



Pacific
Community
Communauté
du Pacifique

Assessing Impact (Sensitivity) of Climate Change

Outline

- Sensitivity Assessment: Elements and Indicators
- PRA Tools for Sensitivity Assessment
- Sensitivity Assessment Process

Step 2 Assessment of Sensitivity



- Community sensitivity to climate change is the degree to which a communities' livelihood is adversely or beneficially affected by climate related stimuli (CARE, 2009).
- It assesses how fragile a system is to climate change and its impacts.
- Sensitivity is assessed through the past and the current effects of climate change being observed on the system.
- The effects are measured in terms of loss, damage or modifications being made by climate change and its effects on local system.
- Sensitivity can be assessed for individual sectors such as agriculture, water, forest, livelihoods, etc.
- However since a community depends on a number of resources, livelihood options or strategies, a holistic assessment is advised in this approach.

- Focus should be given on getting following information:
 1. which are the sectors most affected by climate change induced hazard out of the list
 2. in each event of hazard, what is the magnitude of the effects on the sectors
 3. is the damage increasing, decreasing or static over the past decades
 4. Based on this information the effects of climate change and its impacts are assessed on the identified sectors

Elements of Sensitivity Assessment

Agriculture and food security	Forest and Biodiversity	Settlement and infrastructure	Water and energy	Human Health
<ul style="list-style-type: none"> • Decline in Production and productivity • No production from some species • Physical negative or positive impacts on crop lands 	<ul style="list-style-type: none"> • Reduction in forest area • Appearing of new plant species • Disappearing of species 	<ul style="list-style-type: none"> • Damage to infrastructure • Increase in resettlement 	<ul style="list-style-type: none"> • Reduction in availability of clean drinking water • Drying up of water sources 	<ul style="list-style-type: none"> • Increase in vector borne diseases • Appearance of new diseases • Increase in pathogenic diseases

Tools for Sensitivity Assessment

S. No	PRA tools	Preference
1	Climate change hazard prioritisation	1
2	Climate change hazard historic timeline and trend analysis	1
3	Resource and hazard mapping	1
4	Cause and effect analysis	2

Historic trend analysis

Time	Hazard	Return Period (yr)	Sensitivity	Adaptation strategies
1987 Mid-August	Flood		<ul style="list-style-type: none"> 33% Ag Land and 40% settlement area were inundated 30% houses damaged Village inundated for 15 days Food stock flooded, remaining portion also rotted 	<ul style="list-style-type: none"> All people gathered at high elevated place in ward 3 & 9 and stayed together until the water level reduced. Unable to produce food in that year. The condition was so poor that most of the households were unable to meet daily need of food Support from Red Cross (House maintenance, food, goods and for managing drinking water)
1989	Flood	2	<ul style="list-style-type: none"> 60% Ag. Land and 50% settlement were inundated 40% houses damaged Village inundated for 20 days Food stock flooded, a large quantity of cereals rotten 30% livestock died 	<ul style="list-style-type: none"> All people gathered at high elevated place in ward 3 and 9 and stayed together until water level receded Support from Red Cross (house maintenance, food, goods and for managing drinking water) Medical from local healer
2002	Flood	13	<ul style="list-style-type: none"> Almost 50% houses were damaged More than 20% goats and 10% cattle died Spread of diseases in livestock No food to eat for affected households Diarrheal problem Eye diseases 	<ul style="list-style-type: none"> All people gathered at a high elevated place in ward 3 & 9 and stayed together until the water level receded Red Cross, DDRC, etc supported for food, clothes, medicine Health camp Awareness program

Sectors used for Sensitivity Assessment



Sectors affected by CC and related Hazards	Specific Effect	Damage made/change occurred %	Community Perception (Low- High)	Scale Level (1-4)
Agriculture & Food Security	• Agr land	100	V HIGH	4
Agriculture & Food Security	• Crop Prod	100	V HIGH	4
Forest & Biodiversity	• Forest land	30	LOW	1
Forest & Biodiversity	• Forest products	10	LOW	4
Water & Energy	• Qty of water	100	V.HIGH	1
Water & Energy	• Timing of water	10	LOW	4
Water & Energy	• Quality of water	100	V.HIGH	4
Settlement & Infrastructure	• Type of infrastructure	100	V.HIGH	4
Settlement & Infrastructure	• Qty infrastructure	100	V.HIGH	4
Human Health	• Type of diseases	water borne	V.HIGH	4
Human Health	• No of people affected	50	med - high	3-Apr

Sensitivity Assessment (elements of sensitivity 'S')

Parameters	Hazards	Indicators	Perceived Changes	Score Index/ Remarks
Agr & Food Security	<ul style="list-style-type: none"> • Landslides • Drought • Outbreak - diseases 	<ul style="list-style-type: none"> • Loss of productive lands • Loss of crop production • Production Decline 	V. High	4
Forest & Biodiversity	<ul style="list-style-type: none"> • Landslides • Fire 	<ul style="list-style-type: none"> • Loss of forest cover • Loss of biodiversity 	Low	1
Infrastructure	<ul style="list-style-type: none"> • Landslides 	<ul style="list-style-type: none"> • Trails & roads damaged • Loss of fresh water (buried) 	V. High	4
Water Resources & Energy	<ul style="list-style-type: none"> • Landslides 			
Water Resources & Energy	<ul style="list-style-type: none"> • Drought 	<ul style="list-style-type: none"> • Reduction of freshwater 	V. High	4
Human Health	<ul style="list-style-type: none"> • Landslides 	<ul style="list-style-type: none"> • Emergence of waterborne diseases 	H- V High	3
AVG Sensitivity Score				3.5

Collate Results

Vanuatu Example

Sector	Hazards	Indicators	Community Perception	Scale Value
Agriculture and Food Security	Landslides & Cyclone	<ul style="list-style-type: none"> Agricultural land damaged 	High	3.67
	Cyclone & landslides	<ul style="list-style-type: none"> Loss of Crop lands 	High	3.33
Forest and Biodiversity	Cyclone	<ul style="list-style-type: none"> Loss of Forest cover 	High	3.00
	Cyclone	<ul style="list-style-type: none"> Loss of Forest products 	High	3.33
Water	Cyclone and landslides	<ul style="list-style-type: none"> Reduced quantity of water 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> 6 months to recover water quality 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> Reduced Quality of water 	High	3.67
Settlement and Infrastructure	Cyclone and landslides	<ul style="list-style-type: none"> Damaged infrastructure 	Very High	4.00
	Cyclone	<ul style="list-style-type: none"> All infrastructure (houses) damaged 	Very High	4.00
Human Health	Cyclone and landslides	<ul style="list-style-type: none"> Outbreak of Malaria & diarrhoea 	High	3.33
	Cyclone and landslides	<ul style="list-style-type: none"> Number of people (majority of the population) 	Very High	4.00
Average Index Score:			High	3.55

Group Exercise

- Group participants by country and conduct Sensitivity assessment using selected tools
- Collate Results