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, loss of life from disasters is decreasing!
Level of Concern about how Climate Change Threatens Security

- Green – Climate is a national security threat
- Yellow – Climate is an environmental issue
- Red – Climate is not a defined concern
- Grey – No information available

71%
GMACCC Members

GMACCC Institutions

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
info@gmaccc.org
www.gmaccc.org
- 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...

<table>
<thead>
<tr>
<th>Country</th>
<th>Population 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>38,041,754</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>163,046,161</td>
</tr>
<tr>
<td>Bhutan</td>
<td>763,092</td>
</tr>
<tr>
<td>India</td>
<td>1,366,417,754</td>
</tr>
<tr>
<td>Maldives</td>
<td>530,953</td>
</tr>
<tr>
<td>Nepal</td>
<td>28,608,710</td>
</tr>
<tr>
<td>Pakistan</td>
<td>216,565,318</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>21,323,733</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (1) Puerto Rico</td>
<td>6.67</td>
<td>149.50</td>
<td>4.09</td>
<td>4,567.06</td>
<td>3.76</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>2 (3) Myanmar</td>
<td>10.33</td>
<td>7,052.40</td>
<td>14.29</td>
<td>1,630.06</td>
<td>0.83</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>3 (4) Haiti</td>
<td>13.83</td>
<td>274.15</td>
<td>2.81</td>
<td>388.93</td>
<td>2.38</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>4 (5) Philippines</td>
<td>17.67</td>
<td>869.80</td>
<td>0.96</td>
<td>3,118.68</td>
<td>0.57</td>
<td>317</td>
<td></td>
</tr>
<tr>
<td>5 (8) Pakistan</td>
<td>28.83</td>
<td>499.45</td>
<td>0.30</td>
<td>3,792.52</td>
<td>0.53</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>6 (9) Vietnam</td>
<td>29.83</td>
<td>285.80</td>
<td>0.33</td>
<td>2,018.77</td>
<td>0.47</td>
<td>226</td>
<td></td>
</tr>
<tr>
<td>7 (7) Bangladesh</td>
<td>30.00</td>
<td>577.45</td>
<td>0.39</td>
<td>1,686.33</td>
<td>0.41</td>
<td>191</td>
<td></td>
</tr>
<tr>
<td>8 (13) Thailand</td>
<td>31.00</td>
<td>140.00</td>
<td>0.21</td>
<td>7,764.06</td>
<td>0.87</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>9 (11) Nepal</td>
<td>31.50</td>
<td>228.00</td>
<td>0.87</td>
<td>225.86</td>
<td>0.40</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>10 (10) Dominica</td>
<td>32.33</td>
<td>3.35</td>
<td>4.72</td>
<td>133.02</td>
<td>20.80</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

www.germanwatch.org/en/cri
Projected Change in Water Stress to 2025

- Significantly less stressed
- Moderately less stressed
- Near-normal conditions
- Drier but still low stress
- Moderately more stressed
- Severely more stressed

- Extremely more stressed
- Exceptionally more stressed
- Uncertainty in magnitude
- Uncertainty in direction
- No data or out of area
Pakistan ranked 135
Present share 0.8 % of global emissions
Target 0.43 % by 2030
South Asia is vulnerable to several climate change issues and impacts tied closely to the region's geography, economy, and population patterns.
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.
- Mainstream 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.
The Tibetan Plateau as seen from space.
<table>
<thead>
<tr>
<th>River</th>
<th>Basin km²</th>
<th>Total population</th>
<th>% cropland</th>
<th>% forest</th>
<th>% basin protected</th>
<th>Hydrological significance of glaciers and snow for rivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tarim</td>
<td>1 152 000</td>
<td>8 067 000</td>
<td>2</td>
<td>&lt;1</td>
<td>21</td>
<td>Very high</td>
</tr>
<tr>
<td>Syr Darya</td>
<td>763 000</td>
<td>20 591 000</td>
<td>22</td>
<td>2.4</td>
<td>1.0</td>
<td>Very high</td>
</tr>
<tr>
<td>Amu Darya</td>
<td>535 000</td>
<td>20 855 000</td>
<td>22</td>
<td>0.1</td>
<td>0.7</td>
<td>Very high</td>
</tr>
<tr>
<td>Indus</td>
<td>1 082 000</td>
<td>178 483 000</td>
<td>30</td>
<td>0.4</td>
<td>4.4</td>
<td>Very high</td>
</tr>
<tr>
<td>Ganges</td>
<td>1 016 000</td>
<td>407 466 000</td>
<td>72</td>
<td>4.2</td>
<td>5.6</td>
<td>High</td>
</tr>
<tr>
<td>Brahmaputra</td>
<td>651 000</td>
<td>118 543 000</td>
<td>29</td>
<td>19</td>
<td>3.7</td>
<td>High</td>
</tr>
<tr>
<td>Yangtze</td>
<td>1 722 000</td>
<td>368 549 000</td>
<td>48</td>
<td>6.3</td>
<td>1.7</td>
<td>High</td>
</tr>
<tr>
<td>Huang He (Yellow river)</td>
<td>945 000</td>
<td>147 415 000</td>
<td>30</td>
<td>1.5</td>
<td>1.3</td>
<td>High</td>
</tr>
<tr>
<td>Salween</td>
<td>272 000</td>
<td>5 982 000</td>
<td>6</td>
<td>43</td>
<td>2.2</td>
<td>Moderate</td>
</tr>
<tr>
<td>Mekong</td>
<td>806 000</td>
<td>57 198 000</td>
<td>38</td>
<td>42</td>
<td>5.4</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
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; 133 MAF 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
### Per capita water availability in Pakistan

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (million)</th>
<th>Per capita water availability (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>34</td>
<td>5,650</td>
</tr>
<tr>
<td>2003</td>
<td>146</td>
<td>1,200</td>
</tr>
<tr>
<td>2010</td>
<td>168</td>
<td>1,000</td>
</tr>
<tr>
<td>2025</td>
<td>221</td>
<td>800</td>
</tr>
</tbody>
</table>

### Comparative irrigation withdrawals and cereal production

<table>
<thead>
<tr>
<th>Name of country</th>
<th>Withdrawal of irrigation water per capita (m³)/year</th>
<th>Average per capita cereal production (kg)</th>
<th>Cereal per m³ of irrigation water (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>192</td>
<td>1,674</td>
<td>8.72</td>
</tr>
<tr>
<td>USA</td>
<td>785</td>
<td>1,227</td>
<td>1.56</td>
</tr>
<tr>
<td>China</td>
<td>401</td>
<td>328</td>
<td>0.82</td>
</tr>
<tr>
<td>India</td>
<td>569</td>
<td>221</td>
<td>0.39</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1,226</td>
<td>162</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Source: Food Security & Sustainable Agriculture in India, IWMI Publication No.80, year 2003
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