International responses

Week 12 of POLS3033 Environment, Human Security and Conflict

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Image source: https://imaggeo.egu.eu/view/11875/

OUR OCEAN
PALAU, 7-8 DECEMBER 2020

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Welcome to Our Ocean 2020

Palau, 7-8 December 2020

Our Oceans Conference
Oslo, Norway
23 October 2019

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Australia's 2017 commitments on **marine pollution**

Australia announced the update of the threat abatement plan prepared in 2009, by mid-2018 aiming at providing national guidance on specific action to prevent and mitigate the impacts of marine debris. Injury and fatality to vertebrate marine life caused by harmful marine debris was listed as a key threatening process under Australia's Environment law. The plan update addresses six objectives, including the removal of existing marine debris and the increase of public awareness of the issue.

Australia announced that its national research agency, CSIRO, is leading a project, with a budget of EUR 1.33 million (AUD 2 million), from 2017-2020. Its objective is to use field sampling and mathematical modelling to document the distribution of plastic in the ocean, on the coast and in the nearshore environment generated by 6-8 major urban centers and surrounding areas that have been identified as having significant waste mis-management or losses into the marine environment.

Australia's 2017 commitments on **fisheries**

Australia announced EUR 2.8 million (USD 3.29 million) for a 4-year investment plan to increase capacity in Pacific island countries (PICs) to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing in the region. The Niue Treaty Subsidiary Agreement (NTSA) is a multilateral treaty to strengthen fisheries management and provide for more cost-effective and efficient maritime surveillance in the Pacific region. Currently the NTSA has ten parties and entered into force on 30 July 2014. This project will support PICs through the early technically-demanding stages of ratification and implementation of the NTSA by: (i) enhancing regional information sharing and cooperation; (ii) supporting risk-responsive tasking of assets; and (iii) increasing capacity to undertake enforcement operations.

Australia's 2017 commitments on **climate change**

Australia announced EUR 24.7 million (USD 29 million) to the Climate and Oceans Support Program in the Pacific (COSPPac), supporting Pacific Island countries to adapt and mitigate the impacts of climate variability. COSPPac is successfully building capacity in Pacific Island countries National Meteorological and Hydrological Services and relevant Lands and Survey Departments to develop and disseminate user-focused products and services that assist governments and communities to better prepare for severe climate events. The program has ensured that the Pacific regional partners are equipped for the transition and end of the current phase of COSPPac in June 2018.

Motivating question

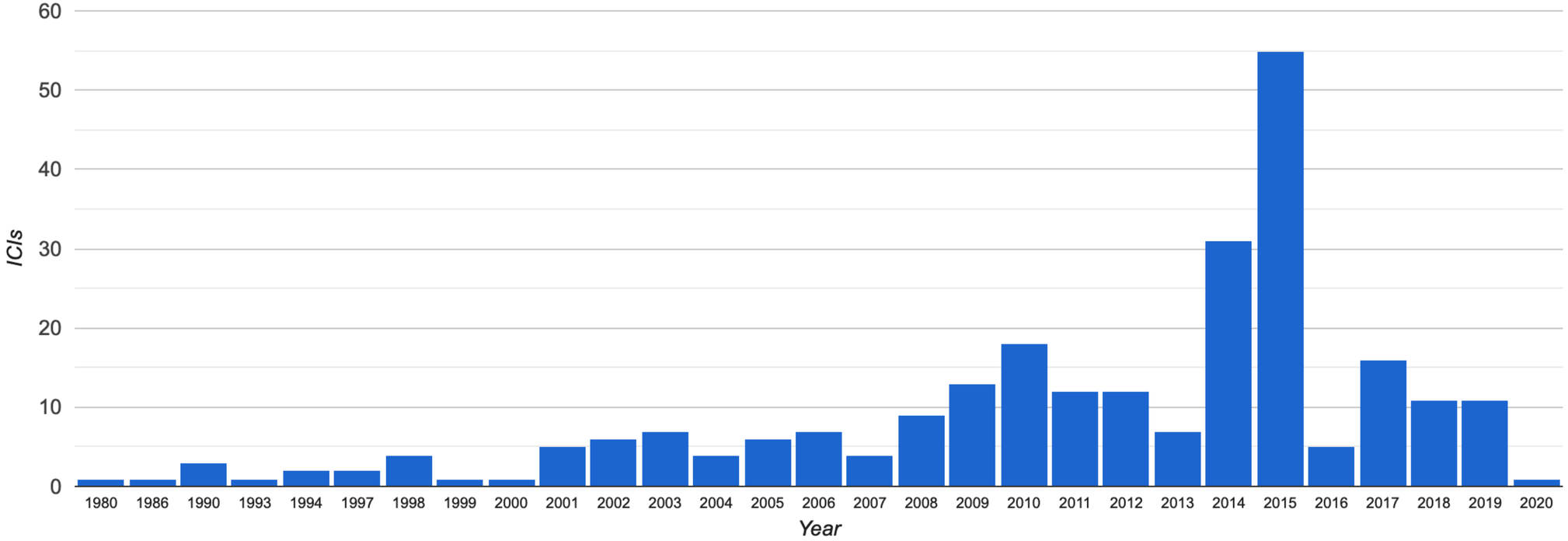
What international responses have been developed to counter the environmental, human security, and conflict challenges we have analyzed this semester?

International responses

in order of [arguable] difficulty

- Going it alone (stick with domestic mitigation and adaptation)
- Bilateral agreements/treaties
- Multilateral treaties
- International organisations/regimes
- Norms

Number of climate initiatives launched per year



Source: http://climateinitiativesplatform.org/index.php/ICI_Analysis

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II. Defining our terms, areas for cooperation, and challenges

Image source: https://www.britannica.com/topic/Intergovernmental-Panel-on-Climate-Change

International responses

Given the environmental changes we are now seeing, there are an increasing number of domestic and international responses.

Last week we focused on domestic responses, including by nations' militaries.

This week we turn to international efforts at increasing coordination in this area.

Domestic responses redux

Climate change and environmental scarcity can have an interactive effect on pressures on vulnerable populations and state capacity to respond to these pressures.

Mitigation—Efforts to reduce or prevent an undesirable outcome.

Adaptation—Adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change

Risk—A function of the (potential) impact of an event and the likelihood of it occurring.

Vulnerability—usually understood as a function of exposure to change, sensitivity to change and a community's capacity to adapt to change.

International responses

in order of [arguable] difficulty

- Going it alone (stick with domestic mitigation and adaptation)
- Bilateral agreements/treaties
- Multilateral treaties
- International organisations/regimes
- Norms

International challenges to cooperation

The tragedy of the common—Actors have incentives to benefit from common resources without spending costs to enforce long-term sustainability of these resources

The **number of actors** is often large and as a result there are large numbers of **veto players**.

The **changing distribution of power** and capability in international politics and economics

Domestic challenges to cooperation

Domestic incentives to either avoid agreements or avoid domestic enforcement of them.

- See the limited emissions effects of the 1994 Kyoto Protocol.
- Additionally see the widespread cheating surrounding OPEC's limitations on oil exports by member states
- More recently South Africa and Burundi have withdrawn from the International Criminal Court.

One of the most challenging areas for at international cooperation is that to tackle climate change…especially as witnessed in the efforts of the IPCC.

What is the IPCC?

II. Defining our terms, areas for cooperation, and challenges

Image source: https://www.britannica.com/topic/Intergovernmental-Panel-on-Climate-Change

III. The Intergovernmental Panel on Climate Change

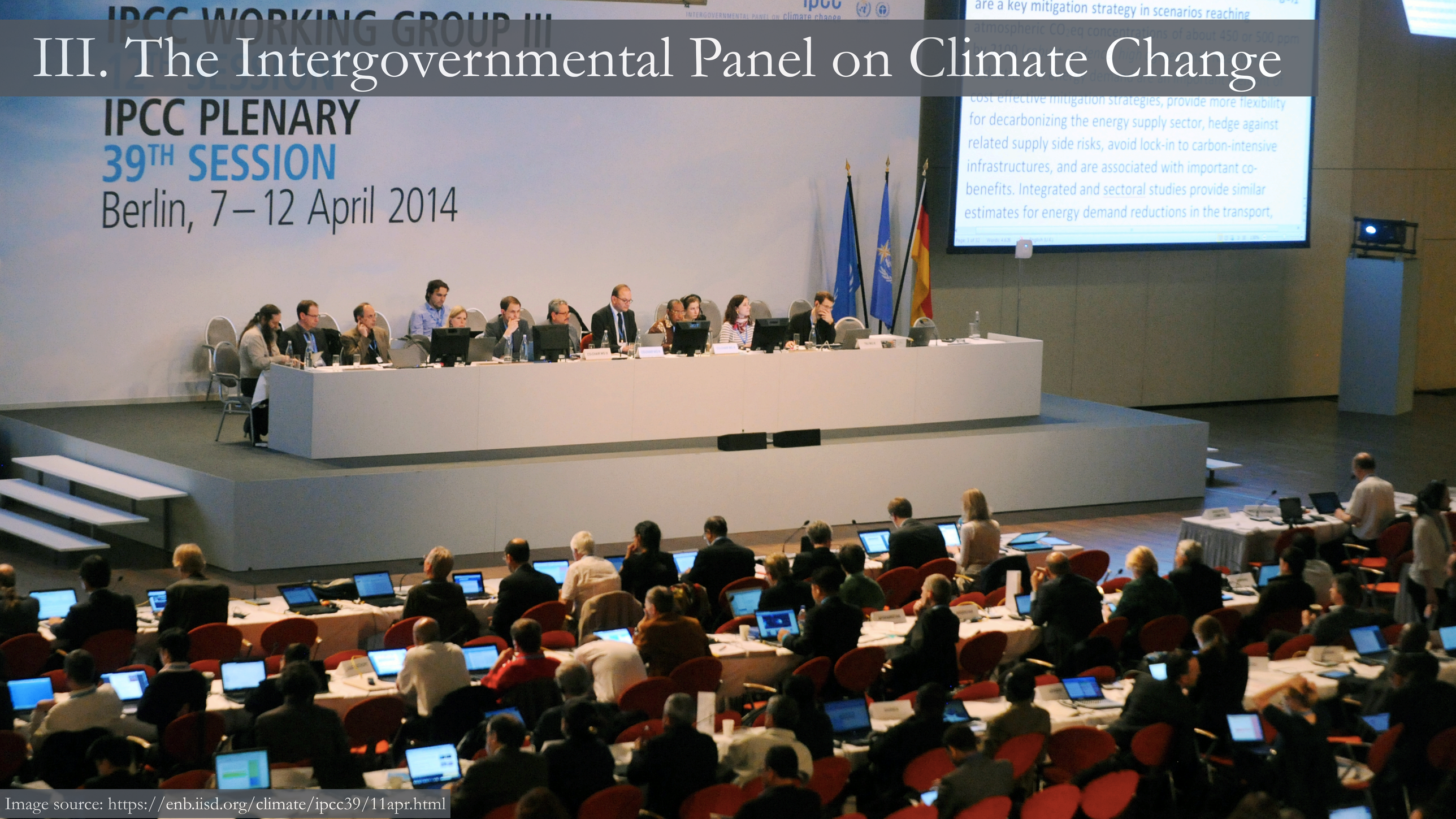


Image source: https://enb.iisd.org/climate/ipcc39/11apr.html

The Intergovernmental Panel on Climate Change (IPCC)

- It was **created in 1988** as a sub-organization of the World Meteorological Organization and United Nations

- Its task was to "provide the world with a clear scientific view on the **current state of knowledge** in climate change and its potential environmental and socioeconomic impacts" IPCC, quoted in Gleditsch and Nordås (2014: 83)

- **195 current members** (all members of the WMO and UN are eligible)

The IPCC's research approach

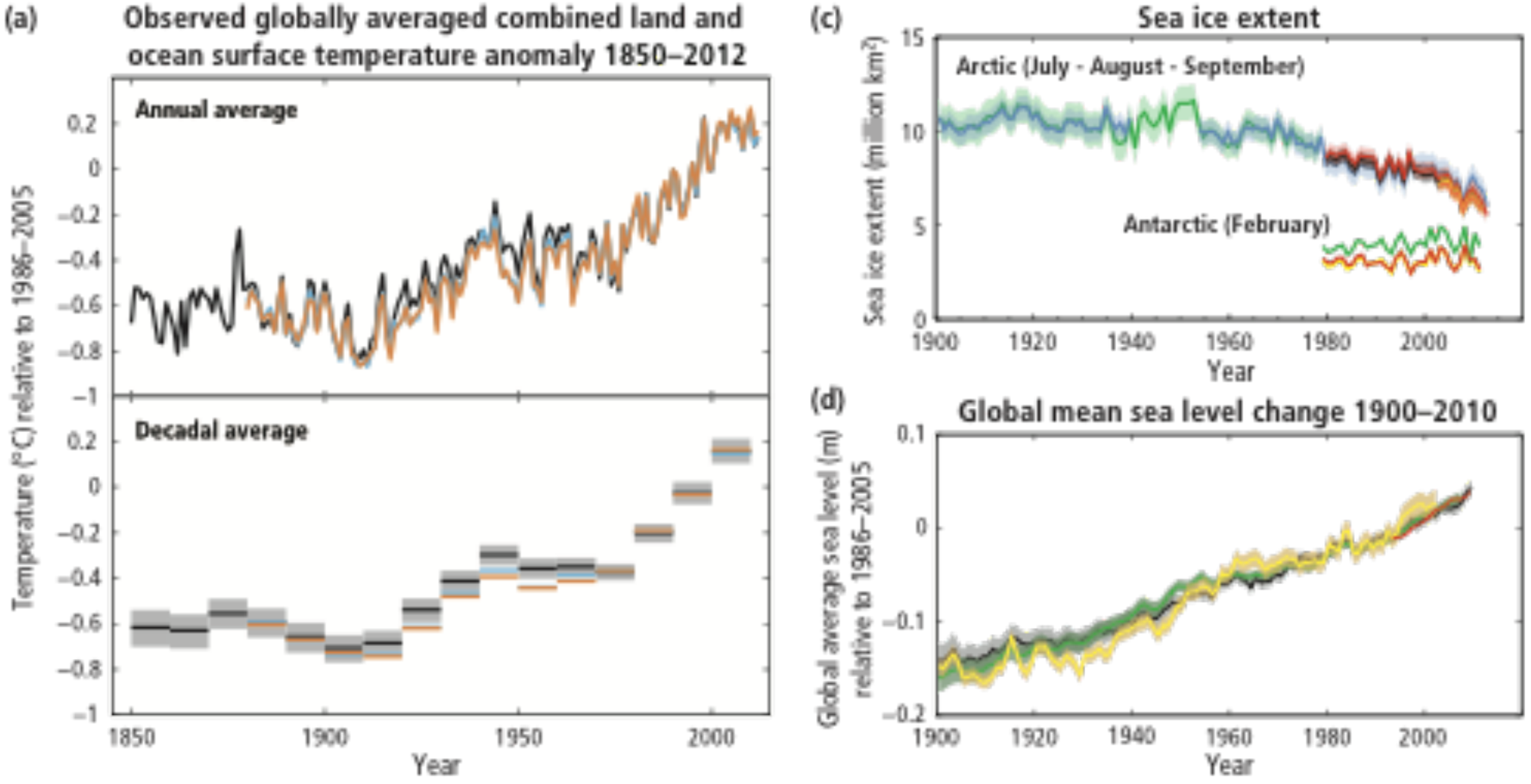
- It **summarizes literature** and evaluates its own reports through a **non-blind review process** and without a blind scholar selection process.
  - What **possible biases** might this include in the process?
- Did you notice the **research methodology** for this chapter?

Kinda looks like a literature review !

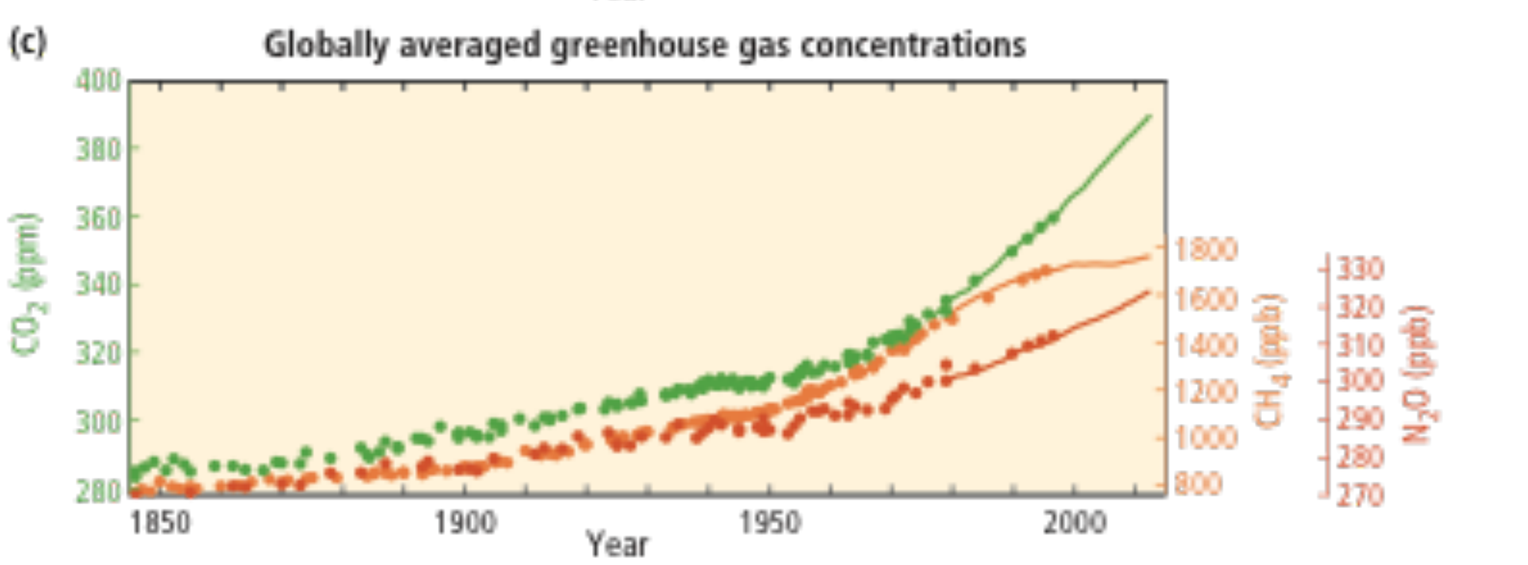
The assessment in this chapter is based on structured reviews of scientific literature. These were carried out first using searches of scientific databases of relevant studies published from 2000 until 2013, with searches targeted at the core dimensions of culture, indigenous peoples, traditional knowledge, migration, conflict, and transboundary resources. These searches were supplemented by open searches to capture book and other non-journal literature. The comprehensive review in this chapter reflects the dominant findings from the scientific literature that the impacts of climate change on livelihoods, cultures, migration, and conflict are negative, but that some dimensions of human security are less sensitive to climate change and driven by economic and social forces.

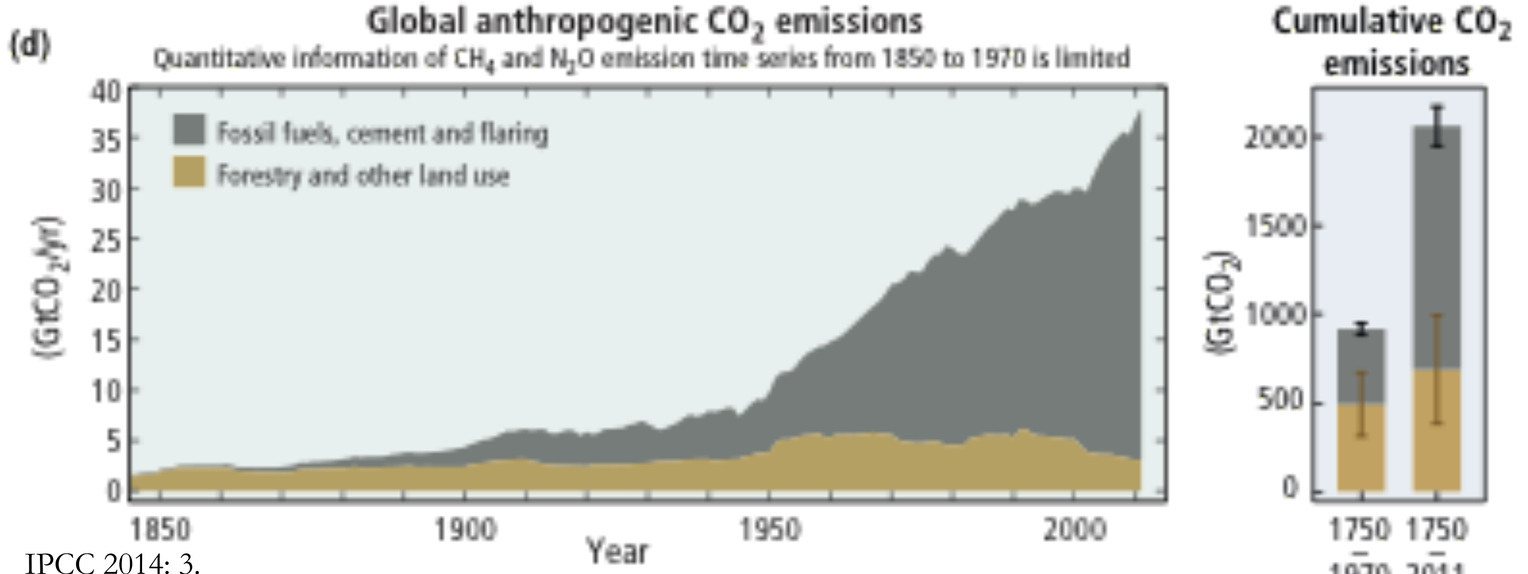
Source Adger 2014: 759

The IPCC 2014 report (part of which we read for this week) received widespread attention in large part because of the graphs on this and the next page.



Source: IPCC 2014: 41


(c)
Globally averaged greenhouse gas concentrations
CO_2 (ppm)
CH_4 (ppb)
N_2O (ppb)
Year


(d)
Global anthropogenic CO_2 emissions
Quantitative information of CH_4 and N_2O emission time series from 1850 to 1970 is limited
Fossil fuels, cement and flaring
Forestry and other land use
$(GtCO_2/yr)$
Year

Cumulative CO_2 emissions
$(GtCO_2)$
1750 – 1970
1750 – 2011

IPCC 2014: 3.

The 2014 chapter on **human security** in IPCC's AR5 report

Their main conclusion is that climate change threatens human security by:

- Undermining **livelihoods**
- Compromising **culture** and **identity**
- Increasing **migration**
- Challenges to states' **capacity** to respond to citizens changing needs

Effects on **livelihoods**, summarised

Table 12-1 | Illustrative examples of impacts of climate variability and change on immediate basic needs and longer term capabilities and assets from observational studies and from projections.

Dimensions of impact		Illustrative examples of observed impacts due to aggravating climate stresses	Illustrative examples of potential changes in livelihoods and capabilities as a consequence of climate variability and climate change
Deprivation of basic needs	Livelihood assets	Household assets such as livestock sold or lost during drought: documented examples are the 1999–2000 drought, Ethiopia, and 1999–2004 drought, Afghanistan (Carter et al., 2007; de Weijer 2007). Riverbank erosion, floods, and groundwater depletion and salinization are associated with changed hydrological regimes and cause loss of agricultural land (Paul and Routray, 2010; Taylor et al., 2013).	Simulated future climate volatility leads to reduced future production of staple grains and increases in poverty (Ahmed et al., 2009). Changes in the viability of livestock feed crops have an impact on smallholder farmers: maize yields are projected to decline in many regions (Jones and Thornton, 2003; Section 7.4). Projections of land loss, riverbank erosion, and groundwater depletion, in combination with environmental change and human interventions, suggest future stress on livelihood assets (Le et al., 2007; Taylor et al., 2013).
	Water stress and scarcity	Glacier retreat leads to lower river flows and hence affects water stress and livelihoods, representing a cultural loss (Orlove et al., 2008). For example, glacier recession in the Cordillera Blanca in Peru has altered the hydrological regime with implications for local livelihoods and water availability downstream (Mark et al., 2010).	Projected stresses to water availability show increased populations without sustainable access to safe drinking water (Hadipuro, 2007). Projected reduction in glacier extent and the associated loss of a hydrological buffer is expected to increase (Vuille, 2008; Section 3.4.4).
	Loss of property and residence	Floods destroy shelter and properties and curtail ability to meet basic needs. For example, the Fiji flood in 2009 resulted in economic losses of F$24 million affecting at least 15% of farm households (Lal, 2010). Sea level rise and increased frequency of extreme events increases the risk of loss of lives, homes, and properties and damages infrastructure and transport systems (Adrianto and Matsuda, 2002; Suarez et al., 2005; Philips and Jones, 2006; Ashton et al., 2008; Von Storch et al., 2008).	Changes in flood risk may increase and cause economic damages: in the Netherlands, the total amount of urban area that can potentially be flooded has increased sixfold during the 20th century and may double again during the 21st century (de Moel et al., 2011). In England and Wales, projected changes in flood risk mean economic damages may increase up to 20 times by the 2080s (Hall et al., 2003).
Erosion of livelihood and human capabilities	Agriculture and food security	Interaction of climate change with poverty and other political, social, institutional, and environmental factors may adversely affect agriculture production and exacerbate the problem of food insecurity (Downing, 2002; Saldana-Zorrilla, 2008; Trotman et al., 2009). Examples include in Kenya (Oluoko-Odingo, 2011); in Southern Africa (Drimie and Gillespie, 2010); in Zimbabwe and Zambia (Mubaya et al., 2012).	Studies of African agriculture using diverse climate scenarios indicate increasing temperature and rainfall variation have negative impacts on crops and livestock production and lead to increased poverty, vulnerability, and loss of livelihoods. Examples include Ethiopia (Deressa and Hassan, 2009); Kenya (Kabubo-Mariara, 2009); Burkina Faso, Egypt, Kenya, and South Africa (Molua et al., 2010); and sub-Saharan Africa (Jones and Thornton, 2009). Potential livelihood insecurity among small-scale rain-fed maize farmers in Mexico is projected owing to potential loss of traditional seed sources in periods of climate stress (Bellona et al., 2011).
	Human capital (health, education, loss of lives)	Food shortage, absence of safe and reliable access to clean water and good sanitary conditions, and destruction of shelters and displacements all have a negative bearing on human health (Costello et al., 2009; Sections 11.4 and 11.8). Droughts and floods can intensify the pressure to transfer children to the labor market (Ethiopia and Malawi; UNDP, 2007). Indian women born during a drought or flood in the 1970s were 19% less likely to ever attend primary school, when compared with women of the same age who were not affected by natural disasters (UNDP, 2007).	Analysis of the economic and climatic impacts of three emission scenarios and three tax scenarios estimates the impacts on food productivity and malaria infection to be very severe in some Asian countries (Kainuma et al., 2004). Studies of the impacts of future floods using a combination of socioeconomic and climate change scenarios for developed countries show an increase in mortality. For example, in the Netherlands, sea level rise, combined with other factors, potentially increases the number of fatalities four times by 2040 (Maaskant et al., 2009).

Source: Adger et al. 2014: 761

Effects on **culture**, summarised

Table 12-2 | Cultural dimensions of climate science, policy, impacts, and extreme events in the context of climate change.

Core climate change dimensions	Cultural dimensions	Role in human security	Sources
Climate science and policy	Framing of climate change in a dominant language Global climate change policy implemented at international scales	How concepts and uncertainties are translated, imported, and incorporated can facilitate or hinder adaptation: *Facilitate adaptation*: available explanatory tools; successful translation of climate change impacts; awareness of culture *Hinder adaptation*: lack of trust in science and in policy; policy not recognizing the connection between nature and culture Policy and decision making that is inclusive of cultural perspectives *increases security*.	Ifejika Speranza et al. (2008); Stadel (2008); Jacka (2009); Green et al. (2010); Osbahr et al. (2010); Schroeder (2010); Gero et al. (2011); Kuruppu and Liverman (2011); Roncoli et al. (2011); Sánchez-Cortés and Chavero (2011); McNeely (2012); Rudiak-Gould (2012)
Impacts of environmental conditions, extreme events, and changing natural resource base	Elements of collective understanding such as: • Worldviews • Coupling of nature–culture • Power relations • Heterogeneity within groups and communities	*Facilitate adaptation*: New technologies; livelihood diversification and flexibility; perceptions of resilience; narratives and history about past changes and current conditions; co-management of resources increases adaptive capacity. *Hinder adaptation*: limitations of local knowledge; lack of awareness and understanding of culture constrains action; knowledge and cultural repertoire limited for responding to new challenges; perceptions of resilience Erosion of cultural core potentially *decreases human security*. Institutional responses and resource management will impact human security either negatively or positively.	Nunn (2000); Davidson et al. (2003); Desta and Coppock (2004); Ford et al. (2006, 2008); Furgal and Seguin (2006); Kesavan and Swaminathan (2006); Zamani et al. (2006); Nyong et al. (2007); Tyler et al. (2007); Angassa and Oba (2008); Burningham et al. (2008); Crate (2008); de Sherbinin et al. (2008); King (2008); Gregory and Trousdale (2009); Jacka (2009); Pearce et al. (2009); Berkes and Armitage (2010); Dumaru (2010); Fazey et al. (2010); Hovelsrud and Smit (2010); Hovelsrud et al. (2010a,b); Kalikoski et al. (2010); Kuhlicke (2010); Lefale (2010); Nielsen and Reenberg (2010); Osbahr et al. (2010); Rybråten and Hovelsrud (2010); Valdivia et al. (2010); West and Hovelsrud (2010); Armitage et al. (2011); Gero et al. (2011); Harries and Penning-Rowsell (2011); Kuruppu and Liverman (2011); Marshall (2011); Onta and Resurrection (2011); Roncoli et al. (2011); Adler et al. (2012); Anik and Khan (2012); Eakin et al. (2012); Ford and Goldhar (2012); Gómez-Baggethun et al. (2012); McNeeley (2012); Nursey-Bray et al. (2012); Rudiak-Gould (2012); Sudmeier-Riuex et al. (2012)
Scientific observations, monitoring, models, projections, scenarios	Local, traditional, and indigenous knowledge through observations and experience	*Facilitate adaptation*: mutual integration of traditional, local, and scientific knowledge; climate projections with local relevance; intergenerational knowledge transfers Local knowledge included in climate policy and decision making *increases human security*. Knowledge not included in adaptation planning *decreases human security*.	Orlove et al. (2000, 2010); Ingram et al. (2002); Tàbara et al. (2003); Alcántara-Ayala et al. (2004); Roncoli (2006); Anderson et al. (2007); Forbes (2007); Nyong et al. (2007); Tyler et al. (2007); Vogel et al. (2007); Catto and Parewick (2008); Marfai et al. (2008); Mercer et al. (2009); Pearce et al. (2009); Burns et al. (2010); Frazier et al. (2010); Gearheard et al. (2010); Hovelsrud and Smit (2010); Marin (2010); Mark et al. (2010); Smit et al. (2010); Flint et al. (2011); Huntington (2011); Kalanda-Joshua et al. (2011); Ravera et al. (2011); Sánchez-Cortés and Chavero (2011); Dannevig et al. (2012); Eira et al. (2013)

Source: Adger et al. 2014: 761

Table 12-3 | Empirical evidence on observed or projected mobility outcomes (migration, immobility, or displacement) associated with weather-related extremes or impacts of longer-term climate change.

Type of impact or extreme	Change in migration trend or flow	Region	Impact on migration, by type of short-term event and long-term change	Source
Drought and land degradation	Evidence for increased mobility or increased displacement	Ethiopia	Outmigration of household heads due to drought-related famine. Different coping strategies lead to variations in the timing of migration.	Meze-Hausken (2000)
		Mexico	At the state level, a reduction in crop yields is associated with an increase in international migration to the United States.	Feng et al. (2010)
		Western Sahara	Environmental factors influenced decisions to migrate internationally from refugee camps.	Gila et al. (2011)
		Kenya	Households farming high-quality soil are less likely to migrate, especially for temporary labor; soil degradation therefore causes increased outmigration.	Gray (2011)
		India	Temporary migration is identified as "the most important" coping strategy in times of drought in rural villages.	Jülich (2011)
		Canada	Higher population loss was associated with settlements containing areas of poorer quality agricultural soils during droughts of 1930s.	McLeman and Ploeger (2012)
		Guatemala	Migrants to the expanding agricultural frontier commonly attributed their outmigration to soil degradation.	López-Carr (2012)
		Sahel	In three case regions, the pressure to migrate had significantly increased since the 1970s, with response to persistent droughts identified as a factor.	Scheffran et al. (2012b,d)
		Burkina Faso	Drier region populations were more likely to engage in rural–rural migration, both temporary and permanent, than people from regions with more rainfall. Rainfall deficits have different impacts depending on the duration and distance of the migration.	Henry et al. (2004)
		Burkina Faso[a]	Simulated scenarios of dry climate increase migration fluxes compared to wet scenarios. Highest international migrant flows are shown with the dry climate scenarios.	Kniveton et al. (2011)
	Evidence for decreased mobility	Mali	Reduced international migration occurred during the 1980s drought concurrently with an increase in localized cyclical migration.	Findley (1994)
		Nepal	Deforestation, population pressure, and agricultural decline leads to local mobility, especially among women, but no increases in internal or international migration.	Massey et al. (2010); Bohra-Mishra and Massey (2011)
		Uganda	High soil quality marginally increases migration, especially permanent non-labor migration; therefore soil degradation reduces outmigration.	Gray (2011)
	Evidence for socially differentiated mobility outcomes	United States	Dustbowl migrants from Oklahoma to California in the 1930s had different social and economic capital endowments from those who stayed within state.	McLeman and Smit (2006)
		Ecuador	Influence of natural capital on migration differed between men and women. Access to land facilitates migration in men; women are less likely to migrate from environmentally degraded areas.	Gray (2010)
		Ethiopia	Male migration increases with drought. However, marriage-related moves by women decrease with drought.	Gray and Mueller (2012)
		Burkina Faso	Labor migration became a key off-farm livelihood strategy after droughts in the 1970s for groups dependent on rain-fed agriculture.	Nielsen and Reenberg (2010)
		Mongolia	Diversity was seen in herders' mobility strategies in response to climate change. For a minority, responses entailed greater overall annual mobility. Other herding households experienced significant reductions in mobility.	Upton (2012)
Flooding	Evidence for increased mobility or increased displacement	United States	Ten counties and parishes in Louisiana, of the 77 impacted counties, experienced 82% of the total population increase in the year following Hurricane Katrina.	Frey and Singer (2006)
		Vietnam	Cumulative impacts of seasonal flooding increase outmigration rates in the Mekong Delta.	Dun (2011)
		Bangladesh	22% of households affected by tidal-surge floods, and 16% affected by riverbank erosion, moved to urban areas.	Foresight (2011)
	Evidence for decreased mobility or trapped populations	Bangladesh	No outmigration was detected after 2004 tornado in Bangladesh as a result of the effective distribution of disaster aid.	Paul (2005)
		Senegal	More than 40% of new migrant populations located in high risk flood zones in Dakar.	Foresight (2011)
	Evidence for socially differentiated mobility outcomes	United States	Emergency evacuation responses and return migration after Hurricane Katrina were highly differentiated by income, race, class, and ethnicity.	Elliott and Pais (2006); Falk et al. (2006); Landry et al. (2007)
		Bangladesh	Wide variation seen among groups in attitudes toward, and capabilities for, migration as an adaptation to the impact of cyclone Aila.	Kartiki (2011)

Effects on **migration**, summarised

Effects on **migration**, summarised

Type of impact or extreme	Change in migration trend or flow	Region	Impact on migration, by type of short-term event and long-term change	Source
Sea level rise	Evidence for increased mobility or increased displacement	United States	Relative sea level rise caused island depopulation in Maryland. Final abandonment was a result of the population falling below the threshold required to support local services.	Arenstam Gibbons and Nicholls (2006)
			Coastal villages in Alaska are affected by sea level rise and coastal erosion to the point where resettlement is the only viable adaptation.	Bronen (2010); Oliver-Smith (2011); Marino (2012)
		United States[a]	The impact of future sea level rise is projected to extend beyond the inundated counties through migration networks that link inland and coastal areas and their populations.	Curtis and Schneider (2011)
		Vanuatu	Contemporary example of whole village displacement was associated with inundation, both from sea level rise and tectonic movement on Torres Islands.	Ballu et al. (2011)
		Papua New Guinea	Communities on Bougainville are considering resettlement to the main island due to coastal erosion, land loss, saltwater inundation, and food insecurity.	Oliver-Smith (2011)
	Evidence for decreased mobility or lower migration	Tuvalu	On the island of Funafuti, surveyed residents emphasize place attachment as reasons for not migrating, and do not cite climate change as a reason to migrate.	Mortreux and Barnett (2009)

Note: [a]Study based on simulations or projections.

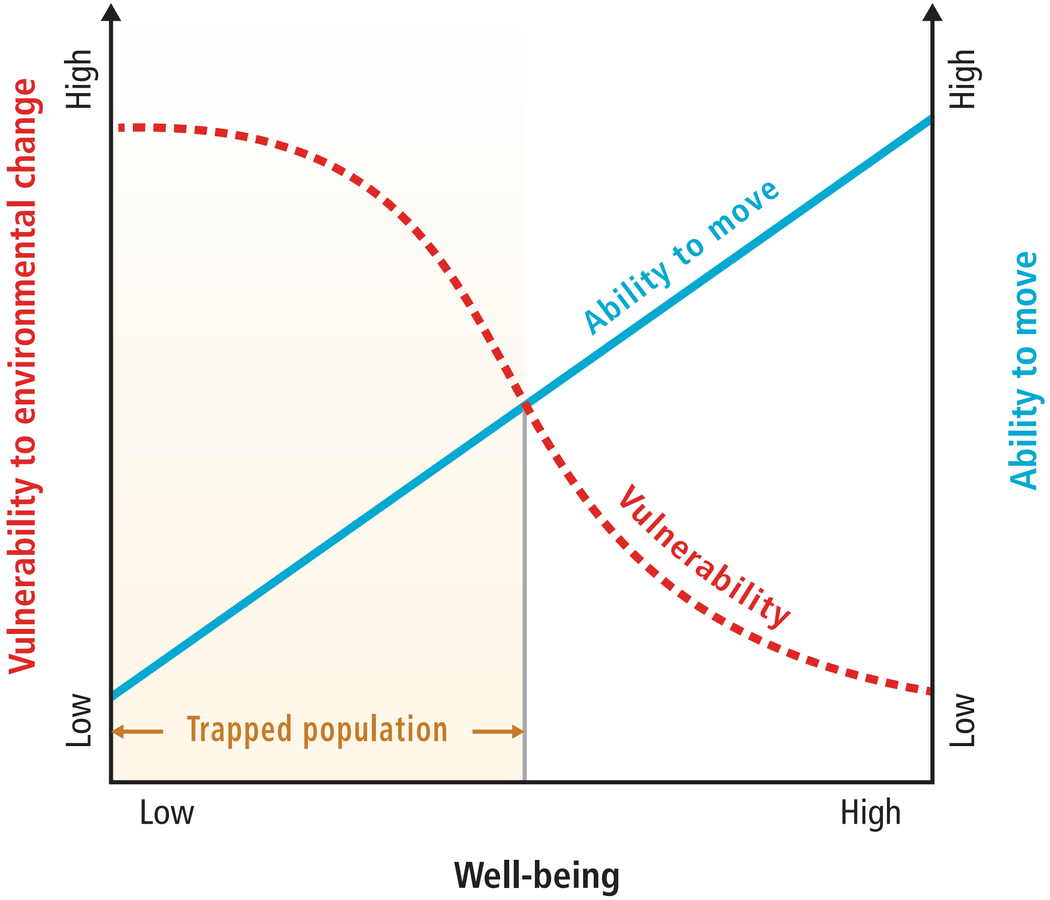


Figure 12-1 | Relationship between vulnerability to environmental change and mobility showing that populations most exposed and vulnerable to the impacts of climate change may have least ability to migrate (adapted from Foresight, 2011; Black et al., 2013).

Other threats of climate change according to the IPCC

- Cultural **values**
- **Indigenous** or local forms of **knowledge** might be lost but also helpful when looking to adapt.
- **Migration** and mobility are adaptation strategies
  - There are clear gender differences in the effects of migration.
- Some causes of **violent conflict** are also affected by climate change.

Adaptation strategies

- **Diversification** of sources of **income** in agricultural and fishing systems
- **Migration** as risk management
- **Insurance** systems for vulnerable groups
- Adapting **consumption** patterns.
  - All consumption patterns are culturally embedded (Adger et al. 2014: 764)

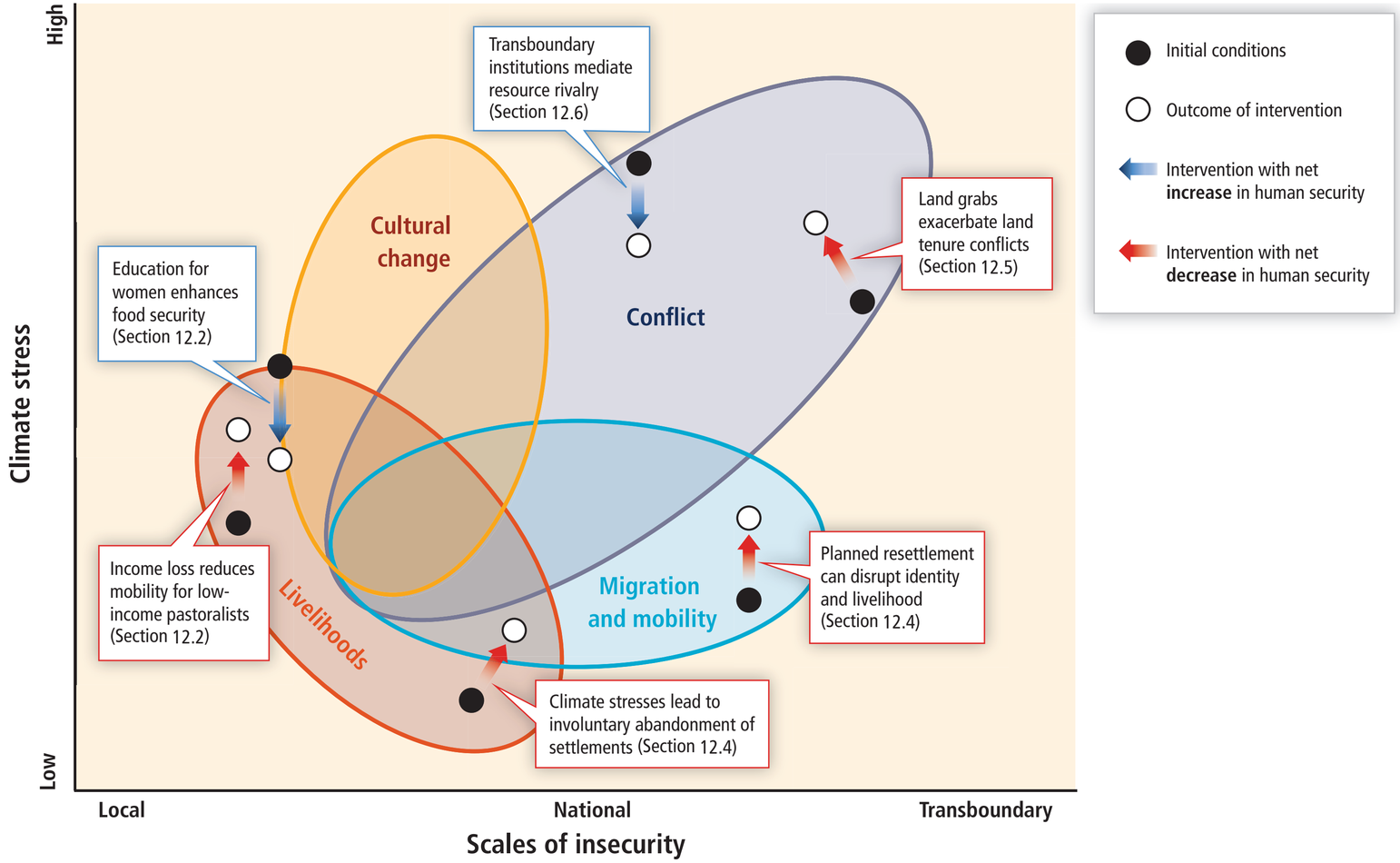
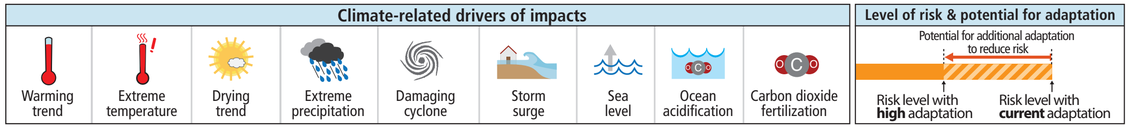


Figure 12-3 | Synthesis of evidence on the impacts of climate change on elements of human security and the interactions between livelihoods, conflict, culture, and migration. Interventions and policies indicated by difference between initial conditions (solid black) and outcome of intervention (white circles). Some interventions (blue arrows) show net increase human security while others (red arrows) lead to net decrease in human security.

Source: Adger et al. 2014: 777.

Table 12-4 | Examples of important risks from climate change for elements of human security and the potential for risk reduction through mitigation and adaptation. These risks are identified based on this chapter assessment and expert judgments of the authors, with supporting evaluation of evidence and agreement in the relevant chapter sections. Each risk is characterized as *very low, low, medium, high*, or *very high*. Risk levels are presented for the near-term era of committed climate change (here, for 2030–2040), in which projected levels of global mean temperature increase do not diverge substantially across emissions scenarios. Risk levels are also presented for the longer-term era of climate options (here, for 2080–2100), for global mean temperature increase of 2°C and 4°C above pre-industrial levels. For each time frame, risk levels are estimated for the current state of adaptation and for a hypothetical highly adapted state. Relevant climate variables are indicated by symbols. As the assessment considers potential impacts on diverse and incompatible elements and systems, risk levels should not be used to evaluate relative risk between the rows.



Key risk	Adaptation issues & prospects	Climatic drivers	Timeframe	Risk & potential for adaptation
Displacement associated with extreme events (*high confidence*) [12.4.1]	Adaptation to extreme events is well understood but poorly implemented even under present climate conditions. Displacement and involuntary migration are often temporary. With increasing climate risks, displacement is more likely to involve permanent migration.		Present Near term (2030 – 2040) Long term (2080 – 2100) 2°C 4°C	Very low / Medium / Very high
Loss of land, cultural and natural heritage disrupting cultural practices embedded in livelihoods and expressed in narratives, world views, identity, community cohesion, and sense of place (*high confidence*) [12.3.2, 12.3.4]	Cultural values and expressions are dynamic and inherently adaptable and hence adaptation is possible to avoid losses of cultural assets and expressions. Nevertheless cultural integrity will be compromised in these circumstances.		Present Near term (2030 – 2040) Long term (2080 – 2100) 2°C 4°C	Very low / Medium / Very high
Violent conflict arising from deterioration in resource dependent livelihoods such as agriculture and pastoralism (*high confidence*) [12.5.1]	Adaptation options: Buffering rural incomes against climate shocks, e.g., through livelihood diversification, income transfers, and social safety net provision; Early warning mechanisms to promote effective risk reduction; Well-established strategies for managing violent conflict that are effective but require significant resources, investment, and political will.		Present Near term (2030 – 2040) Long term (2080 – 2100) 2°C 4°C	Very low / Medium / Very high
Geopolitical competition over access to Arctic resources that escalates into dangerous tensions and crises (*high confidence*) [12.6.2]	There are international organizations and elements of international law that regulate competition and access and provide mechanisms for resolving disputes. There are strong transnational networks that are relevant for joint problem solving. Hence adaptation action has significant potential to reduce risks associated with geopolitical rivalry.		Present Near term (2030 – 2040) Long term (2080 – 2100) 2°C 4°C	Very low / Medium / Very high
New or exacerbated conflict through land acquisition for climate change mitigation and adaptation (*medium confidence*) [12.5.2]	Climate change mitigation (e.g., expansion of biofuel production area) and adaptation action (e.g., set-back of coastal land) can exacerbate conflicts when they are already manifest around land and water availability and scarcity. The extent of insecurity and instability from such mitigation and adaptation activities depends on the displacement of populations and the inclusiveness of the planning processes. Careful planning processes can therefore be used to ameliorate the risk of conflict	*Cumulative climate risks act as incentives for mitigation and adaptation action*	Present Near term (2030 – 2040) Long term (2080 – 2100) 2°C 4°C	Very low / Medium / Very high

Climate change and conflict

We've already covered the possible **direct** and **indirect** causal links between climate change and conflict.

Most evidence suggests the links are most likely to be **indirect**, and speculative rather than empirically demonstrated.

For example, the IPCC describes the causes of **Darfur's** conflict: "All studies of this conflict agree that it is not possible to isolate any of these specific causes as being the most influential." (Adger et al. 2014: 773).

"Many of the **capabilities** required to adapt to climate change are threatened by ongoing or recent armed conflict," (Adger et al. 2014: 774)

Gleditsch & Nordås (2014) critique of the IPCC reports

The IPCC **defines human security so generally** as to make it hard to look at trends empirically.

They contrast the definition described above with one focused on the likelihood of people being the **victim of various forms of violence**—a definition that is quite narrow and conceptually clear, but think about whether it captures what you think about human security.

"There is a real danger that **any kind of social change** disliked by some group becomes a threat to someone's human security." (Gleditsch and Nordås (2014: 86)

Lecture question #1

Which of the four general ways the IPCC suggests climate change threatens human security (undermining livelihoods; compromising culture and identity; increasing migration; and challenging state capacity) do you find the most compelling? Why?

III. The Intergovernmental Panel on Climate Change

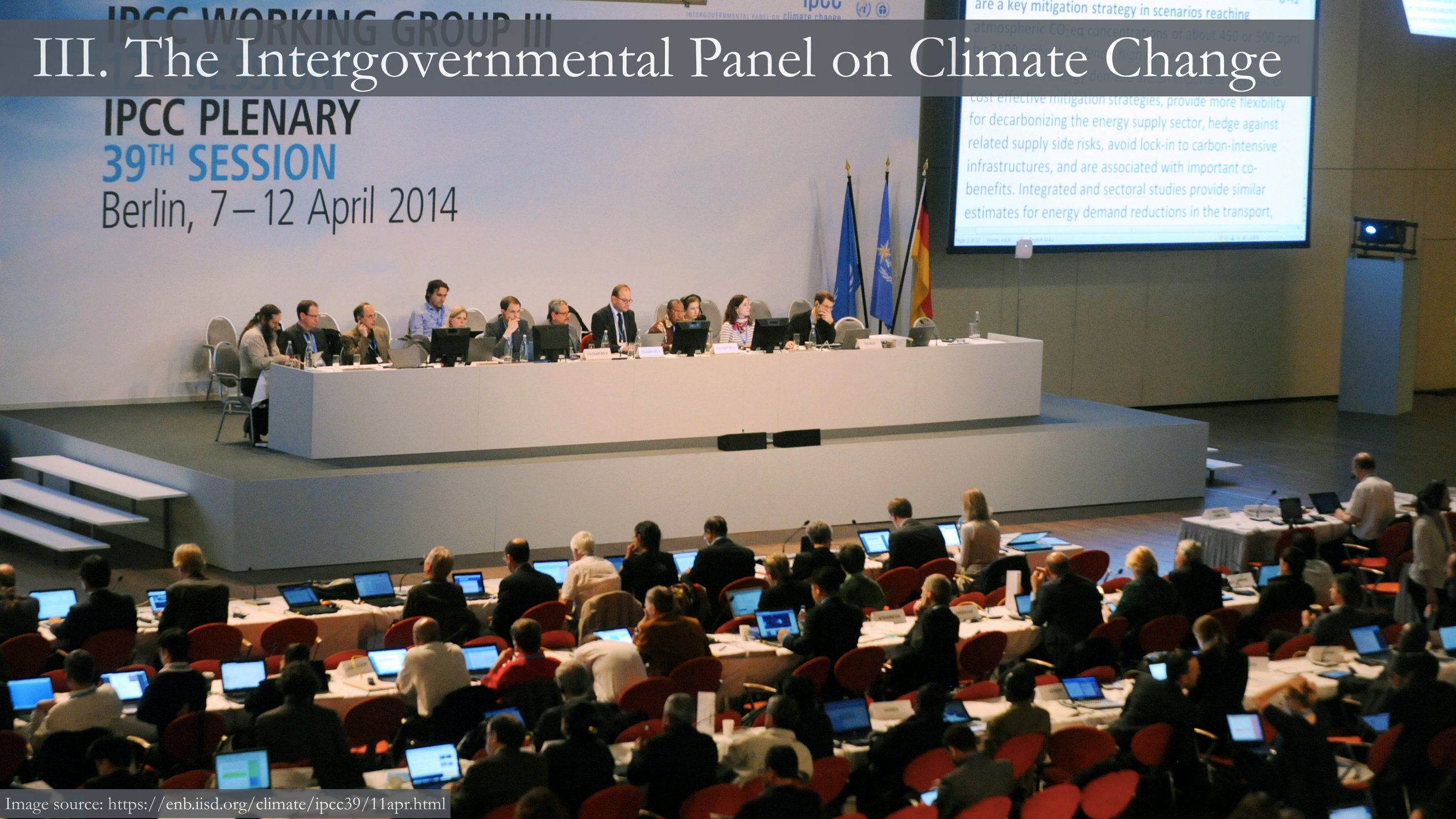


Image source: https://enb.iisd.org/climate/ipcc39/11apr.html

IV. International water resource cooperation

Image source: https://upload.wikimedia.org/wikipedia/commons/7/7e/Victoria_Falls.jpg

International water cooperation

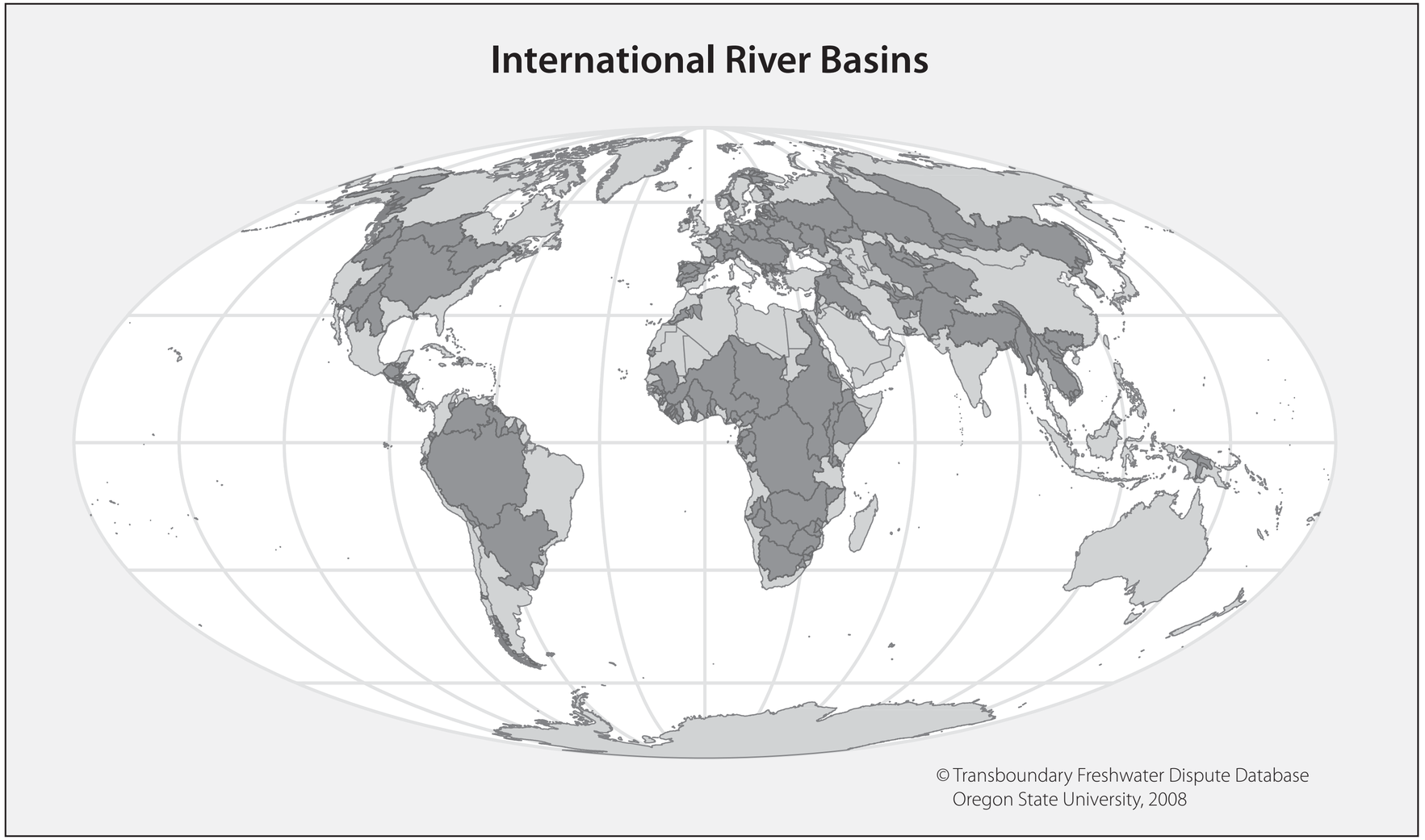
We've seen how water can be a **source of potential conflict** at the subnational and international levels.

Most evidence suggests, however, that water is **more frequently a source of cooperation**, even between countries that have gone to war on other issues, such as India and Pakistan. (Gleditsch and Nordås (2014: 84)

Scholars at Oregon State have created a **database** of all fresh-water disputes around the world (available at: http://www.transboundarywaters.orst.edu/)

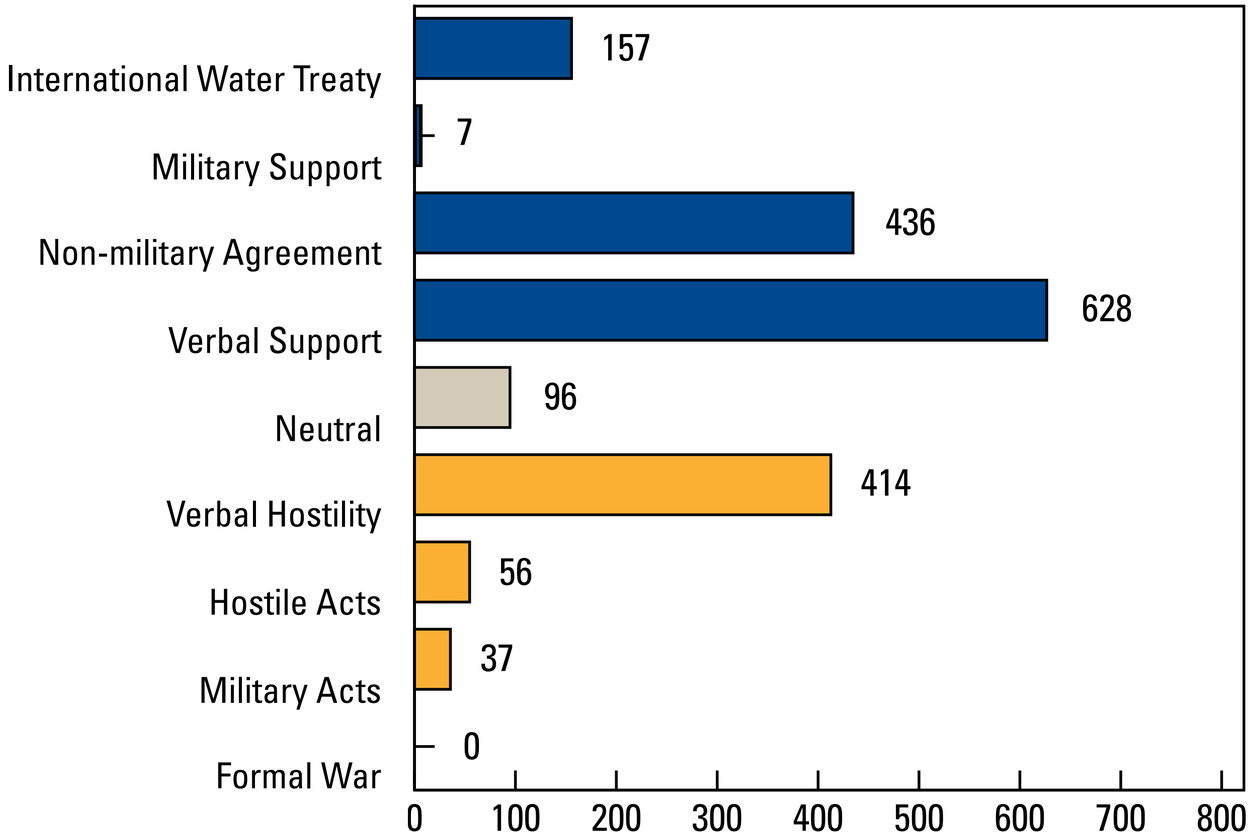
Number of Countries Sharing a River Basin

NUMBER OF COUNTRIES	INTERNATIONAL BASINS
3	Asi (Orontes), Awash, Cavally, Cestos, Chiloango, Dnieper, Dniester, Drin, Ebro, Essequibo, Gambia, Garonne, Gash, Geba, Har Us Nur, Hari (Harirud), Helmand, Hondo, Ili (Kunes He), Incomati, Irrawaddy, Juba-Shibeli, Kemi, Lake Prespa, Lake Titicaca-Poopo System, Lempa, Maputo, Maritsa, Maroni, Moa, Neretva, Ntem, Ob, Oueme, Pasvik, Red (Song Hong), Rhone, Ruvuma, Salween, Schelde, Seine, St. John, Sulak, Torne (Tornealven), Tumen, Umbeluzi, Vardar, Volga, and Zapaleri
4	Amur, Daugava, Elbe, Indus, Komoe, Lake Turkana, Limpopo, Lotagipi Swamp, Narva, Oder (Odra), Ogooue, Okavango, Orange, Po, Pu-Lun-T'o, Senegal, and Struma
5	La Plata, Neman, and Vistula (Wista)
6	Aral Sea, Ganges-Brahmaputra-Meghna, Jordan, Kura-Araks, Mekong, Tarim, Tigris and Euphrates (Shatt al Arab), and Volta
8	Amazon and Lake Chad
9	Rhine and Zambezi
10	Nile
11	Congo and Niger
17	Danube



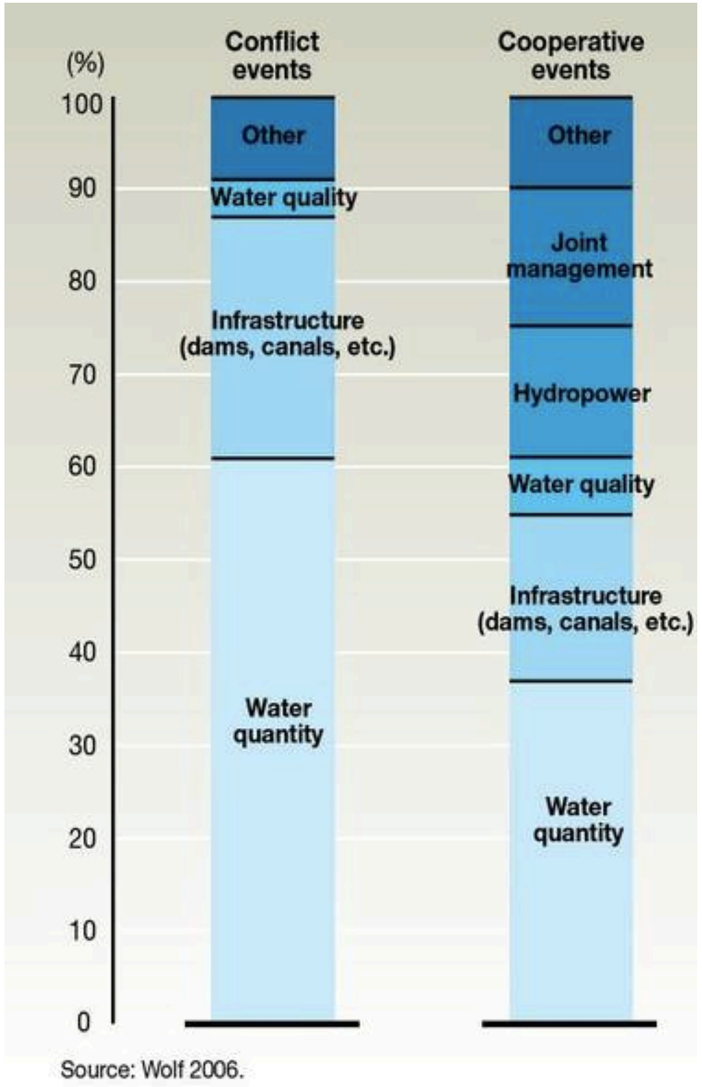
Source: Wolf, Arron T., ed. 2010. *Sharing Water, Sharing Benefits* Paris: UNESCO.

State-to-State Water Interactions in Transboundary Basins, 1946-1999



Note: The data are from "International Waters: Identifying Basins at Risk" by Aaron Wolf, Shira Yoffe, and Marc Giordano, 2003, *Water Policy 5*(1), 31-62. Adapted with permission of the author.

Source: Wolf, Arron T., ed. 2010. *Sharing Water, Sharing Benefits* Paris: UNESCO.



Source: Wolf 2006.

Lecture question #2

Why do you think cooperation is more common than conflict over shared fresh water resources?

What differences do you see between cooperating over fresh water and salt water resources?

IV. International water resource cooperation

Image source: https://upload.wikimedia.org/wikipedia/commons/7/7e/Victoria_Falls.jpg

V. International responses to a changing Arctic

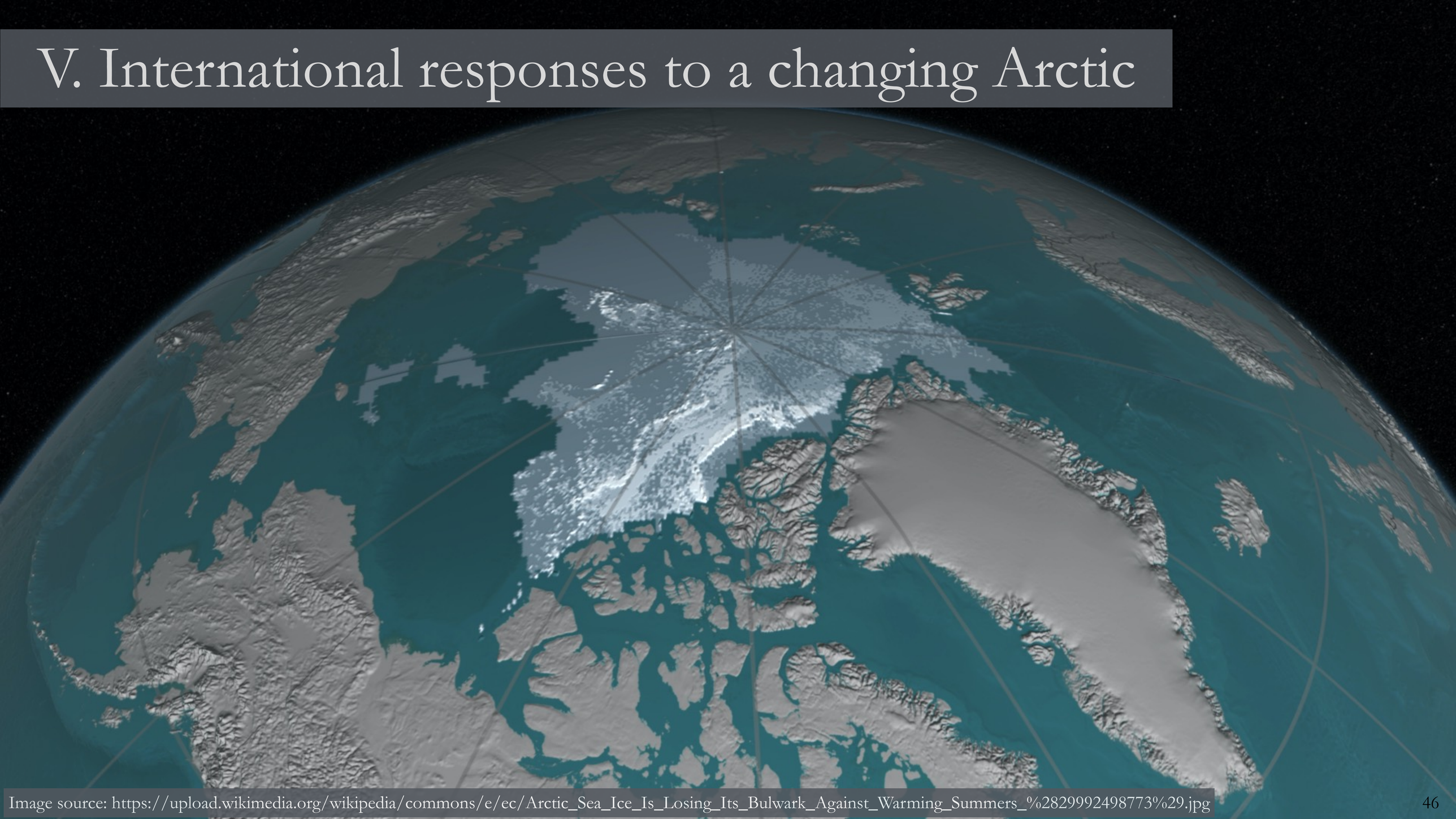


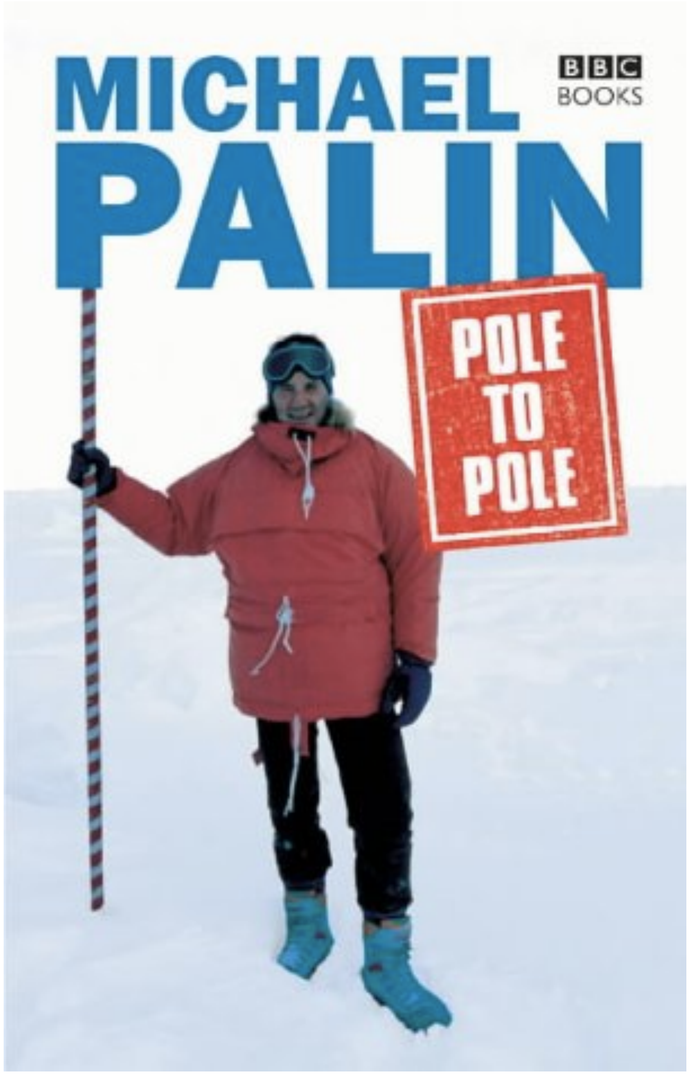
Image source: https://upload.wikimedia.org/wikipedia/commons/e/ec/Arctic_Sea_Ice_Is_Losing_Its_Bulwark_Against_Warming_Summers_%28299924987 73%29.jpg

ARCTIC REGION

Source: Ebinger & Zambetakis: 1217

The Battle for the Arctic

Monty Python's Michael Palin at the North Pole



Video of his 1990s visit at the start of a trip to the South Pole (https://youtu.be/FKvXN4baJVQ?list=PLJAGpg-vKMBziB0EIOKGqFQ-uJyaC0MMY)

On the other side of the world the US flies its flag

(The US scientific base at the South Pole)

To see how this new base was constructed see a recent National Geographic documentary (https://www.youtube.com/watch?v=7shtsbqfXk4)

The changing weather and politics of the Arctic

- Since 1980 the Arctic has been warming at about **twice as fast as the rest of the world** leading to unprecedented loss in sea ice. (Adger et al. 2014: 776)

- Overall, the consensus is that there is little **current risk of a war**, but there is much maneuvering for national security and economic and military advantage.

- The growing pace of sea ice melt leads to a number of challenges:

  - Economic
  - Military
  - Environmental
  - Technological

Uncovering new resources

- Estimates of up to **90 billion barrels of oil** in the Arctic
  - For context, Saudi Arabia's current proven reserve is 266,000 million barrels (3% of the Arctic reserves) (http://www.opec.org/opec_web/en/about_us/169.htm)
- 1,669 trillion cubic feet of **natural gas**
  - Russia currently has the world's largest proven reserves at 661 trillion cubic feet (40%)

Source for Arctic resource estimates: USGS (2009: 5931)

Environmental challenges of climate change in the Arctic

Fish stocks are moving northward into cooler waters

Animals (seals, whales) that depend on these animals also are moving north

Polar bears may become extinct in the first half of this century.

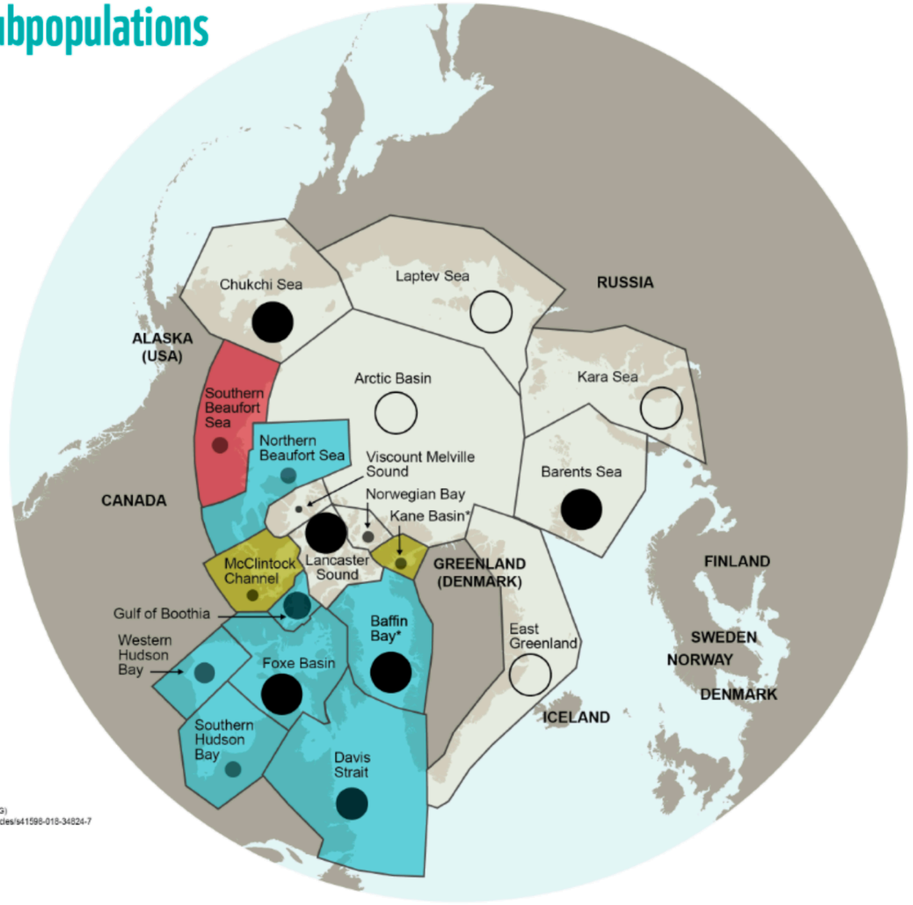
Trends in Polar Bear Subpopulations

SUBPOPULATION SIZE (Number of bears)

- < 200
- 200-500
- 500-1000
- 1000-1500
- 1500-2000
- 2000-2500
- 2500-3000
- Unknown

POPULATION TREND (2017)

- Stable
- Increasing
- Declining
- Data deficient



Produced by WWF Canada, November 2018.
Sources: IUCN/Polar Bear Specialist Group,
June 2017 (*Population trends not yet officially designated by PBSG)
Range Boundaries IUCN 2012; Chukchi population nature.com/articles/s41598-018-34824-7
Projection: North Pole Stereographic.

Population challenges

Indigenous populations also have to adapt to the changing wildlife patterns and potential economic and political changes with increased international interest.

Transportation challenges

- Some transportation challenges will become **easier** with less ice (e.g. opening of the Northwest passage)
- This will also help **avoid piracy** in other congested areas of international sea transport.
- **Tourism** will also become easier but also brings with it safety and environmental concerns
- There is still a scarcity of (very expensive and slow to build) **icebreakers.**
  - **The US (and Australia)** only has one icebreaker (each).
- There are **risks** of non-icebreaking ships being damaged with ice uncertain channels.
- **Search and rescue** capabilities will need to be enhanced in case of these risks being realised.

In 2016, Australia bought a new icebreaker

Australian Antarctic Division: Leading Australia's Antarctic Program

Home > Australia's new icebreaker

- Australia's new icebreaker
- Capability
- Specifications
- Procurement process
- News

Australia's new icebreaker

A new era of Australian Antarctic scientific endeavour and leadership

The Australian Government is delivering a new world-leading Antarctic icebreaker to replace the aging *Aurora Australis*. This once in a generation commitment is the centrepiece of the *Australian Antarctic Strategy and 20 Year Action Plan* launched on 27 April 2016. The $1.9 billion package will cover the design, build and 30 year operational and maintenance lifespan of the icebreaker, representing the single biggest investment in the history of Australia's Antarctic program.

A graphic of the new icebreaker in the ice (Image: Damen/DMS Maritime/Knud E Hansen A/S)

The icebreaker is the main lifeline to Australia's Antarctic and subantarctic research stations and the central platform of our Antarctic and Southern Ocean scientific research.

An icebreaker enables us to cross thousands of kilometres of the world's stormiest seas, navigate through Antarctica's formidable sea ice barrier, and live and work for extended periods on the coldest, driest and windiest continent on earth – some of the harshest conditions in the world.

LISTEN OCTOBER 15 2020 - 4:30AM

The only Australian-made Antarctic icebreaker Aurora Australis, built at Carrington Slipways near Newcastle, might soon leave our shores

Laura Corrigan

Editors Pick - List

AA hits fast ice off Davis V1 7 Nov 2019. PHOTO: Simon Payne AAD

The only Australian-made icebreaker might soon leave our shores.

The *RSV Aurora Australis* was Australia's Antarctic flagship for 30 years. During its service for the Australian Antarctic Division the ship conducted 150 research and supply voyages, ferrying 14,000 expeditioners.

LOCAL NEWS

1 Rutherford arrest among 44 made nationally in federal child abuse sweep

2 Every dog has its day on camera

3 'Top out' celebration for Newcastle's

Source: https://www.newcastleherald.com.au/story/6965920/whats-next-for-the-only-australian-made-icebreaker/

Australian Antarctic Division: Leading Australia's Antarctic Program

Australia's new icebreaker - RSV Nuyina

Australia's new Antarctic icebreaker, RSV *Nuyina*, is due to arrive in Hobart in 2020. It will be the main lifeline to Australia's Antarctic and sub-Antarctic research stations and the central platform of our Antarctic and Southern Ocean scientific research.


About the ship


Construction updates


News


Naming Australia's icebreaker


Virtual icebreaker videos

Construction of the ship at Damen Shipyards in Romania commenced in May 2017, with a steel cutting ceremony, while a keel laying ceremony in August saw the first building-block of the ship consolidated in the drydock. In September 2018 the ship was floated from the dry dock to the wet dock, for the next phase of construction. Construction is expected to be completed at the end of 2019. Watch fore and aft timelapse videos of the ship's construction in the drydock, on our webcam page. More information about the ship's construction is available in construction updates.

A render of the RSV Nuyina.

ANTARCTIC ICEBREAKER RSV NUYINA FEATURED IN NEW STAMP ISSUE

29 SEPTEMBER 2020

The forthcoming arrival of Australia's new Antarctic icebreaker, RSV *Nuyina*, in its home port of Hobart in 2021, is being marked today with a stamp issue by Australia Post. Source: https://www.antarctica.gov.au/news/2020/antarctic-icebreaker-rsv-nuyina-commemorated-in-new-stamp

Governance

The earliest Arctic treaty, the **Svalbard** (aka Spitsbergen) **treaty** (1925 in effect; 1920 signing) gave Norway rights to the Spitsbergen group of Arctic islands.

- Now **40 signatories** including S. Korea, China, Japan, India

- Sets up **200 nm buffer zone** around it, which has been a source of a number of disputes with the Soviet Union and Russia.

Governance

There is always a challenge in trying to decide whether to **work within** existing treaties, **change** the existing agreements or **create** new ones—of course this is an old challenge.

- For other examples of this in the area of international security see NATO and the UN Security Council

Arctic governance examples—from less to more organisation

1. Norms
2. Bilateral cooperation
3. Inuit Circumpolar Council
4. The Arctic Council
5. UN Convention on the Law of the Sea
6. International Maritime Organisation

1. International norms

The international system has evolved a set of **observable norms** regarding at least giving lip-service towards global environmental protection, sustainable resource extraction, and protection for affected populations.

Some of these norms have led to the **creation** of the organisations and meetings we have seen above.

1. International norms

These organisations and exchanges have helped further and internalize **new norms**.

Given the (to date) lack of systematic changes in behaviour necessary to avoid substantial global damage and negative economic effects, however, the **norm regarding environmental protection and sustainable growth** has yet to be fully internalised to the point of action.

2. Bilateral cooperation

The 1923 bilateral (Canada/USA) **International Pacific Halibut Commission** (IPHC).

The 1988 bilateral (Canada/USA) Arctic Cooperation Agreement regulates bilateral cooperation regarding the **Northwest Passage**.

The 1988 "Agreement Between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on **Mutual Fisheries Relations**," which created the Intergovernmental Consultative Committee (ICC).

ICC: Who we are

The Inuit Circumpolar Council advocates for Inuit rights internationally.

Inuit Circumpolar Council

3. Inuit Circumpolar Council

First met in 1977

Multinational non-governmental organization (NGO) and Indigenous Peoples' Organization (IPO) representing the **160,000 Inuit**.

Holds a **general assembly meeting** every four years.

"It is our right to freely determine our political status, freely presume our economic, social, cultural and linguistic development, and freely pursue our natural wealth and resources." (quoted in Ebinger & Zambetakis 1219)

The 13th General Assembly: Inuit – The Arctic We Want, 16-19 July, 2018, Utqiagvik, Alaska

INUIT CIRCUMPOLAR COUNCIL-ALASKA

INUIT

ABOUT MEDIA & REPORTS CONTACT DONATE

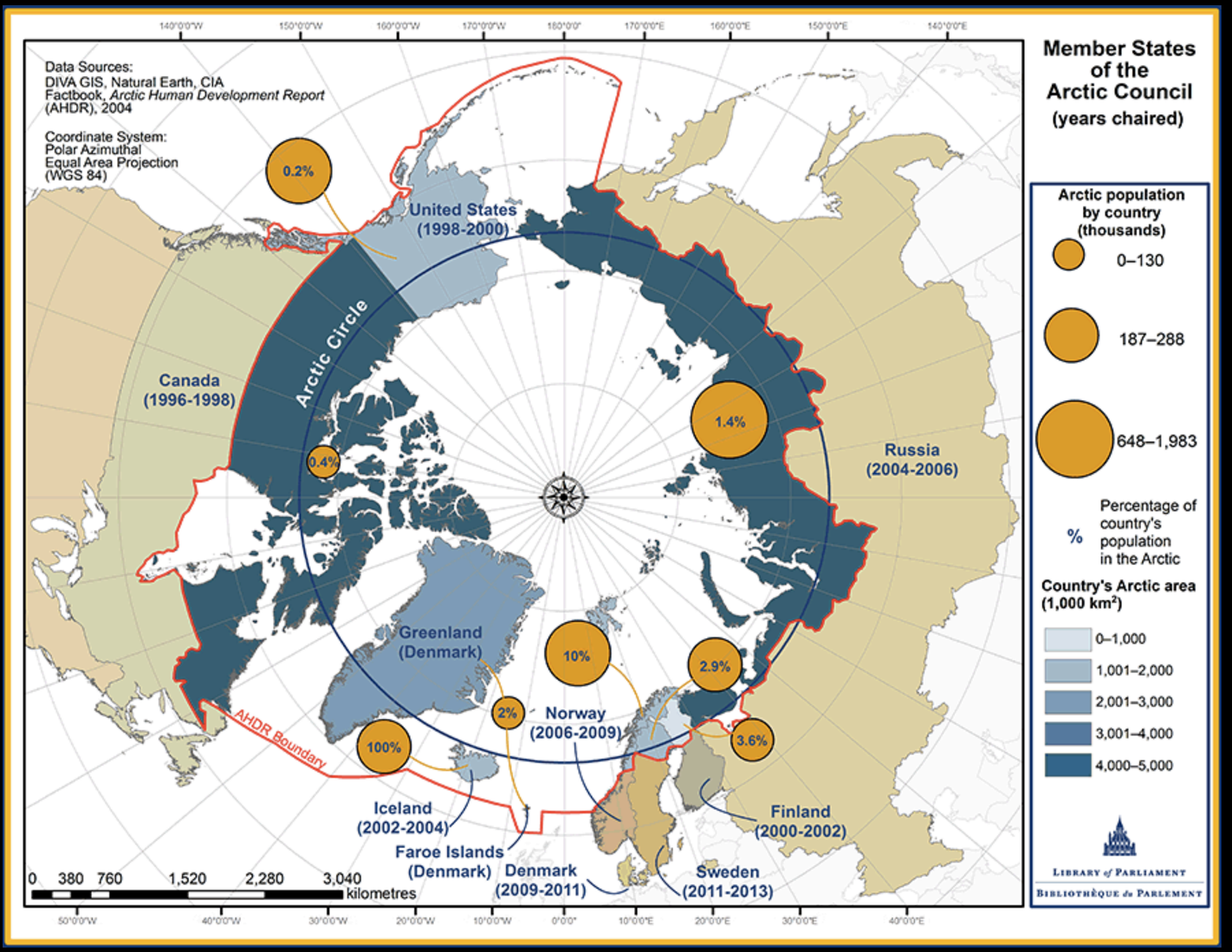
ABOUT › ICC INTERNATIONAL › 13th ICC General Assembly › 2018 GA Photos









Source: http://www.bdp.parl.gc.ca/content/lop/ResearchPublications/images/2013-20-fig1-e.gif

4. The Arctic Council

ARCTIC COUNCIL

Founded in 1996

Not an international organisation but a forum designed to foster cooperation and collaboration.

4. The Arctic Council

The Arctic Council is the **leading intergovernmental forum** promoting cooperation, coordination and interaction among the Arctic states, Arctic Indigenous communities and other Arctic inhabitants on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic.

The Ottawa Declaration lists the following countries as **members** of the Arctic Council: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States.

Mainly takes actions in **six working groups.**

Arctic Council working groups

The **Arctic Contaminants Action Program** (ACAP) acts as a strengthening and supporting mechanism to encourage national actions to reduce emissions and other releases of pollutants.

Arctic Council working groups

The **Arctic Monitoring and Assessment Program** (AMAP) monitors the Arctic environment, ecosystems and human populations, and provides scientific advice to support governments as they tackle pollution and adverse effects of climate change.

Arctic Council working groups

The **Conservation of Arctic Flora and Fauna Working Group** (CAFF) addresses the conservation of Arctic biodiversity, working to ensure the sustainability of the Arctic's living resources.

Arctic Council working groups

The **Emergency Prevention, Preparedness and Response Working Group** (EPPR) works to protect the Arctic environment from the threat or impact of an accidental release of pollutants or radionuclides.

Arctic Council working groups

The **Protection of the Arctic Marine Environment** (PAME) Working Group is the focal point of the Arctic Council's activities related to the protection and sustainable use of the Arctic marine environment.

Arctic Council working groups

The **Sustainable Development Working Group** (SDWG) works to advance sustainable development in the Arctic and to improve the conditions of Arctic communities as a whole.


EXPLORING
COMMON
SOLUTIONS
11th Arctic Council
Ministerial
Meeting
Rovaniemi 2019
ARCTIC COUNCIL

Signing ceremony of the UN Convention on the Law of the Sea

Source: UN (https://www.un.org/depts/los/convention_agreements/convention_20years/Montego%20Bay.htm)

5. UN Convention on the Law of the Sea (UNCLOS)

Replaced four 1958 treaties

Created 1982

All countries with a continental shelf that extends beyond 200 nautical miles from its shoreline able to claim **resources to 250 nautical miles**

The USA has failed to ratify it (like it has a good deal of other treaties)

The USA relies on customary laws.

Article 76 has proven problematic with submissions of area **claims not visible** to other states until **after** they have been considered.

International Maritime Organisation
London, UK

Image source: https://upload.wikimedia.org/wikipedia/commons/a/a7/International_Maritime_Organization_Headquarters%2C_London_-_DSC08155.JPG

6. International Maritime Organization

International shipping now transports more than **80% of global trade**.

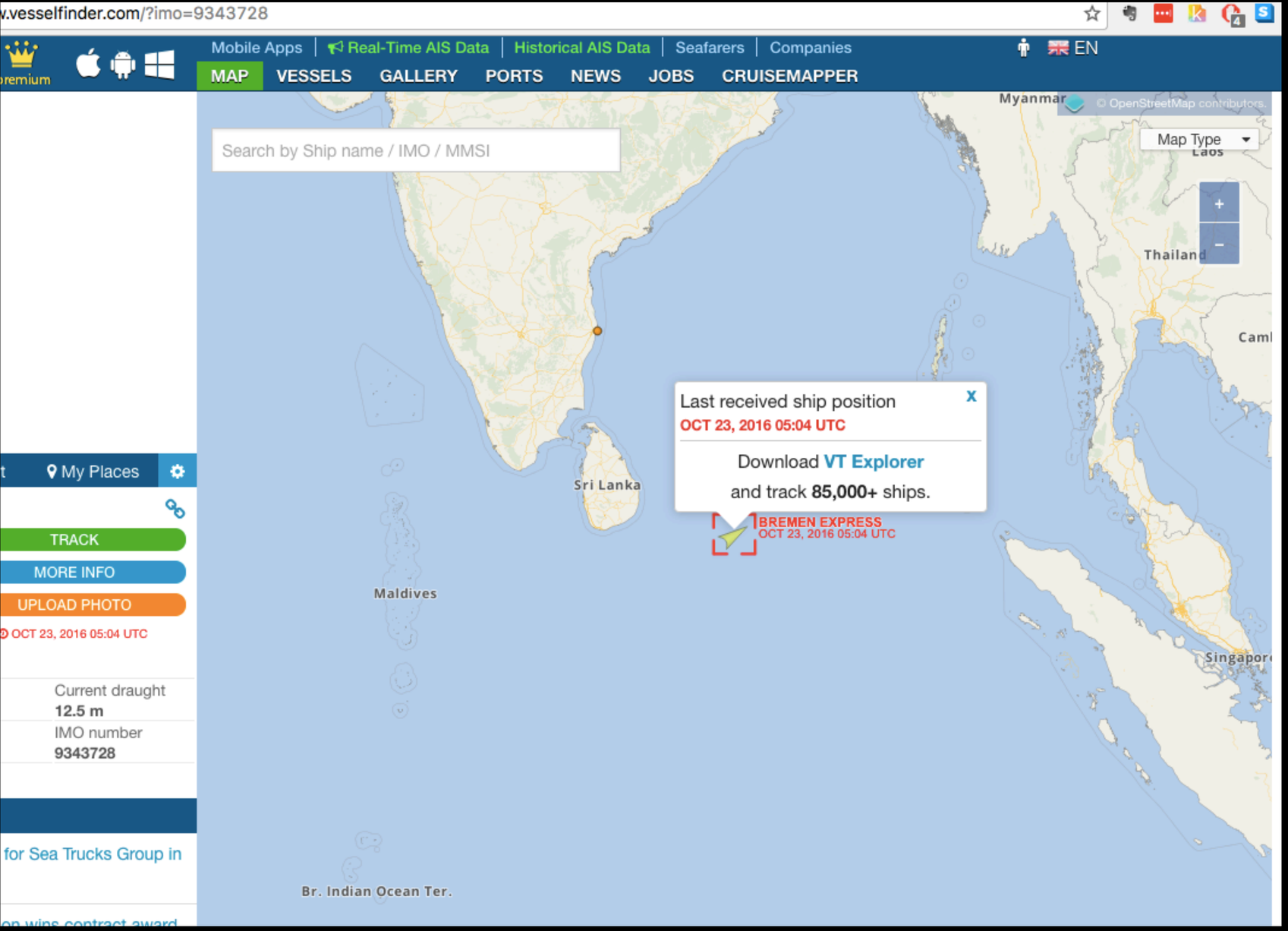
A UN specialized agency created in 1948 as the **global standard-setting authority** for the safety, security and environmental performance of international shipping.

Its **main role is to create a regulatory framework** for the shipping industry that is fair and effective, universally adopted and universally implemented.

6. International Maritime Organization

IMO has promoted the adoption of some **50 conventions and protocols** and adopted more than **1,000 codes and recommendations** concerning maritime safety and security, the prevention of pollution and related matters including in the Polar regions.

It has spearheaded efforts against **piracy** off the coast of Somalia and the Straits of Malacca over last 20 years.



So basically the shipping lanes my last shipment of things from the US took

The IMO and the Arctic

The IMO passed the **2009 Guidelines** for ships operating in polar waters.

It also acceded to **International Code for Ships Operating in Polar Waters (Polar Code)** and related amendments to make it mandatory under both the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL) that entered force in 2017.

Granted **Arctic Council observer status** in 2019.

International responses recap

International responses to environmental challenges fall along an axis of **low to high complexity and coordination** from norms to large international agremenets.

The IPCC, water cooperation efforts, and the organisations about the **Arctic** show the range and extent of activities in this area.

There has been **drastic change** both in the environment as well as the international responses to it over the last century as the number of mitigation and adaptation strategies have grown.

Lecture question #3

What provocative (and telegenic) Russian act in 2007 shown in the Al Jazeera documentary was geared to bring attention to its claims in the Arctic region?

V. International responses to a changing Arctic

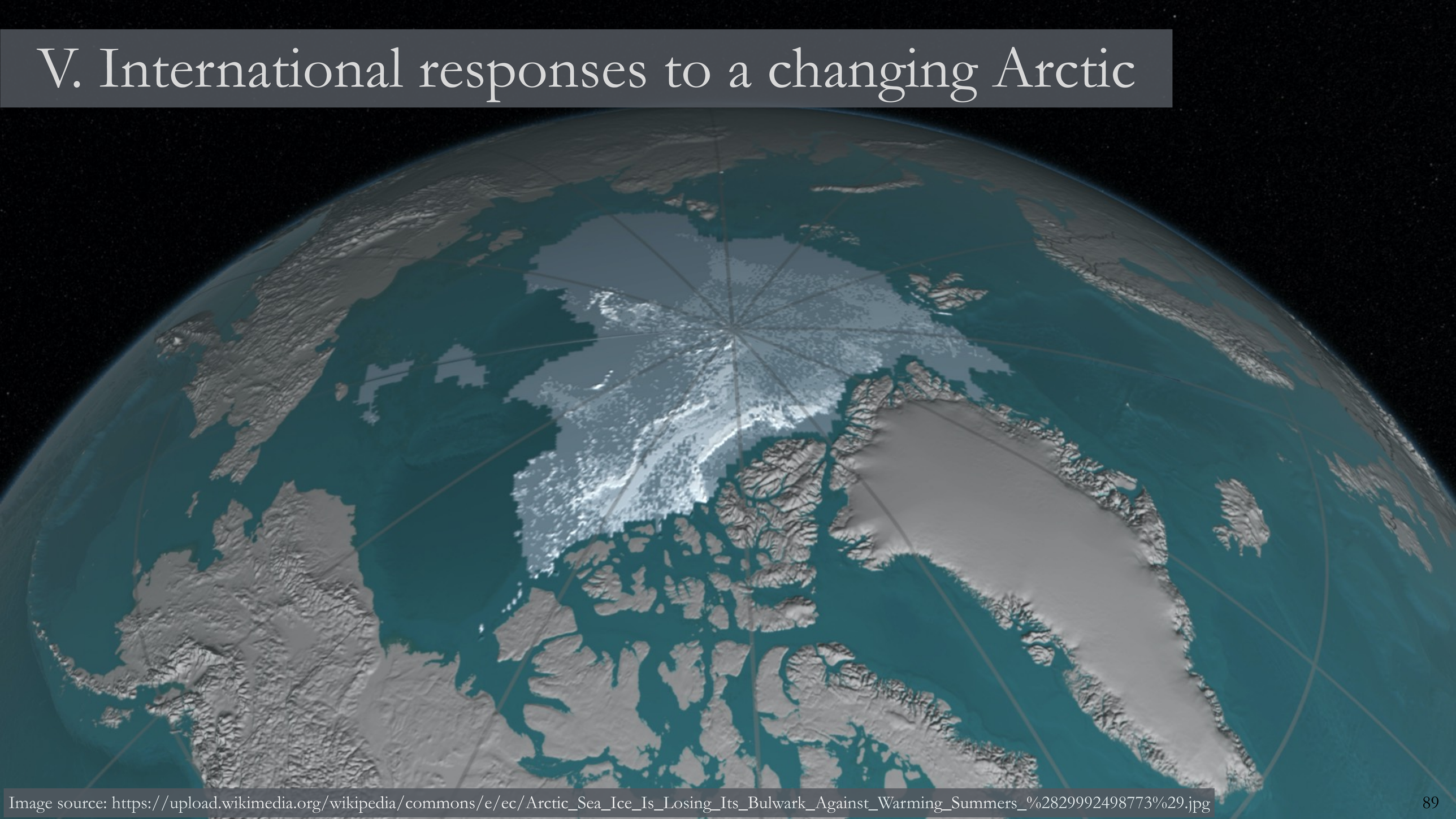


Image source: https://upload.wikimedia.org/wikipedia/commons/e/ec/Arctic_Sea_Ice_Is_Losing_Its_Bulwark_Against_Warming_Summers_%28299924987 73%29.jpg

VI. Class conclusions

POLS3033—Fundamental questions

How can environmental scarcity or abundance affect human security and conflict?

Why do **states** and **non-state actors** use violence?

Why do **individuals** choose violence?

Course Outline

Week	Summary
Section 1: Defining terms, actors, and interests	
Week 1	Introduction, course overview, and conflict
Week 2	Economic development and economic instability
Week 3	Political institutions and instability
Week 4	Environmental change and scarcity
Section 2: Causes	
Week 5	Population
Week 6	Migration
	Teaching break (no class)
Week 7	Water
Week 8	Food
Week 9	Natural resources
Week 10	Natural disaster
Section 3: Responses	
Week 11	Domestic responses
Week 12	International cooperation

Case studies

Burundi's political violence 2016

Venezuela's resource curse 2016

Manantali Dam and population displacement, **Mali** 1989

Louisiana's climate refugees 2016

Middle East's heat dome 2016

South Sudan's oil fields 2015

Transnational land pressure in **Kenya** and **Ethiopia**

The **Kimberly Process** and **EITI**

Case studies

Land degradation in the **Sahel**

Conflict and natural disaster in Aceh, **Indonesia**
2004-5

Water, ethic fractionalisation, and cotton production in **Central Asia**

El Salvador/Honduras soccer war over migration
1969

Syria's war, drought, and refugees

Australian and **American** climate change mitigation through carbon taxes and sulfur trading

Nepal's adaptation to climate change

International coordination in the **Arctic** and water coordination

Reading academic articles

Look for **theoretical contribution** and **substantive effects**

These authors often follow the kind of **structure** that I recommend you take in your final essay:

- Introduction
- Literature review
- Argument, theory, hypotheses
- Research design
- Discussion of results
- Robustness checks
- Conclusions, policy implications, areas for future research

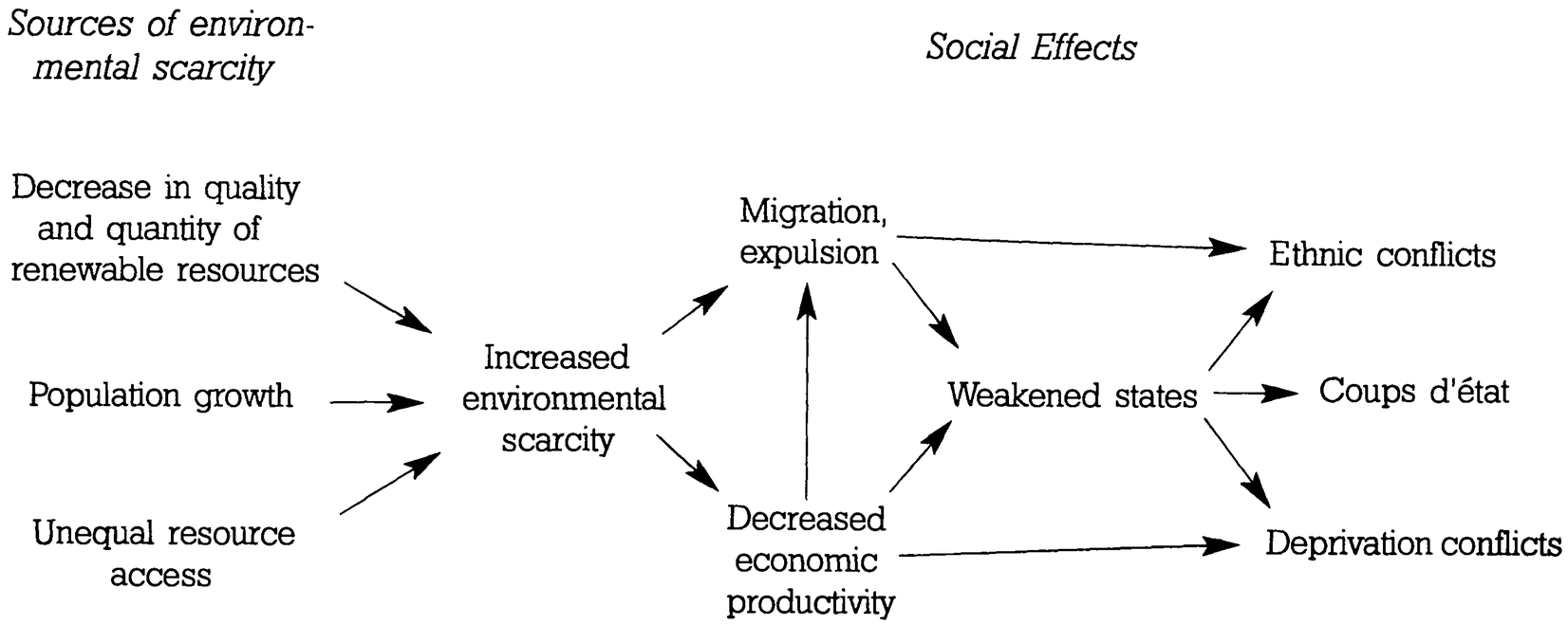
Challenges to interpretation

- **Endogeneity**—Declining resource rents can cause conflict & probability of conflict reduces resource rents

- **Spuriousness**—Government weakness causes both reliance on resource rents and increases conflict risk

- **Levels vs. change**—Is it levels of resource rents that matter, spikes/dips in rents, or both?

Figure 2. Some Sources and Consequences of Environmental Scarcity.



Source: Homer-Dixon (1994: 31)

Homer-Dixon's (1994) sources of renewable resource scarcity

Environmental change shrinks the resource pie.

Population growth divides the pie into smaller slices.

Unequal resource distribution means that some groups get disproportionately large slices.

Human security threats

Type of security	Examples of main threats
Economic	persistent poverty, unemployment
Political	government repression, human rights abuses
Food	hunger, famine
Health	infectious diseases, unsafe food, malnutrition, lack of health care
Environmental	environmental degradation, resource depletion, natural disasters, pollution
Personal	physical violence, crime, terrorism, domestic violence, child labor
Community	inter-ethnic, religious, or there identity-based tensions

Source: United Nations Trust Fund for Human Security. nd. "Human Security in Theory and Practice." New York: United Nations

Environmental change and conflict

Homer-Dixon's expected relationships

H1 (**simple-scarcity wars**): Decreasing supplies of physically controllable environmental resources lead to conflict.

H2 (**group-identity conflicts**): Large population movements caused by environmental stress will lead to conflict.

H3 (**deprivation conflicts**): Environmental scarcity will lead to increased economic deprivation and disruption social institutions which will lead to conflict

Climate change & conflict

- Climate change is a **threat multiplier** for instability. (Salehyan 2008: 316 quoting US military officers' report; emphasis added)

- No evidence yet that environmental degradation is a **necessary** or **sufficient** condition for armed conflict.

- Rather, it is the **interactive effect** of environmental and political systems.

- "In short, resource scarcity, natural disasters, and long-term climatic shifts are ubiquitous, while armed conflict is rare; therefore, **environmental conditions, by themselves, cannot predict violent outbreaks**," (Salehyan 2008: 319; emphasis added)

Domestic response—**Mitigation**

Definition: Efforts to reduce or prevent an undesirable outcome.

- When speaking about about environmental security these efforts can include using government **policy**, **markets**, and **individual behaviour** to encourage new technologies and improve older technologies to prevent environmentally detrimental effects from human behaviour.

Domestic response—**Adaptation**

Definition: **Adjustments** in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in **processes**, **practices**, and **structures** to moderate potential **damages** or to benefit from **opportunities** associated with climate change. (UNFCCC [http://unfccc.int/focus/adaptation/items/6999.php])

International responses

- Going it alone (stick with domestic mitigation and adaptation)
- Bilateral agreements/treaties
- Multilateral treaties
- International organisations/regimes
- Norms

Thank you for a great semester!

VI. Class conclusions