

Climate Change in Bangladesh



About 115 times smaller than Russia



Climate Change Effects



**HOTTER
TEMPERATURES**



**MORE SEVERE
STORMS**



**INCREASED
DROUGHT**



**A WARMING, RISING
OCEAN**



**LOSS
OF SPECIES**



**NOT ENOUGH
FOOD**

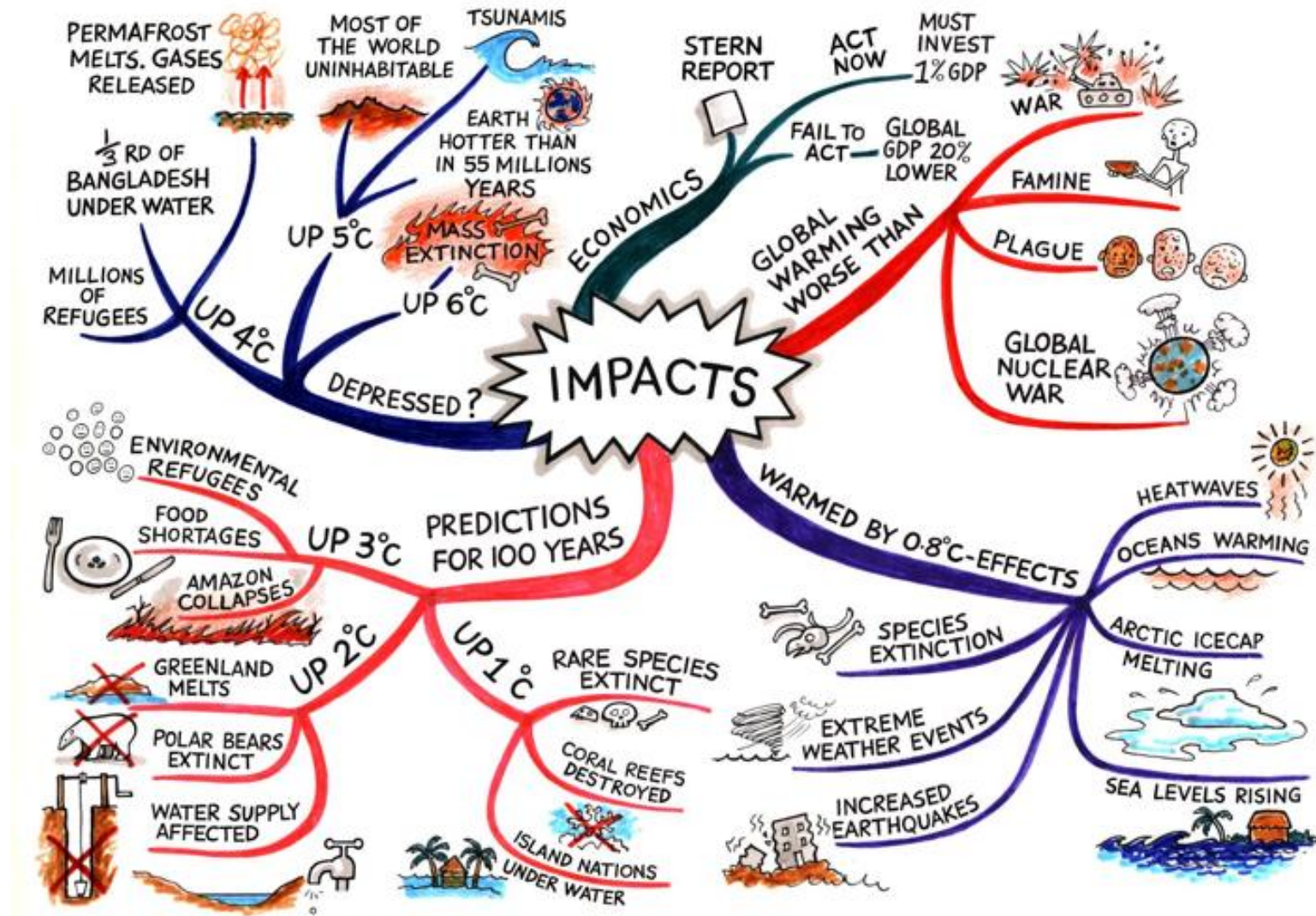


**MORE
HEALTH RISKS**



**POVERTY AND
DISPLACEMENT**

There are many unseen effects as well...



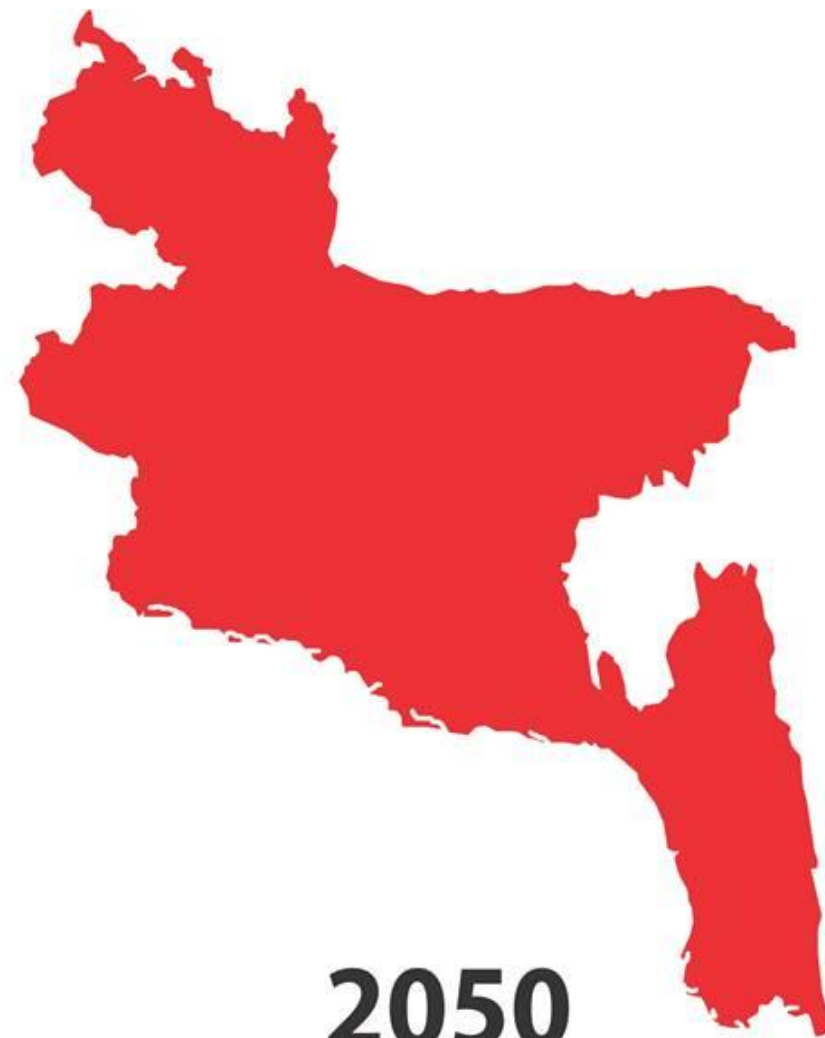
A layer of salt has covered this dried up canal in Pakhimara village of Kalapara, Patuakhali – a mark of salinity intrusion in the coastal belt. The photo was taken in the first week of May.

- *The daily Star*; July 23, 2013; Photo: Arif Rahoman





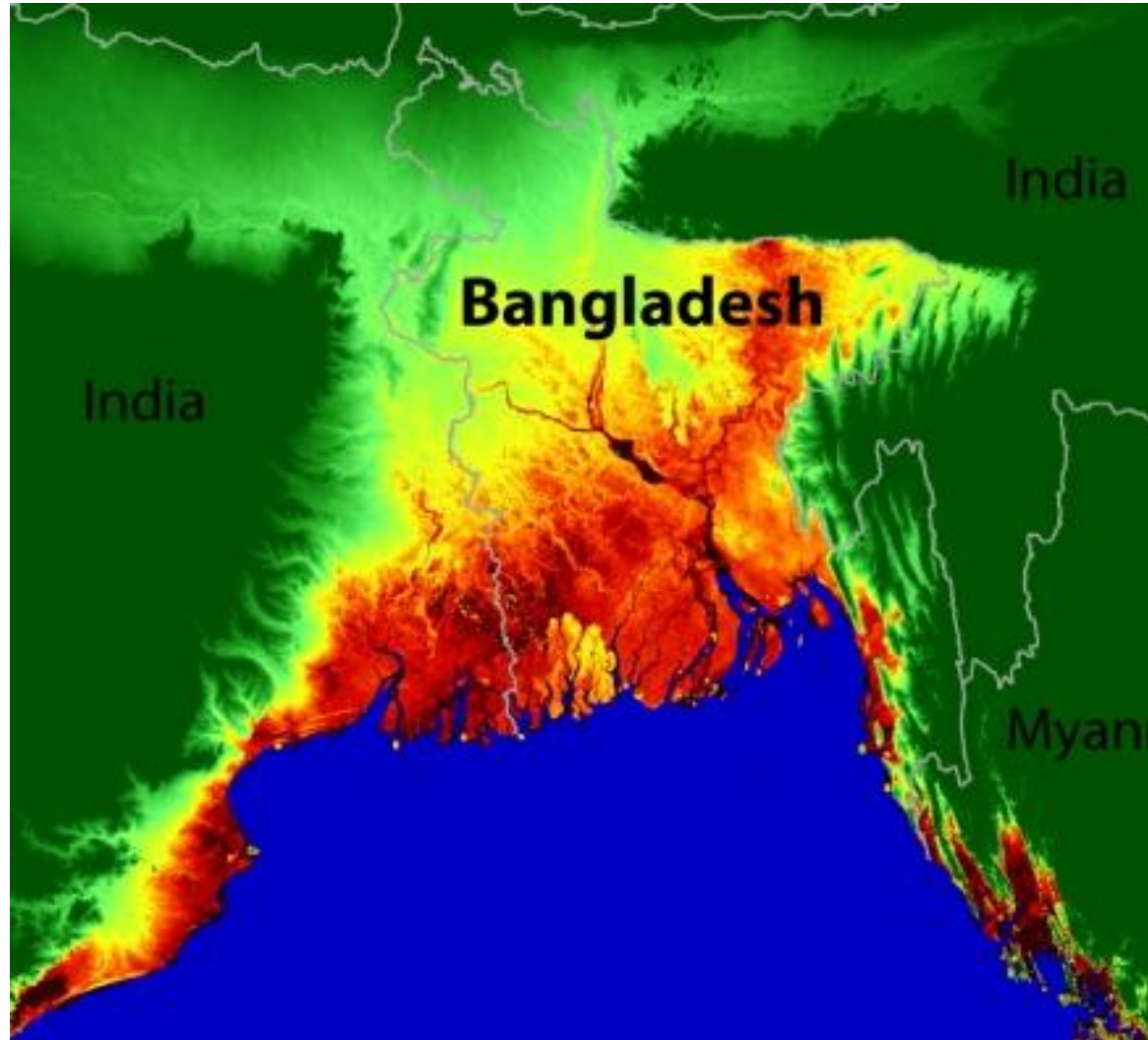
2014



2050

Bangladesh in 2050 due to climate change?
The map is very speculative but the possibility is highly real.

Climate Change and Bangladesh



climate change and Bangladesh



All



Images



News



Videos



Maps



More

Tools

About 149,000,000 results (0.70 seconds)

climate change bangladesh



About 795,000 results (0.10 sec)

Huge number of pages!

Total Number of Websites – Yearly Table

Year	Total Number of Websites (<i>Active Websites</i>)
January 2019	1 518 207 412 (182 185 876)
January 2018	1 805 260 010 (171 648 771)
January 2017	1 800 047 111 (172 353 235)
January 2016	906 616 188 (170 258 872)
January 2015	876 812 666 (177 127 427)
January 2014	861 379 152 (180 067 270)
January 2013	629 939 191 (186 821 503)
January 2012	582 716 657 (182 441 983)
January 2011	273 301 445 (101 838 083)
January 2010	206 741 990 (83 456 669)
January 2009	185 497 213 (71 647 887)
January 2008	155 583 825 (68 274 154)

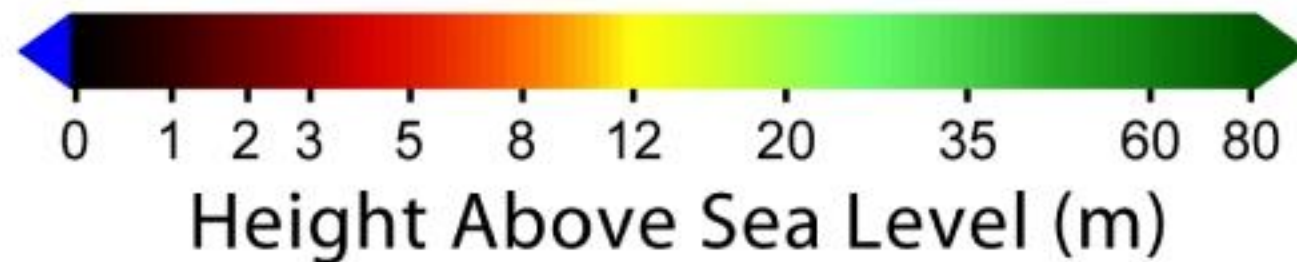
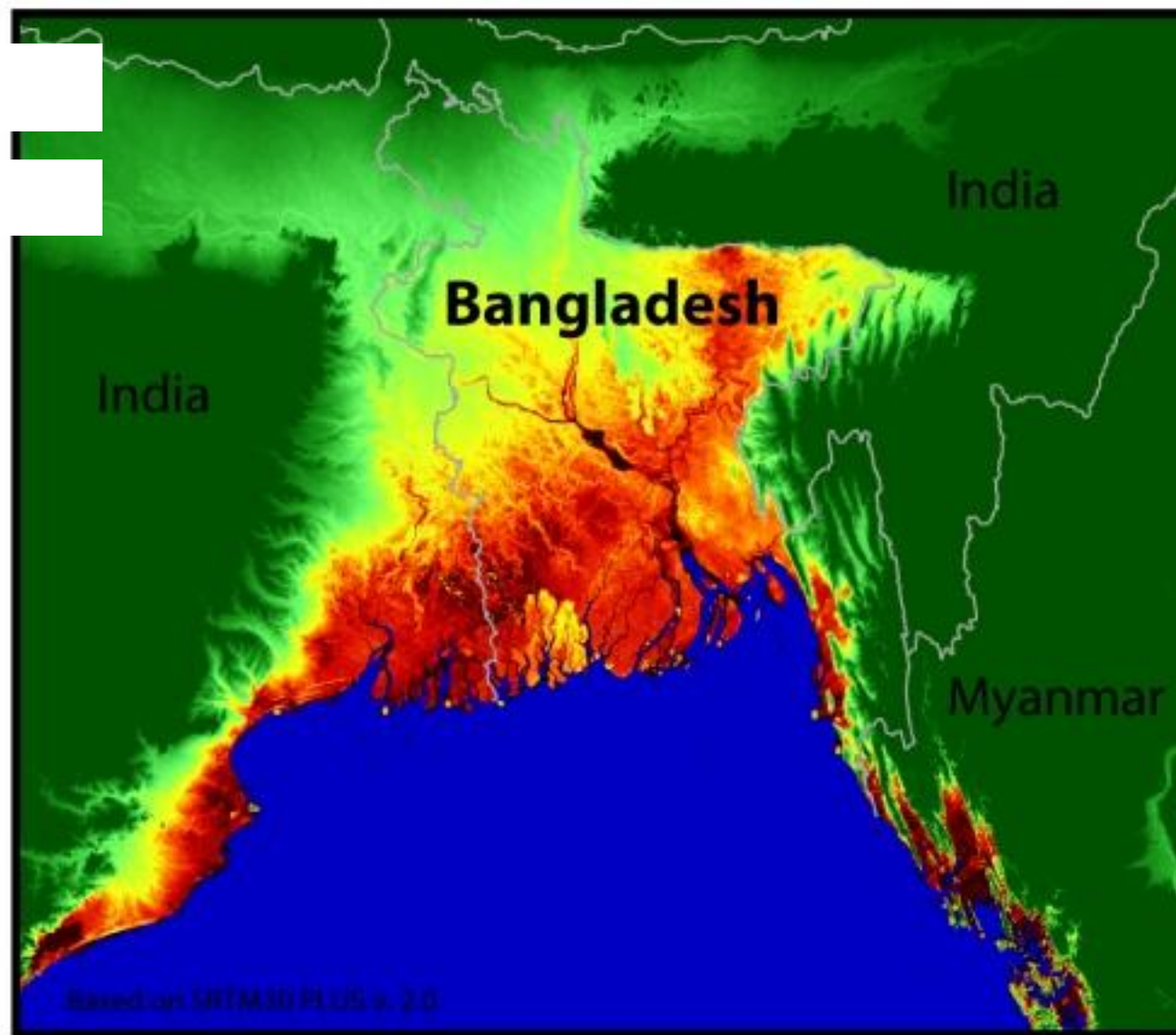
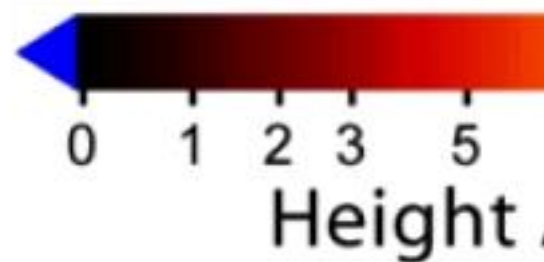
Bangladesh the worst sufferer

Bangladesh-most vulnerable countries of the world.

Negligible gas emissions - worst victim.

Sea level

Will last for > 1000 yr





Drought



Cyclone



Storm surge, salinity

Hazards Bangladesh faces



Flood

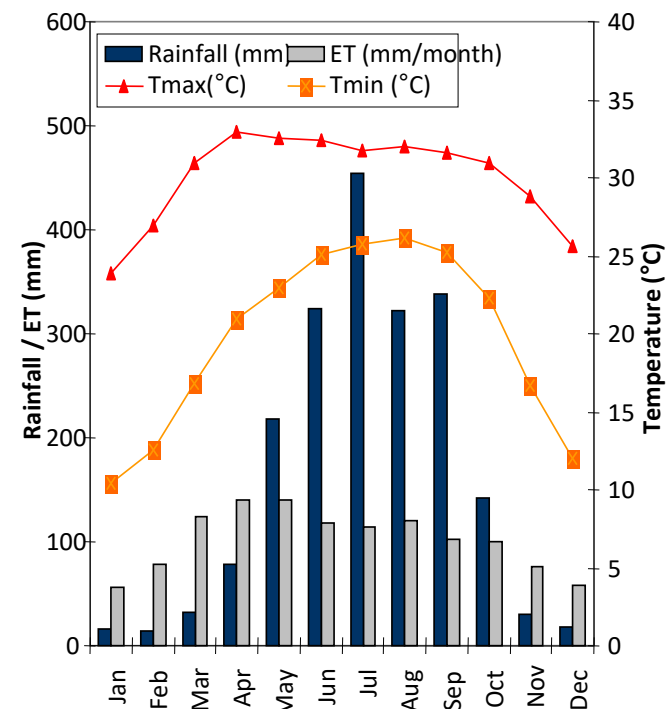
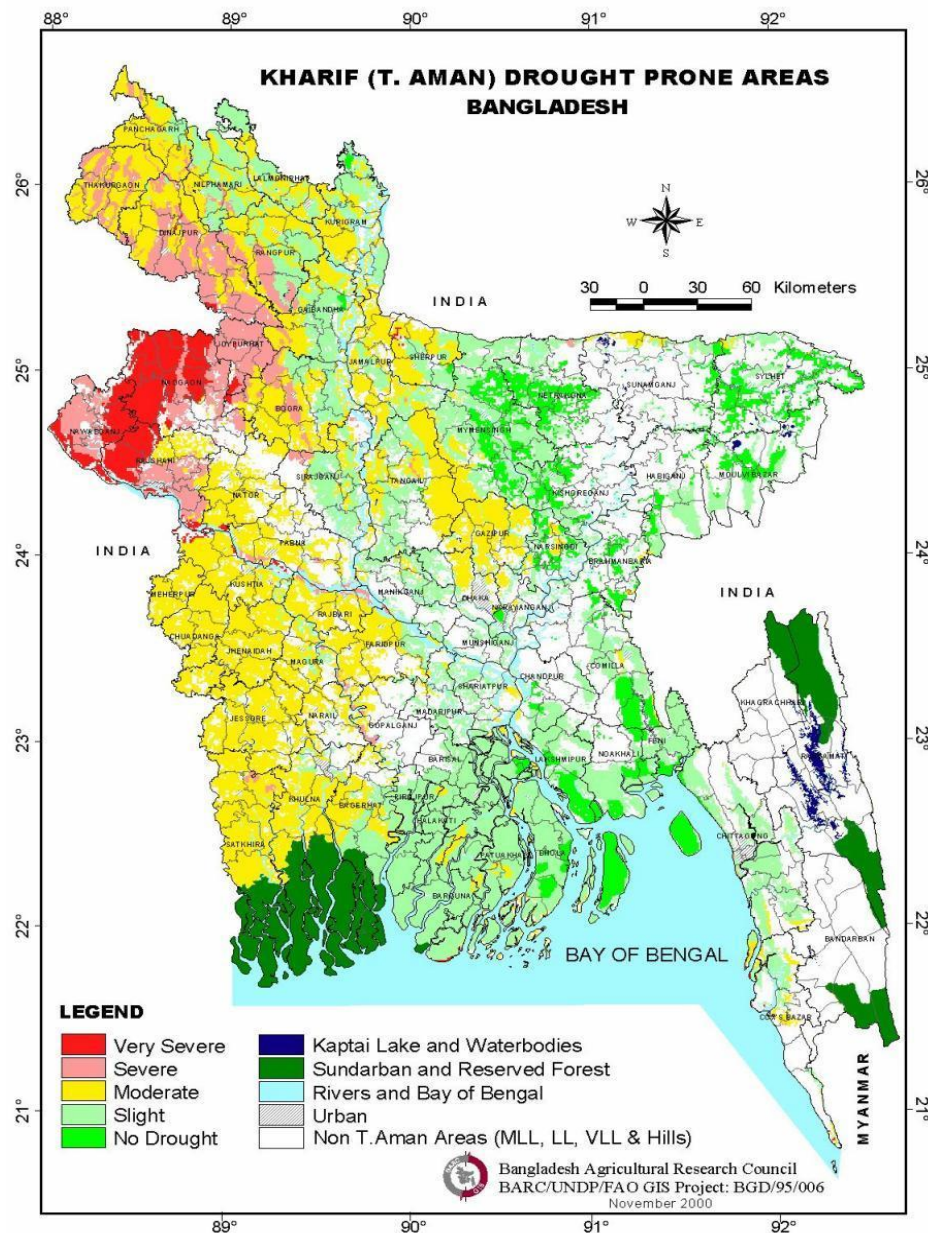


Water logging



Bank Erosion

Drought Prone Areas in Bangladesh



Recent Experiences

- **Cyclone –SIDR'2007**
- **Cyclone – AILA'2009**
- **Recurring Floods**
- **Desertification of North, North-west and South-west of Bangladesh**
- **Intrusion of saline water**

SIDR



AILA

OFFICIAL DEATH TOLL	
<i>As of 1:30am today</i>	
Bagerhat	610
Barguna	362
Patuakhali	285
Pirojpur	254
Barisal	83
Jhalakathi	34
Madaripur	30
Gopalganj	29
Bhola	23





Havoc in the Sunderban



Health, Nutritional & Agricultural Challenges



- Arsenic contamination poses major threat to health;
- Increased malnutrition among the poor contribute to the spread of communicable and non-communicable diseases

- Increased incidence of different degenerative diseases due to salinity intrusion;
- Country is now largely food secure – but limits of rice cultivation has been reached in dry period with ground water irrigation;

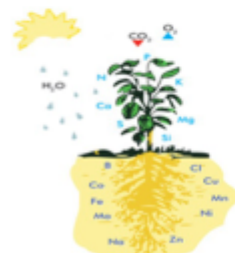
CROPS



Switching to varieties tolerant to heat, drought or salinity



Optimising Irrigation



Managing Soil nutrients and erosion

LIVESTOCK



Matching animal number to changes in pastures



More farms that mix crops and livestock



Controlling the spread of pests, weeds and diseases

FISHERIES



Switching to more abundant species



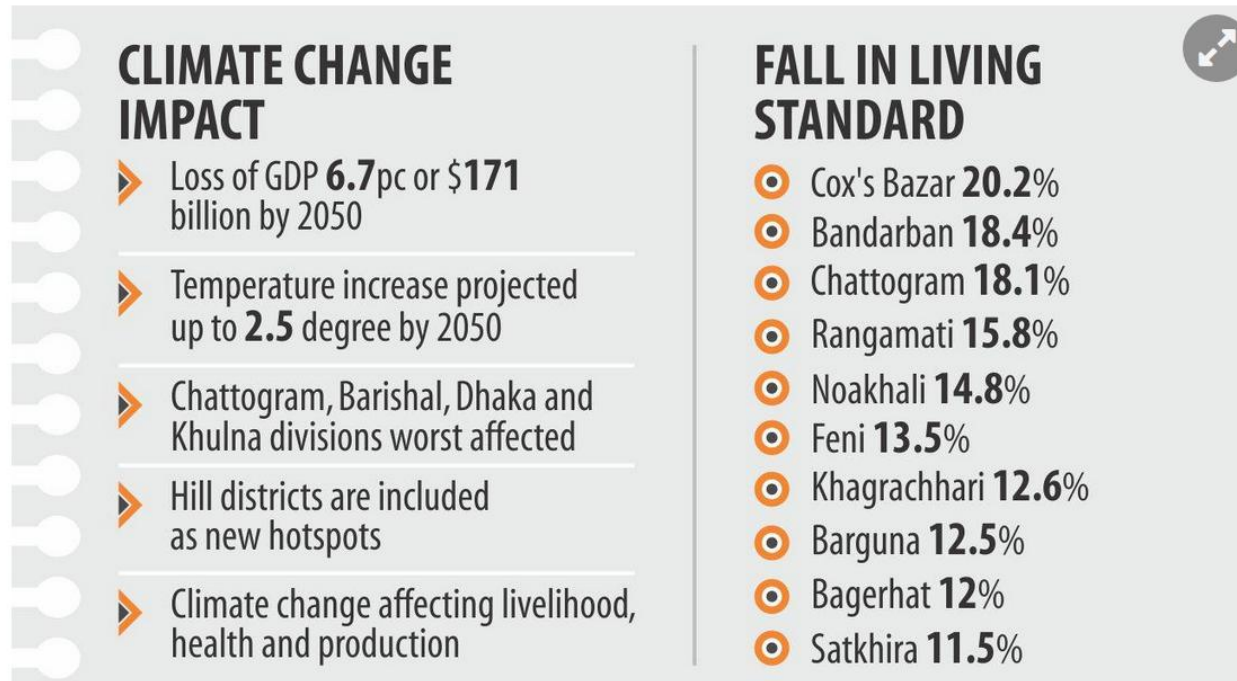
Restoring degraded habitats and breeding sites like mangroves



Strengthening infrastructure such as ports and landing sites

Climate Change Fallout: 13.4cr people to be hit hard

WB report depicts grim picture

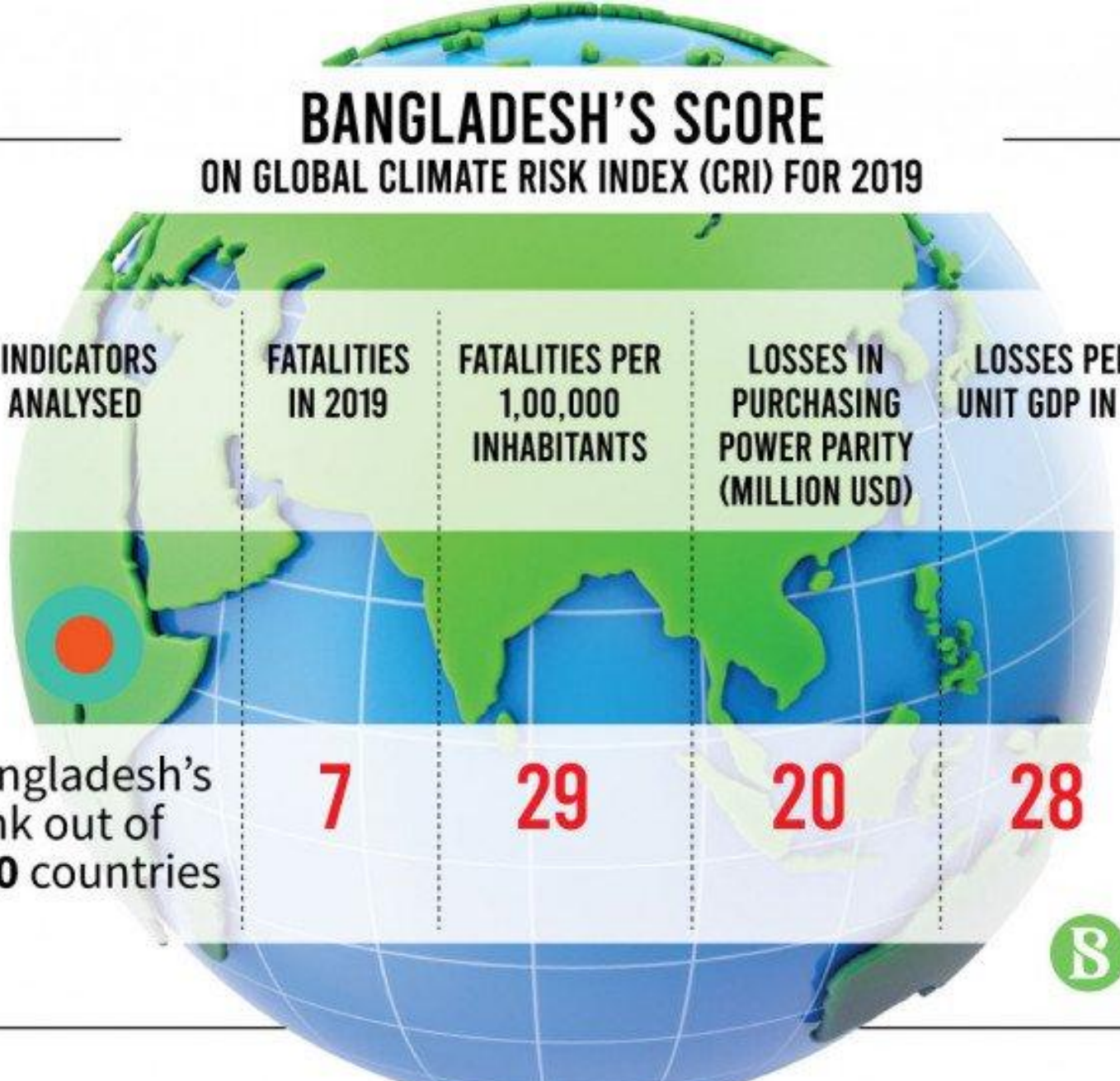


669
Shares



TOP NEWS

- Shakib falls after valiant 66
- 'June was hottest month ever recorded on Earth'
- Reconsider gas tariff hike: 14-party govt
- PM places proposal for making any Pacific initiative a success
- Don't cheat people in name of hajj business: President
- 14 Russian sailors killed in sub fire:



BANGLADESH'S SCORE

ON GLOBAL CLIMATE RISK INDEX (CRI) FOR 2019

INDICATORS ANALYSED	FATALITIES IN 2019	FATALITIES PER 1,00,000 INHABITANTS	LOSSES IN PURCHASING POWER PARITY (MILLION USD)	LOSSES PER UNIT GDP IN %
Bangladesh's rank out of 180 countries	7	29	20	28



The cost of climate change is high

- Average tropical cyclones cost Bangladesh about \$1 billion annually.
- By 2050, one-third of agricultural GDP may be lost due to climate variability and extreme events – a devastating figure as the agriculture sector represents around half of employment in the country.
- 13.3 million people may become internal migrants in next 30 years due to climate impacts on agriculture, water scarcity, and rising sea levels, with higher impacts on women.
- In case of a severe flooding, GDP could fall by as much as 9 percent.
- The costs of environmental degradation and natural disasters are predicted to rise over time, compounded by higher heat, humidity, and health impacts.

We have a fragile policy

Not well-connected or
coordinated!



Why Bangladesh is vulnerable?

Bangladesh is one of the most vulnerable countries because of its

- geographic location;
- flat and low-lying topography;
- high population density;
- reliance of many livelihoods on climate sensitive sectors, particularly agriculture and fisheries;
- corruption?

Recent Success

- Bangladesh has already developed salinity tolerant, flood tolerant and shorter maturity varieties of rice. This will help in the short run.
- Extensive agricultural extension services are needed to make these varieties available to the farmers.
- But this is only the beginning: more varieties and appropriate ecosystem-based agricultural system need to be developed and popularized;

Climate Change **Adaptation** and Mitigation



13 CLIMATE
ACTION



- There is no country that is not experiencing the drastic effects of climate change. Greenhouse gas emissions are more than 50 percent higher than in 1990.
- The annual average economic losses from climate-related disasters are in the hundreds of billions of dollars.
- This is not to mention the human impact of geo-physical disasters, which are 91 percent climate-related, and which between 1998 and 2017 killed 1.3 million people, and left 4.4 billion injured.
- The goal aims to mobilize US\$100 billion annually by 2020 to address the needs of developing countries to both adapt to climate change and invest in low-carbon development.

Facts and Figures

+1°C

As of 2017 humans are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels.

+20cm

Sea levels have risen by about 20 cm (8 inches) since 1880 and are projected to rise another 30–122 cm (1 to 4 feet) by 2100.

2050

To limit warming to 1.5C, global net CO2 emissions must drop by 45% between 2010 and 2030, and reach net zero around 2050.

1/3

Climate pledges under The Paris Agreement cover only one third of the emissions reductions needed to keep the world below 2°C.

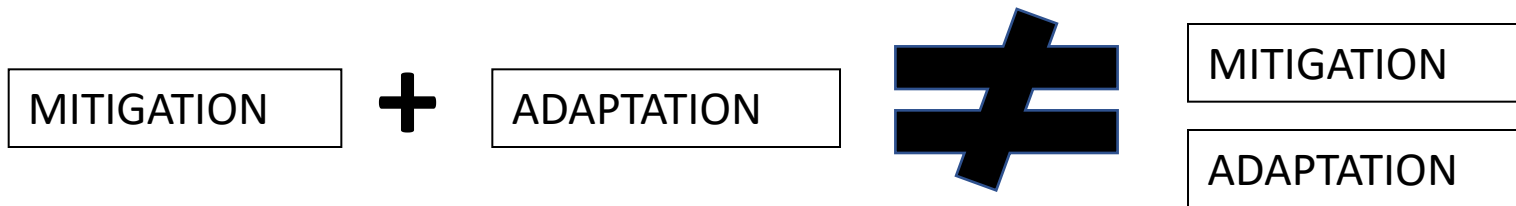
\$26 trillion

Bold climate action could trigger at least US\$26 trillion in economic benefits by 2030.

18 million

The energy sector alone will create around 18 million more jobs by 2030, focused specifically on sustainable energy.

Balancing the act



Typology of adaptation options

1. Agronomic management
2. Water harvesting and exploitation
3. Water Use efficiency
4. Crop intensification
5. Alternative crop enterprises
6. Post harvest practices



Policy Response at National Level

- Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009
- National Adaptation Programme of Action, 2005, updated in 2009
- Bangladesh Climate Change Trust Act, 2010
- Nationally Determined Contributions (NDC), 2015, Enhanced & Updated in 2021
- NDC Implementation Road Map, 2018
- Bangladesh Delta Plan, 2100
- Mujib Climate Prosperity Plan 2030 (Draft)
- National Disaster Management Policy, 2015
- Standing Orders on Disaster 2019
- Plan of Action to Implement Sendai Framework for Disaster Risk Reduction 2015-2030
- National Strategy on Internal Displacement Management 2021
- National Plan for Disaster Management 2021-2025
- Bangladesh Energy Efficiency and Conservation Master Plan up to 2030
- Renewable Energy Policy of Bangladesh, 2008
- Bangladesh National Action Plan for Reducing SLCPs, 2012, Updated in 2018

National Determined Contributions (NDC)

- Bangladesh revised and submitted Updated NDC on 26 August 2021, enhancing both unconditional and
- conditional contribution with ambitious quantifiable mitigation targets.
- Our updated, enhanced NDC has expanded its emission reduction coverage from only the energy sector
- to the whole economy of the country.

Unconditional Contribution (using own resources)	Bangladesh will reduce its GHG emissions by 27.56 MtCO ₂ e or 6.73% below BAU in 2030.
Conditional Contribution (with international support)	Bangladesh will reduce additional emissions by 61.9 MtCO ₂ e or 15.12% below BAU in 2030.
Combined Total Contribution	Bangladesh will reduce its GHG emissions by 89.47 MtCO ₂ e or 21.85% below BAU in 2030.

Bangladesh Delta Plan 2100

- The Government has recently adopted the Bangladesh Delta Plan 2100, a comprehensive 100-year strategic plan aimed at gradual sustainable development through adaptive delta management process.
- The plan targets to achieve a safe, climate-resilient and prosperous delta with a mission to ensure long term water and food security, economic growth and environmental sustainability, effectively reducing vulnerability to natural disasters and building resilience to climate change.



BAGLADESH DELTA PLAN-2100

(B)



COMPONENTS

Delta Governance Council

Delta Wing

Delta Knowledge Bank

Digital Data Store

Delta Fund

DELTA PLAN FALLS BEHIND TARGET



Targets for 2020	Present situation
Bringing down the number of flood vulnerable people to 60 million	80 million people are currently at risk
Reducing the maximum extent of severe flooding to 35% of total area	Around half the area goes under water in such cases
Bringing down cyclone-prone areas to 4%	10% of total area is currently at risk of cyclone
Reducing the extent of saline water intrusion to 35% of coastal area	Salinity intrusion currently taking place in 40% of coastal area
Reducing number of people vulnerable to natural disasters to 67.9 million	97.9 million people currently at risk



Adaptation Measures in Agriculture

- Government of Bangladesh has undertaken research on development of drought, cold, waterlog, diseases, pest and salt tolerant crop varieties to cope with the changing climate.
- **Early harvest short duration rice varieties:** BRRI dhan 62 (100 days), 66, 71 (113 days); BINA dhan 7, 11, 16, 17, 19-22 (100-120 days); traditional varieties require 140-150 days.
- **Drought tolerant early varieties:** BRRI dhan 42, 43 (100 days), 57 (100-105 days), 66 and 71 (also short duration); BINA dhan-17, 19, 21.
- **Salt tolerant rice varieties:** BRRI dhan 23, 40, 41, 55, 67, 73 (8 ds/m); BRRI dhan 53, 54, 61, (6 ds/m); BRRI dhan 47 (8-12 ds/m), 97(8-14 ds/m), 99 (8-10 ds/m); BINA dhan 8, 10, 23.
- **Flooding tolerant varieties:** BRRI dhan51, BRRI dhan52, BRRI dhan79; BINA dhan 11, 12, 23.
- **Stress tolerant other crop varieties:** BARI Gom 22 , 23, 24 (heat tolerant); BARI Gom 25, 26, 30, 31 (early maturing heat tolerant); BINA Gom 1 & BARI Hybrid Maize 16 (salt tolerant); BINA mung-8, 9, 10, BINA masur 8, 10 and BARI Hybrid Maize 12, 13 (drought tolerant).

Role at International Level

- **Kyoto Protocol:** Bangladesh is among the first 4 countries accepting the 2nd commitment period of the Kyoto Protocol on 13 November 2013.
- **Paris Agreement:** Bangladesh signed the Paris Agreement on the first day of opening for signature on 22 April 2016 and ratified on 21 September 2016.
- **Membership in UNFCCC Bodies:**
 - ❖ Member of Technology Executive Committee
 - ❖ Alternate Member of CDM Executive Board
 - ❖ Alternate Member of Joint Implementation Supervisory Committee (JISC)
 - ❖ Member of Compliance Committee referred to Article 15.2 of Paris Agreement - PAICC.