



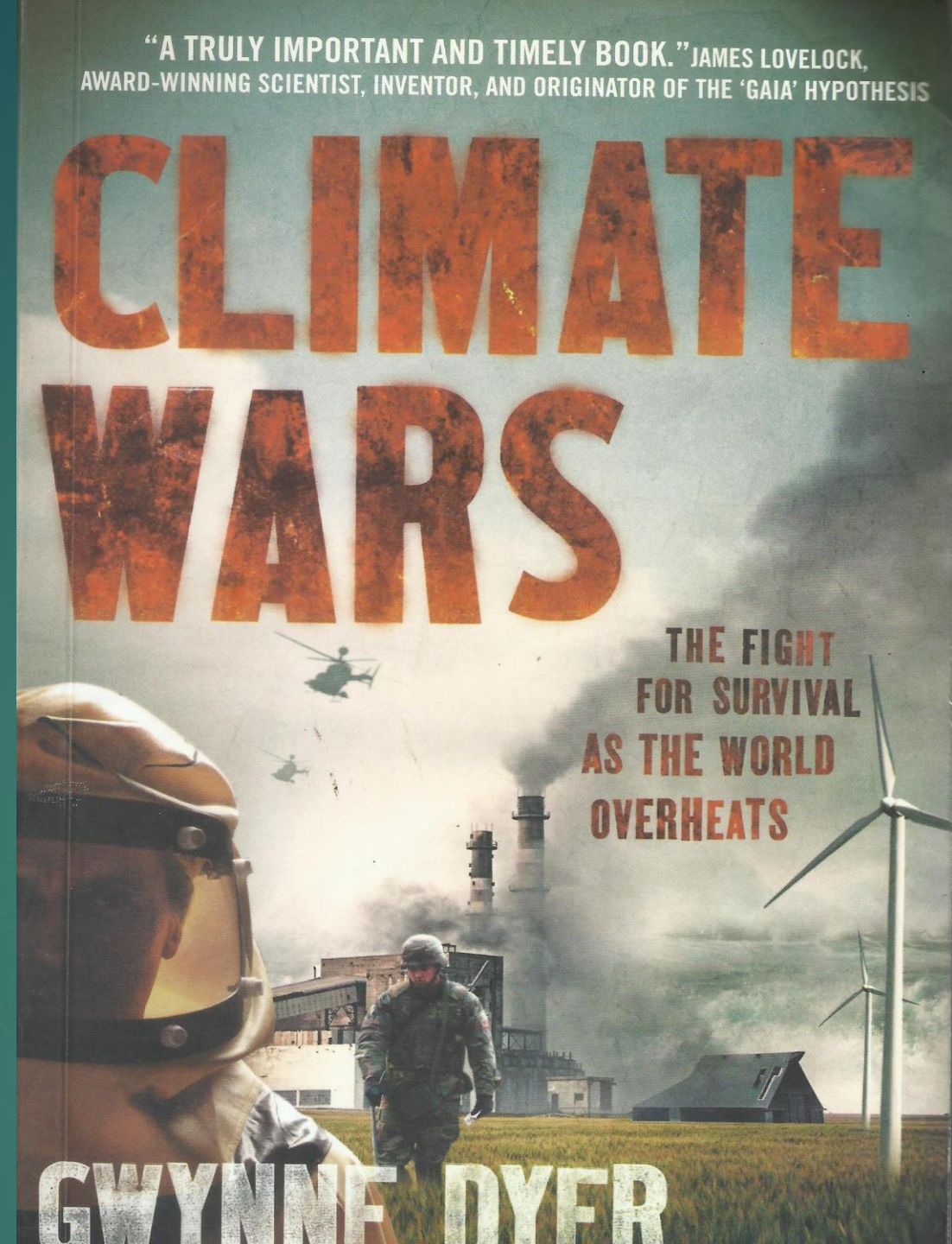
Climate Change & Security in South Asia: COOPERATING FOR PEACE

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

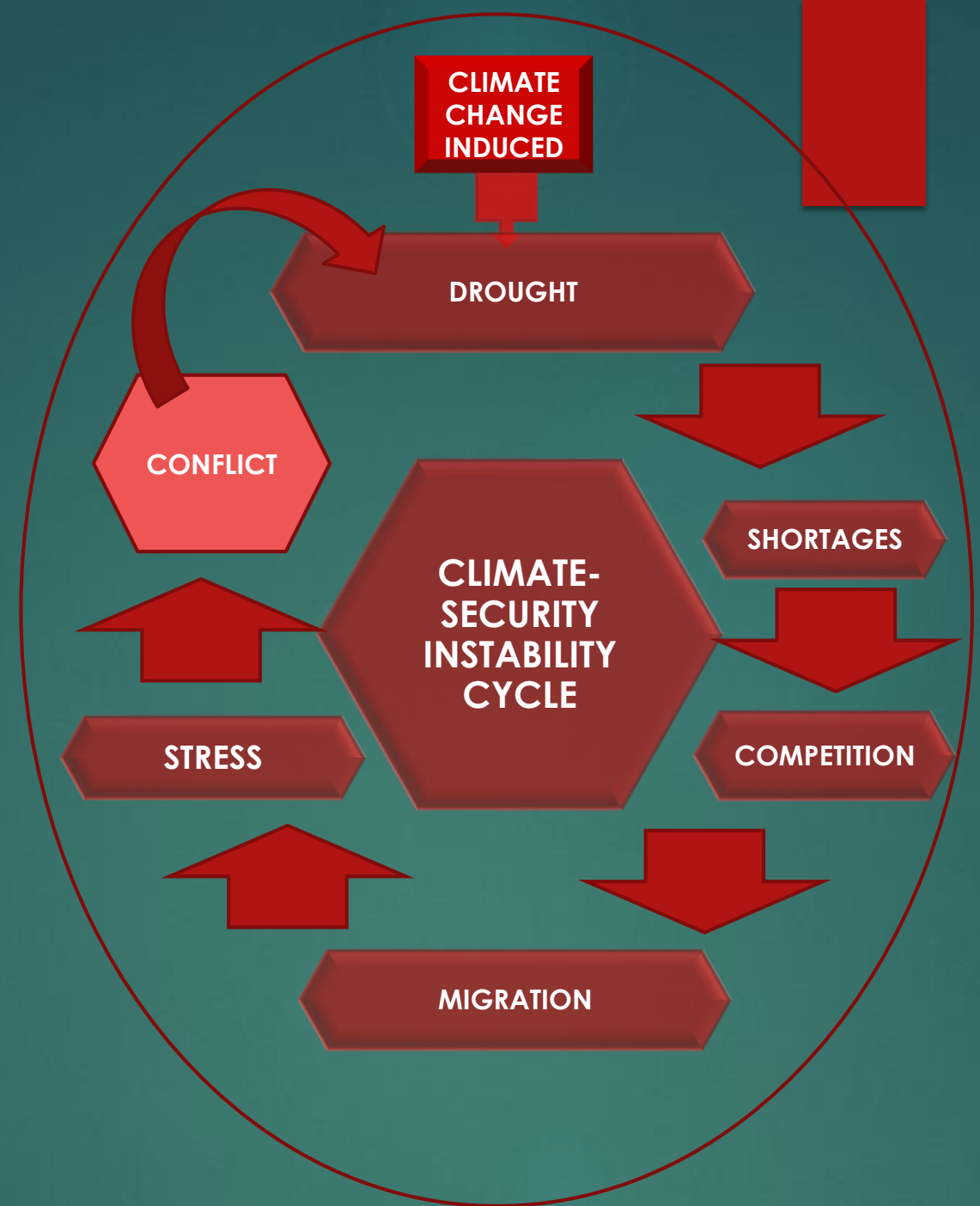
- the acute and permanent shortage of **food**,
- and probability of **wars**, including nuclear.

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.



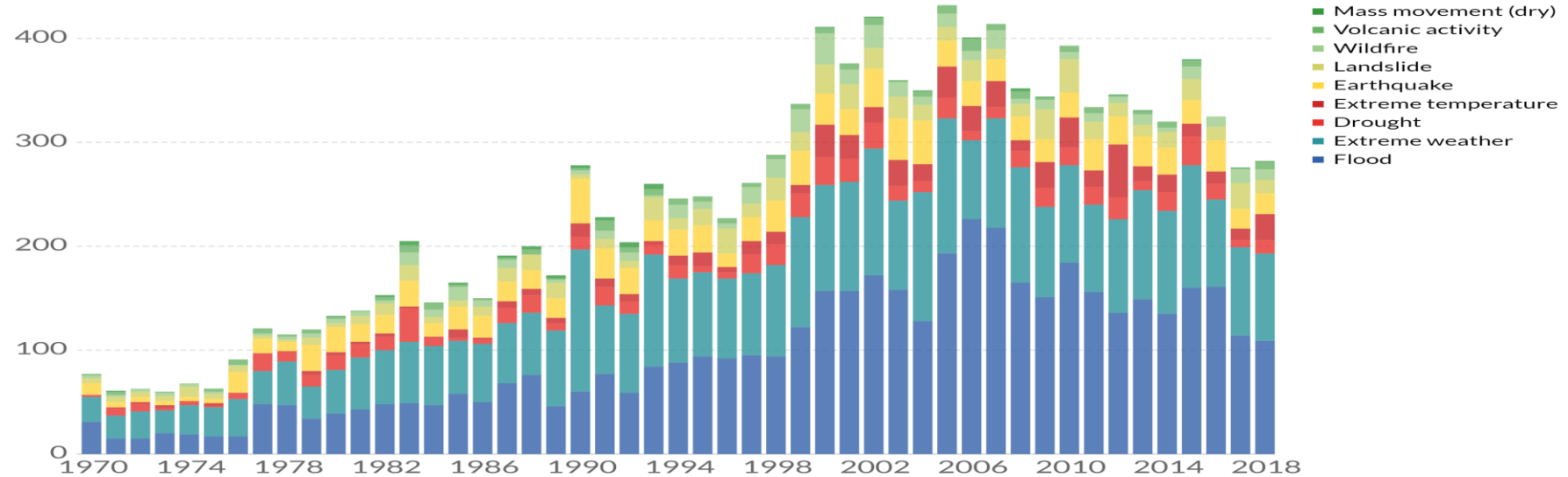
- ✓ The geopolitical consequences of climate change determined by **interaction** with political, social, and economic conditions - as by the shift itself.
- ✓ The **most severe** consequences are on most vulnerable, least responsible, and largely ill-prepared.
- ✓ An “**accelerant of instability**”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



While incidence
of disasters and
economic
losses are up,

Global reported natural disasters by type

The annual reported number of natural disasters, categorised by type. This includes both weather and non-weather related disasters.

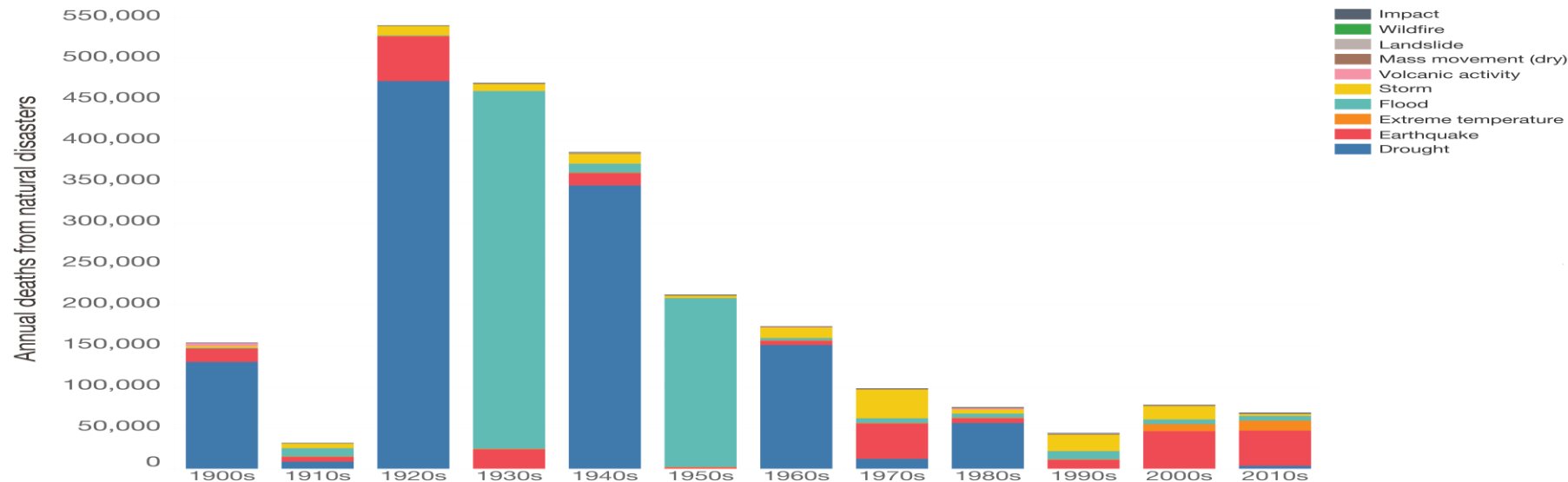


Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium
OurWorldInData.org/natural-disasters • CC BY

Global annual deaths from natural disasters, by decade

Absolute number of global deaths from natural disasters, per year.

This is given as the annual average per decade (by decade 1900s to 2000s; and then six years from 2010-2015).

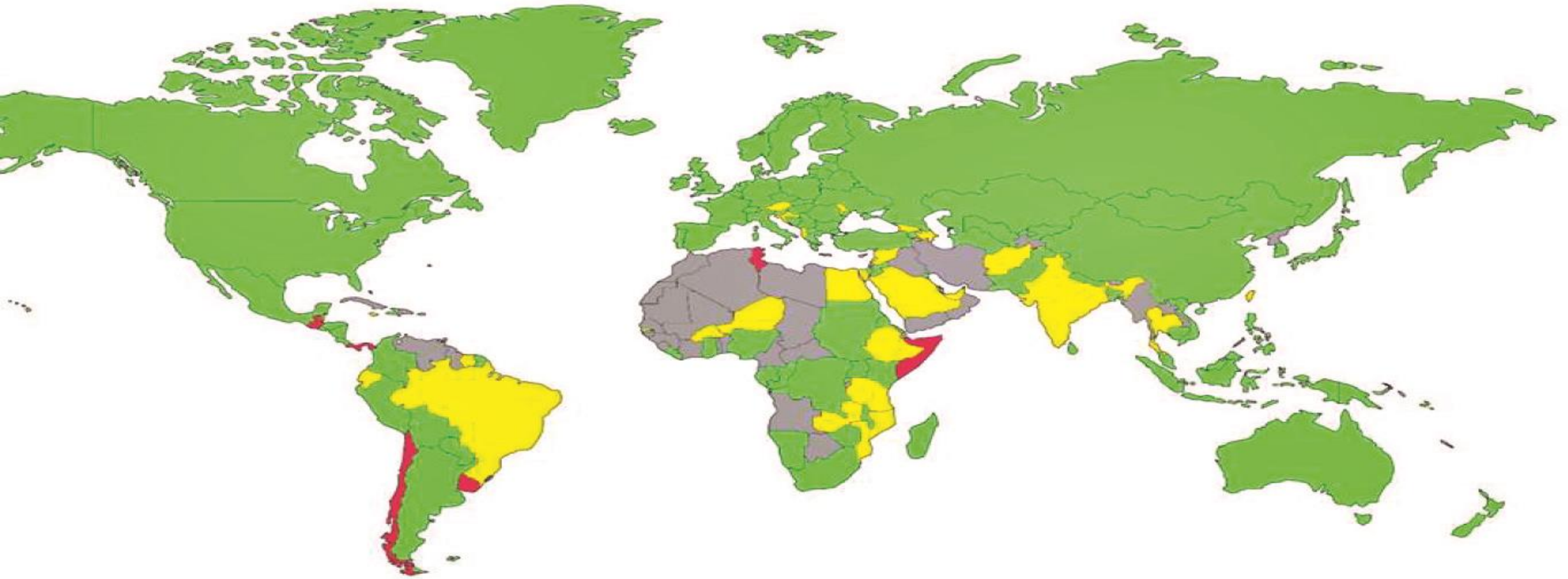


Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium.
The data visualization is available at [OurWorldInData.org](https://ourworldindata.org). There you find research and more visualizations on this topic.

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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

www.gmaccc.org
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and climate impact on
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GMACCC Institutions



AMERICAN SECURITY PROJECT
Nonpartisan organization dedicated towards the
changing nature of national security
» Visit Website



BANGLADESH INSTITUTE FOR PEACE AND
SECURITY STUDIES (BIPSS)
Think tank working on issues relating to peace and
security studies of Bangladesh & beyond
» Visit Website



EUROPEAN CLIMATE FOUNDATION
Major philanthropic initiative to promote climate and
energy policies
» Visit Website



INSTITUTE FOR ENVIRONMENTAL SECURITY (IES)
Int'l nonprofit organisation with mission of advancing
global environmental security
» Visit Website



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Organisation with a mission of promoting just and
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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
Security

GLOBAL MILITARY
ADVISORY COUNCIL ON
CLIMATE CHANGE



Climate Change & Security in Africa

Clear Risks, Nuanced Impacts

GMADCC Paper n°1 | December 2014



GLOBAL MILITARY
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CLIMATE CHANGE

Ashley McFain Moran
Yacobi Mukugetta
Clonadh Raleigh



Climate Change & Security in South Asia

Cooperating for Peace

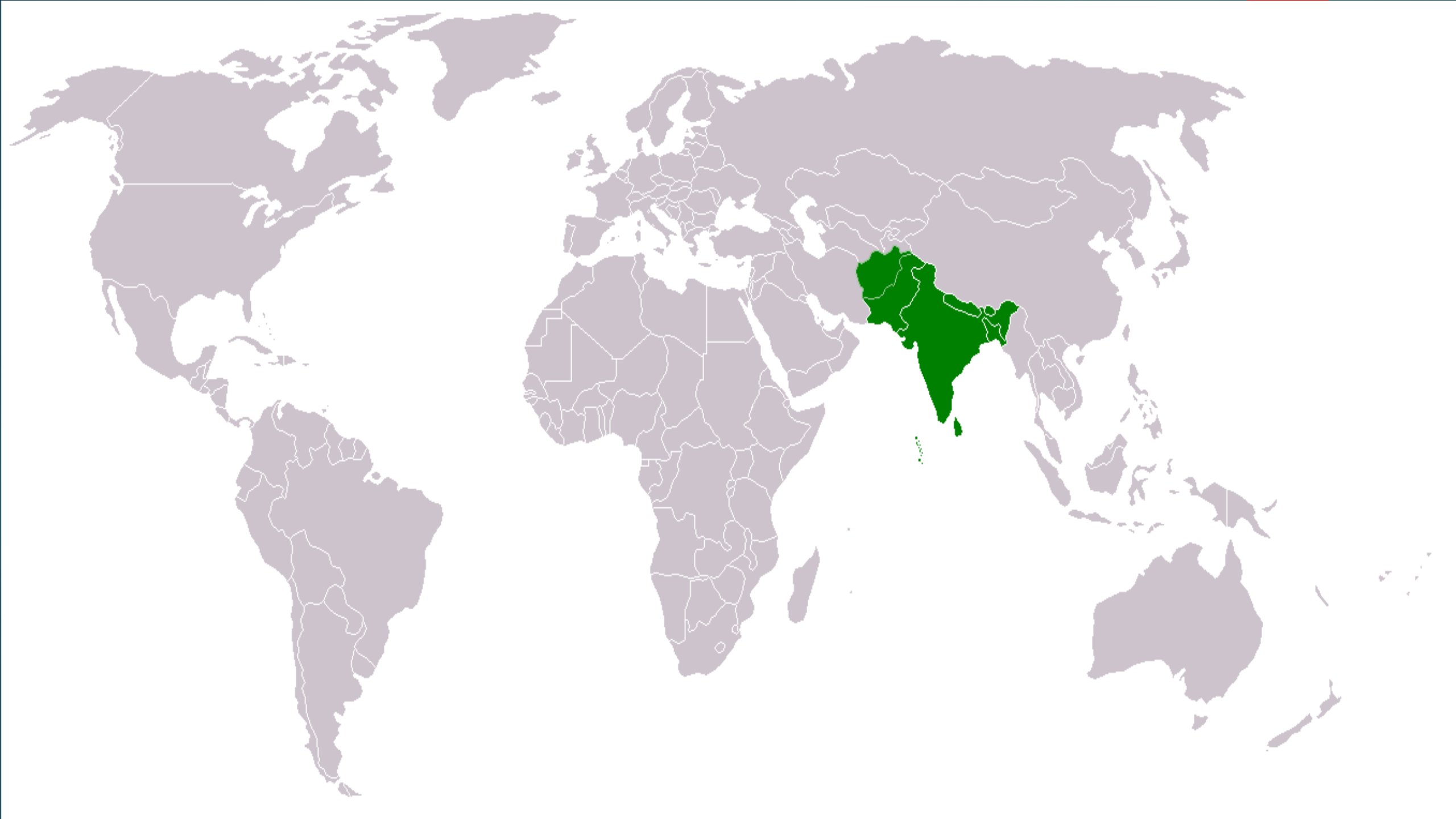
GMADCC Paper n°2 | May 2016



GLOBAL MILITARY
ADVISORY COUNCIL ON
CLIMATE CHANGE

TARIQ MANSUR GHANI
A.N.M. MUNIRUZZAMAN
A.K. SINGH





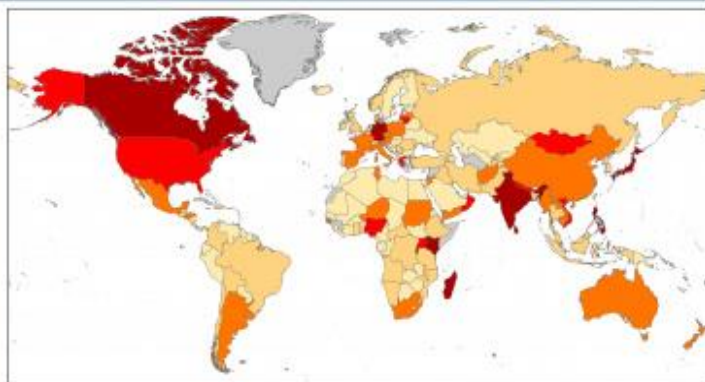
- ❑ Home to 21% of humanity
- ❑ Inhabiting 3 % of the earth landmass
- ❑ Mired in poverty with collective GDP \$1800
- ❑ Amongst the most climate vulnerable
- ❑ Fraught with political challenges: disputed borders; simmering conflicts; shared resources; migration; social / cultural / religious/ linguistic / 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>	1,366,417,754
<u>Maldives</u>	530,953
<u>Nepal</u>	28,608,710
<u>Pakistan</u>	216,565,318
<u>Sri Lanka</u>	21,323,733

1,834,297,415

Population set to grow to 2.3 bn by 2050!





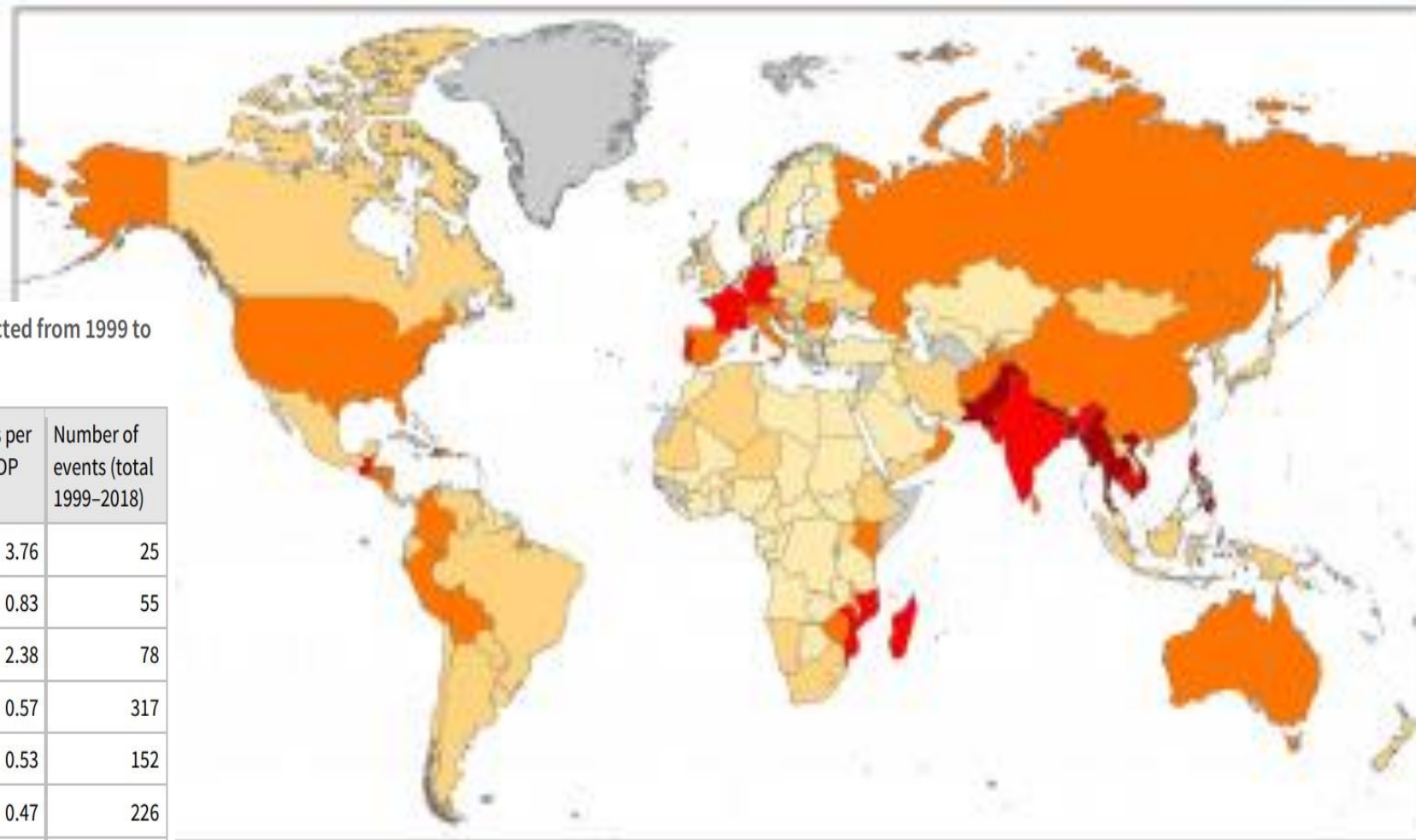
Climate Risk Index: Ranking 2018

1 - 10 11 - 20 21 - 50 51 - 100 >100 No data

www.germanwatch.org/en/cri

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

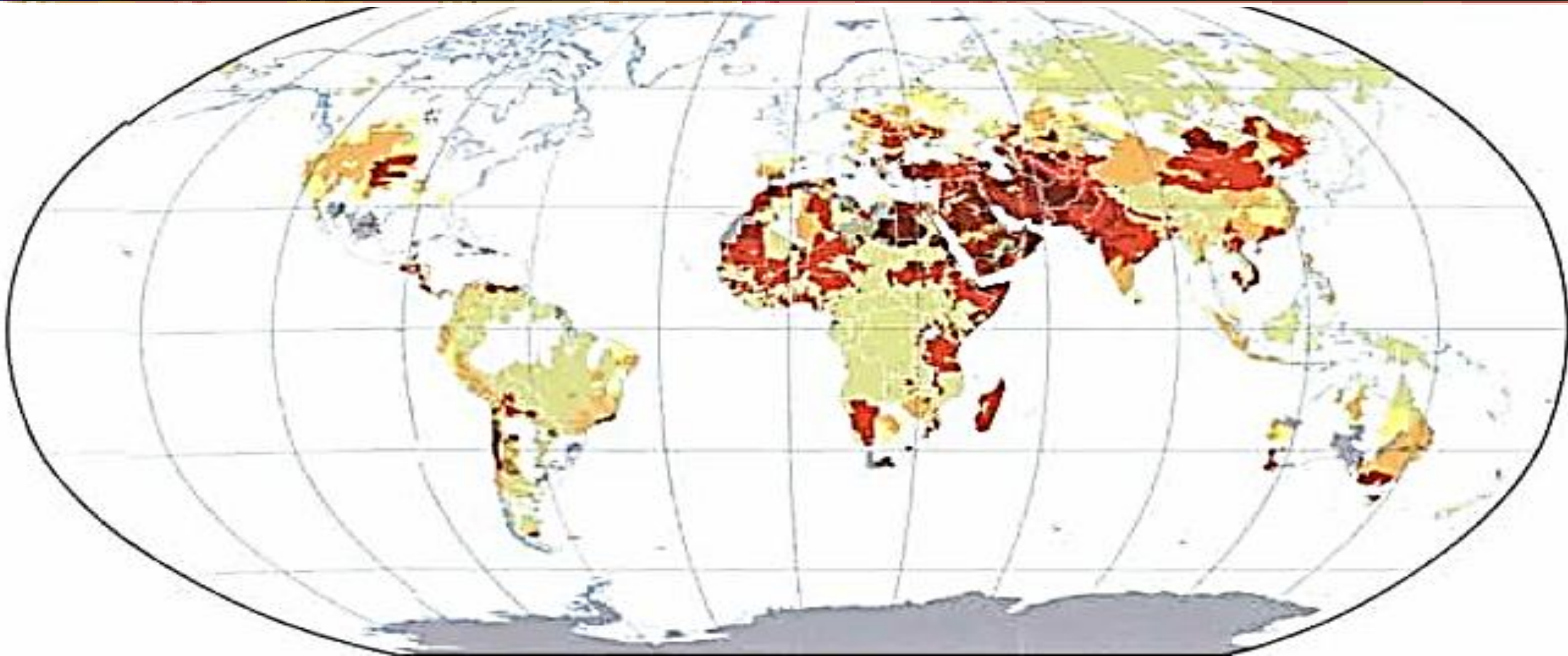
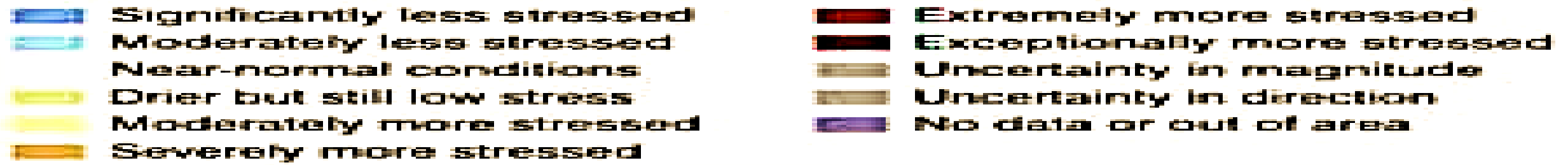


Climate Risk Index: Ranking 1999 - 2018

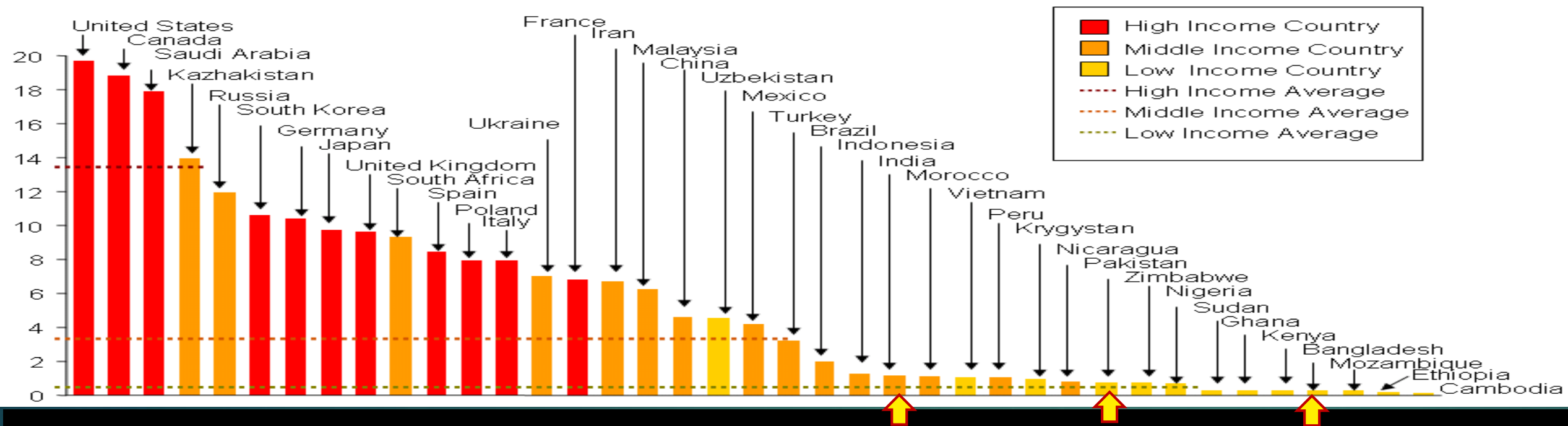
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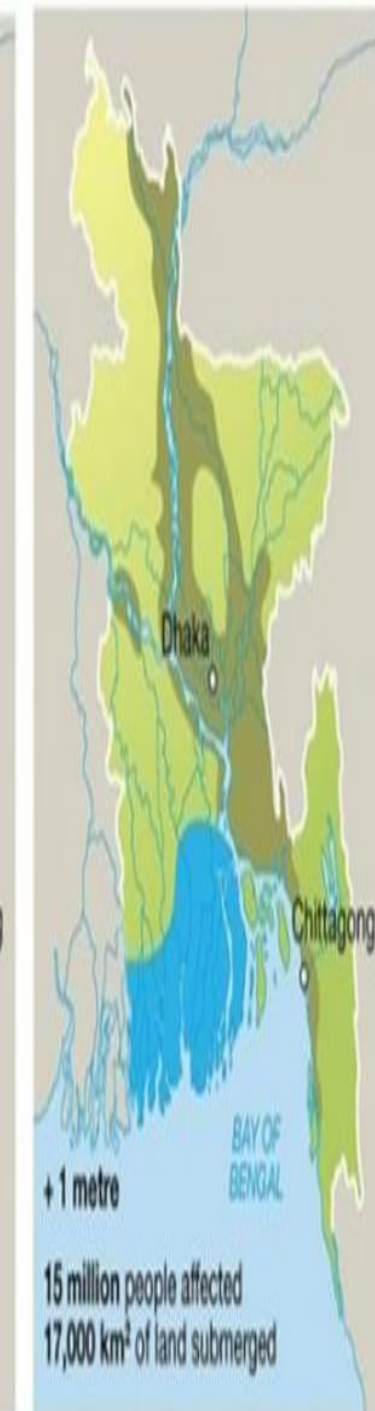
www.germanwatch.org/en/cri

Projected Change in Water Stress to 2025



Tons CO₂ per capita







Sea Surges and Cyclones
Tempests of Neptune



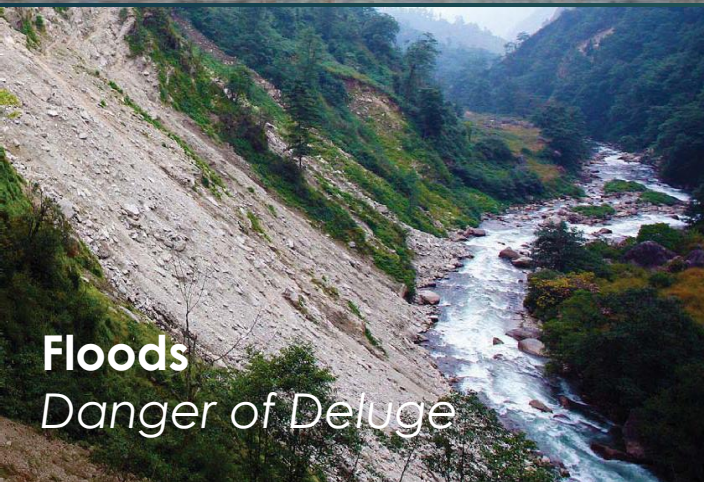
Droughts



Fog



Glacial Melt
*The Water Towers
are Crumbling*



Floods
Danger of Deluge

South Asia is vulnerable to several climate change issues and impacts tied closely to the region's geography, economy, and population patterns



Sea-Level Rise
Rising Tides, Settlements at Risk



Erosion
*Losing Land and
Livelihoods*



Deforestation

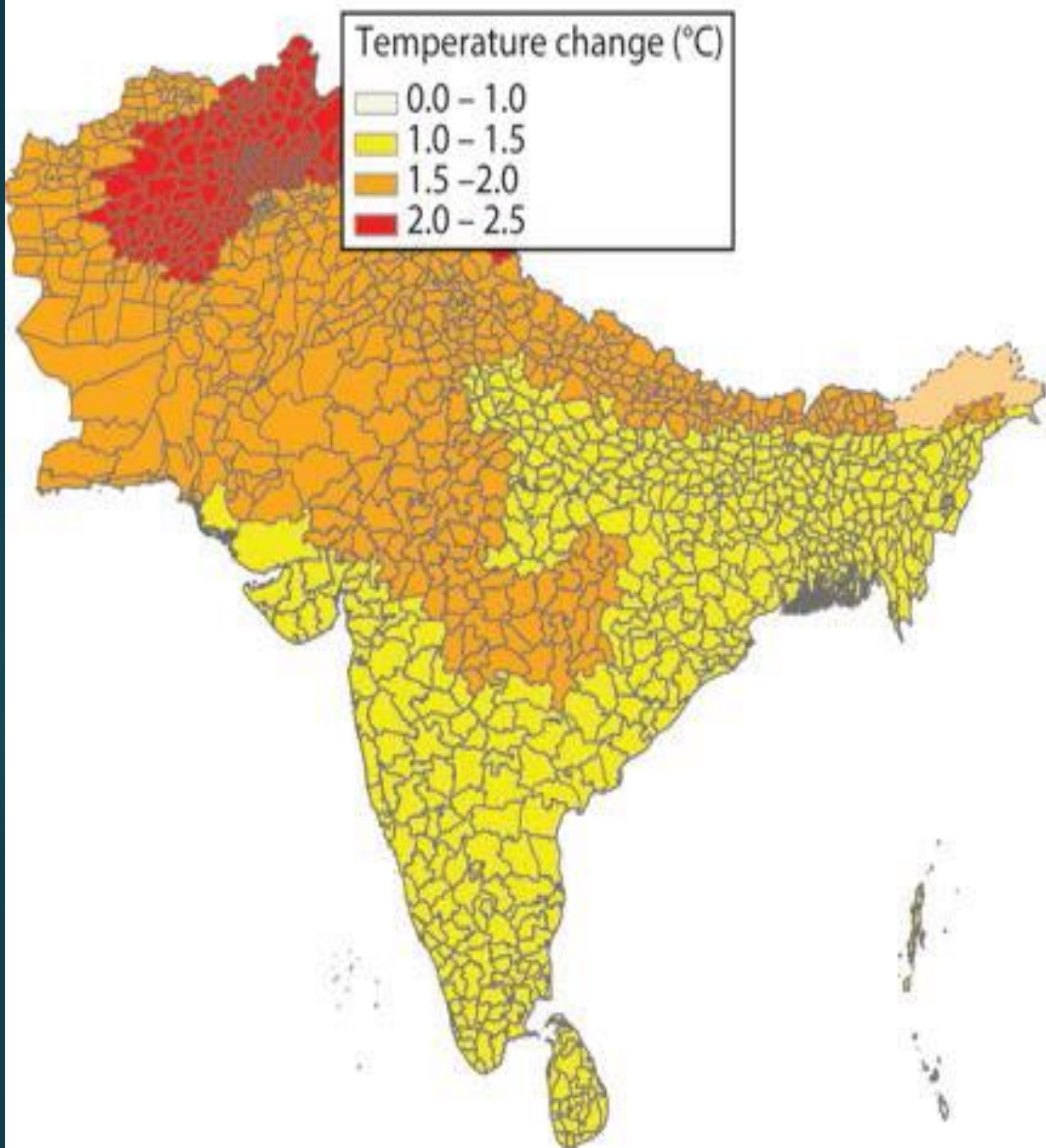


Urbanization

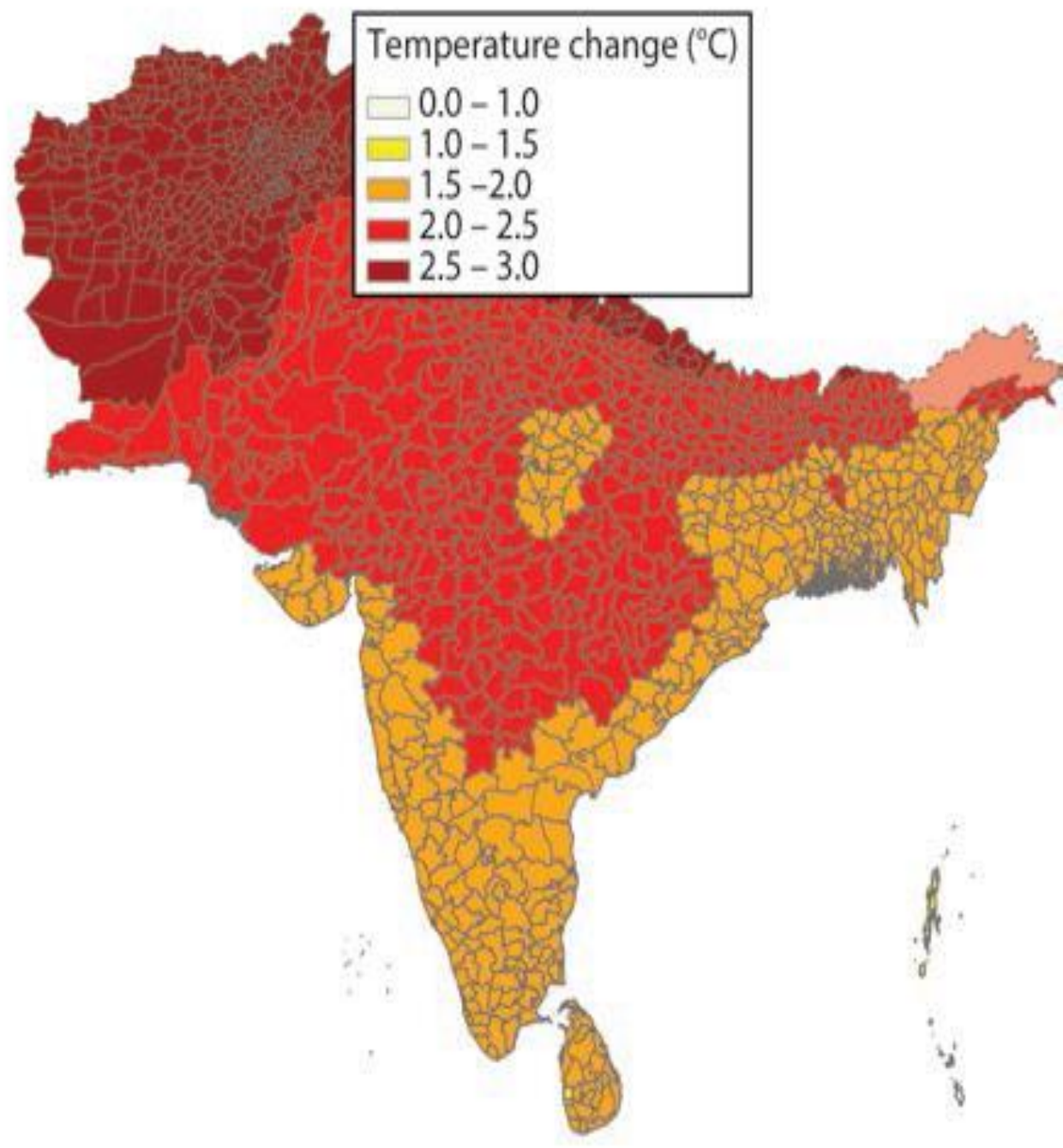


Irregular Monsoons

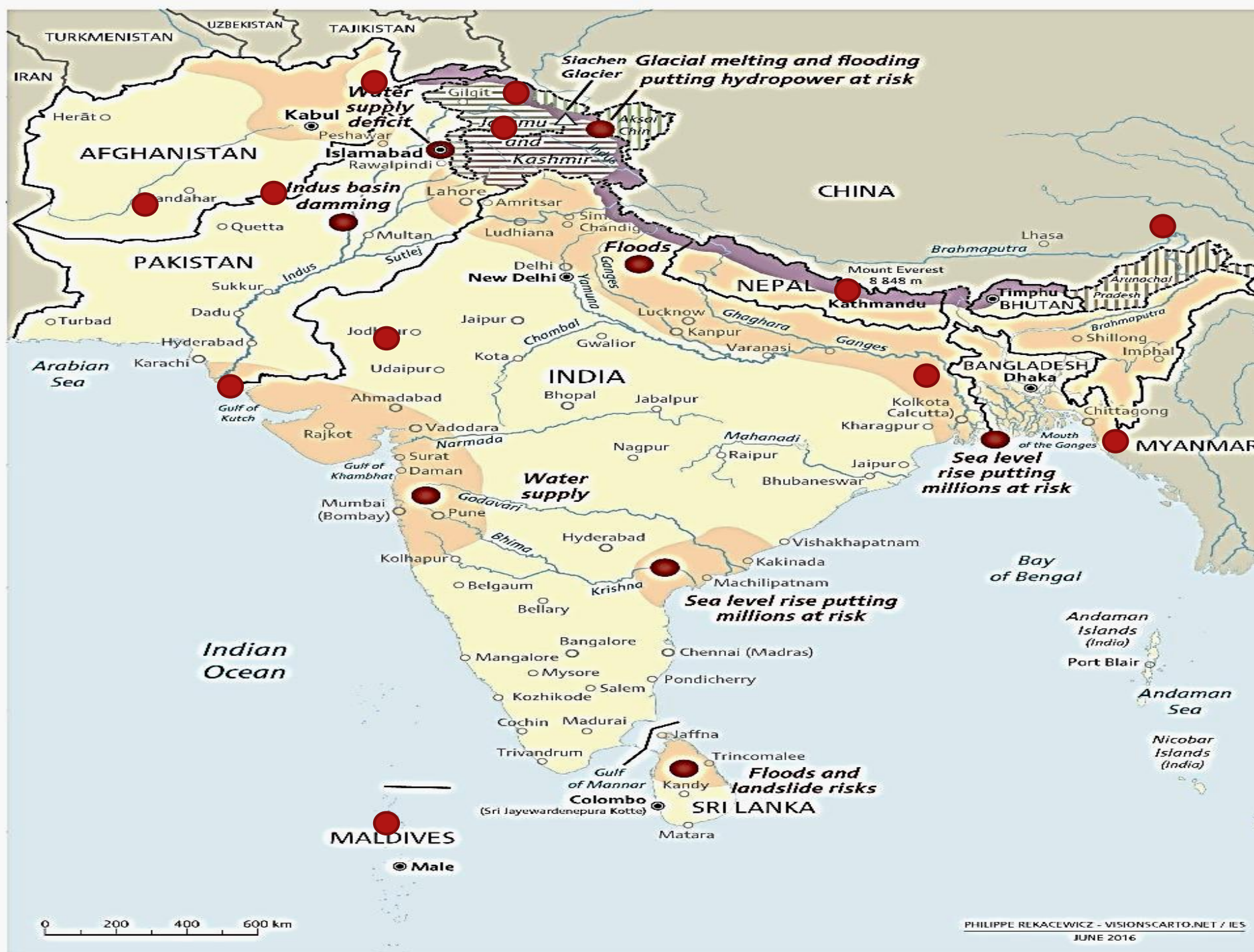
a. Climate-sensitive scenario



b. Carbon-intensive scenario



Climate Change and Security in South Asia



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.



PAKISTAN

Indus

Sutlej

Ganges

NEPAL

Ganges

INDIA

BANGLADESH

BAY OF BENGAL

**MAJOR RIVERS
SOURCED IN TIBET**
www.MakdowenTibet.com © Michael Buckley

INDIAN OCEAN

**TIBETAN
PLATEAU**

Ms. Kailash

Yarlung Tsangpo

BHUTAN

Brahmaputra

BURMA
(MYANMAR)

Irrawaddy

Salween

Mekong

THAILAND

CAMBODIA

LAOS

VIETNAM

CHINA

Yangtze

Yellow

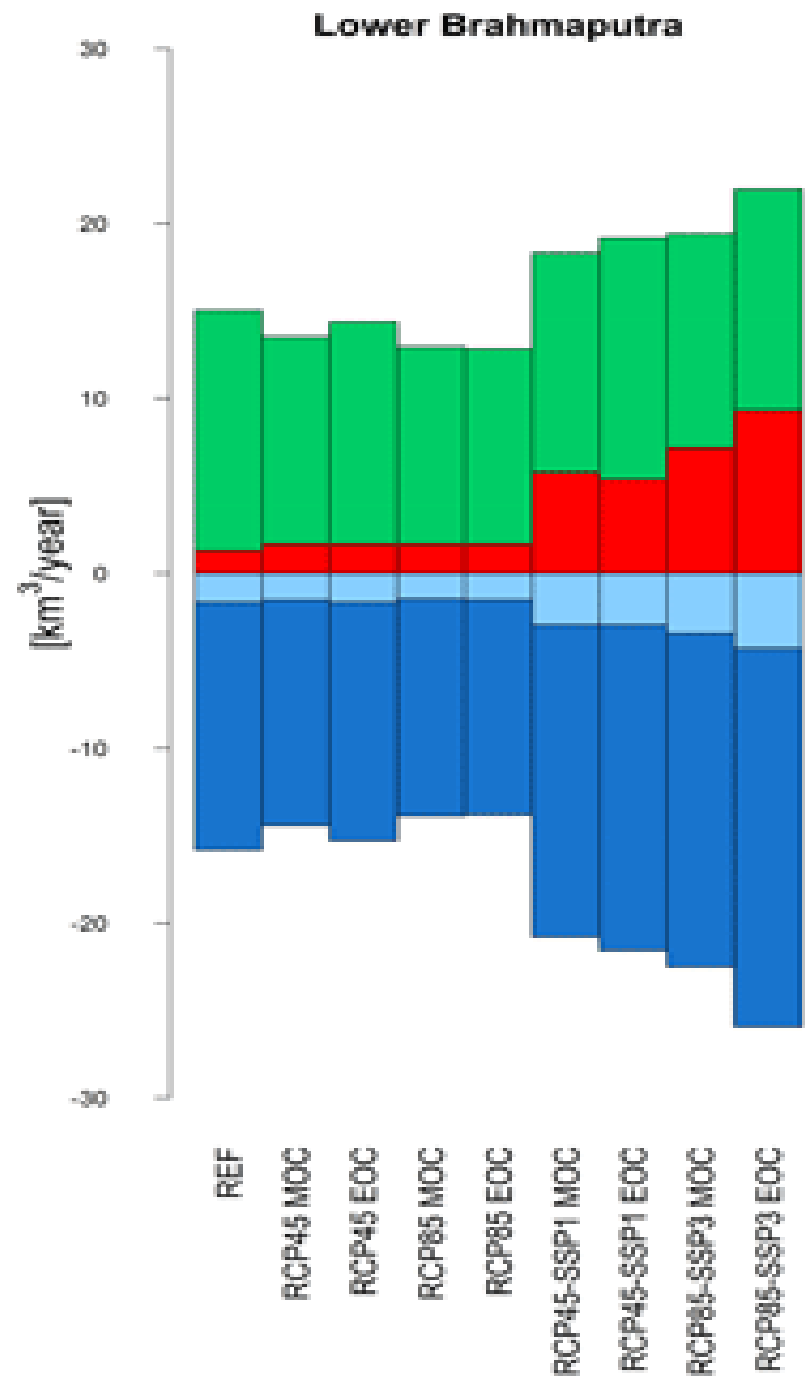
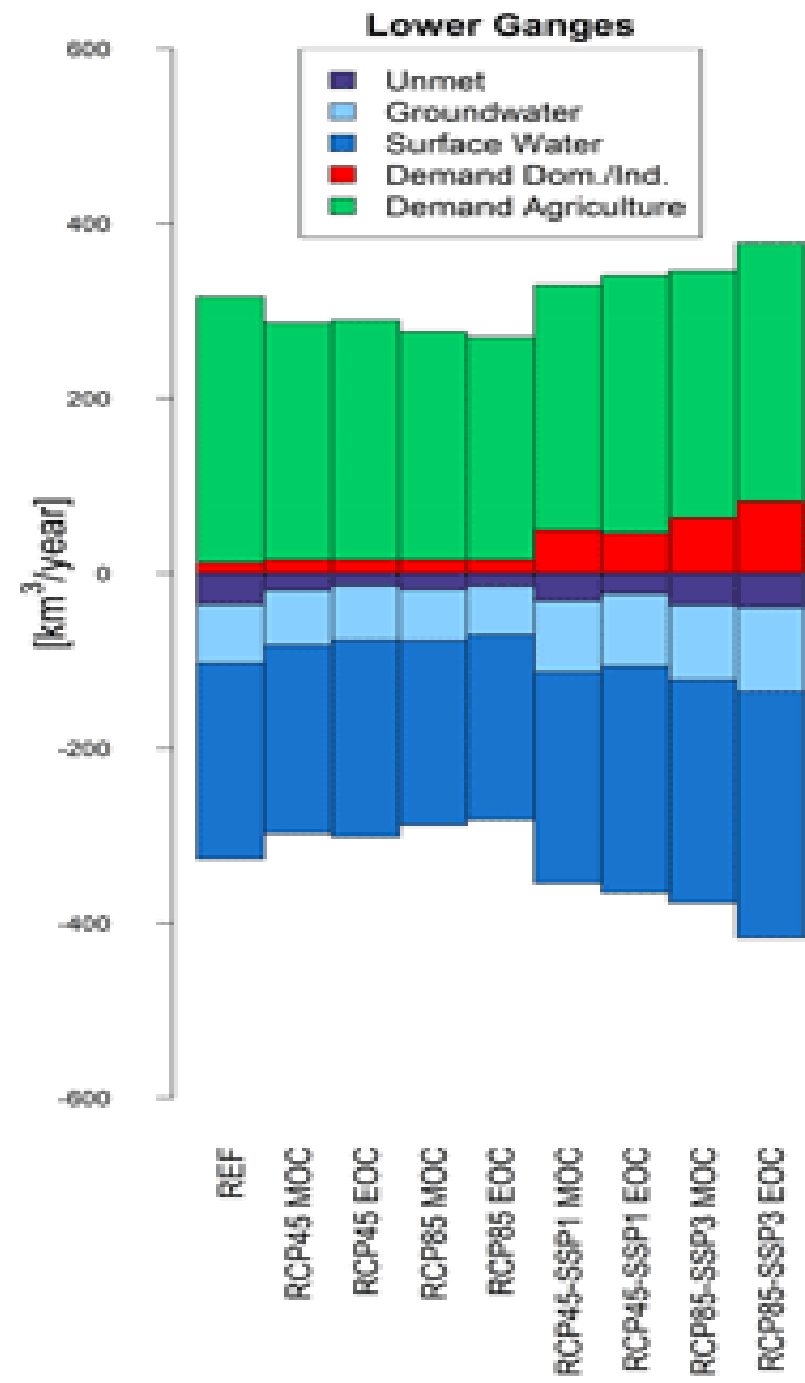
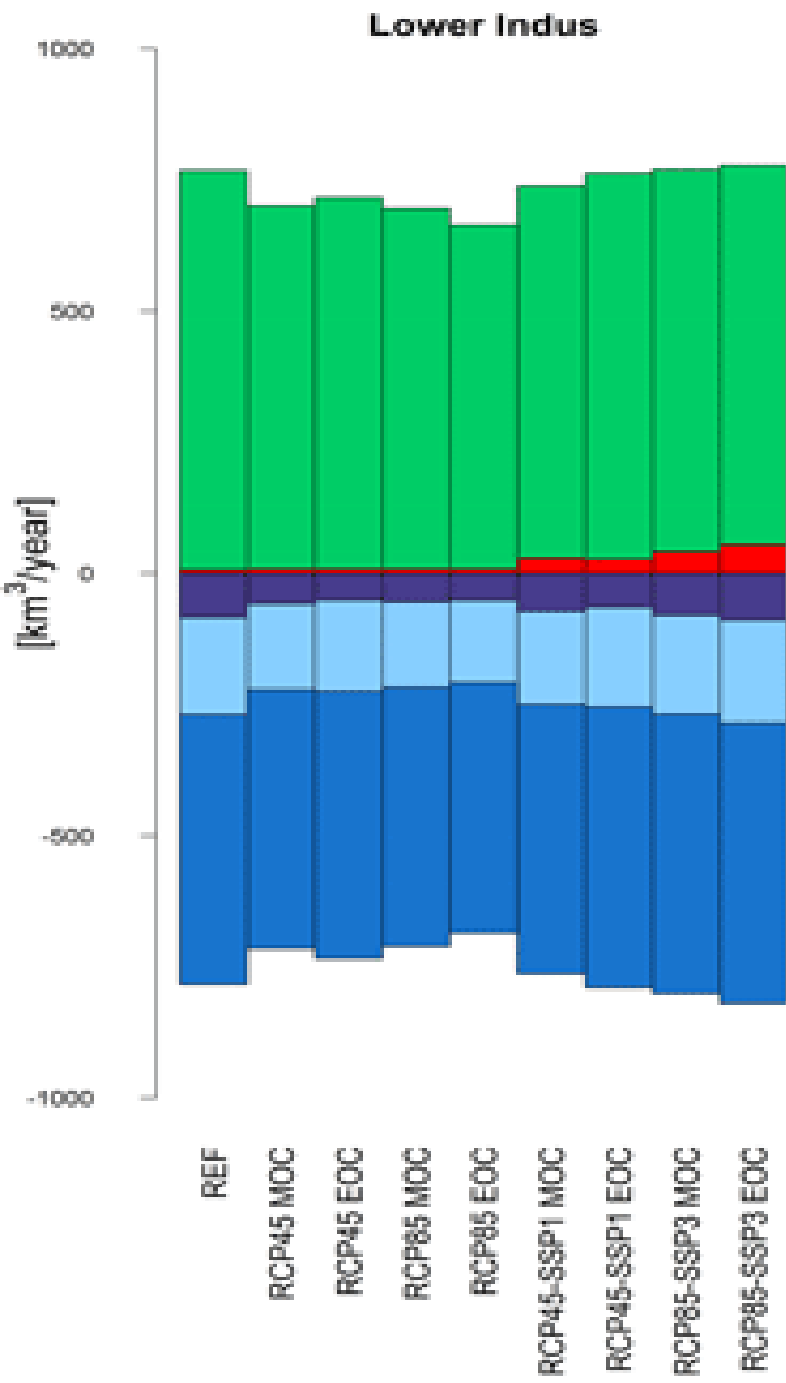
SOUTH
CHINA SEA

ANDAMAN SEA



The Tibetan Plateau as seen from space.

River	Basin km ²	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






21% Indian-administered Kashmir & Haryana

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

Comparative irrigation withdrawals and cereal production			
Name of country	Withdrawal of irrigation water per capita (m3)/year	Average per capita cereal production (kg)	Cereal per m3 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



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**