

Union Territory: Andaman & Nicobar Islands
Agriculture Contingency Plan for District: Nicobar

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	20.1		
	Agro-Climatic Zone (Planning Commission)	The Islands Region-XV		
	Agro Climatic Zone (NARP)	Not included in NARP zones		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)			
	Geographic coordinates of district headquarters	Car Nicobar		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		11.6800° N	92.7700° E	2 MSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Kolkata		
	Mention the KVK located in the district with address	KVK, Car Nicobar, Nicobar, Pin. 744301		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU, NRM Division, ICAR-CIARI, Port Blair			

1.2	Rainfall	Normal RF (mm) Mean of 2000-15	Normal Rainy days (number) Mean of 2008 – 2015	Normal Onset (specify week and month)	Normal Cessation (specify week & month)
	SW monsoon (June-Sep):	1117.4	64.0	20 th May	Last week of September
	NE Monsoon (Oct-Dec):	745.5	40.9	First week of October	Last week of December
	Winter (Jan- March)	247.2	16.3	First week of January	End of March
	Summer (Apr-May)	435.0	26.3	Start of April	Mid May
	Annual	2545.1	147.4		

*Mean rainfall of 1967-2014: 2633.2 mm

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 (000 Ha)	1841	0.27	154.2	0.44	-	-	-	0.44	0.47	0.73

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area (000 ha) including forest soils	Percent (%) of total
	Inceptisol (Orthrepts)	1.19	26.40
	Entisols (Fluvents)	2.48	54.68
	Entisols (Psamments)	0.86	18.92
	Others (specify):		

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP)

1.5	Agricultural land use	Area (000 ha)	Cropping intensity %
	Net sown area	0.27	140.74
	Area sown more than once	0.11	
	Gross cropped area	0.38	

1.6	Irrigation	Area (ha)		
	Net irrigated area	110 ha (area sown more than once)		
	Gross irrigated area			
	Rainfed area			
	Sources of Irrigation	Number	Area (ha)	Percentage of total irrigated area
	Canals			
	Tanks			
	Open wells	170		
	Bore wells	-		
	Lift irrigation schemes	-		
	Micro-irrigation	-		

Other sources (please specify) Ponds	45		
Total Irrigated Area			
Pump sets	405		
No. of Tractors	7		
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	Safe		Saline, fluorine
Wastewater availability and use	Negligible, not explored		
Ground water quality	Iron in few tube wells, and Salinity in few dug wells near coastal tracts (post- tsunami) and is of two types: Ca-Mg-HCO ₃ and Na-HCO ₃ type		
*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) (Specify year -2013-14) Nicobar

1.7	S. No.	Major field crops cultivated	Area (ha)							
			Kharif			Rabi			Summer	Grand total
			Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
1	Paddy		2.65	2.65					2.65	
2	Maize					9.66	9.66		9.66	
3	Black gram					6.32	6.32		6.32	
4	Sugarcane	11.00		11.00					11.00	
5										
	Others (specify)	Root crops		241.03	241.03				241.03	

S. No.	Horticulture crops – Fruits	Area (ha)		
		Total	Irrigated	Rainfed
1	Banana	170.0	170.0	-
2	Papaya	149.9	149.9	-
3	Pineapple	51.5	-	51.5
4	Citrus fruits	32.3	-	32.3
5	Mango	26.0	-	26.0
Others (specify)	Other minor fruits	101.3	-	101.3
	Horticulture crops - Vegetables	Total	Irrigated	Rainfed
1	Chillies	5.70	5.70	-
2	Sweet Potato	8.51	-	8.51
3	Tapioca	21.99	-	21.99
4		-	-	-
5		-	-	-
Others (specify)	Root crops	210.53	-	210.53
	Medicinal and Aromatic crops	Total	Irrigated	Rainfed
1	-	-	-	-
2	-	-	-	-
Others (specify)	-	-	-	-
	Plantation crops	Total	Irrigated	Rainfed
1	Coconut	14655	-	14655
2	Areca nut	890.5	-	890.5
3	Cashew nut	1036.9	-	1036.9
4	Rubber	645.03	-	645.03
Others (Specify)	Eg., Industrial pulpwood crops etc.	-	-	-
	Fodder crops	Total	Irrigated	Rainfed

1	-	-	-	-
Others (Specify)	-	-	-	-
	Total fodder crop area	Not available (NA)	-	-
	Grazing land	NA	-	-
	Sericulture etc	NA	-	-
	Others (specify)	NA	-	-

1.8	Livestock	Male (No.)	Female (No.)	Total (No.)			
	Non descriptive Cattle (local low yielding)						
	Improved cattle	791	1,858	2,649			
	Crossbred cattle	471	849	1,320			
	Non descriptive Buffaloes (local low yielding)	-	-	-			
	Descript Buffaloes	Total	6	23			
	Goat	3,595	4126	7,721			
	Sheep	-	-	-			
	Others (Pig.)	11,678	11,103	22,781			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds (No.)				
	Commercial	38	91,596				
	Backyard	0	-				
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)	
		1	255	164	541	-0-	
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks	
		47	0				

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)	3.66	-	0
Others	-	-	-

1.11 Production and Productivity of major crops (Average of last 5 years: 2013-14 specify years): 2013-14

1.11	Name of crop	<i>Kharif</i>		<i>Rabi</i>		Summer		Total		Crop residue as fodder (tons)
		Production (t)	Productivity (kg/ha)	Production (t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production (t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Paddy	9.51	3589	-	-	-	-	9.51	3589	14
Crop 2	Maize	5.06	523	-	-	-	-	5.06	523	-
Crop 3	Black gram	2.50	396	-	-	-	-	2.50	396	12
Crop 4	Sugarcane	373.4	33945	-	-	-	-	373.4	33945	112
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Coconut	96.15 m nut	6560 nut	-	-	-	-	96.15 m nut	6560 nut	-
Crop 2	Areca nut	846	9500	-	-	-	-	846	9500	-
Crop 3	Banana	1300.5	7650	-	-	-	-	1300.5	7650	-
Crop 4	Papaya	786	5244	-	-	-	-	786	5244	-
Crop 5	Citrus	2186	6796	-	-	-	-	2186	6796	-
Others	Pineapple	145.5	2825	-	-	-	-	145.5	2825	-

1.13	What is the major contingency the district is prone to? (Tick mark)	Regular	Occasional	None
	Drought (post rainy season: December-April)		-	-
	Flood (low lying and coastal areas)		-	-
	Cyclone		-	-
	Hail storm	-	-	
	Heat wave	-	-	
	Cold wave	-	-	
	Frost	-	-	
	Sea water intrusion		-	-
	Pests and disease outbreak (specify) <ul style="list-style-type: none"> • Coconut/ bud rot, areca nut bud rot, yellow leaf disease, leaf blight/spot and rhinoceros beetle • Banana Bunchy Top Virus, leaf spot/ blight 		-	-
	Others (specify) High and asymmetric plant stand (due to self sown plants) of coconut	-	-	-

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: No

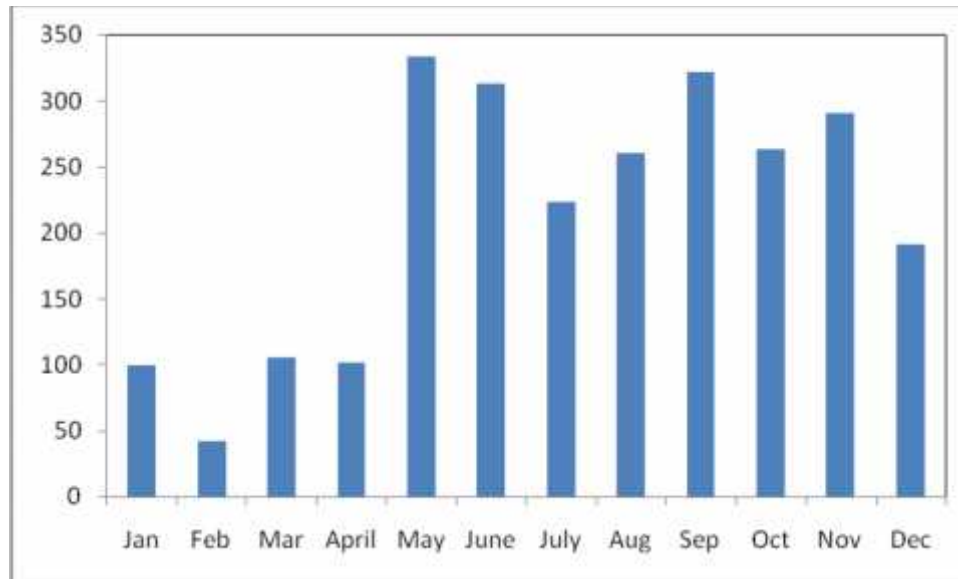
Annexure I

Location map of Nicobar district within Andaman & Nicobar Islands



Annexure II

Mean annual rainfall of Nicobar district within Andaman & Nicobar Islands



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 ^d	Remarks on Implementation
Delay by 2 weeks (Specify month)* (REFER TO THE MATRIX TABLE)	Sandy soils	Coconut based cropping system- Coconut + root crops (tapioca, sweet potato) Coconut + Pepper, Coconut + Banana / + papaya / pineapple	No Change	Development of lined water tanks for water harvesting. Drip irrigation Organic manure application, Mulching the soil with dried leaves	Funding from RKVY to augment irrigation facilities by constructing rain water harvesting structures and ring wells. Spices board , NHM, HVADA, Schemes under ATMA can be .used for organic manures and mulching
		Areca nut based cropping system- Areca nut as major crop Areca nut + root crops (tapioca, sweet potato) Areca nut + Pepper, Areca nut + Banana / + papaya / pineapple			
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		Not Applicable			
Delay by 6 weeks					
Delay by 8 weeks					

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	1) Farming situation: scarce rainfall shallow red soils	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	1) Farming situation: scarce rainfall shallow red soils	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			

Condition			Suggested Contingency measures		
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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		As above			

2.1.2 Drought - Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall			Not applicable		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall			Not Applicable		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment			Not Applicable		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; Tube well irrigated medium red soils	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; tankfed medium deep black soils	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
Any other condition (specify)					

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹	Not a problem due to sandy soils			
Continuous submergence for more than 2 days²				
Sea water intrusion³				

Coconut, areca nut, pine apple Tuber crops	<ul style="list-style-type: none"> • Cultivation on mounds for providing way for leaching of salts • Broad bed and furrow system of cultivation • Sea wall protection establishment • Mangrove forest protection and establishment • Establishment of bioshield along the coast • Use salt tolerant varieties of root and tuber crops
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2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave	Not applicable			
Cold wave				
Frost				
Hailstorm				
Crop1	Not applicable			
Cyclone				
Coconut				
Areca nut				
Cashew nut				
Crop4:				
Crop 5				
Horticulture				
Banana				
Papaya				
Pine apple				

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	<ul style="list-style-type: none"> Storage of coconut and tuber crops for future use at village level. Encourage tribal's to plant and preserve tree fodders 	<ul style="list-style-type: none"> Efficient utilization of kitchen waste, tree fodders. Marine waste can be efficiently utilized for pig feeding 	<ul style="list-style-type: none"> Storage of coconut and tuber crops for future use at village level. Encourage tribal's to plant and preserve tree fodders
Feed and fodder availability	<ul style="list-style-type: none"> Cultivation of perennial fodders like Napier Bajra Hybrid, guinea, gram Para grass, perennial sorghum on paddy field bunds, pond banks, plantation crops Establishment of village level fodder banks 	<ul style="list-style-type: none"> Harvest and judiciously use root crop residues as fodder. Harvest all the top feeds available (subabul, glyricidia, etc) from nearby forests and farms Establish fodder banks Increase use of coconut copra as pig feed 	<ul style="list-style-type: none"> Encourage farmers to grow fodder crops Establish feed and fodder banks
Drinking water	<ul style="list-style-type: none"> Identification of shallow ground water resources for extraction Desilting of ponds Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals) Construction of drinking water tanks in herding places/village junctions 	<ul style="list-style-type: none"> Provide clean drinking water to livestock and pigs 	<ul style="list-style-type: none"> Watershed management practices shall be promoted to conserve the rain water. Provide clean drinking water
Health and disease	<ul style="list-style-type: none"> Procure and stock emergency medicines and 	<ul style="list-style-type: none"> Carryout deworming to all animals 	<ul style="list-style-type: none"> Surveillance on

management	<p>vaccines for major endemic diseases</p> <ul style="list-style-type: none"> • All the stock must be immunized for endemic diseases of the area • Surveillance and disease monitoring network to be established at the district level • Deworming and deticking measures should be carried out. • Sufficient stock of disinfectants like potassium permanganate, lime, bleaching powder, savlon, dettol should be stocked. 	<ul style="list-style-type: none"> • Identification and quarantine of sick animals • Constitution of Rapid Action Veterinary Force • Performing ring vaccination in case of any outbreak 	<p>disease outbreak.</p> <ul style="list-style-type: none"> • Undertake need based vaccination • Keep the animal houses and milking sheds clean and spray disinfectants
Floods (rare)			
Feed and fodder availability	-	<ul style="list-style-type: none"> • Use of unconventional and locally available cheap feed ingredients for feeding of livestock and pig. 	-
Drinking water		<ul style="list-style-type: none"> • Provide clean drinking water 	<ul style="list-style-type: none"> • Disinfectants should be used in water bodies where animals are drinking.
Health and disease management	<ul style="list-style-type: none"> • Keep stock of bleaching powder and lime • Treatment of animals for both external and internal parasites. • Keep stock of sufficient medicines like anthelmintics, anticoccidials and antimicrobials. • Vaccination can be done if required 	<ul style="list-style-type: none"> • Spraying of fly repellents in animal sheds 	<ul style="list-style-type: none"> • Deworming with broad spectrum dewormers
Cyclone	<ul style="list-style-type: none"> • Store sufficient tree fodder, tuber crops and coconut, pandanus, <i>Atrocarpus</i> (zack fruit) • Keep stock of bleaching powder and lime • Treatment of animals for both external and internal parasites. • Keep stock of sufficient medicines like 	<ul style="list-style-type: none"> • Proper hygiene and sanitation of the animal shed • In severe storms, un-tether or let loose the animals • Use of unconventional and locally available cheap feed ingredients like marine waste, tree fodders for 	<ul style="list-style-type: none"> • Bring back the animals to the shed • Cleaning and disinfection of the shed • Bleach (0.1%) drinking water /

	anthelmintics, anticoccidials and antimicrobials.	feeding of livestock. <ul style="list-style-type: none"> • Avoid soaked and mould infected feeds /fodders to livestock • Provide clean drinking water • Spraying of fly repellents in animal sheds 	water sources
Heat wave and cold wave	Not applicable		

2.5.2 Poultry

Condition	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	During the event	After the event	
Drought				
Shortage of feed ingredients	<ul style="list-style-type: none"> • Storing of house hold grain like maize, broken rice etc, to use as feed in case of severe drought 	<ul style="list-style-type: none"> • Supplementation only for productive birds with house hold grain • Supplementation of shell grit (calcium) for laying birds • Culling of weak birds 	<ul style="list-style-type: none"> • Supplementation to all survived birds 	
Drinking water	<ul style="list-style-type: none"> • Adopt various water conservation methods at village level to improve the ground water level for adequate water supply. 	<ul style="list-style-type: none"> • Use water sanitizers or offer cool hygienic drinking water 	<ul style="list-style-type: none"> • Sanitation of drinking water 	
Health and disease management	<ul style="list-style-type: none"> • Culling of sick birds. • Deworming and vaccination against RD and IBD 	<ul style="list-style-type: none"> • Mixing of Vit. A,D,E, K and B-complex including vit C in 	<ul style="list-style-type: none"> • Hygienic and sanitation of poultry house 	

		drinking water (5ml in one litre water)	<ul style="list-style-type: none"> • Disposal of dead birds by burning /burying with lime powder in pit 	
Floods				
Shortage of feed ingredients	<ul style="list-style-type: none"> • In case of early forewarning of floods, shift the birds to safer place • Storing of house hold feeds like broken rice, pulse etc. 	<ul style="list-style-type: none"> • Use stored feed as supplement • Don't allow for scavenging • Culling of weak birds 	<ul style="list-style-type: none"> • Routine practices are followed Deworming and vaccination against RD 	
Drinking water	<ul style="list-style-type: none"> • Adopt various water conservation methods at village level to improve the ground water level for adequate water supply. 	<ul style="list-style-type: none"> • Use water sanitizers or offer cool hygienic drinking water 	<ul style="list-style-type: none"> • Sanitation of drinking water 	
Health and disease management	<ul style="list-style-type: none"> • Add antibiotic powder in drinking water to prevent any disease outbreak 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Sanitation of poultry house • Treatment of affected birds • Disposal of dead birds by burning / burying with lime powder in pit • Disposal of poultry manure to prevent protozoal problem • Supplementation of coccidiostats in feed • Vaccination against RD 	
Cyclone	Not Applicable			
Heat wave and cold wave				

2.5.3

Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	During the event	After the event
1) Drought			
A. Capture			
Marine	Not applicable	Not applicable	Not applicable
Inland	Not applicable	Not applicable	Not applicable
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Not applicable	Not applicable	Not applicable
(ii) Impact of salt load build up in ponds / change in water quality	Not applicable	Not applicable	Not applicable
(iii) Any other			
2) Floods			
A. Capture			
Marine	Not applicable	Not applicable	Not applicable
Inland	Not applicable	Not applicable	Not applicable
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination 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)	NA	NA	NA
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine	<ul style="list-style-type: none"> Prevention of fishing during cyclone / Tsunami warning times 	<ul style="list-style-type: none"> Safely return back to the shore/Stay at home / move to safe places 	<ul style="list-style-type: none"> Cyclone / Tsunami shelter Rehabilitation of affected area
(i) Average compensation paid due to loss of fishermen lives	As per prevailing Government norms		
(ii) Avg. no. of boats /nets /damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)	NA	NA	NA
(vi) Any other			
4. Heat wave and cold wave	NA	NA	NA