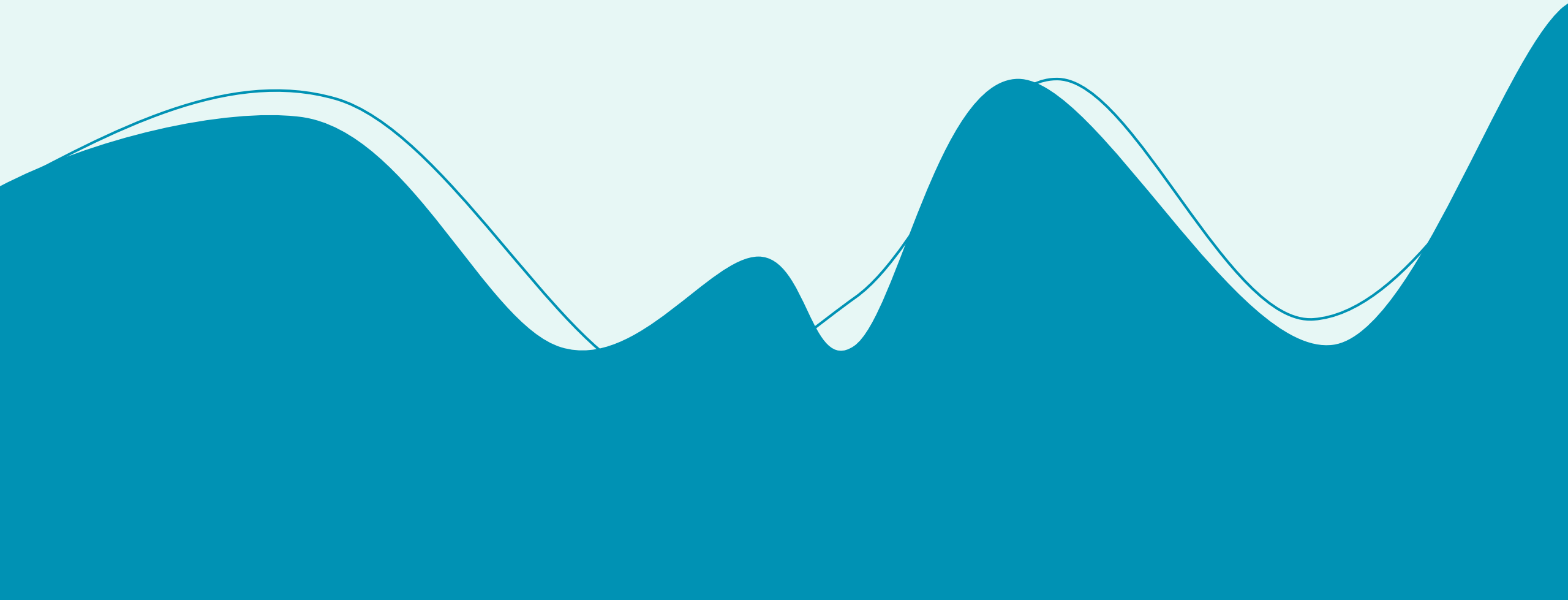


Case Work



Agenda of Case Work



Learn **how to analyse the risk caused by climate change** within a system/area of interest



Identify **factors that contribute to risk** in a system taking into account the **current situation and climate projections:**

climate hazards, exposure, sensitivity, adaptive capacity, vulnerability and potential impacts



Prepare risk matrix and assess **climate change induced risk on different sector of Bangladesh**

Components of Physical Climate Risk

 **CLIMATE RISK**

=



PROBABILITY OF A HARMFUL CLIMATE EVENT OR TREND

×



IMPACT



Hazard

(likelihood × magnitude)

×

Exposure

×

Vulnerability

Sensitivity - **Adaptive capacity**

Climate Risk = f (hazard, vulnerability, exposure)

Climate Induced Hazards in Bangladesh

14 Climate Induced Hazards



Monsoon Flood



Flash Flood



Drought



Salinity



Storm Surge



Excess Heat



Landslide



River Erosion



Lightning



Excess Rainfall



Cold Spell



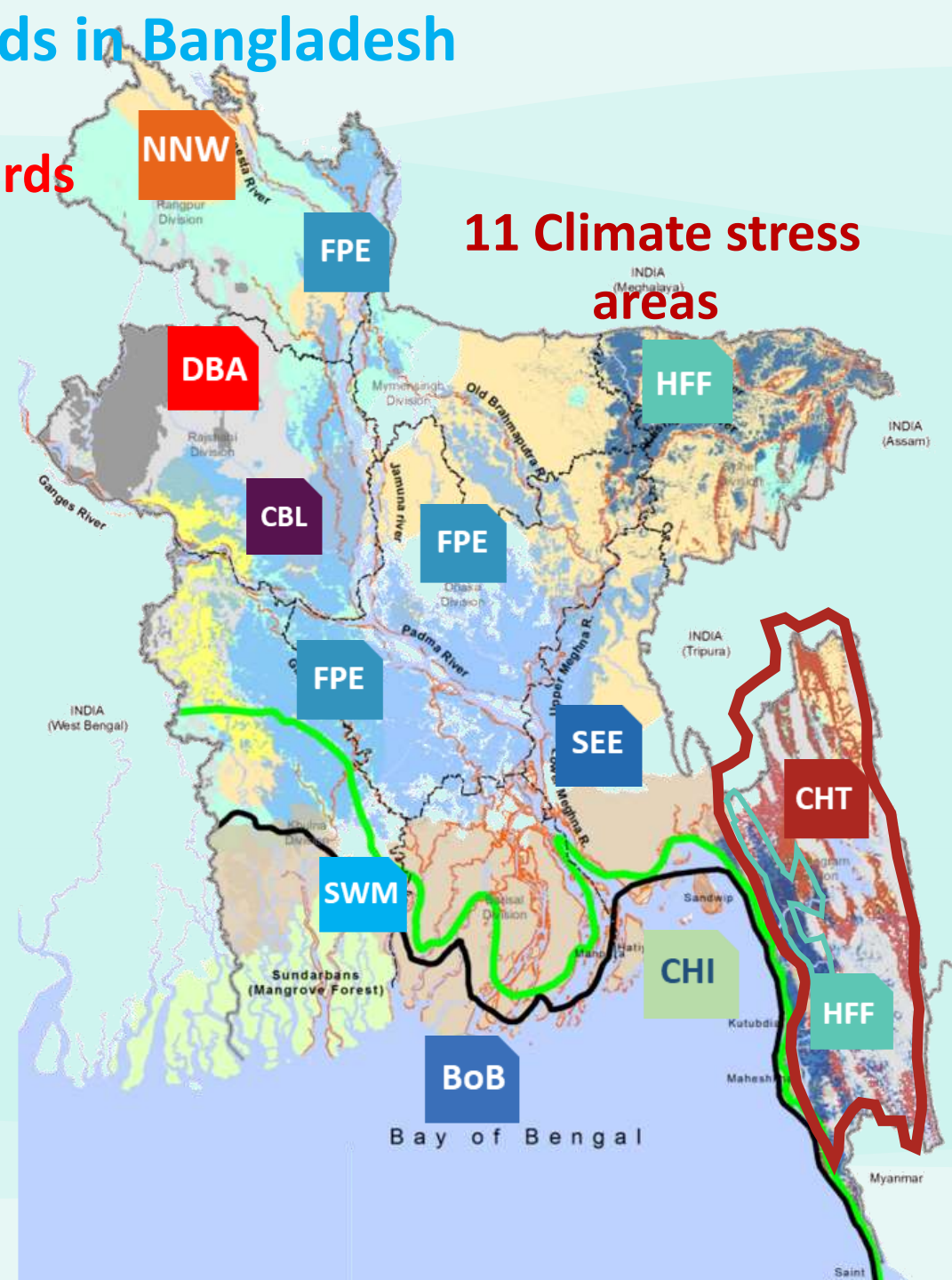
Sea Level Rise



Urban Flood



Ocean Acidification



11 Climate stress areas

- SWM** Southwestern coastal area and Sundarbans
- SEE** Southeast and eastern coastal area
- CHT** Chattogram Hill Tracts
- FPE** River, floodplain and erosion prone area
- HFF** Haor and flash floods area
- DBA** Drought Prone and Barind Area
- NNW** Northern north-western region
- CBL** Chalan beel and low-lying area of north-western region
- CHI** Char and Islands
- BoB** Bay of Bengal and Ocean
- URB** Urban Areas

Exposure (Element at risk)

Exposure is the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social or cultural assets in hazard-prone area and settings that could be adversely affected.



Example:

Average temperature rise

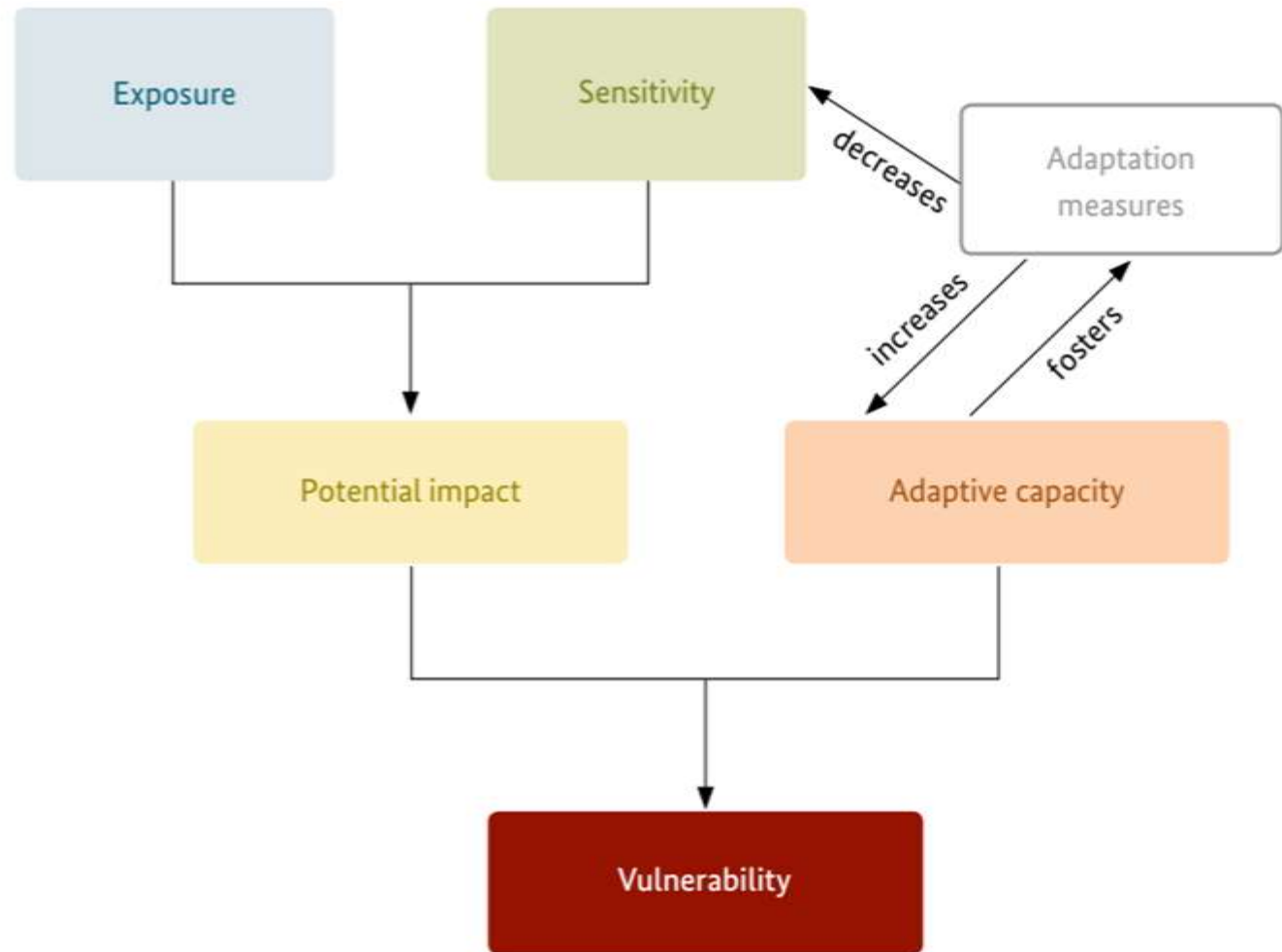
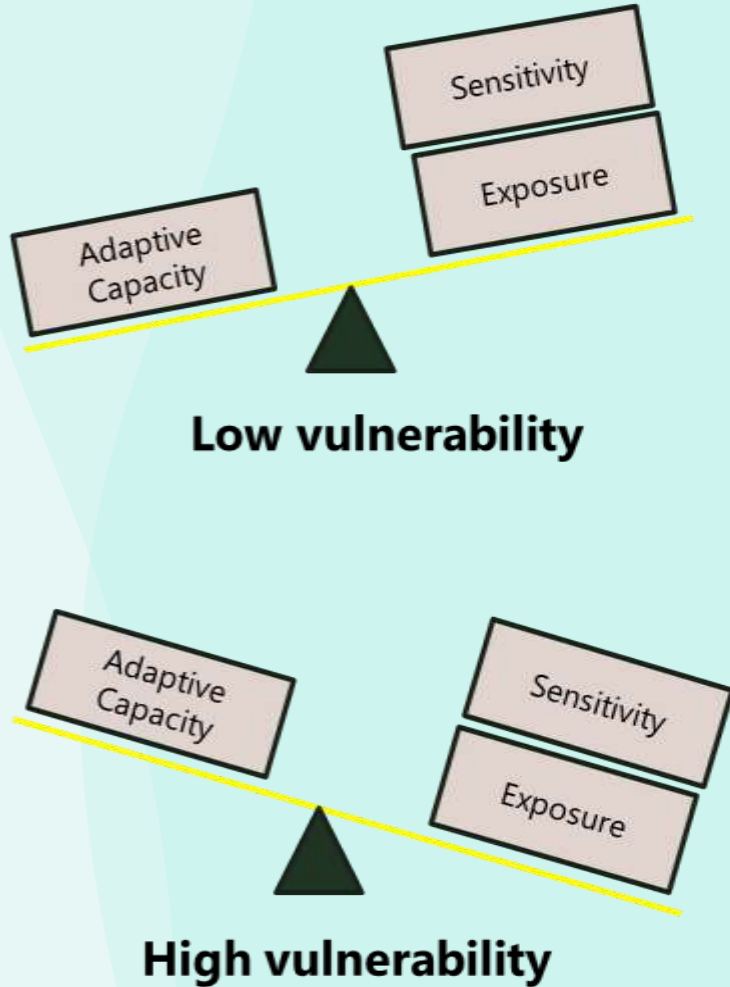
- › Regions where average temperatures are high
- › Regions where temperature may cross tolerance limit of certain system

Sea level rise, increased storm surge, coastal flood and erosion

- › Areas of coastal zone at or below mean sea level
- › Coastal zones and island and offshore locations

Definition of Vulnerability

Vulnerable regions or sectors can be therefore identified by linking the potential impacts and adaptive capacity



Hazard, Exposure, Risk Level Classification

3 Threshold Classification

I	Low
II	Medium
III	High

5 Threshold Classification

I	Very Low
II	Low
III	Medium
IV	High
V	Very High

Risk Matrix (Example)

System/area of Interest	Hazards		Exposure		Vulnerability		Potential Impact(s)	Risk Level
	Climate hazard of concern the identified action may be exposed to	Hazard Level	Element at Risk	Exposure Level	Social and Environmental (Physical) Vulnerability	Vulnerability Level	Potential bio-physical and Socio-economic impacts (also considering vulnerability)	
<u>Example</u> Rice productivity	<u>Example</u> <ul style="list-style-type: none"> Erratic and Intensive Rainfall (very frequent every year) Extreme Drought 	3	<u>Example</u> Densely populated Marginal farmers (high density) Traditional Crop Varieties	5	<u>Example:</u> <ul style="list-style-type: none"> Marginal Farmers are highly sensitive as they have the lower economic capacity Day labourers are highly sensitive as they have the lower economic capacity Irrigation water is sensitive to dry spells, which leads to a lack of groundwater recharge Crop variety as different crop variety has different sensitivity in terms of temperature and moisture. 	4	<u>Example:</u> <ul style="list-style-type: none"> Lowering of the ground water table Reduced yield due to phenological changes Reduction of household income Increase of malnutrition problem & poverty 	4 (High) (Using Risk Matrix)

Use Risk Matrix for Risk Level Identification



RISK MATRIX Approach (IPCC AR5)

Risk **I** very low **II** low **III** intermediate **IV** high **V** very high