A Study on Climate Change Impact on the Livelihoods of the People in Tanguar Haor, Bangladesh

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Overview

- Objectives
- Methodologies
- Haors of Bangladesh
- Tanguar Haor
- Climate Change & vulnerability
- Analysis of Climate Change parameter
- Understanding on livelihood of Tanguar Haor people due to Climate Change
- Results

Objectives

- Analysis of major climate change parameters
- Climate change impacts on agriculture, fisheries and severity of flash flood, cyclone, drought, and river erosion etc.
- Understanding on livelihood of Haor people due to climate change

Research Methodologies

1. Review of various documents, journals and reports
2. Collection of Data
3. Site visiting
4. Questionnaire survey
5. Analysis of data
6. Data representation
7. Recommendation for mitigating and adapting

Haors of Bangladesh

- Haors with their unique hydro-ecological characteristics are large bowl shaped floodplain depressions located in the north-eastern region of Bangladesh covering about 1.99 million ha of area and accommodating about 19.37 million people.

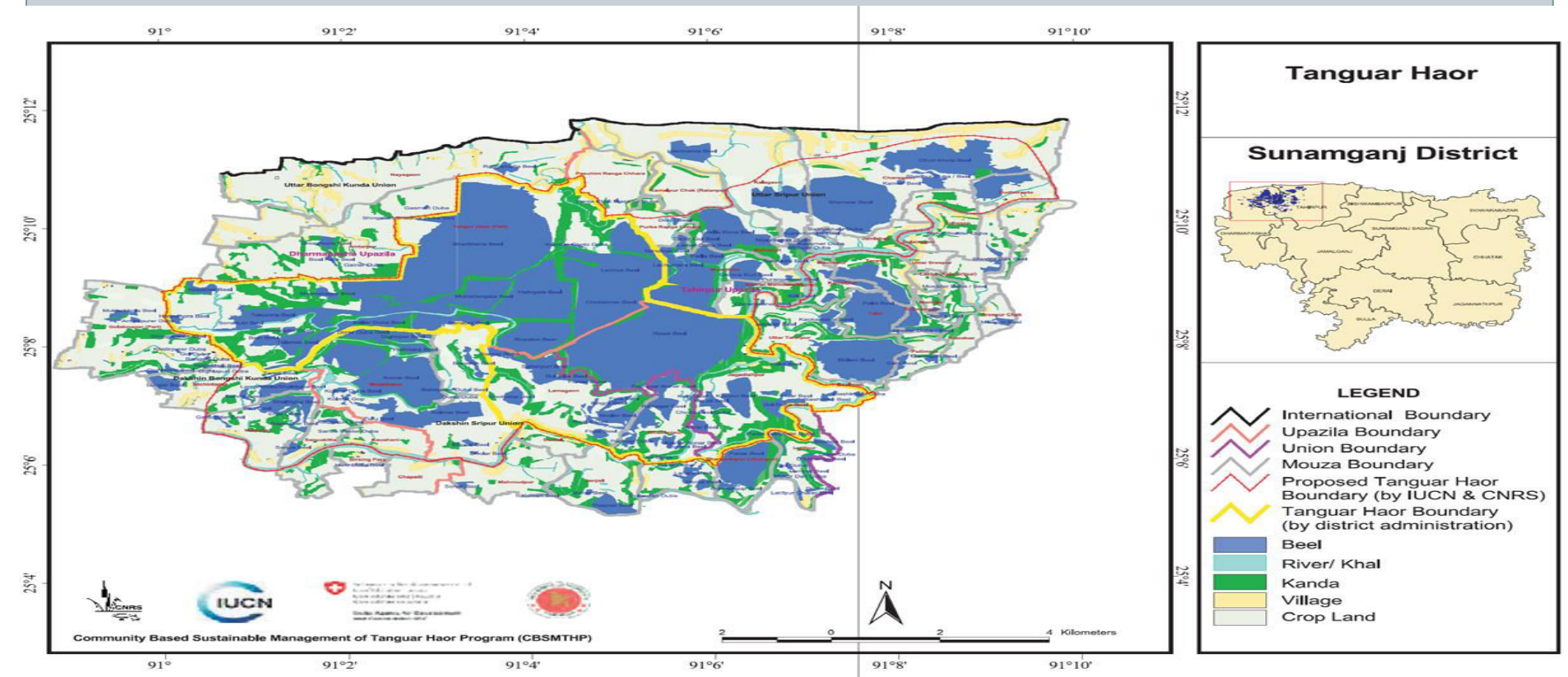
- These 373 haors cover an area of about 859,000 ha which is around 43% of the total area of the haor region.

District	Total area in ha	Haor area in ha	No. of haors
Sunamganj	367,000	268,531	95
Sylhet	349,000	189,909	105
Habiganj	263,700	109,514	14
Maulvibazaar	279,900	47,602	3
Netrakona	274,400	79,345	52
Kishoreganj	273,100	133,943	97
Brahmanbaria	192,700	29,616	7
Total	1,999,800	858,460	373

Source: BHWDB, 2012

About Tanguar Haor

- Located in Sunamganj District is a part of Meghna and Surma River Basin.
- Covering an area of 9,727 hectares.



About Tanguar Haor (cont.)

- Tanguar haor exhibits a unique wetland ecosystem.
- Considering its ecological importance it has been declared as the 2nd Ramsar site of Bangladesh in 2000.
- The swamp forest land of the haor is another unique ecological feature of the haor ecology.
- It plays an important role in fish production as it functions as a 'mother fishery' for the country.

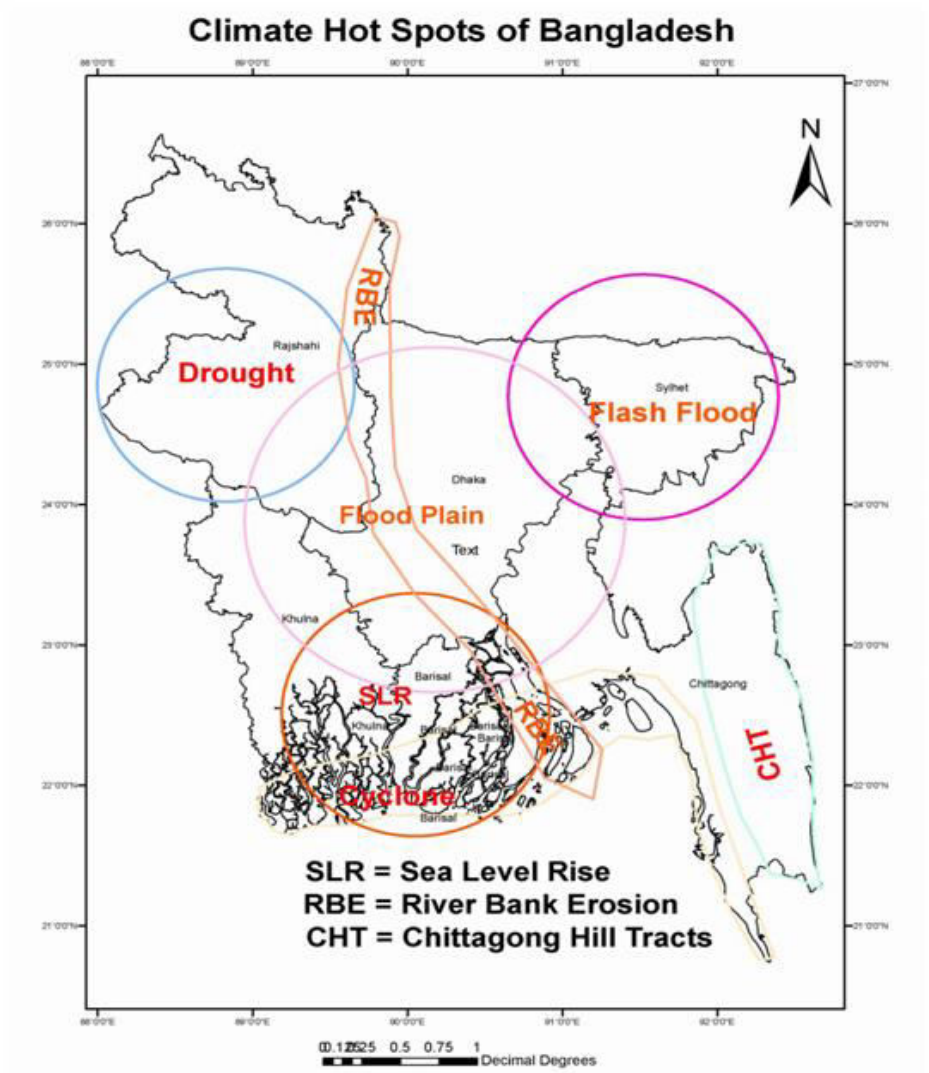
Climate Change in Bangladesh

- Climate change is an unavoidable challenge that society will have to deal with over coming decades.

- Bangladesh is generally viewed as a vulnerable country with respect to climate change especially in *Haor* areas because of its unique geographic location, dominance of flood plains, high population density, elevated level of poverty and overwhelming dependency on nature and its resources and services.

Vulnerability of climate Change in Bangladesh

- ✓ Sea Level Rise
- ✓ Cyclone (Intensity & Frequency)
- ✓ Deeper Penetration of Saline Water
- ✓ Erratic Rainfall
- ✓ Flood (Intensity & Frequency)
- ✓ Drought
- ✓ River Bank Erosion
- ✓ Water
- ✓ Health
- ✓ Food Security and Livelihoods

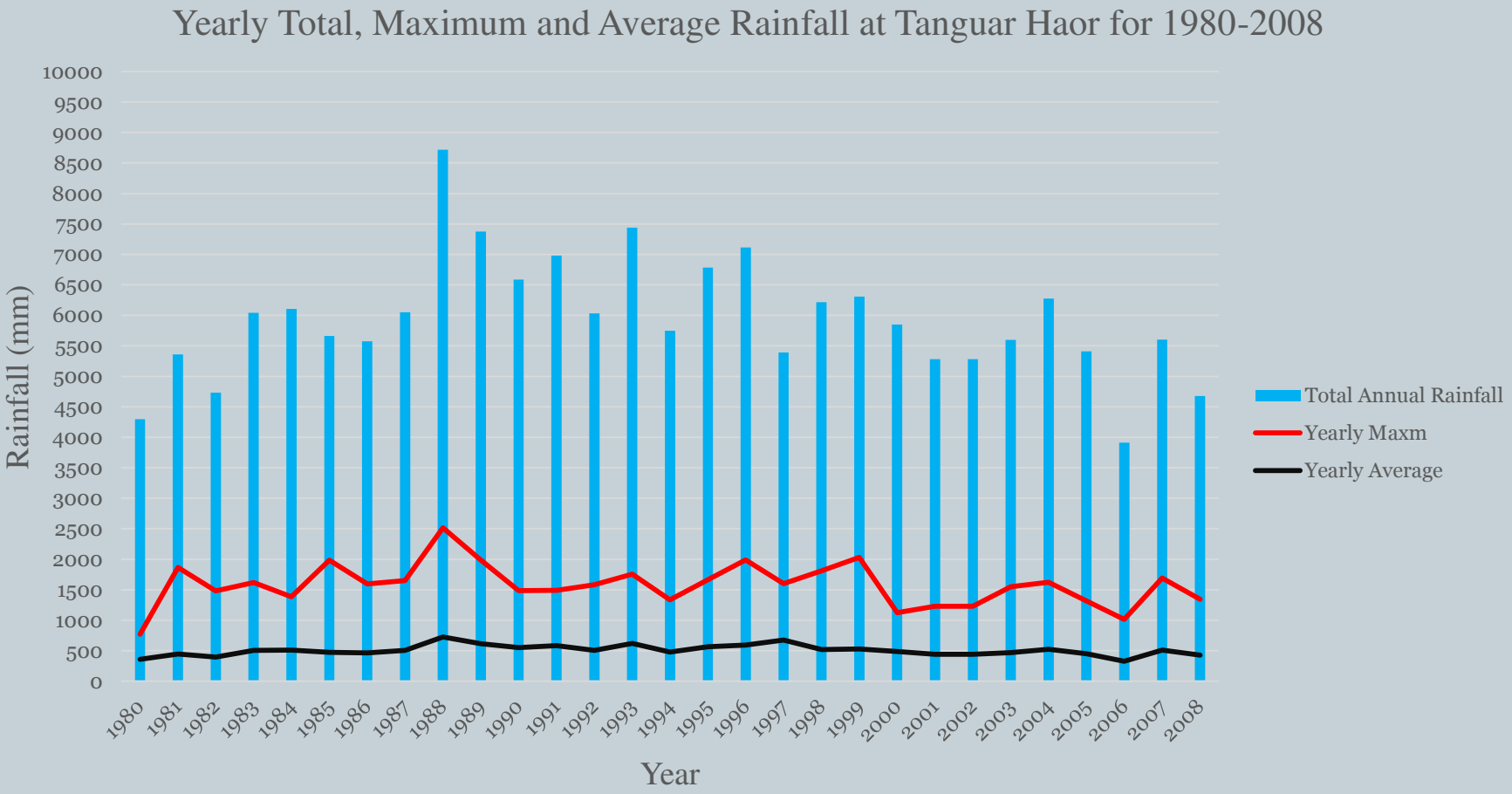


Map Source: Dr. Atiq Rahman. 2014

Analysis of climate change parameters in Tanguar *Haor*

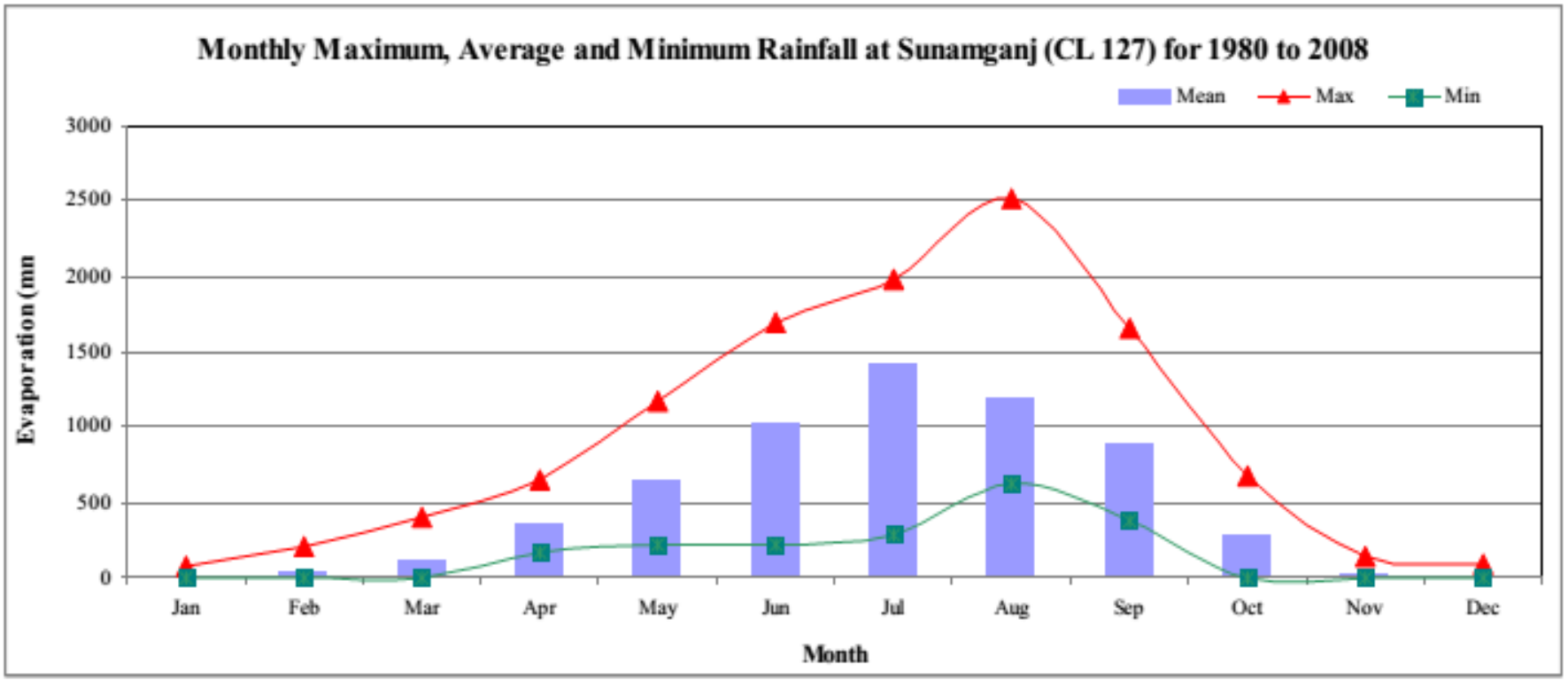
- Rainfall (1980-2008)
- Temperature (1981-2010)
- Evaporation (2007-2010)
- Water level (1981-2010)

Rainfall (cont.)



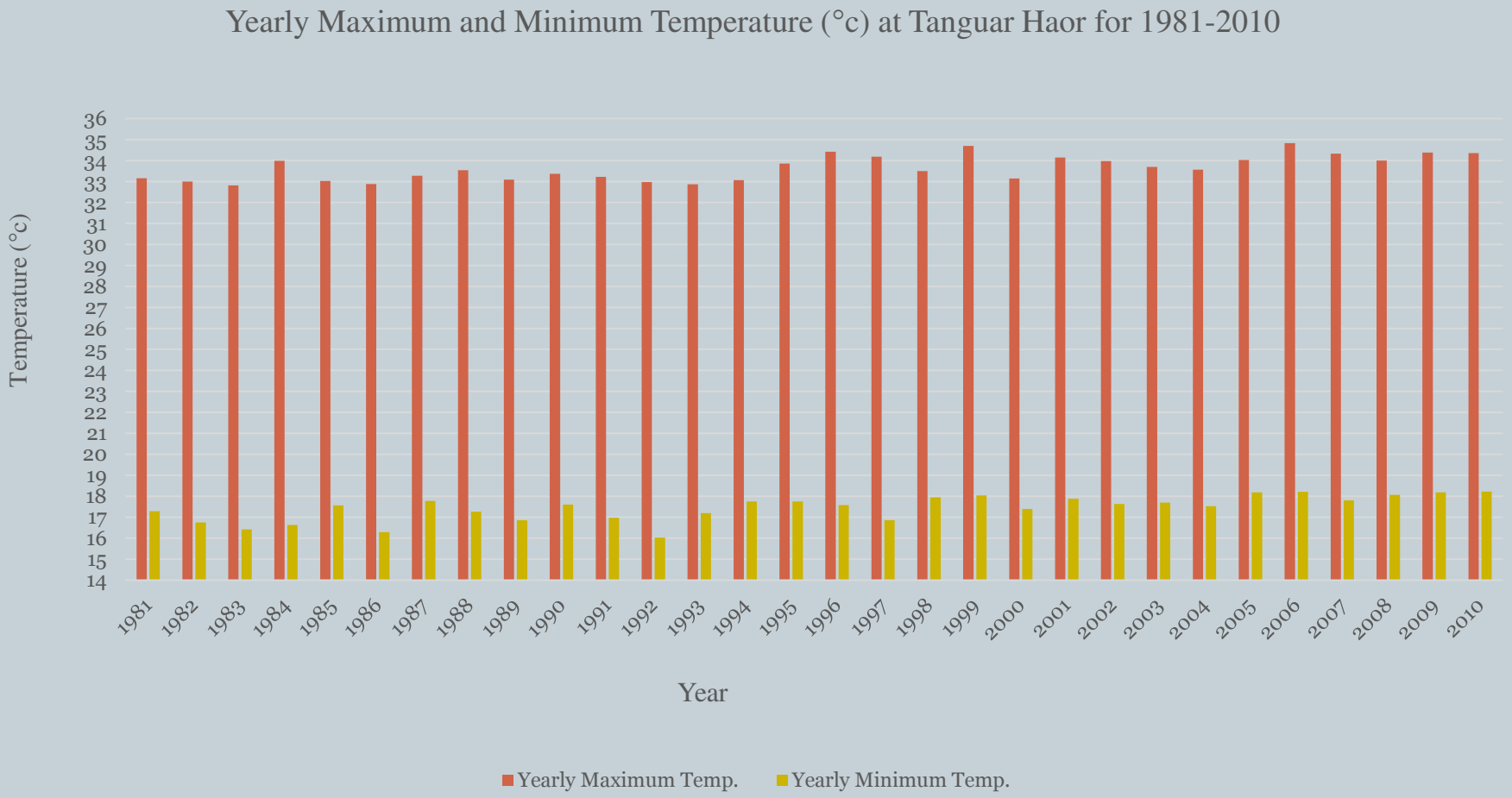
Source: Data collected from IUCN, 2014

Rainfall (cont.)



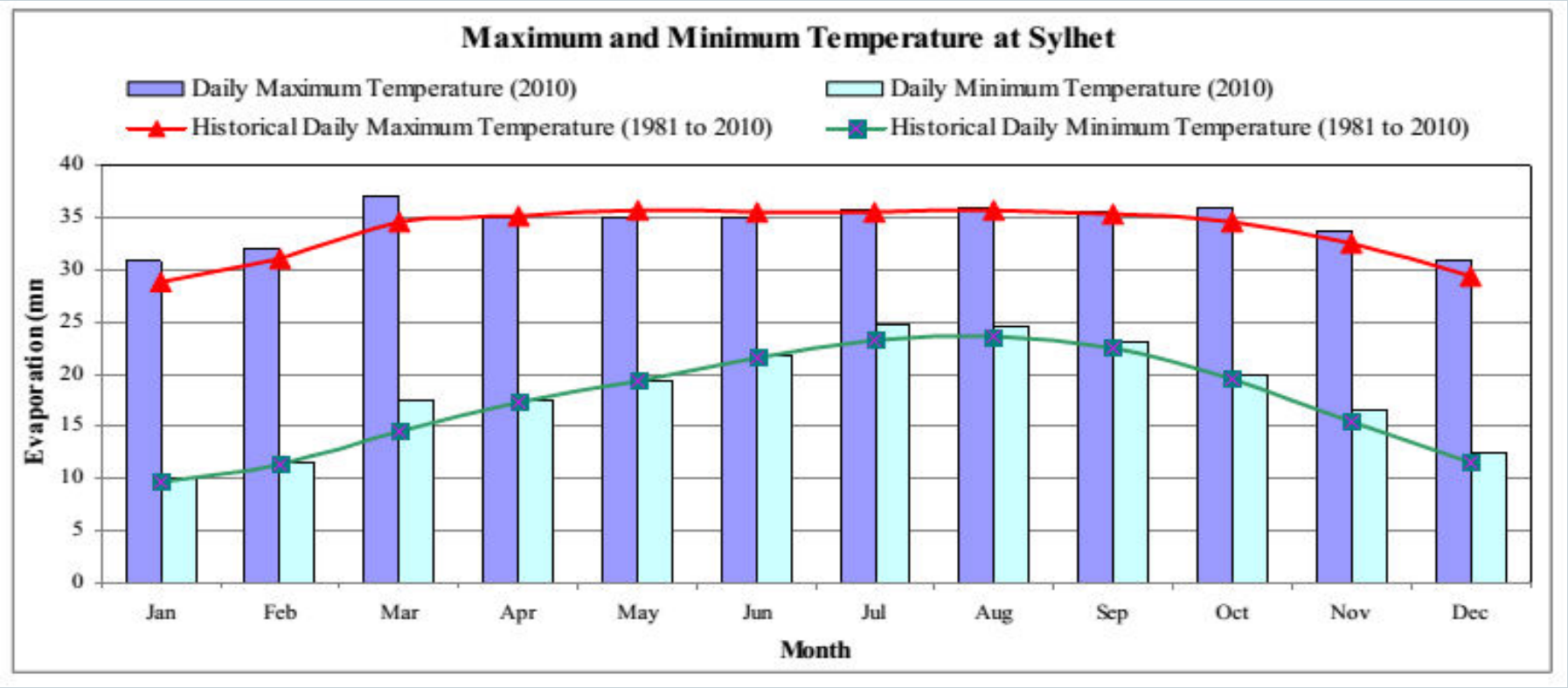
Source: IUCN, 2014

Temperature



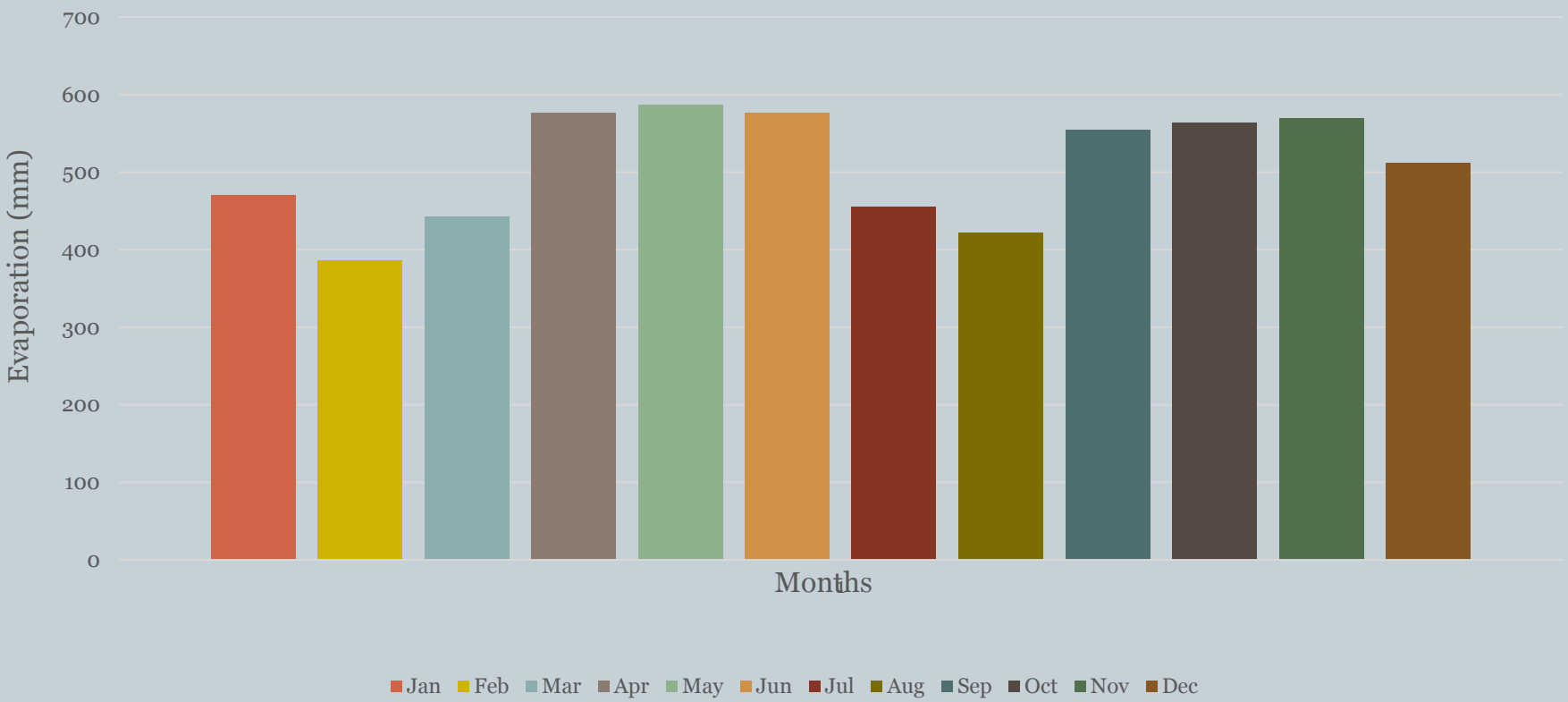
Source: Data collected from IUCN, 2014

Temperature (cont.)



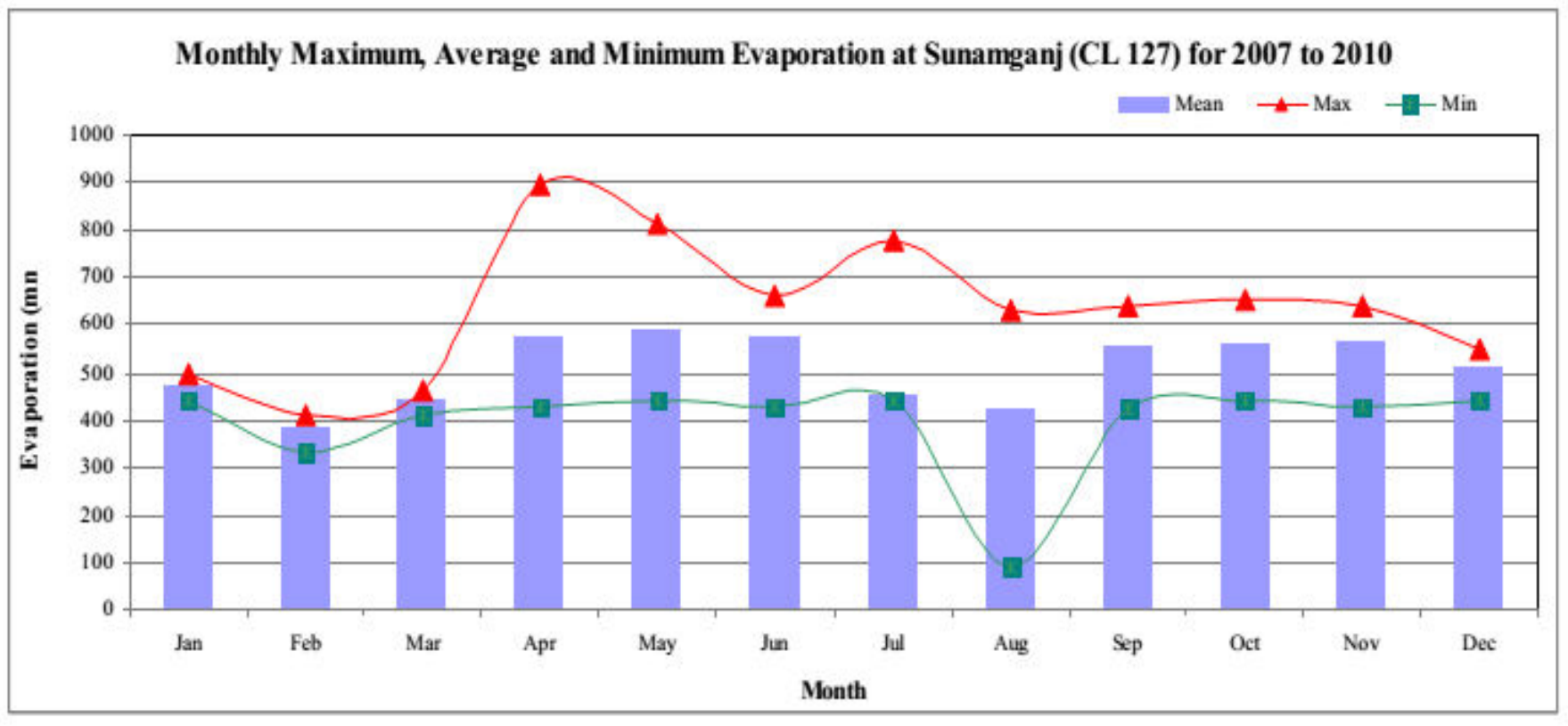
Source: IUCN, 2014

Evaporation



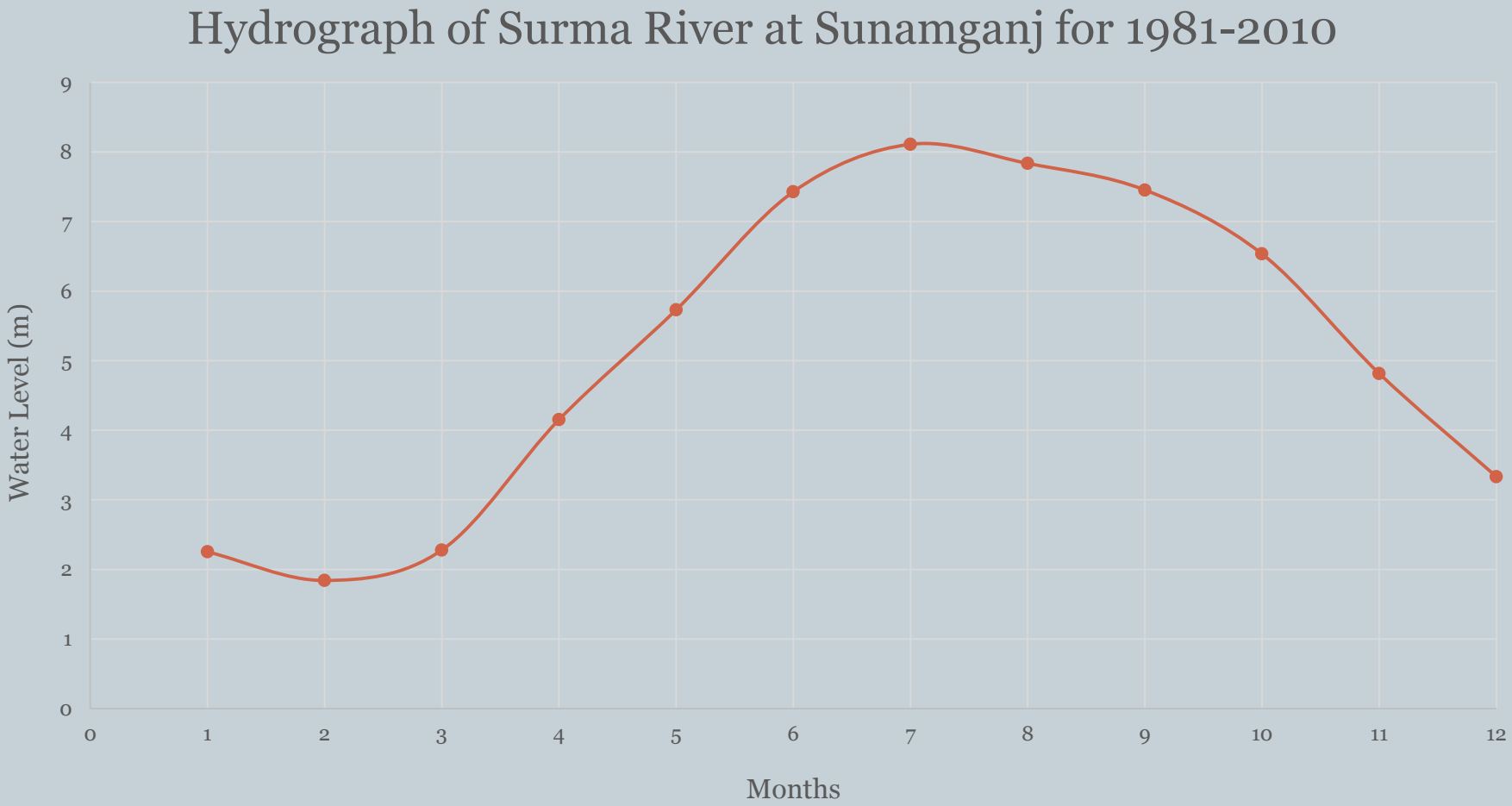
Source: Data collected from IUCN, 2014

Evaporation (cont.)



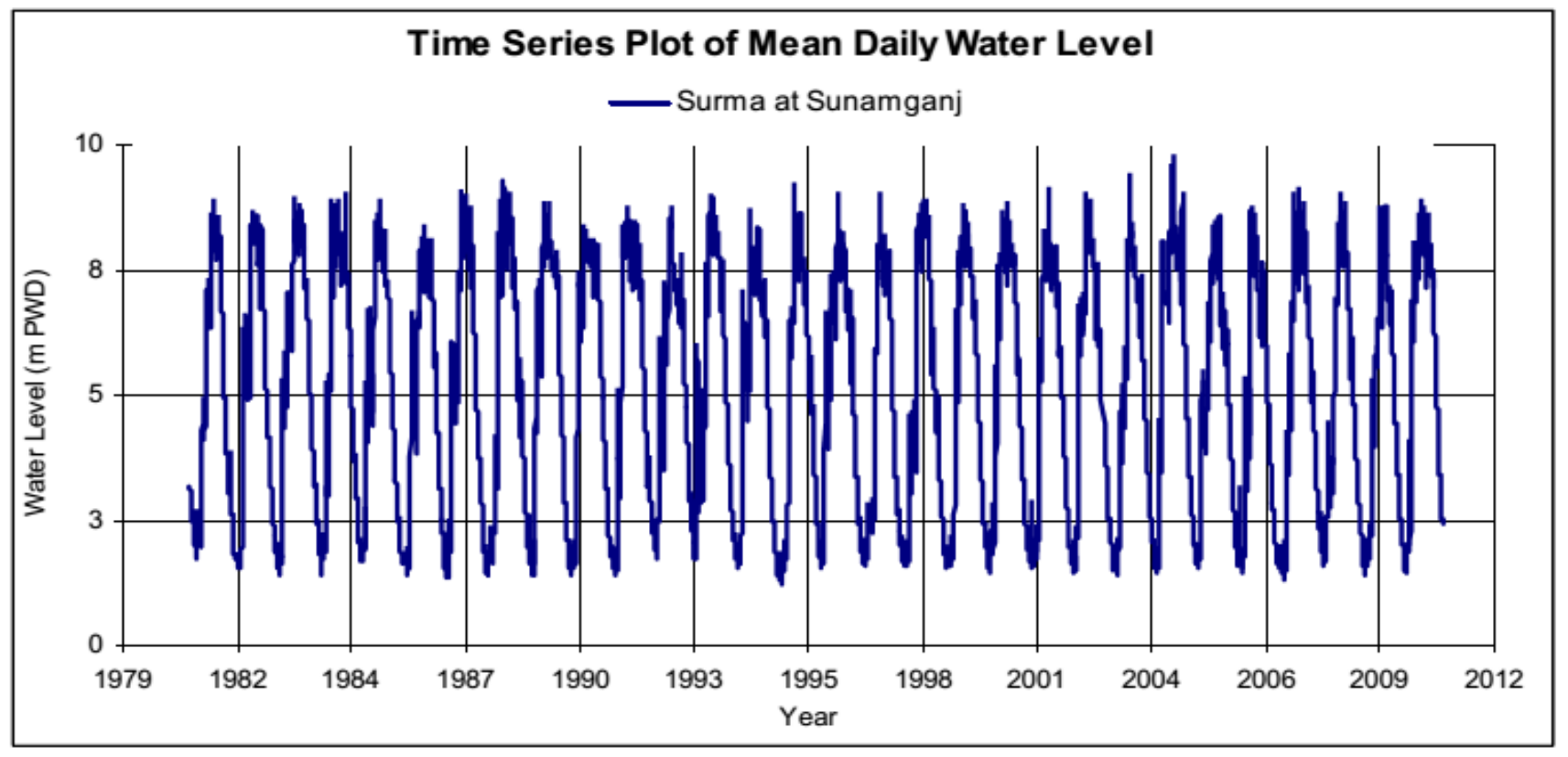
Source: IUCN, 2014

Water Level



Source: Data collected from IUCN, 2014

Water Level (cont.)



Source: IUCN, 2014

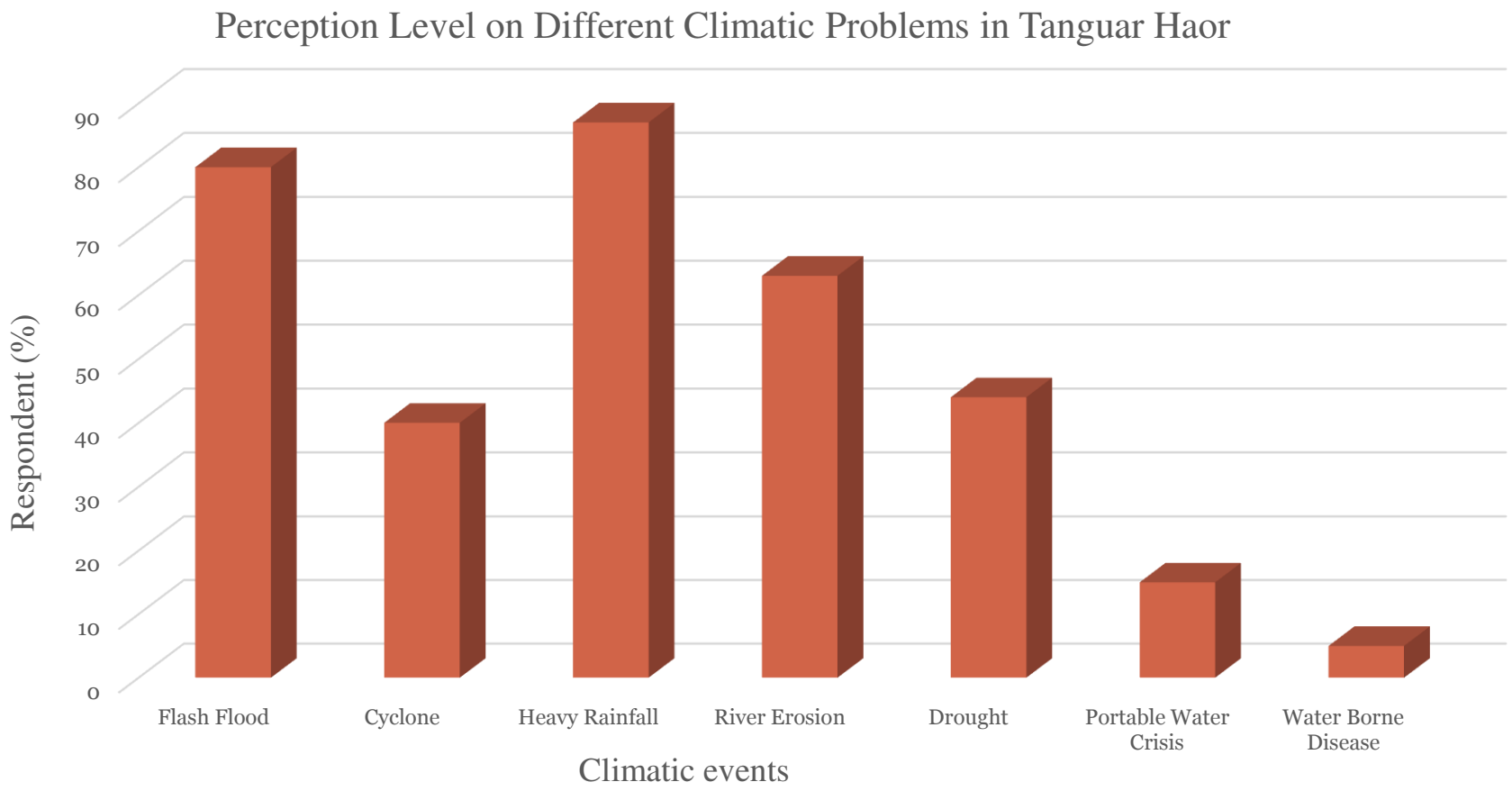
Our Field Survey

Respondents of this study

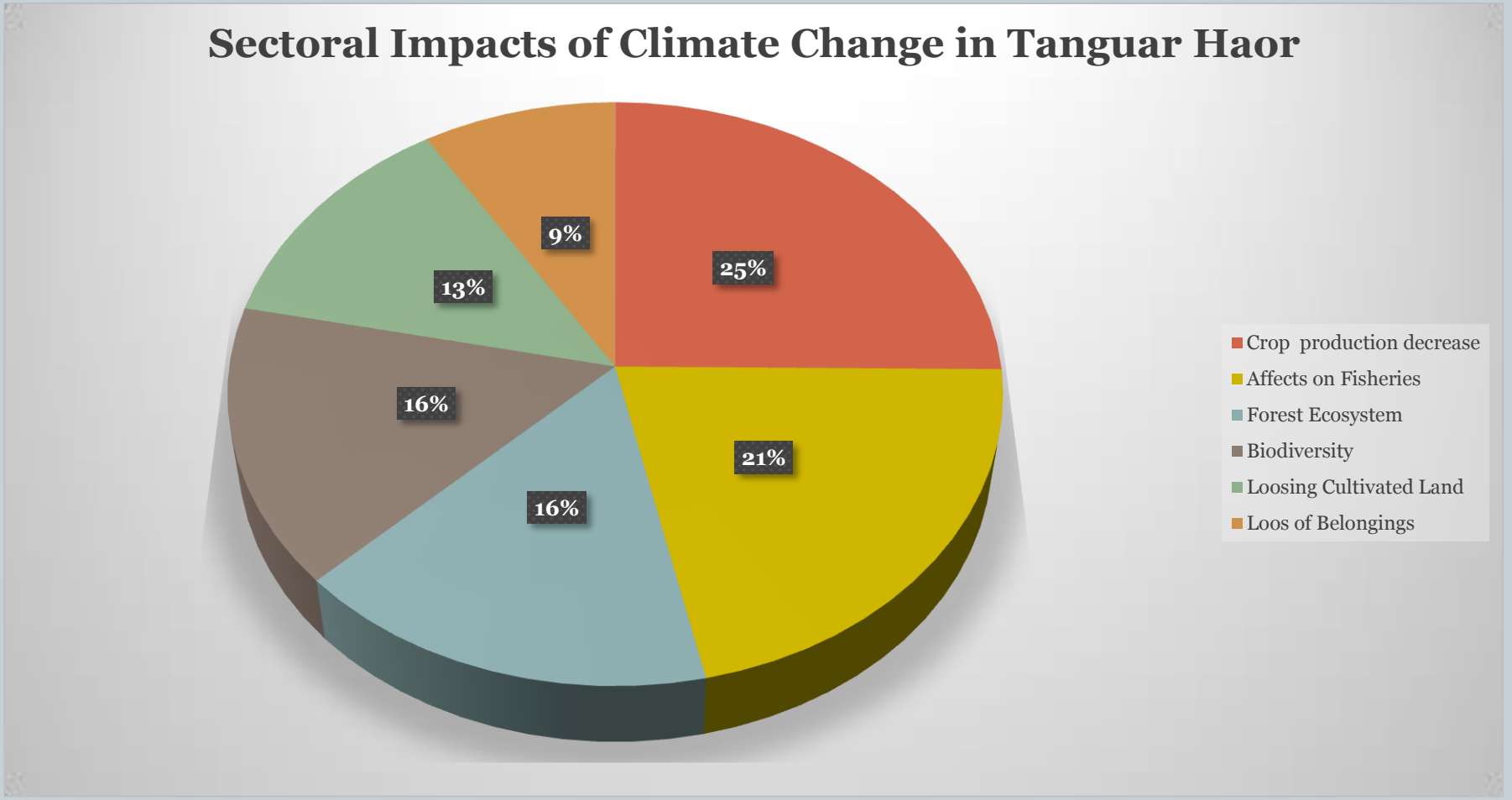
- Total respondents 95
- Male respondent 70
- Female respondent 25

- From Patabuka village – 30 respondents
- From Manikkila village – 30 respondents
- From Uttar Tahirpur village- 35respondents

Climatic Problems in Tanguar Haor from people's perception



Sector wise impacts due to climate change



Climate Change Adapting Strategy of the Community

Vulnerability Contexts	Adapting Strategy of Tanguar Haor Community						
	Migration (%)	Rainwater Harvesting (%)	Repair / Reconstruct House (%)	Job Switching (%)	Change in Crop calendar (%)	Follow weather forecast (%)	Boil Water + Alum (%)
Flash Flood	5 (n=5)		77 (n=73)	35 (n=33)	45 (n=43)	90 (n=86)	
Cyclone	29 (n=28)		92 (n=88)			92 (n=88)	
Heavy Rainfall			12 (n=10)	18 (n=17)	50 (n=48)		
River Erosion	54 (n=52)		46 (n=44)	90 (n=86)			
Drought				57 (n=54)	64 (n=61)	85 (n=81)	
Portable Water Crisis		91 (n=86)					55 (n=53)
Water Borne Disease		73 (n=70)					37 (n=35)

Source: Field Survey, 2014

Results from the study

- Changes over the period of 28 years (1980-2008), annual average rainfall has decreased by 25 mm
- Average annual maximum and minimum temperature are increasing around 1.45°C and 1.4°C respectively
- Changing pattern of temperature in the Tanguar Haor (1.45°C) is significantly higher compared to the IPCC assessment over the world in last 100 years (1910-1940: 0.35°C, 1970-2007: 0.55°C) (IPCC, 2007:252)

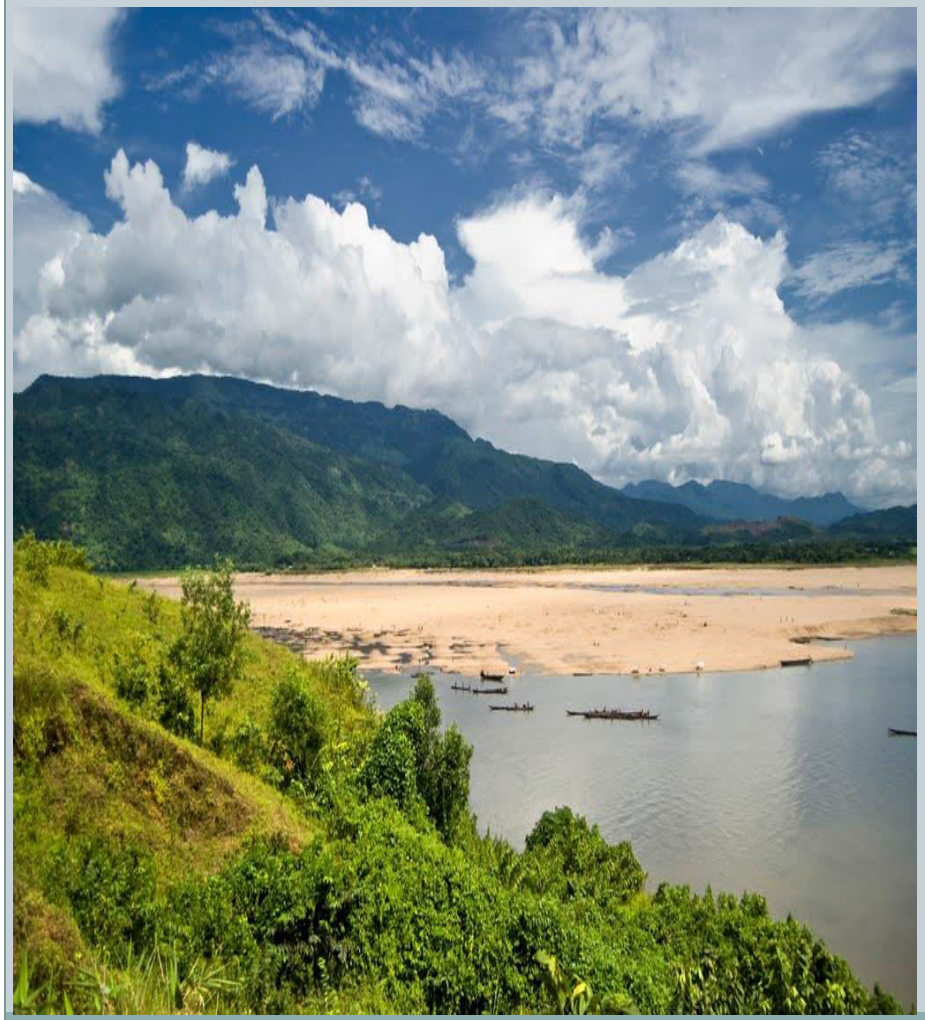
Results (cont.)

- Perception levels of different climate change induced events are as follows: flash flood (80%), heavy rainfall (87%), cyclone (40%), river erosion (63%), drought (44%), and potable water crises (15%).

- Adaptation strategies to cope up with these climatic events are migration, job switch, changes in crop calendar, rainwater harvesting, repair/reconstruction of houses, following weather forecast and purifying water to drink.

- Decreasing crop production (25%), reduced fisheries (21%), loss of forest ecosystem (16%), loss of biodiversity (16%), loss of cultivable land (13%) and loss of personal belongings (9%)

“People from outside consider it a natural beauty and many inside think it as a trap of nature!”



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QUESTION

THANK YOU