State: Uttar Pradesh

Agriculture Contingency Plan for District: Basti

1.0 District Agriculture profile				
1.1	Agro-Climatic/ Ecological Zone			
	Agro-Ecological Sub Region(ICAR)	North plain zone		
	Agro-Climatic Zone (Planning Commission)	Middle Gangetic plain region		
	Agro-Climatic Zone (NARP)	UP-6 North-eastern Plain Zone		
	List all the districts falling the NARP Zone* (^ 50% area falling in the zone)	Gonda, Bahraich, Deoria, Gorakhpur		
	Geographical coordinates of district headquarters	Latitude	Latitude	Latitude
		27° 10' N	82° 56' E	
	Name and address of the concerned ZRS/ZARS/RARS/RRS/RRTTS	-		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Banjariaya Farm, P.O. Katiya, Basti, Pin-272 302,		
	Name and address of the nearest Agromet Field Unit(AMFU,IMD)for agro advisories in the Zone	Narendra Dev University of Agriculture and Technology Faizabad		

1.2	Rainfall	Normal RF (mm)	Normal Rainy Days (Number)	Normal Onset (Specify week and month)	Normal Cessation (Specify week and month)
	SW monsoon (June-sep)	771		2nd week of June	3rd week of September
	Post monsoon (Oct-Dec)	108		-	-
	Winter (Jan-March)	-		-	-
	Pre monsoon (Apr-May)	-		-	-
	Annual	879			

1.3	Land use pattern of the district (Latest statistics)	Geographical area	Cultivable 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 in ,000 ha	277.0	228.1	4.4	40.3	0.5	4.1	6.4	3.8	5.6	3.1

1.4	Major Soils	Area(‘000 ha)	Percent(%) of total
	Deep Loamy soil	125.4	55%
	Deep loamy soil with silty	57.0	25%
	Deep sandy soil	45.6	20%
	other		

1.5	Agricultural land use	Area(‘000 ha)	Cropping intensity (%)
	Net sown area	208.9	125.9
	Area sown more than once	78.1	
	Gross cropped area	287.0	

1.6	Irrigation	Area(‘000 ha)		
	Net irrigation area	175.4		
	Gross irrigated area	208.3		
	Rain fed area	33.6		
	Sources of irrigation (Gross Irr. Area)	Number	Area(’000 ha)	Percentage of total irrigated area
	Canals		0.3	
	Tanks		12.4	5.9
	Open wells		67.1	32.3
	Bore wells (Tube wells)		128.6	61.8
	Lift irrigation schemes		-NA	
	Micro-irrigation		NA	
	Other sources		0	
	Total Irrigated Area		208.3	
	Pump sets (2011-12)	77392		
	No. of Tractors	9420		
	Groundwater availability and use* (Data source: State/ Central Ground water Department/ Board)	No of blocks- Tehsils-	(%)area	Quality of water
	Over exploited			
	Critical			
	Semi-critical			
	Safe			
	Waste water availability and use			
	Ground water quality			
*over-exploited groundwater utilization> 100%; critical: 90-100%; semicritical:70-90%; safe:<70%				

1.7 Area under major field crops & (As per latest figures 2013-14)

1.7	Major field crops cultivated	Area('000 ha)							
		Kharif			Rabi			Summer	Total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total		
	Rice	38.6	66.1	104.7	-	-	-	-	104.7
	Wheat	-	-	-	117.5	0	117.5	-	117.5
	Pea	-	-	-	4.3	0.1	4.4	-	4.4
	Redgram	0	3.0	3.0	-	-	-	-	3.0
	Sugarcane	37.3	1.0	38.3	-	-	-	-	38.3
	Rapeseed Mustard	-	-	-	2.4	0	2.4	-	2.4

1.8 Production and productivity of major crops (Average of last 5 years)

1.7	Major field crops cultivated	Area('000 ha)								
		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)	
	Rice	231.9	2137	-	-	-	-	231.9	2137	NA
	Wheat	-	-	310.4	2717	-	-	310.4	2417	NA
	Pea	-	-	6.1	1228	-	-	6.1	1228	NA
	Redgram	3.1	694	-	-	-	-	3.1	694	NA
	Sugarcane	1883.8	51633	-	-	-	-	1883.8	51633	NA
	Rapeseed Mustard	-	-	2.8	1147	-	-	2.8	1147	NA

1.12	**Sowing window for 5 major field crops**	**Rice**	**Maize**	**Pigeon Pea**	**Black gram**	**Wheat**	**Barley**	**Mustard**	**Pea**
	Kharif –Rainfed	2nd week of June to last week of June	2nd week of June to 2nd week of July	Last week of June 2nd week of August	Last week of June 2nd week of August	-	-	-	-
	Kharif - Irrigated	3rd week of	2nd week of	-	-	-	-	-	-

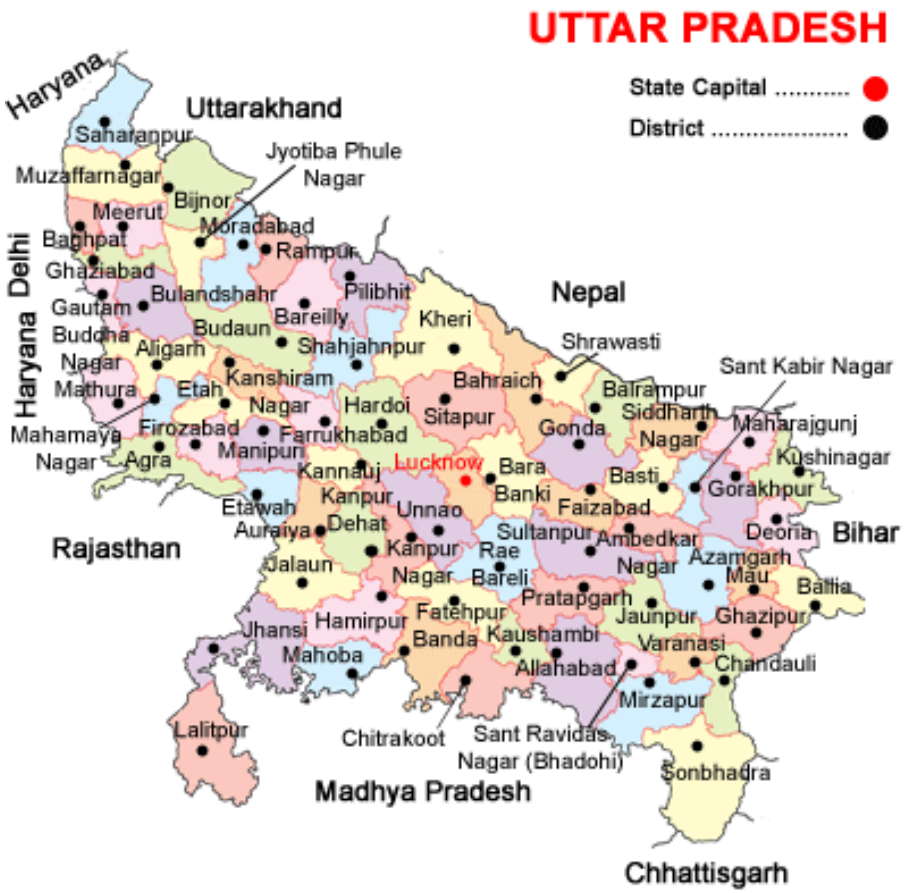
		June to last week of July	June to 2nd week of July						
	Rabi –Rainfed					-	Last week of Oct to First week of Nov	2nd week of Oct first week of Nov	2nd week of Sep to first week of Oct
	Rabi - Irrigated					3rd week of Nov to last week of Dec	-	2nd week of Oct first week of Nov	2nd week of Sep to first week of Oct

1.13	What is the major contingency the district is prone to?	Regular	Occasional	None
	Drought			√
	Flood		√	
	Cyclone			√
	Hail storm		√	
	Heat wave			√
	Cold wave			√
	Frost			√
	Sea water intrusion			√
	Sheath Blight, Stemborer , Pyrilla loose smut, Heliothis, Rust etc white grub.			√

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

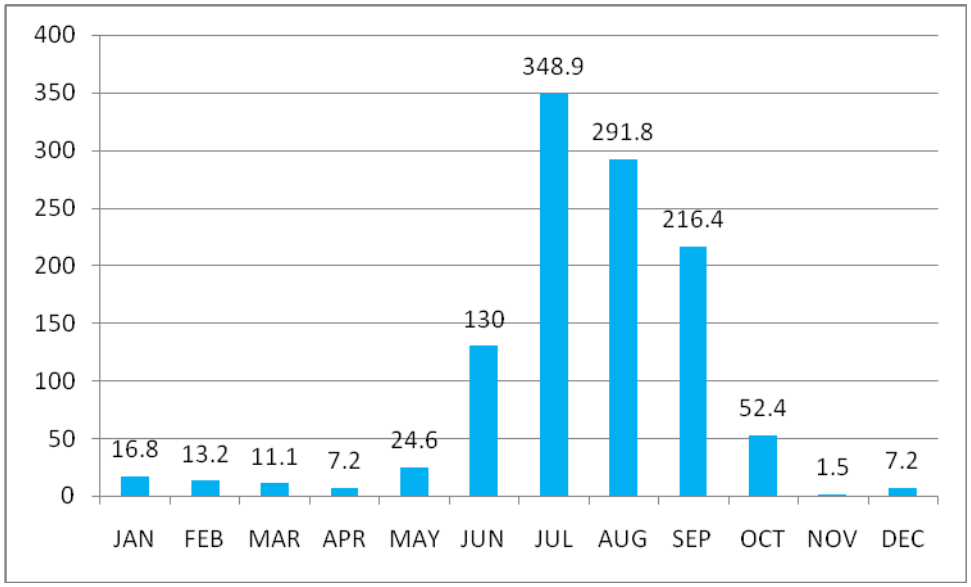
Annexure I

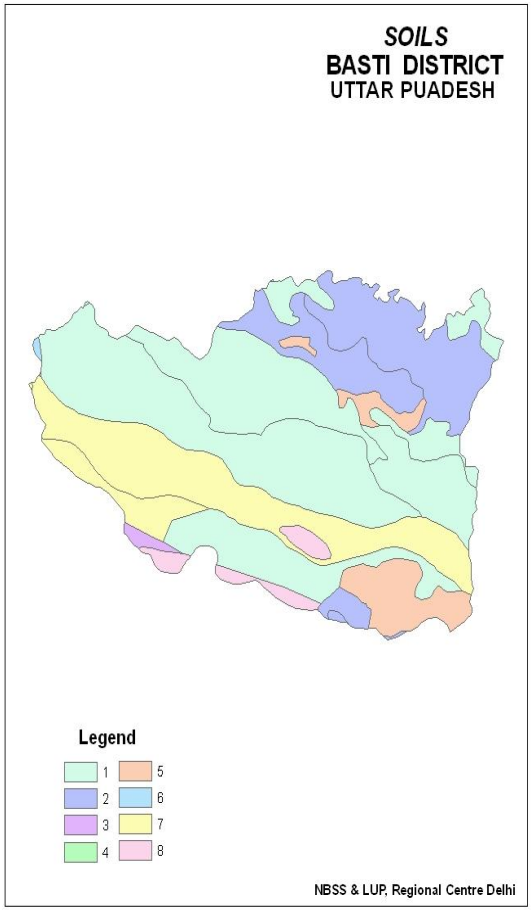
Location map of district Basti



Annexure 2

Average month-wise rainfall (mm) Basti District





Alluvial plain (0-1% slope)

1. Deep, loamy soils and slightly eroded
2. Deep, loamy soils and slightly eroded associated with silty soils
3. Deep, fine soils and slightly saline/sodic associated with loamy soils, with slightly salinity/sodicity.
4. Deep, fine soils and slightly eroded associated with loamy soils slightly saline and moderately sodic.
5. Deep, loamy soils and slightly eroded associated with loamy soils with moderate salinity and sodicity and moderate water logging.

Recent Alluvial Plain (1-3% slope)

6. Deep, loamy soils with slight flooding

Active Flood Plain (1-3% slope)

7. Deep, sandy soils with moderate flooding associated with stratified loamy soils and slight flooding
8. Deep, stratified loamy soils, with severe flooding associated with loamy soils with moderate flooding

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 (4th week of June)	Deep loamy soils	Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ blackgram (Azad urd, Uttara,Narendra Urd 1, PU31, PU 19)	Raised bed planting Intercropping of pigeonpea (interrow spacing of 75 cm)- cm) + blackgram with row ratio of 1:2	Supply of Planter by UP Agro or other agencies Linked with SDC/NSC/SAU's for seed
		BLackgram	(Azad urd, Uttara, Narendra Urd 1, PU31, PU 19)	Intercropping of pigeonpea (interrow spacing of 75 cm)- cm) + blackgram with row ratio of 1:2	
		Maize	Change by Sesamum Variety Shekhar,Pragati, Tarun		
	Deep Clay loam soils	Rice	No change Narendra 97, Narendra 118, Narendra 80, NDR 359,	Direct seeded rice,	
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 (2nd week of July)	Deep loamy soils	Pigeonpea	No change		
		Black gram	No change		
		Maize	Sesame(Shekhar, Pragathi) Black gram (Azad Black gram, Uttara, Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and Black gram	
	Deep Clay loam	Rice	Sesame(Shekhar,Pragathi)	Line sowing of sesame	

	soils		Black gram (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	and urd bean	
		Toria / Mustard	PT303, Bhawani, Narendra Ageti rai-4		

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 (4^{th} week of July)	Deep loamy soils	Pigeonpea	Long duration varieties like Narendra Arhar 1, Narendra Arhar 2, Azad, Amar,Malvi 13, Malvi 6 Intercropping of pigeonpea+ Black gram (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Raised bed planting In sole pigeonpea, 20% higher seed rate) Intercropping of pigeonpea(interrow spacing of 75 cm)- cm) + Black gram with row ratio of 1:2	
		Black gram	Intercropping of pigeonpea+ Black gram (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)		
		Maize	Sesame(Shekhar,Pragathi) Black gram (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and Black gram	
		Groundnut	Sesame(Shekhar,Pragathi) Black gram (Azad Urd,Uttara,Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and Black gram	
	Deep Clay loam soils	Rice	Sesame(Shekhar, Pragathi) Black gram (Azad Urd, Uttara, Narendra Urd 1, PU31, PU 19)	Line sowing of sesame and Black gram	

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 (2nd week of August)	Deep loamy soils	Pigeonpea	No change	Conserve moisture Life saving irrigation,	
		Black gram	No change	**Conserve moisture** Life saving irrigation,	
		Maize	No change	Conserve moisture Life saving irrigation,	
		Groundnut	No change	Conserve moisture Life saving irrigation, Weed management	
	Deep Clay loam soils	Rice	No change	DSR with weed management	Conoweeder,

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[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Deep loamy soils	Pigeonpea	Weed control Thinning to maintain optimum population	Mulching with locally available material/weeds	
		Black gram	Weed control Thinning to maintain optimum population	Mulching with locally available material/weeds	
		Maize	Weed control Thinning to ,maintain optimum population	Mulching with locally available material/weeds	
		Groundnut	Weed control and intercultural practices before pegging		

	Deep Clay loam soils	Rice	Life saving irrigation if available Weed control	Foliar spray with 1% MoP Mulching with locally available material/weeds	

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	Deep loamy soils	Pigeonpea			
		Black gram			
		Maize			
		Groundnut			
	Deep Clay loam soils	Rice			
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	Deep loamy soils	Pigeon pea	Insect pest control Masseurs		
		Black gram	Harvest at physiological maturity		
		Maize	Harvest at physiological maturity		
		Groundnut	Harvest at physiological maturity		
	Deep Clay loam soils	Rice			

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	Deep loamy soils	Pigeonpea			
		Black gram			
		Maize			
		Groundnut			
	Deep Clay loam soils	Rice			

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Delayed release of water in canals due to low rainfall	Deep loamy soils	Paddy	Transplanting with 3 to 4 seedlings/hill short duration variety NDR97,118,80, pant 10	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	
	Deep clay loam soils	Paddy	Transplanting with 3 to 4 seedlings/hill NDR 97, NDR 359,	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Limited release of water in canals due to low rainfall	Deep loamy soils	Paddy	Transplanting with 3 to 4 seedlings/hill short duration variety NDR97,118,80, pant 10	Drum seeding SRI method Irrigation at critical	

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
				stages Reduce spacing plant to plant i.e.20x 15 cm	
	Deep clay loam soils	Paddy	Transplanting with 3 to 4 seedlings/hill short duration variety NDR97,118,80, pant 10	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Non release of water in canals under delayed onset of monsoon in catchment	Deep loamy soils	Paddy	Transplanting with tube well irrigation 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	
	Deep clay loam soils	Paddy	Transplanting with tube well irrigation 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Not applicable				

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Insufficient groundwater recharge due to low rainfall	Deep loamy soils	Paddy	Transplanting with tube well irrigation 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	
	Deep clay loam soils	Paddy	Transplanting with tube well irrigation 3 to 4 seedlings/hill	Drum seeding SRI method Irrigation at critical stages Reduce spacing plant to plant i.e.20x 15 cm	

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**
Pigeonpea	Drain out excess water	Drain out excess water	Harvest at physiological maturity	
Black gram	Drain out excess water	Drain out excess water	Harvest at physiological maturity	
Maize	Drain out excess water	Drain out excess water	Harvest at physiological maturity	
Groundnut	Drain out excess water	Drain out excess water	Harvest at physiological maturity	
Paddy	Proper bunding field for moisture conservation	Foliar application of 2% Urea & 1% KCl	Harvest at physiological maturity	
Wheat	Drain out excess water		Harvest at physiological maturity	
Mustard	Drain out excess water		Harvest at physiological maturity	

Horticulture				
Banana	Drain out excess water	Staking, Earthing and spraying of micronutrients & plant promoter's		
Mango	-	-		
Guava	-	-		
Papaya	Drain out excess water	Staking, Earthing and spraying of micronutrients & plant promoter's		
Heavy rainfall with high speed winds in a short span	Not applicable			
Outbreak of pests and diseases due to unseasonal rains	Need based and recommended plant protection measures			

2.3 Floods

Condition	**Suggested contingency measure**			
Transient water logging/ partial inundation	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Paddy	Change the flood prone Variety Swarna Sub-1, KN-1,2,3 MTU-7029 NDR359	Foliar application of Urea or neem coated Urea after drain the excess water	Management of Gundhi bug	Harvest at physiological maturity

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	NA			
Cold wave	NA			
Frost	NA			
Hailstorm	NA			
Cyclone	NA			

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Floods	In case of early forewarning (EFW), harvest all the crops (rice/maize/greengram/blackgram/maize etc) from low lying areas so that it will be useful as fodder in future (store properly) Don't allow the animals for grazing if severe floods are forewarned Motivate the farmers to store a minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue operations List out the endemic diseases (species wise) in that district and store vaccines for those diseases	Transportation of animals to elevated areas Stall feeding of animals with stored hay and concentrates Proper hygiene and sanitation of the animal shed In severe floods, un-tether or let loose the animals Emergency outlet establishment for required medicines or feed in each village Spraying of fly repellants in animal sheds Cleaning and disinfection of the shed Bleach (0.1%) drinking water / water sources	Repair of animal shed Bring back the animals to the shed Cleaning and disinfection of the shed Bleach (0.1%) drinking water / water sources Deworming with broad spectrum dewormers Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any epidemic Rescue of sick and injured animals and their treatment Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit Drying the harvested crop material and proper storage for use as fodder. Preserve the sugar cane tops as silage

2.5.2 Poultry

Floods			
Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, etc,	Use stored feed as supplement Don't allow for scavenging Culling of weak birds	Routine practices are followed Deworming and vaccination against RD
Drinking water	Provide clean drinking water	Sanitation of drinking water	Sanitation of drinking water
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with line powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD