

Roundtable on Climate Change Management

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GLACIAL MELT AT THE THIRD POLE: Talking about Sensitive Issues

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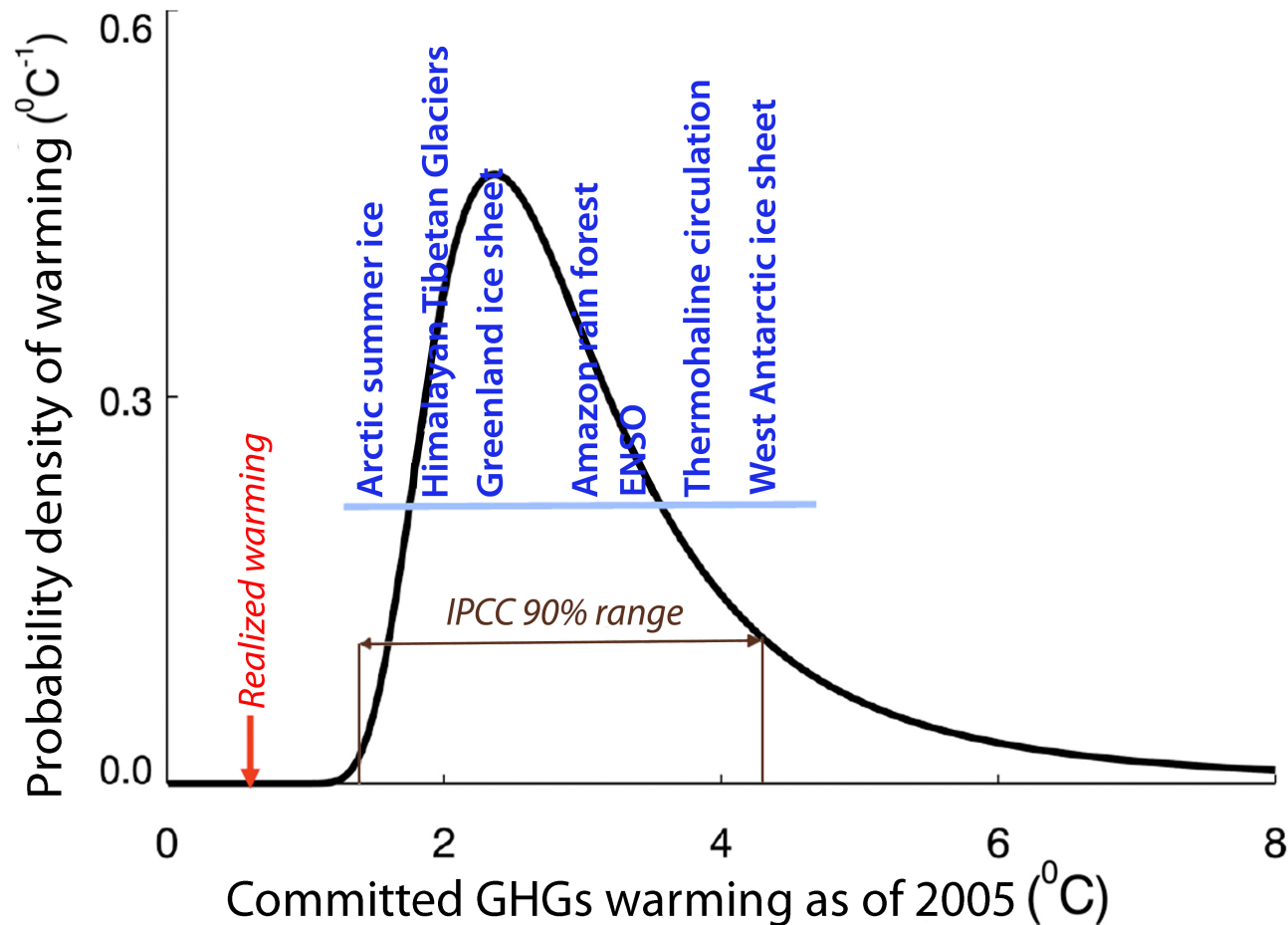
THE NEED FOR INTEGRATED THINKING

- Environmental Security – integrating disciplines
- Food Security - Energy Security - Climate Security
- Energy Policy - Food Policy - Development Policy - Foreign Policy - Military Policy

ENVIRONMENTAL SECURITY MILESTONES

- Drought in the Amazon – Drinking water in Sao Paolo
- Darfur
- Katrina
- Peruvian glaciers
- Failing states & terrorism
- The Arctic – sea ice & the Greenland glacier
- The UN Secretary General's Report on Climate Change & Security

TIPPING POINTS & “SQUEALING”



Source Durwood Zaelke, IGSD, Institute for Governance and Sustainable Development

Climate Governance Brief August 2009 www.igsd.org

Sustaining 1.3 billion people in the river basins
Impacting on food and energy production of 3b people



Himalayan glaciers are sources of freshwater reserves which provide headwaters for major river systems in Asia – a lifeline for almost half of humanity.

THE LOSS OF THE “THIRD POLE” GLACIERS?

- 22% of humanity rely on summer melt water from the Hindu Kush / Himalayan / Tibet glaciers
- The great rivers of Asia:
Yangtze-Brahmaputra-Ganges-Huang Ho-Indus-Mekong-Salween
- Flooding as the glacial dams burst
- Loss of summer melt water
- Loss of hydro-electric power schemes
- Changes to the Monsoon? Earthquakes? Extra sea level rise
- Damage to Tibetan permafrost

THE MILITARY IMPLICATIONS

- Unrest in rural China
 - political stability of China
- Afghanistan & Pakistan
 - impact on existing wars
- India & Bangladesh
 - displacement & migration
- The diversion of the Brahmaputra
 - a casus belli?

WHEN?

- By 2050? By 2035? By 2020?
- The political impact can be delayed by denial
 - but the military may want to apply the precautionary principle!

Climate Change and the Military
MILITARY ADVISORY COUNCIL



First Statement of the Military Advisory Council

The Military Advisory Council of the Climate Change and the Military project, having met in Brussels and Bonn from 7th to 12th October 2009 to assess developments and challenges related to climate change and security, offer the following views to the Parties and Governments of the United Nations Framework Convention on Climate Change (UNFCCC).

Noting that the understanding of climate change and its impact on security is growing amongst a wide and diverse audience;

Noting the continuing contribution to environmental security made by many military authorities and scholars, including their role in analysing global environmental change and their actions in responding to the consequences of climate change;

Noting that the military is a large emitter of greenhouse gases, and further noting its application of technology to promote energy efficiency and lower carbon emissions; and

Believing that incremental, and at times abrupt, climate change is resulting in an unprecedented scale of human misery, loss of biodiversity and damage to infrastructure with consequential security implications that need to be addressed urgently;

Believing that failure to recognise the conflict and instability implications of climate change, and to invest in a range of preventative and adaptive actions will be very costly in terms of destabilising nations, causing human suffering, retarding development and providing the required military response;

Believing therefore that climate change creates a common security problem that requires global and comprehensive co-operation;

Believing that the military community should contribute to the global process of constructing policy responses to climate change that are strong enough to avoid the risks of such future instability;

Believing that if the COP15 fails to deliver an effective and institutionally robust climate protection system, preserving security and stability even at current levels will become increasingly difficult;

The Military Advisory Council, therefore:

1. **Calls** on all governments to work for an ambitious and equitable international agreement on climate in Copenhagen at the COP 15;
2. **Calls** on all governments to ensure that the security implications of climate change are integrated into their respective military strategies; and
3. **Calls** upon the military to be part of the solution by reducing its own carbon “footprint.”

On behalf of the CCTM Military Advisory Council and the Institute for Environmental Security:



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Chairman, Military Advisory Council / Project
Director, Climate Change & Security, Centre for Air
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The views expressed are those of the members of the Military Advisory Council in their individual capacities and not necessarily the views of their respective organisations or governments.

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MILITARY ADVISORY COUNCIL



Chairman

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Cheikh Ould Ahmed, Head of Fishery Surveillance, Ministry of Fisheries / Former Director of the Navy, Mauritania

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Lt Gen (ret) **Bala Nanda Sharma**, Nepal

Maj Gen (ret) **Joseph G. Singh**, Former Chief of Staff, Guyana Defence Force, Guyana

Maj (CIMIC) **Piet Wit**, Dutch Army, The Netherlands

WHAT IS TO BE DONE?

- Black Carbon
- Biochar
- Open discussion

BLACK CARBON

“It causes warming in two ways. First, Black Carbon in the atmosphere absorbs solar radiation, which heats the surrounding air; second, surface deposition of airborne Black Carbon can darken snow and ice and accelerate melting. In the Himalayan region, Ramanathan and Carmichael estimate that solar heating from Black Carbon at high elevations may be as important as CO₂ for melting snow and ice. Their model simulations indicate that approximately 0.6°C of the 1°C warming in the Tibetan Himalayas since the 1950s may be due to atmospheric Black Carbon.”

Ramanathan V, Carmichael G, “Global and regional climate changes due to black carbon”, NATURE GEOSCIENCE Volume 1, pp. 221–227, 2008.

BLACK CARBON II

Black Carbon is as important as CO₂ in driving the warming of the
Third Pole

*Mario Molina, Durwood Zaelke, K. Madhava Sarma, Stephen O. Andersen,
Veerabhadran Ramanathan, and Donald Kaniaru, "Reducing abrupt climate change
risk using the Montreal Protocol and other regulatory actions to complement cuts in
CO₂ emissions", Proceedings of the National Academy of Science USA, forthcoming
in November 2009*

BIOCHAR

- Biochar is charcoal created by pyrolysis of biomass. Its production yields bio-gas, bio-fuel and residual carbon granules that can be used as a soil improver
- Biochar application to soil improves water retention and can replace some nitrogen fertilisers
- Soil improved by biochar - *Terra Preta de Indio* - was developed in the Pre-Colombian Amazon

MITIGATION, ADAPTATION - RESTORATION

“Biochar may represent the single most important initiative for humanity’s environmental future”

Professor Tim Flannery

THE FOUR ELEMENTS

- **Air** – Mitigation has been about the atmosphere
- **Water** – Adaptation is about water stress
- **Earth** – to restore balance we need to concentrate on soil
- **Fire** – if we fail, humanity faces a future of warfare

