# CLIMATE DIPLOMAT™

## POST-2012 CLIMATE CHANGE NEGOTIATION SIMULATION

by

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**The Energy + Environment Foundation**

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Climate Diplomat is an 8-person multi-stakeholder negotiation role-play that simulates the United Nations Framework Convention on Climate Change (UNFCCC) negotiations. This role-play simulates the current negotiations of the implementation of the Bali Plan of Action adopted at the December 2007 UNFCCC Conference of the Parties (COP) in Bali Indonesia to develop a successor arrangement to the Kyoto Protocol after it expires in 2012. The Kyoto Protocol establishes emissions limits for participating developed countries.

These materials are based on materials prepared by the UNFCCC Secretariat and submitted by countries to the UNFCCC, observation of country negotiating positions at UNFCCC meetings, interviews with country delegates to the UNFCCC meetings and representatives of environmental non-governmental organizations, and independent research and analysis.

UNFCCC delegates for each of the countries represented in Climate Diplomat were offered an opportunity to provide input to the development of their country's role. The positions described in the roles are not endorsed by any of the governments portrayed.

Climate Diplomat is freely available in the environmental negotiation section of Energy + Environment OpenCourseWare (http://eeocw.org/), an Energy + Environment Foundation initiative dedicated to promoting energy and environmental education.

## Acknowledgements

In preparing Climate Diplomat, Jason Cohen of the Massachusetts Institute of Technology prepared analysis for the economic analysis report. The following individuals reviewed and commented on earlier drafts: Energy + Environment Foundation interns Ashley Nikithser, John Schmidt, Bryan Stockton and Van Smith; Jason Cohen, James McFarland and Marcus Sarofim of the Massachusetts Institute of Technology; Katherine Watts and Katherine Silverthorne of the Climate Action Network; Glenn Wiser of The Center for International Environmental Law; and Timothy Hogan of Alston & Bird. Materials prepared by Center for International Environmental Law interns Jason Fung, Alena Häger, Marise Hosome, Ana Paula Ribero, Ka Joon Song, Amy Ward, Kenji Watanabe and Li Xiaolin were helpful in drafting country roles. Participants in earlier demonstration sessions of Climate Diplomat provided invaluable comments. Finally, various country delegates at UNFCCC meetings shared their time and views on the climate negotiations.

## Request for Feedback, Periodic Updates

As the climate negotiations evolve, Climate Diplomat will be periodically revised and updated versions posted on Energy + Environment OpenCourseWare (http://eeocw.org/). Your feedback is encouraged and welcome. If you have suggestions, please contact that author at craighart@alum.mit.edu.

# CLIMATE DIPLOMAT

## CONTENTS



**This document can be divided into sections using Adobe Acrobat, and distributed electronically to negotiation participants.**

# CLIMATE DIPLOMAT

# TEACHING INSTRUCTIONS

Climate Diplomat is an 8-person multi-stakeholder role-play that simulates the international negotiations to develop an arrangement to extend or replace the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). The focus of UNFCCC negotiations as laid out in the Bali Plan of Action adopted at the December 2007 UNFCCC Conference of the Parties (COP) is to develop a successor arrangement to the Kyoto Protocol, which establishes emissions limits for participating developing countries that will expire in 2012. The role-play incorporates actual materials from UNFCCC negotiations.

## I. OVERVIEW OF THE NEGOTIATION

### *Role-Players*

This negotiation simulation is played with eight roles, seven of which are country representatives and one of which is the COP Presidency that acts as the Chair of the meeting. The following role-players participate in the negotiation:

Alliance of Small Island States (AOSIS)
Brazil
China
European Union
India
Japan
United States
COP Presidency (Meeting Chair)

The COP Presidency acts as chairperson of the meeting and facilitates discussion. This person is a participant, and may be someone other than the course instructor.

### Agenda for the Negotiation Session

The negotiation session requires 90 minutes. The COP/MOP Presidency will serve as meeting chairperson, a neutral party that facilitates the country representatives in the process of negotiation. The COP/MOP Presidency is responsible for conducting the session according to the following agenda:

1. Introduction by COP Presidency (5 minutes)
2. Presentation of Agenda by COP Presidency, Discussion, and Approval (10 minutes)
3. Country Opening Statements (10 minutes)
4. Explore options and potential terms for a mutually acceptable resolution of issues and agreement (30 minutes).
5. Negotiation of final agreement (35 minutes)

*Negotiation Issues*

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than business as usual projections.

The Bali Action Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance. Our negotiations focus on resolving the key issues identified in the Bali Action Plan:

1. **Mitigation**

    a. **Developed Country Mitigation Commitments:**
        i. Total percentage reduction from 1990 level by 2020 and 2050
        ii. Year for emissions to peak*
        iii. Annual percentage reductions following peak*

    b. **Developing Country Mitigation Actions:**
        i. Nationally appropriate mitigation actions
        ii. Reporting, Monitoring and Verification
        iii. Financial support from developed countries
        iv. Goal: Total percentage reduction from 1990 level by 2020 and 2050
        v. Goal: Year for emissions to peak*
        vi. Goal: Annual percentage reductions following peak*

2. **Technology Transfer to Developing Countries**
    a. Terms of technology transfer arrangements
    b. Financial support for acquiring and implementing technology transfer

3. **Adaptation**
    a. Financial support to the Least Developed Countries Fund
    b. Financial support for the Adaptation Fund

***These negotiation points are necessary if Climate Diplomat results are to be used with the Climate Rapid Overview and Decision-support Simulator (C-ROADS). For information about C-ROADS, see http://climateinteractive.wordpress.com/.***

### *Consensus Decision Making Under the UNFCCC and Kyoto Protocol*

Decisions under the UNFCCC and the Kyoto Protocol are made by consensus, not majority vote. The provision in the UNFCCC Rules of Procedure relating to voting was never adopted because countries objected to being bound by majority vote.

Consensus decision-making requires that all major countries consent to the arrangements you negotiate. If a country does not agree to the arrangements and the group adopts a decision without them, that country is unlikely to sign or ratify the new arrangement, which undermines the goal of an international climate regime designed to prevent dangerous climate change.

### *Negotiation Rules*

Below are the ground rules previously agreed to by stakeholders. These rules require that members:

- Avoid making personal attacks on other group members;
- Share relevant information with other group members;
- Explain the reasons behind one's statements, questions, and actions;
- Keep to the agenda;
- Make decisions by consensus, rather than majority rule;
- No private discussions; all discussions take place as a group; and
- Cell phones turned off at all times.

### *Rule on No Private Discussions*

Note that the rules for this negotiation do not allow private discussions among stakeholders; all discussions must be as a group. The reason for prohibiting private discussion is that it would require too much time to hold side discussions and would be disruptive to the negotiation, requiring stopping discussion among the larger group whenever two or more parties decide to talk privately. Our experience has shown that the negotiation proceeds smoothly with everyone talking as a group.

One possible variation relaxing this rule is to permit a limited time before negotiation begins (10 minutes) for parties to meet separately. Once negotiation begins, however, no further private discussions should be permitted and everyone should be required to stay in the room.

### *Encourage Negotiators to Stay in Role*

Encourage people to stay in their role throughout the entire negotiation. The participants will achieve the best results if they present themselves as the persons described in their particular role. Reminding participants to stay in their roles before you begin and then treating them as their role-person is the most effective way to achieve this.

## II. PREPARATION FOR THE NEGOTIATION

### *Sample Schedule for Full Course*

The teacher should allow approximately 3-4 hours for teaching a segment that includes the introduction to negotiation, negotiation role-play, and post-negotiation discussion. Here is a sample schedule:

- 45 minutes – Introduction to negotiation (optional)
- 15 minutes – Break (if large class, separate into groups of 8 and assign rooms)
- 15 minutes – Time to review General Instructions and Confidential Instructions
- 90 minutes – Negotiation Session
- 45 minutes – Post-negotiation discussion

If the participants do not have any prior training or experience in negotiation, it is helpful to give an overview of negotiation theory. This optional introduction to negotiation requires an additional hour (45 minutes with 15 minute break). Reference materials are located in the Additional Resources section below, which includes a set of slides available from the Energy + Environment OpenCourseWare website (eeocw.org).

### *Materials to Distribute to Participants in Advance*

The materials should be handed out as far in advance of the simulation as possible. All negotiation participants receive the following materials:

General Instructions
Economic Analysis Report
Negotiation Worksheet
Confidential Instructions (specific to their particular role)

IMPORTANT: For Confidential Instructions, participants only receive the specific role they are to play.

### *Sample Email to Send to Participants In Advance*

Here is the text of an email that the instructor can modify to send to each negotiation participant several days in advance with the General Instructions, Negotiation Worksheet, Economic Analysis Report, and the Confidential Instructions for their particular role. You may want to send a separate email with the Confidential Instructions because each person only receives their own role.

*Dear _____,*

*On [Date] at [time] we will meet at the [Place], Room [Number] to participate in Climate Diplomat, a simulation of the international climate negotiations.*

*Because time is limited during the negotiation, you must prepare in advance by reading the attached memos before you come. Attached are the General Instructions memo, the Economic Analysis Report, and the Negotiation Worksheet, which everyone participating in the negotiation receives. These describe the negotiation and provide you with essential information you need to know for the negotiation.*

*[Also attached is][In a separate email, you will receive] a Confidential Instructions memo, which describes your role. Only you receive this memo. It is important that you do not share the confidential memo with any of the other participants because our goal in the negotiation is to recreate a realistic negotiation scenario.*

*Please read these materials and be familiar with your role before the meeting. This is the only information available to you during the negotiation, though you may ask questions of other negotiators.*

*You should print and bring a copy of these materials to the negotiation session because additional copies will not be provided.*

*During the negotiation, we will ask you to stay in your role at all times until the end of the negotiation. All cell phones will be turned off during the negotiation.*

*We can't start the negotiation without you so please arrive before the start time. If for any reason you cannot attend, please contact me in advance as soon as possible.*

***Room Arrangements***

If you plan to give a presentation introducing negotiation techniques, the room should be equipped with a computer and projector. Slides on negotiation are available on the Energy + Environment OpenCourseWare site (eeocw.org).

Negotiation rooms should be equipped with a large conference table or tables and chairs (capable of handling 8 people) that can arranged so the parties can face each other with direct eye contact at all times. Rooms should be equipped with a chalkboard or whiteboard. If there are multiple groups of negotiators and separate rooms cannot be arranged for each group, a large room that can accommodate several groups of negotiators can be used.

## III. POST-NEGOTIATION DISCUSSION

Following negotiation, discuss the outcome. If a group reached agreement, discuss how strong an agreement you were able to achieve toward preventing dangerous climate change. Also consider what prevented reaching a stronger agreement. If a group did not reach agreement, consider what prevented reaching agreement. Discuss the following questions:

What constraints in your role frustrated your efforts to reach agreement?
Are the constraints political, economic, scientific, or other?
Could those constraints be changed?
If so, what would be required to change them?

In evaluating how a country negotiated, also discuss the negotiating techniques participants employed. For example, did participants openly discuss issues, express legitimate concerns, and seek to find concrete and strong solutions? Or, did participants seek to keep issues off the agenda, prevent discussion, and promote vague language to be adopted in any agreement reached by the parties?

For each group of negotiators, nominate and vote on the following awards:

1. The party that sought to weaken the agreement the most?
2. The party that used the least constructive tactics?
3. The party that tried the hardest to conclude a strong environmental agreement?

## IV. NOTE ON PRINCIPLED NEGOTIATON THEORY

If the negotiation participants are unfamiliar or inexperienced in negotiation, it is useful to give an overview of principled negotiation theory using the introduction to negotiation slides available on Energy + Environment OpenCourseWare (eeocw.org).

The "References" section below provides resources available on negotiation. These include *Getting to Yes* (Fisher, Ury and Patton) and *Getting Past No* (Ury).

Principled negotiation is an interest-based approach to negotiation. This approach advocates five basic principles of negotiation: (1) separate the people from the problem; (2) focus on interests, not positions; (3) invent options for mutual gain; (4) insist on objective criteria; (5) do not accept anything less than your "Best Alternative To a Negotiated Agreement" or "BATNA".

Separate the people from the problem means separating relationship issues (or "people problems") from substantive negotiation issues. Common emotional issues (fear, anger, distrust, etc.) often interfere with the substantive issues in negotiations, making it difficult to reach agreement. The first principle is to separate the relationship issues from substantive negotiation issues and to deal with each separately.

Negotiate interests, not positions means negotiating about the essential issues and concerns to a party, as opposed to negotiating over a position which parties often begin a negotiation with. Often, a party's opening position is not the same as its real interests, and it typically is inflexible and ignores the legitimate interests of the other parties to a negotiation. People often take extreme and/or inflexible positions that are designed to protect their interests or counter their opponents' positions without really identifying and discussing underlying issues and directly negotiating a solution that meets both parties' interests. Through open discussion of each party's interests, as opposed to insisting on their own position, parties often discover that their interests are compatible, not mutually exclusive, and both can be accommodated through joint problem solving. Negotiating interests may also lead to the development of better options and outcomes, which leads us to our next point of principled negotiation.

By focusing on interests, parties can more easily move the discussion to the third principle--invent options for mutual gain. It is at this stage where seemingly impossible issues become solvable. Invent options for mutual gain means looking for new and creative solutions to problems that will enable both sides to win. This overcomes the problem of fighting over the original positions, which often involve one side winning at the other's expense. The emphasis here is on brainstorming and jointly creating new options to be evaluated by both parties. Once the parties have developed several options to consider, reaching an agreement generally becomes much easier.

The fourth principle is to insist on objective criteria for decisions whenever possible. Where objective criteria are available to the negotiators, their use can reduce

argument, simplify negotiations, and lead to a fairer outcome. A simple example: if people are negotiating over the price of a car, they can use recent sales of comparable cars as a guideline.

Finally, you should never accept less than your BATNA, which stands for "Best Alternative To a Negotiated Agreement". This requires negotiators to know what their best option is without the need for agreement with the other party. This is commonly called your "bottom line." Being aware of your alternatives to a negotiated agreement prevents you from accepting an agreement that is worse than not reaching any agreement, or rejecting an agreement that is a better outcome than you could achieve on your own.

What to do if one party follows these principles and other party refuses to acknowledge the other's interests and holds to their own inflexible position? We suggest you keep trying to move the discussion towards interests and options, reminding the other party that they lose nothing from a discussion of the issues. If they still won't have a constructive discussion, this is where knowing your BATNA is critical. Sometimes no agreement is the best outcome, especially where one party refuses to take the other's interests into consideration in the negotiation

By following these principles, the goal is to reach better outcomes for both parties. By doing this, agreement can be reached without sacrificing ("compromise") important interests. Instead, the emphasis is on helping each other achieve their goals.

*Non-Constructive Negotiation Techniques*

When a negotiator does not want to address or reach agreement on an issue, there are a number of techniques that can be employed. Because the UNFCCC relies on consensus decision making and does not have a majority rule voting procedure, non-constructive negotiating techniques or "dodges" can seriously negatively impact UNFCCC COP/MOP proceedings. Below are some common negotiating "dodges" observed at COP/MOP meetings:

**Agenda and Forum for Discussion**
Keep issue off agenda
Oppose convening working groups on issues
Hold discussion in informal meetings (off record, closed sessions without observers)
If on agenda, refer issue to SBSTA, SBI or IPCC to delay making a decision at COP/MOP
Keep issue off SBI agenda to avoid funding and implementation discussion
Keep issue out of final COP/MOP decisions
Remove from COP/MOP by referring issue to World Trade Organization (for trade issues)
Raise significant objections on major issues at end of a session to prevent reaching consensus

**Using Procedure to Avoid Issues**
Delay deciding on procedure for discussion
Argue over procedure
Adopt procedures that limit scope of input
Adopt procedures that separate or de-link related issues
Agree on process, but do not agree on substance
Change bodies to interrupt progress on work
Work through paper submissions, not working groups

**Text of COP/MOP Decisions**
Limit scope of language
Make requests or suggestions, not decisions
Refuse to agree to language
Adopt vague language (that is open to many interpretations or difficult to enforce)
Negotiate guiding principles carefully (they are important because they specify purpose)
Emphasize language supportive of your position, deemphasize or eliminate other language

**Publicity**
Move discussion to informal meeting (off record, closed sessions without observers)
Keep it out of the press

***Reference Materials on Negotiation***

Roger Fisher and William Ury, *Getting to Yes: Negotiating Agreement without Giving In* (New York: Penguin Books, 1991).

William Ury, *Getting Past No: Negotiating With Difficult People* (New York: Bantam Books, 1991).

"Principled Negotiation" website. International Online Training Program On Intractable Conflict, Conflict Research Consortium, University of Colorado, USA. Available at: http://www.colorado.edu/conflict/peace/treatment/pricneg.htm.

# CLIMATE DIPLOMAT

## GENERAL INSTRUCTIONS

This is the international climate negotiation to extend or replace the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol establishes emissions limits for participating developed countries and expires in 2012. The Bali Plan of Action adopted at the December 2007 UNFCCC Conference of the Parties (COP) in Bali Indonesia focuses on developing a successor arrangement to the Kyoto Protocol. This general instructions memorandum is organized as follows (with page numbers):



In addition to these General Instructions, you should receive:
(a) Economic Analysis Report (economic analysis of various emissions reduction scenarios);
(b) Negotiation Worksheet; and
(c) Confidential Instructions (specific to your role, not to be shared with other participants).

## I. Negotiation Goal: Preventing Dangerous Climate Change

There is widespread consensus in the scientific community that preventing temperatures from increasing 2°C above pre-industrial levels is necessary to prevent dangerous climate change (drought, glacier melt, flooding, flooding, famine in certain areas). To achieve this goal, it is widely agreed that we must prevent carbon dioxide (CO2) concentrations from rising above 450 ppm.

According to the Intergovernmental Panel on Climate Change (IPCC), CO2 concentrations are already at 379 ppm compared to pre-industrial levels of 280 ppm, and temperatures have already increased by approximately 0.7°C over pre-industrial levels (Forster et al. 2007). Because greenhouse gas emissions already in the atmosphere take decades to be processed by the Earth's oceans and other systems, global average temperature will increase approximately 1.3°C.

The IPCC Fourth Assessment Report estimates that increases in the global average surface temperature can still be limited to only 2°C above pre-industrial levels if global greenhouse gas emissions peak by around 2015 and are reduced between 50% to 85% below 1990 levels by 2050.

## II. Negotiating the Bali Action Plan: Participants, Agenda, and Rules

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm CO2-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections.

The Bali Action Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance. Our negotiations will focus on resolving the key issues identified in the Bali Action Plan.

### *Negotiation Participants*

The following roles will participate in the negotiation:

Alliance of Small Island States (AOSIS)
Brazil
China
European Union
India
Japan
United States
COP Presidency (Meeting Chairperson)

### *Consensus Decision Making Under the UNFCCC and Kyoto Protocol*

Decisions under the UNFCCC and the Kyoto Protocol are made by consensus, not majority vote. The provision in the UNFCCC Rules of Procedure relating to voting was never adopted because countries objected to being bound by majority vote.

Consensus decision-making requires that all major countries consent to the arrangements you negotiate. If a country does not agree to the arrangements and the group adopts a decision without them, that country is unlikely to sign or ratify the new arrangement, which undermines the goal of an international climate regime designed to prevent dangerous climate change.

### *Agenda and Ground Rules*

The COP/MOP Presidency will convene the meeting. It will meet for 90 minutes according to the following agenda:

1. Introduction by COP Presidency (5 minutes)
2. Presentation of Agenda by COP Presidency, Discussion, and Approval (10 minutes)
3. Country Opening Statements (10 minutes)
4. Explore options and potential terms for a mutually acceptable resolution of issues and agreement (30 minutes).
5. Negotiation of final agreement (35 minutes)

Below are the ground rules for your negotiation. These rules require that participants:

- Avoid making personal attacks on other group members;
- Share relevant information with other group members;
- Explain the reasons behind one's statements, questions, and actions;
- Keep to the agenda;
- Make decisions by consensus, rather than majority rule;
- No private discussions; all discussions take place as a group; and
- Cell phones turned off at all times.

*Negotiation Issue and Agenda*

The following are the proposed agenda items at the negotiation:

1. **Mitigation**

    a. **Developed Country Mitigation Commitments:**
        i. Total percentage reduction from 1990 level by 2020 and 2050
        ii. Year for emissions to peak*
        iii. Annual percentage reductions following peak*

    b. **Developing Country Mitigation Actions:**
        i. Nationally appropriate mitigation actions
        ii. Reporting, Monitoring and Verification
        iii. Financial support from developed countries
        iv. Goal: Total percentage reduction from 1990 level by 2020 and 2050
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2. **Technology Transfer to Developing Countries**
    a. Terms of technology transfer arrangements
    b. Financial support for acquiring and implementing technology transfer

3. **Adaptation**
    a. Financial support to the Least Developed Countries Fund
    b. Financial support for the Adaptation Fund

***These negotiation points are necessary if Climate Diplomat results are to be used with the Climate Rapid Overview and Decision-support Simulator (C-ROADS). For information about C-ROADS, see http://climateinteractive.wordpress.com/.***

***Post-Negotiation Group Discussion***

Following negotiation, discuss the outcome. If a group reached agreement, discuss how strong an agreement you were able to achieve toward preventing dangerous climate change. Also consider what prevented reaching a stronger agreement. If a group did not reach agreement, consider what prevented reaching agreement. Discuss the following questions:

What constraints in your role frustrated your efforts to reach agreement?
Are the constraints political, economic, scientific, or other?
Could those constraints be changed?
If so, what would be required to change them?

In evaluating how a country negotiated, also discuss the negotiating techniques participants employed. For example, did participants openly discuss issues, express legitimate concerns, and seek to find concrete and strong solutions? Or, did participants seek to keep issues off the agenda, prevent discussion, and promote vague language to be adopted in any agreement reached by the parties?

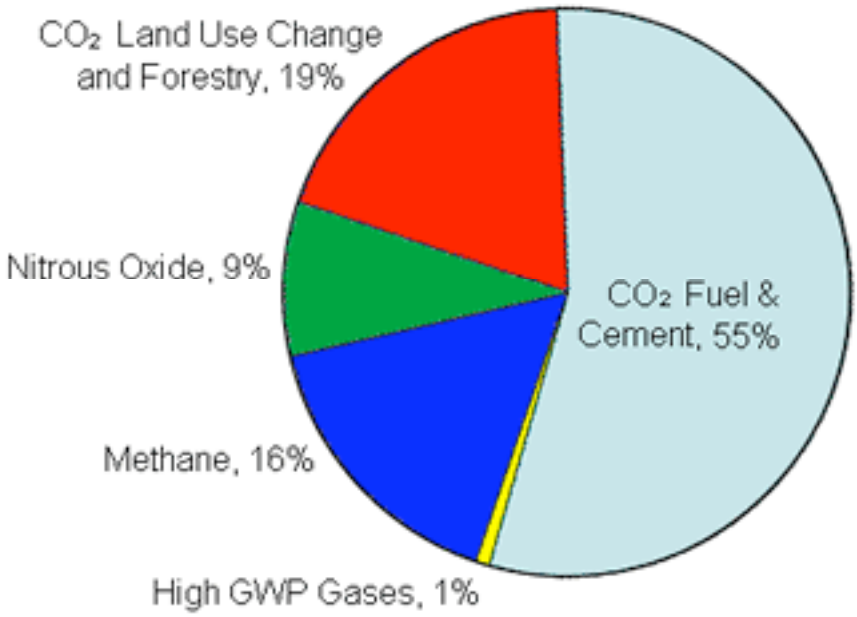
For each group of negotiators, nominate and vote on the following awards:

1. The party that sought to weaken the agreement the most?
2. The party that used the least constructive tactics?
3. The party that tried the hardest to conclude a strong environmental agreement?

## III. Climate Science

Greenhouse gases are gases that have the physical property of absorbing radiation in the form of heat. When released in the Earth's atmosphere, these gases trap heat, causing the planet's atmosphere to warm. The principle human-made greenhouse gases are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride ($SF_6$). Land use changes, such as cutting forests, are also a significant contributor to greenhouse gas emissions, second only to carbon dioxide.

**Figure 1: Global Greenhouse Gas Emissions 2000**




Source: United States EPA, http://www.epa.gov/climatechange/emissions/globalghg.html.

The Earth, its oceans, and atmosphere are characterized by a carbon cycle, in which carbon is trapped by land, ocean, or atmosphere. Land sinks include vegetation, geologic formations, and living organisms. Ocean sinks include both living organisms and chemical interaction with surface waters. A balanced carbon cycle releases carbon to the atmosphere (through decay or combustion) at a rate equal to carbon absorbed by vegetation or ocean mixing, or destroyed through chemical interactions in the atmosphere.

Because land and oceans absorb and release carbon gradually, the rapid introduction of large-scale carbon-emitting industry can overwhelm nature's ability to maintain the carbon balance. Today, approximately 3 gigatons of carbon (or carbon equivalent) released into the atmosphere each year are not absorbed by land or ocean sinks (University of Washington 2002).

The 2007 Fourth Assessment Report prepared by the Intergovernmental Panel on Climate Change (IPCC) concluded that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPPC WGI Fourth Assessment Report Summary for Policymakers 2007). The IPCC further states "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations", meaning that there is a likelihood of greater than 90% that climate change is occurring due to human interference with the climate system (IPPC WGI Fourth Assessment Report Summary for Policymakers 2007).

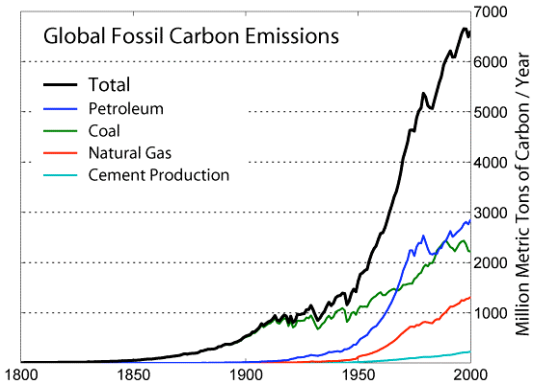
**Various GHG concentration levels for Annex I and non-Annex I countries**

| Scenario | Region | 2020 | 2050 |
|---|---|---|---|
| 450 ppm $CO_2$-eq | Annex I | -25% to -40% | -80% to -95% |
| | Non-Annex I | Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia | Substantial deviation from baseline in all regions |
| 550 ppm $CO_2$-eq | Annex I | -10% to -30% | -40% to -90% |
| | Non-Annex I | Deviation from baseline in Latin America and Middle East, East Asia | Deviation from baseline in most regions, especially Latin America and Middle East |
| 650 ppm $CO_2$-eq | Annex I | 0% to -25% | -30% to -80% |
| | Non-Annex I | Baseline | Deviation from baseline in Latin America and Middle East, East Asia |

Source: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Technical Summary, pages 39 and 90, and Chapter 13, page 776

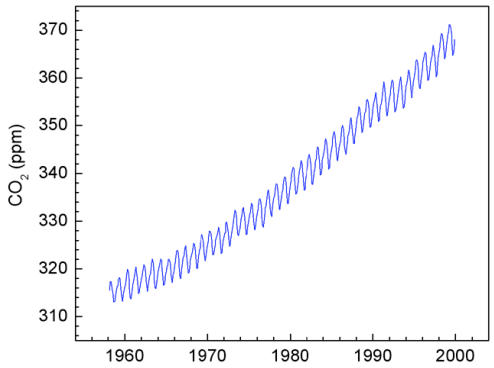
High concentration of greenhouse gases mainly results from the burning of fossil fuels, agriculture, waste dumps, deforestation and other human activities. The process is further accelerated by economic and population growth. These greenhouse gases trap heat in the Earth's lower atmosphere, causing global mean temperatures to steadily increase during the 20th century.

**Global Fossil Carbon Emissions, 1800-2000**



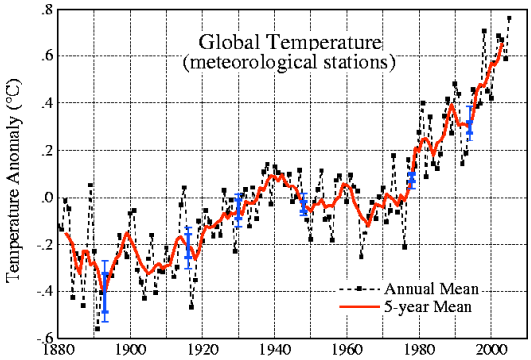

Source: Marland, G., T.A. Boden, and R. J. Andres (2003).

**Observed Carbon Dioxide Concentrations, 1960-2000**




Source: NOAA Mauna Loa Observatory (2006).

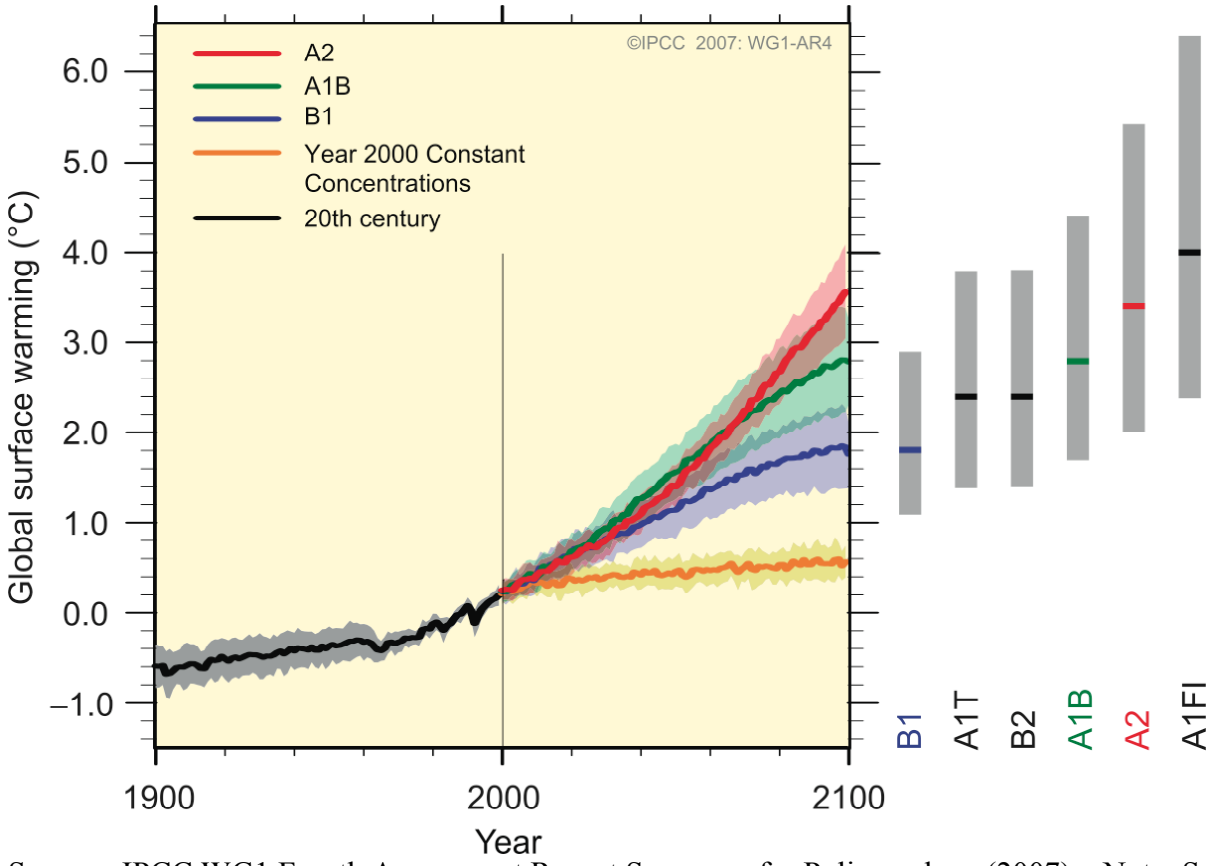
**Observed Global Average Temperature, 1880-2000**




Source: GISS (2006).

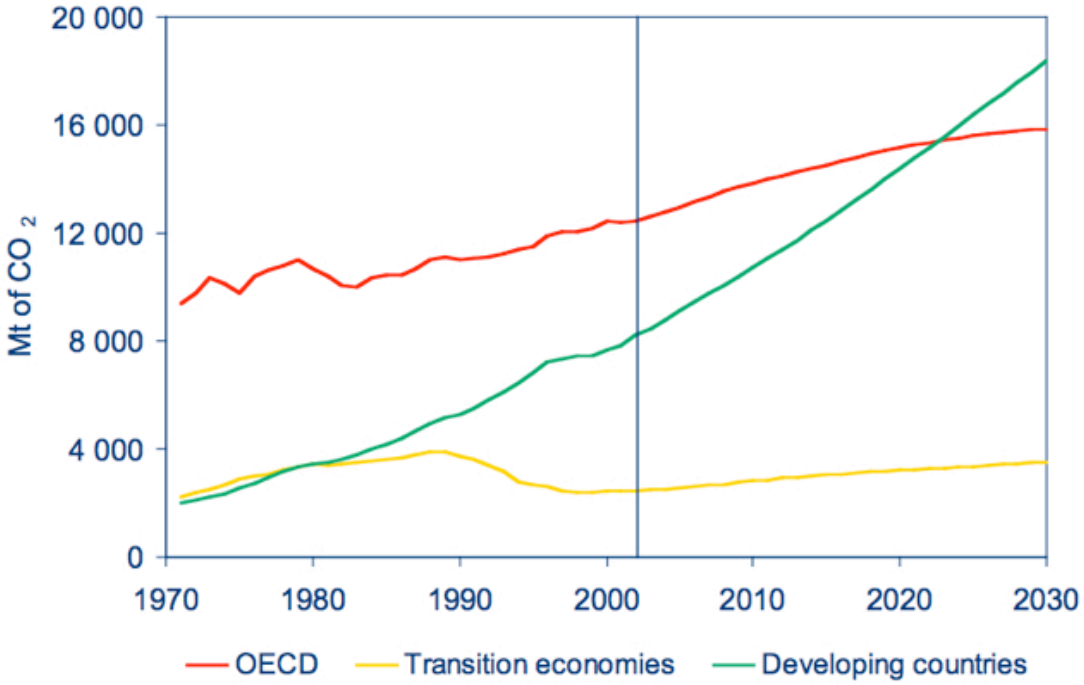
The figure below summarizes projections for global average temperature increases from several leading climate systems models assuming six illustrative emissions scenarios. These scenarios range from reductions in carbon intensity and the introduction of clean and resource-efficient technologies, to a scenario featuring high-energy consumption and carbon intensity and correspondingly high greenhouse gas emissions.

**Predicted Global Warming under selected SRES Emissions Scenarios**




Source: IPCC WG1 Fourth Assessment Report Summary for Policymakers (2007). Note: Solid lines are multi-model global averages of surface warming (relative to 1980–1999) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the ±1 standard deviation range of individual model annual averages. The orange line is for the experiment where concentrations were held constant at year 2000 values. The grey bars at right indicate the best estimate (solid line within each bar) and the likely range assessed for the six SRES marker scenarios.

**Historic and Projected Carbon Dioxide Emissions, 1970-2030**




Source: International Energy Agency (2004).

The physical effects of climate change and the resulting economic impacts will unevenly affect countries. Wealthier countries are generally expected to have greater adaptive capability than poorer nations. For example, island nations in the Pacific and Indian Oceans are vulnerable to moderate sea level rise, which could severely damage their economies and potentially displace their populations entirely (Pacific Islands Regional Assessment Group 2001). Climate change impacts are expected to include:

| | |
|---|---|
| Higher minimum and maximum daily temperatures | Glacier melt |
| More intense flooding and drought | Sea level rise |
| Increased summer drying and wildfires | Increased storm intensity |
| Changing disease patterns | Changes in agricultural yields |

Scientists expect a rise of the global surface temperature of 1.4 and 5.8 ˚C over the next 100 years, depending upon the choices we make as a society. Significantly, a modest increase in global mean temperature causes more extreme warming near the poles, which already has caused significant glacier melt in the Arctic and at high elevations around the world. Warming is already contributing to loss of biological diversity (Parmesan and Galbraith 2004). Developing countries are expected to suffer the greatest effects of climate change.

**Potential Impacts on Agriculture**

Climate change poses significant risks to agriculture, especially for agriculture-based developing countries. Climate models predict that agriculture yields in mid- to high-latitude regions increase slightly with moderate to medium increases in temperature up to 3°C, associated carbon dioxide ($CO_2$) increase and rainfall changes. In low-latitude regions, moderate temperature increases of 1-2°C are likely to negatively affect yields for major cereals. Importantly, warming beyond 3°C will have increasingly negative impacts in all regions (Easterling et al. 2007).

In the first half of the 21st century climate impacts on agriculture are expected to be small, then becoming progressively negative, with the most significant impacts falling on developing countries. Future agriculture yield projections suggest that these impacts will be felt as early as the 2020s (Parry et al. 2004; Cline 2007).

Projected agriculture yields later in this century predict certain countries suffering a 100% reduction in rain-fed agricultural output (e.g., Mali, Senegal, Sudan), while others experiencing 50% or greater reduction in rain-fed agriculture (e.g., Algeria, Egypt, Zambia, Zimbabwe), in each case requiring a massive increase in irrigation during a period when water may be more scarce and population is expected to increase. The table below presents Cline (2007)'s overall country yield estimates for later in this century based on projected warming and precipitation patterns, assuming emissions continue to increase with a corresponding increase in global average temperatures of 3.0 C during the latter part of the 21st century.

**Estimates of global warming impacts on agriculture output by 2080s (%)**

| | **Without carbon fertilization** | **With carbon fertilization** |
|---|---|---|
| **Global** | | |
| **Output-Weighted** | -15.9 | -3.2 |
| **Population-Weighted** | -18.2 | -6.0 |
| **Median by Country** | -23.6 | -12.1 |
| **Industrial Countries** | -6.3 | 7.7 |
| **Developing Countries** | -21.0 | -9.1 |
| **Median** | -25.8 | -14.7 |
| **Africa** | -27.5 | -16.6 |
| **Asia** | -19.3 | -7.2 |
| **MENA** | -21.2 | -9.4 |
| **Latin America** | -24.3 | -12.9 |
| **China** | -7 | 7 |
| **India** | -30 | -40 |

Source: Cline (2007). Note: Estimates for agricultural output with carbon fertilization assume that increased levels of atmospheric C02 will increase agricultural output.

## IV. United Nations Framework Convention on Climate Change and Kyoto Protocol

Unless an effective international agreement is implemented, greenhouse gas emissions are certain to further increase as long as current demographic and energy consumption patterns continue. The leading international effort to address climate change is the United Nations Framework Convention on Climate Change (the "Convention" or "UNFCCC"), and the Kyoto Protocol to the UNFCCC. This section explains the UNFCCC and Kyoto Protocol, the IPCC and other UN institutions addressing climate change.

### UNFCCC – The Convention

The UNFCCC is an international treaty that was signed in 1992, and entered into force on March 21, 1994. The UNFCCC's ultimate objective is to reduce emissions of greenhouse gases to prevent dangerous human interference with the climate system and combat global warming. Today, 192 countries have ratified the UNFCCC. The UNFCCC provides the basis for a global response to the problem.

Countries that are parties to the UNFCCC are divided into two basic categories: developed countries (Annex I) and developing countries (Non-Annex I).

**DEVELOPED COUNTRIES (ANNEX I).** Annex I parties include the industrialized countries that were members of the Organisation for Economic Co-operation and Development in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. These countries have contributed the most to causing climate change and have greater financial and institutional capacity to mitigate and adapt to it. Accordingly, these same countries accepted emissions limits under the Kyoto Protocol.

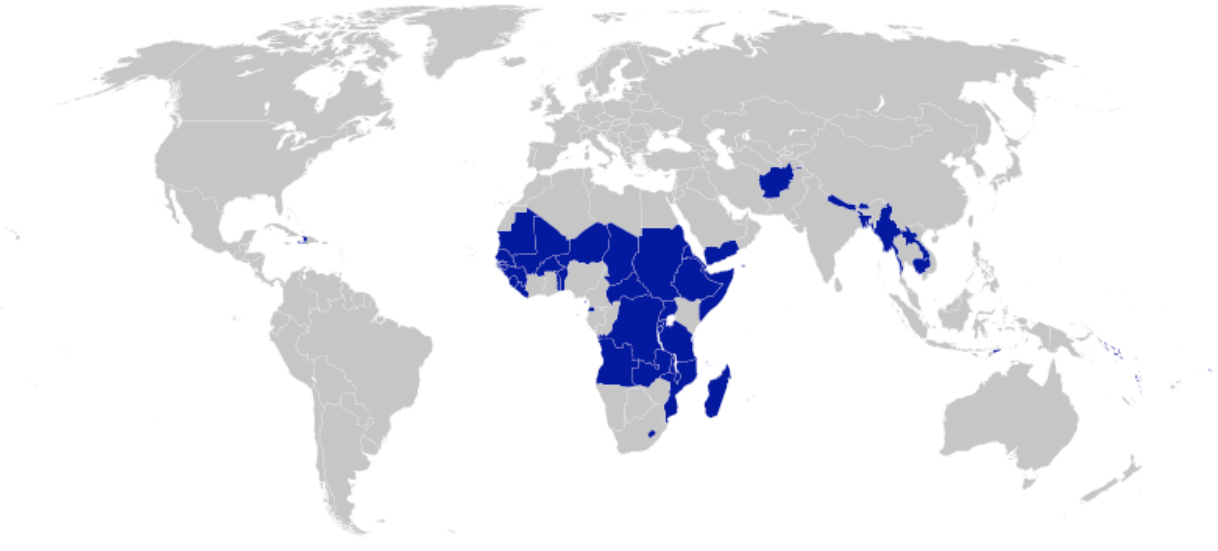
***EITs.*** Among Annex I countries, the former Soviet Union and Eastern European countries (the EIT Countries) were granted a degree of flexibility in the Kyoto Protocol in selecting their baseline years for determining emissions reductions and other accommodations due to economic conditions prevailing in these countries as they transitioned to market economies. The accommodations for these countries are discussed further below in the section on the Kyoto Protocol.

**DEVELOPING COUNTRIES (NON-ANNEX I).** Developing countries do not have specific emissions targets but are nevertheless committed under the UNFCCC to take actions to limit and prevent further emissions. These parties' only obligation is to describe their actions to mitigate and adapt to climate change.

***LDCs.*** Within Non-Annex I Parties, Least Developed Countries (LDCs) are countries that possess the lowest level of socioeconomic development based on the Human Development Index. LDCs are especially vulnerable to the climate change because their economies are undeveloped and they are located in areas at high risk to its effects, such as flooding, desertification and drought. As of March 2008, there are 49 LDCs, 33 of which are located in Africa, 10 in Asia, 5 in Oceana, and 1 in the Americas. The UNFCCC provides special assistance to LDCs, such as by providing financial support for their reporting obligations under the UNFCCC, and identifying them as priority countries for adaptation funding. To be classified as an LDC, a country must meet three criteria: (a) low-income (three-year average GNI per capita of less than US $750, (b) human resource weakness (based on indicators of nutrition, health, education and adult literacy), and (c) economic vulnerability (based on instability of agricultural production, instability of exports of goods and services, economic importance of non-traditional activities, merchandise export concentration, small size of economy, and the percentage of population displaced by natural disasters).

***OPEC.*** Another subgroup of Non-Annex I Parties is the Organization of Petroleum Exporting Countries (OPEC) whose economies are not fully developed and would be adversely affected by climate change regulation because they rely heavily on income from fossil fuel production and commerce.

**Map of Least Developed Countries as defined by United Nations 2006**



**Kyoto Protocol**

The Kyoto Protocol is a separate treaty under the UNFCCC. The Kyoto Protocol entered into force on 16 February 2005. Today, 175 parties have ratified the Protocol. The Kyoto Protocol implements the UNFCCC by obligating developed countries and economies in transition countries (EIT) to reduce their greenhouse gas emissions by an average of 5% below their 1990 emissions levels during the 2008 to 2012 period. Developing countries that have ratified the protocol are only obligated to monitor and report emissions. The Protocol expires after 2012.

Developed countries that signed the Kyoto Protocol are called "Annex B Countries" and are basically the same as Annex I countries under the UNFCCC. The United States is the only major developed country today that signed and ratified the UNFCCC but has not ratified the Kyoto Protocol. Annex B Countries are required to reduce their greenhouse gas emissions by the percentage set forth in Annex B to the Kyoto Protocol as compared to the 1990 base year. Annex B countries that were part of the former Soviet Union and Eastern Europe were permitted to select a different base year other than 1990, subject to approval by the COP/MOP.

**Kyoto Protocol Emission Limitation or Reduction Commitments (% of base year/period)**

| | | | | | |
|---|---|---|---|---|---|
| Australia | 108 | Greece | 92 | Norway | 101 |
| Austria | 92 | Hungary* | 94 | Poland* | 94 |
| Belgium | 92 | Iceland | 110 | Portugal | 92 |
| Bulgaria* | 92 | Ireland | 92 | Romania* | 92 |
| Canada | 94 | Italy | 92 | Russian Federation* | 100 |
| Croatia* | 95 | Japan | 94 | Slovakia* | 92 |
| Czech Republic* | 92 | Latvia* | 94 | Slovenia* | 92 |
| Denmark | 92 | Liechtenstein | 92 | Spain | 92 |
| Estonia* | 92 | Lithuania* | 92 | Sweden | 92 |
| European Union | 92 | Luxembourg | 92 | Switzerland | 92 |
| Finland | 92 | Monaco | 92 | Ukraine* | 100 |
| France | 92 | Netherlands | 92 | UK, Northern Ireland | 92 |
| Germany | 92 | New Zealand | 100 | United States† | 93 |

* Countries that are undergoing the process of transition to a market economy.
† Signed Kyoto Protocol but have not ratified.

The Kyoto Protocol regulates the six most significant human-made greenhouse gases: carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride ($SF_6$). The Kyoto Protocol includes the following industries and sectors and sources within its scope: energy, transport, industry (including mining, chemicals and metals), agriculture, forestry and waste management.

**Global Carbon Dioxide Emissions by Country (all countries over 0.5% of Global $CO_2$)**

| Rank | Country | Tons $C0_2$/Year | Per Capita/Year | Global |
|---|---|---|---|---|
| 1 | United States | 6,049,435,000 | 19.9 | 22.2 % |
| 2 | People's Republic of China | 5,010,170,000 | 3.8 | 18.4 % |
| * | European Union | 3,115,125,000 | 6.3 | 11.4 % |
| 3 | Russia | 1,524,993,000 | 10.7 | 5.6 % |
| 4 | India | 1,342,962,000 | 1.2 | 4.9 % |
| 5 | Japan | 1,257,963,000 | 9.8 | 4.6 % |
| 6 | Germany | 808,767,000 | 9.8 | 3.0 % |
| 7 | Canada | 639,403,000 | 19.2 | 2.3 % |
| 8 | United Kingdom | 587,261,000 | 9.7 | 2.2 % |
| 9 | South Korea | 465,643,000 | 9.7 | 1.7 % |
| 10 | Italy | 449,948,000 | 7.6 | 1.7 % |
| 11 | Mexico | 438,022,000 | 4.1 | 1.6 % |
| 12 | South Africa | 437,032,000 | 9.1 | 1.6 % |
| 13 | Iran | 433,571,000 | 6.1 | 1.6 % |
| 14 | Indonesia | 378,250,000 | 1.6 | 1.4 % |
| 15 | France | 373,693,000 | 6.0 | 1.4 % |
| 16 | Brazil | 331,795,000 | 1.8 | 1.2 % |
| 17 | Spain | 330,497,000 | 7.3 | 1.2 % |
| 18 | Ukraine | 330,039,000 | 7.1 | 1.2 % |
| 19 | Australia | 326,757,000 | 15.3 | 1.2 % |
| 20 | Saudi Arabia | 308,393,000 | 12.5 | 1.1 % |
| 21 | Poland | 307,238,000 | 8.1 | 1.1 % |
| 22 | Thailand | 268,082,000 | 4.3 | 1.0 % |
| 23 | Turkey | 226,125,000 | 3.2 | 0.8 % |
| 24 | Kazakhstan | 200,278,000 | 13.0 | 0.7 % |
| 25 | Algeria | 194,001,000 | 5.7 | 0.7 % |
| 26 | Malaysia | 177,584,000 | 6.5 | 0.7 % |
| 27 | Venezuela | 172,623,000 | 6.2 | 0.6 % |
| 28 | Egypt | 158,237,000 | 2.1 | 0.6 % |
| 29 | United Arab Emirates | 149,188,000 | 34.1 | 0.5 % |
| 30 | Netherlands | 142,061,000 | 8.6 | 0.5 % |
| 31 | Argentina | 141,786,000 | 3.5 | 0.5 % |
| 32 | Uzbekistan | 137,907,000 | 5.0 | 0.5 % |
| 33 | Pakistan | 125,669,000 | 0.8 | 0.5 % |
|  | World | 27,245,758,000 | 4.1 | 100% |

Source: Wikipedia (accessed March 22, 2008, http://en.wikipedia.org/wiki/Carbon_emissions_by_country).
Note: These figures were collected from different sources and should only be used to approximate relative contribution of countries to carbon dioxide emissions.

**Regulated Greenhouse Gases under the Kyoto Protocol**

| Gas | Global Warming Potential | Pre-Industrial Concentration | Concentration in 2005 | Lifetime (years) | Primary Sources |
|---|---|---|---|---|---|
| Carbon Dioxide ($CO_2$) | 1 | 278,000 ppb | 379,00 ppb | 5-200 | •Fossil fuels<br>•Land use<br>•Cement production |
| Methane ($CH_4$) | 23 | 715 ppb | 1,744 ppb | 12<br>(varies with local pollution) | •Fossil fuels<br>•Rice paddies<br>•Waste dumps<br>•Livestock |
| Nitrous Oxide ($N_2O$) | 296 | 270 ppb | 319 ppb | 120 | •Fertilizer<br>•Combustion<br>•Industrial processes |
| CFC-12 | 6,200-7,100 | 0 | 538 ppt | 102 | •Coolants<br>•Foams |
| Hydrofluorocarbons (HFCs) | 12-12,000 | 0 | 35 ppt HFC-134a<br>17.5 ppt HFC-23 | 1.4-270 | •Coolants |
| Perfluorocarbons (PFCs) | 5,700-11,900 | 0 | 74 ppt PCF-14<br>2.9 ppt PCF-116 | 50,000 | •Aluminum production |
| Sulphurhexafluoride ($SF_6$) | 22,000 | 0 | 5.6 ppt | 3,200 | •Dielectric fluid |

Source: Forster et al. (2007); IPCC (2001); Blasing and Smith (2006). Note: ppb is parts per billion by volume; ppt is parts per trillion by volume.

The Kyoto Protocol has been criticized for covering too narrow a group of countries and industries. Altogether, Annex B countries account for only about 40% of global greenhouse gas

emissions due to the refusal of the United States to ratify the protocol and the omissions of large developing countries to reduce their emissions. The Kyoto Protocol does not impose emissions limits on several large global emitters, notably China, India, South Korea, Mexico, South Africa, Saudi Arabia, Brazil, Ukraine, and Indonesia, who are among the top 20 GHG emitters and represent approximately 30% of GHG emissions. In addition, because the United States has not ratified the Kyoto Protocol, an additional 22% of emissions are not governed by it. Accordingly, the Kyoto Protocol governs only approximately 40% of global GHG emissions. If the goal of the Kyoto Protocol is to stabilize GHG emissions at levels that prevent a substantial change in global mean temperature,[1] then broadening the group of countries governed by an emissions limit is necessary.

**Flexible Mechanisms under the Kyoto Protocol**

The Kyoto Protocol provides three market-based mechanisms to help parties achieve their emissions reduction targets in a cost-efficient way. These mechanisms are emissions trading, Clean Development Mechanism (CDM), and Joint Implementation (JI).

***Emissions Trading***

Emissions trading is a method to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants. It is sometimes called "cap and trade". Under the UNFCCC, national governments set a limit or cap on the amount of greenhouse gases that can be emitted. Companies or other groups are then issued emission permits for a limited amount of greenhouse gas emissions, which must be lower than the emissions cap. At the end of each compliance period, these companies are required to either reduce emissions or hold an equivalent number of allowances for their emissions. Companies that emit more than their individual cap must buy credits from those who emit less than their cap. Thus, cap and trade limits the total amount of emissions, while allowing emissions reductions to be made by the emitter with the lowest cost of reducing emissions.

Under the UNFCCC, governments are permitted and encouraged to use cap and trade. For example, as part of its effort to meet its targets under the Kyoto Protocol, the European Union started its Emissions Trading Scheme (the EU-ETS) in January 2005. It currently covers over 10,000 installations in the energy and industrial sectors that are collectively responsible for close to half of the EU's emissions of $CO_2$ and 40% of its total greenhouse gas emissions.

[1] The European Union proposed a goal to limit emissions at a level that constrains global mean temperature to no more than a 2°C by 2100. There is debate regarding what levels of GHG concentrations would achieve such a goal. Currently troposphere carbon dioxide concentrations are approximately 380 ppm, up from 280 ppm (pre-1750 levels). Stabilization targets range from 450 to 750 ppm, with little certainly regarding what is a safe level. However, there appears to be growing consensus that beyond 450 ppm, we expose the planet to significant Climate risk.

### *Clean Development Mechanism (CDM)*

The goal of the CDM is twofold: to generate investment in developing countries, especially from the private sector, and to enhance the transfer of environmentally friendly technologies, leading to sustainable development.

The CDM allows developed countries to invest in emissions reductions projects in developing countries and earn credit for those emissions reductions to use to meet their own emissions reduction obligations, or to sell to others to meet emissions reductions targets. An emissions credit is called a "certified emissions reduction credit" or "CER" and each CER represents an emissions reduction of one tonne of carbon.

CDM projects include renewable energy technologies such as solar, wind, and small hydropower projects. CDM also includes emissions reduction projects that capture methane gas that would otherwise be vented to the atmosphere and burn it to produce energy, and that reduce chemicals such as nitrogen oxides and hydrofluorocarbons, both of which are greenhouse gases.

Qualifying a project to earn CDM emissions reduction credits is a complex process that requires the investor to submit a project design document for public comment, the host country to approve the project, and the CDM Executive Board appointed by the UNFCCC to approve the methodology to measure and monitor the long-term climate benefits of the project. To get credit, the project developer must also prove that these benefits would not have occurred without the availability of CDM CERs, due either to the additional revenues generated by sales of CERs or by showing that the CDM helped overcome other barriers to the project. If approved, the project's performance is monitored by an independent third party approved by the CDM Executive Board that ensures that emissions reductions and removals actually occur and are accurately reported.

### *Joint Implementation (JI)*

"Activities implemented jointly" (more commonly known as "Joint Implementation") allows emitters in developed countries to implement projects that reduce emissions, or increase removal of carbon using sinks, in other developed countries. Like the CDM, Joint Implementation projects generate emission reduction units (ERUs), each representing the reduction of one tonne of carbon, which can be used by the investor to meet their own emissions targets or to sell to third parties.

The former Soviet Union and Eastern European countries are the most common location of JI projects because the costs for reducing emissions in EIT countries are lower than in other developed countries.

Like CDM, JI projects involve a variety of technologies. The approval procedures for JI projects are different than CDM. Under JI, there are two methods to qualify for emissions reductions credits. The first, known as Track 1, requires the host country to meet eligibility requirements, in which case the host country can apply its own procedures to projects, issue emissions reductions units, and transfer them to the investing Party. If the host country does not meet these eligibility requirements, Track 2 provides for a similar process to the CDM where projects must be approved and verified under a procedure supervised by the Joint Implementation Supervisory Committee (JISC). Like CDM, Track 2 requires the project sponsor to submit a project design document and monitoring plan to be verified by an independent organization.

**Relationship to Montreal Protocol**

The Montreal Protocol on Substances That Deplete the Ozone Layer is a separate international treaty designed to protect the ozone layer by phasing out the production of a number of substances believed to be responsible for ozone depletion. The treaty was opened for signature on September 16, 1987 and entered into force on January 1, 1989, and has been revised several times since.

The Montreal Protocol calls for the phase-out of chlorofluorocarbons (CFCs), which have high ozone depleting potential and high global warming potential, and their temporary replacement with hydrochlorofluorocarbons (HCFCs), which have much less potential to damage the ozone layer but still have significant potential to contribute to global warming (GWP of 76 go 2,270). These gases are used as refrigerants, cleaning solvents and in firefighting.

The Kyoto Protocol does not regulate CFCs and HCFCs because these gases are regulated under the Montreal Protocol. However, the phase out of CFCs and eventual phase out of HCFCs under the Montreal Protocol has created increased demand for hydrofluorocarbons (HFCs), which are regulated under the Kyoto Protocol.

## UNFCCC Institutions

### *UNFCCC Secretariat*

The UNFCCC Secretariat is an institution administered under United Nations rules and regulations. It organizes the meetings under the UNFCCC and coordinates activities with other international organizations like the IPCC. The UNFCCC Secretariat also helps the Parties in implementing their commitments and prepares official documents under the UNFCCC and the Kyoto Protocol and their subsidiary bodies, and conducts background studies on particular issues.

The UNFCCC Secretariat is led by the Executive Secretary, who is appointed by the Secretary-General of the United Nations, with approval of the UNFCCC Conference of the Parties. The Secretariat is composed of three divisions: Executive Direction, Technical Programmes and Support Services.

### *COP/MOP*

The Conference of the Parties (COP) is the highest decision-making authority of the UNFCCC. All the countries that are parties to the Convention assemble as the Conference of the Parties. One of the COP's primary functions is to survey the countries efforts to implement the Convention and to make decisions under the UNFCCC and the further negotiation towards new commitments. The COP also reviews the national communications delivered by the Parties in meeting their commitments.

Since the Kyoto Protocol entered into force in 2005,[2] the COP also serves as the Meeting of the Parties (MOP) under the Kyoto Protocol and plays a similar role in deciding issues under the Kyoto Protocol. The MOP meets during the same period as the COP. The countries that are party to the Convention but not to the Protocol can observe the MOP but are not involved in the decision-making process. Because the COP and the MOP meet at the same time, the meeting is commonly referred to the as the "COP/MOP".

The COP/MOP Presidency rotates among the five recognized UN regions, and the venue of the COP/MOP also typically shifts among these regions. The COP/MOP Presidency acts as chair of the COP/MOP.

[2] Pursuant to Article 25 of the Kyoto Protocol, the treaty entered into force when the treaty was ratified by at least 55 countries representing at least 55% of emissions of those countries listed Annex I.

**Two Track Negotiation Approach**

The different membership and terms of the UNFCCC and the Kyoto Protocol have resulted in two distinct negotiation tracks, one that allowed all Parties to negotiate under the authority of the UNFCCC (the "Dialogue"), and one under the Kyoto Protocol. UNFCCC Dialogue negotiation is the broader of the two tracks in both participation and substance. The UNFCCC track covers all Parties, and covers all major issues, including commitments, developing country inclusion, mitigation and adaptation. The Kyoto Protocol track only addresses future commitments and the architecture of the Kyoto Protocol after the first commitment period expires in 2012.[3] In addition to these two tracks, Article 9 of the Kyoto Protocol[4] calls for a review of the Protocol itself, a process that has the ability to influence the tracks.

The Bali Action Plan creates a new UNFCCC negotiating body known as the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention.[5] Under the Protocol, the Ad Hoc Working Group on Further Commitments for Annex I Parties has been created to review and facilitate negotiation of commitments in the post-2012 period. Parties may seek to have issues addressed in one or the other track, depending on which is more favorable to their national circumstances.

***Subsidiary Body for Scientific and Technological Advice (SBSTA)***
***Subsidiary Body for Implementation (SBI)***

The Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) are the two permanent subsidiary bodies of the Convention both with specific mandates. All Parties can participate in the SBSTA and SBI. Both Bodies meet at least twice a year.

The SBSTA provides the COP with advice on scientific, technological and methodological matters. Its two major work areas consist of promoting the development and transfer of environmentally friendly technologies and providing technical assistance to improve the guidelines for preparing national communications and emission inventories.

The SBI conducts preliminary work on assessing and reviewing the implementation of the Convention for the COP. It also advises the COP on financial and administrative matters, especially

[3] Most of the architecture was already codified in the Marrakesh Accords, but new issues and several unresolved old ones were in need of attention.
[4] Kyoto Protocol, Art. 9, para.1 ("The [COP/MOP] shall periodically review this Protocol….")
[5] Bali Action Plan, par 2.

financial assistance provided to Non-Annex I Parties in order to support their reporting obligations under the UNFCCC.

**Intergovernmental Panel on Climate Change (IPCC)**

The Intergovernmental Panel on Climate Change is a UN organization that works closely with the UNFCCC. The IPCC was established by the UN Environment Programme (UNEP) and the World Meteorological Organization in 1988.

The IPCC's primary function is to assess and publish information on climate change. Every five years it publishes a comprehensive assessment report on the current state of climate change science. It also prepares special reports and shorter technical papers when specifically requested by the COP or SBSTA.

The IPCC is composed of Working Group I, II and III and also includes a Task Force on National Greenhouse Gas Inventories. These working groups include scientists and experts from around the world that volunteer their time. Working Group I deals with the physical science of climate change. Working Group II addresses climate change impacts, adaption and vulnerability. Working Group III is concerned with mitigation of climate change.

**UNFCCC Financial Mechanisms**

The UNFCCC has created the LDC Fund, the Adaptation Fund, and the Special Climate Change Fund. Each of these funds is administered by The Global Environmental Facility.

***LDC Fund***

The LDC Fund was established to support a work programme to assist Least Developed Country Parties (LDCs) to carry out the preparation and implementation of national adaptation programmes of action (NAPAs). NAPAs must be prepared for each LDC that identify adaptation priorities and set out adaptation plans. NAPAs are funded entirely by donations from developed countries. To date, the LDC Fund has received under $200 million to be shared among approximately 50 countries. NAPAs submitted by LDCs identified steps that must be taken now that will require over $2 billion, far more than is currently available under the LDC Fund.

***Adaptation Fund***

The Adaptation Fund finances concrete projects in developing countries that build resilience in communities and help countries adapt to climate change. The Adaptation Fund is funded entirely by a charge of 2% applied to sales of CDM CERs (CDM projects in LDCs are exempt from this

charge). The Adaptation Fund is expected to receive approximately $300 million by 2012 from the sale of CERs. The World Bank estimates that climate change could impose adaptation costs of $10 billion to $40 billion per year worldwide. UNDP estimates that that new additional adaptation finance of at least $86 billion a year will be required by 2015 to meet the most basic and pressing adaptation needs of developing countries. Additional information about proposals to increase financial resources for the Adaptation Fund are described below in Section V of this memorandum starting on page 24 describing the finance element of the Bali Action Plan's four building blocks.

***Special Climate Change Fund***

The Special Climate Change Fund (SCCF) finances projects relating to adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. The SCCF is intended to complement the activities of the LDC Fund and the Adaptation Fund. For example, an important focus of the SCCF is to conduct training, especially for LDCs. The SCCF is funded by pledges from donor countries.

***Global Environmental Facility***

The Global Environmental Facility (GEF) started in 1991 to provide grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. It was originally a pilot program of the World Bank, and become a separate independent entity in 1994.

The GEF provides secretariat and administrative services for the selection, funding, management and monitoring of projects under multilateral treaties in the following areas: biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants (POPs).

For the UNFCCC, the GEF serves as the administrator for the LDC Fund, Adaptation Fund, and Special Climate Change Fund. Funds are disbursed in accordance with the guidelines of the UNFCCC COP. To implement COP guidance for the UNFCCC and the other conventions for which it administers funds, the GEF has developed its own more specific set of rules known as the GEF Resource Allocation Framework (GEF RAF), which provides criteria for assessing recipient countries for specific funds.

The GEF is governed by the GEF member countries though the GEF Council, which is composed of 32 members who represent GEF member countries (16 from developing countries, 14 from developed countries, and two from countries with transitional economies). The GEF Assembly is comprised of all the countries that are members of the GEF, and meets once every four years to review the policies and operations of the GEF. The GEF Secretariat coordinates the implementation of GEF's projects and programs, as well as the formulation of policies and operational strategies.

The World Bank continues to serve as the trustee for funds administrated by the GEF. GEF projects are managed by United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), and the World Bank, and implemented through the African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), United Nations Food and Agriculture Organization (FAO), Inter-American Development Bank (IDB), International Fund for Agricultural Development (IFAD), and United Nations Industrial Development Organization (UNIDO).

Since 1991, the Global Environment Facility has provided $6.8 billion in grants and generated over $24 billion in cofinancing from other sources to support over 1,900 projects that produce global environmental benefits in more than 160 developing countries and countries with economies in transition.

## V. The Bali Action Plan and the Building Blocks of the Post-2012 Climate Regime

The 2007 COP/MOP produced the Bali Action Plan, which sets out a roadmap to negotiate an international agreement to address climate change and to extend or replace the Kyoto Protocol, which expires in 2012. The Bali Roadmap consists of four "building blocks" or key issues that must be negotiated to successfully address climate change: mitigation, adaptation, technology transfer, and finance. In addition to the four building blocks, some parties refer to "shared vision" as a fifth building block.

### *Mitigation*

Mitigation refers to steps to reduce the emissions of greenhouse gases or to increase their removal from the atmosphere by enhancing carbon sinks. A sink can be anything that absorbs and sequesters $CO_2$ or other greenhouse gases, such as forests, vegetation or soils.

The Kyoto Protocol to the UNFCCC obligates developed countries and economies in transition countries (EIT) to reduce their greenhouse gas emissions by an average of 5% below their 1990 emissions levels during the period 2008 – 2012.

Much stricter caps are widely regarded as necessary in order to prevent global warming from increasing above 2°C from pre-industrial levels, which many believe would be dangerous. According to the IPPC, to achieve this goal, global emissions must peak by 2015 years, and global emissions must be reduced by about 50-85% from 1990 levels by mid-century.

Many countries are resisting stricter caps because they anticipate difficulty meeting their current obligations under the Kyoto Protocol. Without aggressive action to reduce emissions, greenhouse gas emissions are projected to double by 2020 compared to levels at the end of the 20th century due to population growth, increasing energy consumption levels, and increasing reliance on fossil fuels (EIA 2001).

Developing countries are expected to account for most of the increases in emissions because these countries are expected to account for more than 60% of growth in energy consumption during the next 30 years. Although developing countries are not currently obligated to reduce emissions, mitigation efforts by developing countries will be essential to addressing climate change, which will in turn require technology transfer and finance, both of which are described below.

For developing countries, another major source of emissions is deforestation. The current rate of deforestation contributes to more than 20% of human-caused greenhouse gas emissions. It is therefore essential to protect forests and make other means of income profitable for developing countries. Reducing Emissions from Deforestation and Degradation (REDD) is an approach currently being developed at the UNFCCC negotiations that is intended to reduce emissions from forest degradation by encouraging sustainable management of forests and provide financial incentives to protect them.

***Adaptation***

Adaptation efforts are intended to protect communities against the impact of climate change, especially poor communities. Adaptation actions include insurance, improved risk management and early warning systems for extreme weather events, and physical defenses such as flood-proof houses.

The World Bank estimates that climate change could impose adaptation costs of $10 billion to $40 billion per year worldwide, approximately two thirds of which would fall on the private sector (World Bank 2006). A UNFCCC study estimated that additional annual investment needed to adapt physical infrastructure to climate change will be $8 billion to $130 billion in 2030, or approximately 0.5% of estimated global investment in 2030.

Without support and assistance, climate change impacts will affect developing countries especially hard. Enhanced action on adaptation should include international cooperation, capacity building and response strategies, and the enhanced integration of adaptation actions into sectoral and national planning. Climate resilient-development and disaster reduction strategies, with special regard to the least-developed countries and Small Island States, are especially important.

### *Technology Transfer*

Technology transfer is essential to enable developing countries to mitigate and adapt to climate change.[6]

Different countries define technology transfer differently. Some countries view technology transfer as access to purchase and financial support to purchase environmentally friendly equipment. Others view technology transfer as transferring intellectual property to developing countries and allowing them to manufacture advanced equipment.

For countries receiving technology, technology transfer is also likely to bring new jobs and new manufacturing and service industries. For countries transferring technology, technology transfer presents important issues concerning competitiveness. It could open markets for export or it could create competitors. Technology transfer, therefore, has potential to affect trade balances and competitive relationships.

Developed countries are cautious about sending technologies abroad, especially to countries where intellectual property laws are weak or not adequately enforced. Technology transfer issues have been extremely difficult to resolve because of these financial, competitiveness, and intellectual property issues.

### *Finance*

Under the UNFCCC and Kyoto Protocol, developed countries are obligated to provide financing to assist developing countries in their efforts to undertake mitigation, adaptation, and technology transfer to address climate change. However, developed country pledges of financial support have been barely adequate to support UNFCCC operations.

Pursuant to UNFCCC Article 4(3), developed country parties are obligated to provide new and additional adequate and predictable financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of implementing mitigation and adaptation measures pursuant to their international obligations, and the full costs of capacity building and training. Pursuant to UNFCCC Article 4, developed country parties are obligated to assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.

[6] UNFCCC, Artice 4(3).

### *Financing Mitigation*

Mitigation finance includes such areas as covering the costs of research and development, acquision of equipment, acquisition of intellectual property rights for clean energy and energy efficiency technologies, and training.

Technology transfer is central to developing country mitigation strategies and is a key area of negotiation. The G77 + China have proposed the creation of the Multilateral Climate Technology Fund (MCTF) that would acquire private intellectual property rights and either place these in the public domain so they are usable by anyone at no cost or license those rights to developing countries at reduced or no cost, and fund research and development (R&D). Options for financing include:

Voluntary pledges (donations) by developed countries.
Mandatory assessment on developed country parties (e.g., % of GDP).
Mandatory global tax on fossil fuels.
Auctions from developed country emissions allowance programs.
Increase and expand charges on CDM CERs, JI ERUs, and AAUs.

### *Financing Adaptation*

The Clean Development Mechanism (CDM) has catalyzed investment in over 2,000 renewable and emissions reductions projects in developing countries, mobilizing commitments of $26.4 billion for projects that entered the CDM pipeline in 2006, over $24 billion of which was for renewable and energy efficiency projects.

Two percent (2%) of certified emissions reductions (CERs) sold under the CDM are contributed to the UNFCCC to support the Adaptation Fund. The CDM alone is expected to contribute $300 million in revenues by 2012 for adaptation from the sale of emissions reductions credits. While impressive, this is far less than will be required to support adaptation efforts.

The UNFCCC has analyzed potential sources of additional funds for adaptation by levying additional charges on flexible mechanisms under the Kyoto Protocol. These sources include assessing charges on countries as well as applying charges to flexible mechanisms. Raising funds from flexible mechanisms includes increasing the charge applied to CDM CERs, applying a similar charge to JI ERUs and aforestation/deforestation RMUs, and requiring countries to auction a portion of assigned amount units (AAUs) and remitting the proceeds to fund the UNFCCC adaptation funds. Below is a summary of the UNFCCC's analysis of sources of adaptation funding from flexible mechanisms.

**UNFCCC Analysis of Potential Sources of Adaptation Funding from Flexible Mechanisms**

| Source | 2008 - 2013 | 2013 - 2030 |
|---|---|---|
| **Extending the UNFCCC Levy on Flexible Mechanisms** | | |
| Extending a 2% charge on the first transfer of JI ERUs, RMUs, and AAUs | $25 million to $130 million per year | $30 million to $2.25 billion per year |
| Extending a 2% charge on issuance of AAUs and RMUs | $5.5 to $8.5 billion per year* | $3.5 to $7 billion per year* |
| **Auctioning Emissions Allowances (AAUS and domestic allowance programs)** | | |
| 2% of AAUs are transferred to a UNFCCC entity to be auctioned | | $3.5 to $7.0 billion per year |
| 2% of revenues from auctioning allowances under domestic trading schemes | | $1 to $2 billion per year |

Source: UNFCCC, Technical Paper, Funding adaptation in developing countries: extending the share of proceeds used to assist in meeting the cost of adaptation; and options related to assigned amount units of parties included in Annex I to the Convention. FCCC/TP/2008/6 (13 October 2008).
* AAUs only; information for RMUs not currently available.

### *A Fifth Building Block: Shared Vision*

The Bali Action Plan calls for parties to adopt a shared vision for long-term cooperative action for achieving the long-term global goal for emissions reduction and building climate-resilient communities. A shared vision provides grounds for consensus building on the specific agenda issues

With respect to mitigation, the Bali Action Plan articulates the shared vision that action on mitigation will be enhanced through nationally appropriate mitigation actions by all parties and nationally appropriate mitigation commitment by all developed country parties. Mitigation action by developing countries will be supported and enabled by technology, finance and capacity-building. Actions and support to actions will be measurable, reportable, and verifiable.

With respect to adaptation, one of the objectives of the Bali Action Plan is to enable climate-resilient development and to reduce vulnerability of all parties, in particular the poorest ones that will be affected the most by climate change.

## VI. Key Countries, Groups and Civil Society Participants

This section provides an overview of the key countries and groups in the climate negotiations.

### *Australia*

Australia is a party to the Convention and the Kyoto Protocol, both of which it has ratified. Australia's ratification of the Protocol was important because it leaves the United States as the only developed country that has not ratified its commitment to limit emissions under the Kyoto Protocol.

### *China*

China is a party to the UNFCCC and the Protocol, both of which it has ratified. China is a developing country, and therefore, has no obligations to reduce emissions under the Kyoto Protocol. China is also the site of many CDM projects, producing about 50% of all certified emissions reductions under the CDM.

China's rapid economic growth combined with the world's largest population makes it one of the largest emitters of greenhouse gases. Some estimate that China has or will soon surpass the United States as the world's largest emitter of carbon dioxide.

Action by China on climate change is widely regarded as necessary in order to prevent dangerous climate change. At the same time, as a developing country, China also has legitimate needs to develop economically.

### *European Union*

The European Union is comprised of 27 countries, each of which is party to the UNFCCC and the Kyoto Protocol, both of which have been ratified by all states. EU member states agreed to meet their obligations under the Kyoto Protocol to limit emissions as a group under an aggregate EU-wide emissions cap permitted under the Kyoto Protocol (known as a "bubble").

The 27 member states of the European Union discuss and agree on common positions in private in advance to the negotiations. The EU presidency rotates every six months and the respective presiding country speaks for the European Community and the member states with respect to climate change.

As part of its effort to meet its targets under the Kyoto Protocol, the EU started the European Union Emissions Trading Scheme (the EU-ETS) in January 2005. It currently covers over 10,000

installations in the energy and industrial sectors that are collectively responsible for close to half of the EU's emissions of $CO_2$ and 40% of its total greenhouse gas emissions. The EU aims to expand the program to other greenhouse gases, additional industries, and allow trading with non-EU countries because it views emissions trading as a key tool to meet their emissions targets cost-effectively

***India***

Like China, India has emerged at the beginning of the 21st century and has a large and growing population, expected to exceed China's population in the first part of the 21st Century. India's greenhouse gas emissions are growing because of increasing wealth among Indian consumers, and are expected to further increase an India's population continues to grow.

India is a party to the UNFCCC and the Kyoto Protocol, both of which it has ratified. As a developing country, it has no obligation to reduce its emissions under the Kyoto Protocol. Like China, India is seeking rapidly developing, has a large population, and is viewed as an important country to taking actions to limit emissions while meeting its development goals.

***Russia and Ukraine***

The Russian Federation and the Ukraine are parties to both the UNFCCC and the Kyoto Protocol, each of which they have ratified. Russia's ratification of the Kyoto Protocol was the final country needed for the it to enter into force on 16 February 2005.

Russia and Ukraine both possess surplus emissions allowances and potentially stand to profit from the Kyoto Protocol because these countries are presently emitting far less than their 1990 emissions baseline and are permitted to sell their excess emissions to other Kyoto Protocol parties. According to data recently published by the UNFCC, Russia and Ukraine's emissions are respectively 38% and 46% less than their 1990 emissions level for the period 1990 to 2003, without considering land use and forestry activity.[7] Sales of Russian and Ukrainian emissions allowances (commonly called "hot air") represent a net transfer of wealth to these countries from other participants whose GHG emission are constrained under the Kyoto Protocol.

Russia and Ukraine will likely resist losing their surplus emissions allowances in negotiations concerning the post-2012 regime. The availability of Russian and Ukrainian "hot air" potentially reduces the effectiveness of a future regime and could reduce the value of emissions allowances created by reductions through CDM, JI or individual emitter actions.

[7] UNFCC, Key GHG Data, 2005.

***United States***

The United States is a party to the UNFCCC and signed the Kyoto Protocol, however it has only ratified the UNFCCC. Because the United States has not ratified the Kyoto Protocol, the United States has no legally binding obligation to reduce its greenhouse gas emissions.

The United States economy accounts for approximately 25% of the global economy and a similar percentage of greenhouse gas emissions. Without the United States reducing emissions, it will not be possible to successfully address climate change.

The United States has over the years organized other forums to discuss climate change, the most recent of which was launched in 2007 known as the Major Economies Meeting, which bring together the 17 largest emitters for discussions. These efforts outside the UNFCCC are considered by some countries and environmental groups to be an effort to undermine the UNFCCC process.

***AOSIS***

AOSIS was founded in 1990 for the purpose of addressing climate change. AOSIS countries are extremely vulnerable to sea level rise. AOSIS was instrumental in the formation of the UNFCCC in 1989 and developed the first draft text in the Kyoto Protocol negotiations.

AOSIS has a membership of 43 low-lying small island states: drawn from all oceans and regions of the world: Africa, Caribbean, Indian Ocean, Mediterranean, Pacific and South China Sea. Most AOSIS countries are also members of the G77, and 37 AOSIS countries are members of the UN. AOSIS represents 28% of all developing countries, 20% of the UN's total membership and 5% of the world population.

AOSIS countries together account for approximately 0.5% of global greenhouse gas emissions. Although they are among the countries least responsible for climate change, they are among the most vulnerable to climate change.

The following countries are AOSIS members:

| | | |
|---|---|---|
| Antigua and Barbuda | Haiti* | Solomon Islands* |
| Bahamas | Jamaica | St. Kitts and Nevis† |
| Barbados | Kiribati*† | St. Lucia† |
| Belize | Maldives* | St. Vincent and Grenadines† |
| Cape Verde* | Micronesia | Suriname |
| Comoros* | Marshall Island | Tonga |
| Cook Islands† | Mauritius | Trinidad and Tobago |
| Cuba | Nauru† | Tuvalu*† |
| Cyprus† | Niue† | Vanuatu* |
| Dominica | Palau† | |
| Dominican Republic | Papua New Guinea | Observers |
| Fiji | Samoa* | American Samoa- |
| Grenada | Singapore | Guam† |
| Guineau-Bissau* | Seychelles | Netherlands Antilles† |
| Guyana | Sao Tome and Principe* | U.S. Virgin Islands† |

*Least Developed Countries †Not a member of the G77.

***G77 and China***

The Group of 77 is a loose alliance of developing countries established in 1964 to unite and promote the countries' economic interests and negotiating positions in various international bodies. Today, the coalition comprises 130 members. The G77 Chair, which is the highest political body within the organizational structure of the G77, rotates each year between Africa, Asia, Latin America and the Caribbean.

The G77 is sometimes referred to as "G77 and China" to reflect China's unique position among the Group of 77 as an industrialized developing country. Sometimes G77 positions are presented as G77 and China and sometimes as separate positions.

***Umbrella Group***

The Umbrella Group is a loose coalition of developed countries whose membership usually consists of Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine and the United States. It was established after the adoption of the Kyoto Protocol and evolved from the JUSSCANNZ group (Japan, the US, Switzerland, Canada, Australia, Norway and New Zealand). These countries often develop common positions in the climate negotiation.

### *Environmental Integrity Group (EIG)*

This coalition comprises Mexico, the Republic of Korea and Switzerland. It was formed in response to JUSSCANNZ (now Umbrella Group), whose positions it opposed in the Kyoto Protocol negotiations. The stated objective of the EIG is to promote the environmental integrity of the climate negotiations. Where its members do not have common positions, they negotiate separately.

## Civil Society participation at UNFCCC

The UNFCCC accredits non-governmental organizations and intergovernmental organizations (OECD, International Energy Agency, etc.) to attend meetings of the UNFCCC and Kyoto Protocol bodies as observers. Currently, there are more than 500 non-governmental organizations (NGOs) accredited as observers to the UNFCCC. Observer organizations are categorized into groups, all of which typically hold morning briefings for their members and press conferences. The categories are business and industry organizations (BINGOs), environmental groups (ENGOs), indigenous peoples organizations (IPOs), research and independent organizations (RINGOs), trade union NGOs (TUNGOs), and youth organizations (YENGOs). There is also a Women's caucus that meets regularly to focus on gender and climate justice. To become an observer organization, an organization must register at the Secretariat and prove their non-profit status, and establish the organization's competence in matters relating to the UNFCCC.

### *Climate Action Network*

The Climate Action Network (CAN) is a network operating worldwide and comprising over 400 environmental NGOs that work to promote and support government and individual action to limit and reduce climate change to ecologically sustainable levels.

CAN actively participates during the UNFCCC negotiations, tracking country positions, and advocating positions. CAN advocates deep cuts in greenhouse gas emissions to keep global warming as far below 2°C as possible and to avoid dangerous climate change. In line with the science of climate change as reported by the IPCC, CAN advocates that global greenhouse gas emissions must peak by 2020, and that global emissions must be reduced by about 80% by mid-century (80-95% in developed countries) from 1990 levels.

CAN is an important and influential group at the UNFCCC. At the end of each day at the COP/MOP, CAN awards the "Fossil of the Day Awards" in front of live cameras to up to three countries (first, second and third place awards) for those "most active in undermining the United Nations negotiations to save the world from dangerous climate change". These awards have proven to be effective in influencing country negotiating behavior.[8]

[8] Information on Fossil of the Day Award is available on http://www.fossil-of-the-day.org/.

## VII. Key Negotiation Principles

This section describes several important principles.

### *Principle of "Common But Differentiated Responsibility"*

The principle "common but differentiated responsibility" appears in the texts of the UNFCCC and the Kyoto Protocol. Although the term is not defined, it is generally recognized to represent the principle that all countries have common responsibilities for addressing climate change, but that the specific responsibilities differ among countries depending on the economic circumstances of the particular country and their historic contribution to causing climate change.

In the case of developing countries under the UNFCCC and Kyoto Protocol, the principle "common but differentiated responsibility" has been interpreted to mean that these countries have an obligation to maintain national inventories of emissions, cooperate, and undertake nationally appropriate actions subject to the provision of financing and technology to conduct these activities. However, developing countries do not have legally binding obligations to take any specific emissions reductions actions. In the case of LDCs, even reporting their emissions places a heavy burden on these countries in terms of cost and personnel time.

At the 2007 COP/MOP in Bali, developing countries for the first time committed to taking "Nationally appropriate mitigation actions . . . in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner."

While there is some difference of interpretation in this language,[9] it potentially marks an important evolution of thinking among the G-77 and China, reflecting the urgency of climate change and the understanding that the UNFCCC principle of "common but differentiated responsibility" should define not only the relationship between Annex I and non-Annex countries, but also the

[9] There is some differences of opinion as to the obligated accepted by developing countries. One view is that developing countries have agreed to address climate change through national actions that also support their development, provided that they receive sufficient financial, technical, and capacity building support to do so; both the mitigation actions and the provision of support would be "measurable, reportable and verifiable." Other parties interpreted the "measurable, reportable, and verifiable" to only refer to the "technology, financing and capacity building" assistance to be provided by wealthy countries to developing countries to support mitigation efforts. If the latter view prevails, it could mean that there has been little change in the developing country approach to reductions commitments.

relationships among non-Annex I countries with different social, economic, and other relevant characteristics.

### *Polluter Pays Principle*

The "polluter pays" principle is commonly accepted and stands for the proposition that those who pollute should bear the cost of their pollution. The principle is based on concepts of fairness and economic rationality to avoid negative externalities. This principle holds that economic actors (e.g., firms) should not be permitted to negatively impact others by their activities without compensating them.

### *Equity Principles*

Closely associated with the Polluter Pays principle are equity principles based on historic emissions and per capita emissions. Most emissions to date have been produced by developed countries. Similarly, the number of emissions per person is much higher in the developed world than in developing countries.

### *National or Local Priorities and Actions*

Allows developing country governments to prioritize and decide what mitigation and adaptation actions to take, as opposed to developed countries making these decisions. In the Bali Action Plan, the term "nationally appropriate mitigation actions" expresses this principle. Within countries, community-based priorities and decisions also should be respected at the national level.

## VIII. Note on Negotiation Techniques

You will observe different styles of negotiating at a COP/MOP. This section provides an overview of both constructive negotiation techniques and non-constructive techniques.

***Constructive Negotiation Techniques: Principles-Based Negotiation***

Principled negotiation is an interest-based approach to negotiation. This approach advocates five basic principles of negotiation: (1) separate the people from the problem; (2) focus on interests, not positions; (3) invent options for mutual gain; (4) insist on objective criteria; (5) do not accept anything less than your "Best Alternative To a Negotiated Agreement" or "BATNA".

Separate the people from the problem means separating relationship issues (or "people problems") from substantive negotiation issues. Common emotional issues (fear, anger, distrust, etc.) often interfere with the substantive issues in negotiations, making it difficult to reach agreement. The first principle is to separate the relationship issues from substantive negotiation issues and to deal with each separately.

Negotiate interests, not positions means negotiating about the essential issues and concerns to a party, as opposed to negotiating over a position which parties often begin a negotiation with. Often, a party's opening position is not the same as its real interests, and it typically is inflexible and ignores the legitimate interests of the other parties to a negotiation. People often take extreme and/or inflexible positions that are designed to protect their interests or counter their opponents' positions without really identifying and discussing underlying issues and directly negotiating a solution that meets both parties' interests. Through open discussion of each party's interests, as opposed to insisting on their own position, parties often discover that their interests are compatible, not mutually exclusive, and both can be accommodated through joint problem solving. Negotiating interests may also lead to the development of better options and outcomes, which leads us to our next point of principled negotiation.

By focusing on interests, parties can more easily move the discussion to the third principle--invent options for mutual gain. It is at this stage where seemingly impossible issues become solvable. Invent options for mutual gain means looking for new and creative solutions to problems that will enable both sides to win. This overcomes the problem of fighting over the original positions, which often involve one side winning at the other's expense. The emphasis here is on brainstorming and jointly creating new options to be evaluated by both parties. Once the parties have developed several options to consider, reaching an agreement generally becomes much easier.

The fourth principle is to insist on objective criteria for decisions whenever possible. Where objective criteria are available to the negotiators, their use can reduce argument, simplify negotiations,

and lead to a fairer outcome. A simple example: if people are negotiating over the price of a car, they can use recent sales of comparable cars as a guideline.

Finally, you should never accept less than your BATNA, which stands for "Best Alternative To a Negotiated Agreement". This requires negotiators to know what their best option is without the need for agreement with the other party. This is commonly called your "bottom line." Being aware of your alternatives to a negotiated agreement prevents you from accepting an agreement that is worse than not reaching any agreement, or rejecting an agreement that is a better outcome than you could achieve on your own.

What to do if one party follows these principles and other party refuses to acknowledge the other's interests and holds to their own inflexible position? We suggest you keep trying to move the discussion towards interests and options, reminding the other party that they lose nothing from a discussion of the issues. If they still won't have a constructive discussion, this is where knowing your BATNA is critical. Sometimes no agreement is the best outcome, especially where one party refuses to take the other's interests into consideration in the negotiation

*Non-Constructive Negotiation Techniques*

When a negotiator does not want to address or reach agreement on an issue, there are a number of techniques that can be employed. Because the UNFCCC relies on consensus decision making and does not have a majority rule voting procedure, non-constructive negotiating techniques or "dodges" can seriously negatively impact UNFCCC COP/MOP proceedings. Below are some common negotiating "dodges" observed at COP/MOP meetings:

**Agenda and Forum for Discussion**
Keep issue off agenda
Oppose convening working groups on issues
Hold discussion in informal meetings (off record, closed sessions without observers)
If on agenda, refer issue to SBSTA, SBI or IPCC to delay making a decision at COP/MOP
Keep issue off SBI agenda to avoid funding and implementation discussion
Keep issue out of final COP/MOP decisions
Remove from COP/MOP by referring issue to World Trade Organization (for trade issues)
Raise significant objections on major issues at end of a session to prevent reaching consensus
Challenge the mandate or authority of the COP/MOP body to address the issue
Make vague as opposed to specific statements

**Using Procedure to Avoid Issues**
Delay deciding on procedure for discussion
Argue over procedure
Adopt procedures that limit scope of input
Adopt procedures that separate or de-link related issues
Agree on process, but do not agree on substance
Change bodies to interrupt progress on work
Work through paper submissions, not working groups

**Text of COP/MOP Decisions**
Limit scope of language
Make requests or suggestions, not decisions
Refuse to agree to language
Adopt vague language (that is open to many interpretations or difficult to enforce)
Negotiate guiding principles carefully (they are important because they specify purpose)
Emphasize language supportive of your position, deemphasize or eliminate other language

**Publicity**
Move discussion to informal meeting (off record, closed sessions without observers)
Keep it out of the press

## IX. Key Terms

### Key Terms

| | |
|---|---|
| AAUs | Assigned Amount Units |
| AF | The Adaptation Fund |
| AOSIS | The Alliance of Small Island States |
| AWG-KP | Ad Hoc Working Group on Further Commitments for Annex I Parties (Kyoto Protocol) |
| AWG-LCA | Ad Hoc Working Group on Long-Term Cooperative Action under the Convention |
| CAN | The Climate Action Network |
| CDM | Clean Development Mechanism |
| CERs | Certified Emissions Reductions (issued under the Clean Development Mechanism) |
| $CH_4$ | Methane |
| $CO_2$ | Carbon dioxide |
| $CO_2$-eq | Carbon dioxide equivalent |
| COP/MOP | Conference of the Parties/Meeting of the Parties |
| EGTT | Expert Group on Technology Transfer |
| EIT | Countries with Economies in Transition |
| ERU | Emission Reduction Unit (issued under Joint Implementation) |
| G77 | The Group of 77 |
| GEF | The Global Environmental Facility |
| GEF RAF | The Global Environmental Facility Resource Allocation Framework |
| HFCs | Hydrofluorocarbons |
| IEA | International Energy Agency |
| IGO | Intergovernmental Organization |
| IPCC | The Intergovernmental Panel on Climate Change |
| JI | Joint Implementation |
| LDC | Least Developed Countries |
| LDCF | The Least Developed Countries Fund |
| LULUCF | Land Use, Land-Use Change and Forestry |
| MCTF | Multilateral Climate Technology Fund (a proposed UNFCCC mechanism) |
| $N_2O$ | Nitrous oxide |
| NAPAs | National Adaptation Programmes of Action |
| OECD | Organization for Economic Cooperation and Development |
| PFCs | Perfluorocarbons |
| ppb | parts per billion |
| ppm | parts per million |
| ppt | parts per trillion |

| | |
|---|---|
| QELROs | Quantified Emission Limitation and Reduction Objectives |
| REDD | Reducing Emissions from Deforestation and Degradation |
| RMUs | Removal Units (issued on the basis of LULUCF activities) |
| SBI | The Subsidiary Body for Implementation |
| SBSTA | The Subsidiary Body for Scientific and Technological Advice |
| SD | Sustainable Development |
| SCCF | The Special Climate Change Fund |
| $SF_6$ | Sulphur hexafluoride |
| SIDS | Small Island Developing States |
| UNCTAD | The United Nations Conference on Trade and Development |
| UNDP | UN Development Programme |
| UNEP | UN Environment Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WMO | The World Meteorological Organization |
| WTO | World Trade Organization |

**Groups**

| | |
|---|---|
| BINGOs | business and industry organizations |
| ENGOs | environmental groups |
| IPOs | indigenous peoples organizations |
| RINGOs | research and independent organizations |
| TUNGOs | trade union NGOs |
| YENGOs | youth organizations |

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# CLIMATE DIPLOMAT

## ECONOMIC ANALYSIS REPORT

This report provides information to negotiators concerning the potential economic impacts of climate change. Negotiators should bear in mind that this report contains projections that are subject to uncertainty.

### Stern Review Forecast of Costs of Failing to Prevent Further Climate Change

The Stern Review sponsored by the Government of the United Kingdom analyzed the costs of failing to prevent climate change. According to the Stern Review, the failure to prevent climate change would reduce global economic growth by as much as 20% over the 21st century.

**Stern Review: Climate Change Impacts on Economic Growth by 2100**

| Increase Temperature over Pre-Industrial Level | Cost to Economic Growth | |
|---|---|---|
| | Range | Average |
| 2°C | -0.2 to -4 (-0.6) | -0.6 |
| 3°C | -0.3 to -9.1 | -1.4 |
| 4°C | -0.4 to -15.5 | -2.6 |
| 5°C | -0.6 to -23.3 | -4.5 |

Source: Hope (2003) as cited in Stern (2007).

The Stern Review, however, concludes that if we limit emissions to 450ppm, we could avoid damaging the environment, and the costs of reducing emissions will be much less than the damage to the environment. According to the Stern Review, a 2°C increase in temperatures that corresponds to carbon dioxide levels of approximately 450ppm, would reduce economic growth by 0.2% to 4% of GDP. If we do nothing to prevent climate change, the loss to GDP could be much higher. For example, a 5°C increase in temperature could reduce economic growth by 0.6% to 23.3% according to the Stern Review.

## Stern Review Summary of Potential Impacts of Climate Change

| Temp rise (°C) | Water | Food | Health | Land | Environment | Abrupt and Large-Scale Impacts |
|---|---|---|---|---|---|---|
| 1°C | Small glaciers in the Andes disappear completely, threatening water supplies for 50 million people | Modest increases in cereal yields in temperate regions | At least 300,000 people each year die from climate-related diseases (predominantly diarrhoea, malaria, and malnutrition)<br>Reduction in winter mortality in higher latitudes (Northern Europe, USA) | Permafrost thawing damages buildings and roads in parts of Canada and Russia | At least 10% of land species facing extinction (according to one estimate)<br>80% bleaching of coral reefs, including Great Barrier Reef | Atlantic Thermohaline Circulation starts to weaken |
| 2°C | Potentially 20 - 30% decrease in water availability in some vulnerable regions, e.g. Southern Africa and Mediterranean | Sharp declines in crop yield in tropical regions (5 - 10% in Africa) | 40 – 60 million more people exposed to malaria in Africa | Up to 10 million more people affected by coastal flooding each year | 15 – 40% of species facing extinction (according to one estimate)<br>High risk of extinction of Arctic species, including polar bear and caribou | Potential for Greenland ice sheet to begin melting irreversibly, accelerating sea level rise and committing world to an eventual 7 m sea level rise<br>Rising risk of abrupt changes to atmospheric circulations, e.g. the monsoon<br>Rising risk of collapse of West Antarctic Ice Sheet<br>Rising risk of collapse of Atlantic Thermohaline Circulation |
| 3°C | In Southern Europe, serious droughts occur once every 10 years<br>1 - 4 billion more people suffer water shortages, while 1 – 5 billion gain water, which may increase flood risk | 150 - 550 additional millions at risk of hunger (if carbon fertilisation weak)<br>Agricultural yields in higher latitudes likely to peak | 1 – 3 million more people die from malnutrition (if carbon fertilisation weak) | 1 – 170 million more people affected by coastal flooding each year | 20 – 50% of species facing extinction (according to one estimate), including 25 – 60% mammals, 30 – 40% birds and 15 – 70% butterflies in South Africa<br>Onset of Amazon forest collapse (some models only) | |
| 4°C | Potentially 30 – 50% decrease in water availability in Southern Africa and Mediterranean | Agricultural yields decline by 15 – 35% in Africa, and entire regions out of production (e.g. parts of Australia) | Up to 80 million more people exposed to malaria in Africa | 7 – 300 million more people affected by coastal flooding each year | Loss of around half Arctic tundra<br>Around half of all the world's nature reserves cannot fulfill objectives | |
| 5°C | Possible disappearance of large glaciers in Himalayas, affecting one-quarter of China's population and hundreds of millions in India | Continued increase in ocean acidity seriously disrupting marine ecosystems and possibly fish stocks | | Sea level rise threatens small islands, low-lying coastal areas (Florida) and major world cities such as New York, London, and Tokyo | | |
| More than 5°C | The latest science suggests that the Earth's average temperature will rise by even more than 5 or 6°C if emissions continue to grow and positive feedbacks amplify the warming effect of greenhouse gases (e.g. release of carbon dioxide from soils or methane from permafrost). This level of global temperature rise would be equivalent to the amount of warming that occurred between the last age and today – and is likely to lead to major disruption and large-scale movement of population. Such "socially contingent" effects could be catastrophic, but are currently very hard to capture with current models as temperatures would be so far outside human experience. | | | | | |

Source: Stern (2007).

**Economic and Trade Impacts of Different Climate Policies**

The acceptance of greenhouse gas emissions limits by developed countries that ratified the Kyoto Protocol or participate in a successor arrangement to the Kyoto Protocol puts their industry at a competitive disadvantage vis-à-vis countries that do not impose similar regulations or taxes. The impact of greenhouse gas limits on competitiveness, trade, and jobs are potentially significant.

Currently, the United States has not accepted any emissions limits on its industry. In response, the European Parliament passed a resolution calling upon the European Commission to consider border tax adjustments to address the competitive disadvantage caused by European cap and trade regulations. Thus far, the European Commission has decided not to proceed with the tax but it is likely to remain an issue as European industries continue to seek relief. If such a tax were imposed, it would have significant effects on trade flows. A study by the World Bank using a bilateral trade model of EU-US trade estimates that imposition of a 10-30% carbon tax or tariff by the EU on US exports would cause losses of 2.3-6.8% in U.S. exports generally, and a 10.2 to 30.5% loss in US energy intensive exports such as steel and cement (World Bank 2007).

One of the methods to address economic and trade impacts of greenhouse gas limits are agreements that govern a particular economic sector or industry. These so-called "sectoral agreements" are intended to reduce emissions while neutralizing any advantage a country might gain from different treatment of its industry due to greenhouse gas emissions limits.

**Country and Regional Projections on Costs of Reducing GHG Emissions**

This section summarizes the results of an integrated geophysical and economic model that estimates greenhouse gas concentrations, global temperature change, and GDP for selected regions and countries, in response to the following climate change policies:

**Reference Case**: No policy. Emissions continue unabated.

**50%A**: 50% global $CO_2$-equivalent emissions reductions from 1990 levels, to be achieved by 2050. Developed countries start reducing linearly from 2010 and meet their goal in 2050. Developing countries may reduce whenever they choose, but must reach their goal by 2050.

**50%B**: 50% global $CO_2$-equivalent emissions reductions from 1990 levels, to be achieved by 2050. Developed countries may take whatever path they wish but must meet their goals by 2050. Developing countries start reducing linearly in 2050, and meet their goal in 2090.

**85%A**: Same as 50%A, except reductions are 85% of 1990 levels.

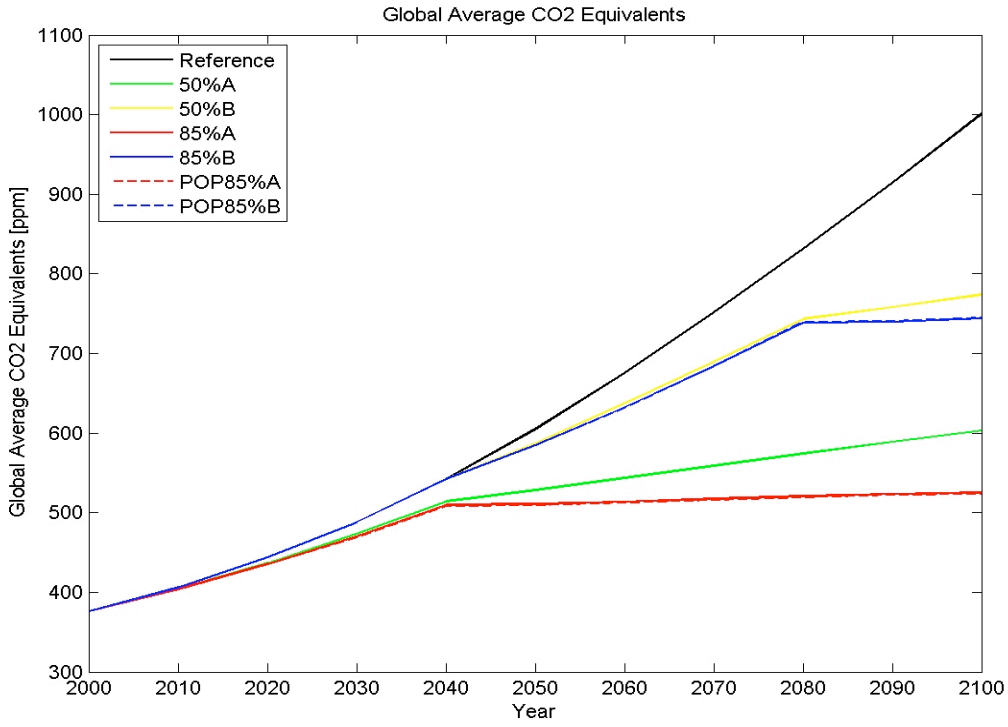
**85%B**: Same as 50%B, except reductions are 85% of 1990 levels.

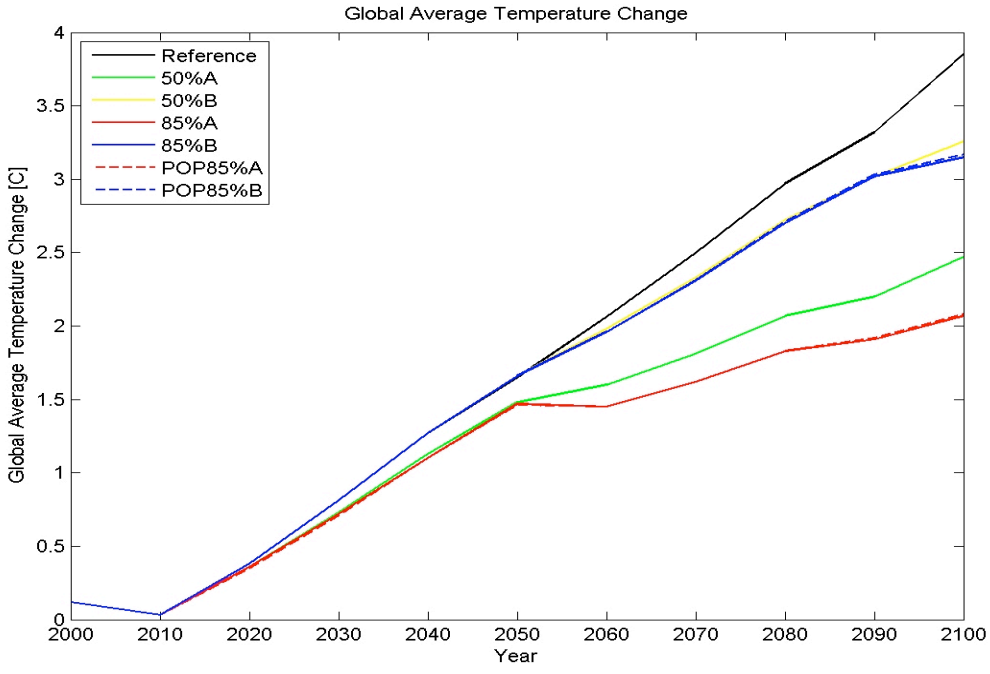
**POP85%A**: Same as 50%A, except reductions are 85% of 1990 levels and emissions are allocated to countries on a per-person basis based on their 1990 population, rather than as a percentage reduction of their 1990 emissions levels.

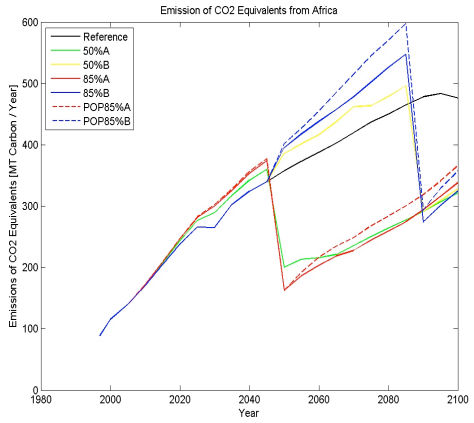
**POP85%B**: Same as 50%B, except reductions are 85% of 1990 levels and emissions are allocated to countries on a per-person basis based on their 1990 population, rather than as a percentage reduction of their 1990 emissions levels.

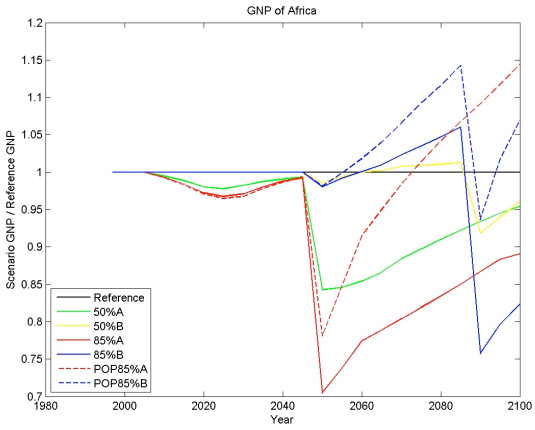
The results only report the economic cost of implementing an emissions reduction policy, and do not take into account the losses to the environment and economy that were avoided as a result of the policy. For each scenario, the following are reported:

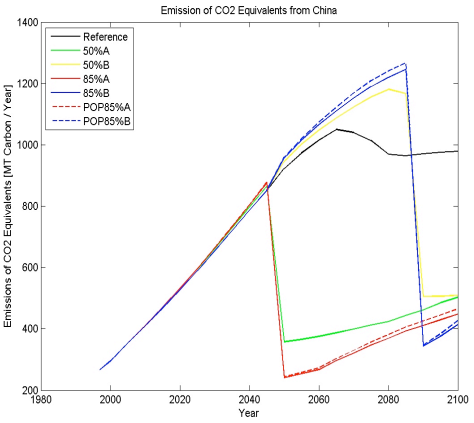
-Global Emissions
-Global Mean Temperature Change
-Country or Regional Emissions
-Country or Regional Economic Impact (in terms of change in GDP)

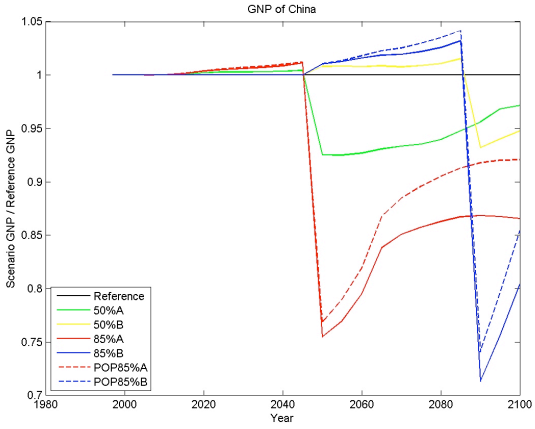


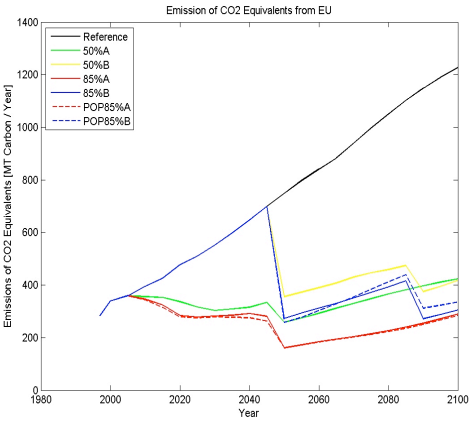



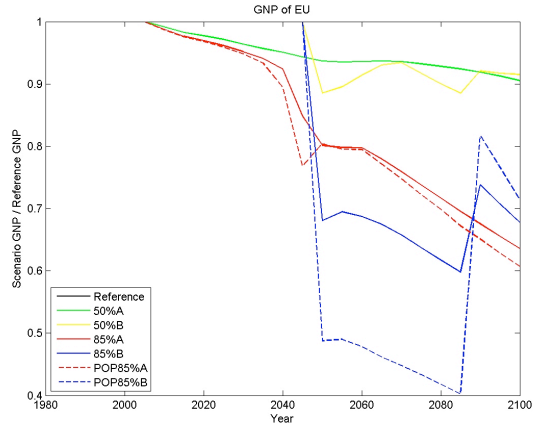


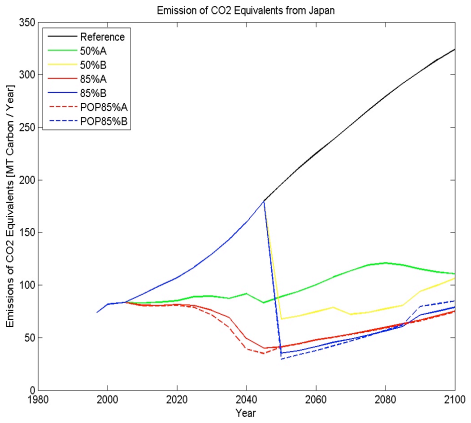



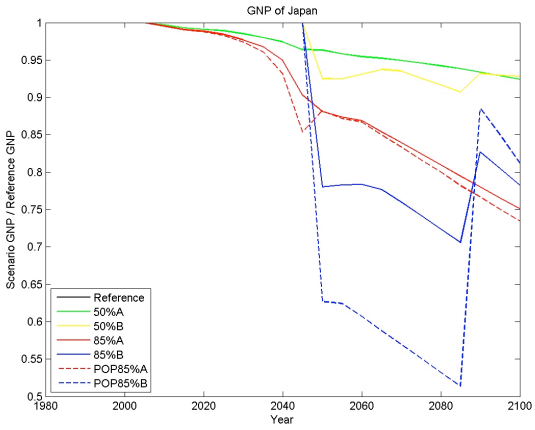



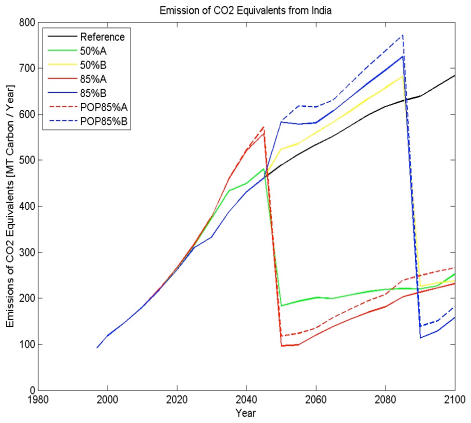



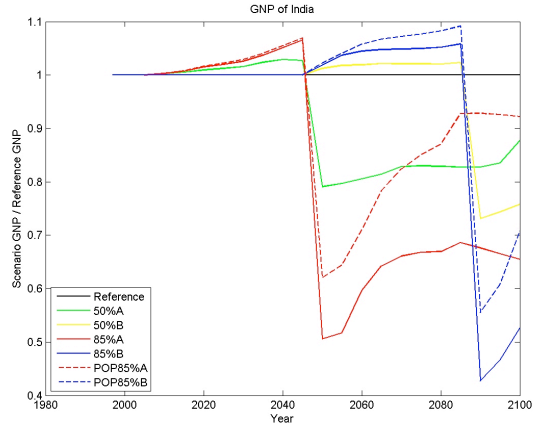



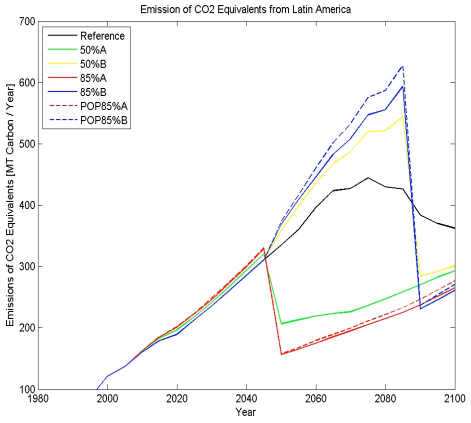



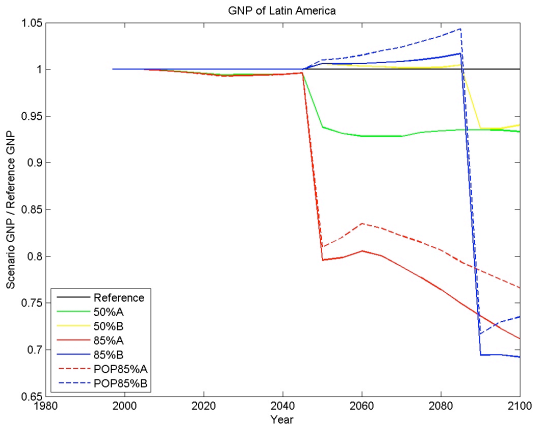


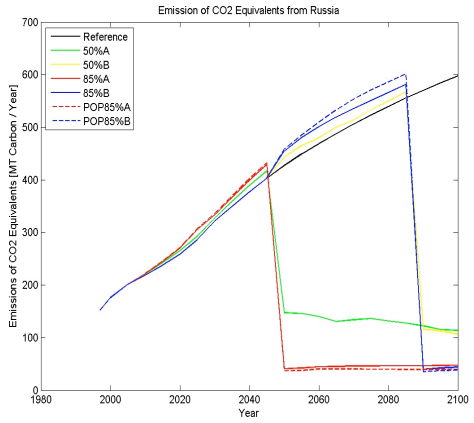



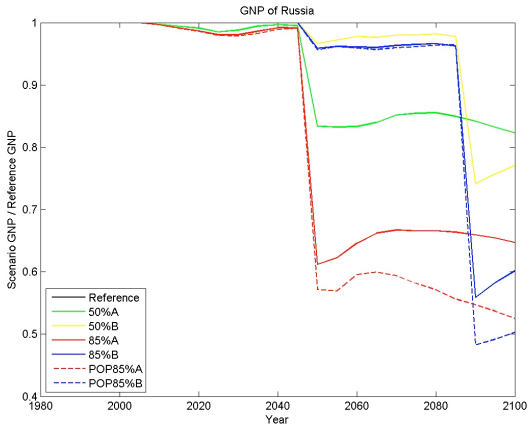



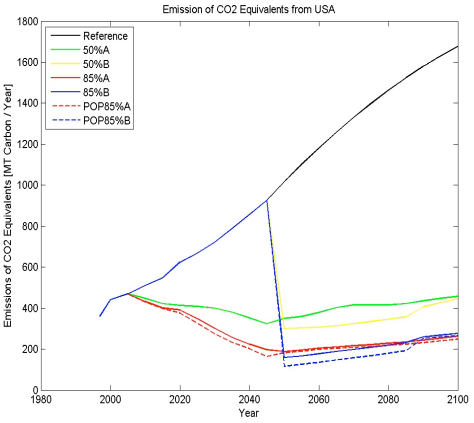



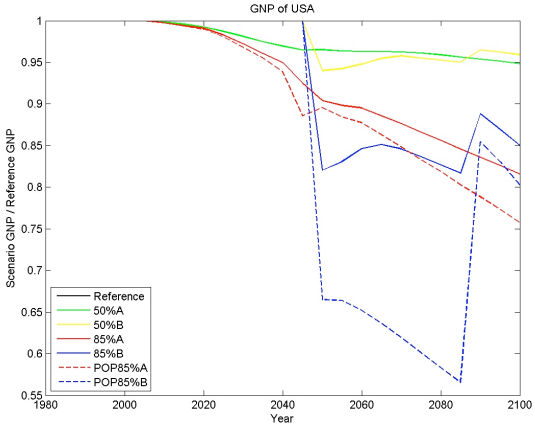



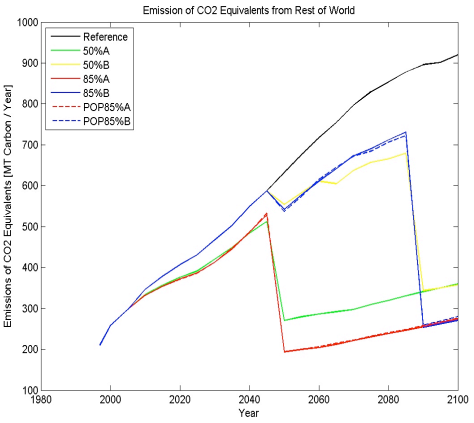



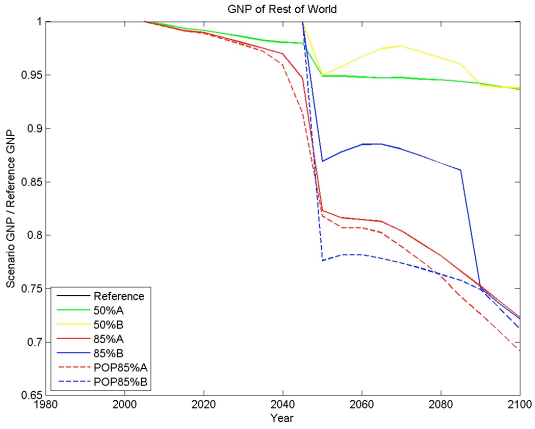


# CLIMATE DIPLOMAT: NEGOTIATION WORKSHEET

**Developing Country Obligations**

| Country | Nature of Obligation (legally binding reduction, voluntary target) | Year for Emissions to Peak | Annual % Reduction in Emissions following Peak Year | Reduction in GHG as a % of 1990 emissions to be achieved by 2020 | Reduction in GHG as a % of 1990 emissions to be achieved by 2050 |
|---|---|---|---|---|---|
| EU | | | % | % | % |
| Japan | | | % | % | % |
| US | | | % | % | % |

**Developing County Obligations**

| Country | Nature of Obligation (legally binding reduction, voluntary target) | Year for Emissions to Peak | Annual % Reduction in Emissions following Peak Year | Reduction in GHG as a % of 1990 emissions to be achieved by 2020 | Reduction in GHG as a % of 1990 emissions to be achieved by 2050 |
|---|---|---|---|---|---|
| Brazil | | | % | % | % |
| China | | | % | % | % |
| India | | | % | % | % |
| AOSIS | | | % | % | % |

**Technology Transfer, Finance for Mitigation and Adaptation, Technology Transfer**

| Country | Mitigation Finance Support (% of GDP or other measure) | Adaptation Finance Support ( % of GDP or other measure) | Technology Transfer Measures and Conditions |
|---|---|---|---|
| EU | | | |
| Japan | | | |
| US | | | |

**Population and GDP Data**

| Country/Territory | Population (000s) | % of World Population | GDP (Billions) | % of World GDP |
|---|---|---|---|---|
| AOSIS | 63,738 | 0.95 | 351.000 | 0.54 |
| Brazil | 196,343 | 2.93 | 1,313.590 | 2.02 |
| China | 1,330,000 | 19.82 | 3,250.827 | 4.99 |
| European Union | 497,482 | 7.42 | 16,830.000 | 25.85 |
| India | 1,148,000 | 17.11 | 1,098.945 | 1.69 |
| Japan | 127,288 | 1.90 | 4,383.762 | 6.73 |
| United States | 303,825 | 4.53 | 13,843.825 | 21.27 |
| WORLD | 6,708,716 | | 65,095.404 | |

Sources: U.S. Census Bureau Population Division – International Data Base (IDB) – Data Updated June 18, 2008; International Monetary Fund – World Economic Outlook Database, April 2008; CIA World Fact Book – Field Listing GDP; Eurostat – Statistical Office of the European Communities – 2008.

# CLIMATE DIPLOMAT

## COP PRESIDENCY CONFIDENTIAL MEMORANDUM

You are a senior diplomat who has served as a country delegate at UNFCCC negotiations for many years. UNFCCC COP negotiations are chaired by a delegate from the host country that serves as the President of the COP on a rotating basis. Serving as Chair of a UNFCCC negotiation is an honor and carries great responsibility. A skilled Chair can influence whether parties successfully reach agreement.

### Negotiating the Bali Action Plan

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections.

The Bali Action Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance. Our negotiations will focus on resolving the key issues identified in the Bali Action Plan.

### Your Duties

As chair you have the following responsibilities:

1. Run the Meeting, ensuring the negotiation stays on schedule;
2. Maintain orderly debate following UNFCCC rules of procedure; and
3. Encourage and creatively guide the parties towards an agreement.

While maintaining an impartial attitude towards the views of any particular party, you are expected to produce an agreement at the end of the negotiation session. The negotiation chair must balance impartiality with creatively finding areas of consensus and encouraging the parties to reach agreement on those issues.

**Meeting Schedule (Total: 1 hour 30 minutes)**

1. Introduction by COP Presidency (5 minutes)
2. Presentation of Agenda by COP Presidency, Discussion, and Approval (10 minutes)
3. Country Opening Statements (10 minutes)
4. Explore options and potential terms for a mutually acceptable resolution of issues and agreement (30 minutes).
5. Negotiation of final agreement (35 minutes)

**Introduction by Chair**

Your introduction will set the tone for the meeting. The Chair should welcome the delegates, thank them for their participation, and identify the tasks they must accomplish in the session.

As part of your introduction, please read the ground rules for the debate:

- Avoid making personal attacks on other group members;
- Share relevant information with other group members;
- Explain the reasons behind one's statements, questions, and actions;
- Keep to the agenda;
- Make decisions by consensus, rather than majority rule;
- All discussions take place as a group; and
- Cell phones turned off at all times.

In addition to your own remarks, the UN Secretary General has asked you to read his own personal message to delegates during your introduction:[1]

> "You are gathered together to address the defining challenge of our age. We gather because the time for equivocation is over. The science is clear. Climate change is happening. The impact is real. The time to act is now.
>
> The latest report of the Intergovernmental Panel on Climate Change tells us that, unless we act, there will be serious consequences: rising sea levels; more frequent and less predictable floods and severe droughts; famine around the world, particularly in Africa and Central Asia; and the loss of up to a third of our plant and animal species.

[1] Adapted from UN Secretary General Ban Ki-Moon's address to the UNFCCC Climate Negotiations in Bali Indonesia, December 12, 2007.

They emphasize that the costs of inaction - in ecological, human and financial terms - far exceed the costs of action now.

Distinguished Delegates, What the world expects from you is negotiations towards a comprehensive climate change agreement.

Reaching a comprehensive climate agreement will not be easy. Yet, this is the moral challenge of our generation. Not only are the eyes of the world upon us. More important, succeeding generations depend on us. We cannot rob our children of their future.

Now let us turn the climate crisis into a climate compact."

**Approval of Agenda**

The first item for agreement is the agenda. You should direct the delegates to the agenda in the General Instructions, ask if there are comments, and if no comments, declare the agenda adopted. Usually the chair will indicate, "Since there are no objections, I declare the agenda approved."

Sometimes countries will negotiate a modified agenda because they believe the proposed agenda is incomplete or contains an item that they are opposed to discussing. If this happens, you must moderate the discussion in accordance with the rules of procedure and consensus (described below).

**Agenda Issues**

The following are the proposed agenda items at the negotiation:

1. **Mitigation**

    a. **Developed Country Mitigation Commitments:**
        i. Total percentage reduction from 1990 level by 2020 and 2050
        ii. Year for emissions to peak*
        iii. Annual percentage reductions following peak*

    b. **Developing Country Mitigation Actions:**
        i. Nationally appropriate mitigation actions
        ii. Reporting, Monitoring and Verification
        iii. Financial support from developed countries
        iv. Goal: Total percentage reduction from 1990 level by 2020 and 2050
        v. Goal: Year for emissions to peak*
        vi. Goal: Annual percentage reductions following peak*

2. **Technology Transfer to Developing Countries**
    a. Terms of technology transfer arrangements
    b. Financial support for acquiring and implementing technology transfer

3. **Adaptation**
    a. Financial support to the Least Developed Countries Fund
    b. Financial support for the Adaptation Fund

***These negotiation points are necessary if Climate Diplomat results are to be used with the Climate Rapid Overview and Decision-support Simulator (C-ROADS). For information about C-ROADS, see http://climateinteractive.wordpress.com/.***

**Rule of Procedure - Maintaining Orderly Discussion**

UNFCCC meetings use a parliamentary style discussion format, in which delegates request to be recognized by the Chair to speak. You should impose time limits (e.g., 2 minutes) on talking time by delegates if necessary to ensure that everyone has an opportunity to make their point. You have discretion to allow greater time for speakers if you determine it would advance the negotiations. You must intervene to keep debate on schedule towards an agreement, make sure all issues are covered, and to build consensus.

**Consensus Decision Making Under the UNFCCC and Kyoto Protocol**

Decisions under the UNFCCC and the Kyoto Protocol are made by consensus, not majority vote. The provision in the UNFCCC Rule of Procedure relating to majority vote was first proposed at the first Conference of the Parties, but was never adopted because countries objected to being bound by majority vote.

Consensus decision-making is not defined in the UNFCCC or the Kyoto Protocol but it is generally accepted that it requires that all countries consent to the arrangements you negotiate. If a country does not agree to the arrangements and the group reaches a decision without its consent, that country is unlikely to sign or ratify the new arrangement, which undermines the goal of an international climate regime designed to prevent dangerous climate change.

Consensus decision-making does not mean unanimous approval, but it does mean that there needs to be broad agreement among the major players. To have consensus under the rules of the UNFCCC, all of the parties present at our negotiation session need to agree because they are all important countries or groups within the climate regime.

**Techniques for Building Consensus**

The meeting Chair plays an active role in building consensus among the parties. The Chair keeps the negotiation on schedule, has the ability to comment during the debate at any time, and may make brief statements regarding the state of discussion and the time remaining to reach agreement.

While the Chair is neutral and does not engage in arguing points or dominate discussion, it must actively engage the parties at strategic times to influence the debate towards consensus. Here are common techniques employed by meetings Chairs at UNFCCC negotiations:

- Suggest generating ideas and options first and then selecting among options
- Periodically summarize areas of agreement, ask for confirmation of consensus
- Periodically remind delegates of their goal
- Identify unresolved issues and ask for discussion
- When discussion is sidetracked or unconstructive, point this out to delegates
- When discussion does not produce agreement, reserve issue for later discussion
- Periodically remind delegates of time remaining for an issue

In the General Instructions, you should familiarize yourself with the discussion of Constructive and Non-Constructive Negotiation Techniques. These materials will help you spot "negotiation dodges" and keep the negotiation on track towards a constructive agreement.

**CLIMATE DIPLOMAT**

**ALLIANCE OF SMALL ISLAND STATES (AOSIS) CONFIDENTIAL MEMORANDUM**

You are the Chairperson of the Alliance of Small Island States (AOSIS). In your role, you represent and negotiate for the common position adopted by AOSIS countries. You are also the current chair the LDC group, coordinating their negotiating positions. This memorandum describes AOSIS's positions on key issues concerning the climate negotiations on post-2012 arrangements.

## AOSIS Background

AOSIS was founded in 1990 for the purpose of addressing climate change. AOSIS countries are extremely vulnerable to sea level rise and are therefore united in the threat that climate change poses to their survival. AOSIS was instrumental in the formation of the UNFCCC in 1989 and developed the first draft text of the Kyoto Protocol.

AOSIS has a membership of 43 low-lying small island states drawn from all oceans and regions of the world: Africa, Caribbean, Indian Ocean, Mediterranean, Pacific and South China Sea. Most AOSIS countries are members of the G77 Group; AOSIS considers itself a subgroup of the G77. Thirty-seven AOSIS countries are members of the UN. AOSIS represents 28% of all developing countries, 20% of the UN's total membership, and 5% of the world population.

The following countries are AOSIS members:

| | | |
|---|---|---|
| Antigua and Barbuda | Haiti* | Solomon Islands* |
| Bahamas | Jamaica | St. Kitts and Nevis† |
| Barbados | Kiribati*† | St. Lucia† |
| Belize | Maldives* | St. Vincent and Grenadines† |
| Cape Verde* | Micronesia | Suriname |
| Comoros* | Marshall Island | Tonga |
| Cook Islands† | Mauritius | Trinidad and Tobago |
| Cuba | Nauru† | Tuvalu*† |
| Cyprus† | Niue† | Vanuatu* |
| Dominica | Palau† | |
| Dominican Republic | Papua New Guinea | Observers |
| Fiji | Samoa* | American Samoa- |
| Grenada | Singapore | Guam† |
| Guineau-Bissau* | Seychelles | Netherlands Antilles† |
| Guyana | Sao Tome and Principe* | U.S. Virgin Islands† |

*Least Developed Countries †Not a member of the G77.

**UNFCCC Status and Emissions Profile**

All AOSIS countries have signed the UNFCCC and all but one has signed the Kyoto Protocol. All AOSIS countries are developing countries and therefore have no quantitative obligations to reduce their emissions under the Kyoto Protocol.

AOSIS countries together account for only approximately 0.5% of global greenhouse gas emissions. AOSIS countries that are least developed countries (LDCs) have negligible emissions, in some cases as low as 1/10 of a tonne per person per year, far lower than the global average of about 4 tonnes per person per year. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

**Climate Change Impacts on AOSIS Countries**

If climate change is not stopped, many AOSIS countries could become uninhabitable in the 21st Century, forcing their populations to become refugees. The following impacts are being observed in AOSIS countries:

***Sea Level Rise.*** Sea level rise is caused by warming ocean waters, which causes expansion of the oceans and glaciers to melt. Thermal expansion has already raised sea level by 10 to 20 centimeters since pre-industrial times. The IPCC forecasts potential additional increases in sea level from 18 to 59 cm by 2100 (IPCC WGI Fourth Assessment Report Summary for Policymakers 2007). Small island nations are vulnerable to moderate sea level rise, which could severely damage their economies and potentially displace their populations entirely (Pacific Island Regional Assessment Group 2001).

***Storms and Extreme Weather***. Storms and hurricanes have been increasing in frequency during the past 150 years. A 2004 storm caused over two years' worth of damage to AOSIS member Grenada, and affected Jamaica and other AOSIS countries.

***Water Shortages.*** Rising sea levels cause sea water to intrude fresh water aquifers, causing water shortages.

***Loss of Marine Biodiversity and Food Supply***. Higher temperatures and ocean acidification caused by higher carbon dioxide levels will continue to damage local reefs and deep sea fisheries resources, threatening both tourism and the food supply.

**Economic Profile**

AOSIS countries are among the smallest economies in the world. Of their 43 members, 11 are among the world's 50 least developed countries (LDCs). Many small island states depend on coral reefs for their prosperity. These reefs are susceptible to bleaching when sea surface temperature goes beyond the maximum monthly mean by 1°C for 1 month or more. Even a 2°C increase would devastate reef systems to such an extent that they could be eliminated from most

areas of the world by 2100. The loss of these fragile ecosystems would cost billions of dollars in lost revenue from tourism and fishing industries, as well as damage to coastal regions that are currently protected by the coral reefs that line most tropical coastlines.

**Analysis of Bali Building Block Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developed Country Mitigation Commitments***

AOSIS believes that legally binding caps are necessary for developed countries that have been historically responsible for most global greenhouse gas emissions. All developed country parties shall commit to a reduction in greenhouse gas emissions by at least 25-40% below 1990 levels in 2020 and by approximately 80-95% in 2050.

***Developing Country Mitigation Actions***

AOSIS recognizes that it will eventually be necessary for large developing countries such as China, India and Brazil to impose binding caps during the next 10-20 years in order to prevent dangerous climate change.

AOSIS countries and LDCs, in contrast, should not be required to adopt a legally binding caps because AOSIS countries have not significantly contributed to historic emissions, and many AOSIS member countries are poor countries that still need to develop their economies.

***Financing Technology Transfer***

AOSIS countries are willing to undertake voluntary measures to reduce greenhouse gases emissions if provided with technology and financial support. AOSIS supports the G77 + China position on technology transfer that calls for the creation of the Multilateral Climate Technology Fund. AOSIS also calls for the following steps to be taken by the COP to promote mitigation actions by developing countries:

•All countries should eliminate barriers to trade in renewable technologies.
•Renewable energy technology transfer should be fast-tracked.
•All developed countries impose a levy on fossil fuels to fund developing country mitigation.
•Developed countries financial obligations for funding developing country mitigation should be based on: cumulative historic greenhouse gas emission, and ability to pay (GDP).

AOSIS, LDCs, and G77 + China jointly propose that developed countries contribute 0.5% of their GDP to developing country funding adaptation and mitigation actions.

***Financing Adaptation***

With respect to adaptation, you speak on behalf of AOSIS as well as the G77 + China group. You are responsible for elevating adaptation as a negotiation priority and securing reliable and adequate funding for adaptation, to be distributed through the LDC Fund, Adaptation Fund and Special Climate Change Fund. Please refer to the descriptions of the Adaptation Fund, LDC Fund, and Special Climate Change Fund in Section V of the General Instructions.

The LDC Fund was established to support a work programme to assist Least Developed Country Parties (LDCs) to carry out the preparation and implementation of national adaptation programmes of action (NAPAs). NAPAs must be prepared for each LDC that identify adaptation priorities and set out adaptation plans. NAPAs are funded entirely by donations from developed countries. To date, the LDC Fund has received under $200 million to be shared among approximately 50 countries. NAPAs submitted by LDCs identified steps that must be taken now that will require over $2 billion, far more than is currently available under the LDC Fund. You are instructed to seek the $2 billion in additional pledges from countries based on immediate need, with a commitment to replenish funds to update NAPAs and cover adaptation efforts in LDCs in addition to funds available under the Adaptation Fund.

The Adaptation Fund finances concrete projects in developing countries that build resilience in communities and help countries adapt to climate change. The Adaptation Fund is funded entirely by a charge of 2% applied to sales of CDM CERs (CDM projects in LDCs are exempt from this charge). The Adaptation Fund is expected to receive approximately $300 million by 2012 from the sale of CERs. UNDP estimates that that new additional adaptation finance of at least $86 billion a year will be required by 2015 to meet the most basic and pressing adaptation needs of developing countries.

Your goal is to raise as much funding for the Adaptation Fund, LDC Fund, and Special Climate Change Fund as possible, which will be in the billions of dollars per year. The funds must be:

•***New and Additional***: Must not be part of current aid provided by governments.
•***Stable and Predictable***: Must be mandatory (not voluntary) funding.
•***Adequate*** to meet needs of developing countries for adaptation.
•***Grants-Based***: This is consistent with polluter pays principle. Loans are not acceptable.
•***Priority for Most Vulnerable Countries***: LDCs and Small Island Developing States (SIDS), which are primarily AOSIS countries.

In order to provide ***stable and predictable*** funding, mandatory assessment on governments, or charges on carbon trading would be acceptable. Voluntary donations from government are not acceptable. Acceptable options include increasing the charge on CDM CER credits, and to collect similar charges on ERUs (for JI) and RMUs (for LULUCF activities), and require domestic governments to auction a portion of AAUs assigned to countries as part of their annual allocation in order to finance adaptation efforts. See the "Financing Adaptation" section in Part V of the General Instructions for estimates of the amounts these sources could raise.

**Analysis of Proposals and Outcomes**

***Failure to Reach Agreement***

Failure to reach agreement will expose AOSIS countries to unacceptable risk of sea level rise, extreme weather events and other climate change impacts (e.g. coral bleaching, disruption in food chain), potentially forcing millions of AOSIS country citizens to become refugees during the 21st century. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require GHG emissions to peak by 2020 and then to reduce from 90% to 95% by 2050. AOSIS advocates that emissions must be reduced by greater than 95% of 1990 levels by 2050 in order to prevent dangerous climate change. AOSIS believes time will run out to stop dangerous climate change if no agreement is reached for post-2012 arrangements. One of your most important challenges is to remind the delegates of the human dimensions of climate change and to persuade them that they must reach agreement.

***EU Proposal to Cap Temperature Rises at Two Degrees***

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

You have been instructed to push for ambitious emissions reductions targets of between 25% to 40% reduction in emissions for developed countries by 2020 in line with the EU proposal, and to further push for a goal of greater than 85% reduction of 1990 levels by 2050. Further, AOSIS urges major developing countries (including China, India and Brazil) to take strong and nationally appropriate actions to address climate change. Finally, AOSIS also urges international action on aviation and marine bunker fuels in the post-2012 regime.

***Japan's Sector Approach Proposal***

AOSIS's position with respect to Japan's sectoral approach is that it cannot replace legally binding caps on emissions for developing country parties.

***G77 + China Positions***

AOSIS supports G77 + China positions, subject to the other guidelines contained in this memorandum. In particular, AOSIS is sensitive to the needs of other developing countries for economic development, but is deeply concerned that emissions from China, India and Brazil must be reduced if dangerous climate change that threatens AOSIS countries is to be prevented. AOSIS is especially concerned that China is surpassing the United States as the largest emitter - a tonne of carbon dioxide from China is as harmful to AOSIS countries as from the United States. You must urge developed countries and major developing countries to reduce their emissions growth to achieve global reductions after 2020.

**CLIMATE DIPLOMAT**

**BRAZIL CONFIDENTIAL MEMORANDUM**

You are the Senior Climate Negotiator for Brazil from the Ministry of Foreign Affairs. This memorandum describes the positions of Brazil on key issues concerning the climate negotiations. It contains information and guidance for your negotiation on post-2012 arrangements at the next meeting of the next Conference of Parties/Meeting of Parties (COP/MOP) to the UNFCCC and Kyoto Protocol.

## UNFCCC Status and Emissions Profile

Brazil signed both the UNFCCC and the Kyoto Protocol. Brazil is a developing country and therefore has no quantitative obligation to reduce its emissions under the Kyoto Protocol.

In the absence of limits, Brazil's carbon dioxide emissions have increased by 58% since 1990. Brazil accounts for 1.2% of global direct emissions without counting land use change, placing it 16th in emissions among countries in the world. Without considering land use changes, Brazil's per-capita emissions are 1.8 tonnes of carbon dioxide per person, less than half the global average of approximately 4.1 tonnes of carbon dioxide per person. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

If land use changes are counted, Brazil is one of the top 5 greenhouse gas emitters. Land use change accounts for approximately half of all Brazil's emissions in recent years, down from 75% during the 1990-1994 period, due to decreasing rates of deforestation and increasing emissions. Deforestation primarily results from conversion to pasture land and agriculture. Due to the large share of renewable energy in Brazil's energy matrix, fossil fuel combustion accounts for only approximately 22% of emissions.[1]

## Climate Change Impacts on Brazil

According to an influential eight-country study coordinated by Brazil's National Institute for Space Studies (INPE) and its Ministry of Environment in 2007, climate change has or will significantly impact Brazil in many ways. The study's conclusions are consistent with the Intergovernmental Panel on Climate Change conclusions.[2] These projections are:

***Temperature Shifts.*** In Brazil as a whole, the average annual air temperature could rise by as much as 4° C by 2100 based on two IPCC scenarios representing low global emissions (B2) and high global emissions (A2).

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[1] "*Brazil's National Communication*". United Nations Framework Convention on Climate Change Web Site <http://unfccc.int/resource/docs/natc/brazilnc1e.pdf> Last accessed in Nov 8, 2007

[2] "Probable Impact of Climate Change on Brazil." http://www.temasactuales.com/temasblog/environmental-protection/probable-impact-of-climate-change-on-brazil/. Last Accessed December 18, 2008.

***Rainfall Shifts.*** There will be major reductions in parts of rainfall in parts of Amazonia and arid and semi-arid areas of the Northeast. In the South, Southeast and Center-West, overall annual rainfall levels will probably stay the same, but it will rain less frequently and in greater volume when it does. This shift implies possible flash flooding and increased loading on drainage systems.

***Sea-Level Rise.*** Sea level rise is expected to cause loss of coastline and potentially damage water supplies due to salt-water intrusion. About a quarter of Brazil's population — around 42 million people— live along its coastline and are likely to be affected.

***Health Impacts.*** Because of probable temperature, rainfall, and habitat shifts, the vectors that carry diseases such as malaria, dengue, yellow fever and encephalitis will be able to reproduce more easily and in more zones of the country. The risk of transmission of cholera and other water-borne illnesses is likely to rise as well.

***Climate Extremes.*** There will be hotter nights, more frequent heat waves and probably more extreme rain events. Hurricane Catarina hit southern Brazil in 2004 — the first known hurricane registered in Brazilian history.

***Desertification.*** Worst case climate simulations predict water shortfalls becoming year-round (rather than seasonal) events in the Northeast, gradually converting its semi-arid desert zones into fully arid regions by century's end. Shifts in rainfall cycles will likely stress Amazonian ecosystems.

***Amazon Forests.*** By some estimates, the Amazon may lose up to half of its cover density, leading to the creation of a savanna-like climate stretching from the Venezuelan border to the center of Amazonia. This will damage biodiversity and ecosystems, and affect the lives of indigenous people who live in and depend on the rainforests.

**Public Opinion**

Brazil is very sensitive to public perception and will keep it in mind throughout the negotiation. Brazil's government is also sensitive to the opinions of environmental groups. A BBC poll showed that 88% of Brazilians believe human activity is a significant cause of climate change and 76% favor taking major steps to address climate change.[3] The 2007 study described above focused public attention on the impacts climate change may have on Brazil.

[3] BBC World Service, All Countries Need to Take Major Steps on Climate Change: Global Poll, September 2007.

## Trade Profile

Brazil's GDP in 2006 reached US$1.1 trillion (10th in the world), with services accounting for 64%, followed by industry with 30.9% and agriculture with 5.1%. The main items within the trade balance were manufactured and semi-manufactured goods (47.8% of GDP), oil and fuel (9.5%), ores (7.1%), meats (6.2%), sugar and ethanol (5.7%).[4] Due to difficulties in competing with China and India in export markets for labor-intensive manufactured goods, Brazil shifted its export focus to high-technology goods and natural resources.

## Deforestation in Brazil

In 1970, the Brazilian portion of the Amazon rainforest extended for 4.1 million km², occupying 47% of the Brazilian territory. In 2006, this figure has decreased to 3.4 million km², representing a decrease of 17%. The main causes of deforestation are land clearing for cattle pasture, colonization and subsequent subsistence agriculture, infrastructure improvements, commercial agriculture (mainly soy monoculture), and logging. Brazil's laws controlling deforestation have not been effective due to lack of adequate monitoring and enforcement. In 2004, only 26% of deforestation was authorized; 74% of deforestation was carried out illegally.[5]

## Analysis of Bali Building Block Issues

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

### *Developed Country Mitigation Commitments*

Brazil believes all developed country parties must commit to a reduction in greenhouse gas emissions by at least 25-40% below 1990 levels in 2020 and by approximately 80-95% in 2050.

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[4] "*Brazilian Trade Balance – Consolidated Data*". Brazilian Ministry of Development, Industry and International Trade Web Site. <http://www.mdic.gov.br/sitio/secex/depPlaDesComExterior/indEstatisticas/balComercialCompacta.php> Last accessed in Nov 8, 2007.

[5] "*Tolerancia Zero: Porque a Exploracao de Madeira na Amazonia esta Fora de Controle?*". Greenpeace Website. <http://www.greenpeace.org.br/amazonia/pdf/tolerancia_zero.pdf> Last accessed in Nov 8, 2007.

***Developing Country Mitigation Actions***

Brazil maintains that it remains a developing country due to its socio-economic conditions and that it has a right to develop. Therefore, its emissions should not be capped. While Brazil will not commit to caps on its emissions at the present time, it will commit to increase "nationally appropriate mitigation actions" that support its development goals.

Brazil already is committed to implementing its 2004 National Plan to Control and Combat Deforestation. If additional financial support and technology is provided, Brazil will increase its actions under the Reducing Emissions from Deforestation and Degradation (REDD) program proposed under the UNFCCC. This support could consist of voluntary contributions by developed countries, mandatory assessments, or private finance under a REDD carbon market. With foreign financial support, Brazil expects it can stop illegal deforestation almost entirely, which could reduce its emissions by half.

The following points should be emphasized in negotiating developing country mitigation actions:

***"nationally appropriate mitigation actions"***

Nationally appropriate mitigation actions should be voluntary in nature for developing countries. These can be characterized as goals; however, your government will not currently accept caps.

Actions should be selected by the developing country based on its national circumstances and capabilities, with a view to supporting its sustainable development.

***"supported by technology and enabled by financing and capacity-building"***

Taking action is conditioned upon receiving support from developed countries

This includes financial support, technology transfer, and training.

***"measurable, reportable and verifiable"***

Both developing country national actions and developed country support must be measurable, reportable and verifiable. Funds must not come from existing development assistance funds, but rather should be separate and represent additional support. Further, the criteria for disbursement of these funds should not be political, but should be based on costs associated with reducing emissions and meeting development goals.

Developing countries' measurement, reporting and verification of national actions should be under the control of their own governments.

***Financing Technology Transfer***

Technology transfer is central to Brazil's mitigation strategy and a key area of negotiation. Pursuant to UNFCCC Article 4(3), developed country parties are obligated to provide new and additional adequate and predictable financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of implementing mitigation and adaptation measures pursuant to their international obligations, and the full costs of capacity building and training.

The G77 + China have proposed the creation of the Multilateral Climate Technology Fund (MCTF) that would acquire private intellectual property rights and either place these in the public domain so they are usable by anyone at no cost or license those rights to developing countries at reduced or no cost, and fund research and development (R&D). In seeking funding for the MCTC, the following are key negotiation points:

- ***New and Additional***: Must not be part of current aid provided by governments.
- ***Stable and Predictable***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to cover full incremental cost of mitigation measures.
- ***Adequate*** to cover full costs of such activities as capacity building, technology need assessment, information service, construction of policy infrastructure.

Brazil believes that REDD is an important part of its mitigation efforts (as well as those of Indonesia, Papua New Guinea, and others), which must be supported and enabled by technology, financing and capacity-building. REDD efforts should receive technology transfer and financial support. Brazil is looking to recent technological advances, such as satellite imaging in real time, to increase its ability to control forest areas, allowing more effective enforcement.

As noted above, Brazil is flexible with respect to sources of financial support. Financial support could consist of voluntary contributions by developed countries, mandatory assessments, or private finance under a REDD carbon market.

### *Financing Adaptation*

Pursuant to UNFCCC Article 4, developed country parties are obligated to assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects. With respect to adaptation, please refer to the descriptions of the Adaptation Fund, LDC Fund, and Special Climate Change Fund in Section V of the General Instructions.

Your goal is to raise as much funding for the Adaptation Fund, LDC Fund, and Special Climate Change Fund as possible, which will be in the billions of dollars per year. The funds must be:

- ***New and Additional***: Must not be part of current aid provided by governments.
- ***Predictable and Sustained***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to meet needs of developing countries for adaptation.

To provide ***predictable and sustained*** funding, Brazil is willing to accept voluntary contributions from government. Brazil also supports mandatory charges on carbon trading, such as an extension of the 2% charge applied to sales of CDM CERs to support the Adaptation Fund (CDM projects in LDCs are exempt from this charge). This could include increasing the charge on CDM CER credits, and to collect similar charges on ERUs (for JI) and RMUs (for LULUCF activities), and require domestic governments to auction a portion of AAUs assigned to countries as part of their annual allocation in order to finance adaptation efforts. See the "Financing Adaptation" section in Part V of the General Instructions for estimates of the amounts these sources could raise.

## Analysis of Proposals and Outcomes

### *Failure to Reach Agreement*

Brazil's preferred outcome is an international climate change regime that (a) provides for ambitious binding emission reduction targets on developed countries, (b) maintains CDM and other flexibility mechanisms allowing for the participation of developing countries in mitigation efforts, and (c) supports a robust international market for REDD carbon credits and clean energy.

A strong international climate regime including the United States benefits Brazil. As the greatest GHG emitter, entry of the US into the regime would increase global demand for clean fuels and other sources of carbon credits, which Brazil would be well positioned to supply. Also, any efforts by China and India to improve energy efficiency could potentially benefit Brazil as a clean energy supplier. Failure to reach agreement could reduce demand for Brazil's growing clean energy products. Brazil will seek continuation of the Kyoto Protocol regime after 2012.

### *EU Proposal to Cap Temperature Rises at Two Degrees*

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

The EU proposal would benefit Brazil by requiring developed countries to commit to stronger GHG emissions caps, which could increase demand for Brazil's carbon credits. If Brazil were required to reduce its industrial emissions, Brazil's economy could suffer. Brazil is proposing to reduce its emissions through action to stop deforestation. To take enhance its actions, Brazil requires financial support, which could be in the form of voluntary or mandatory payments from developed countries, financial support for technology transfer, or other market mechanisms such as sale of carbon offsets under a REDD program.

### *Japan's Sectoral Approach Proposal*

Japan proposes that caps be determined on a "bottom up" approach based on each industry setting a target based on the conditions prevailing for each industry and then aggregating all industry targets for a national target. Brazil's position is that the sectoral approach cannot be a substitute for legally binding emissions caps for developed countries.

### *G77 + China Positions*

As a member of the G77 + China, Brazil supports G77 + China positions, subject to the other guidelines contained in this memorandum.

**CLIMATE DIPLOMAT**

**CHINA CONFIDENTIAL MEMORANDUM**

You are the chief negotiator for China's delegation to the UNFCCC. You are an official of the National Development and Reform Commission (NDRC), which has responsibility for macroeconomic development and reform, and coordinates climate change policy. This memorandum describes China's positions on key issues concerning the climate negotiations on post-2012 arrangements.

## UNFCCC Status and Emissions Profile

China signed both the UNFCCC and the Kyoto Protocol. China is a developing country and therefore has no quantitative obligation to reduce its emissions.

In the absence of limits, China's greenhouse gas emissions have increased by 47% since 1990. China's emissions are approaching and expected to exceed those of the United States in the near future. However, its per-capita emissions are 3.8 tonnes carbon dioxide per person, slightly less than the global annual average of approximately 4.1 tonnes of carbon dioxide per person, and far less than the United States' 19.9 tonnes of carbon dioxide per person. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

## Climate Change Impacts on China

Vulnerability to climate change is a growing concern for China. According to the IPPC Fourth Assessment Report, the following has been observed in China:

***Temperature Increases.*** Northwest China has experienced a 0.7°C increase in mean annual temperature from 1961 to 2000. In recent decades, there has been an increase in the frequency of short duration heat waves and increasingly warmer days and nights.

***Storms and Flooding***. Western and southern China has experienced increasing frequency of extreme rains, while northern China has experienced decreasing rainfall. China has experienced a 7-fold increase in the frequency of floods since the 1950s.

***Glacier Melting.*** Himalayan glaciers have decreased in the last two decades and the rate of melting is accelerating. If current warming rates are maintained, glaciers located over the Tibetan Plateau are likely to shrink at very rapid rates from 500,000 $km^2$ in 1995 to 100,000 $km^2$ by the 2030s. Water supply in areas fed by glacier waters, on which hundreds of millions of people in China and India depend, will be negatively affected.

***Water Shortages.*** Warmer climate, precipitation decline and droughts in most delta regions of China have resulted in drying up of wetlands and severe degradation of ecosystems. The effects of climate change in China are expected to cause a 30% drop in precipitation in three

of China's seven major river regions, the Huai, Liao, and Hai Rivers. Additionally, two other rivers the Yangtze and the Yellow, will overflow with rapid glacier melting and then dry up.[1] After the glaciers are exhausted, other areas will also face water shortages.

**Public Opinion**

A 2006 poll taken by the Chicago Council on Public Affairs showed that 83% of Chinese believe that steps should be taken to address climate change. Of those polled, 41% think that climate change is a "serious and pressing problem" that demands immediate action "even if this involves significant costs," while 41% believe the effects will be gradual and should be dealt with through "steps that are low in cost."[2]

China is also aware international public opinion. While China has been firmly committed to pursuing its economic policies, it is concerned about the perception that it is becoming the largest emitter in the world, surpassing the United States. For example, one study predicts China's share of $CO_2$ emissions could rise from 17.5% of global emissions in 2004, to 26.2% by 2030.[3] However, China's historic emissions are much less than those of developed countries, and as noted above, China's per capita emissions are currently significantly lower than those of developed countries. A significant cause of China's rising emissions is related to the production of goods that are exported to developed countries.

**Economic Profile**

Since the early 1980's, China has achieved phenomenal economic growth, averaging approximately 9% increase in annual GDP in recent years. Although China has lifted millions out of poverty during the past three decades, between 600-800 million Chinese still earn less than $2 per day, most of whom are located in rural areas. China's electricity consumption is 1/8 of US electricity consumption on a per person basis, but this is expected to increase dramatically as Chinese are seeking a higher standard of living.

Rapid industrialization has transformed China from a surplus energy exporter to an energy importer, especially oil. China's government is concerned about energy security, which have played an important role in motivating its efforts on energy efficiency, the adoption of renewable technologies, and promoting cleaner industry. China's economic development will continue to drive increasing energy consumption.

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[1] Allan Wheatley, *China Sees Tackling Climate Change as Urgent – Stern*, Reuters AlertNet, Dec.1, 2007, *available at* http://www.alertnet.org/thenews/newsdesk/SP197210.htm.
[2] The Chicago Council on Global Affairs and WorldPublicOpinion.ORG, Poll Finds Worldwide Agreement That Climate Change is a Threat, Publics Divide Over Whether Costly Steps Are Needed, March 13, 2007.
[3] Pablo Bustelo, *China and Climate Change: Responsible Action,* Analyses of the Elcano Royal Institute 68/2007.

**Analysis of Bali Building Blocks Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developed Country Mitigation Commitments***

China believes all developed country parties must commit to a reduction in greenhouse gas emissions by at least 25-40% below 1990 levels in 2020 and by approximately 80-95% in 2050.

***Developing Country Mitigation Actions***

China maintains that it remains a developing country due to its socio-economic conditions and that it has a right to develop. Therefore, its emissions should not be capped. While China will not commit to caps on its emissions or to monitor emissions at the present time, it will commit to take "nationally appropriate actions" to mitigate emissions that support its development goals if technology and financing is provided, consistent with the Bali Action Plan described above.

If the United States joins the international climate regime and accepts legally binding limits on emissions, China would increase its efforts to mitigate emissions, provided that technology and financing are provided and such actions remain within China's discretion under domestic law. These actions include energy efficiency and steps to reduce emissions from industry. China is already experimenting with voluntary emissions trading through exchanges that will trade sulfur dioxide ($SO_2$) emissions permits (which is not a greenhouse gas) and CDM CERs through exchanges in Tianjin, Shanghai and Beijing, which could support a voluntary emissions trading system in China in the future.

China proposes that developed countries contribute 0.5% to 1% of developed country GDP to fund developing country adaptation and mitigation actions.

The following points should be emphasized by China's negotiation team in negotiating developing country mitigation actions:

***"nationally appropriate mitigation actions"***

Nationally appropriate mitigation actions should be voluntary in nature for developing countries. These can be characterized as goals; however, your government will not currently accept caps.

Actions should be selected by the developing country based on its national circumstances and capabilities, with a view to supporting its sustainable development.

***"supported by technology and enabled by financing and capacity-building"***

Taking action is conditioned upon receiving support from developed countries

This includes financial support, technology transfer, and training.

***"measurable, reportable and verifiable"***

Both developing country national actions and developed country support must be measurable, reportable and verifiable. Funds must not come from existing development assistance funds, but rather should be separate and represent additional support. Further, the criteria for disbursement of these funds should not be political, but should be based on costs associated with reducing emissions and meeting development goals.

Developing countries' measurement, reporting and verification of national actions should be under the control of their own governments.

### *Examples of Nationally Appropriate Actions*

China's 11th Five Year Plan (2006-2010) aims to maintain development while achieving balance between economic and social development, quality of living for its people and nature. The Plan calls for achieving annual GDP growth of 7.5%, with the goal of doubling 2000 GDP per capita by 2010. By the year 2010, it calls for achieving reductions in energy consumption per unit of GDP by 20%, and reductions in discharge of major pollutants by 10%.

### *Financing Technology Transfer*

Technology transfer is central to China's mitigation strategy and a key area of negotiation. Pursuant to UNFCCC Article 4(3), developed country parties are obligated to provide new and additional adequate and predictable financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of implementing mitigation and adaptation measures pursuant to their international obligations, and the full costs of capacity building and training.

The G77 + China have proposed the creation of the Multilateral Climate Technology Fund (MCTF) that would acquire private intellectual property rights and either place these in the public domain so they are usable by anyone at no cost or license those rights to developing countries at reduced or no cost, and fund research and development (R&D). In seeking funding for the MCTC, the following are key negotiation points:

- ***New and Additional***: Must not be part of current aid provided by governments.
- ***Stable and Predictable***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to cover full incremental cost of mitigation measures.
- ***Adequate*** to cover full costs of such activities as capacity building, technology need assessment, information service, construction of policy infrastructure.

MTCF criteria for selecting recipient countries should be based on the need to mitigate greenhouse gases among developing countries. China proposes that developed countries contribute 0.5% to 1% of developed country GDP to fund developing country adaptation and mitigation actions.

***Financing Adaptation***

Pursuant to UNFCCC Article 4, developed country parties are obligated to assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects. With respect to adaptation, please refer to the descriptions of the Adaptation Fund, LDC Fund, and Special Climate Change Fund in Section V of the General Instructions.

Your goal is to raise as much funding for the Adaptation Fund, LDC Fund, and Special Climate Change Fund as possible, which will be in the billions of dollars per year. The funds must be:

- ***New and Additional***: Must not be part of current aid provided by governments.
- ***Predictable and Sustained***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to meet needs of developing countries for adaptation.

To provide ***predictable and sustained*** funding, China proposes that developed countries contribute 0.5% to 1% of developed country GDP to fund developing country adaptation and mitigation actions. Voluntary donations from government are not acceptable. China also supports mandatory charges on carbon trading, such as an extension of the 2% charge applied to sales of CDM CERs to support the Adaptation Fund (CDM projects in LDCs are exempt from this charge). This could include increasing the charge on CDM CER credits, and to collect similar charges on ERUs (for JI) and RMUs (for LULUCF activities), and require domestic

governments to auction a portion of AAUs assigned to countries as part of their annual allocation in order to finance adaptation efforts. See the "Financing Adaptation" section in Part V of the General Instructions for estimates of the amounts these sources could raise.

## Analysis of Proposals and Outcomes

### *Failure to Reach Agreement*

China's preferred post-2012 outcome is an international climate change regime that (a) provides for imposition of high binding emission reduction targets for developed countries, (b) maintains market-based mechanisms such as CDM, which allows for the participation of developing countries in mitigation efforts, and (c) supports a strong, reliable international market for carbon credits. Failure to reach agreement would harm China's growing renewable and clean energy industry. China will seek continuation of the Kyoto Protocol regime after 2012.

### *EU Proposal to Cap Temperature Rises at Two Degrees*

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

China will not accept caps on its emissions. It will, however, agree to obligate itself to take "nationally appropriate actions" consistent with the G77 proposal described above.

### *Japan's Sector Approach Proposal*

Japan proposes that caps be determined using a "bottom up" approach, based on each industry setting a target based on the conditions prevailing for each industry (a "bottom up approach") and then aggregating all industry targets for a national target. China's position is that sectoral approaches cannot replace legally binding emissions caps for developed countries. Also, China believes sectoral approaches violates the principle of "common but differentiated responsibility" if it treats industry the same regardless of where it is located.

### *G77 + China Positions*

As a member of the G77 + China, China supports G77 + China positions, subject to the other guidelines contained in this memorandum.

**CLIMATE DIPLOMAT**

**EUROPEAN UNION CONFIDENTIAL MEMORANDUM**

You are the Senior Climate Negotiator for the European Union (EU). As the current President of the EU Council of Ministers (a half-yearly rotating position), your country leads the EU's delegation in climate negotiations. This memorandum describes the positions of the European Union on key issues concerning the climate negotiations on post-2012 arrangements at the next meeting of the next Conference of Parties/Meeting of Parties (COP/MOP) to the UNFCCC and Kyoto Protocol. It includes the views of countries and industries that are influential within the EU and the European Commission's Environment Directorate-General (DG ENV).

## UNFCCC Status and Emissions Profile

The EU ratified the UNFCCC in 1993 and the Kyoto Protocol in 2002. Under the Protocol, the EU is required reduce its collective greenhouse gas emissions 8% below 1990 levels by 2012. This overall target has been translated to a specific legally binding target for each member state, based on each state's capacity to curb emissions. Of the 12 countries that have joined the EU since 2004, all except Cyprus and Malta have individual emissions reduction targets under the Protocol.

The EU's 27 member states' emissions have decreased an aggregate of 7.9% since 1990. The EU still accounts for approximately 14% of global greenhouse gas emissions, and its per-capita emissions are 6.3 tonnes carbon dioxide per person, as compared to the global average of approximately 4.1 tonnes of carbon dioxide per person. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

## Climate Change Impacts in European Union

The European Environment Agency (EEA) concluded that Europe has been and will continue warming faster than the global average. As a result, Europe will experience increased impacts on the environment, human health, and various sectors of society, including:

- Heat waves and excess deaths attributable to heat particularly among the elderly
- A rise in sea level of two to four times
- More frequent droughts, heavy rain and hail
- Economic and agricultural losses from droughts, floods, storms and heat waves
- Substantial decreases in snow cover and glaciers

## Public Opinion

According to a poll conducted in Germany, France, the UK, Italy, and Spain, EU citizens overwhelmingly believe humans are causing climate change and a majority would accept restrictions on their lifestyle to combat it. In one poll, 86% of those interviewed believed humans were contributing to climate change and 68% of respondents said they would either

strongly or somewhat support government restrictions on their behavior and purchases in order to reduce the threat.[1] Public opinion in the EU supports the EU's policies to prevent the global temperature from rising by more than 2°C above pre-industrial levels.

**Trade Profile**

The European Union countries account for approximately 31% of the world's total GDP.

As part of its effort to meet its targets under the Kyoto Protocol, the EU started a greenhouse gas Emissions Trading Scheme (the EU-ETS) in January 2005. It currently covers over 10,000 installations in the energy and industrial sectors that are collectively responsible for close to half of the EU's emissions of $CO_2$ and 40% of its total greenhouse gas emissions. The EU aims to expand the program because it sees emissions trading schemes as a key tool in ensuring that developed countries can reach their targets cost-effectively.

European industry has expressed concern that aggressive greenhouse gas emissions reduction by the EU might undermine its competitive position in the world economy. To maintain EU industry support for climate policy featuring deep emissions reductions, it is essential to gain international agreement to take similar steps, especially in the US and China.

At the same time, renewable energy investment has spurred job growth in the EU. The growth of wind power has created thousands of high-paying, technical jobs throughout Europe: over 21,600 in Denmark, 80,000 in Germany, and 31,500 in Spain.[2] The EU projects that net employment growth from renewable energy within the EU will increase by 1.4 million jobs by 2020 under current policies.[3] If the EU seeks to achieve 28% of electric power and 16% of total energy consumption from renewable sources by 2020, employment in the renewable energy sector would increase by over 2.4 million jobs by 2020.[4]

The EU's Emissions Trading System also represents a new and influential business constituency in Europe. Nearly two-thirds of the global trading volume in 2007 occurred on the EU's trading scheme, with 1.6 billion tons of greenhouse emissions changing hands worth $41 billion.[5] The EU believes that by taking the lead in developing active carbon markets, and expanding the carbon market, it will enhance opportunities for European business and create jobs.

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[1] Financial Times, Europeans "would accept climate curbs," at http://www.ft.com/cms/s/0/af264dbe-77f6-11db-be09-0000779e2340.html.
[2] Economics of Wind Energy, European Wind Energy Association, http://www.ewea.org/index.php?id=201 (accessed on November 5, 2008).
[3] Meeting the Targets and Putting Renewables to Work- FLYER, EU Commission on Monitoring and Modeling Initiative on Targets for Renewable Energy (MITRE), http://mitre.energyprojects.net/.
[4] *Id.*
[5] Reuters, "Global Carbon Trade Rose 80 Pct Last Year – Group," Jan. 21, 2008, available at http://www.planetark.org/dailynewsstory.cfm/newsid/46518/story.htm.

**Analysis of Bali Building Blocks Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developed Country Mitigation Commitments***

The EU calls for all developed countries to accept emissions caps to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. Based on information provided by the IPCC, limiting temperature increase to 2°C above pre-industrial levels would require GHG emissions to peak by 2020 and developed countries to collectively reduce their emissions by 80% to 95% by 2050 compared to 1990 levels.

The European Union advocates that industrialized countries commit to at least a 30% reduction in emissions below 1990 levels by 2020, consistent with the 25% to 40% range in the Bali Plan of Action.

The EU has committed itself to 20% reductions in greenhouse gas emission from 1990 levels to be achieved by 2020 regardless of what other countries do. If other developed countries (including the United States) accept limits designed to cause its greenhouse gas emissions to peak by 2020 and if the most advanced developing countries make "adequate contributions" to reducing emissions, the EU will commit to further reduction of up to 30% of its greenhouse emissions from 1990 levels by 2020.

***Developing Country Mitigation Actions***

You have been instructed to negotiate for commitments in some form from major developing countries (including China, India and Brazil). Recent scientific research indicates that developing countries as a group, in particular the most advanced among them, would have to reduce their emissions by 15% to 30 % below business as usual by 2020, respecting the principle of common but differentiated responsibilities and respective capabilities, in order to meet the goal of keeping global temperatures from rising 2°C above pre-industrial levels.

In negotiating the EU position, note:

•EU is requesting advanced developing countries to limit emissions growth (developed country emissions would continue to grow).

•EU is willing to increase its commitments in exchange for developed country commitments and advanced developing country actions.

***Financing Technology Transfer***

With respect to financing technology transfer, the EU is willing to provide financial support to developing countries for mitigation subject to the following conditions:

•Public funding should fill gaps.
•Goal should be to stimulate private investment.
•Cooperative research and development (R&D) to be a priority.
•EU's mitigation support outside UNFCCC should be counted.
•EU will not pledge a specific dollar amount or any percentage of GDP.
•Developing countries should take specific policy and measures to support technology programs funded by developed countries.

The EU believes it is necessary to assess needs, identify gaps, and conduct capacity building before commencing funding for technology transfer. The EU has not reached any specific decisions on amount or mechanism for financing technology transfer. You have flexibility to negotiate an agreement that reasonably protects the EU's interests as described in this memorandum.

***Financing Adaptation***

The EU believes financing adaptation is an important priority. The EU's position with respect to financing adaptation is as follows:

• Priority for most vulnerable: LDCs and Small Island Developing States.
•The EU's adaptation assistance to developing countries outside the UNFCCC funding process should be recognized as contributions towards adaptation for purposes of the EU meeting its adaptation financing obligations under the UNFCCC.

The EU believes it is necessary to assess needs, identify gaps, and conduct capacity building before commencing funding for adaptation. The EU has not reached any specific decisions on amount or mechanism for financing adaptation. You have flexibility to negotiate an agreement that reasonably protects the EU's interests as described in this memorandum.

## Analysis of Proposals and Outcomes

### *Failure to Reach Agreement*

The EU believes that its efforts to reduce its emissions will only be effective if all developed countries (including the US) and advanced developing countries (including China, Brazil and India) join an international agreement to reduce global greenhouse gas emissions.

If there is no global agreement on climate change, the EU is concerned that the environment will be seriously damaged. If there is no agreement, however, the EU remains committed to addressing climate change because its actions has other economic benefits, such as modernizing EU industry and increasing fuel efficiency. Nevertheless, failure to reach agreement could have significant trade adverse implications (as a result of foreign goods that are not subject to a carbon regime). As a last resort, you are authorized to make compromises to achieve an agreement provided the agreement is no worse than the current Kyoto Protocol commitments and obligates parties to discuss deeper emissions reductions to be achieved by 2020.

### *Japan's Sector Approach Proposal*

The EU believes that greenhouse gas emissions caps must result in adequate reduction to prevent dangerous climate change. The EU is willing to consider sectoral approaches as a way to assess potential emissions reductions on an industry-by-industry basis, however Japan's proposal is not acceptable if it involves voluntary limits for developed countries or caps that are inadequate to meet the EU's 2°C goal.

### *G77 + China Positions*

The EU supports the G77 + China positions to the extent that they are in agreement with their own, especially as a way to bring the United States into a climate change regime and the first step to bringing China, India and Brazil under greenhouse emissions caps, subject to the other instructions in this memorandum. You have been instructed to negotiate for developed countries and advanced developing countries to reduce their emissions as soon as possible, as described above.

**CLIMATE DIPLOMAT**

**INDIA CONFIDENTIAL MEMORANDUM**

You are the Senior Climate Negotiator for India. This memorandum describes the positions of India on key issues concerning the climate negotiations. It contains information and guidance for your negotiation on post-2012 arrangements at the next meeting of the next Conference of Parties/Meeting of Parties (COP/MOP) to the UNFCCC and Kyoto Protocol.

## UNFCCC Status and Emissions Profile

India signed both the UNFCCC and the Kyoto Protocol. India is a developing country and therefore has no quantitative obligation to reduce its emissions.

In the absence of limits, India's greenhouse gas emissions have increased by 55% since 1990. India's emissions are among the top 5 emitting countries in the world, accounting for almost 5% of global emissions, but its annual per-capita emissions are 1.2 tonnes carbon dioxide per person, far less than the global average of approximately 4.1 tonnes of carbon dioxide per person per year. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

## Climate Change Impacts on India

Continued climate change will have a devastating impact on India. According to the IPPC Fourth Assessment Report, climate change impacts in India have or will include:

***Temperature***. Frequency of hot days and multiple-day heat waves have increased during the past century. India is experiencing increases in deaths due to heat in recent years.

***Glacier Melt, Water Supplies, and Flood***. Melting Himalayan snows are expected to cause flooding and disrupt seasonal water flows. The entire Himalayan Hindu Kush ice mass has decreased in the last two decades and melting is accelerating. Water supplied by glacier melt, on which hundreds of millions of people in China and India depend, will be negatively affected.

***Precipitation and Water Supplies***. Warmer climate, precipitation decline and drought in most delta regions have resulted in drying of wetlands and severe degradation of ecosystems. Gross per capita water availability in India will decline by as much as 37% by 2050.

***Agriculture.*** Even a small change in temperature could have a significant impact on the Indian monsoon, decreasing agricultural yield by as much as 25%. Since a quarter of the economy depends on agriculture, this could stifle development.

***Sea-level Rise***. Rising sea levels would displace millions that live in low-lying areas. In the Ganges-Brahmaputra delta (also Bangladesh) by 2050, more than 1 million people will be

directly affected by coastal erosion and land loss. Sea-level rise will also lead to intrusion of salt water into fresh groundwater in coastal aquifers and thus could cause water shortages.

**Public Opinion**

In a 2006 study, 19% of Indians surveyed stated that climate change is a serious and pressing problem and should be addressed immediately. Approximately 30% said gradual steps were necessary, and 24% said that in light of scientific uncertainty, no steps need to be adopted.[1]

**Trade Profile**

India's economy has grown an average more than 7% per annum in the decade since 1997, reaching as high as 8.5% GDP growth in both 2006 and 2007. Sustained growth has reduced poverty by a remarkable 10%.

Services are the major driver of India's economic growth, accounting for more than half of India's output while employing about one third of its labor force. About three-fifths of the work force is engaged in agriculture, which includes both traditional village farming and modern agriculture. India's large population of trained professionals has made it an important service provider to multinational corporations, and India has become a major exporter of software as well as financial, research, and technology-related services.

**Analysis of Bali Building Blocks Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developing Country Mitigation Commitments***

India believes all developed country parties must commit to a reduction in greenhouse gas

[1] Chicago Council on Global Affairs, Global Views 2006: India Topline, 22, *available at* http://www.thechicagocouncil.org/dynamic_page.php?id=56.

emissions by at least 25-40% below 1990 levels in 2020, in accordance with the Bali Action Plan, and by approximately 80-95% in 2050.

***Developing Country Mitigation Actions***

India will not agree to limit its emissions at this time. India emits approximately 1.2 tonnes of carbon per person annually, far less than the global average of 4.1 tonnes per person. India's main goal is the reduction of poverty. The government estimates a 9.7% reduction in carbon emissions by 2036 will cost India $2.5 trillion, money which is needed to provide electricity to rural villages, promoting job growth, and strengthening infrastructure.

While it will not accept emissions limits, India would benefit from a regime in which developing countries like South Korea and China that are major trade competitors were subject to an emissions cap, while India remains free to increase its emissions. Such a regime could be justified by the fact that compared to India's 1.2 tonnes of carbon per person per year, China's emissions are approaching the global average of 4.1 tonnes of carbon dioxide per capita.

While India will not commit to caps on its emissions, it will agree to take "nationally appropriate actions" to mitigate emissions that support its development goals if technology and financing is provided, consistent with the Bali Action Plan described above.

The following points should be emphasized by India in negotiating developing country mitigation actions:

***"nationally appropriate mitigation actions"***

Nationally appropriate mitigation actions should be voluntary in nature for developing countries. These can be characterized as goals; however, your government will not currently accept caps.

Actions should be selected by the developing country based on its national circumstances and capabilities, with a view to supporting its sustainable development.

***"supported by technology and enabled by financing and capacity-building"***

Taking action is conditioned upon receiving support from developed countries

This includes financial support, technology transfer, and training.

***"measurable, reportable and verifiable"***

Both developing country national actions and developed country support must be measurable, reportable and verifiable. Funds must not come from existing development

assistance funds, but rather should be separate and represent additional support. Further, the criteria for disbursement of these funds should not be political, but should be based on costs associated with reducing emissions and meeting development goals.

Developing countries' measurement, reporting and verification of national actions should be under the control of their own governments.

India proposes that developed countries contribute 0.5% of developed country GDP to fund developing country adaptation and mitigation actions. Developed countries would allocate this burden among themselves based on historic cumulative emissions and GDP. Countries would be free to raise these funds any way they desire, including through auctioning emissions allowances, carbon taxes, sectoral taxes, or any other way deemed feasible by a country. India also proposes several other mechanisms that would be acceptable to it for financing developing country actions to mitigate greenhouse gases: levies on international marine and aviation, and private or governmental sources of grant funds on a voluntary basis.

***Financing Technology Transfer***

Technology transfer is central to India's mitigation strategy and a key area of negotiation. Pursuant to UNFCCC Article 4(3), developed country parties are obligated to provide new and additional adequate and predictable financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of implementing mitigation and adaptation measures pursuant to their international obligations, and the full costs of capacity building and training.

The G77 + China have proposed the creation of the Multilateral Climate Technology Fund (MCTF) that would acquire private intellectual property rights and either place these in the public domain so they are usable by anyone at not cost or license those rights to developing countries at reduced or no cost, and fund research and development (R&D). In seeking funding for the MCTC, the following are key negotiation points:

- ***Accessibility, affordability, appropriateness*** and adaptability of technologies required by developing countries for enhanced action on mitigation and adaptation;
- ***Predictable***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to cover the full incremental cost of mitigation measures.
- ***Removal of barriers*** *for technology development and transfer*.

As noted above, India proposes that developed countries contribute 0.5% of developed country GDP to fund developing country adaptation and mitigation actions. Other acceptable options to India for financing technology transfer include traditional equity and loan investments,

concessional loans, loan guarantees or other risk mitigation structures, and a range of funds for acquisition, development, deployment and diffusion of technologies.

### *Financing Adaptation*

With respect to adaptation, please refer to the descriptions of the Adaptation Fund, LDC Fund, and Special Climate Change Fund in Section V of the General Instructions.

Your goal is to raise as much funding for the Adaptation Fund, LDC Fund, and Special Climate Change Fund as possible, which will be in the billions of dollars per year. The funds must be:

- ***New and Additional***: Must not be part of current aid provided by governments.
- ***Stable and Predictable***: Must be mandatory (not voluntary) funding.
- ***Adequate*** to meet needs of developing countries for adaptation.
- ***Automaticity***: Funding sources should be automatically funded (as opposed to delays for approvals by governments).

In order to provide ***stable, predictable and automatic*** funding, India favors mandatory charges on carbon trading. The Adaptation Fund is funded entirely by a charge of 2% applied to sales of CDM CERs (CDM projects in LDCs are exempt from this charge), which provides a good example of an automatic mechanism for raising funds. In contrast, voluntary donations from government are not acceptable. Acceptable options include increasing the charge on CDM CER credits, and to collect similar charges on ERUs (for JI) and RMUs (for LULUCF activities), and require domestic governments to auction a portion of AAUs assigned to countries as part of their annual allocation in order to finance adaptation efforts. See "Financing Adaptation" in Part V of the General Instructions for estimates of the amounts these sources could raise.

## Analysis of Proposals and Outcomes

### *Failure to Reach Agreement*

In the event of failure to reach an agreement at Bali in 2012, India would lose access to CDM projects, which provides an important source of revenues to support clean technology development. India will seek continuation of the Kyoto Protocol regime after 2012.

### *EU Proposal to Cap Temperature Rises at Two Degrees*

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

India will not agree to a cap on its own emissions. While India will not commit to caps on its emissions, it will agree to take "nationally appropriate actions" to mitigate emissions that support its development goals if technology and financing is provided, consistent with the Bali Action Plan described above.

### *Japan's Sectoral Approach Proposal*

Japan proposes that caps be determined on a "bottom up" approach based on each industry setting a target based on the conditions prevailing for each industry (a "bottom up approach") and then aggregating all industry targets for a national target.

India believes that Japan's sectoral approach is unworkable in practice because it is impossible to separate industrial sectors as industry is closely related through supply chain relationships. India believes that Japan's proposal amounts to a voluntary arrangement with industry and is intended to provide a way for industries to avoid obligations to reduce greenhouse gas emissions. India believes the sectoral approach cannot replace legally binding emissions limits for developed countries.

### *G77 + China Positions*

As a member of the G77, India supports the G77 + China positions, subject to the other guidelines contained in this memorandum.

**CLIMATE DIPLOMAT**

**JAPAN CONFIDENTIAL MEMORANDUM**

You are the Chief Negotiator for Japan's delegation to the UNFCCC. You are an official of the Ministry of Foreign Affairs. You coordinate the development of Japan's government positions in climate negotiations through collaboration between your ministry, the Ministry of the Environment, and the Ministry of Economy, Technology and Industry (METI). This memorandum describes Japan's own proposal and its positions on key issues concerning the climate negotiations on post-2012 arrangements.

## UNFCCC Status and Emissions Profile

Japan signed both the UNFCCC and the Kyoto Protocol. Under the Kyoto Protocol, Japan has committed to reduce 6% of its $CO_2$ emissions below 1990 levels under the Kyoto Protocol and has reaffirmed its commitment to meeting this target.

Japan's emissions have increased since 1990, and in total, Japan must reduce an aggregate 12% of its $CO_2$ emissions from current levels to meet its Kyoto Protocol targets. Japan's emissions are among the top 10 emitting countries in the world, accounting for 4.6% of global total $CO_2$ emissions and its per-capita emissions are 9.8 tonnes $CO_2$ per person, much greater than the global average approximately 4.1 tonnes of $CO_2$ per person. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

## Climate Change Impacts on Japan

According to the IPPC Fourth Assessment Report, climate change impacts in Japan include:

***Temperatures***. Increased by about 1.0°C in 20th century, 2°C to 3°C rise in large cities. In the future, Japan is expected to experience increasing incidence of daily maximum temperature greater than 35°C, and decreasing incidence of extremely low temperatures.

***Agriculture.*** Rice yield is projected to decrease by 40% in irrigated lowland areas of central and southern Japan under if $CO_2$ levels double.

***Biodiversity***. Loss of certain forest species.

## Public Opinion

Japan is highly sensitive to public opinion regarding stewardship of the environment and wants to see a continuation of the "Kyoto" arrangements, as it is a high

profile international treaty bearing a Japanese city's name. According to a poll conducted by GlobeScan in 2006, 75% of Japanese polled believe that climate change is a "very serious" problem.

**Trade Profile**

Japan is the second largest economy in the world. Japan's economy grew rapidly during the 1960s to the 1980s, and has since slowed considerably, growing at approximately 2.6% per year in 2006 after coming out of a long recession. Japan's economy is comprised of services (73.1%), industry (25.3%), and agriculture (1.6%). Japan's government and industry has exhibited a high degree of cooperation in pursuing economic and other goals.

Japan is heavily dependent upon imported energy, and has sought to reduce its energy usage and diversify its sources. Since the 1970s, Japan has reduced its dependence on petroleum from approximately 75% in 1973 to its current level of about 57%.

**Analysis of Bali Building Blocks Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developed Country Mitigation Commitments***

Japan wants its post-2012 commitments to be based fair, realistic and legally binding targets agreed with industry. Japan will seek to base its international emissions reductions commitments on the voluntary targets Japanese industry pledged to make under a Voluntary Action Plan. These targets were based on a "bottom-up" analysis of Japanese industry capability to reduce emissions while staying competitive internationally. Also, if both the United States and China will also take actions to limit emissions, Japan is willing to commit to making efforts to achieve more aggressive reductions.

### *Japan's Proposal for Bottom Up Approach to Determine Caps*

Japan proposes that caps be determined on a "bottom up" approach based on each industry setting a target based on the conditions prevailing for each industry (a "bottom up approach") and then aggregating all industry targets for a national target.

Japan will seek to base its bottom-up target based on the voluntary targets Japanese industry agreed with the Japanese Government under a Voluntary Action Plan. Each industry's target reduction amount is listed below.

| Industry | Previous Reduction Target (%) | New Reduction Target (%) | Amount of $CO_2$ (million tons) |
|---|---|---|---|
| Chemicals | 10 | 20 | 856.3 |
| Electricity | 28 | 35 | 228.5 |
| Paper | 13 | 20 | 217.4 |
| Oil | 10 | 13 | 139.3 |
| Gas | 46 | 59 | 19.0 |
| Automobiles | 10 | 12.5 | 19.0 |
| Cement | 3 | 3.8 | 17.8 |
| Rubber | 0 | 6 | 11.2 |
| Grass | 15 | 21 | 10.5 |
| Lime | 6 | 8 | 7.1 |
| Electric Wire | 20 | 27 | 6.6 |
| Department Stores | 3 | 6 | 6.2 |
| Dying | 40 | 41 | 5.8 |
| Drug stores | 0 | 15 | 5.2 |
| Sanitary Equipment | 20 | 25 | 2.4 |
| Aluminum | 10 | 11 | 1.8 |
| Copper | 8.6 | 9.05 | 0.2 |
| Truck Companies | 4 | 30 | 439.0 |
| Total | | | 1993.3 |

Under the Voluntary Action Plan, additional CO2 reductions by the industrial sector amount to 130 million tons in total. This would represent a total of 10.3% emissions reduction below 1990 levels. This would provide an indication of what would be a minimal acceptable target for Japan by about 2020 in an international climate change regime.

### *Alternative Proposal: Energy Efficiency Targets*

Japan would also be willing to accept energy efficiency targets as an alternative to caps. Japan's industry feels energy efficiency targets are an excellent indicator and promotes effective use of limited resources. However, this proposal has been proposed by the U.S. and Japan before, and rejected by other countries. You are authorized to

discuss this option, however you should abandon it if you determine other countries are opposed to it.

### *Financing Technology Transfer*

With respect to financing technology transfer, the Japan is willing to provide financial support to developing countries for mitigation subject to the following conditions:

- Sector-based: Japan will fund technology transfer on a sector-by-sector basis. It will not fund developing country industrial sectors that are technologically advanced.
- Company to Company: Technology transfer will take the form of market transactions between Japanese companies and developing country companies.
- Goal should be to stimulate private investment.
- Research and development (R&D) cooperation to be a priority.
- Japan will approve funding for technology transfer on case by case basis.
- Japan would support MCTF provided Japan directs use of its own funds.
- Japan's mitigation support outside UNFCCC should be counted.
- Japan will not pledge a specific dollar amount or any percentage of GDP.

### *Financing Adaptation*

Japan believes financing adaptation is an important priority. Japan's position with respect to financing adaptation is as follows:

- Priority for most vulnerable: LDCs and Small Island Developing States.
- Assistance must be integrated with development process, cannot be separated.
- More scientific data about adaptation needed before we can know what we must do.
- Japan's adaptation assistance to developing countries outside the UNFCCC funding process should be recognized as contributions towards adaptation for purposes of Japan meeting is adaptation financing obligations under the UNFCCC.

Japan's government has not reached any specific decisions on amount or mechanism for financing adaptation. Japan does, however, want to be able to direct a portion of its adaptation funding through non-UNFCCC mechanisms, including its own overseas development agencies. You have flexibility to negotiate an agreement that reasonably protects Japan's interests as described in this memorandum.

## Analysis of Proposals and Potential Outcomes

### *Failure to Reach Agreement*

In the event that countries cannot reach agreement on the post-2012 regime, Japan will honor its Kyoto Protocol commitments. Japan will continue to seek to promote an

international climate change regime that includes the United States, China, and India, and to encourage development of a cap and trade mechanism.

***EU Proposal to Cap temperature rises at Two Degrees***

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

Japan wants its post-2012 commitments to be based on fair, realistic and legally binding targets agreed with industry. Japan is concerned that the EU targets are too uncertain and too large to be attainable. Japan and its industry are concerned that they will fail to meet EU targets. Japan believes that it has already made significant progress in energy efficiency during the past 20 years, making it extremely difficult for them to commit to targets of the magnitude proposed by the EU.

***G77 + China Positions***

Japan believes that the participation of the United States, China, and India are essential for the success of the Kyoto Protocol regime. Without the entry of these large GHG emitters, the effects of Kyoto mechanisms are diluted and create far less impact in terms of arresting climate change. Japan supports G77 + China positions to the extent it brings all major emitters into a climate change regime, however it will seek to negotiate its commitments based on the ability of its industry to accomplish further reductions and subject to Japan's other specific negotiating positions described in this memorandum.

# CLIMATE DIPLOMAT

## UNITED STATES CONFIDENTIAL MEMORANDUM

You are the newly appointed Senior Climate Negotiator at the U.S. State Department. You lead the U.S. delegation in climate negotiations for the new U.S. administration. The President views addressing climate change through an international agreement as an important priority. You are tasked with negotiating an agreement that re-establishes the U.S. as a leader in international diplomatic efforts on the environment, and balances U.S. economic interests. This memorandum describes important considerations on issues concerning the climate negotiations.

### UNFCCC Status and Emissions Profile

The United States signed both the UNFCCC and the Kyoto Protocol. Under the Kyoto Protocol, the U.S. agreed to reduce its emissions by 7% of 1990 levels. However, the U.S. did not ratify the Kyoto Protocol and therefore it is not subject to any emissions limits.

In the absence of limits, U.S. greenhouse gas emissions have increased by over 21% since 1990 levels. The U.S. is the largest emitter of greenhouse gas emissions in the world and its per-capita emissions are 19.9 tonnes of carbon dioxide per person, far higher than the global average of 4.1 tonnes per person per year. See the Table of Global Carbon Dioxide Emissions by Country in the General Instructions for additional data on country emissions.

### Climate Change Impacts on the United States

According to the U.S. National Assessment Synthesis Team, which produces the national estimates for climate change impacts, the following impacts are expected:

***Temperatures.*** Temperatures in the U.S. will rise 5-9°F (3-5°C) on average in the next 100 years. A wider range of outcomes is possible. Temperature increases will vary by region.

***Rainfall.*** Heavy and extreme precipitation events are likely to become more frequent, yet some regions will get drier. The potential impacts of climate change will also vary widely across the nation.

***Ecosystems.*** Many ecosystems are highly vulnerable to the projected rate and magnitude of climate change. The disappearance or fragmentation of certain ecosystems are likely to be costly or impossible to replace.

***Water.*** Water supply and quality will be an important concern in every region. Floods and water quality are concerns in many regions. Snowpack changes will cause water shortages, especially in the West, Pacific Northwest, and Alaska. Flooding may be a problem due to precipitation changes and irregular runoff.

***Agriculture.*** Overall, U.S. crop productivity is likely to increase over the next few decades. Within this century, however, rising temperatures and water scarcity will reduce U.S. agricultural production if climate change continues unabated.

***Human Health.*** Climate change can have a number of negative health impacts. Maintaining our nation's public health and community infrastructure will be important for minimizing the impacts of water-borne diseases, heat stress, air pollution, extreme weather events, and diseases transmitted by insects and rodents.

***Sea Level Increase.*** Climate change and the resulting rise in sea level are likely to threaten buildings, roads, powerlines, and other infrastructure in coastal and sensitive places.

**Public Opinion**

Public opinion in the United States has changed dramatically over the past few years; now a majority of Americans from both political parties believe climate change requires action. According to a recent poll conducted by CBS/New York Times in 2007:[1]

> Ninety percent of Democrats, 80 percent of independents and 60 percent of Republicans said immediate action was required to curb the warming of the atmosphere and deal with its effects on the global climate. . . .The poll found that 84 percent of Americans see human activity as at least contributing to warming.

The White House has emphasized to you that responding to public opinion is a high priority for domestic political and international relations reasons. The new administration wants to establish a reputation for taking action and cooperating with the international community. Your efforts at the negotiations must reflect the importance the U.S. public places on climate change while taking into account the other instructions you have been given on specific issues.

**Trade Profile**

The U.S. economy is the world's largest and most diverse economy. United States GDP comprises services (78.6%), industry (20.4%) and agriculture (0.9%). Maintaining a leading position in technology is important for the continued growth of the U.S. economy. During the past decade, the U.S. has been running increasingly large trade deficits and losing jobs to foreign countries, especially China and India, due in part to lower wages in foreign countries and the diffusion of advanced technologies.

The U.S. public and the government are concerned about the jobs and trade impact of a climate agreement that imposes emissions limits on the U.S. but not impose similar limits on major trading partners like the EU, Japan, China, India and Brazil. Public opinion, however,

[1] Broder, J. and M. Connelly, "Public Remains Split on Response to Warming", New York Times, April 27, 2007 (http://www.nytimes.com/2007/04/27/washington/27poll.html?_r=1&oref=slogin).

differs by region and economic sector. Traditional industries located primarily in the Midwest and East such as steel and automobile production are especially concerned about the impact that climate change agreements could have on local jobs. In contrast, states that have moved aggressively towards addressing climate change and are promoting renewable energy technology are supportive of the U.S. entering into an international legal arrangement because they believe it will help their local economies. These states include California, Oregon, Washington, Massachusetts, and a number of other states that are taking initiative to limit greenhouse gas emissions and promote renewable technology.

**Negotiate with Congress in Mind**

Any agreement you reach must be ratified by the Senate and will require domestic legislation to implement it that will require passage through both the Senate and the Congress. In negotiating the agreement, you must therefore take account of political considerations linked to public opinion in order to gain Congressional approval. Any agreement you reach must be consistent with U.S. domestic legislation.

Congress is concerned that any agreement it enters into is effective in reducing greenhouse gas emission. If the United States commits to reducing greenhouse gas emissions, Congress will require other major emitting countries (developed countries as well as China, India and Brazil) also commit to taking actions to reduce emissions so that U.S. efforts are effective.

Congress will also be concerned about the level of effort that is required of the United States and its impacts on the U.S. economy and jobs. The U.S. negotiating position must take into account the potential adverse impact on the U.S. economy, jobs and trade, and the architecture of the agreement must be flexible to allow the United States to make adjustments in its international obligations if necessary to accommodate economic conditions. Creative negotiation on issues such technology sharing and its impact on the national economy, jobs and trade will be critical to reaching an agreement that is acceptable to the Congress and U.S. public.

Congress will also be concerned about any impression that the United States is ceding sovereignty over its domestic legislation to an international body. The final agreement must be consistent with any domestic legislation that is ultimately adopted.

Finally, financing solutions that do not use or minimize use of U.S. taxpayer funds to promote technology transfer or adaptation are also more likely to gain Congressional support. Congress may not support an agreement that gives the appearance of the taxpayers subsidizing foreign industries that results in loss of U.S. jobs.

**Analysis of Bali Building Blocks Issues**

At COP/MOP 13 in December 2007, the COP/MOP adopted the Bali Action Plan that calls for all developed countries to commit to quantified emission limitation and reduction objectives, and developing countries to enhance "nationally appropriate mitigation actions" to address climate change provided that they receive sufficient financial, technical, and capacity building support. The Plan calls for both mitigation actions and financial and other support to be "measurable, reportable and verifiable." The Plan cites the IPCC Fourth Assessment Report that keeping greenhouse gas concentrations below 450 ppm $CO_2$-eq will require developed countries to make reductions of 25% to 40% of 1990 levels by 2020 and 85% to 95% reductions of 1990 levels by 2050, and require developing countries to emit less than their business as usual projections. The Plan identifies four areas requiring further negotiation to reach a comprehensive climate agreement: mitigation, adaptation, technology transfer, and finance.

***Developed Country Mitigation Commitments***

You must condition any agreement you negotiate on its ultimately being consistent with a future U.S. law. U.S. regulatory structure to cap emissions and accommodate emissions trading will require several years before it can be operational. As a practical matter, 2012 is the earliest that the U.S. could implement a system that complies with international legal obligations.

In the past, the U.S. has advocated for an international regime that seeks non-binding goals, typically measured as an improvement in energy efficiency (e.g., reduction of energy use as a % per unit of GDP). This position is probably politically untenable due to mounting scientific evidence for climate change and increasing public awareness.

The leading federal bill put before Congress but not adopted in its most recent session calls for greenhouse gases to start declining by 2013 and decline by approximately 70% of 2012 levels by 2050. The bill anticipated potential participation in international climate change agreement, but limits the ability of U.S. emitters to use foreign allowances and CDM offset credits from developing countries that do not have an emissions cap.

***Financing Technology Transfer***

Your negotiation efforts should seek to advance U.S. economic interests while addressing climate change. Many technology companies and the venture finance community in the United States increasingly view climate change as an opportunity to export "clean" technologies. These companies want protection for their intellectual property. The U.S. government is also concerned that "technology transfer" could result in loss of jobs and competitiveness for U.S. companies. Any agreement should offer clear opportunities for U.S. companies and workers to benefit from the opportunities to "green" the economy.

With respect to financing technology transfer, the U.S. is willing to consider providing financial support to developing countries for mitigation provided the actions produce real and verifiable emissions, and the developing country's private sector or other source also pays a portion of the cost of these actions. The U.S.'s objective is to provide seed funding that will encourage private sector investments in the recipient country. The U.S. will only fund those actions that would not have been done without foreign support. For example, it will not fund technologies that pay for themselves (such as many energy efficiency technologies) as there is already adequate economic incentive to take those actions.

U.S. support would be conditioned on all technology transfer occurring through market transactions with the companies that own the technologies (no use of compulsory licensing), to the same conditions stated above in the prior paragraph relating to how U.S. funds can be used, and the condition that U.S. levels of funding would be subject to U.S. domestic legislation.

***Financing Adaptation***

The United States recognizes that adaptation is an important priority for developing countries and is especially concerned about LDCs. The U.S. is in favor of raising funds for adaptation by increasing charges on sales of CDM CERs and extending similar charges to sales of other JI ERUs and afforestation/deforestation RMUs. U.S. legislative proposal have contemplated providing additional funding through a cap and trade system, however it is not clear how adaptation will eventually be treated under final legislation.

## Analysis of Proposals and Potential Outcomes

### *Failure to Reach Agreement*

The failure to reach and international climate change agreement would weaken the public and international perception of the new U.S. administration's commitment to take action on climate change. It would also limit U.S. companies' ability to engage in the emerging carbon markets. It could also reduce the ability of U.S. government in coordinating with other governments on economic aspects of climate policy. In particular, there is concern that failure to reach agreement could lead to trade disputes over the implementation of climate change policy. For example, in the absence of an international agreement, the most recently proposed U.S. climate legislation disqualifies emissions allowance trading with countries that do not impose limits on their emissions, and requires importers of goods from countries without an emissions limit or similar strong action on climate change to purchase U.S. offset allowances, which would act like a carbon tax on foreign goods imported into the U.S.

If the U.S. does not join an international agreement, it could still pursue its own climate change program under domestic legislation. A purely domestic approach would provide it with greater flexibility to select its own reductions targets and mechanisms, and thereby minimize domestic adverse economic impacts. If a domestic cap-and-trade approach is adopted, trading could occur exclusively among U.S. emitters (except to the extent that domestic legislation allows use of international credits to be applied to meet U.S. domestic emissions caps). A purely domestic trading approach would probably increase the cost of compliance (because less expensive credits would probably be available in other countries), but it would also require investment in U.S. emissions reductions (e.g., as opposed to purchasing Russian "hot air" or financing emissions reductions in other countries).

### *EU Proposal to Cap Temperature Rises at Two Degrees*

The EU proposes emissions reductions to limit temperature increases below 2°C, requiring GHG atmospheric concentrations to stabilize at or below 450 ppm $CO_2$-eq levels. According to the IPCC, to limit temperature increase to 2°C above pre-industrial levels would require global GHG emissions to peak by 2020 and then to reduce from 50% to 85% by 2050. To meet this goal, the EU calls on industrialized countries to commit to a 25% to 40% reduction in emissions below 1990 levels by 2020, and would also require China, India, and Brazil to reduce emissions in the near future.

U.S. domestic legislation must be the basis for U.S. emissions reductions. The leading U.S. climate legislative proposal has called for U.S. emissions reductions by only 70% by 2050.

This may be inadequate to stabilize GHG atmospheric concentrations to keep temperatures increases below 2°C. You may negotiate the EU proposal, but your agreement must be consistent with U.S. priorities and subject to passage of anticipated climate change legislation.

***Japan's Sectoral Approach Proposal***

Japan's sectoral approach proposal sets emissions limits based on the capability of each industry segment to achieve emissions reductions. The U.S. government has in the past supported Japan's sectoral proposal, however the new administration will also support other approaches that meet its objectives as described in this memorandum.

***G77 + China Positions***

This Bali Action Plan could signal an important evolution of thinking among the G-77 and China, reflecting an understanding that the UNFCCC principle of "common but differentiated responsibility" should include actions by major emitting developing countries. You are to negotiate for China, India and Brazil and other advanced countries to accept some kind of obligation to reduce emissions and a commitment to install equipment to monitor those emissions to ensure that the reductions are real and verifiable. You will not seek emissions reductions from AOSIS and LDCs that do not contribute significantly to greenhouse gas emissions. You will seek to align this proposal with U.S industry's ability to make reductions, and subject to the other specific negotiating positions described in this memorandum.