



Topic : Analysis of Local Community Awareness on Climate Hazards in Pursat province, Cambodia

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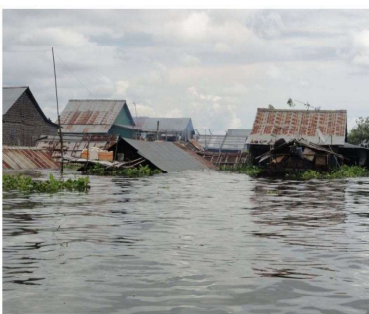
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Introduction

Statement of Problem

According to National Committee for Disaster Management (NCDM), **flood and drought** have produced **loss and damages** to agriculture, housing and infrastructure in Pursat province almost every year.

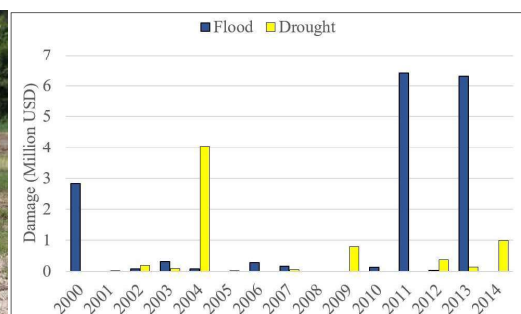
- Health problem
- Food insecurity
- Poverty
- Indirectly prolong the growth of country economy



Source: ADB (2011)

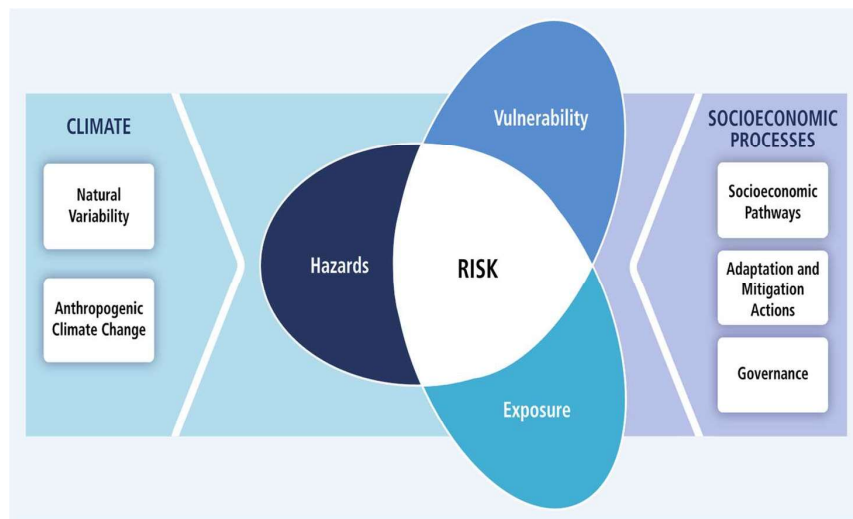


Source: Khmer Time (2018)



Source: NCDM (2016)

Risk management for sustainable socio-economic development



(<https://ipcc-wg2.gov/AR5/report/full-report/>)

$$\text{Disaster Risk} = \frac{\text{Hazard} \times \text{Vulnerability}}{\text{Capacity}}$$

Hazard Vulnerability and Capacity Assessment (HVCA) need to be conducted !!

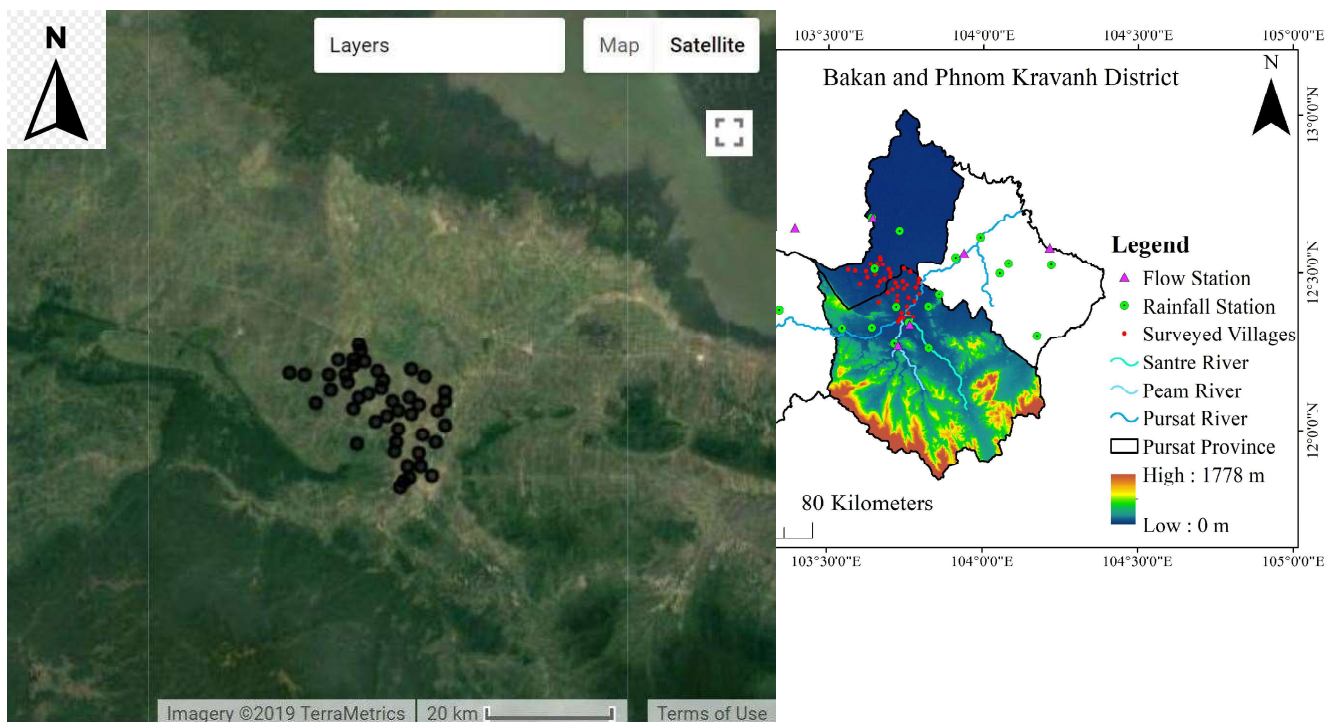
Objective

The objectives of HVCA are:

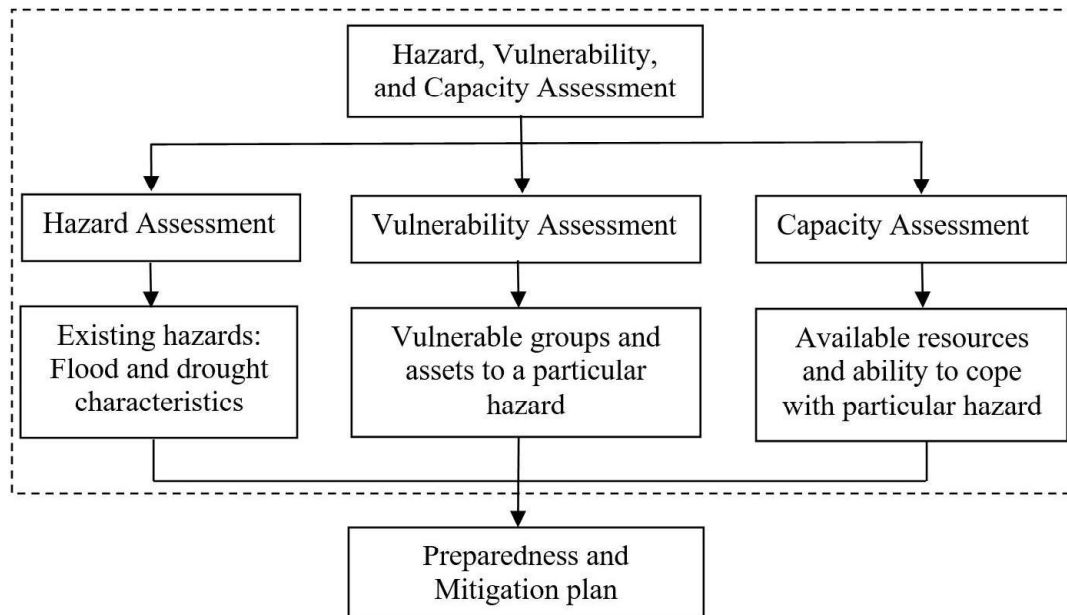
- To gather and generate database of involving information/data of climate hazard and disaster of command area
- To identify major climate hazards and impacts on communities
- To assess existing vulnerability levels in command area
- To identify the potential adaption measures to respond future climate hazards.

Material and Method

Study Area



Hazard Vulnerability and Capacity Assessment (HVCA)



Hazard Vulnerability and Capacity Assessment (HVCA)

Following participatory tools were used for conducting HVCA:

- Primary sources of data
- Secondary sources of data
- Questionnaires and survey
- Brainstorming
- Structured and Semi-structured interviews
- Focus group discussions
- Mapping
- Transact walk
- Seasonal calendar
- Historical profile and historical visualization
- Household assessment

Questionnaire Survey

- The questionnaire is composed of 5 main sections:
 - General information of respondents
 - Population data
 - Socio-economic data
 - Disaster events and vulnerability assessment
 - Disaster events response and capacity assessment
- For each village, team spent 3 days to finish the process of HVCA
- It is a participatory process of around 15 villagers engaged per village
- HVCA was conducted in 45 villages from 30 December 2015 to 05 April 2016



Vulnerability assessment

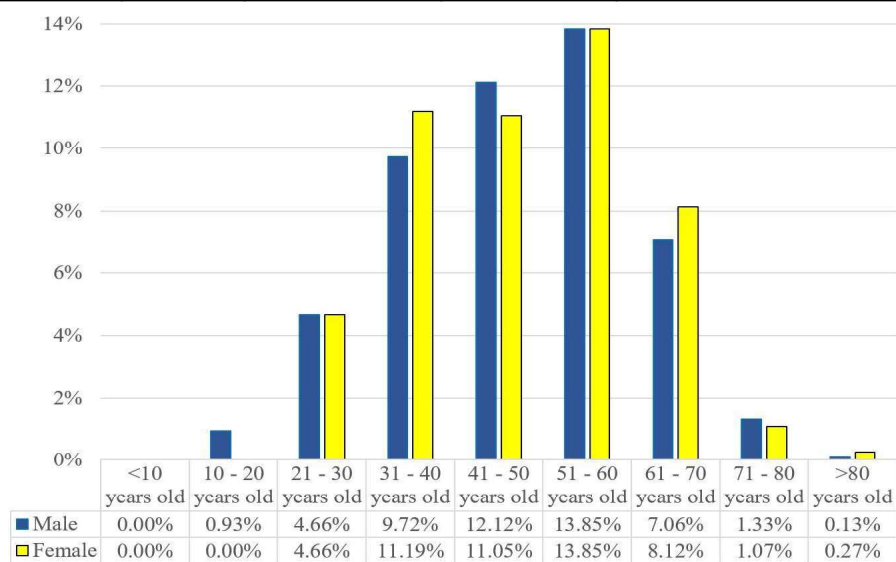
Process of conducting vulnerability assessment:

- Asset identification
- Baseline collection (asset information, impact climate hazard threats to assets, history of hazards)
- Baseline assessment
- Impact assessment
- Adaptive capacity assessment
- Vulnerability assessment

Results and Discussions

Special distribution of samples and general information of respondents

	Area (km ²)	Population (head)	Sample Size (head)	Sample Density (head/km ²)
Total	378.47	54,880	750	
Average	9.01	1,220	17	2

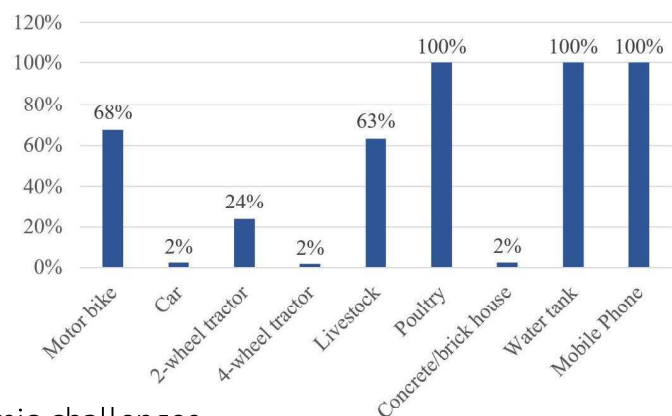


Population Data

Population	Number	Percentage	Remark
Total population	54,880	100%	
Female	28,255	51.5%	
Number of households	11,870	100%	
Main source of income: agriculture	All most	100%	Rice, cassava, other crops, livestock, collection of NFTP
Migration out	5,285	9.6%	Exclude seasonal labors
Migration within Cam	2,655	50.2%	Adult
Migration outside Cam	2,630	49.8%	Adult

Socio-economic Data

Household having these assets



Socio-economic challenges

Occurrence of climate hazard	Droughts, storms, lightening,
Lack of irrigated system	Reservoirs, canals
Lack of market and low price for agricultural products	Price of rice and cassava are low
Lack of stable employment	Migration for work, no factories nearby,
Lack of infrastructure	Road, water supply and sanitation,
Lack technical support for agriculture	Seeds, pest control, livestock
Health problems	Fewer, flues, dengue fever, kidney stone, stomach, liver,
In debt of micro-finance	50% of HHs

Disaster events

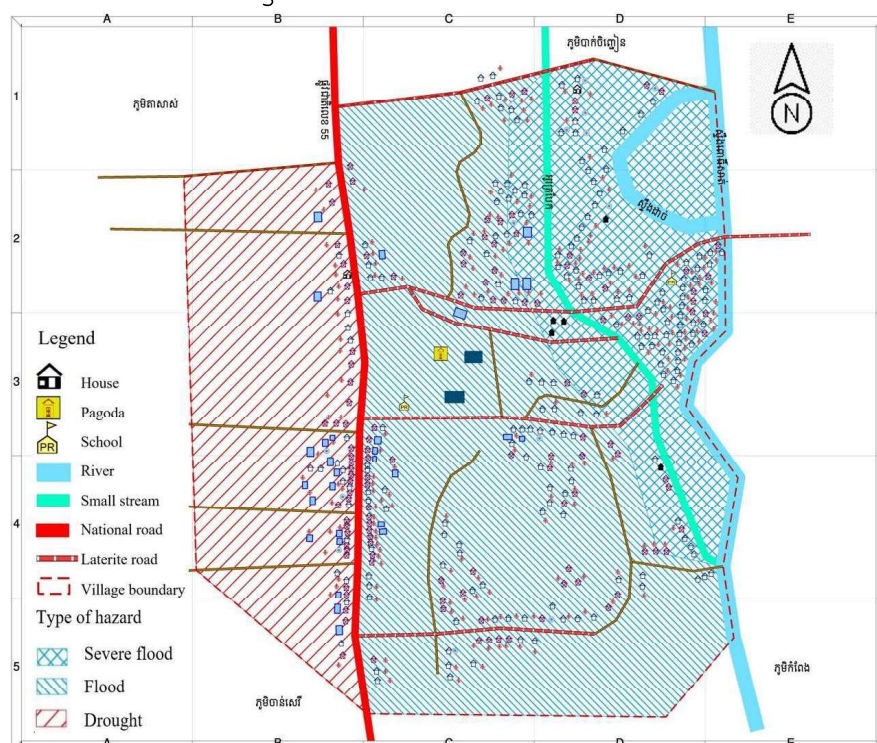
Historical of occurrence climate hazards in the past 20 years

Seasonal climate hazard (12months a year)

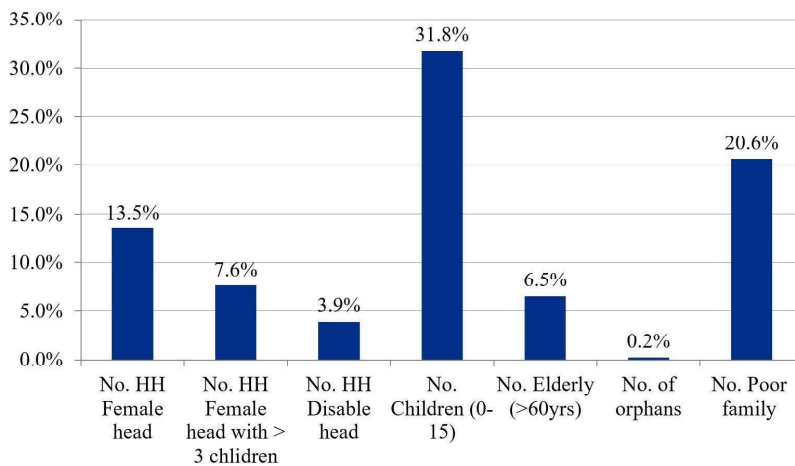
	01	02	03	04	05	06	07	08	09	10	11	12
Drought				*	**	**	**	**	**	**		
						*	**	**	**	**		
Flood									**	**		
				Droughts		Floods			Storm		Hot temp/	
Storm	Number of village			All 46 villages		17 villages			35 villages		All villages	
Lightening	Coverage			75% of village land		54% of village land						
Pests	Year of extreme climate hazard occurred			2008, 2014, 2015, & early 2016		1996, 2011, 2013					2015, 2016	
Animal disease	Month of starting			April		September			April		March	
Hot temperature	Month of ending			October		October			May		June	

Hazard map

Hazard map in Krabau Chrum village:



Vulnerability assessment



Vulnerable group during the climate hazards

Major impacts by climate hazards

Rank of impact	Drought	Flood	Storm
1 st	Crop	Road	Housing
2 nd	Water supply	Crops	People
3 rd	Livestock	Livestock	Crops
4 th	People	People	Livestock

Vulnerability assessment

Village's asset Identification:

No.	Village's assets	Tick (✓)	Sensitive drought	Sensitive flood
1	Road (national road, village roads)	✓	*	***
2	Housing and residential land	✓		*
3	Water supply and sanitation	✓	***	**
4	Water for irrigation	✓	***	
5	Agricultural land	✓	***	**
6	Social building _{RT}	✓	**	*
7	Livelihood (crops, livestock,..)	✓	***	**
8	Natural assets (river, river bank, ..)	✓	**	
9.	Others			

Note: *: least sensitive, **: medium sensitive, ***: high sensitive

Vulnerability Assessment (Cont.)

Impact, adaptive capacity and vulnerability Assessment (drought)

Climate threat	Asset	Impact	Adaptive capacity	Vulnerability
Droughts	Road	L	L	M
	Housing and residential land	L	L	M
	Water supply and sanitation	VH	L	VH
	Water for irrigation	H	L	H
	Agricultural land	VH	L	VH
	Social building	M	L	M
	Livelihood (crops, livestock,..)	H	L	H
	Natural assets (river, river bank, ..)	H	L	H

VH: very high, H: high, M: medium, L: low, VL: very low

Impacts and vulnerability assessment (flood)

Climate threat	Asset	Impact	Adaptive capacity	Vulnerability
Floods	Road	M	L	M
	Housing and residential land	L	L	M
	Water supply and sanitation	M	L	M
	Water for irrigation	L	L	M
	Agricultural land	L	L	M
	Social building	M	L	M
	Livelihood (crops, livestock,..)	M	L	M
	Natural assets (river, river bank, ..)	L	L	M

VH: very high, H: high, M: medium, L: low, VL: very low

Disaster events response and capacity assessment

Drought	Flood
Seed and fertilizer preparation	Paddy rice seed preparation
Reserve water (water jar, ponds, check water wells, ..)	Reserve food, medicine, and clean water
Plant cassava and other crops instead of rice	Prepare stuffs and put high enough safe from level of flood water
Animals shelters	Reserve safe place for family and animal
Migrate for work to get income for family	Migrate for work for income

Practical adaptation respond to climate events

Existing adaptation respond to climate events

Mechanism	Number of villages (total 46villages)
Rice bank	30villages = 65%
Seed bank	7villages = 15.2%
Community ponds	34villages = 73.9%
Elevated area/safe area	14villages = 30.4%
Village safe plan	17villages = 36.9% (by AK)
Early warning system	22villages = 47.8% have EWS
	MOWRAM (TV, Radio), (16 villages)
	1294 system (13 villages)
Village chief a member of CCDM	All 46 villages

Conclusion

Conclusion

- Drought is the major climate hazard confronting by community. The main village's assets confronting to drought are agricultural land, water supply, livelihood, livestock, natural resources.
- Flood occurred was flashflood that take shorter time to finish. Flood hazard is not really a major problem at the present but in future it would be.
- Capacity respond to drought and flood is low and limit to respond climate hazards in future.
- Vulnerability of command area to climate change is tend to be worse in future.
- Adaptation plan should mainly integrate into village safe plan for responding climate change issue in future.
- The results provide important information for further studies in order to propose a sustainable disaster management strategy.

Acknowledgement

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Thank you so much!

