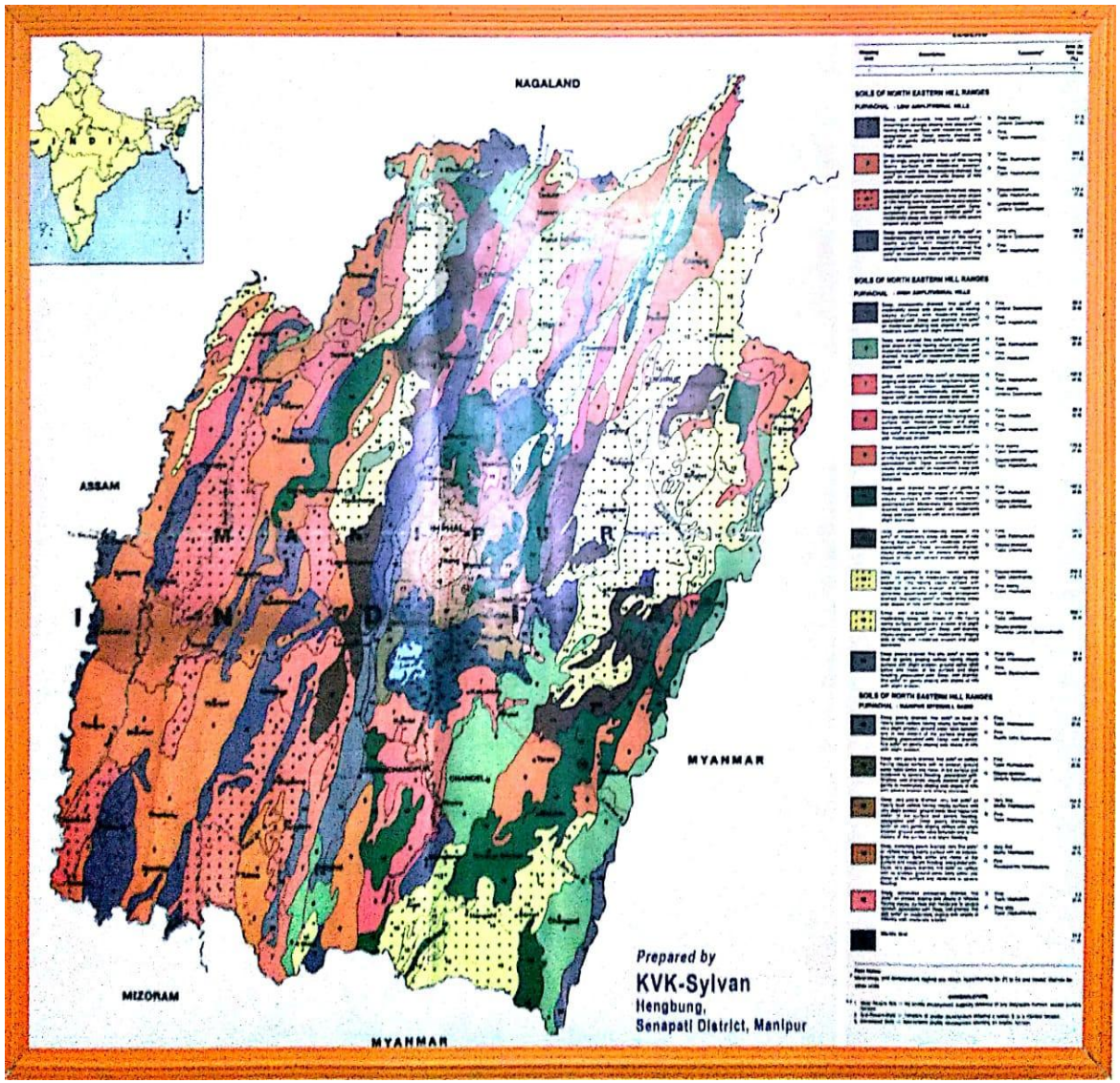
1.14	Include Digital maps of the district for	Location map of district with in State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure II	Enclosed: Yes

		Soil map as Annexure III	Enclosed: Yes

Annexure I



Soil Map of Manipur



2.0 Strategies for weather related contingencies

2.1 Drought – Pre- monsoon

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 of 1 week, 1st week of June	Rainfed, Terrace, Upland	Rice base	Rice-mustard-pea	Dry bed nursery & direct seeded, weed management	- Alternative to dry bed in case of delay of monsoon
		Maize	Maize potato	Suitable late variety & furrow planting, vegetative mulching	
		Cabbage	Maize-cabbage/ricebean	Early sowing followed by mulching	
		Potato	Maize based	Adjustment of sowing date, mulching	
		Blackgram/Greengram	Black gram	Short duration variety T-9.	

2.1.2 Rainfed situation -NA

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

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system[c] including variety	Agronomic measures	Remarks on Implementation

Pre monsoon- Normal

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid-season drought (Long dry spell stage	Rainfed, Terrace, Upland	Rice	Weeding, Nutrient, pest & disease magt.	Split appln of K2O	
		Maize	Weeding, Nutrient, pest & disease magt., Mulching	Balanced appln of NPK & forrow sowing	
		Cabbage	Weeding, Nutrient, pest & disease magt., Mulching	Balanced appln of NPK	

		Potato	Weeding, Nutrient, pest & disease magt., Mulching, late variety	Balanced appln of NPK	
		Blackgram/Greengram	Weeding, Mulching, late variety, Short duration	Balanced appln of NPK	

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (Long dry spell consecutive 2 weeks rainless long dry)					

At flowering / fruiting stage	Rainfed, Terrace, Upland Rainfed,	Rice	Life saving irrigation	Care & management	
		Maize	Weed magt.	Mulching, Life saving irrigation	
		Cabbage	Irrigation	Mulching, Life saving irrigation	
		Potato	Irrigation	Mulching, Life saving	

				irrigation	
		Blackram/Greengram	Irrigation	Life saving irrigation	

Condition			Suggested Contingency measures		
Terminal drought	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
(Early withdrawal of monsoon)	Rainfed,	Rice	Early sowing, Weeding, Nutrient, pest & disease magt.	Mustard	
				Mustard	
	Terrace, Upland Rainfed,	Maize	Early sowing, Weeding, Nutrient, pest & disease magt		
		Cabbage	Early sowing, Weeding, Nutrient, pest & disease magt	Cabbage	
		Potato	Early sowing, Weeding, Nutrient, pest & disease magt	Pea	
		Blackgram/Greengram	Early sowing, Weeding, Nutrient, pest & disease magt, short duration	Potato	

2.1.2 Drought - Irrigated situation-- not applicable

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	Not applicable				
Limited release of water in canals due to low rainfall					
Non release of water in canals under delayed onset of monsoon in catchment					
Lack of inflows into tanks due to insufficient /delayed onset of monsoon					
Insufficient groundwater recharge due to low rainfall					
Insufficient flow of water in streams					

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations) : No observation recorded

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	Vegetative stage	Flowering stage	Crop maturity	Post-harvest
Rice	NA	NA	NA	NA

Soybean	NA	NA	NA	NA
Groundnut	NA	NA		
Blackgram	NA			

				reduced to 10%.
Mustard	NA			
Outbreak of pests and diseases due to unseasonal rains	NA			

3 Floods: NA

Condition	Suggested contingency measure			
Transient water logging/ partial inundation	Seedling /nursery stage	Vegetative stage	Reproductive stage	At harvest

Early Rice				
Kharif Rice Cucurbits				
Solanaceae Leguminosae	1. 1.			

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

Extreme event type	Suggested contingency measure			
Heat wave/ Cold wave/ Frost / Hailstorm / Cyclone	Seedling /nursery stage	Vegetative stage	Reproductive stage	At harvest
Early kharif Rice	Dry bed method by mid Feb.mulching with black polythene sheet to enhance soil temp.& seed germination, raising nursery in protected poly house	Providing shade with straw or hay covering	-	-

2.5.1 Contingent strategies for Livestock, Poultry & Fisheries

2.5.2 Livestock

	Suggested contingency measures		
	Before the events	During the event	After the event
Drought/ Lean period (Oct-March)			
Feed and fodder availability	Preparation of silage, hay. Cultivation of fodder Safe & clean storage of feed	Utilizing fodder from perennial fodders, silage & hay, molasses, rice bran, oil cake & kitchen waste etc. No grazing out of animals (stall feeding)	Use of non conventional feeds such as , rice bran, rice husk, molasses, broken rice, tapioca waste, maize bran etc.
Drinking water	Water harvesting structure, reservoir Clean & safe drinking water	Pond, tube well, hand .pump water	Pond, tube well, hand .pump water
Health and disease management	Regular Vaccination progm. (HS,BQ,FMD,SF)	Proper animal health care magt., cleaned animal house & saniatation	Proper animal health care magt.& follow up activities
Floods			
Feed and fodder availability	Preparation of silage, hay. Cultivation of fodder	Utilizing fodder from perennial fodders, silage & hay, molasses, rice bran, oil cake & kitchen waste etc.	Use of non conventional feeds such as , rice bran, rice husk, molasses, broken rice, tapioca waste, maize bran etc.
Drinking water	Water harvesting structure, reservoir	Sanitised drinking water	Provision of Clean & safe drinking water
Health and disease management	Regular Vaccination progm. (HS,BQ,FMD,SF)	Proper animal health care magt., cleaned animal house & saniatation	Proper animal health care magt.& follow up activities
Cyclone			
Feed and fodder availability	Preparation of silage, hay. Cultivation of fodder	Utilizing fodder from perennial fodders, silage & hay, molasses, rice bran, oil cake & kitchen waste etc.	Use of non conventional feeds such as , rice bran, rice husk, molasses, broken rice, tapioca waste, maize bran etc.
Drinking water	Water harvesting structure, reservoir	Sanitised drinking water	Provision of Clean & safe

			drinking water
Health and disease management	Regular Vaccination progm. (HS,BQ,FMD,SF)	Proper animal health care magt., cleaned animal house & saniatation	Proper animal health care magt.& follow up activities
Heat wave and cold wave	Proper housing with provision of shade & ventilation, provision of heat source during cold wave	Proper housing with provision of shade & ventilation, provision of heat source during cold wave	Proper housing with provision of shade & ventilation, provision of heat source during cold wave
Shelter/environment management	Sanitation, covered housing & drainage	Sanitation, covered housing & drainage	Sanitation, covered housing & drainage
Health and disease management	Regular Vaccination progm. (HS,BQ,FMD,SF) & treatment of sick animal	Proper animal health care magt., cleaned animal house & saniatation & treatment of sick animal	Proper animal health care magt.& follow up activities & treatment of sick animal

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	Safe, dry & clean storage of poultry feeds	Proper feeding magt. Control feeding,	Used of non conventional p[oultry feed such as rice brand rice husk, maize bran, kitchen waste etc.	
Drinking water	Safe & clean drinking water, water harvesting structures	Safe & clean drinking water	Safe & clean drinking water	
Health and disease management	Regular vaccination of poultry & treatment of sick birds	treatment of sick birds	treatment of sick birds & follow up activities	

Floods	-do-	-do-	-do-	
Cyclone	Proper housing	Strong support with the housing materials	Repairing of damage houses	
Heat wave and cold wave	Proper housing	Provision of shade,ventilation & heat source	Provision of shade,ventilation & heat source	

2.5.3 Fisheries/ Aquaculture- NA

2.5.3 Fisheries	Suggested contingency measures		
	Before the event	During the event	After the event
2. Floods			
B. Aquaculture			

(i) Inundation with flood water			
(ii) Water continuation and changes in water quality			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
v) infrastructure damage (pumps, aerators, huts, etc)			