



# Climate Change & Security in South Asia: COOPERATING FOR PEACE

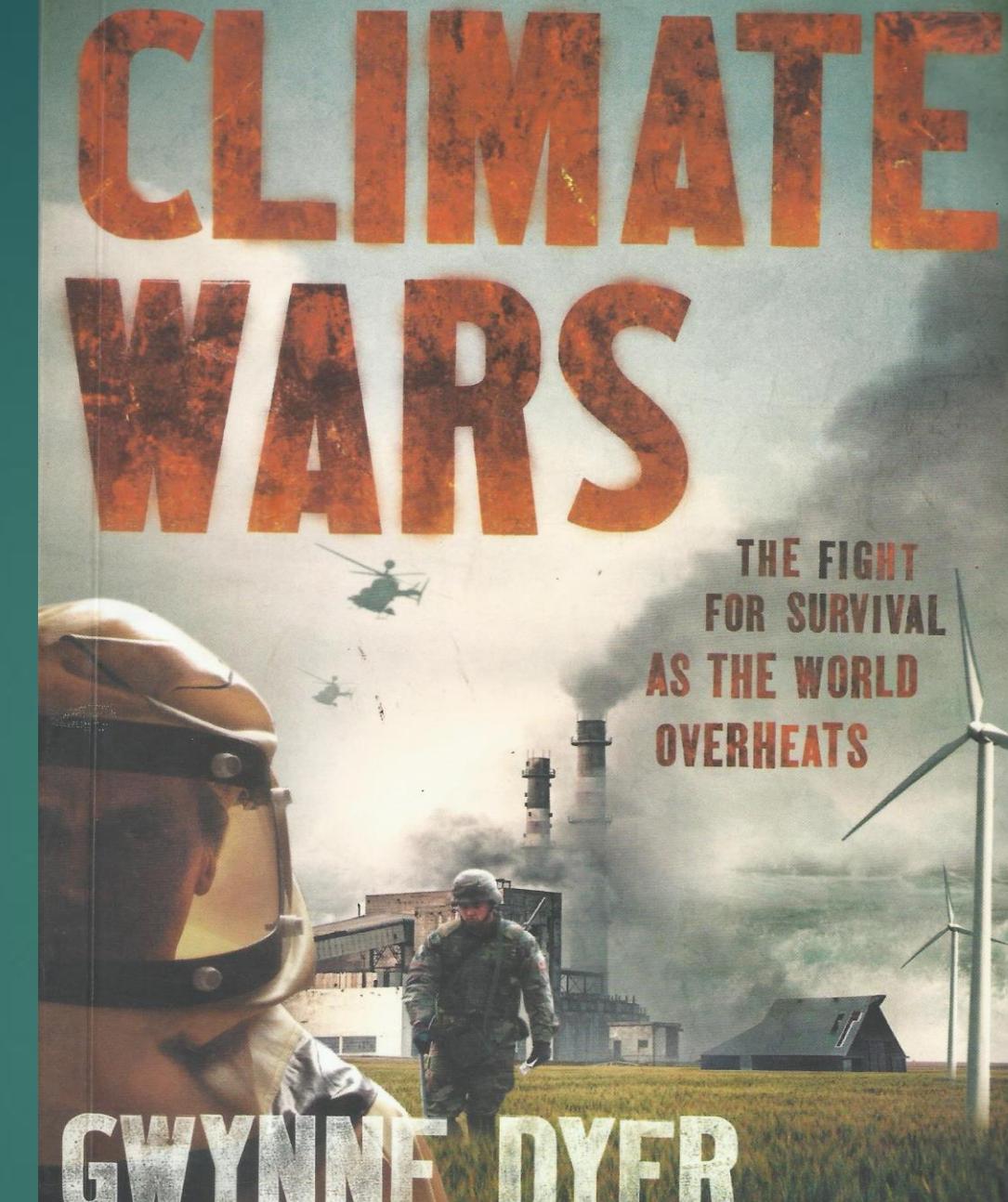
"A TRULY IMPORTANT AND TIMELY BOOK." JAMES LOVELOCK,  
AWARD-WINNING SCIENTIST, INVENTOR, AND ORIGINATOR OF THE 'GAIA' HYPOTHESIS

To understand the politics and strategies of the apocalyptic crisis that looks set to occupy most of the twenty-first century, in particular:

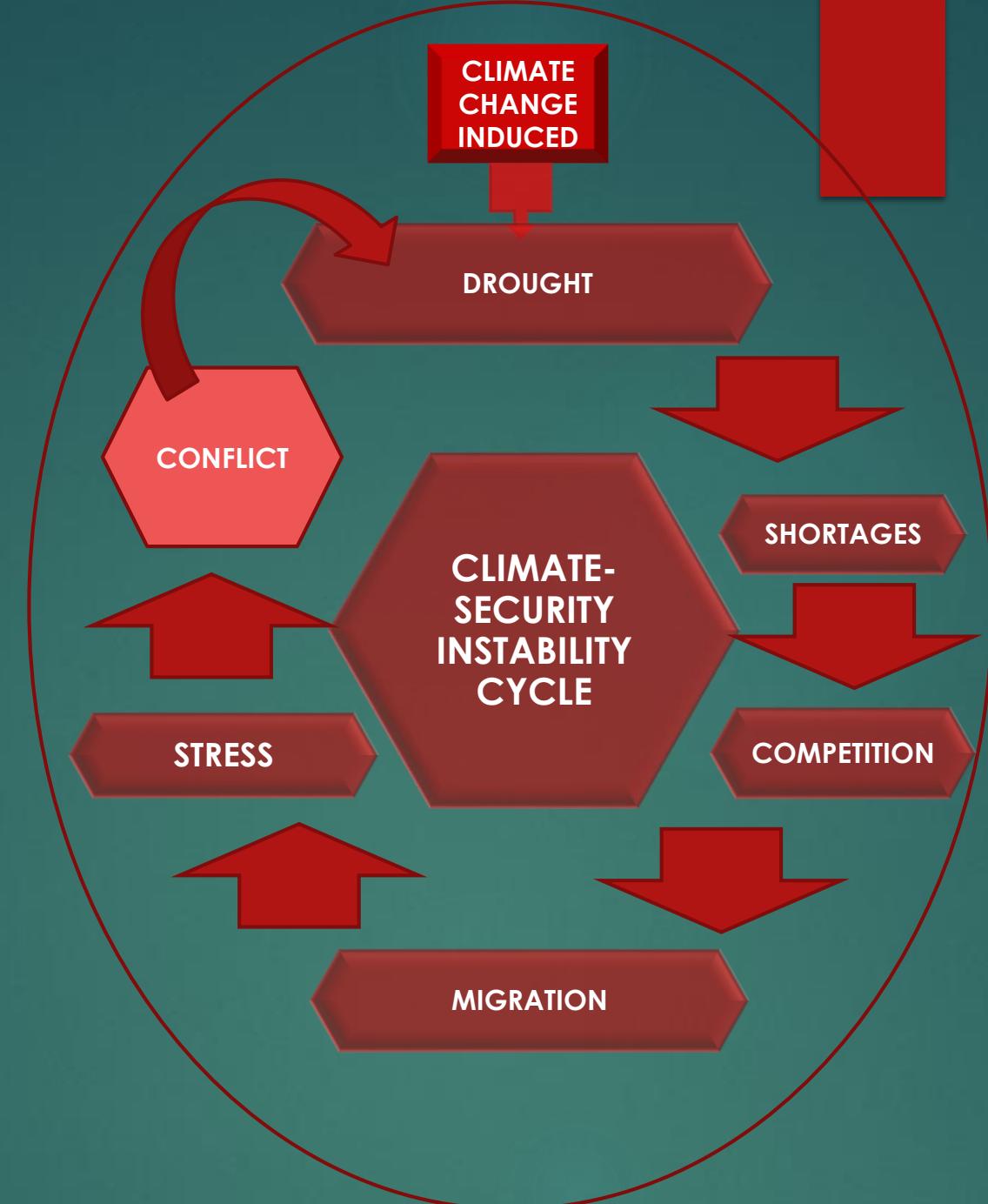
- the acute and permanent shortage of food,
- and probability of wars, including nuclear.

**Scenario 4 of 8 relates to South Asia - a nuclear war over water resources, ending on the sixth day:**

- 500 million dead,
- Radiation extending to Thailand,
- Catastrophic cooling of the region.

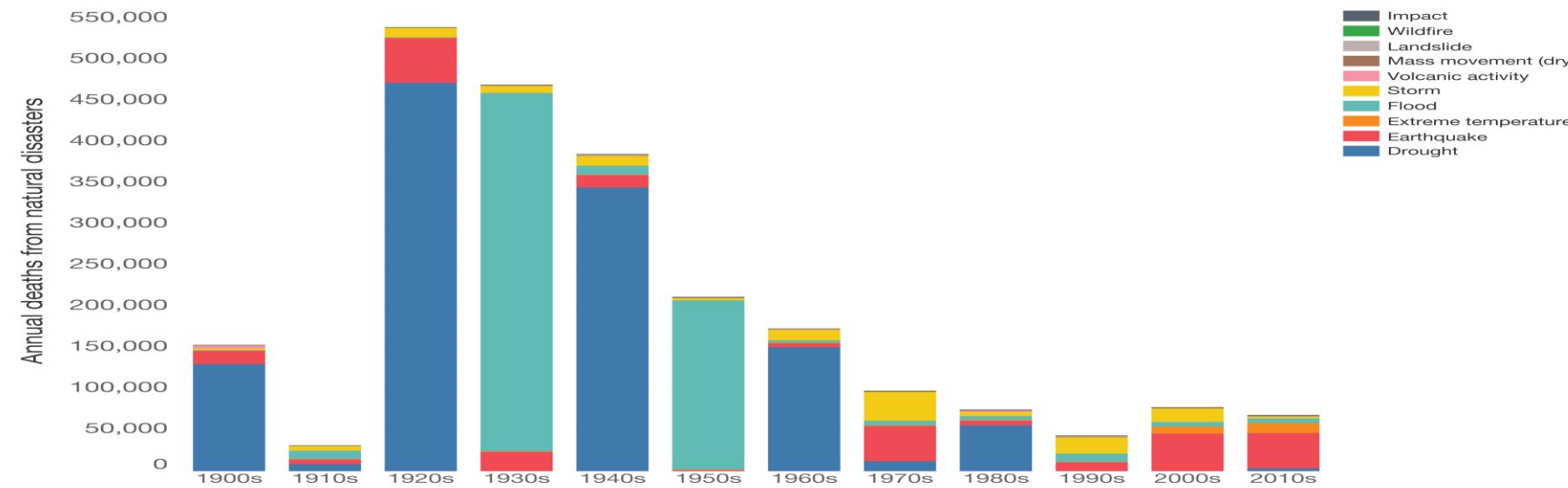
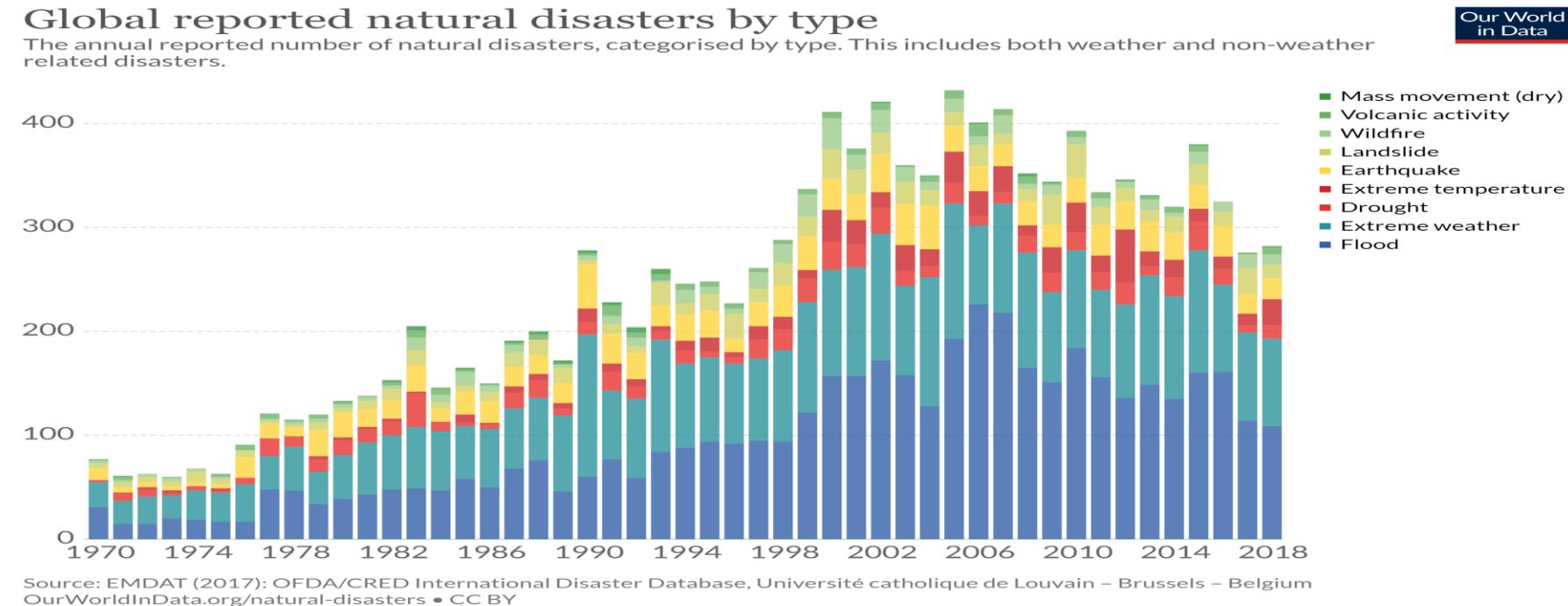


- ✓ The geopolitical consequences of climate change determined by **interaction with political, social, and economic conditions** - as by the shift itself.
- ✓ The most severe consequences are on most vulnerable, least responsible, and largely ill-prepared.
- ✓ An “accelerant of instability” in volatile regions with existing threats.
- ✓ Needs **cooperation: locally, nationally and internationally** - transcending political boundaries.

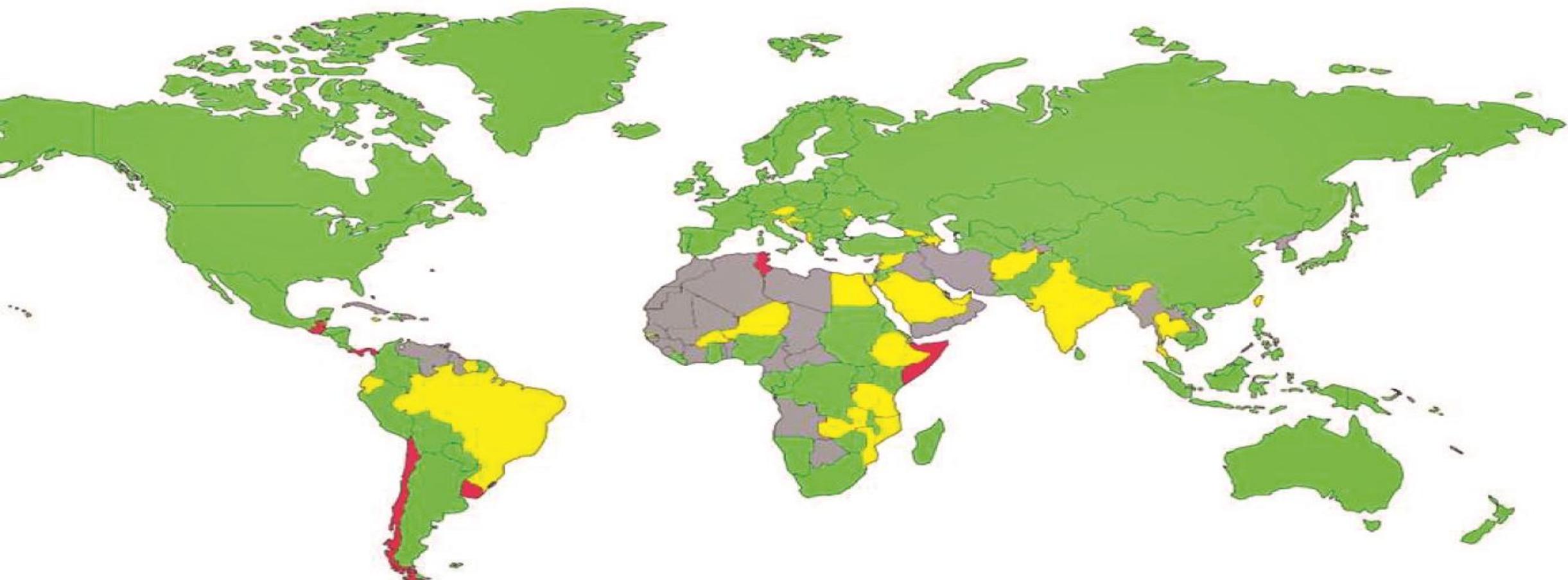


While incidence of disasters and economic losses are up,

Loss of life from disasters is decreasing!



## Level of Concern about how Climate Change Threatens Security



71 %  Green – Climate is a national security threat

Yellow – Climate is an environmental issue

Red – Climate is not a defined concern

Grey – No information available

# GLOBAL MILITARY ADVISORY COUNCIL ON CLIMATE CHANGE



GMACCC is a global network of serving and retired military officers, and associated institutions, committed to highlighting the potential security implications of a changing climate and advocating action, including by the military, to minimise the risks.

**Mission Statement**  
Adopted 23 September 2013

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### AMERICAN SECURITY PROJECT

Nonpartisan organization dedicated towards the  
changing nature of national security  
[» Visit Website](#)



American Security Project



BANGLADESH INSTITUTE FOR PEACE AND  
SECURITY STUDIES (BIPSS)

Think tank working on issues relating to peace and  
security studies of Bangladesh & beyond  
[» Visit Website](#)

### INSTITUTE FOR ENVIRONMENTAL SECURITY (IES)



Int'l nonprofit organisation with mission of advancing  
global environmental security  
[» Visit Website](#)

### EUROPEAN CLIMATE FOUNDATION

Major philanthropic initiative to promote climate and  
energy policies  
[» Visit Website](#)



### INSTITUTE FOR GOVERNANCE & SUSTAINABLE DEVELOPMENT

Organisation with a mission of promoting just and  
sustainable societies  
[» Visit Website](#)



### ROBERT S. STRAUSS CENTER FOR INTERNATIONAL SECURITY AND LAW

University research center studying the causes and  
impacts of a range of security threat  
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### EDRC

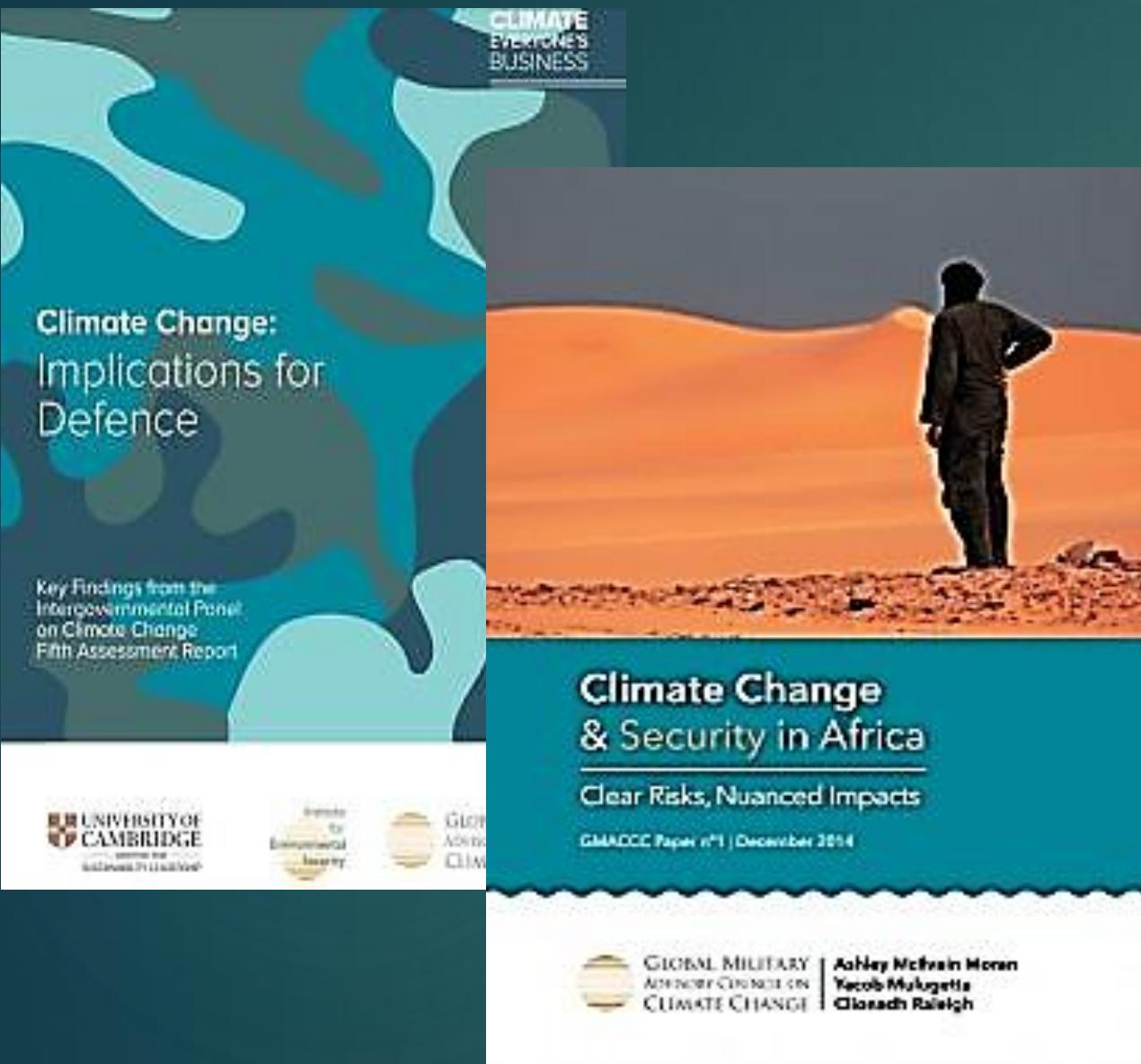
ENVIRONMENT & DEVELOPMENT RESOURCE CENTRE  
Promoting global sustainable development since 1988  
[» Visit Website](#)



### INSTITUTE FOR PLANETARY SECURITY

Promoting peace and cooperation in a changing  
climate  
[» Visit Website](#)

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CLIMATE  
EVERYONE'S  
BUSINESS

Climate Change:  
Implications for  
Defence

Key Findings from the  
Intergovernmental Panel  
on Climate Change  
Fifth Assessment Report

UNIVERSITY OF  
CAMBRIDGE  
Centre for  
Environmental  
Society  
Global  
Advisory  
Climate

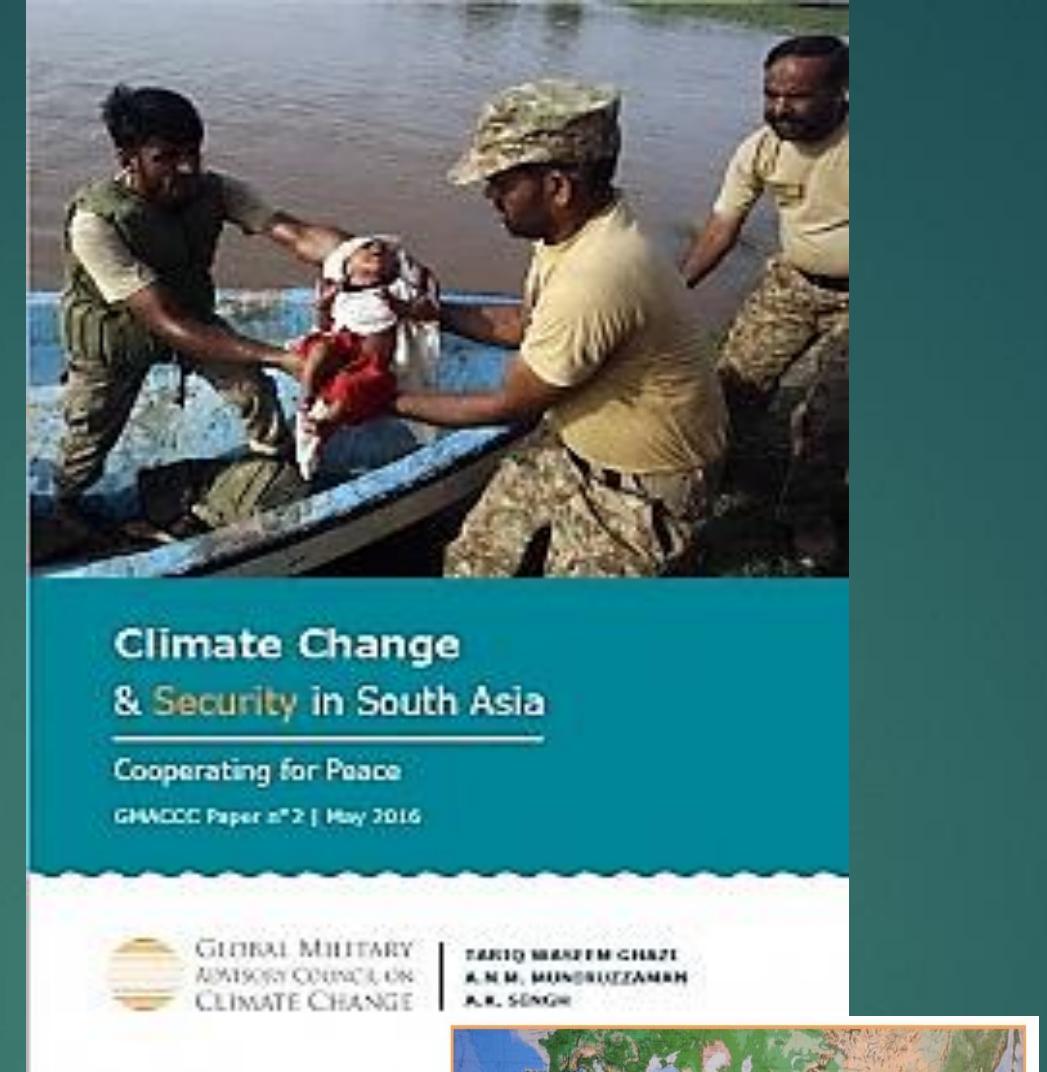
Climate Change  
& Security in Africa

Clear Risks, Nuanced Impacts

GMACC Paper n°1 | December 2014

GLOBAL MILITARY  
ADVISORY COUNCIL ON  
CLIMATE CHANGE

Ashley McEvain Moran  
Jacob Mulugeta  
Closach Raleigh



Climate Change  
& Security in South Asia

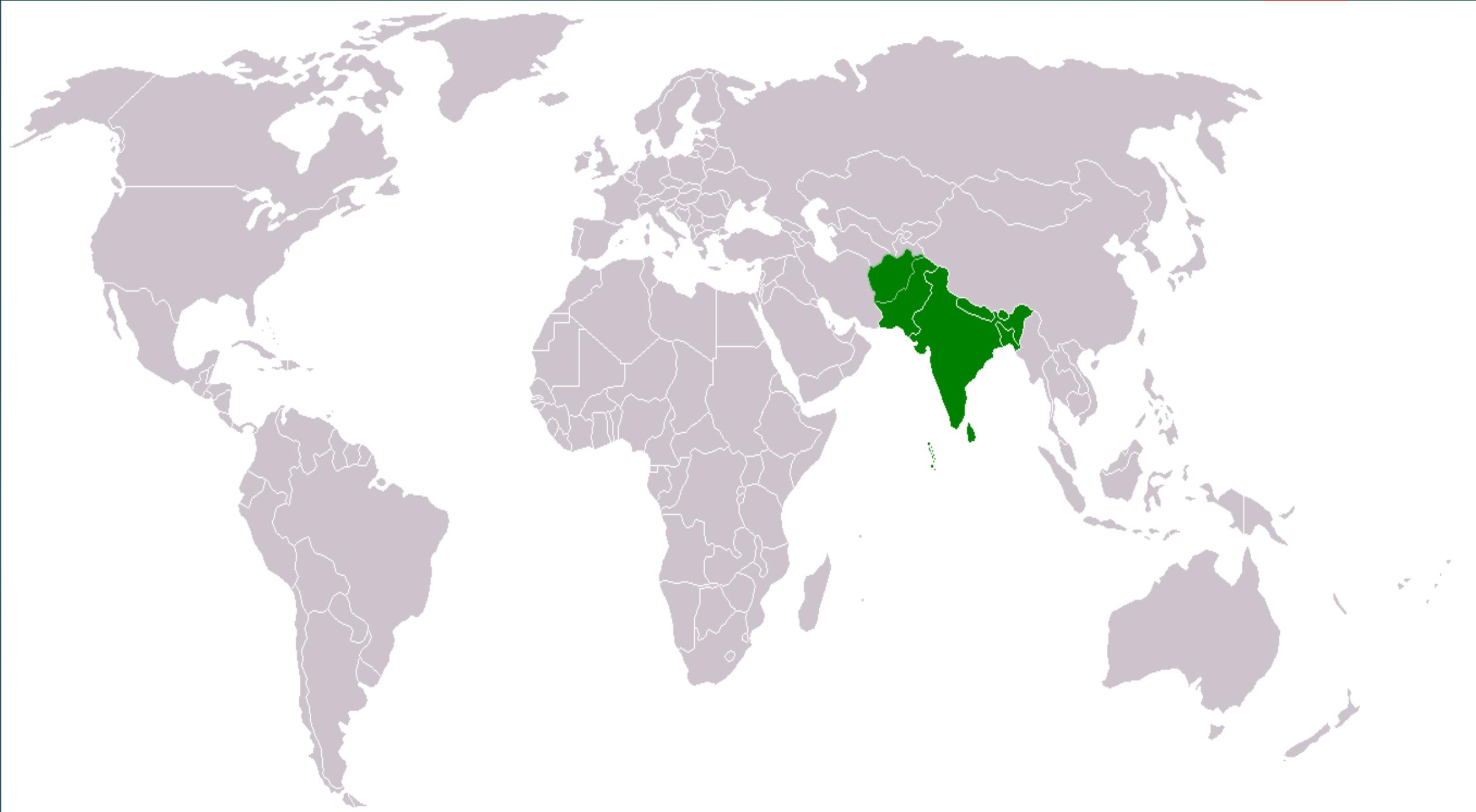
Cooperating for Peace

GMACC Paper n°2 | May 2016

GLOBAL MILITARY  
ADVISORY COUNCIL ON  
CLIMATE CHANGE

TARIQ MEHMUD CHAUZI  
A.N.M. MUNIRUZZAMAN  
A.R. SINGH

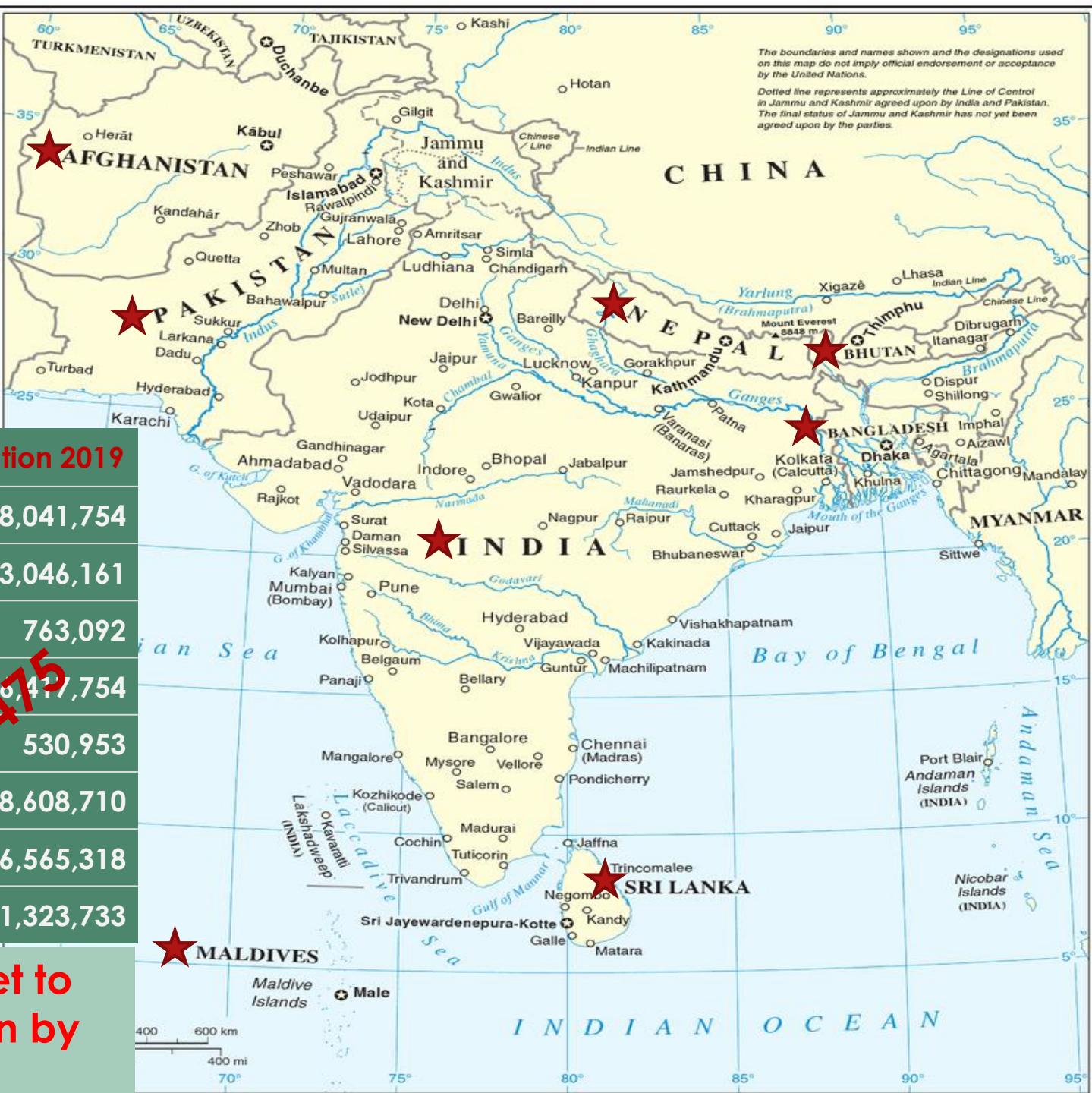




- Home to 21% of humanity
- Inhabiting 3 % of the earth landmass
- Mired in poverty with collective GDP \$1800
- Amongst the most climate vulnerable
- Fraught with political challenges: disputed borders; simmering conflicts; shared resources; migration; social / cultural / religious/ linguistic / historical divides; unstable neighbourhood; great power rivalries; nuclear weapons...

Country	Population 2019
<u>Afghanistan</u>	38,041,754
<u>Bangladesh</u>	163,046,161
<u>Bhutan</u>	763,092
<u>India</u>	1,364,417,754
<u>Maldives</u>	530,953
<u>Nepal</u>	28,608,710
<u>Pakistan</u>	216,565,318
<u>Sri Lanka</u>	21,323,733

1,834,291,415  
Population set to grow to 2.3 bn by 2050!



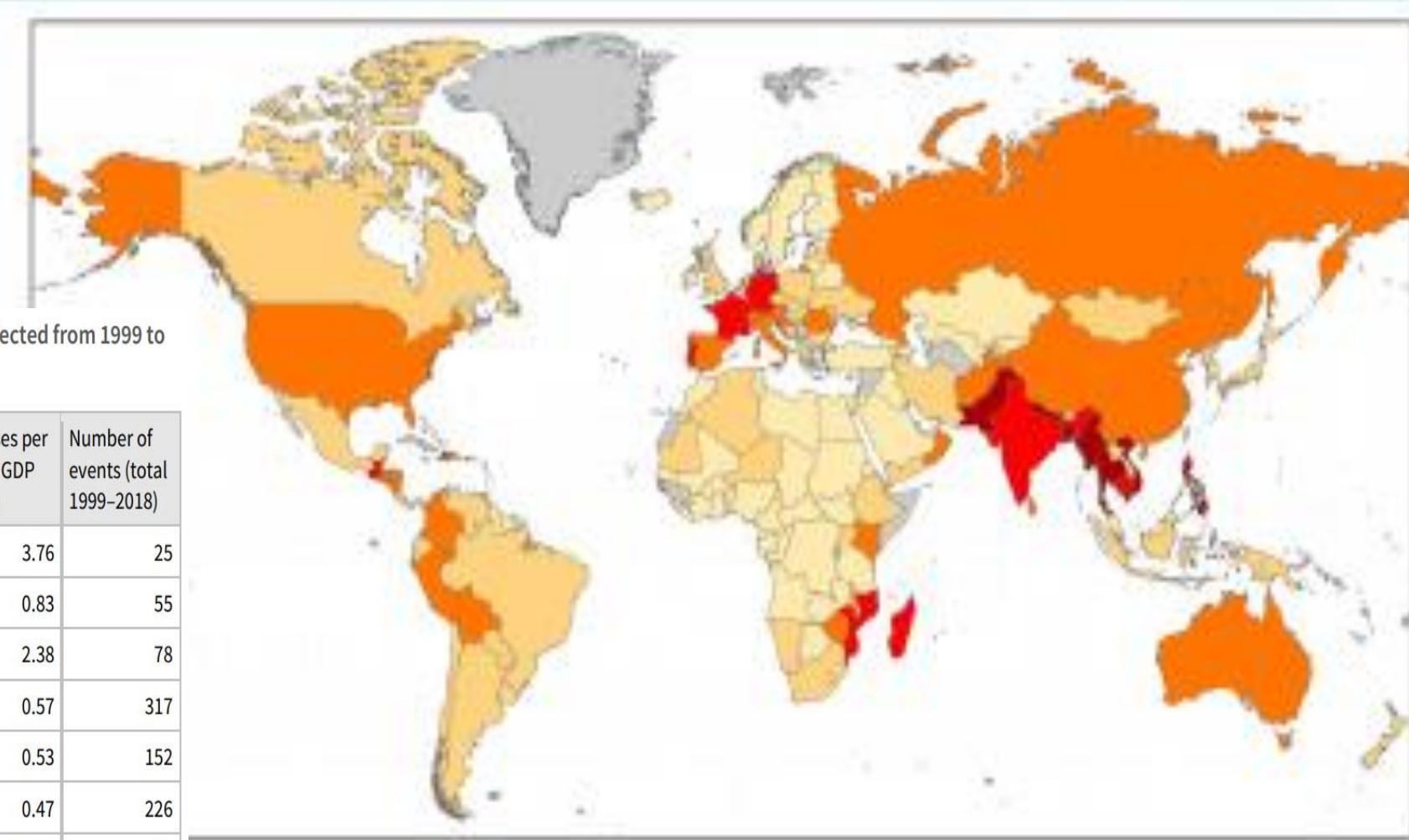
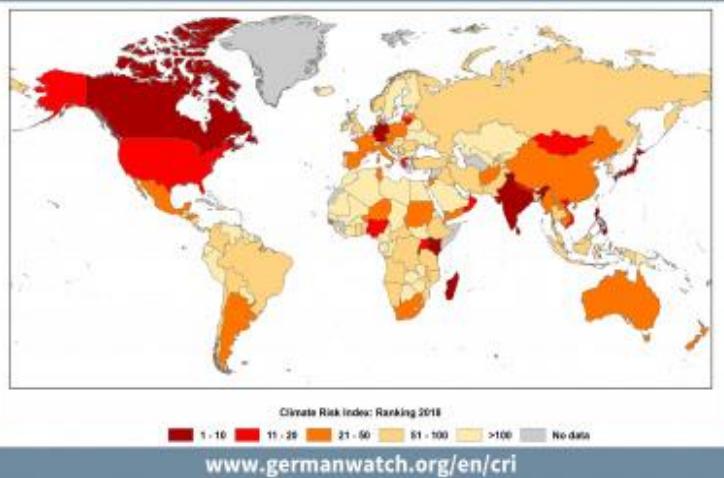
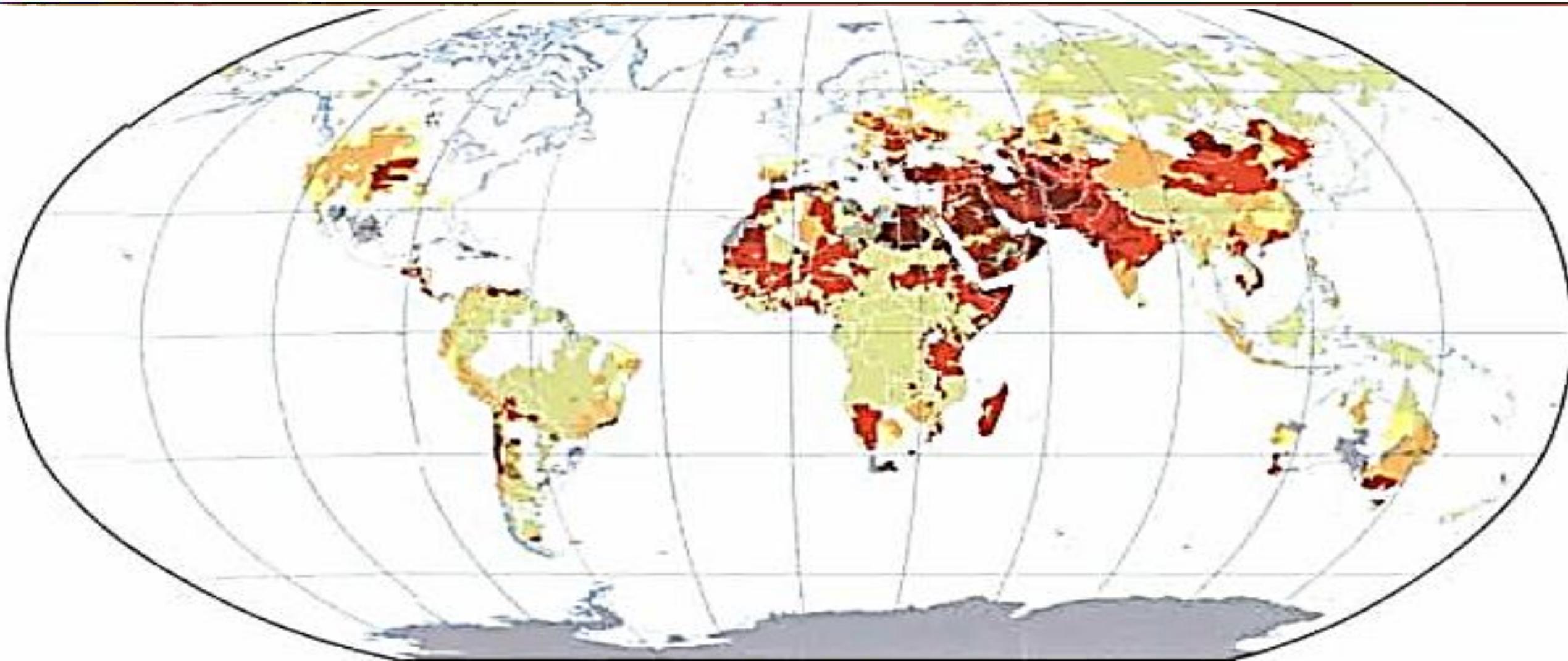


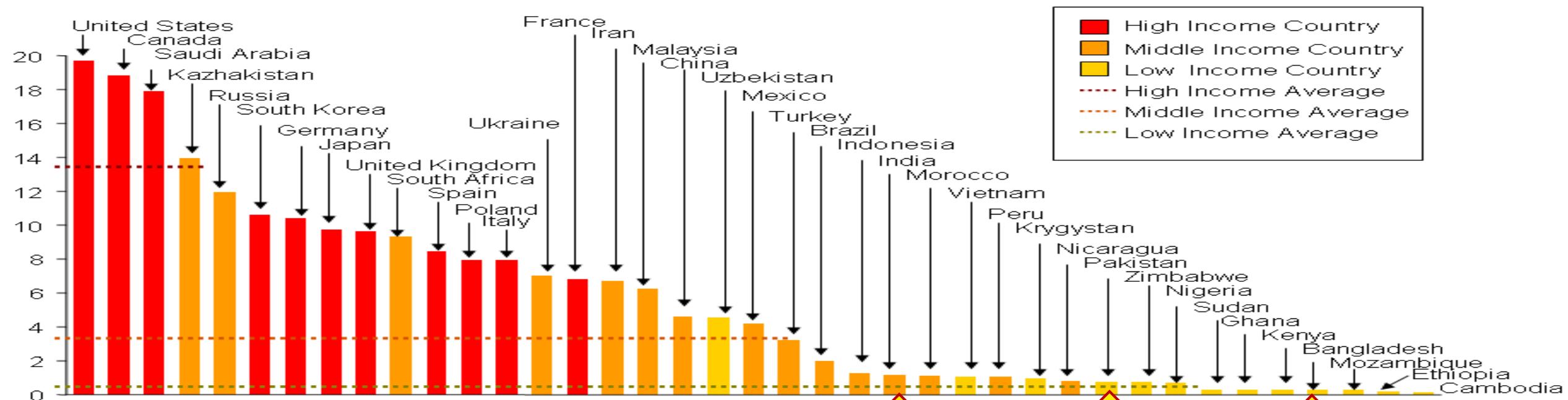
Table 2: The Long-Term Climate Risk Index (CRI): The 10 countries most affected from 1999 to 2018 (annual averages)

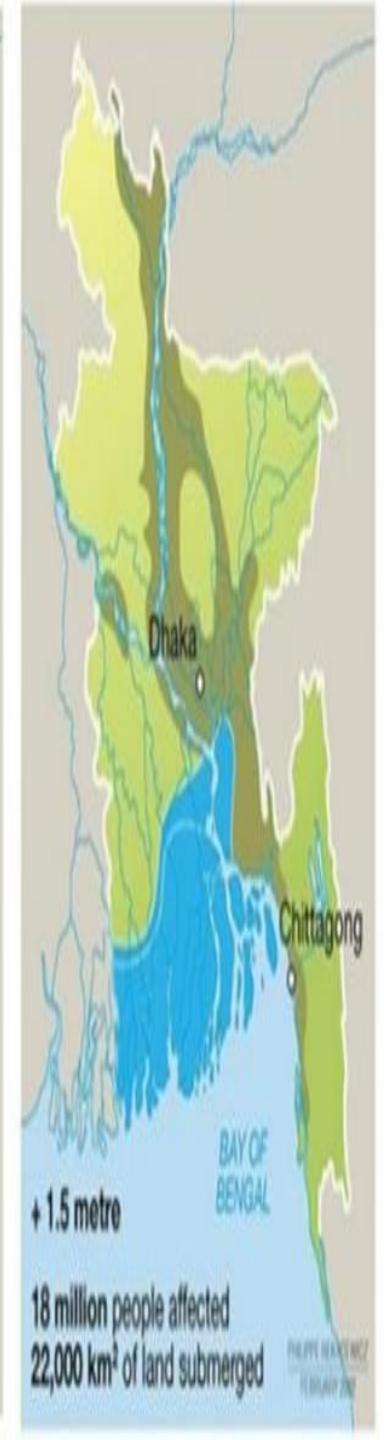
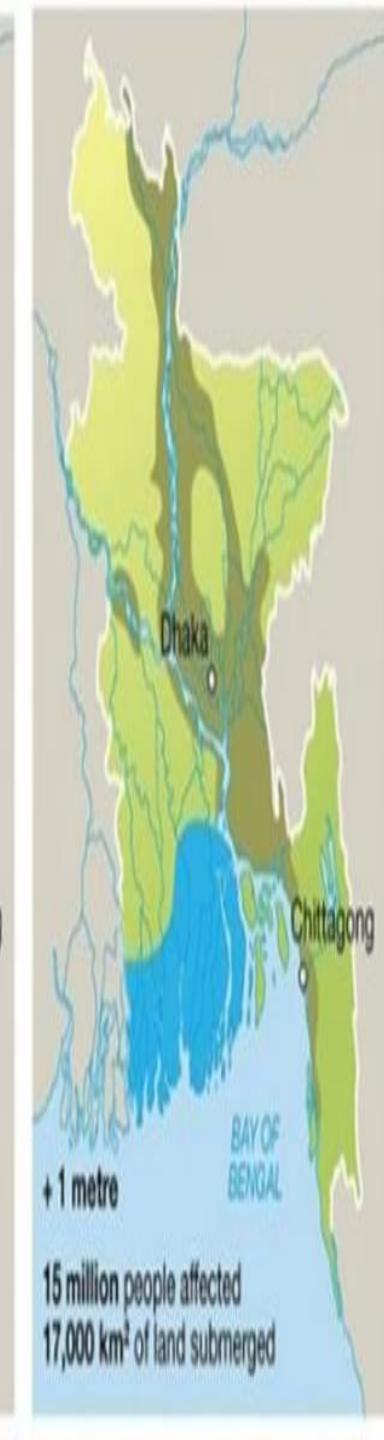
CRI 1999-2018 (1998-2017)	Country	CRI score	Death toll	Deaths per 100 000 inhabitants	Total losses in million US\$ PPP	Losses per unit GDP in %	Number of events (total 1999-2018)
1 (1)	Puerto Rico	6.67	149.90	4.09	4 567.06	3.76	25
2 (3)	Myanmar	10.33	7 052.40	14.29	1 630.06	0.83	55
3 (4)	Haiti	13.83	274.15	2.81	388.93	2.38	78
4 (5)	Philippines	17.67	869.80	0.96	3 118.68	0.57	317
5 (8)	Pakistan	28.83	499.45	0.30	3 792.52	0.53	152
6 (9)	Vietnam	29.83	285.80	0.33	2 018.77	0.47	226
7 (7)	Bangladesh	30.00	577.45	0.39	1 686.33	0.41	191
8 (13)	Thailand	31.00	140.00	0.21	7 764.06	0.87	147
9 (11)	Nepal	31.50	228.00	0.87	225.86	0.40	180
10 (10)	Dominica	32.33	3.35	4.72	133.02	20.80	8

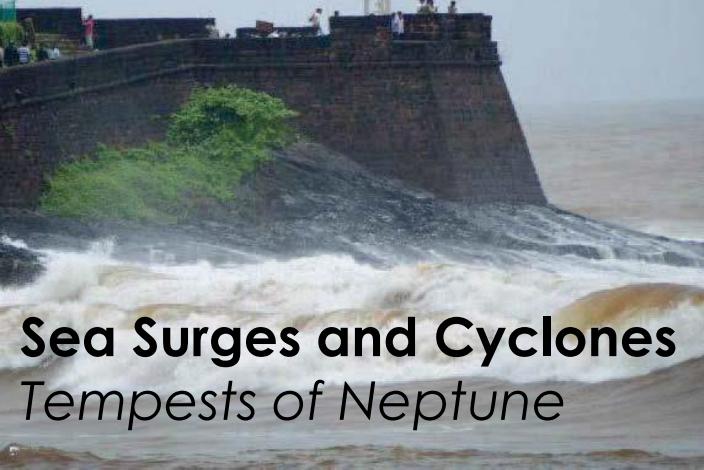
## Projected Change in Water Stress to 2025



# Tons CO<sub>2</sub> per capita







## Sea Surges and Cyclones

Tempests of Neptune



## Droughts

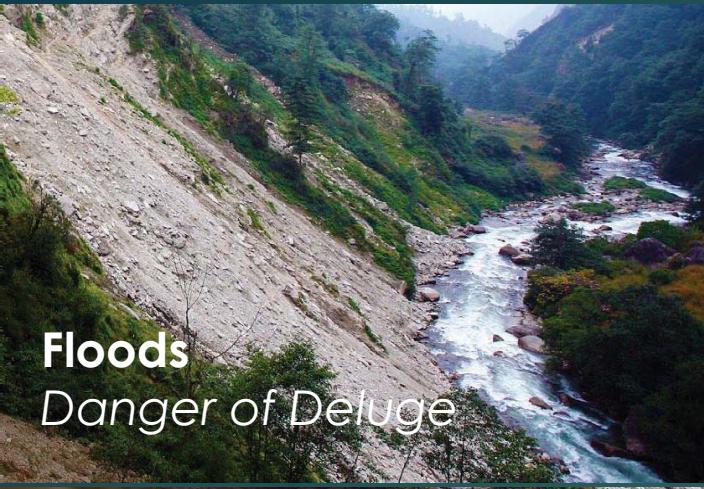


## Fog



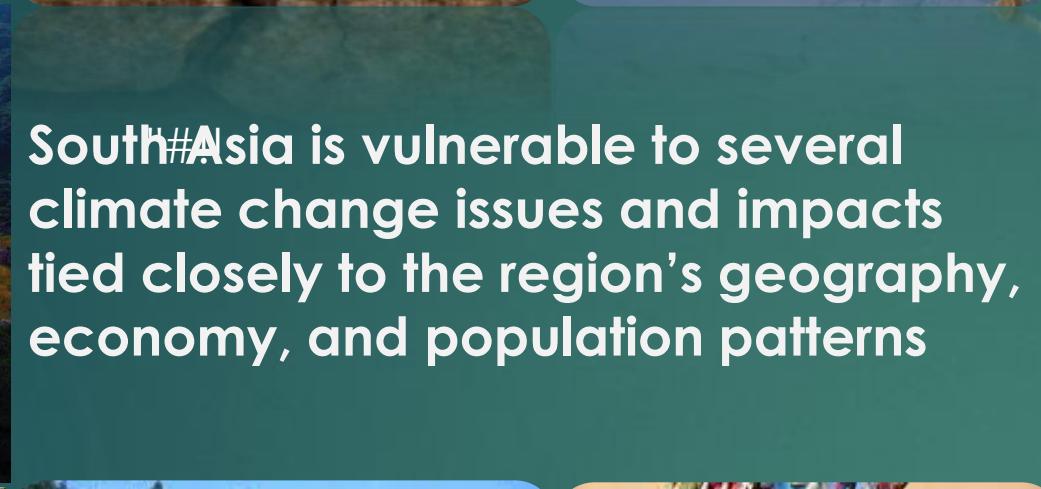
## Glacial Melt

The Water Towers  
are Crumbling



## Floods

Danger of Deluge



## Sea-Level Rise

Rising Tides, Settlements at Risk



## Erosion

Losing Land and  
Livelihoods



## Deforestation

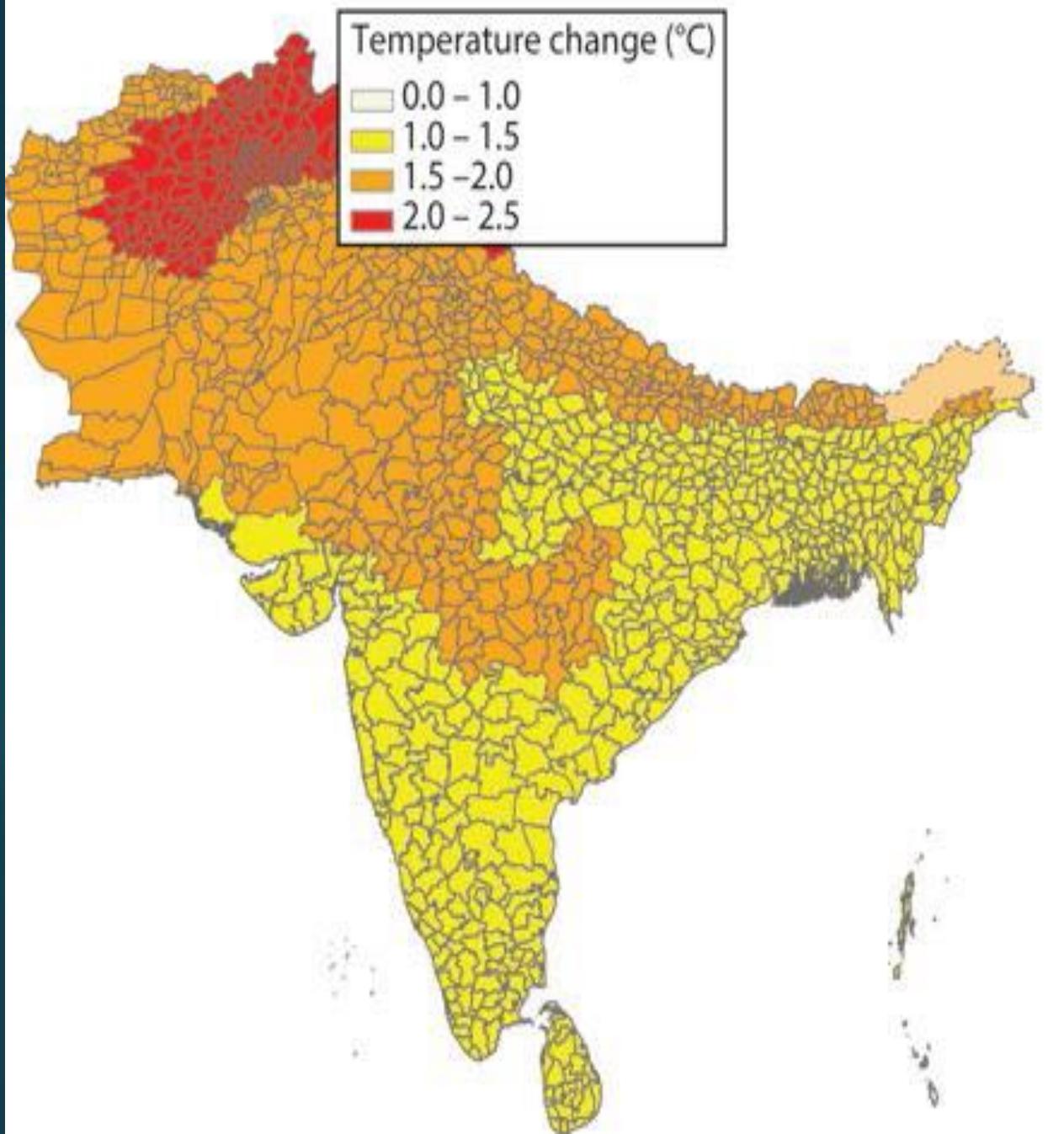


## Urbanization

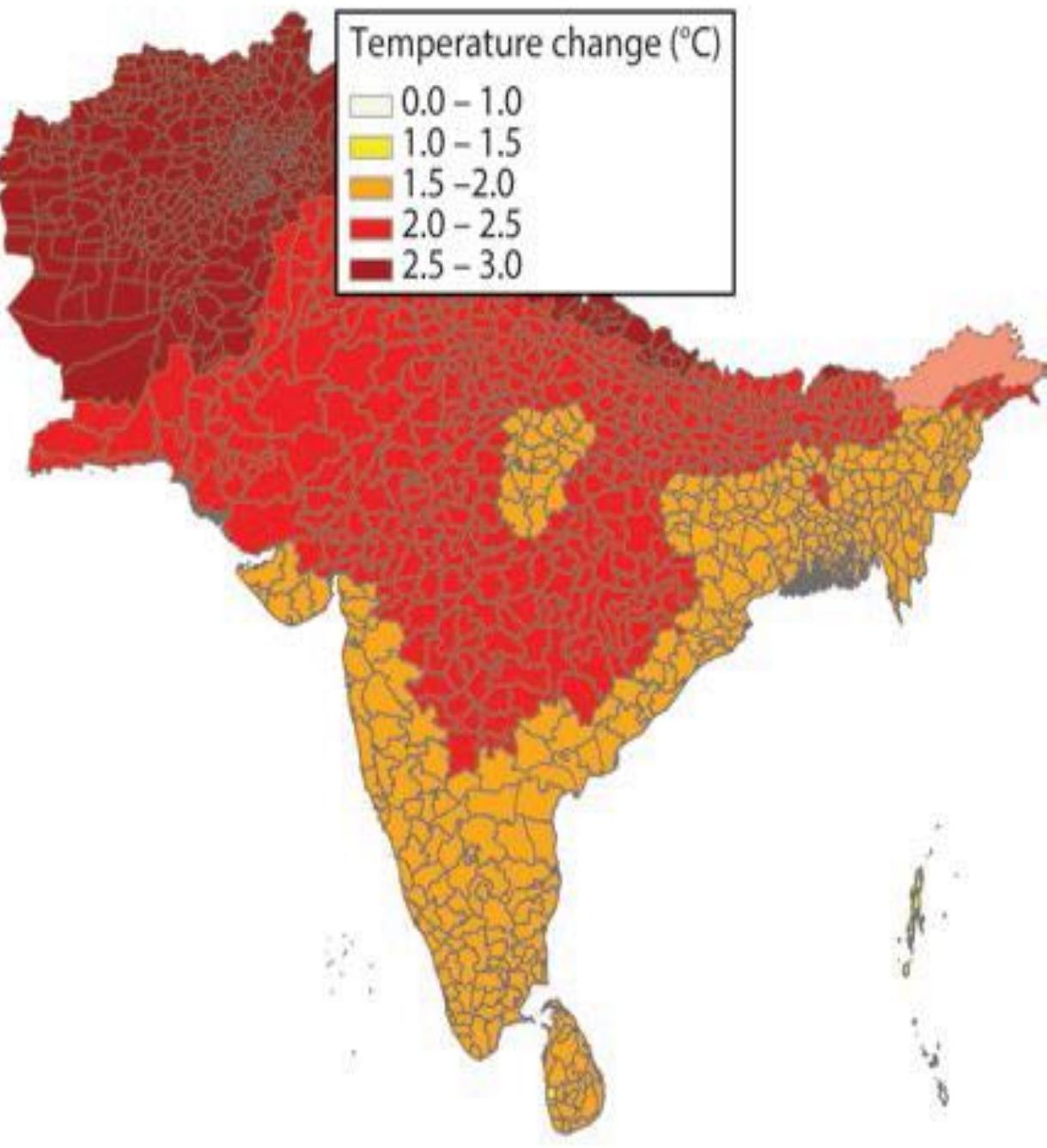


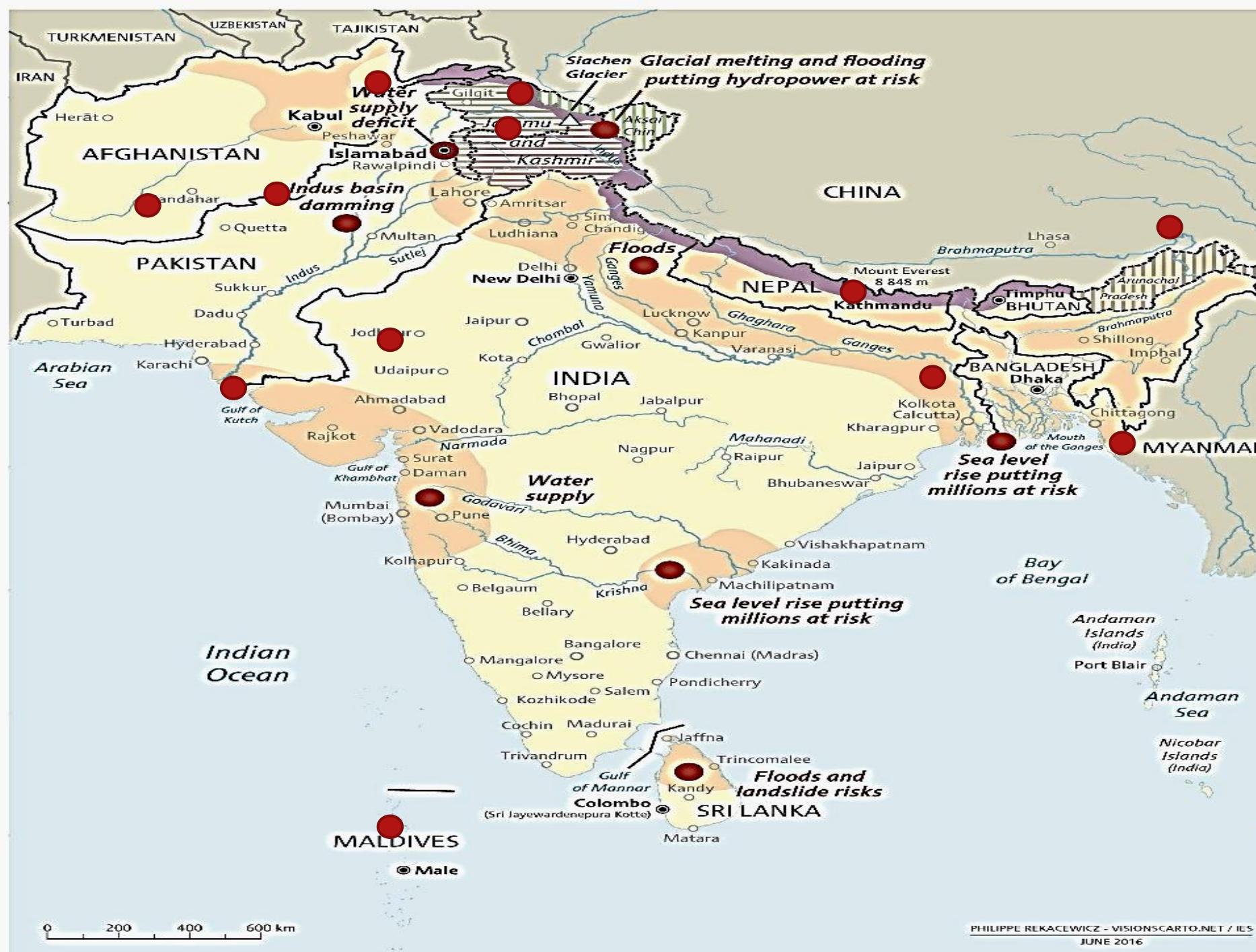
## Irregular Monsoons

a. Climate-sensitive scenario



b. Carbon-intensive scenario





## Climate Change and Security in South Asia

 South Asian Association for Regional Cooperation (SAARC)

### Territorial disputes

 Administered by China but claimed by India

 Administered by India but claimed by China

 Administered by Pakistan but claimed by India

 Administered by India but claimed by Pakistan

1000 Disputed borders

..... Cease-fire line or line of control between India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

### Climate change indicators

Region where vulnerability to climate change is high to very high

High density of melting glaciers and fragilized glacial lakes potentially dangerous for human communities downstream

### Climate change hotspot

## Structure Of The Briefing:

- Emerging threats.
- Characteristics of the South Asia environment.
- Drivers and perceptions of environmental security change.
- Transboundary river basin cooperation.
- Regional and multilateral cooperation.
- Signs and impacts of climate change.
- Security consequences of the impacts of climate change.
- National, bi-lateral and regional responses.
- Recommendations for regional environmental cooperation to achieve security, stability and sustainability.
- **Mainstreams climate change in the security strategies as a vital pre-condition for cooperation**

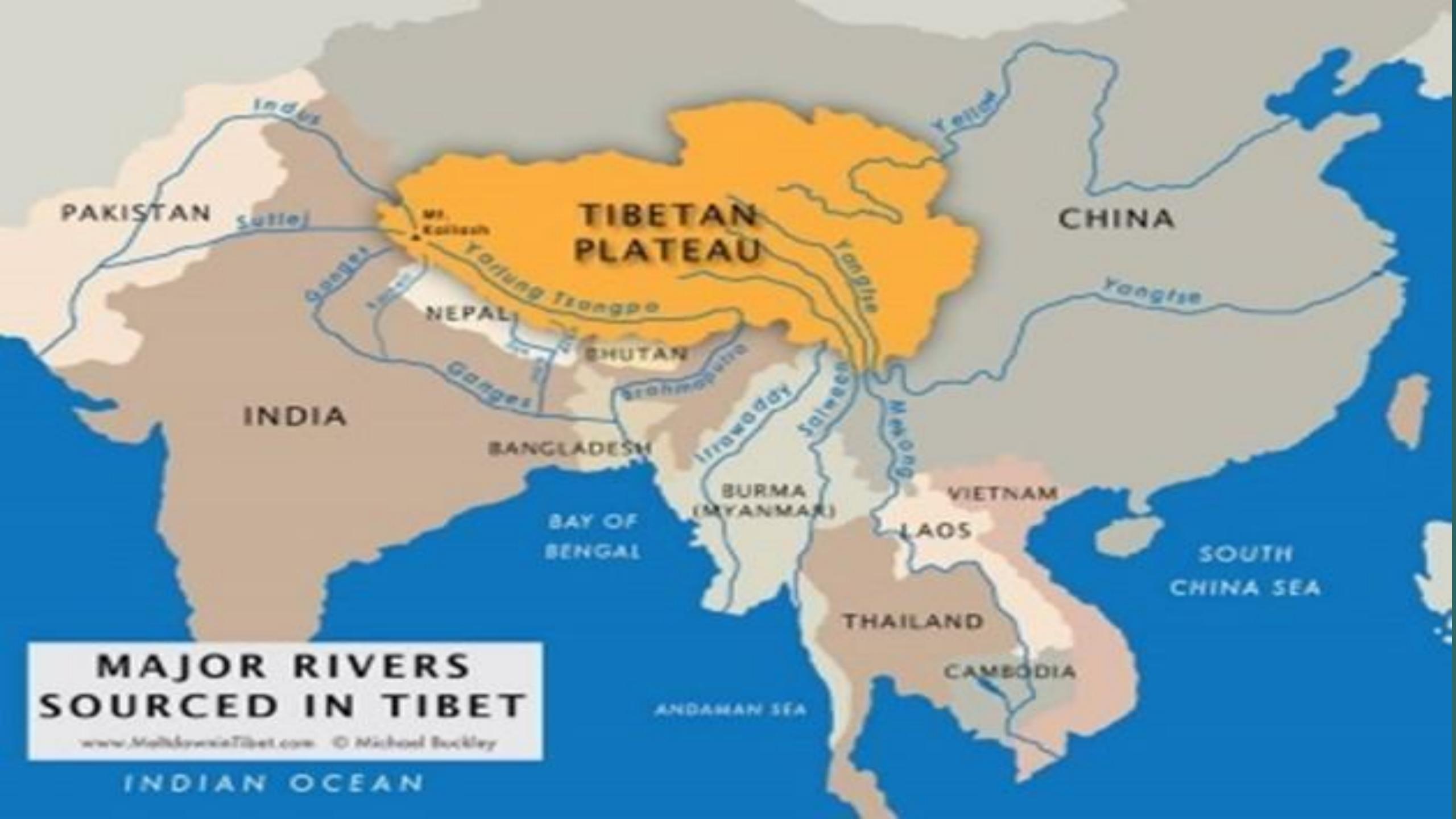
# Key Messages:

- Climate change could **undermine peace and security** in South Asia.
- Climate-related natural disasters will cause unprecedented large-scale **migration** both within and from the region.
- **Water scarcity** increases the likelihood of conflict between countries.
- **Food insecurity** can drive violent conflict between communities.
- Military and humanitarian organisations will need forward looking strategies to deal with these impacts.
- Environmental degradation a major result of **militarization of glaciers**.
- New **climate strategies** will need to be evolved.
- Continuous **dialogue** is the key.

# Recommendations

- Establish a regional military advisory council on climate change.
- Mainstream climate change in security policies and actions.
- Conduct environmental information and education campaigns.
- Incorporate climate risk and impact study on military activities.
- Dedicate a specific forum for establishing cooperative mechanism.
- Update existing cooperative frameworks.
- Prepare collectively for global climate negotiations.
- Recognize that, despite a long history of regional instability, climate change offers a humanitarian opportunity to cooperate.

Success in cooperating on a common and urgent challenge like climate change can act as a catalyst for long term peace in the region, and become a model for emulation for the world.



## MAJOR RIVERS SOURCED IN TIBET

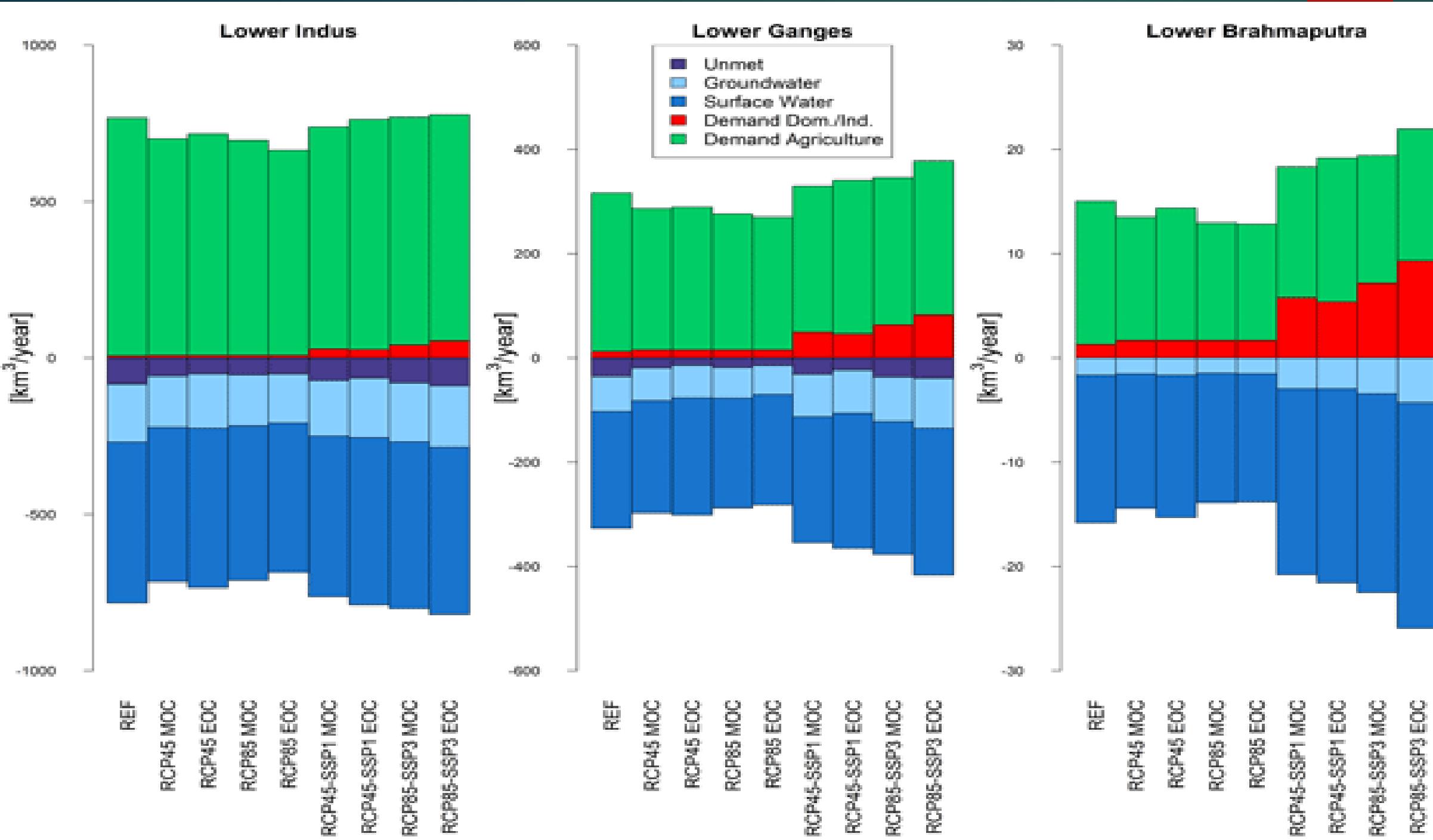
[www.MeltDowninTibet.com](http://www.MeltDowninTibet.com) © Michael Buckley

INDIAN OCEAN



The Tibetan Plateau as seen from space.

River	Basin km <sup>2</sup>	Total population	% cropland	% forest	% basin protected	Hydrological significance of glaciers and snow for rivers
Tarim	1 152 000	8 067 000	2	<1	21	Very high
Syr Darya	763 000	20 591 000	22	2.4	1.0	Very high
Amu Darya	535 000	20 855 000	22	0.1	0.7	Very high
Indus	1 082 000	178 483 000	30	0.4	4.4	Very high
Ganges	1 016 000	407 466 000	72	4.2	5.6	High
Brahmaputra	651 000	118 543 000	29	19	3.7	High
Yangtze	1 722 000	368 549 000	48	6.3	1.7	High
Huang He (Yellow river)	945 000	147 415 000	30	1.5	1.3	High
Salween	272 000	5 982 000	6	43	2.2	Moderate
Mekong	806 000	57 198 000	38	42	5.4	Moderate





## Indus rivers fact sheet

What are the Indus rivers?

Western

Indus  
Jhelum  
Chenab

Eastern

Ravi  
Beas  
Sutlej

An average of

**168 million acre feet**

of water flows through Indus basin from the northeast every year; 133MAF is Pakistan share

Covering an area of

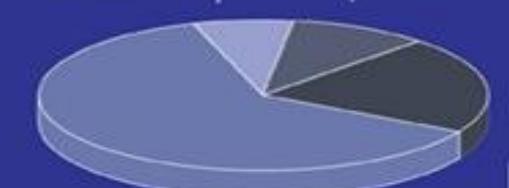
**449,000 square miles**

it is considered to be one of the largest river basins in the world.

Channels of Indus basin water

7%  
Afghanistan

10%  
China



62%  
Azad Kashmir & Pakistan

21%  
Indian-administered Kashmir & Haryana

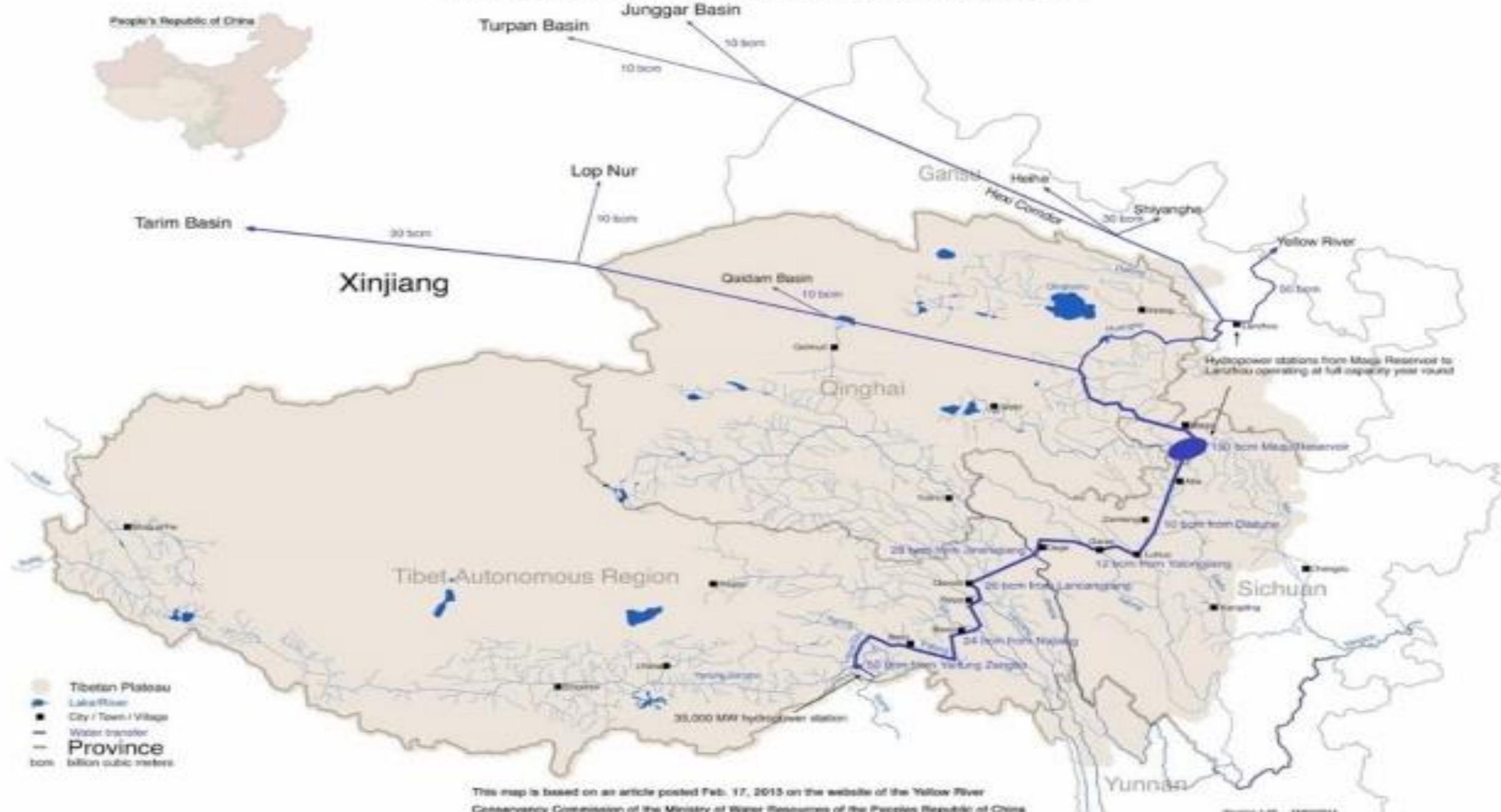
## Comparative irrigation withdrawals and cereal production

### Per capita water availability in Pakistan

Year	Population (million)	Per capita water availability (M <sup>3</sup> )
1951	34	5,650
2003	146	1,200
2010	168	1,000
2025	221	800

Name of country	Withdrawal of irrigation water per capita (m <sup>3</sup> )/year	Average per capita cereal production (kg)	Cereal per m <sup>3</sup> of irrigation water (kg)
Canada	192	1,674	8.72
USA	785	1,227	1.56
China	401	328	0.82
India	569	221	0.39
Pakistan	1,226	162	0.13

Great Western Line Water Diversion Project



This map is based on an article posted Feb. 17, 2013 on the website of the Yellow River Conservancy Commission of the Ministry of Water Resources of the People's Republic of China.

Review: 1.000 147000-4



**South Asia is amongst the most crisis-ridden in the world with rampant poverty, burgeoning populations, weak state institutions and military conflicts.**

**Climate change will overwhelm weak political structures and exacerbate economic and social problems to reinforce instability while drawing new lines of conflict within and between states.**

**However, this opens new avenues for cooperation in the region for joint efforts to abate the vulnerability from:**

- . Shared water resources**
- . Environmental migration**
- . Natural disasters**
- . Destabilisation**
- . Scarcity of resources**
- . Climate induced conflicts**
- . Livelihood security**
- . Over population**
- . Increased urbanization**