15.023 - 12.848 - ESD.128
Global Climate Change: Economics, Science and Policy

• Introduction (again)
  – Faculty, teaching assistants, administration
  – Items from Wednesday

• Negotiation of a climate regime (HJ)
  – The need for a global regime
  – Kyoto and beyond

• Analysis and assessment (RP)
  – Previous history
  – The climate institutions
Course Materials

• Readings
  – Packet to purchase, E52 Copy Center ($30)
  – Hand-outs (Joint Program reports & other)
  – Material on the web (mit.edu/globalchange)
  – Keep an eye on the news!

• Computer needs
  – “Toy” IGSM in the Sloan Computer Lab
  – Excel or other worksheet program
## Course Organization

<table>
<thead>
<tr>
<th>Date</th>
<th>Institutions</th>
<th>Background/Science</th>
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<tbody>
<tr>
<td>2/12</td>
<td>Natural Science</td>
<td>Background/economics</td>
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<td>Social Science/policy</td>
<td>Integration</td>
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International Environmental Agreements

- Whaling Convention
- Law of the Sea
- Basle Convention (shipment of toxic waste)
- Convention on International Trade in Endangered Species (CITES)
- Vienna Convention and Montreal Protocol
- Biodiversity Treaty
- Forest Convention
- Framework Convention on Climate Change
Objective & Difficulties

• Need a regime “architecture: a unifying structure to guide potential agreement
  – The metaphor
  – Examples in environment, trade, etc.

• Complexities of this commons problem
  – 20 or so rich AND poor countries matter
  – Economic as well as environmental issue
  – Many emissions & land use contribute
  – Continuity over century and more
  – Parties are sovereign nations
### Acronyms: International Institutions

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>FCCC</td>
<td>Framework Convention on Climate Change</td>
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<tr>
<td>SBSTA</td>
<td>Subsidiary Body on Scientific and Technical Advice (FCCC)</td>
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<tr>
<td>SBI</td>
<td>Subsidiary Body on Implementation (FCCC)</td>
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<td>AGBM</td>
<td>Ad-Hoc Group on the Berlin Mandate</td>
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<td>COP</td>
<td>Conference of the Parties (FCCC)</td>
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<tr>
<td>MOP</td>
<td>Members of the (Kyoto) Protocol</td>
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<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>GEF</td>
<td>Global Environmental Facility ($$)</td>
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<td>WMO</td>
<td>World Meteorological Organization</td>
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<td>UNEP</td>
<td>U.N. Environment Program</td>
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Acronyms: National Groupings

- **Annex I** = OECD + Economies in Transition
  - OECD = EU + USA, Canada, Australia, New Zealand, Scandinavia, Austria (rich nations)
  - EIT = Econ’s in Transition (Russia, others of former Soviet Union, Eastern Europe)
- **Annex B** = Slight variation on Annex I
- **Annex II** = OECD, with special responsibilities
- **Non-Annex I** = Developing Countries
- **G-77 & China** = Coalition of developing nations
- **EU “bubble”** = EU burden-sharing agreement
- **Umbrella G’p** = Japan, US, Canada, Aus. & New Zealand
Convention-Protocol Process

- Negotiation of a general framework
  - Goals, obligations
  - Procedures, data reporting
  - Bureaucracy, funding
- Separate protocols (e.g., CFC-ozone problem)
  - Universal acceptance not essential
  - Add without re-ratification of underlying treaty
- Contrast to conventional treaty (e.g., Law of the Sea)
  - Universal and inclusive re. issues and participants
  - Requires consensus on comprehensive package
The Lure of a Comprehensive Architecture

• A global commons problem
  – So include all nations from the start

• Both rich and poor nations are important
  – So agree to base regime on “common but differentiated responsibilities”

• Many substances contribute to forcing
  – So include all gases in a common system

• Country cost differences will be inefficient
  – So introduce flexibility mechanisms
Structure of Institutions

UN General Assembly

Framework Convention on Climate Change

Conference of Parties

Subsidiary Bodies

Sec’y SBSTA SBI

World Bank

GEF

UNDP

UNEP

WMO

IPCC
The FCCC Process

• Key Features of the FCCC
  – Article 2: stabilization of GHGs in the atmos.
  – Article 4: Separate Annex I and Non-Annex I
  Review of progress
  – Rio “aim”: return to 1990 emissions 2000
• COP-1 in 1995 and the “Berlin Mandate”
  – Targets and timetables for cuts (1990 baseline)
  – Policies and measures
  – No discussion of Non-Annex I commitments
• The AGBM process to COP-3 (1997 in Kyoto)
Role of the Stabilization Goal

• FCCC Article 2: The ultimate objective of this Convention . . . is to achieve . . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

• Issues
  – Does a threshold exist?
  – Can a level be agreed? Is it needed?
  – Role of review of “adequacy of commitments”
Issues, Players and Positions

Components of Policy

- Targets and timetables
  - Stringency?
  - Differentiation?
- Policies and measures
- Emissions trading
  - Supplementarity
  - Russian “hot air”
- Carbon sinks
- Accession of LDCs

Players & Coalitions

- European Union
- Japan
- United States
- Can., Aus., N.Z.
- Russia (& E. Europe)
- G-77 plus China
  - OPEC
  - AOSIS

Annex B
UN General Assembly -> Framework Convention on Climate Change

Conference of Parties -> Treaty Bureaucracy

Kyoto Protocol

Tighten, Add LDCs

Ratif’n by 55%

Annex B (OECD, Econ. In Transition)

Non-Annex B (Developing Countries)

2008 1st commitment period

2012 2nd commitment period

Kyoto Protocol

Legal Force

Annex B (OECD, Econ. In Transition)
Regulatory Jargon

• Sinks—Storage of carbon in forests (and soils)
  – Article 3.3: new projects since 1990
  – Article 3.4: pre-existing forests (“do nothing” sinks)
• Permit trading—parties in one Annex B country can buy allocated amounts from another
• Supplementarity—restriction on use of purchased permits to meet Kyoto reduction target
• CDM (Clean Development Mechanism): credits for reductions in Non-Annex I countries
• JI (Joint Implementation): credits within Annex I
• PAMs—Policies and measures
• Hot air—allocation larger than forecast emissions
The Current Structure

Framework Convention on Climate Change

Kyoto Protocol

(Annex B)

(Non-Annex B)

2006 2008 1st 2012 2nd
Kyoto Details

• What was included
  – National targets and timetables
  – 1\textsuperscript{st} commitment period (tightening?)
  – Flexibility mechanisms (trading & CDM)
  – Carbon sinks (new & existing)
  – No Non-Annex B reductions (accession?)

• Other approaches?
  –
  –
A Fragmented Regime

Framework Convention on Climate Change

Kyoto Protocol

(Annex B)

Ratifying parties

U.S. & Australia

(Non-Annex B)

2006 2008 1st 2012 2nd

Compliance details

Gradual movement (not Kyoto)

No CO₂ obligation

Tightening unlikely without U.S.

No internal pressure to commit

1st

2nd

?
Path to Today’s Situation

• Nov. 2000: Negotiations collapse on details
  – Limits on use of purchased reductions
  – Existing (do nothing) sinks
• Mar. 2001: Bush rejects Kyoto
• Jul./Oct. 2001: Political deals (ex the US)
  – More sinks to Canada, Japan, Russia
  – Remove limit on purchased reductions
• Nov. 2005: Entry of Kyoto into force
• Since 2005: the COP and MOP
  – Kyoto details
  – No negotiations of Post-2012
Problems with Kyoto

• Fixed, legally binding, short-term targets
  – Unrelated to economic growth along the way
  – Unknown cost
  – Unequal burdens

• Trading/sinks: artifact of premature targets
  – Imply large international financial flows
  – Damaging fight over carbon sinks

• Handling of developing countries
  – No discussion of how they might participate

• Seek US policy ahead of Congress
Lessons Learned the Hard Way

• A common view of international process
  (1) Agree on the structure for negotiations
  (2) Negotiate commitment levels & measures
  (3) Nations implement control measures

• For an issue like climate change the process begins the other way around
  – Nations only agree to a potentially costly commitment if confident they can meet it
  – Binding agreements follow (not lead) domestic commitment
Prospects for Achieving the 2008-12 Kyoto Targets

• Key parties
  – EU and its member countries
  – Japan
  – Canada
  – Russia

• Key developments
  – CDM
  – Russia trade
  – Economic growth
Efforts to Find a Way Forward

• Within the FCCC
  – Meetings of Members of the Protocol (MOP)
  – Seminars on future directions

• Group of Eight (international summit)

• Greenland Dialogue
  – 20 countries, EU lead

• Bilateral negotiations
  – EU and China
  – US and many others (technical cooperation)