

Climate Change & Policy



United Nations

World Meteorological Organization



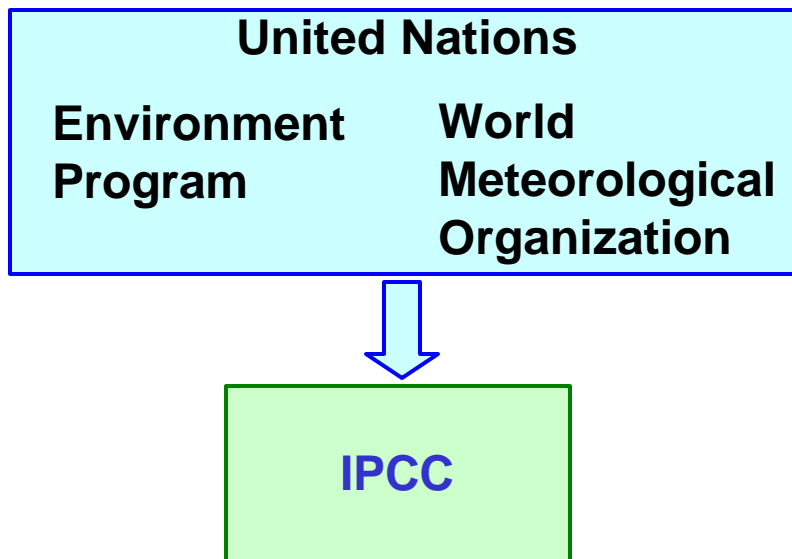
“The UN system’s authoritative voice on the state and behaviour of the Earth’s atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water.”

“To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.”

<http://www.wmo.ch/index-en.htmlresources>

<http://www.unep.org/>

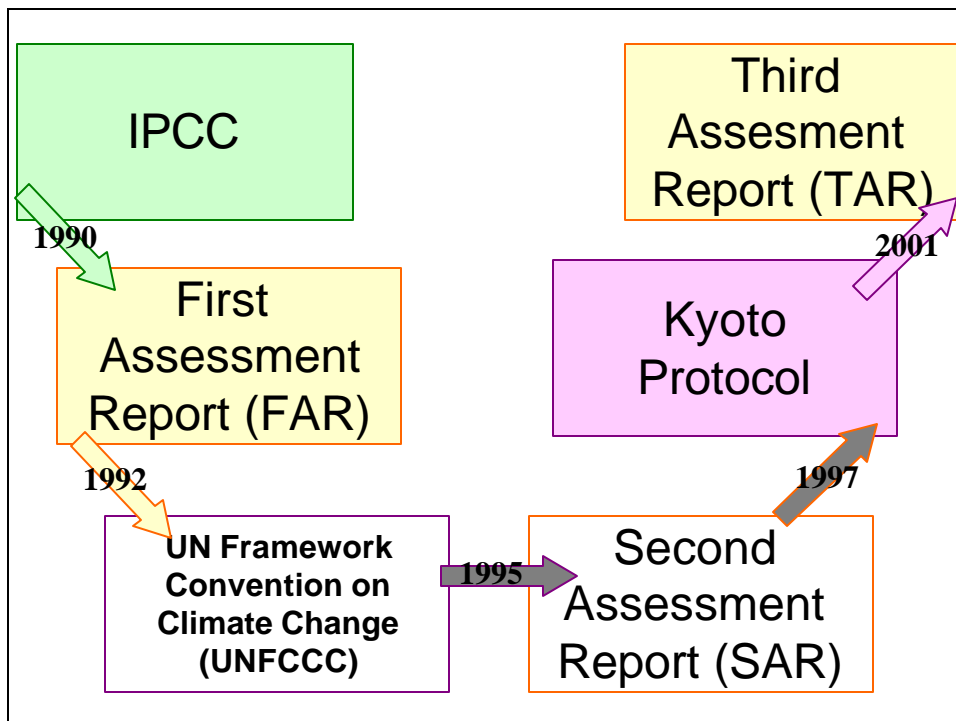
International Panel on Climate Change 1988



What is the IPCC?

- Membership consists of ~2000 international scientific, technical, economic, and sociological experts.
- Assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change. Based on peer-reviewed scientific and technical literature.
- Produced 3 Assessment Reports in 1990, 1995, 2001. Each report contains 3 volumes:
 - *The Scientific Basis*
 - *Impacts, Adaptation, and Vulnerability*
 - *Mitigation*Next report in 2007.

International Panel on Climate Change (IPCC)



Who is the UNFCCC?



UNFCCC Membership:

Annex I Countries: 49 developed and transitional countries

Non-Annex I Countries: 150 developing and OPEC countries

UNFCCC Observers:

IGO's: 55 Intergovernmental Organizations (e.g. European Free Trade Association, Organization of American States, Caribbean Meteorological Organization)

NGO's: > 600 Nongovernmental Organizations (e.g., Air Transport Association of America, American Farm Bureau, International Union of Railways, International Emissions Trading Assoc., International Council of Women, Stanford Univ., Portland Cement Assoc., RAND Foundation, Environmental organizations)

What is the UNFCCC?



UNFCCC is an **INTERNATIONAL TREATY** that took effect in 1994:

- 1) Defines the problem of greenhouse gas emissions and global warming and the potential impact it may have on societies.
- 2) Establishes a framework within which to explore issues and take action.
- 3) Assigns responsibility for action.
- 4) Encourages sustainable development.

UNFCCC Rio de Janeiro -1992 Defined the Problem

- **Agree that human activity has the potential to influence climate in ways that may be harmful to societies.**
- **Set objective to stabilize greenhouse gas emissions at safe level.**
- **Set a time-frame for stabilization that will ensure minimum disruption to ecosystems, food production, and economics.**

UNFCCC-1992 Established a Framework

- 1. Infrastructure for addressing issues**
 - general principles
 - institutions
 - agreement to meet regularly
 - precautionary principle: *action before certainty*
- 2. Agree to consider ghg's in national policies:**
 - agriculture - transportation - industry
 - forestry - energy
- 3. Encourages research:**
 - data gathering, observation,
 - established IPCC
 - national greenhouse gas inventories.

UNFCCC-1992

Who takes the responsibility: Industrial vs. developing nations

- 1. Responsibility:**
 - developed countries make most of the emissions, developed countries take most of the responsibility
 - developed countries financially assist developing countries
 - developed and transition countries commit to decrease ghg emissions to 1990 levels by 2000
- 2. Recognizes that poor nations have right to develop:**
caveat, development leads to increased emissions
- 3. Recognizes greater vulnerability certain nations to impacts of climate change:** those with fragile ecosystems, borderline economies, oil and coal economies.

UNFCCC Treaty went into effect in 1994

Final Results

- 1. No quotas or other binding agreements, participation voluntary**
- 2. Signed by 185 countries, including the US. (Bush Sr.)**
- 3. *Only Australia, Iceland, and Norway met 2000 deadline to decrease emissions.***
- 4. IPCC 2nd Assessment Report in 1996 lead to more stringent measures → Kyoto Protocol**

Kyoto Protocol-1997

What is the Kyoto Protocol

The **Kyoto Protocol** is an international agreement *linked to the UNFCCC treaty* establishing specific actions and methods to accomplish goals set out in UNFCCC.

Restates Commitments from UNFCCC to:

- Improve quality of emissions data.
- initiate national mitigation and adaptation programs.
- Promote transfer of new technology.
- Cooperate to carry out scientific research and observation networks.
- Support public education on climate change

Kyoto Protocol-1997

What is the Kyoto Protocol

Key Points:

1. **Commitments: legally binding emissions targets**
2. **Implementation: 3 mechanisms**
3. **Minimizing impact on developing countries**
4. **Accounting, reporting, and review**
5. **Compliance**

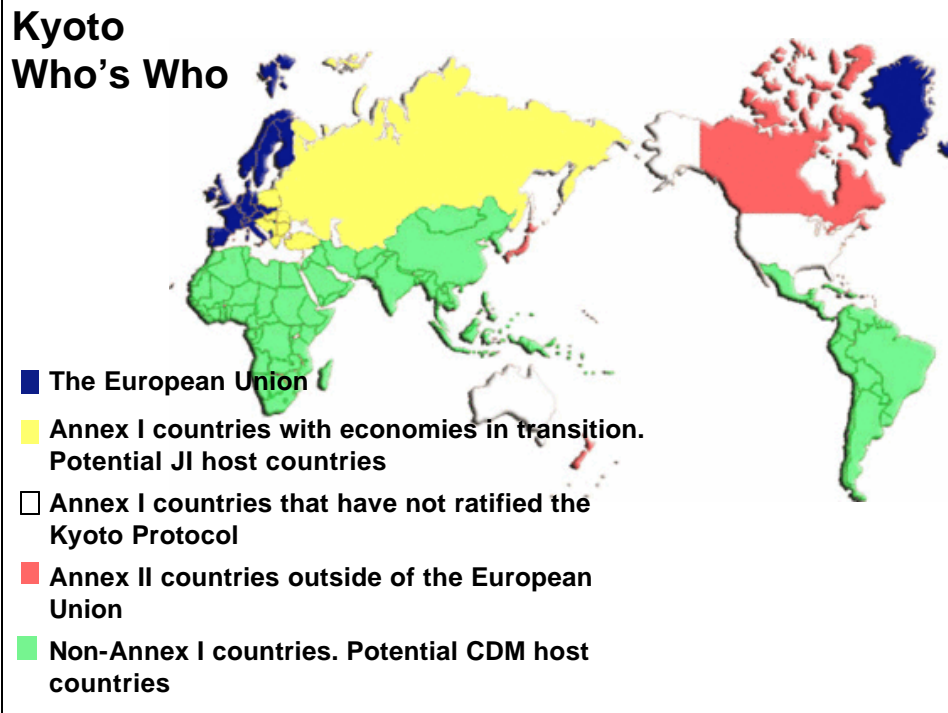
Kyoto Protocol Commitments

- Commits developed countries to legally binding targets and timetables:
 - Collective emissions reduced by 5% by 2012 (*will not reduce upward trend in growth of ghg's*)
 - Progress must be demonstrable by 2005
 - Ratification: Protocol becomes legally binding when:
 - 1) 55 countries needed to ratify the protocol
 - 2) ratifying countries account for 55% of 1990 emissions.
- Includes 6 greenhouse gases: CO₂, CH₄, N₂O, SF₆, PFC's and HFC's (CFC replacements)

Kyoto Protocol Commitment: Division of Labor

Goal: 5% reduction in global carbon emissions

1. **Developed countries** take the lead:
 - emissions targets based 1990 emissions levels
 - targets vary from nation to nation (next slide)
 - commitment period: 2008-2012
 - commitment to help developing countries
2. **Economy in Transition (EIT) Countries:**
 - may choose base year for emission reductions
 - not committed to finance developing countries
3. **Developing countries:** emission targets still under debate



Emissions Targets (% 1990)

Australia 108	Liechtenstein 92
Austria 92	Lithuania* 92
Belgium 92	Luxembourg 92
Bulgaria* 92	Monaco 92
Canada 94	Netherlands 92
Croatia* 95	New Zealand 100
Czech Republic* 92	Norway 101
Denmark 92	Poland* 94
Estonia* 92	Portugal 92
European Community 92	Romania* 92
Finland 92	Russian Federation* 100
France 92	Slovakia* 92
Germany 92	Slovenia* 92
Greece 92	Spain 92
Hungary* 94	Sweden 92
Iceland 110	Switzerland 92
Ireland 92	Ukraine* 100
Italy 92	United Kingdom 92
Japan 94	United States 93
Latvia* 92	*Countries that are undergoing the process of transition to a market economy

http://unfccc.int/essential_background/kyoto_protocol/items/1678.php

Kyoto Protocol

Implementation: How do you make it happen?

- **Annex I nations must implement policies and measures that will reduce ghg emissions:**
 - enhance energy efficiency
 - promote renewable energy
 - promote sustainable agriculture
 - improve waste management
 - reduce industrial emissions
 - reduce transport emissions
 - remove market subsidies
 - protect and enhance ghg sinks
- **Encourages governments to work together**
 - sharing information and technology
 - coordinating national policies to influence global markets
 - minimizing negative impact on others

Kyoto Protocol

Implementation: Emissions Reductions

- **Can reduce emissions directly:**
Scrubbers, clean technology, conservation
- **Can reduce emissions indirectly:**
Carbon sequestration
 - trees
 - underground geologic repositories
 - enhancing ocean uptake
- **Carbon credits: 1 ton CO₂ = 1 credit**
<http://www.pointcarbon.com/>
<http://www.climatetop50.org/>
<http://www.chicagoclimatex.com/about/>

Kyoto Protocol

Minimizing impact on Developing Nations

The Kyoto Mechanisms

- **Emissions Trading:** Industrialized countries can buy and sell carbon credits.
- **Joint Implementation:** Developed countries can pay for and get credits for projects reducing emissions in EIT countries.
- **Clean Development Mechanism:** Developed countries get credits for financing projects that reduce or avoid increases in emissions in developing countries.
- **Benefits:**
Developed nations: cheaper than doing it at home.
Transitional and developing nations: free technology, greater efficiency, larger profits.

Kyoto Protocol

Minimizing impact on Developing Nations

- **Adaptation Fund:** 2% of CDM credits are paid into fund to help Least Developed Countries (LDC's) adapt to climate change.

Kyoto Protocol

Accounting, Reporting, and Review

Annex B Parties

1. National Communications due Jan. 1, 2006 including:

- **Details of National Registry System.**
- **Land-use data.**
- **National policies implemented.**
- **Domestic actions taken.**
- **Participation in JI and CDM actions.**
- **Financial resources allocated to non-Annex I Parties.**
- **Transfer/acquisition of emissions credits.**
- **Actions taken to minimize impacts on developing countries.**

Kyoto Protocol

Accounting, Reporting, and Review

Annex B Parties

2. Must submit a report on which to base assigned emissions reduction commitment, due Jan 1, 2007.

3. Must submit a national system for estimating ghg emissions and removals.

4. Review by Compliance Committee

- **Includes onsite visits**
- **Annual publication of Accounting Report**
- **Will publish Final Report in 2012**

Kyoto Protocol Compliance

Marrakesh, Nov 2001

Goal: To facilitate promote and enforce adherence to Protocol commitments

Compliance Committee:

- 1) **Facilitative Branch:** provides advice, assistance, warning of noncompliance, assigns technical and financial resources to parties.
- 2) **Enforcement Branch:** determines noncompliance, determines consequences for non compliance.

Members are representative of Kyoto Protocol Parties:

Africa	Western Europe	Annex 1
Asia	Eastern Europe	Non-Annex I
Latin America	Island Nations	

Kyoto Protocol

Consequences of noncompliance

- 1) Emissions target not met by 2012
 - Receive 100 days to achieve target through any route.
 - Noncompliant after 100 days:
 - make up credits +30% in 2nd commitment period
 - barred from selling credits
 - make compliance plan within 3 months
- 2) Failure to report emissions
 - Eligibility to participate in trading mechanisms may be revoked
 - Make plan for reporting within 3 months
- 3) Hearings and appeals can be made for committee decisions.

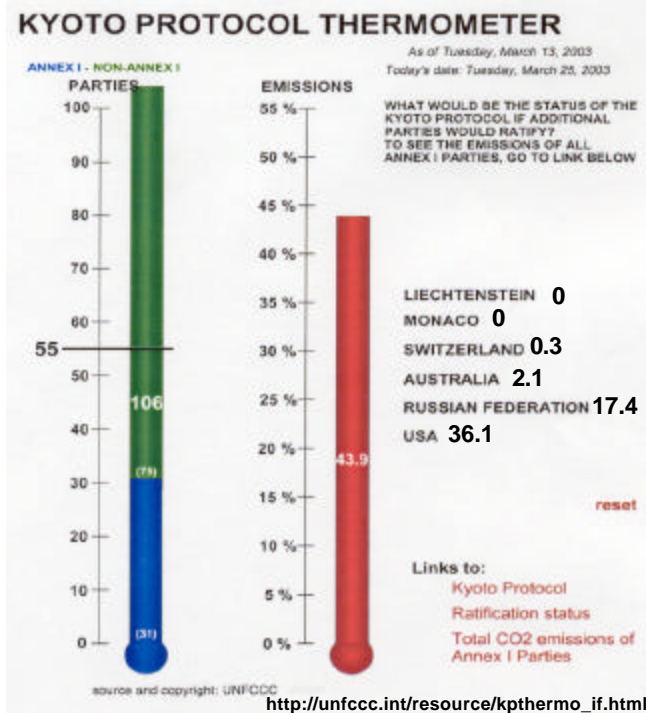
Kyoto Protocol

The Kyoto Protocol (Dec. 1997, Kyoto, Japan, 160 countries participating)

- More forceful attempt to implement the UNFCCC principles.
- Emissions Targets: for 49 industrialized countries to reduce emissions by ~5% below 1990 levels during 2008-2012. Specific targets are set for each country.
- Ratification: 55 parties, including countries representing 55% of developed-country emissions, must ratify protocol.
- Key strategies include: Emissions Trading, Joint Implementation, Clean Development Mechanism.
- Signed but not ratified by the U.S. under Clinton
- U.S. withdrew from Kyoto Protocol under G.W.Bush, 3/2001

Ratification

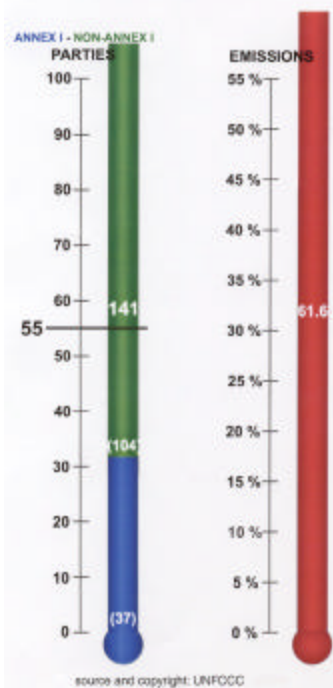
Until recently



Kyoto Protocol

Ratified by Russia
November 2004

Entered into Effect:
Setting binding
emissions standards
February 16, 2005



COP10 Buenos Aires, Dec. 2004

After 2012?

Kyoto Protocol requires further negotiations beginning in 2005

- EU leading efforts to take further steps
- Developing countries split:
 - China and OPEC Nations oppose Non-Annex I commitments.
 - Others appear open to commitments
- US (Observer status only): *“Adamantly opposed to any discussion with a view to the future.”*

Other issues

- Seminar of Governmental Experts
- Adaptation
- Finalized procedures for implementation of Kyoto Protocol
- COP/MOP11 Montreal, Nov 2005.

Web Sites

<http://www.pewclimate.org>

<http://unfccc.int/2860.php>

http://www.pewclimate.org/what_s_being_done/in_the_world/cop10/summary.cfm

Review Questions for UNFCCC & Kyoto Protocol

The UNFCCC:

1. What is its purpose?
2. When was it created?
3. Within what international organization does it reside?
4. Who are members and who are observers?

Kyoto Protocol

1. How is it related to the UNFCCC and what is its purpose?
2. What is a binding agreement?
3. What is the collective emissions reduction target and when must it be attained?
4. What is the base year for emission reductions and what is the range?
5. What criteria needed to be met for Kyoto Protocol to enter into effect?
6. Who was the most recent country to ratify the Kyoto Protocol?
7. When did the protocol enter into effect?
8. Define developed, transitional, and developing countries. How do their responsibilities differ within the protocol?
9. What are direct and indirect emissions reductions?
10. What are carbon credits and what are the 3 mechanisms for a country to obtain credits without reducing emissions within its own borders?
11. What year does the commitment period end?
12. If the goals of the Kyoto Protocol are met what will be the impact on global warming?

Group Presentations - April 20 & 25

Attendance mandatory both days

- Each member may present or the group can pick 1 or 2 spokes-persons to present the material for the entire group. All group members need to be present for presentation and to answer questions for their topic.
- Presentation time: 10 minutes/group
- Questions: 5 minutes/group
- May use power point slides, overheads, other props...

Mini-Kyoto Conference

Groups

April 20

- 1. England**
- 2. Russia**
- 3. Indonesia**
- 4. Australia**
- 5. China**

April 25

- 6. Maldiv Islands**
- 7. USA**
- 8. Regional Greenhouse Gas Initiative**
- 9. California**
- 10. Alliance of Automobile Manufacturers**

Mini-Kyoto Conference - Discussion April 27, Attendance Mandatory

- Each group presents 2-3 recommendations for reducing greenhouse gas emissions or adapting to the effects of global warming:
 - ▶ 2.5-minute presentation
 - ▶ 2.5-minute question/answer period
- Vote on which solutions to implement

Paper

- 1) Each person writes paper on 1 topic. Put your name on your paper.**
- 2) Each group combines papers into a report. Put all papers into a group folder. Include a title page and a table of contents.**

Geo 390 Paper Guide – due April 27

- **Length: 1-2 pages**
- **Line spacing: double**
- **Font: 10-12**
- **References:**
 - **at least 2**
 - **can be from legitimate web sites, library references, journals, documents, etc.**
 - **can use references from lecture notes but do not reference the lecture.**
- **Reference format:**
 - **text body (author, date)**
 - **reference list at end of paper (does not count as part of paper)**
 - **list format: #. Author, title, date.**
 - **web pages: do not put URL in text body do put URL in reference list**

Reference Examples

Within body of text:

The global average temperature has warmed by about 1°C over the last 100 years (Kump et al., 2004) while atmospheric carbon dioxide concentration has increased by about 15% in the last 15 years (CMDL-NOAA, 2005).

Reference List

1. Kump, L., J. Kasting, R. Crane, The Earth System, 2nd edition, pg. 325, 2004.
2. Climate Monitoring and Diagnostic Laboratory, National Oceanic Atmospheric Administration, [http:// www.cmdl.noaa.gov/ccgg/iadv](http://www.cmdl.noaa.gov/ccgg/iadv), 2005.