A Tale of Commons’ Tragedies

The Arctic
Today’s agenda

• Review: The Problem of the global Commons
  – Tragedies of Climate change, Resource exploitation, conflict
    • National “enclosures” and absence of central authority invite conflict
  – Nature, Wealth, and Poverty

• The Arctic as a Case Study
  – A canary in the mine
  – Pollution exacerbates Arctic heating
  – Arctic heating opens economic exploitation
  – A Scramble for the Arctic: International tensions
    • Russia, Canada, Denmark, Greenland, China, United States, Indigenous peoples
  – Arctic Governance?
Tragedy of the Global Commons
The “tragedy of the commons” metaphor

• Think Planet Earth

• Think National Economic Growth

• Think Carbon Emissions, Climate Change, and Resource Depletion
First Tragedy: Climate Change

It was probably always too much to believe that human beings would be responsible stewards of the planet. We may be the smartest of all the animals, endowed with exponentially greater powers of insight and abstraction, but we’re animals all the same. That means that we can also be shortsighted and brutish, hungry for food, resources, land — and heedless of the mess we leave behind trying to get them.
Because of climate change, the Consequences of Freedom + equal access are suboptimal.

- Higher temperatures cause a higher rate of evaporation and more drought in some areas of the world. It is considered very likely that increasing global temperatures will lead to higher maximum temperatures, more heat waves, and fewer cold days over most land areas. More severe drought in some areas, combined with other factors, has contributed to larger and more frequent wildfires.
A Second Tragedy of the Commons: Resource exploitation
Declining supply of oil
Depletion leads to exploitation

New discoveries look promising...

- Brazil
- Gulf of Mexico
- Bakken shale (Montana)
- Arctic regions
• Sum: Climate Change and Dwindling Resources: An explosive combination and a double tragedy---back to the tragedy of the commons

• solutions to the tragedy:
  – Enclosures – use coase theorem to solve conflicts
  – Central Authority
Attempts by states to “enclose” cause conflict

• “Climate change will make scarce resources, clean water, viable agricultural land even scarcer”—and this will “make the emergence of violent conflict more rather than less likely.”

  » British Defense Secretary John Reid
But No central Authority to solve either climate change problems or resource depletion problems

- A central authority can either be
  - A leader, a single leader such as a nation-state; i.e. the United States after World War II
    - Can provide collective goods, pay the costs of cooperation
    - But as a nation-state, it can become an economic nationalist when things aren’t going well for it
  - An institution, such as The UN, or the World Bank, or......The Kyoto Treaty
    - Can also provide collective goods and because there is a group of states that makes up the institution, no chance for the entire institution to become an “economic nationalist”
    - But suffers from the problems of “large groups” and has little enforcement capability
Kyoto Protocol

- Recognition of climate as part of the global commons
- The Kyoto Protocol 1997

Most of these emissions come from burning fossil fuels -- coal, oil, and natural gas -- for energy, from deforestation, and from the agricultural sector. They must be cut deeply in the coming decades if the world is to control the risks of dangerous climate.

- The Protocol entered into force on 16 February 2005. As of October 2009, 184 states have signed and ratified the protocol.

- The most notable non-member of the Protocol is the United States, which is a signatory of UNFCCC and was responsible for 36.1% of the 1990 emission levels.

- Under the Protocol, 37 industrialized countries (called "Annex I countries") commit themselves to a reduction of four greenhouse gases (GHG) (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride) and two groups of gases (hydrofluorocarbons and perfluorocarbons) produced by them, and all member countries give general commitments. Annex I countries agreed to reduce their collective greenhouse gas emissions by 5.2% from the 1990 level. Emission limits do not include emissions by international aviation and shipping, but are in addition to the industrial gases, chlorofluorocarbons, or CFCs, which are dealt with under the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.

- The benchmark 1990 emission levels were accepted by the Conference of the Parties of UNFCCC (decision 2/CP.3) were the values of "global warming potential" calculated for the IPCC Second Assessment Report. These figures are used for converting the various greenhouse gas emissions into comparable CO₂ equivalents when computing overall sources and sinks.

- The Protocol allows for several "flexible mechanisms", such as emissions trading, the clean development mechanism (CDM) and joint implementation to allow Annex I countries to meet their GHG emission limitations by purchasing GHG emission reductions credits from elsewhere, through financial exchanges, projects that reduce emissions in non-Annex I countries, from other Annex I countries, or from annex I countries with excess allowances.
Without central authority: Military solutions to Climate Change problems?

- predictions about the coming environmental wars imply that climate change requires military solutions—a readiness to forcibly secure one’s own resources, prevent conflict spillovers, and perhaps gain control of additional resources.
Darfur as warning sign

Resource conflicts of this type are most likely to arise in the developing world but the more advanced and affluent countries will be affected too...

With sea levels rising, water and energy becoming increasingly scarce and prime agricultural lands turning into deserts, warfare over access to vital resources will become a global phenomenon.
Another tragedy: Nature, Wealth, and Poverty

For many of the 1.1 billion people living in severe poverty, nature is a daily lifeline— an asset for those with few other material means. This is especially true for the rural poor, who comprise three-quarters of all poor households worldwide. Harvests from forests, fisheries, and farm fields are a primary source of rural income, and a fall-back when other sources of employment falter.
Arctic as Global Commons

- Arctic plays a key role in regulating global weather patterns, and, spurred by global pollution, it is warming.
- And Resource exploitation issues are leading to international conflict.
- Indigenous peoples suffer from both.
Arctic as Canary in the Mine

• At stake:
  – Oil and other minerals
  – New shipping lanes
  – Potential conflict
Arctic is heating up faster than the rest of the world.....
The Arctic Ocean is melting, and it is melting fast.

This past summer, the area covered by sea ice shrunk by more than one million square miles, reducing the Arctic icecap to only half the size it was 50 years ago.
Why? Soot lowers reflectivity $\rightarrow$ Ice Melts $\rightarrow$ sea absorbs heat

**Ice albedo: critical parameter in snowball models**

*ablative glacial ice ($\alpha \sim 0.6$)*

*mature marine ice ($\alpha \sim 0.4$)*

*fresh snow ($\alpha \sim 0.9$)*

*see Warren et al., JGR Oceans 107, 2002.*

*Steve Warren photos*
Polar Bears endangered

Their lives depend on being able to hunt on the sea ice
Indigenous Peoples Harmed
Less Ice.....**More** Resources

- Less ice also means increased access to resources....
- And the collective action problem kicks in
the Arctic could hold the last remaining undiscovered hydrocarbon resources on earth. -- as much as one-quarter of the world's remaining undiscovered oil and gas deposits.
The Alaskan coast might one day look like the shores of Louisiana, in the Gulf of Mexico, lit up at night by the millions of sparkling lights from offshore oil platforms.
An even greater prize ... new sea-lanes created by the great melt.
trans-Arctic voyages possible within the next five to ten years.

- The Arctic is becoming like the Baltic Sea

- ice-free Arctic in the summer as early as 2013.

- What would opening the Northwest Passage actually mean?
Promise of new wealth $\rightarrow$ new enclosures of the Arctic Commons

**Scramble for the Arctic**

As climate change melts ice in the Arctic, several nations are vying for dominance of resources and shipping routes.

Map: Russia planted national flag on Aug. 2

- Northern Sea route
- Sea of Okhotsk
- Bering Sea
- Beaufort Sea
- Baffin Bay
- Hudson Bay
- Northwest Passage

*Source: National Research Council*
Russia dispatched a nuclear-powered icebreaker and two submarines to plant its flag on the North Pole's sea floor.

The dive was a symbolic move to enhance Russia’s disputed claim to nearly half of the floor of the Arctic Ocean and potential oil or other resources there.
Why? Economic Nationalism!

• Russia argues that half of the Arctic Ocean is its rightful inheritance.

• an extension of Russia’s continental shelf and thus Russian territory.

• "The Arctic is ours and we should manifest our presence"
Santa Claus as a “common good” could be privatized

Russia owns the ocean floor... including your Toy Workshop!

I guess that’s the *End of Christmas*

constructiveanarchy.com/blog
Canada: First principle of Arctic sovereignty is “use it or lose it”

• **Canada** claims Northwest Passage as its own internal seaway.

• Prime Minister Stephen Harper announced *funding* for new Arctic naval patrol vessels, a new deep-water port, and a cold-weather training center along the Northwest Passage.
Hans Island
Greenland: a bid for independence?
China

- China......

China
Indigenous Peoples Claims

- the Inuit of Canada
- Yakutsk people in Russia
- One Inuit man quoted as saying: “The Arctic sea is ours. It’s where we go for our food, our seals and whales. It’s always been ours, it’s ridiculous for anyone to think otherwise.”
The United States: Slowly entering the race....Domestic Interest Group Politics?
US Government stands on the sidelines

• But The US hasn’t even ratified the relevant international treaties that would give it a voice in deciding on competing claims,
• Congress opposes ceding any US sovereignty to international institutions.
Ambiguities: Global Commons?
unresolved issues

• Arctic as Dumping ground for nuclear reactors.

• Arctic region home to one million indigenous people,

• Support for groups in Greenland petitioning Denmark for political independence.
No global governance and new enclosure movement

- Arctic countries will unilaterally grab as much territory as possible and exert sovereign control over opening sea-lanes wherever they can. They are already laying down sonar nets and arming icebreakers to guard their claims.