Lecture 1A: International Negotiations

- Lecture 1A. Legal Issues, Negotiations, see Raphaele Chappe, Handbook the Macroeconomics of Climate Change, Oxford University Press (Bernard/Semmler)
- Lecture 1B: History of macro modeling
- Lecture 1C: Game-theoretical approach, see Di Bartolomeo, Behnaz Fard, and Willi Semmler

Summary: Current Progress; Cooperative climate agreements?

International policy agreements or environmental games? (see Chappe, Handbook ,and game theory, Di Bartolomeo et al., 2018)

- COP (Conferenceence of the parties), Copenhagen Accord (2009), **2** °C
- Paris (2015), 2 °C, but **1.5**°C needed to prevent future weather extremes
  - reduce emission to 50% (65%) until 2030, and **no** (new) emission by **2050**
  - re-evaluation of countries' effort in 2020, 2023.....

Success or failure?

- no enforceable agreements
- we have **already 40%** emission more than 1990
- needs substantial reduction in emission from coal (carbon budget threshold)
- we are **likely to move toward 2.5 to 3**°C**, or higher**

Alliances, coalitions, and institutions, COP meetings

- Formed in Paris (2015), Bonn 2017, and Katowice 2018
- Multi lateral institutions, UN, ILO, WB, IMF

Pricing and Financing efforts with scale effects?

- **carbon tax** ($30-40, but 80-100 required)
- scaling up **climate investments (**through **green bonds,** Sachs (2015), Flaherty et al (2018))

Need for assistance, technological transfer, burden sharing and finance for global south

Details: The Past 20 Years of International Environmental Negotiations

- Deeply disappointing
- Non-compliance
- Weak treaties that do not go far enough
- Lack of commitments on part of emission producing nations

Environmental treaties addressing the issue of climate change

- Various sources and enforceability of international environmental law
- "Hard law", such as treaties (or agreements, protocols, covenants, conventions)
- "Soft law" (such as policy declarations)
  - Not legally binding!
  - No need for ratification, so easier to adopt
  - Wider range of actors (NGOs)

Treaties

- Unilateral, bilateral, and multilateral actions
- Ratification is the process whereby a country's legislature approves a treaty
  - Purely voluntary, and nations can leave treaties at any time
- Yet while a treaty is in effect treaty commitments are legally binding on parties
  - Liability under international law.

Soft Law

- Ambitious rules that are too vague for actual implementation, and therefore encourage wide-spread non-compliance with no real possibility of enforcebility

- Main issue with the Stockholm Declaration, the Rio Declaration, and Agenda 21.

Major Conferences Relevant to Climate Change

- The Stockholm Conference on the Human Environment in 1972
- 113 states, 400 NGOs
- Stockholm Declaration on the Human Environment
- Action Plan with 109 recommendations
- Led to the creation of the United Nations Environment Programme (UNEP), an international organization in charge of coordinating the environmental work of the United Nations

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. (Principle 21).

The UN Conference on Environment and Development in Rio de Janeiro (the "Earth Summit") in 1992

- Declaration on Environment and Development(also known as the Rio Declaration), which elaborated 27 guiding principles, including biodiversity
- Agenda 21, a detailed blueprint for implementing sustainable development in everyday life.
- Both are soft law

Rio Declaration

States have . . . the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. (Principle 2)

Rio Declaration

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command. (Principle 7).

Rio Declaration

The precautionary approach is defined as "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (Principle 15).

UN Framework Convention on Climate Change

- First realization that the increase in the planet's temperature was due to the accumulation of greenhouse gases attributable to human activity
- Legally binding amendments to the Framework Convention (including the Kyoto Protocol)
- The parties to the Framework Convention have been meeting annually in Conferences of the Parties (COP)
- Copenhagen (COP 15), Cancún (COP 16), and Durban (COP 17)……

Framework Convention

- Entered into force in March 1994
- Focus is GHG reduction
- Commitments for member states to measure emissions
- Information on national policies
- Provides for possibility of amendment to the UN Framework Convention

Kyoto Protocol

- The Kyoto Protocol, was negotiated in December 1997 and came into force on February 16, 2005.
- Delay caused by two conditions:
  - ratification by 55 states
  - ratifying countries to account for at least 55% of total carbon dioxide emissions
- Call for individual commitments by industrial nations to reduce greenhouse gas emissions worldwide (by the US never ratified)

Kyoto Protocol
First Commitment Period

- Control variable: 5% below 1990 CO_2 levels to be achieved by 2008–2012
- Commitments from developed industrialized countries (Annex I countries)
- Different targets for different countries
  - Tracking system through national registries
- Flexibility in terms of meeting goals
  - Carbon-trading schemes, International Emissions Trading (IET)
  - Credit for projects that reduce emissions in developing countries -- Clean Development Mechanism (CDM)
- The emissions of developing countries were not limited under the principle of "common but differentiated responsibility"

Second Commitment Period

- Negotiations in Copenhagen, Cancún and Durban to reach a consensus (a Pareto-optimal single binding commitment) regarding a Kyoto second commitment

United Nations Climate Change Conference in Copenhagen 'Copenhagen Summit' in 2009 (COP 15/MOP 5)

- Copenhagen Accord, soft law
- Not formally adopted by all participating countries
- Limiting the global average temperature increase to no more than 2 degrees Celsius above pre-industrial levels
- Failure of the Copenhagen climate talks to result in binding commitments to reduce emissions
- Promise to provide $30 billion for the period 2010-2012
- Long-term financing goal of raising $100 billion by 2020 to help developing countries mitigate climate change

UN Climate Summit in Cancún, Mexico in 2010 (COP 16)

- No legally-binding outcome for second commitment period
- Japan would not renew pledges under the Kyoto Protocol for the post 2012 period, unless the biggest carbon polluters also made firm commitments

Durban in 2011 (COP 17)

- Developing countries invoked their right to development
  - Need further reduction commitments from industrialized countries
- The EU showed its commitment to a second Kyoto period and pledged to extend the Kyoto targets to 2017-2020
  - Internal target to reduce emissions by 20% in 2020 compared with 1990 levels
- Japan, Russia and Canada have refused to join the second commitment period and renew their pledge.
  - Lack of participation from the U.S. and China
- The U.S. has not ratified the Kyoto Protocol: want single binding commitment on all nations

Durban in 2011 (COP 17)

- Draft decision adopted on December 11, 2011, the "Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its sixteenth session".
- Second commitment for five years (until 2017)
- Clear target of reductions of 25-40% below 1990 levels
  - Very soft law: only "takes note" of these reduced emission targets and proposed amendments to the Kyoto Protocol

Doha (2012)

- An eight year extension of the Kyoto Protocol until 2020
- However, limited in scope to only 15% of the global emissions!
- Lack of participation of Canada, Japan, Russia, Belarus, Ukraine, New Zealand, U.S., China, India, Brazil

Overall Assessment: Kyoto Protocol

- Did not had a big impact on global emissions, which have increased by 25% since Kyoto was negotiated
- Missing participation of some key players, including the biggest emitters
  - China and India
  - US opposed because of lack of participation of developing nations

Arbitration Mechanism

- The Framework Convention has three mechanisms to assist in dispute resolution:
  - A Subsidiary Body for Implementation
  - A multilateral consultative process
  - The settlement of remaining disputes by negotiation, arbitration, or international conciliation.

Arbitration Mechanism

- Kyoto Protocol has a very comprehensive compliance regime (adopted in 2001)
  - Compliance Committee with two branches, a Facilitative Branch, designed to provide advice and assistance to promote compliance, and an Enforcement Branch, designed to make final determinations regarding non-compliance.
- No power of sanction over noncompliant parties.
- Non compliance can lead to denial to treaty benefit: access to IET transaction registry
- Lack of any real enforcement mechanism is an issue…

Treaty Violations

- At the European level, a violation of European law can be challenged before the European Court of Justice
- International Court of Justice (ICJ) for a determination of rights arising under bilateral treaties
  - Chamber for Environmental Matters as a framework for dispute settlement

Treaty Violations

- Issue of having "standing" to sue:
  - States
  - International organizations
  - Businesses, individuals
- Treaty typically addresses who has standing to sue
- Do you need to suffer damage?
  - Obligations owed erga omnes (owed to all the states)

Remedies for Breach

- The mechanisms of liability under international law are far less defined than domestic mechanisms to enforce laws within each nation-State
- Damages can be hard to establish, not be a clear link between polluting activities and their effects
- Other states withhold treaty benefits
- Fines can also be imposed by the European Court of Justice

Summary: Effectiveness of International Environmental Law, Game theory coming

- At he beginning: Broad issues—environment, bio-diversity, eco-system, resource use and over exploitation, atmosphere and GHG emission, Mitigation policies
- Economist: Effective only to the extent participating states view that compliance is in their self-interest
- But how to achieve results for common goods: coordination issues, need more holistic approach
  - Free riders: non-compliance tends to be perceived as an attempt to gain economic advantage!!
  - Game theoretical approach, cooperative non cooperative games,
  - Non-participants paying penalty? (Nordhaus)
- Political leaders tend to be constrained by short-term objectives (short-termism)
- History of what the dynamic models put forward

Appendix:
Resource extraction of common property, common good

- The Joint Exploration of a Productive Asset: A Game-Theoretic Approach (Benhabib and Radner, 1988)
- Two or more agents exploit a common productive asset, lack of long term cooperative behavior
- Best response to an agent consuming maximally is also to consume maximally

$$\int_0^t e^{-rt} c(t)\,dt$$

$$\dot{y}(t) = m[y(t)] - c(t)$$