

Developing Countries Participation

Global Climate Change

Joe Aldy
CEA

GCC:

**LDC
Participation**

3/20/98 GCC Dev Country Mtg (State)

Papers

- 1) generic - Sandalow process
- 2) background - country-specific ("Country Profile") - Brook Holmes
- 3) strategy - country-specific

Areas of Importance

- 1) compliance w/ existing convention
 - natl communications
 - natl inventories
- 2) tech transfer, diffusion, investment
- 3) domestic policy reforms
- 4) legally binding budget
- 5) capacity building + education
- 6) natl action plan
- 7) assessment of what countries are doing now

Brazil - enviro bilateral Rate's attending

T+T - Brazil's proposal based on country's contribution

to temp Δ $\rightarrow$ implies LDCs don't take on targets for long time

Brazilian cable - becoming more interested in T+T

Outline benefits of taking a target for Brazil

What are costs of getting from BAU to IS92A (SSO ppm)

Peter R. Orszag

03/14/98 11:42:32

AM

Record Type: Record

To: Joseph E. Aldy/CEA/EOP

cc:

Subject: Re: developing countries paper 

Comments on the developing country paper:

In general, a very helpful contribution. Good job. A few quibbles:

2. On page 1: The greater cost savings to the US from trading relative to the CDM is not universally true: it depends on the level of the cap imposed on the developing countries. Your statement -- lower costs from trading relative to CDM -- is true if the cap under trading is the same as the "baseline" from which additionality is measured under the CDM.

2. On page 1: Do not say "greater compliance with Byrd-Hagel resolution." How about: "Non-economic rationales include the long-run benefits of including developing countries in the global negotiations -- for example, as recognized in the Byrd-Hagel resolution."

3. On the econometrics: First, both GDP and emissions are probably non-stationary. Regressing one on the other -- in log-levels -- may well produce a very high R^2 , as you obtain, even if the regression is spurious. If you wanted to get fancy, you'd go through the motions of doing some cointegration tests. (If you're not into these things, I'm sure Jeremy would love to help out.) Second, is the serial correlation you mention statistically significant?

-- Peter

Victoria G.

202-364-0350

- 1) Chapter needs work - how it's set up
more more than substance
may lose people w/ 1st sentence
best Banning
- 2) Italy better gains than COM
- may need to explain
audience may not get everything
given com
- 3) trying to deal w/ sensitivity about
capital flows - trade off b/t "foreign aid"
and bene to specific EDCs
- 4) for a country to do trading, it will need an
elaborate monitoring, enforcement infrastructure
→ COM unit need
- 5) BAU - SAM BAU in use, on BAU
clarity
- 6) need to make clear ~~were~~ not negotiating a
formula now
- 7) p. 3, 2^d bullet - ?
- 8) summary of analysis after pp 9-10 - need
to integrate in front end

more

Based on our analysis of a differentiated
cap + trade system, LDCs win + US win
→ not "best"

We've done analysis on BAU that
can minimize risk + not risk stopping econ growth

Among our top priorities is negotiations
need to recognize how much some LDCs hate
this

p. 2 - tone, proposed solution

"to the extent possible, ~~negotiate~~ negotiate
slight reductions"

rationale, "(some risk may remain after
commitment period)" at end of sentence

✓ p. 3 - "lagged" - in earlier years instead
put "sensible"

✓ "then emis caps set at their BAU levels"
in next bullet

✓ All Annex I trading - fr- excludes CDM
+ sinks

1997 listed of 97

look for voluntary C reductions w/ cap at BAU - make it clear that is not the cap

→ p. 8, explain how costs & benefits w/ 8-9%, about trading

bullet 2, better explain \$26/ton - for those tons

"best form of participation" political non-starter in other countries

1 table - foreign aid problem

concern C Annex I only price specific countries



"SQUITIERIR%DOM13.DOP07" <Ray.R.S.Squitieri @
MS01.DO.treas.sprint.com>
03/16/98 10:45:49 AM

Record Type: Record

To: Joseph E. Aldy/CEA/EOP, lutter_r @ a1.eop.gov

cc:

Subject: excellent paper; 2 questions

Date: 03/16/1998 11:32 am (Monday)

From: Ray Squitieri

To: joe,randy

Subject: excellent paper; 2 questions

p 9 "2) ... (The marginal cost effectiveness is likely to be higher.)" [What does this mean?]

p. 8 " ... would incur net costs only if the cap were about 9 to 10 percent below BAU." Is this because 1) they have so many negative-cost opportunities for emissions reductions? Or because 2) the OECD payments to them would more than offset any costs to their economies? If 2), how are you comparing payments received with costs to their economies as measured by the models?

Very good job. Ray



U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

November 24, 1999

TO: Climate Change Distribution List

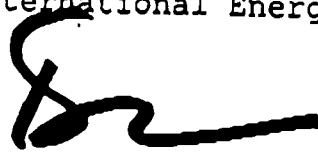
SUBJECT: USAID South Asia Energy Program

This week, USAID approved the strategy for a new South Asia Regional Initiative (SARI) in Energy, which focuses on energy sector reform and capacity building. The SARI/ Energy Initiative grew out of a suggestion from our South Asia field Missions and has been developed in close cooperation with our colleagues at State, Energy, and other USG agencies.

South Asian countries need sufficient energy to support their continued economic growth and to keep pace with their expanding populations. Meeting this challenge will require significant investments to develop energy resources. Efficient development and utilization of adequate energy resources will require cooperation and trade among the region's countries.

The objective of the USAID South Asia Energy Program is to promote this cooperation and eventual trade in energy resources among the countries of the region. The four-year \$34 million SARI/Energy program will serve as a vehicle to bring together energy sector players from both public and private sectors across the region, to discuss and resolve issues that impede cooperation and investment in energy development. USAID's support is designed to help countries develop the appropriate policy, regulatory and investment environments to encourage private sector investments to meet domestic energy needs, and to develop the cross-border infrastructure and market mechanisms that will be required for the eventual trade in electricity, natural gas and other energy resources.

We will begin the implementation of this program in FY 2000. Many aspects of this effort were informed by the PCAST recommendations, and we look forward to sharing reports of progress and further lessons learned with the NTSC Principals Group on International Energy.



David Hales
Deputy Assistant Administrator
Center for Environment
Bureau for Global Programs,
Field Support and Research

cc: Robert Randolph, USAID/AA/ANE
David Robinson, USAID/SEAS/ANE

Memo

To: Distribution

From: David Hales

Date: 05/24/99

Re: Japanese Proposal re ODA and CDM

The Japanese proposal to use ODA for CDM projects could raise several serious issues for USG policy.

1. Redirection of ODA from current program emphases: ODA totals have declined significantly since 1992, and the trend is unlikely to be reversed in the near future. If the Japanese proposal redirects their funding from current patterns of investment, there will be direct consequences for other donors and for recipients. Aside from the political costs in the context of climate negotiations of such an action by the Japanese, we need to understand the substantive implications (i.e. which countries and which programs will receive reduced funding) before making a decision to support.
2. Tied Aid Issues: Depending on the approach to be used by Japan, the proposal could raise serious "tied aid" issues. The USG has serious concerns about the use of development assistance that generates exports of goods and services in ways that distort markets or lead to subsidized dominance of market sectors.

Questions will arise in several contexts:

- a) Japanese market advantage; Japanese ODA investment could induce CDM partners to invest in ways that are not competitively determined by price, quality or service, and which are not consistent with country climate strategies, National Environmental Action Plans or National Economic Strategies. The

result could be subsidized enhancement of market share in key sectors of emerging economies, as well as strengthening the competitiveness of Japanese domestic firms. US interests would suffer in both instances.

- b) Conflict with the principles of the 1992 Helsinki Agreement: 1) Tied aid should not be used for commercially viable projects, **especially projects in the energy sector, and** 2) higher income developing markets should be ineligible for tied aid.

Projects that are larger than \$3M in non-LLDCs (least developed countries) must be notified to the OECD and may be challenged by other OECD members.

Depending on the approach taken by Japan, their actions may well engage aggressive responses by the US Ex-Im Bank via the Tied Aid Capital Projects Fund, or the Tied Aid Credit Authority. Policy and Budget implications should be considered before supporting the Japanese proposal.

3. ODA definitional problems: ODA is defined as **financial flows to recipients from official agencies** which:

- a) have the **primary objective of promoting sustainable development of recipients**, and,
- b) is concessional, that is it involves a transfer of financial resources that will not have to be repaid - a grant element – of at least 25%.

Depending on the details of the proposal, funds used as the Japanese propose may no longer qualify as ODA, on either or both points. There is nothing we can do in the FCCC context to address this definitional issue. Japan will have to define their case and appeal to the OECD Development Assistance Committee for permission to continue to count assistance that produces CERs used to meet national emissions reductions targets as ODA. The closest analog is Germany's request to count domestic investments made in support for Bosnian refugees as ODA. The DAC allowed a percentage to be counted for two years and this year rejected a German request to continue the practice.

MEMORANDUM

TO: Distribution
FROM: David Hales
DATE: April 29, 1999
SUBJECT: AOSIS paper for discussion at today's Diplomatic Coordination meeting

Introductory Note: In December, 1998, and January, 1999, several working group meetings were held on a discussion paper on AOSIS originally drafted by USAID. The result of these meetings was the policy summary below, which has guided USG actions re AOSIS members. The Policy Summary was updated on 4/29/99, to reflect preparatory meetings for the UNGA Special Session on Small Island Developing States, and other initiatives. The section on opportunities for engagement has also been updated.

U.S. Position: The U.S. has the following strategic goals for AOSIS States:

- Increase participation, ideally through the acceptance of legally binding commitments, in the United Nations Framework Convention on Climate Change (FCCC) and the Kyoto Protocol. Less ambitious measures by some States may also be acceptable as 'meaningful participation'
- Achieve AOSIS member state support for core USG positions on climate change.
- Create U.S. business opportunities and demonstrate best practices with regard to greenhouse gas mitigation
- Address vulnerability of SIDS to impacts of climate change.

Background: Small Island States are exceptionally vulnerable to the impacts of climate change and are therefore critically concerned with the stabilization of greenhouse gases at safe concentrations in the atmosphere. The combination of being vulnerable to but not largely responsible for climate change makes AOSIS member states a significant voice and an important force to consider in the climate debate. Any international regime adopted to address climate change must be deemed fair and responsive to such extreme cases.

The high-profile vulnerability of AOSIS nations presents the U.S. with a unique opportunity to highlight innovative GHG mitigation efforts. By supporting SIDS own efforts to expand renewable and clean energy alternatives and attract financing for mitigation projects, the U.S. can demonstrate a significant commitment to equitable consideration for small islands, while furthering diplomatic goodwill. Such efforts are critical to participation in the mechanisms proposed in the Kyoto Protocol and eventual acceptance of emissions targets.

AOSIS nations stand to gain economically from the aggressive implementation of the Clean Development Mechanism and full participation in a flexible emissions trading system. SIDS conversion from fossil fuel to alternative sources of energy is key to their meaningful participation in emissions trading regimes. We believe that an accurate

assessment of the self-interests of AOSIS states would lead to substantial convergence with the interests of the United States.

Strategy: The task of a diplomatic strategy with AOSIS states is to demonstrate this convergence and help them create the capacity to accurately determine and then act in their own national interest. The USG strategy should address vulnerability and adaptation issues, and emphasize the potential for support of sustainable development inherent in the Clean Development Mechanism. It is critical that we build confidence that the United States and other developed countries take their commitments seriously, and that developing country participation is not seen to limit economic development. The key to successfully engaging AOSIS states (and other developing countries) is to make the risks of participation in Kyoto Mechanisms close to zero, while demonstrating substantial potential benefits.

Key action components must address disaster preparedness and response, sustainable urban development in coastal zone areas, renewable energy expertise and technology transfer capacity, economic analysis and modeling expertise, and the vulnerabilities of natural resource/fishery-based economies.

Our strategy should be constructed around four action areas:

1. An active partnership with AOSIS to understand, anticipate, and prepare for the adverse impacts of climate change, with an initial focus on weather-related disaster preparation and response.
2. Creating and supporting the capacity to identify and quantify the economic costs and opportunities associated with climate change and the full implementation of Kyoto's flexible mechanisms.
3. Establishment of opportunities and mechanisms (study tours, pro-seminars, etc...) for AOSIS senior policy makers to become fully aware of USG domestic policy and actions to meet our FCCC commitments and responsibilities.
4. Promotion of conversion to alternative sources of energy through technology transfer and private sector relationships with AOSIS member states, including the negotiation of technology transfer agreements, establishment of Sister City/ Resource City ties, utility partnerships, etc

Events/Opportunities for engagement: There are a number of current and upcoming opportunities for engaging SIDS on issues important to advancing climate coordination. These are:

- Continue to closely coordinate between climate policy and diplomatic efforts and the IWG on negotiations on SIDS issues for the September UNGA Special Session on Islands.
- An **Environmental Strategy for the Caribbean** was drafted by USAID in Fall 1998, with participation from 12 USG Agencies, Puerto Rico, and the States of the region. The strategy identifies priority concerns for the region based on the Barbados Plan of Action and addresses climate change through a number of key sectors. The \$30M Strategy will move into implementation in the summer and fall of 1999.

- In preparation for the twenty-second special session of the UNGA in September 1999, a Donor Conference was held in February to present project proposals from SIDS countries. These proposals have been reviewed by the IWG, and support will be considered for announcement at the Special Session. USAID has offered support to AOSIS to assist them to identify which of the proposals could be considered or bundled for private sector investment.
- AOSIS plans to hold a Summit of AOSIS Heads of State in September, in conjunction with the UNGASS. This will be the first Island Summit since Rio. Preliminary planning for the event is underway. AOSIS is open to combining this event with a White House Summit.
- USG support (through USAID) for an AOSIS workshop on climate change and the CDM in July in the Marshall Islands was announced at the Ad-Hoc Inter-sessional Working Group at the CSD in April 1999. Discussions on workshop design began on 4/28/99.
- USAID is considering support for a regional workshop in the Caribbean on renewable energy technology.
- AOSIS, through the UN system, will be recommending annual regional reviews of implementation of the Barbados Programme of Action for the SIDS. AOSIS sees these meetings as having potential to promote climate action on the part of SIDS, especially in the areas of energy efficiency and renewable energy.
- AOSIS and USAID/Commerce have had initial discussions regarding a trade mission to the Caribbean to promote climate-friendly technologies.
- AOSIS has expressed interest, and the U.S. could support, diffusion of Ocean Thermal Energy Conversion (OTEC) through pilot projects in the South Pacific and the Caribbean.
- Commerce and USAID have discussed with AOSIS the provision of a climate advisor to SPREP to ensure USG climate representation in the region, and assist AOSIS to implement climate activities, as outlined in the Barbados Plan of Action.
- State will hold policy consultations with Caribbean States the second week of May. As of yet, climate does not appear to be on the agenda for discussion. State G could seek additional visibility and focus in these and additional regional discussions.
- The President's Task Force on Coral Reefs has developed an aggressive program of cooperation with SIDS to protect coral resources. Elements of this program have been closely coordinated with climate policy efforts by State OES and USAID.

The most significant opportunity for engagement is the possibility of a White House summit for Heads of State from AOSIS member countries in September 1999. Ambassador Slade, Chairman of AOSIS, has expressed cautious support and has initiated discussion with AOSIS leadership.

Issues: AOSIS member countries are suspicious of U.S. motives, unconvinced of the appropriateness of including sinks (LUCF) in the Kyoto Protocol at this time, and convinced of the need for compensation mechanisms in CDM and emissions trading. We may also find significant differences regarding the definition of additionality, as well.

APR-26-1999 15:30

USAID G/ENV

202 216 3174 P.01/07

Phone: 202/712-1750

Fax: 202/216-3174

USAID - G/ENV/DAA
Global Environment
Center

URGENT

Fax

URGENT

cc: *ML*
JA
SP
QF
Cong

To: Climate Change Policy Develop- ment Group	From: David Hales
Fax:	Date: 4/26/99
Phone:	Pages: 7
Re:	CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

-Comments:

Attached for today's meeting at 4:00p.m.

DRAFT**Engaging developing countries in "meaningful participation:"
USG tools and incentives**

Building on several premises expressed in various policy papers over the past several years, this paper outlines incentives and tools which the USG might employ to achieve two goals, both of which are instrumental to US ratification of the Kyoto Protocol:

- Encourage developing countries to "participate meaningfully" in the UNFCCC and the Kyoto Protocol.
- Create developing country support for USG positions on key KP implementation issues (inclusion of sinks, unrestricted trading, compensation, compliance, etc).

This paper raises three key questions:

1. Can we improve the way we are **managing existing resources** in pursuit of our substantive and diplomatic objectives? Are we using the resources we have as well as we can?
2. Are our **existing negotiating options** – incentives – likely to lead to negotiating success? Can we make our desired outcomes sufficiently beneficial and attractive to others whose acceptance/support is necessary for success?
3. Is there a link between human, and financial resources and diplomatic success? Can we be successful at our **current level of investment**?

Premises:

- The more countries understand about the environmental and economic impacts of climate change, the more likely they are to accept/endorse USG views and positions.
- The more countries understand about the Kyoto Protocol, and the greater confidence they feel in representing their own interests in FCCC activities, the more open they will be to USG positions and the more likely to support them.
- Developing countries can and will "do more" if it is in their interest to do so and if they so perceive it; for countries to work closely with us, the risks of engagement must be perceived to be small, and the potential benefits perceived to be substantial.
- The more the US is seen to be taking aggressive domestic actions to reduce GHGs, the more pressure there will be on developing country emitters to take strong action.

DRAFT

It makes three major recommendations:

1. US efforts to support basic capacity building are essential and should be expanded.
2. The US should develop specific incentives to motivate and reward countries that make commitments. It is essential that the US have a major momentum/debate changing proposal ready for deployment. The US should examine and analyze the costs and benefits of creating a fund for climate change and sustainable development through a surcharge on emissions trading.
3. The US must be prepared to respond specifically to technical assistance and support requests from developing countries that are willing to consider or commit to expanded obligations. There is widespread concern that USG does not have the capacity to respond to opportunities which diplomatic efforts could create. US capacity should be comprehensively analyzed against potential demand, and resource transfer or augmentation proposed. A coordinating mechanism for responding to these needs is also needed.

DRAFT**I. Basic capacity building**

Building capacity is both a tool and incentive. A key impediment to developing country commitments and support for key policies is the lack of capacity to understand specifically how and where climate actions and policies can advance national interests. The US has climate-related capacity building programs in at least 44 countries, under the auspices of several agencies. In addition, the USG financially supports and provides information for workshops and training sessions which focus on issues specific to the implementation of FCCC responsibilities.

More can and should be done in this area. Additional resources and coordination will be required. For most countries, however, these efforts will be necessary, but not sufficient to lead to additional commitments or support for US positions.

Recommendations:

1. Reconstitute and strengthen the Country Studies Program to help developing countries complete or update national emissions inventories, conduct national action plans, facilitate economic modeling and assessments, and facilitate technology cooperation.
2. Fully staff and fund the USAID Developing Country Climate Change Initiative, EPA developing country strategy and DOE developing country strategy, and coordinate actions to achieve maximum leverage and synergy.
3. Strengthen State OES Environmental Hubs, and target Environmental Diplomacy funding at capacity building in countries where USAID cannot operate, and on workshops and training sessions focused on the Kyoto Protocol.

II. Incentives:

If major US policy goals are to be achieved, developing countries will have to be convinced that measures to address climate change are either directly in their interests, or are effectively combined with measures that are. Developing country concerns regarding limits to their economic growth, ability to address climate-related vulnerabilities, and equity issues must be addressed through alternate and differentiated forms of "participation", increasing climate-related investments in developing countries, assisting in identifying and addressing impacts of climate change, and creating funding mechanisms that allow developing countries to share in climate-related economic benefits.

Some of these opportunities flow directly from the United Nations Framework Convention on Climate Change and the Kyoto Protocol without any additional action or commitment from the US. For others, the potential is created by the Convention and the Protocol, but would require additional action or investment from the US, either through USG actions or private sector engagement and investment, or a combination of USG action and private investment.

A. Climate Regime Incentives:

- Emissions Trading: By taking on a binding target, many countries could benefit significantly from participation in a carbon trading regime. The development of approaches that meet the needs and concerns of developing countries and provide additional incentives for countries that take on "targets" could include the following:
 1. Transitional targets
 2. Growth Reduction targets
 3. Measures to promote financing in specific regions/countries (regional or affinity group quotas, differentiated baselines, CER selective valuation; an LDC bubble),
- Clean Development Mechanism: CDM is intended to foment greater investment in climate friendly projects in developing countries. CDM can generate revenues and build confidence that sub-sectional and sectoral approaches to CDM (and eventually national targets) are in the national interest. The question of equity remains an important concern for less-developed countries, as evidenced in the African CDM proposal at COP-4. An expanded list of CDM-related incentives might include:
 1. Measures to ensure broad participation (CDM clearinghouse, support for comprehensive range of projects, project related capacity building),
 2. Measures to assist financing (bundling capacity support, tax credits for CDM mutual funds),
 3. Measures to promote financing in specific regions/countries (quotas, differentiated baselines, CER selective valuation),
 4. Support for creation of private sector operational entities in key developing countries.
 5. Promotion of investment in key developing countries via trade missions, credit guarantees
 6. Support for policies important to developing countries (sustainable development definition criteria, CDM participation requirements, share of proceeds and use of adaptation funds, prompt start).
- Technology Cooperation under Article 4.5: Developed countries have a commitment under article 4.5 to assist developing countries in acquiring technology to address climate change. Many G-77 members argue that some "new and additional" resources should be forthcoming from Annex 1 countries. Some positive initiatives in this area might be an inducement to greater engagement on the part of some countries.
 1. Trade Missions
 2. Technology diffusion initiative (TCAPP, USAID/USAEP, CSP)

B. Non Climate Incentives:

In addition to a menu of climate-related options, several other tools might be brought to bear to encourage participation. These include, but are not limited to the following:

- Debt relief: Debt for Climate swaps, conditionality.
- Trade: MFN status, free trade zones, export credit agency guidelines.
- Foreign and military assistance:
- Other foreign policy/diplomatic objectives: representation in international fora; membership in regional or global groups (OECD).

C. Surcharge on emissions trading :

A surcharge on emissions trading could raise "new and additional" revenues to assist developing countries with costs associated with reduction or sequestration of GHG emissions, adaptation to the impacts of climate change, technology cooperation programs or other G-77 needs. The fundamental concept involves a small transfer surcharge (<1%) on each trade or exchange of CERs. These funds would be allocated to developing countries for purposes and via a mechanism approved by the COP. Within this basic concept, a range of options exists.

The fund could be sunsetted at the end of the first or second trading period, or its purposes might be broadened to address broader sustainable development concerns at that time (debt relief for HIPC's, humanitarian relief for natural disasters, etc). The funds could be spent via the GEF, or a separate institution might be created. Progressively more stringent conditions for receiving benefits could be established to promote climate friendly development.

A "tax on trading" has several attractive features: it reduces the need for additional ODA appropriations, provides substantial new investment in sectors where US private sector is competitive, and provides most developing countries with vested interests in the success of the Kyoto Protocol.

Potential drawbacks include higher transaction costs for countries that rely heavily on a trading regime to meet their targets and political concerns about a climate change "Tobin Tax". In addition, the details of implementation could be difficult to negotiate, and could complicate the development of emission trading system.

II. United States Government Tools

The USG has many programs in place which are already providing assistance to developing countries on climate-related issues. These programs span a broad spectrum of effort -- from CEA policy-level dialogue; to USAID/EPA/DOE/USDA/DOI technical assistance and training programs on climate-related issues (energy efficiency, sustainable

forestry etc); to very specific climate interventions (CSP inventories and SNAPs).

- Country Studies Program: An inter-agency committee is currently drafting recommendations on the future of this program. A core function of support for inventories and national action plans is recommended, as well as facilitating developing country access to other USG programs of assistance.
- USAID: USAID is now in year two of a five year \$1 billion climate initiative. Ten key countries and regions are at the heart of the USAID effort, with almost all of the funding dedicated to "win win" approaches sources and sinks. FY99 budget is \$150 million.
- Department of Energy: The DOE launched an Africa initiative on April 1 and is revitalizing the Hemispheric Energy Initiative launched by Secretary O'Leary. DOE has targeted five countries for its climate change focus: China, India, Brazil, Mexico and South Africa. DOE also is providing support to the USJI program. Total developing country budget in FY99 is \$ million.
- Environmental Protection Agency: EPA's developing country strategy targets policy development and capacity building related to the UNFCCC with a focus on China, Mexico, Brazil, Argentina, Chile, Korea. FY99 budget for this effort is about \$2.5 million.
- US Department of Agriculture: USDA works on soils, forest management and other resource issues in developing countries. Total budget for developing country activities in FY99 is \$ million. Most of these programs do not address the climate connection.
- Department of Treasury: Treasury provides a wide range of technical assistance in financial sector reform, infrastructure investment, and macroeconomic policy – as well as MDB oversight.
- Council of Economic Advisors: High level representation on climate economic issues and some analytic support has been provided to Korea, China, Argentina, Kazakstan and Mexico.

Currently, USAID is funding and managing assistance to Kazakstan on their efforts to take on a target. EPA is funding a similar effort in Argentina. These efforts are taking place on an ad hoc basis out of existing resources. It is clear that if additional countries were to come forward with requests for assistance, USG agencies would have a difficult time funding them. It is also clear that Agencies have developed programs and interventions somewhat independently, with clearance and coordination being uncommon. There is no central source of information on Agency actions or levels of investment.

A review of existing programs and activities should address the two key issues identified in the introduction: whether improvements can be made in the management of existing programs and activities; and whether current levels of resources are sufficient to meet our policy goals.

DEPARTMENT OF STATE
BUREAU OF ECONOMIC AND BUSINESS AFFAIRS
Room 6828
2201 C Street, NW
Washington, DC 20520

FAX COVER SHEET

TO: Joe Aldy	PHONE:
	FAX:
FROM: Victoria A. Greenfield	PHONE: 202-647-6985
	FAX: 202-647-5713
DATE: 3/8/99	TIME:

Number of pages including cover sheet: 5

Subject: AIXG - Quant Commitments

Messages: As per voice mail.

Also, I'd like to talk about
tomorrow's mtg w/Frank.

AIXG Future Work

I. Literature review

- Baseline emissions calculations
- BAU emissions projections

II. Needs assessment

- Environmental and economic data

To what extent are necessary environmental and economic data available, e.g., to what extent do national communications, economic reports, etc., provide necessary information for baseline emissions calculations and BAU projections? What additional data, both environmental and economic, are necessary?

- Analytical tools

To what extent are necessary analytical tools, e.g., for projecting economic growth, projecting emissions growth, and integrating sectoral information, available? (Such capacity may not reside with a country's environmental ministry. For example, models for projecting economic growth may reside more likely with financial ministries.)

III. Additional analysis

- Baseline methodologies

Evaluate relationships between baseline methodologies, commitments, and risk.

- Downward deflections from BAU

Develop detailed analysis of potential downward deflections from BAU emissions. (Adapt existing work on abatement opportunities and risk mitigation to the characteristics of non-Annex I Parties, as appropriate.)

DRAFT

DELIBERATIVE DOCUMENT: DO NOT QUOTE OR CITE

2/19/99

QUANTITATIVE COMMITMENTS: SOME TECHNICAL CONSIDERATIONS

Making progress on implementing the Climate Convention and completing the unfinished business of the Kyoto Protocol requires much discussion – technical and political – of numerous issues. Such progress requires not only an awareness of the problems but also a firm technical understanding of the many options that are available for solving them. In view of the Annex I Experts Group's (AIXG) contribution to the technical understanding of such options, this paper focuses on another option that the AIXG might usefully consider.

There are many ways in which all Parties can contribute to the goals of the Climate Convention, e.g., Annex I and non-Annex I Parties can participate in the Clean Development Mechanism, etc. If, among these options, a non-Annex I Party were to express an interest in adopting a quantitative commitment – an emissions target – how could it do so in a way that is consistent with its sustainable development objectives and with the objectives of the Climate Convention? To what extent can a target that entails a downward deflection from business as usual (BAU) emissions contribute to these multiple objectives? Is there an objective basis and sound methodologies for establishing whether a quantitative commitment could be attained feasibly, consistent with the sustainable development objectives of the Party? These technical considerations include the following:

I. Baseline Emissions Calculations

Commitments for Annex I Parties are expressed as a percentage of baseline emissions. Calculations of baseline emissions involve base years (e.g., 1990), specific units of measurement (CO₂ equivalent emissions), and particular gases (CO₂, methane, N₂O, HFCs, PFCs, and SF₆). For some Parties they also involve land use change and forestry.

- If a Non-Annex I Party were to express interest in taking on a quantitative commitment to abate the increase in its greenhouse gas emissions, how would its baseline be calculated?
- How might a Non-Annex I Party's baseline be differentiated from other non-Annex I Parties that take on targets, or from Annex I Parties? By year, unit of measurement, or basket of gases?
- What, if any, emissions and sequestration from land use change and forestry would be included?
- What are the environmental and economic implications of various baselines?

II. BAU Emissions Projections

The BAU projection provides a foundation for the analytical process. Once a country has determined what its emissions would otherwise have been, it can begin to assess the costs and benefits of policies to abate its emissions.

- What methodology for this projection will be most appropriate in different circumstances?
- If no one methodology is always appropriate, what common principles can guide the process?
- How can the projection incorporate a comprehensive view of the economy?
- How will it reflect trends in the macroeconomy, such as aggregate economic output, structural change over time, etc. as well as sector- and industry-specific trends, such as technological improvements or other changes in production practices that affect energy consumption and energy mix?
- Where are the greatest potentials for growth, and how will that affect the structure of the economy?
- How can the sectoral and industry projections be made consistent with the overall economy projections?
- What are the data requirements for the formulation of a BAU projection?
- To what extent should current policies and measures to address climate change, air quality, or energy efficiency be included in the BAU emissions projection?

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III. Downward Deflections from BAU Emissions

After formulating a BAU emissions projection, how would a Party elaborate possible targets that further the objectives of the Climate Convention and support its own environmental and economic objectives?

How can these objectives be met in a mutually supportive manner?

- What is the range of possible abatement measures available?
- How can a Party identify the technologies, processes, and policy options that can curb emissions?
- How can the costs and benefits – both economic and environmental – of these actions be estimated?
- Could some abatement measures provide a net economic benefit? What other measures are available? Which measures are likely to provide local environmental benefits?
- How can these measures be considered in an integrated manner?

A. Identifying and Assessing Abatement Opportunities

- What do sector and industry specific emissions projections tell us about the underlying relationships between output and emissions?
- What specific characteristics of each sector or industry – e.g., energy profile, production technologies and practices, role in international trade, regulatory framework, pricing structure, age of capital stock, and projected investment demand – influence the relationship between output and emissions?
- What specific opportunities are suggested by this relationship?

A1. No-Regrets Measures

- Could some measures provide a net economic gain, independent of their impact on climate?
- Can existing distortions or inefficiencies be removed to provide both economic and environmental benefits? For example, elimination of subsidies on fossil fuel consumption or production.

A2. Other Measures

- In addition to no-regrets measures, what other options for reducing emissions exist for a non-Annex I Party considering a quantitative commitment?
- What are the relative costs and benefits – both economic and environmental – of such options?
- What are the potentially offsetting benefits from participation in international emissions trading?

B. Identifying and Assessing Ancillary Benefits

Apart from the direct effect on climate, there are other potential local benefits of abatement. For example, some actions to abate greenhouse gases can improve local air quality.

- What are the links between public health benefits and abatement of greenhouse gas emissions?
- How do those links vary by greenhouse gas? By fuel mix?
- What are the analytical tools and sources of data that a country can use to elaborate these benefits?

C. Integrating the Analyses

Since so many sectors of an economy are intricately related to activities in other sectors, trying to assess the effects of policies on each sector independently without an integrating tool could result in a misunderstanding of the effects of potential abatement policies.

- How can all the important feedbacks and relationships in an economy be modeled, both across end-use sectors as well as up and down the energy supply stream?
- How can such models be integrated with existing international models to evaluate the opportunities for participation in international trading?

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IV. Risk and Uncertainty

Even under the best analytical circumstances, e.g., where accurate data and integrating tools are widely available, much uncertainty surrounds BAU emissions projections and estimates of the total costs and benefits of deflecting from these projections. A country that takes on a fixed commitment faces the risk, for example, that its economy will grow more rapidly than expected, resulting in an inadvertently stringent target. On the other hand, a country's economy could grow less rapidly than expected, resulting in an inadvertently lax target. Non-Annex I governments may be particularly averse to the former type of risk.

- How could quantitative commitments be designed to reduce uncertainty and mitigate these risks?
- Could targets be indexed to future values of economic variables?
- Or, could targets be made subject to later review based on specific changes in economic variables?
- How could indexing be achieved without creating perverse incentives?
- Would some manner(s) of indexing facilitate participation in international emissions trading?

V. Future Work

The AIXG could quickly review the literature on baseline emissions calculations and BAU emissions projections. Then it could work to assess data needs and modeling capacity and to develop a detailed analysis of potential downward deflections from BAU emissions, adapting existing work on abatement opportunities and risk mitigation to the characteristics of non-Annex I Parties.

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Binding Quantitative Commitments: Some Technical Considerations

Making progress on the implementation of the Climate Convention and completing the “unfinished business” of the Kyoto Protocol requires much discussion -- technical and political -- of all issues. Such progress requires not only an understanding of the problems but also an awareness of the options that are available for solving them. Kyoto potentially created new options for all Parties and we believe that they need to be discussed and understood. This paper focuses on some key technical issues. In particular, if a non-Annex I Party were to express interest in adopting a binding quantitative commitment for the 2008-2012 period, including for the purpose of participating in the international trading regime, how could it do so in a way that is consistent with the objectives of the Climate Convention and methodologically sound? Is there an objective basis for establishing whether a commitment -- or emissions “target” -- would entail a reasonable level of effort, consistent with the broad objectives of the Climate Convention, or whether it could be feasibly attained, consistent with the development objectives of the Party? To what extent can a target that entails a deflection from business as usual (BAU) emissions and provides the necessary room for a Party’s continued growth, contribute to these multiple objectives? These technical considerations are addressed as follows:

I. Calculating baseline emissions

Commitments for Annex I Parties are expressed as a share of baseline emissions in Annex B of the Kyoto Protocol.¹ Calculations of baseline emissions involve base years, specific units of measure, and particular gases. For some Annex I Parties, they also involve sinks. The baselines for Annex I Parties are differentiated in so much as any Annex I Party may choose between 1990 and 1995 as its base year for synthetic gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) and some Annex I Parties, i.e., those with economies in transition, may use an historical year other than 1990 for all gases. Baselines are also differentiated with regard to sinks. For most countries, sinks are not included in the baseline, but are counted in later years. For some countries, however, net sinks are also included in the baseline. The baselines for Annex I Parties are uniform with regard to the unit of measure -- i.e., CO2 equivalent emissions -- and the basket of gases (listed in Annex A of the Protocol).

If a non-Annex I Party were to express interest in taking on a binding quantitative commitment to abate the increase in its greenhouse gas emissions, how would its baseline be calculated? For example, must such a country use 1990 as its base year, as would seem to be required under Article 3 of the Protocol? If so, this would constitute a stricter requirement than that now faced by some Annex I Parties that are given a “certain degree of flexibility” in

¹ Technically speaking, the Parties’ “assigned amounts” are calculated pursuant to their quantified emissions limitation and reduction commitments expressed in Annex B as a “percentage of base year or period” greenhouse gas emissions, in accordance with the provisions of Article 3.

choosing different base years. Moreover, this would seem to run counter to the guidelines for Initial Communications of Parties not included in Annex I, which the COP adopted two years ago in its decision 10/CP.2 and which allows these Parties to use 1994 as their base year. Similar questions may arise as to units of measurement, gases, and other baseline elements.

II. Projecting business as usual emissions

The business as usual emissions projection provides a foundation for the analytical process. Once a country has determined what its emissions would have been otherwise, i.e. its *BAU* emissions, it can begin to assess the costs and benefits of policies to abate its emissions. The *BAU* projection provides a basis for a non-Annex I Party to establish whether a particular target will further the objectives of the Climate Convention and support its own environmental and economic objectives. No single methodology will be appropriate in all circumstances, but some common principles can guide the process. Developing the *BAU* emissions path for greenhouse gases involves a comprehensive understanding of a country's economy. This understanding could reflect both the sense of the trends in the macroeconomy, such as aggregate economic output, structural change over time, etc., as well as sector- and industry-specific trends, such as changes in production practices that affect energy consumption and energy mix, etc. The formulation of a *BAU* projection will require a substantial amount of data, some of which may already be found in a country's national communication.

Understanding economic growth, both in aggregate and by sector, is important for assessing the potential growth in a country's greenhouse gas emissions. Estimates of aggregate economic growth can be used to formulate a rough *BAU* emissions projection, reflecting a general relationship between aggregate output and emissions. Estimates of sectoral economic growth can be used to refine the *BAU* emissions projection, reflecting more specific relationships between sectoral output and emissions. Growth estimates for sectors that are major sources of emissions are especially important. Key sectors typically include electricity generation, transportation, industry, buildings, and agriculture.

A country's sectoral growth estimates should be consistent with its aggregate, or economy-wide, growth estimate. This does not imply, however, that each sector's growth rate would be the same as the economy-wide growth rate. Sectoral growth rates may differ from the aggregate growth rate for a number of reasons. For example, some sectors will likely grow more or less rapidly as the structure of the economy changes with continued development. In particular, the growth rate of the agricultural sector may begin to decline as the growth rates of industrial sectors increase. Eventually, the growth rates of some industrial sectors may decline as the growth rates of service sectors increase. These structural changes will affect the general relationship between aggregate output and emissions.

Other sector- and industry-specific information can assist in developing *BAU* projections,

by shedding light on the underlying relationship between output and emissions. Key characteristics of a particular sector or industry include its energy profile, production technologies and practices, role in international trade, age of capital stock, and projected investment demand. Detailed sectoral and industrial information can also highlight opportunities for emissions abatement. Further, recognizing potential growth in emerging sectors, for example, high-technology sectors, is important for projecting new sources of emissions, including the synthetic gases.

III. Deflections from business as usual

After formulating a BAU emissions projection, how would a Party interested in taking on a binding quantitative commitment to abate the increase in its greenhouse gas emissions develop a target that furthers the objectives of the Climate Convention and supports its own environmental and economic objectives? Once a Party has determined its BAU emissions path, how would it develop a target -- or a deflection from BAU -- that meets these objectives? Can these objectives be mutually supportive? As noted above, no single methodology will be appropriate in all circumstances, but some common principles can guide the process. For example, a Party would evaluate the costs and benefits, both environmental and economic, of any deflection from its BAU emissions. First, this evaluation would help the country determine its capacity to abate emissions and maintain economic development. Second, understanding what the costs and benefits of emissions abatement could be, and how they might vary with different approaches to abatement, would likely influence decisions about abatement policies.

Assessing the costs of abatement includes identifying the technologies, processes, and fuel-switching options that can curb emissions, the costs of switching to these climate-friendly options, and the policies necessary to stimulate their adoption. This involves the capacity to analyze how the economy responds to policies implemented to abate greenhouse gas emissions. Without an integrating tool such as an economy-wide model, it would be difficult to evaluate in a consistent manner the effects of abatement policies. Since so many sectors of the economy are intricately related to activities in other sectors, trying to assess the effects of policies on each sector independently without an economy-wide model could result in a misunderstanding of the potential effects of policies. An economy-wide model can reflect all of the feedbacks and relationships in an economy, both across end-use sectors as well as up and down the energy supply stream. Such a model also could be integrated with existing international models to evaluate the opportunities for participation in international trading.

Assessing the benefits of abatement includes identifying global and local effects.² If a non-Annex I country were to take on a binding commitment to abate the increase in its

² This discussion does not address the potential benefits of participation in international trading.

greenhouse gas emissions for the 2008-2012 period, the climate would benefit from lower global emissions than would otherwise have occurred. (Given the possibility of “leakage,” i.e. the shift of some emissions from Annex I countries to non-Annex I countries, a non-Annex I country’s commitment to abate the increase in its emissions -- even set *at* BAU -- could yield significant environmental gains.³ A country’s commitment to meet a BAU target would prevent leakage.) However, it is quite difficult to assess the long-term climate benefits associated with the actions undertaken by any one country. Apart from the direct effect on climate, there are other potential benefits of abatement. Some of these benefits, typically referred to as “ancillary” benefits, may be somewhat easier to assess. For example, in addition to the climate benefits, actions to abate greenhouse gas emissions can help improve local air quality.

A growing body of literature has examined the relationship between public health benefits and the abatement of carbon dioxide emissions. In addition to carbon dioxide, the combustion of fossil fuels results in the emissions of numerous local air pollutants, including sulfur dioxide, particulate matter, carbon monoxide, nitrogen oxides, and volatile organic compounds. Emissions of these pollutants, however, do vary by fuel type. Significant anthropogenic emissions of these local air pollutants can result in high pollutant concentrations causing serious morbidity and mortality effects. Efforts to abate carbon dioxide emissions would likely result in both a change in the fossil fuel mix as well as a reduction in total fossil fuel combustion. This change in both the composition and magnitude of fossil fuel combustion would lower the emissions of local air pollutants from what they would have been otherwise.

Finally, in evaluating potential non-Annex I targets, it could be useful to consider the “progressivity” of existing Annex I targets. In particular, how do existing Annex I targets vary with income? Measured in terms of deflections from BAU emissions level over the 2008-2012 period, the Annex I commitments appear to be progressive. In general, wealthier Annex I countries have agreed to make more significant reductions below BAU than less wealthy Annex I countries. Consistent with the principle of differentiated but common commitments, non-Annex I targets could be set at levels that reflect the progressive nature of Annex B.

IV. Risk and uncertainty

Even under the best analytical circumstances, e.g., where accurate data and integrating tools are widely available, much uncertainty surrounds BAU emissions projections and estimates

³ Several recent economic analyses indicate that for every 3 to 5 tons of carbon abated in Annex I countries, emissions in non-Annex I countries could increase by 1 ton. Often referred to as “leakage,” this shifting in emissions reflects two economic impacts of abating greenhouse gas emissions in Annex I countries: (1) world oil market price effects and (2) energy-intensive industry migration. While these results represent a wide range, they all reflect significant increases in emissions above BAU for non-Annex I countries. Thus, commitments from non-Annex I countries to meet BAU targets would yield significant environmental benefits.

of the costs and benefits of deflecting from those projections. A country that takes on a fixed commitment for the 2008-2012 period *now*, faces the risk, for example, that its economy will grow more rapidly than expected, resulting in an inadvertently stringent target. Alternatively, a country's economy could grow less rapidly than expected, resulting in an inadvertently lax target. There are, however, ways of designing targets to reduce uncertainty and mitigate these risks. In particular, targets could be *indexed* to *future* values of economic and other, possibly demographic, variables. The following discussion explores this approach.⁴

Rather than establish a fixed target for 2008-2012 *now*, a target could, for example, be *indexed* to a country's economic performance between now and the start of the 2008-2012 commitment period. This approach is commonly used in the private sector, where contracts are similarly indexed. This approach is also used in the public sector (e.g., the USG provides cost-of-living adjustments for social security recipients). A target could then be specified in a way that depends on the *future* values of economic variables, such as GDP.⁵ Such targets would avoid the risk of inadvertent stringency associated with higher than projected economic growth between now and the beginning of the commitment period in 2008. Non-Annex I countries would face only the much smaller risk that emissions would be higher than expected, *given* the economic conditions realized in 2007. Similarly, such targets would also avoid the risk of inadvertent laxness associated with lower than expected economic growth between now and the start of the commitment period.

Basic principles for implementing such an approach are:

- **“Reasonable” Forecasts:** The relationship between the target and chosen variables, when applied to emissions and the same variables during recent years, should predict emissions reasonably well and be without demonstrable statistical biases. Relationships that give reasonably reliable predictions reduce the risk of either inadvertent stringency or paper tons which could increase global emissions.
- **No “Perverse” Incentives:** The target should depend on values of economic and other variables only indirectly or generally related to emissions, to avoid creating incentives for countries to increase emissions so as to have higher targets in the commitment periods. Moreover, the chosen variables should not be susceptible to intervention, for purposes of manipulating the target. For example, the target should not depend on energy consumption in 2007, but could reflect GDP in 2007.
- **Predetermined Targets:** To avoid uncertainty during the commitment period about the

⁴ Most of the following discussion features examples of economic variables.

⁵ Other demographic factors may also be relevant.

country's target, the target should not depend on contemporaneous values of economic and other variables. For example, the target generally should not vary with 2008 or 2010 GDP levels, but rather with 2006 or 2007 GDP. Eliminating this uncertainty would increase the opportunities for participation in international emissions trading.

This approach could take two basic forms. Both of these forms could address equally well the risks associated with uncertain economic performance over the coming decade. First, would be to establish a target, of the form "X%" below BAU, where BAU would be indexed to a set of economic and demographic variables that explain greenhouse gas emissions well. While the concept of a target and the X% deflection from BAU would be agreed to in the near term, the actual BAU, hence, the emissions level of the target, would not be set until these economic and demographic variables were known for, say, 2006 or 2007. The relationship between the BAU and these variables (e.g., GDP, carbon intensity, population, etc.) would be made explicit now, so there would be more certainty at the time the target is announced. For instance, it could be agreed that if GDP grew at a 5.7% annual rate between now and 2007, then the BAU would be "Y" and the target would be X% below Y. Moreover, given existing projections for these economic and demographic variables, an estimate of the BAU and target could be made now.

Second, would be to establish a target now and revisit it later based on specified economic conditions. For example, the target would be specified as 100 MMTCE, but reflect an estimate comparable to X% below BAU, where a BAU projection would be used to arrive at the target. At the time of setting the target, one or a small set of parameters would be established for evaluating the target just before the commitment period. For example, if the economy performed beyond a pre-specified rate between now and the beginning of the commitment period, then the target could be readjusted to reflect this additional growth. Conversely, if the economy performed at less than what was expected, the target could be readjusted downward.

Emissions Leakage from Annex I to Non-Annex I Countries

“Emissions leakage” refers to the unintended increase in non-Annex I countries’ emissions above what they would have been otherwise as a result of Annex I countries’ efforts to abate emissions. This shift in emissions reflects two economic impacts of abating emissions in Annex I:

- **World Oil Market Price Effects.** Abating carbon dioxide in Annex I countries reduces the demand for oil, thereby lowering the price of oil. With lower oil prices, some non-Annex I countries will consume more oil and increase their emissions relative to what they would have without the Annex I abatement policies.
- **Energy-Intensive Industry Migration.** Annex I abatement policies that increase the price of energy may provide an incentive for energy-intensive firms to relocate to non-Annex I countries. This incentive results from the difference in energy costs of production between countries abating emissions and those countries not abating emissions.

The magnitude and extent of leakage depends on the energy price effects of abatement policies and the number of countries participating in abatement policies, including international trading.

- **Leakage Increases with Higher Carbon Prices.** Leakage is positively correlated with permit prices: higher Annex I permit prices (and higher energy price effects) will likely result in higher rates of leakage.
- **International Trading Eliminates Leakage Among Trading Participants.** An effective emissions market yields a common permit price in all countries that engage in trading. This common permit price implies that the effect of abating emissions on energy prices is common across all of these countries. Thus, there is no economic incentive for energy-intensive firms to relocate to another country participating in trading.
- **Global Trading Eliminates All Leakage.** A full global trading system would then eliminate leakage completely. The common permit price across all countries implies that energy price effects are common across all countries, so no firms have incentives to migrate. Since all countries have emissions targets, some could not increase their emissions by consuming more oil without purchasing allowances from other countries.
- **CDM Does Not Eliminate Leakage.** Some economic analysis indicates that while the CDM would lower costs to Annex I countries, the project-by-project approach does not equalize energy price effects across participating countries, and would not eliminate leakage to developing countries.

Several economic models have estimated possible emissions leakage under Annex I trading:

MERGE	MRT	G ³
325 MMTCE	115 MMTCE	55 MMTCE

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WASHINGTON, D.C. 20502

February 24, 1999

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EXECUTIVE OFFICE OF THE PRESIDENT
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February 24, 1999

NOTE TO DAVID SANDALOW, CEQ

FROM: JEFF FRANKEL *JF*

Here is the summary (plus worked-out example for Argentina) regarding what seems to me to be the consensus in the Assistant Secretaries group regarding LDC targets.

I hope I haven't overstated the degree of support for CEA's ideas on this subject. The rest of the group should certainly read my summary and see if they agree that it is a fair characterization of the views of the group.

Attachment

cc: Assistant Secretaries Group

How should growth targets for developing countries be set?

Summary of tentative consensus

This is an attempt to summarize some ideas that have received favorable inter-agency consideration, regarding how to formulate growth targets for developing countries (in the first budget period). It must be stated from the outset that nobody wants the USG to be aggressive in making this sort of proposal internationally, for fear of appearing to be trying to impose a rigid formula on others. Rather, the point is to collect our thoughts internally, to be used if we are asked, as appropriate.

There appears to be a consensus among the Assistant Secretaries group that the aim should be targets in a range where they are low enough to produce environmental advantages (including forestalling leaking, but perhaps also small cuts relative to BAU), while high enough to produce economic advantages (in the form of gains from trade to both buyers and sellers). That happy range is bounded by BAU on the upside and the "indifference level" on the downside (estimated, e.g., at BAU-12% for China, with one model). CEA results that extrapolate from the progressive pattern of existing targets observed among Annex B countries might help choose a "fair" point within that range (estimated at -5% for China).

There also appears to be a consensus in favor of considering "indexation" arrangements to cope with uncertainty between now and the budget period, i.e., to reduce the chance that a numerical target that was thought ex ante to be in the middle of the range turns out ex post to be either inadvertently stringent (imposing large economic costs) or inadvertently lax (creating hot air).

There is now a consensus that indexation is preferable to trying to impose a common absolute emissions/GDP standard across countries.

A majority favors a formula that turns into a numerical target in 2007, though EPA (David Doniger) favors continuing the indexation through the end of the budget period (2012).

All favor considering the idea of indexing the emissions target to GDP. There were a fair number of proposals for other variables to include in the formula in addition to GDP (population, temperature, coal production, oil prices, electricity output), either uniformly across countries or on a country-by-country basis. Some argued that it should be left to the discretion of the developing country to decide what economic and/or demographic variables best explain emissions. But each individual candidate for a variable to be added was strongly opposed by a number of people and arguments.

The most unsettled question was what X should be, in the formula to allow X% higher emissions for every 1% in unexpected growth.

There was also a proposal (Victoria Greenfield, State), that unexpected reductions in income be accorded Y% lower emissions, with $Y < X$.

Worked-out Example for Argentina

Step 1 -- setting expected target: BAU is for carbon emissions growth of 55% cumulatively from 1995 to 2010, or 3% per year (all data are from Argentine Government). Of this, 4.4% per year is GDP growth, -0.8% is decreasing energy/GDP, and -0.6% is decreasing emissions/energy. We could ask all LDCs to take targets that are expected to be 5% below BAU. For Argentina, the expected 2010 target would then be 50% above 1995 levels. An alternative, which might appeal to many countries, would be to let them pick their highest previous year, and set the target 50% above that.

Step 2: -- indexation to mitigate uncertainty: The forecast is for 2007 GDP to be 67% above 1995 (1.044 to the 12th power). If 2007 GDP in fact turns out to be that level, then the target is as agreed. But for every 1% higher (or lower) that 2007 GDP comes in, the target for 2008-2012 will be X% higher (or lower).

But the best way to phrase to Argentina this (exact same) contract is as follows: its target will be given by $[1995 + 55\% - 5\% - X(4.4\%)15] + [X(\text{average realized growth})15]$. This way of phrasing it makes clear that it is a "growth target", and makes the proposal sound like the country can only win, and not lose, from indexation.

For example, the implication of a tentative CEA calculation would be to set X at .7. (This is calculated as a statistical estimate of the average effect of growth on BAU, .9, minus an allowance for progressivity whereby richer countries are asked to make larger cuts, .2. But it is true that a more accurate forecast might use different coefficients for different kinds of countries. An alternative favored by some in our group would be to let X be negotiated separately for each country.)

Then, for concreteness, the Argentine target becomes:

$$\begin{aligned} & [1995 + 50\% - .7(4.4\%)15] + [.7(\text{average realized growth})15] \\ & = 1995 \text{ level} + 4\% + .7(\text{accumulated growth over next 15 years}). \end{aligned}$$

Notice that if growth comes in as expected (4.4%), then the target is 50% above 1995 levels, or 5% below BAU.



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to: See Distribution
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re: AOSIS Meeting
date: January 19, 1999
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As indicated previously there will be a meeting on AOSIS tomorrow, Wednesday, January 20, 1999 from 3:30p.m. to 5:00p.m. in Room 4.08-E/F in the Ronald Reagan Building, 1300 Pennsylvania Ave. N.W. Please enter on the 14th Street side of the building.

Please bring your U.S. Government ID card with you for building entry. Please contact my office by Noon, if persons other than those on the distribution list plan to attend so that arrangements can be made.

Attached are background documents for the meeting.

David Hales,
USAID/G/ENV/DAA

From the desk of...

Barbara A. Adams
G/ENV/DAA
USAID
3.08-093 RRB
Washington, D.C 20520

tel: 202/712-1750
fax: 202/216-3174



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MEMORANDUM

TO: Distribution
FROM: David Hales
SUBJECT: AOSIS

JAN - 6 1999

Small Island States are exceptionally vulnerable to the impacts of Climate Change; they stand to gain substantially from the stabilization of Green House Gases at safe concentrations. In addition, AOSIS States stand to gain economically from the aggressive implementation of the Clean Development Mechanism, and from full participation in a flexible emissions trading system. We believe that an accurate assessment of the self-interest of AOSIS states would lead to substantial convergence with the interests of the United States.

The task of a Diplomatic strategy with AOSIS states is to demonstrate this convergence, and help them create the independent analytic capacity to accurately determine and then act on their own national interest.

AOSIS states, for example:

- are exceptionally vulnerable to sea level rise and extreme weather events
- are extremely susceptible to food security concerns, and to extreme price impacts of production failures associated with Climate Change;

- have substantial potential to benefit environmentally and economically from the use of renewable energy - solar, wind, tidal and hydroelectric;
- have the organizational capacity and common interest to work together in ways that other nation states do not;
- are for the most part similarly situated so that research and development projects, and best practices are readily transferable;
- have a sophisticated and intense understanding of the risks associated with Climate Change;
- do not yet have a full and accurate comprehension of the opportunities associated with the Kyoto Protocol;

Our task is to craft a strategy which addresses the strengths and weaknesses of OASIS States and brings perception of common national interest to the point of cooperative action. To do so, we must acknowledge the salience of their concerns and address them directly. AOSIS Countries are concerned that:

- they will suffer most from the effects of climate change
- that developed countries, particularly the United

States, will not take aggressive domestic action to reduce emissions

- that aggressive commitments on their part will limit their growth and have little effect on GHG concentrations in the atmosphere.

Any such strategy should address vulnerability and adaptation issues, and emphasize the potential for support of sustainable development inherent in the Clean Development Mechanism. It is critical that we build confidence that the United States and other developed countries take their commitments seriously and that developing country action will not limit economic development. The key to successfully engaging AOSIS States (and other developing countries) is to make the risks of meaningful participation close to zero, while demonstrating substantial potential benefits.

Relevant capacities of the US Government in this regard include:

- disaster preparedness and response knowledge, experience and capacity (DOE; USAID)
- expertise in sustainable urban development in coastal zone areas (USAID, Puerto Rico, Hawaii, Florida)
- substantial renewable energy expertise and technology transfer capacity in both public and private sectors

(DOE; USAID; USDA)

- capacity in state and local government to work directly with Island states from a basis of common experience and interest (USAID; USDOJ; States)
- substantial NGO interest in the sustainable development of small island states, and USG cooperative agreements and funding capacities (USAID; DOE; Universities; NGO's)
- economic analysis and economic modeling expertise (CEA; DOE; EPA)

Our strategy should be constructed around four action areas:

1. An active partnership with AOSIS to understand, anticipate and prepare for the adverse impacts of climate change, with an initial focus on weather related disaster preparation, response and recovery.
2. Creating and supporting the capacity to identify and quantify the economic costs and opportunities associated with climate change and the full implementation of Kyoto's flexible mechanisms.
3. Establishment of opportunities and mechanisms (study tours,

pro-seminars, etc...) for AOSIS senior policy makers to become fully aware of USG domestic policy and actions to meet our FCCC commitments and responsibilities.

4. Promotion of technology transfer and private sector relationships with AOSIS members, including the negotiation of technology transfer agreements, establishment of Sister City/Resource City ties, Utility Partnerships, etc...

Opportunities for engagement are immediate. The 1999 Session of the Commission on Sustainable Development will review Ch 17 of Agenda 21, with special attention to the implementation of the recommendations of the 1994 SIDS Conference. This review culminates in a UNGA Special Session in September, 1999. The first meeting in this process will occur in late January, with a SIDS Donor Conference in February. State has formed an IWG to develop US positions for negotiations which is not yet fully integrated with AOSIS FCCC related efforts.

I recommend that we adopt (as amended/expanded) the strategic framework laid out here, establish a working group of interested agencies with sufficient overlap with the CSD IWG to facilitate coordination of the efforts. This working group would be asked to detail the strategic framework that we adopt, fixing Agency responsibilities and developing schedules for implementation.

As an example of how this strategy applies to specific actions,

I've attached the draft of the climate component of USAID's Caribbean Environmental Strategy. Also attached is the latest version of the preparation for SIDS in the UNGASS process, drafted by Mo Walker at State.

DRAFT

Caribbean Environmental Strategy: Global Climate Change Options

"The small size of small island developing States means that development and environment are closely interrelated and interdependent. Recent human history contains examples of entire islands rendered uninhabitable through environmental destruction owing to external causes; small island developing States are fully aware that the environmental consequences of ill-conceived development can have catastrophic effects. Unsustainable development threatens not only the livelihood of people but also the islands themselves and the cultures they nurture. Climate change, climate variability and sea level rise are issues of grave concern. Similarly, the biological resources on which small island developing States depend are threatened by the large-scale exploitation of marine and terrestrial living resources." - Preamble, Programme of Action for the Sustainable Development of Small Island States, Bridgetown, Barbados, 1994

L BACKGROUND

The nations of the Caribbean are neither major emitters of the greenhouse gases that contribute to climate change, nor, with the exception of Guyana and Suriname, in possession of major forest reserves that serve as 'sinks' for these gases. Why then, should the threat of climate change be an important enough consideration for inclusion in USAID's Caribbean Environmental Strategy? The answer lies in the region's vulnerability to climate change, the resultant changes to important natural cycles, and the inexorably link between these environmental threats and economic development and stability.

Most experts agree that the global climate is changing because of an increase in anthropogenic emissions of greenhouse gases and the consequential concentration of these gases in the atmosphere. Since 1860, atmospheric concentrations of carbon dioxide (CO₂), the most predominant greenhouse gas, have increased thirty percent and average global temperature has risen one-half degree centigrade. In 1995, the Intergovernmental Panel on Climate Change (IPCC) found that the "pattern of global warming is unlikely to be entirely natural in origin," and "the balance of evidence suggests a discernible human influence on global climate."¹ Under a relatively optimistic scenario of a doubling of CO₂ concentrations in the atmosphere during the next century, average global temperature will rise by 1 to 3.5 degrees centigrade. This change in temperature will disturb the hydrological cycle and seasonal precipitation patterns, and could increase flooding and storm damage due to sea-level rise and severe climatic events such as tropical cyclones, tornadoes and El Niño effects.

A look at the extreme weather events of the past year show, perhaps more poignantly than ever, that global climate change is linked to economic stability and growth. The costs of responding to floods, fires, droughts and other extreme weather events are being extracted in hard currency and human health, in agricultural yields and insurance claims. It is estimated that over eight billion dollars (US) were spent globally in response to the most recent El Niño event. These costs are proportionately higher for developing nations than for their developed counterparts, as their fragile ecosystems and economies, and the populations that depend upon them, are less resilient to change than the more diverse and established economies of the developed world. And for

¹ USAID's Climate Change Initiative, p 9.

developing *island* nations, whose vulnerability to the effects of global climate change threatens their very existence, the costs are extreme. Small island nations are the "canary in the coal mine" for global climate change issues: the first to be impacted and a warning to others that the effects of climate change have reached a state of crisis. Addressing these issues is therefore an urgent matter for the island nations of the Caribbean. This point has not been lost on the leadership of the Caribbean region.

II. EXISTING REGIONAL CLIMATE CHANGE POLICY

Both of the major hemispheric summits and a number of smaller regional summits since 1994 have included measures to directly or indirectly reduce the threat of climate change. For example, the Summit of the Americas (Miami, Florida; 1994) prescribes sectoral change, particularly pertaining to energy and terrestrial and coastal resources, that would result in a net reduction of greenhouse gas emissions. The Santiago Summit of the Americas (Santiago, Chile; 1998) specifically promoted cooperation toward achieving the objectives and goals of the United Nations Framework Convention on Climate Change, especially through technology transfer, efficiency improvements in the energy sector, and consideration of the flexibility mechanisms proposed at the Third Conference of the Parties (Kyoto, Japan; 1997). In addition, the declaration from the Santiago Summit encourages governments to apply science and technology to address the effects of climate variability on health, agriculture and water.

Equally pertinent to this exercise, at the 1994 Global Conference on the Sustainable Development of Small Island in Bridgetown, Barbados, a Plan of Action for the Sustainable Development of Small Island Developing States (SIDS/POA) was developed that identified fourteen priority areas for environmental intervention. Of these, climate change and sea-level rise was identified as a regional priority - rated sixth in regional importance in a 1997 survey carried out by the Economic Commission for Latin America and the Caribbean (ECLAC).² At least seven of the other priority areas (coastal and marine resources, natural and environmental disasters, energy resources, etc.) had direct links to climate change mitigation and adaptation. Not coincidentally, the SIDS/POA is a charter document for the Alliance of Small Island States (AOSIS), formed out of a recognition that "separately, they [small island States] could be ignored or discounted, but together, they could be a strong, new voice for a sustainable future and a political force to be reckoned with in the international arena."³

III. CLIMATE CHANGE RECOMMENDATIONS FOR A CARIBBEAN REGIONAL STRATEGY

The recommendations that follow are a result of a review of existing USAID environmental priorities and activities in the region; consideration of priorities identified in the SIDS/POA and other relevant regional documentation; consultations with technical experts in the region, as part

² Gardner, Lloyd. *Summary: Caribbean Environmental Priorities, Activities Underway, and Institutional Roles*. USAID, 1998.

³ AOSIS. *Small Islands, Big Issues: Sustainable Development of Islands*. p. 3, 1997.

of the overall regional environmental strategy development; consultations with AOSIS representatives, particularly Ambassador C. Boucher, Barbados; and consideration of existing climate-related activities funded by other donors in the region. In keeping with USAID's overall strategy for climate change, with the exception of activities that specifically address climate change vulnerability and adaptation and/or support flexible mechanisms recommended under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, recommendations for climate change mitigation stem from existing environmental sector priorities (i.e., energy, forestry, etc.).

The following are suggestions for USAID climate change-related intervention in the Caribbean:

Vulnerability Analysis/Planning for Adaptation:

Link scientists and planners in activities that strengthen the capability of indigenous institutions to understand, anticipate and prepare for the adverse impacts of climate change, with a focus on disaster preparation, response and recovery.

Improve small island nations' ability to adapt to climate change and withstand extreme storms through activities to preserve mangroves, wetlands, and coral reefs.

'Kyoto Mechanisms':

Develop and support the capacity to identify and quantify the economic costs and opportunities associated with climate change and implementation of the flexible mechanisms proposed in the Kyoto Protocol (Clean Development Mechanism, Joint Implementation, Emissions Trading).

Increase capacity to develop carbon offset programs and projects in the region.

Renewable Energy:

Develop common strategies to decrease reliance on fossil-fuel based energy production and expand renewable energy systems to take advantage of substantial solar, wind, and tidal resources, recognizing that small-scale renewable energy projects have the added benefit of being more resilient to natural disasters.

Identify and support innovative financing mechanisms(i.e., project bundling) and market opportunities that build on existing organizational capacity and common interest to address the challenges unique to small island states.

Carbon Sequestration:

Increase carbon stores through sustainable forest management and protection of the Guyana Shield.

Technology Transfer:

Promote technology transfer and private sector relationships through technology cooperation agreements, utility partnerships, etc.

Sustainable Tourism/Urban Development:

Encourage environmentally sustainable tourism through innovative applications of energy efficient technologies and incentive programs in the hotel industry and municipal services, particularly water and waste treatment.

Promote sustainable tourism/urban development in coastal zone areas through integrated management and planning.

SMALL ISLAND DEVELOPING STATES
DRAFT US POSITION
DONOR'S CONFERENCE AND SPECIAL SESSION, 1999

Introduction: The 1999 session of the Commission on Sustainable Development will include oceans and coastal areas as a major item. It will focus on a review of the implementation of Chapter 17 of Agenda 21, including section G on Small Island Developing States, culminating in a Special Session in September, 1999.

The overall themes that the United States seeks to emphasize in preparations for the Commission on Sustainable Development are:

- a) National responsibility
- b) Sustainable development as an integrated whole
- c) Rule of law and transparency
- d) Capacity building - Human development

To the extent possible, these themes should be incorporated into all aspects of the CSD, including its review of the UN Global Program of Action on Small Island Developing States.

Background: The United States approach during the 1994 Global Conference on Small Islands (SIDS) emphasized the need for implementation by island States of obligations to protect the marine environment and conserve its resources. We succeeded in meeting our 3 objectives: 1) to highlight and develop responses to the issues faced by SIDS; 2) to avoid conflicts on traditionally troublesome issues such as financing; and 3) to promote the coral reef initiative.

In addition we focused the SIDS upon the need to achieve widespread participation in and implementation of major global agreements. Since that time, new agreements have been reached involving not only the United Nations Convention on the Law of the Sea (UNCLOS), but also the Global Program of Action on the Protection of the Marine Environment from Land Based Activities, and the two new fisheries treaties - the U.N. Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks and the FAO Compliance Agreement.

The United States will continue to emphasize these elements and to focus discussion on three issue areas:

- the components of a UNGA resolution to implement the Global Program of Action for Prevention of Impacts upon the Marine Environment from Land-Based Activities (GPA);
- fisheries, including follow-up to the the U.N. Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks and the FAO Compliance Agreement; and
- the issue of a global forum to identify priorities for action on the marine environment.

Issues for the 1999 Session of the CSD: As a general matter, at the upcoming CSD session, the U.S. should continue to stress the need for full and effective implementation of existing obligations to protect the marine environment and conserve its resources. Procedurally, we will emphasize that the CSD should not seek to substitute itself as a negotiating forum for issues being addressed in existing oceans institutions or to re-open agreements reached in those institutions.

The starting point of CSD consideration should be examination of the implementation of its previous work on oceans - specifically Decision CSD IV-15 (Attachment A). It is clear that implementation of the GPA and fisheries will again be major priorities for the United States at the 1999 session of the CSD. There is clear need for States to take steps to ratify and implement the U.N. Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks and the FAO Compliance Agreement as well as to implement the FAO Code of Responsible Fishing. In addition, ongoing efforts within FAO to address sharks, seabird mortality and over-capacity should be emphasized.

With respect to the GPA, it is important to resuscitate UNEP's catalytic role in the development of the clearing house mechanism, including full operation of the coordinating unit in the Hague. A related priority area for the GPA is identification of steps to address sewage problems that have been identified as among the most important challenges in all of the regional workshops UNEP has organized on the GPA.

Dec
Discussion at ~~Jan~~ 15 IWG meeting on SIDS: AID and NOAA put their review of the 250 plus proposals from the SIDS in the context of our overall AID and technical assistance programs. They noted that the proposals covered everything from assistance with seismic activities to teacher training and solid waste disposal projects. The wide range of activities proposed and the short time before the Donors' Conference precluded a full or exhaustive review of these proposals.

Nevertheless the following consensus emerged from the meeting:

1. We should immediately dampen expectations that we be prepared to announce funding decisions in February.
2. We should consider structuring the Donor's Conference as the beginning of a partnership meeting designed to team donors with recipients.
3. We should consider proposing a representative sampling of successful case studies to begin the 3 day meeting, followed by a day on geographic related issues and a day focusing on the thematic areas of the Global Program of Action on SIDS.
4. We should emphasize U.S. goals on sustainable fishing and land based sources of marine pollution, particularly reference the partnership marketplace meetings.
5. We should bring in Energy, EPA and Interior to review those proposals related to their missions, with an eye to providing technical assistance.
6. Debt forgiveness was suggested.
7. The Peace Corps education initiative should be summarized and provided to the USDEL.
8. EPA, HHS and F&W should review proposals related to environmental enforcement in the event that they could provide technical assistance to SIDS.
9. The private sector should be energized by bringing in NGO's and private business and by holding a meeting with these groups in the next month.

10. Sea Grant Colleges in the Virgin Islands and Puerto Rico should be utilized to look at waste issues, in similar manner to the Land Grant Colleges.
11. New streams of funds should be identified including the EAP environment initiative.
12. Information regarding the GEF and its work in SIDS be summarized and made available.
13. We should continue to emphasize the coral reef initiative.

ATTACHMENT A

(will be brought to 3:30 meeting)

The benefits of such an approach would be to:

1.

(a) Strengthen the role of regional organizations, formed by the cooperating countries, in the planning and management of regional coastal and marine programs, without additional bureaucracy;

(b) Contribute to more "ownership" of programs and projects by the cooperating countries by increasing their role in planning and implementation process, thereby improving the chances of effective action;

(c) Support the development of broad based partnerships which, if sustained, would allow for more effective programs which reduce overlap and combine the knowledge and skills of the cooperating countries and participating outside parties;

(d) Improve coordination at the regional, national and local levels within the cooperating countries by providing a forum for open discussions of key issues and development of practical solutions; and

(e) Facilitate more effective use of loan, soft loan and grant funds from international sources for support of sustainable management of coastal and marine resources.

(f) Establish a process which permits greater flexibility for participating organizations.

The U.S. could suggest that the partnership market meeting approach is a new mechanism that could assist countries in addressing oceans issues. While initially this idea has been applied only to land-based degradation, it is equally applicable to other issues, for example over-fishing.

2.

Some regional seas organizations, for example HELCOM have technical/industry committees which focus on solutions to specific problems. This highly useful mechanism for "technology transfer", however, does not exist in most of UNEP's regional seas programs.

The U.S. could suggest that appropriate regional bodies consider establishing such committees for the express purpose of exploring existing technological solutions.

Attachment B

1. Partnership Market Meetings

Among the problems identified in implementing global or regional environmental agreements are: (a) too many plans (Biodiversity, Climate, Land-based pollution), all of which overlap to some degree; (b) lack of ownership by potential recipient countries - funding proposals often originating in donor organizations rather than being country-driven; (c) both overlap between and competition among donor organizations; (d) cumbersome U.N. rules and bureaucracy; (e) lack of negotiating flexibility among potential partners in the standard "donor conference" format.

These problems should be viewed in the context of the realization that no one existing (or imaginable) organization, either at the global or regional level, will be able to coordinate all aspects of desirable action programs.

With this as background, the U.S. has recently successfully promoted the concept of "partnership market meetings" as a partial solution. This idea has been endorsed in the context of dealing with land-based degradation at various levels in APEC and The Arctic Council bodies.

The proposal is simply to place the onus on a state or a region to create a credible assessment of environmental problems and an action plan to deal with those problems. Once completed, a state or region would invite potential partners to a market meeting at which their work would be presented. There would then ensue freeform discussions directed at identifying partners who would be willing to assist in the implementation of the action plan.

Invitees to a market meeting would include representatives from donor organizations, appropriate UN agencies, national foreign assistance agencies, national technical agencies, the private sector and the academic and non-governmental communities.

MEMORANDUM FOR DISTRIBUTION

FROM: David Gardiner

SUBJECT: Developing Country Targets

Attached are two papers on developing country targets for discussion at the White House Climate Change meeting that is scheduled for Wednesday, January 6 from 3:00-4:30 in OEOB Room 180.

DISTRIBUTION:

PHONE

FAX

Melinda Kimble	647-3004	647-0217
Rafe Pomerance	647-3004	647-0217
Dan Reifsnnyder	647-3935	647-0191
Mark Hambley	647-3489	647-0217
Sue Biniaz	647-2006	736-7115
Victoria Greenfield	647-6985	647-5713
David Gardiner	260-4332	260-0275
David Doniger	260-7400	260-5155
Mark Mazur	586-7700	536-9626
Bob Cumby	622-0572	
David Hales	712-1750	216-3174
Jeff Seabright	712-1750	216-3230
Linda Delgado	720-6158	720-5437
Margot Anderson	720-1977	690-4915
Ron Minsk	6-2809	
Roger Ballentine	6-6493	6-6468
Dirk Forrester	5-2310	5-2311
Jeff Frankel	5-5046	5-6947
Joe Aldy	5-1455	5-6870
Rosina Bierbaum	6-6077	6-6025
Mike Orfini	6-9515	6-9500

▪ *Carbon Efficiency Targets*

A carbon efficiency target based on CO₂ emissions/dollar of GDP is an alternative formulation. A carbon efficiency target would not set an absolute target on greenhouse gas emissions, but would set a target on future emissions relative to future economic output. The target could be set as:

- 1) An averaged carbon efficiency target, e.g., commit to an average emissions/GDP ratio for a specified period of time (budget period); or
- 2) A relative growth rate target, e.g., commit to a target ratio of the rate of change in emissions growth relative to the rate of change in economic growth, e.g., change in CO₂ emissions/change in GDP.

Pros An emission intensity growth target would have several advantages. First, because it does not set an absolute emission target, it reduces the perceived limitation on economic growth. Second, it avoids the uncertainty inherent in economic projections. If economic growth is lower than projected, the emissions target shrinks accordingly. If countries experience more rapid growth than expected, their emissions target expands to accommodate the growth.

Finally, it builds upon and encourages the natural reduction in emission intensity that occurs as a byproduct of economic development. Although developing countries as a whole emit more emissions per unit of economic output than developed countries, improved energy efficiency and clean technology investment inevitably lead to declining emission intensity over time.

Cons A problem with an emission intensity approach is the difficulty in measuring indicators of economic productivity comparably. Volatile exchange rates, lack of infrastructure and large informal economic sectors in many developing countries makes measurement of GDP and other indicators difficult. Adjustments for 'purchasing power parity' further complicate such estimates.

▪ *Sectoral Targets*

A third option is the concept of sectoral growth targets. These might be formulated as: 1) absolute targets; 2) carbon efficiency targets; or 3) performance standard targets but would apply only to specific economic sectors or subsectors. Examples include targets set as emissions per kilowatt-hour of electricity generated; emissions per unit of industrial production, such as tons of steel; miles per gallon (liters per 100 kilometers) for its vehicle fleet; or energy consumption per unit of building floor area.

Pros Individual economic sectors or industries in developing countries may be more developed and more stable than their economies as a whole. For this reason, developing countries which oppose national targets may be willing to adopt sectoral targets. If a

country with a small, inefficient and predominantly coal-based utility sector is poised to add a lot of capacity over the next decade or so, it would be comparatively easy to secure an agreement to achieve an improvement in the nation's average carbon/kilowatt hour. This would be especially true if we commit economic and technical assistance -- through trading or other investment -- to reach that target.

Cons While a sectoral target formulation would avoid the inherent difficulty of making national economic and emission projections, such an approach would still require measurement or projection of sectoral baselines. With a performance based target, such as miles per gallon or energy efficiency standards, translating performance to emission reductions could be inherently difficult.

Additionally, the potential for carbon leakage -- emission reductions in one place or program are offset by emission increases elsewhere -- may be exacerbated under a sectoral approach. Investment and emission reductions in one sector might be offset by emission increases in other sectors. Alternatively, industrial emission controls in one country may lead to increased production in the same industry within other countries in the region.

Next Steps

In conclusion, a combination of carbon efficiency and sectoral targets provides a workable framework for further analysis and development of developing country growth targets. The overall US strategy should guide decisions as to whether these targets should be pursued as uniform for all developing countries, differentiated by classes of developing countries, or on a case by case basis.

Technical issues which need to be further analyzed and addressed include:

- availability of accurate data;
- carbon leakage;
- cross-comparability of indicators or proxies for emissions and economic development;
- implications for costs; and
- implications for GHG trading.

1/22/98

Developing Country Growth Targets

One of the goals of the USG in engaging developing countries in 'meaningful participation' under the FCCC is to achieve a commitment to quantified emission obligations (targets). The approach used in setting targets for Annex I countries – a fixed quantity target relative to a specific base year – is not realistic for most developing countries. Realistic targets for developing countries must accommodate some level of emissions growth (although at reduced rates from business as usual). In addition, the relative uncertainty, or outright volatility, of 10-20 year economic growth projections in most developing countries means that fixed targets relative to a base year will be impractical to assess or negotiate.

Recognizing that emissions from developing countries must be permitted to grow, some analysts have proposed "growth targets" for developing countries. A growth target is a target set higher than current emission levels, but lower than business as usual projections. Growth targets provide for economic and emissions growth in developing countries, but lower emission growth rates. In addition, adoption of growth targets would allow developing countries to participate in international greenhouse gas trading. This paper examines alternative formulations for establishing growth targets, and suggests further analysis to develop this concept.

Options for Establishing Growth Targets

• *Fixed Quantity Growth Targets*

The simplest formulation of a growth target would be a fixed quantity target. A fixed quantity growth target will be difficult to negotiate due to uncertainties in projecting future economic growth and emissions. There are inherent risks in agreeing to targets that are too small (constraining economic growth) or too big (generating paper tonnes). A good example is Korea. Last year, the Koreans appeared concerned about the danger that a fixed quantity target would underestimate economic growth and become unduly restrictive. Conversely, Korea's unpredicted, large economic slump due to the recent Asian financial crisis illustrates the risk of agreeing to too large a budget filled with hot air.

While a fixed quantity growth target might be negotiated for a few countries, this options paper will focus primarily on the following two options that: 1) allow for emissions growth; and 2) are structured to accommodate uncertainties in economic development.

Policy Questions – Growth Targets

1. **Form of Target:** Should a growth target be based on abatement in emissions below the business as usual projection or should it be linked to economic growth (e.g., emissions/capita, emissions/GDP)? Which forms of target would the US find acceptable (fixed rate, carbon intensity, sectoral, other)?
2. **Differentiation:** Would the US accept differentiated targets for individual key developing countries? By categories or groups of countries? Should all Parties negotiate growth targets? Should growth targets be established through an agreed upon formulaic approach for all countries? *what is basis for differentiation?*
3. **Timing:** At what point must a developing country commit to its target? Can a country propose an initial non-binding target that might change and become binding prior to the start of the commitment period? Can a country set a target now that would apply to second or subsequent commitment periods?
4. **Base year:** Would the US accept a future year as a base year for developing country targets? *294*
5. **Magnitude:** What magnitude of a reduction in emissions through a growth target will be acceptable? How will the USG respond if targets are advanced by developing countries that are below this acceptable level?
6. **"Third way":** Would the US support a "third way" that would allow developing countries to commit to a target other than through Annex B? Would the US support a separate Annex for developing countries that commit to a target with separate requirements (e.g., reporting but not other requirements, allow participation in CDM and trading, allow certain gases to be part of CDM)?
7. **Incentives:** What are the advantages to countries that commit to an early target? Are there incentives that can be provided?
8. **Meaningful Participation:** Is a binding growth target the only form of meaningful participation that is acceptable to the US for key developing countries? Or would the US, for instance, accept implementation of a significant carbon tax as an alternative?

Do they have to take the form of an intl agreement, or can it take the form of domestic action

*What is the purpose of meaningful participation
→ is it env*

*economic
Senate/political*

Differentiated consequences for non-compliance?

MEMORANDUM

TO: Distribution
FROM: David Hales
SUBJECT: AOSIS

JAN - 6 1999

Small Island States are exceptionally vulnerable to the impacts of Climate Change; they stand to gain substantially from the stabilization of Green House Gases at safe concentrations. In addition, AOSIS States stand to gain economically from the aggressive implementation of the Clean Development Mechanism, and from full participation in a flexible emissions trading system. We believe that an accurate assessment of the self-interest of AOSIS states would lead to substantial convergence with the interests of the United States.

The task of a Diplomatic strategy with AOSIS states is to demonstrate this convergence, and help them create the independent analytic capacity to accurately determine and then act on their own national interest.

AOSIS states, for example:

- are exceptionally vulnerable to sea level rise and extreme weather events
- are extremely susceptible to food security concerns, and to extreme price impacts of production failures associated with Climate Change;

- have substantial potential to benefit environmentally and economically from the use of renewable energy - solar, wind, tidal and hydroelectric;
- have the organizational capacity and common interest to work together in ways that other nation states do not;
- are for the most part similarly situated so that research and development projects, and best practices are readily transferable;
- have a sophisticated and intense understanding of the risks associated with Climate Change;
- do not yet have a full and accurate comprehension of the opportunities associated with the Kyoto Protocol;

Our task is to craft a strategy which addresses the strengths and weaknesses of OASIS States and brings perception of common national interest to the point of cooperative action. To do so, we must acknowledge the salience of their concerns and address them directly. AOSIS Countries are concerned that:

- they will suffer most from the effects of climate change
- that developed countries, particularly the United

States, will not take aggressive domestic action to reduce emissions

- that aggressive commitments on their part will limit their growth and have little effect on GHG concentrations in the atmosphere.

Any such strategy should address vulnerability and adaptation issues, and emphasize the potential for support of sustainable development inherent in the Clean Development Mechanism. It is critical that we build confidence that the United States and other developed countries take their commitments seriously and that developing country action will not limit economic development. The key to successfully engaging AOSIS States (and other developing countries) is to make the risks of meaningful participation close to zero, while demonstrating substantial potential benefits.

Relevant capacities of the US Government in this regard include:

- disaster preparedness and response knowledge, experience and capacity (DOE; USAID)
- expertise in sustainable urban development in coastal zone areas (USAID, Puerto Rico, Hawaii, Florida)
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Our strategy should be constructed around four action areas:

1. An active partnership with AOSIS to understand, anticipate and prepare for the adverse impacts of climate change, with an initial focus on weather related disaster preparation, response and recovery.
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3. Establishment of opportunities and mechanisms (study tours,

pro-seminars, etc...) for AOSIS senior policy makers to become fully aware of USG domestic policy and actions to meet our FCCC commitments and responsibilities.

4. Promotion of technology transfer and private sector relationships with AOSIS members, including the negotiation of technology transfer agreements, establishment of Sister City/Resource City ties, Utility Partnerships, etc...

Opportunities for engagement are immediate. The 1999 Session of the Commission on Sustainable Development will review Ch 17 of Agenda 21, with special attention to the implementation of the recommendations of the 1994 SIDS Conference. This review culminates in a UNGA Special Session in September, 1999. The first meeting in this process will occur in late January, with a SIDS Donor Conference in February. State has formed an IWG to develop US positions for negotiations which is not yet fully integrated with AOSIS FCCC related efforts.

I recommend that we adopt (as amended/expanded) the strategic framework laid out here, establish a working group of interested agencies with sufficient overlap with the CSD IWG to facilitate coordination of the efforts. This working group would be asked to detail the strategic framework that we adopt, fixing Agency responsibilities and developing schedules for implementation.

As an example of how this strategy applies to specific actions,

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DRAFT

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L BACKGROUND

The nations of the Caribbean are neither major emitters of the greenhouse gases that contribute to climate change, nor, with the exception of Guyana and Suriname, in possession of major forest reserves that serve as 'sinks' for these gases. Why then, should the threat of climate change be an important enough consideration for inclusion in USAID's Caribbean Environmental Strategy? The answer lies in the region's vulnerability to climate change, the resultant changes to important natural cycles, and the inexorably link between these environmental threats and economic development and stability.

Most experts agree that the global climate is changing because of an increase in anthropogenic emissions of greenhouse gases and the consequential concentration of these gases in the atmosphere. Since 1860, atmospheric concentrations of carbon dioxide (CO₂), the most predominant greenhouse gas, have increased thirty percent and average global temperature has risen one-half degree centigrade. In 1995, the Intergovernmental Panel on Climate Change (IPCC) found that the "pattern of global warming is unlikely to be entirely natural in origin," and "the balance of evidence suggests a discernible human influence on global climate."¹ Under a relatively optimistic scenario of a doubling of CO₂ concentrations in the atmosphere during the next century, average global temperature will rise by 1 to 3.5 degrees centigrade. This change in temperature will disturb the hydrological cycle and seasonal precipitation patterns, and could increase flooding and storm damage due to sea-level rise and severe climatic events such as tropical cyclones, tornadoes and El Niño effects.

A look at the extreme weather events of the past year show, perhaps more poignantly than ever, that global climate change is linked to economic stability and growth. The costs of responding to floods, fires, droughts and other extreme weather events are being extracted in hard currency and human health, in agricultural yields and insurance claims. It is estimated that over eight billion dollars (US) were spent globally in response to the most recent El Niño event. These costs are proportionately higher for developing nations than for their developed counterparts, as their fragile ecosystems and economies, and the populations that depend upon them, are less resilient to change than the more diverse and established economies of the developed world. And for

¹ USAID's Climate Change Initiative, p 9.

developing *island* nations, whose vulnerability to the effects of global climate change threatens their very existence, the costs are extreme. Small island nations are the “canary in the coal mine” for global climate change issues: the first to be impacted and a warning to others that the effects of climate change have reached a state of crisis. Addressing these issues is therefore an urgent matter for the island nations of the Caribbean. This point has not been lost on the leadership of the Caribbean region.

II. EXISTING REGIONAL CLIMATE CHANGE POLICY

Both of the major hemispheric summits and a number of smaller regional summits since 1994 have included measures to directly or indirectly reduce the threat of climate change. For example, the Summit of the Americas (Miami, Florida; 1994) prescribes sectoral change, particularly pertaining to energy and terrestrial and coastal resources, that would result in a net reduction of greenhouse gas emissions. The Santiago Summit of the Americas (Santiago, Chile; 1998) specifically promoted cooperation toward achieving the objectives and goals of the United Nations Framework Convention on Climate Change, especially through technology transfer, efficiency improvements in the energy sector, and consideration of the flexibility mechanisms proposed at the Third Conference of the Parties (Kyoto, Japan; 1997). In addition, the declaration from the Santiago Summit encourages governments to apply science and technology to address the effects of climate variability on health, agriculture and water.

Equally pertinent to this exercise, at the 1994 Global Conference on the Sustainable Development of Small Island in Bridgetown, Barbados, a Plan of Action for the Sustainable Development of Small Island Developing States (SIDS/POA) was developed that identified fourteen priority areas for environmental intervention. Of these, climate change and sea-level rise was identified as a regional priority - rated sixth in regional importance in a 1997 survey carried out by the Economic Commission for Latin America and the Caribbean (ECLAC).² At least seven of the other priority areas (coastal and marine resources, natural and environmental disasters, energy resources, etc.) had direct links to climate change mitigation and adaptation. Not coincidentally, the SIDS/POA is a charter document for the Alliance of Small Island States (AOSIS), formed out of a recognition that “separately, they [small island States] could be ignored or discounted, but together, they could be a strong, new voice for a sustainable future and a political force to be reckoned with in the international arena.”³

III. CLIMATE CHANGE RECOMMENDATIONS FOR A CARIBBEAN REGIONAL STRATEGY

The recommendations that follow are a result of a review of existing USAID environmental priorities and activities in the region; consideration of priorities identified in the SIDS/POA and other relevant regional documentation; consultations with technical experts in the region, as part

² Gardner, Lloyd. *Summary: Caribbean Environmental Priorities, Activities Underway, and Institutional Roles*. USAID, 1998.

³ AOSIS. *Small Islands, Big Issues: Sustainable Development of Islands*. p. 3, 1997.

of the overall regional environmental strategy development; consultations with AOSIS representatives, particularly Ambassador C. Boucher, Barbados; and consideration of existing climate-related activities funded by other donors in the region. In keeping with USAID's overall strategy for climate change, with the exception of activities that specifically address climate change vulnerability and adaptation and/or support flexible mechanisms recommended under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, recommendations for climate change mitigation stem from existing environmental sector priorities (i.e., energy, forestry, etc.).

The following are suggestions for USAID climate change-related intervention in the Caribbean:

Vulnerability Analysis/Planning for Adaptation:

Link scientists and planners in activities that strengthen the capability of indigenous institutions to understand, anticipate and prepare for the adverse impacts of climate change, with a focus on disaster preparation, response and recovery.

Improve small island nations' ability to adapt to climate change and withstand extreme storms through activities to preserve mangroves, wetlands, and coral reefs.

'Kyoto Mechanisms':

Develop and support the capacity to identify and quantify the economic costs and opportunities associated with climate change and implementation of the flexible mechanisms proposed in the Kyoto Protocol (Clean Development Mechanism, Joint Implementation, Emissions Trading).

Increase capacity to develop carbon offset programs and projects in the region.

Renewable Energy:

Develop common strategies to decrease reliance on fossil-fuel based energy production and expand renewable energy systems to take advantage of substantial solar, wind, and tidal resources, recognizing that small-scale renewable energy projects have the added benefit of being more resilient to natural disasters.

Identify and support innovative financing mechanisms(i.e., project bundling) and market opportunities that build on existing organizational capacity and common interest to address the challenges unique to small island states.

Carbon Sequestration:

Increase carbon stores through sustainable forest management and protection of the Guyana Shield.

Technology Transfer:

Promote technology transfer and private sector relationships through technology cooperation agreements, utility partnerships, etc.

Sustainable Tourism/Urban Development:

Encourage environmentally sustainable tourism through innovative applications of energy efficient technologies and incentive programs in the hotel industry and municipal services, particularly water and waste treatment.

Promote sustainable tourism/urban development in coastal zone areas through integrated management and planning.

To: Jeff Frankel
From: Raymond Guiteras
Subject: Emissions Targets

4 January 1999

The evidence supports the contention that the emissions targets agreed to by Annex B countries are progressive, since a negative relationship is observed between the sacrifices embodied in their CO₂ targets and income.

A country's emissions target was calculated from emissions in the base year (1990 for most countries) times the cap agreed to under Annex B of the Kyoto Protocol. The target was then expressed relative to the country's 2010 business-as-usual projection in the following manner:

$$\text{target-BAU} = \log (\text{target} / 2010 \text{ BAU projection})$$

A larger number, then, implies a more lenient target. This is the variable to be explained.

A linear relationship was estimated between this target and four explanatory variables: 1995 GDP per capita (also in log form), the projected growth in CO₂ emissions from 1990 to 2010, and coal's share of energy (a high share of energy from coal could imply that a country has opportunities for low-cost abatement). A dummy variable was included to allow for the possibility of different treatment of economies in transition (EITs). The following results were found:

target-BAU	Coef.	Std. Err.	t	P> t
EIT dummy	-.242164	.0939599	-2.577	0.016
GDP/cap	-.1710944	.0326079	-5.247	0.000
projected e growth	-.6389962	.1301372	-4.910	0.000
coal share	-.0010662	.0009207	-1.158	0.258
constant	1.549491	.3203128	4.837	0.000

Adjusted R-squared = 0.8555

According to this estimation, emissions targets are indeed progressive, since a negative relationship between GDP and the target (relative to 2010 BAU) is observed. Holding constant for the other variables, each 1 percent increase in per capita income implies an estimated .17 percent greater sacrifice. Furthermore, countries are asked to "give back" almost half ($1 - .63 = 37$ per cent) of any projected growth in CO₂ emissions between now and the budget period. Interestingly, Economies in Transition are given more stringent targets, holding other variables constant; this presumably reflects an agreement to limit the amount of "hot air" that they would otherwise be allowed.

Note on data: Data on emissions and BAU projections were gathered from various sources. EIA data were used for EU nations, the US, Canada, and Japan; national data were used for Bulgaria, Hungary, Poland and Romania; and EPA data were used for other nations. Data on GDP per capita and coal's share of energy were taken from the EIA and national communications.

eu block vs. eu members				eu membe	eu membe	eu membe	eu membe	eu membe	eu membe	eu membe	eu membe
coal vs no coal				coal	coal	coal	coal	no coal	no coal	no coal	no coal
eit vs no eit				no eit	no eit	eit	eit	no eit	no eit	eit	eit
eu vs eia data				eu data	eia data	eu data	eia data	eu data	eia data	eu data	eia data
estimated equation											
intercept				0.7089	0.8817	1.3564	1.5495	0.5656	0.70999	1.3424	1.5329
coeff on eit dummy						-0.2081	-0.2422			-0.2333	-0.27196
coeff. on gdp per cap				-0.0855	-0.1073	-0.1497	-0.1711	-0.07298	-0.09219	-0.1495	-0.17029
coeff on bau_90				-0.4369	-0.4347	-0.5887	-0.639	-0.4353	-0.44016	-0.6061	-0.66729
coeff on coal				-0.00153	-0.00172	-0.00103	-0.00107				
China	levels	logs	predicted value	-0.25282	-0.22489	-0.07447	-0.05255	-0.20746	-0.18369	-0.02551	-0.0078
gdp pc	440.59	6.088115	contribution from								
bau	1379	7.229114	intercept	0.7089	0.8817	1.3564	1.5495	0.5656	0.70999	1.3424	1.5329
1990 emissions	648	6.473891	gdp pc	-0.52053	-0.65325	-0.91139	-1.04168	-0.44431	-0.56126	-0.91017	-1.03675
bau - 1990 emissions		0.755223	bau - 1990 emissions	-0.32996	-0.3283	-0.4446	-0.48259	-0.32875	-0.33242	-0.45774	-0.50395
coal	72.7	72.7	coal	-0.11123	-0.12504	-0.07488	-0.07779	0	0	0	0
India	levels	logs	predicted value	-0.16909	-0.13705	0.022804	0.05269	-0.15043	-0.12503	0.056485	0.082789
gdp pc	417.33	6.033877	contribution from								
bau	373	5.921578	intercept	0.7089	0.8817	1.3564	1.5495	0.5656	0.70999	1.3424	1.5329
1990 emissions	198	5.288267	gdp pc	-0.5159	-0.64744	-0.90327	-1.0324	-0.44035	-0.55626	-0.90206	-1.02751
bau - 1990 emissions		0.633311	bau - 1990 emissions	-0.27669	-0.2753	-0.37283	-0.40469	-0.27568	-0.27876	-0.38385	-0.4226
coal	55.82	55.82	coal	-0.0854	-0.09601	-0.05749	-0.05973	0	0	0	0
Korea	levels	logs	predicted value	-0.31531	-0.33307	-0.3019	-0.32391	-0.32045	-0.3448	-0.30481	-0.3298
gdp pc	5625.73	8.635106	contribution from								
bau	90	4.49981	intercept	0.7089	0.8817	1.3564	1.5495	0.5656	0.70999	1.3424	1.5329
1990 emissions	50	3.912023	gdp pc	-0.7383	-0.92655	-1.29268	-1.47747	-0.63019	-0.79607	-1.29095	-1.47047
bau - 1990 emissions		0.587787	bau - 1990 emissions	-0.2568	-0.25551	-0.34603	-0.3756	-0.25586	-0.25872	-0.35626	-0.39222
coal	19.02	19.02	coal	-0.0291	-0.03271	-0.01959	-0.02035	0	0	0	0
Mexico	levels	logs	predicted value	-0.24056	-0.22827	-0.17356	-0.17465	-0.28344	-0.28458	-0.19394	-0.20069
gdp pc	1629.95	7.396305	contribution from								
bau	175	5.164786	intercept	0.7089	0.8817	1.3564	1.5495	0.5656	0.70999	1.3424	1.5329
1990 emissions	86	4.454347	gdp pc	-0.63238	-0.79362	-1.10723	-1.26551	-0.53978	-0.68187	-1.10575	-1.25952
bau - 1990 emissions		0.710439	bau - 1990 emissions	-0.31039	-0.30883	-0.41824	-0.45397	-0.30925	-0.31271	-0.4306	-0.47407
coal	4.37	4.37	coal	-0.00669	-0.00752	-0.0045	-0.00468	0	0	0	0

DEPARTMENT OF STATE
BUREAU OF ECONOMIC AND BUSINESS AFFAIRS
Room 6828
2201 C Street, NW
Washington, DC 20520

FAX COVER SHEET

TO: Joe Aldy	PHONE: 395-1455
	FAX: 395-6870
FROM: Victoria A. Greenfield	PHONE: 202-647-6985
	FAX: 202-647-5713
DATE: 12/28/98	TIME: 1:45 pm

Number of pages including cover sheet:

Subject: Developing Countries

Messages: U.S. intervention, B.A.

DEC-23-1998 10:35

DES/EGC

202 647 0191 P.02/04

Press Release
U.S. Delegation
COP-4
Buenos Aires
November 2, 1998

Support for Item Six on the COP-4 Agenda
Intervention by the United States of America
Monday, November 2, 1998
Acting Assistant Secretary of State Melinda L. Kimble

Thank you, Madame President:

Please permit me to begin by joining other colleagues in offering to you our warmest congratulations on your election as President of the Fourth session of the Conference of the Parties to the UN Framework Convention on Climate Change. You can be assured, Mme. President, that my delegation will work with a cooperative and earnest spirit to ensure that our work proceeds in a way that is supportive of the overall objectives of the Convention and of the Kyoto Protocol, which was adopted last December in Japan.

In this regard, we regret that divisions among the various Parties represented in this chamber may prevent us from elaborating the issues related to Agenda Item Six of the agenda which was transparently entitled "voluntary commitments by non-Annex I Parties." We support inclusion of this item, although we recognize that no quick decision on this issue is likely. While we fully recognize that this issue is controversial, we believe it is important to discuss all issues of relevance even when they are controversial. Locking doors to discussion cannot build consensus or advance our efforts. Rather, any meeting of the COP should open doors. Such closure threatens our joint ability to further the implementation of the Convention and build on the progress that we achieved at Kyoto.

Mme. President, in our effort to cooperate with other Parties, we do not wish to prolong debate on this topic, despite its relevance. We welcome the leadership of the Government of Argentina in highlighting the significance of this issue. We believe that ultimately all Parties must explore and develop more consensus on how to secure global action on this problem of climate change. To pursue effectively the overall objectives of the Convention, we will need, over time, to strengthen progressively all commitments by all Parties to the Convention.

To say the least, we are disappointed that it appears that countries will not have an opportunity to explore this matter in any detail. We had hoped that, together, we could have worked to address many legitimate questions on what is meant by the words "voluntary commitments."

DEC-23-1998 10:35

OES/EGC

202 647 0191 P.03/04

Making progress on implementation of the Convention and completing the "unfinished" business of the Kyoto Protocol requires much discussion -- technical and political -- of all issues, including controversial ones. Making progress requires not only an understanding of the problems but also awareness of the options that are available for solving them. Kyoto potentially created new options for all Parties and we believe they need to be discussed and understood. Among the questions that need to be considered include:

- How do we provide for a dynamic process? What provisions can be made to allow those countries that wish to do so to join the Protocol as Annex B Parties? And, on what basis can Parties -- either singly or collectively -- reject the stated desire of any individual sovereign country to join Annex B?
- Must any Party interested in taking on a quantitative commitment to abate the increase in its greenhouse gas emissions use 1990 as its base year, as would seem to be required under Article 3 of the Protocol?
 - If so, this would constitute a stricter requirement than that now faced by some Annex I Parties which are given a "certain degree of flexibility" in choosing different base years.
 - If so, this would also seem to run counter to the guidelines for Initial Communications of Parties not included in Annex I, which the COP adopted two years ago in its decision 10/CP.2 and which allows these Parties to use 1994 as their base year.
- In addition, must any Party interested in taking on a quantitative commitment to abate the increase in its greenhouse gas emissions assume the commitments in Article 4.2(a) and (b) of the Convention as a pre-condition to taking on a target?
 - This would ensure that sufficient information would be provided to review and verify national programs, but there may be other ways to achieve this result.
- If a Party were to take on the commitments in Article 4.2(a) and (b) of the Convention in order to qualify as an Annex I Party under the Protocol's definition, so that it could engage in emissions trading under Article 17, would that Party have any obligations after the end of the present decade with respect to the "aim" in Article 4.2(a) and (b)?
- How would a Party interested in taking on a quantitative commitment to abate the increase in its greenhouse gas emissions develop a target that would achieve the full range of its environmental and economic goals in support of sustainable development?
- How would such a Party continue to be eligible to host projects under the Clean Development Mechanism until the beginning of the first commitment period?

DEC-23-1998 10:36

DES/EGC

202 647 0191 P.04/04

004

These are only a few of the many questions that we believe could -- and should -- be usefully explored by the Conference of the Parties. Answers to them would be helpful to any country -- including a country that decides that its circumstances are consistent with, and its interests are served by, seeking a way to establish a formal quantitative commitment. It will be difficult to make progress on the broader aims of the Convention if we do not soon begin to address these questions.

Mme. President, my delegation is fully prepared to engage on all the issues facing this Conference of the Parties and is ready to proceed in a positive and forthright manner. We look forward to advancing implementation of the Climate Convention by all Parties and to elaborating, as appropriate, elements of the Kyoto Protocol.

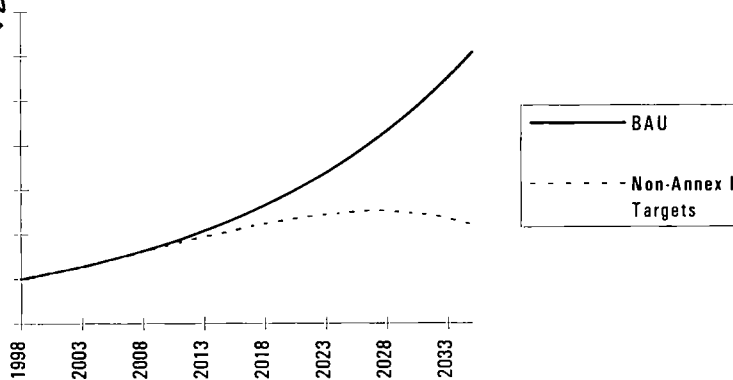
Thank you, Mme. President.

Why Post-2012 Non-Annex I Targets Can Be Consistent with Economic Development

Some Non-Annex I countries have expressed to the United States that while they may be comfortable with the concept of a growth target for the first commitment period, they have concerns about the economic effects of binding targets in subsequent periods. Targets for these countries in subsequent commitment periods do not have to result in adverse economic impacts.

The concept of a growth target can be applied to developing countries in subsequent periods. For example, the importance of including developing countries in the effort to reduce emissions now is to start the transition away from the business as usual emissions path. This deflection away from business as usual can be gradual for developing countries in a way that is both consistent with the need for continued economic development and results in abatement of emissions from what they would have been otherwise.

An Example of Non-Annex I Targets through 2035



In later periods, developing countries can draw from Annex I experiences with policies and technologies. During the first commitment period, Annex I countries will use a wide array of policies to stimulate technology development and adoption necessary to achieve their targets. Non-Annex I countries can learn from these experiences, as well as from their own efforts during the first commitment period, when they attempt to achieve greater abatement of emissions growth. They would be able to implement proven policies to promote proven technologies, providing more certainty and lower costs for the Non-Annex I countries.

Maintaining the principle of differentiation, developing countries could still be net sellers in the international trading market in later commitment periods. While the targets for developing countries in later commitment periods would likely be more stringent than the first commitment period target, they would also likely be less stringent than Annex I commitments accounting for relative economic circumstances. Under such circumstances, these developing countries would still likely be net sellers in international trading, because of the demand from Annex I parties with more aggressive targets. Thus, even with more stringent later period targets, Non-Annex I countries would still be able to attract investment through international emissions trading.

DEPARTMENT OF STATE
BUREAU OF ECONOMIC AND BUSINESS AFFAIRS
Room 6828
2201 C Street, NW
Washington, DC 20520

FAX COVER SHEET

TO: Joe Aldy	PHONE: 395-1455
	FAX: 395-6870
FROM: Victoria A. Greenfield	PHONE: 202-647-6985
	FAX: 202-647-5713
DATE: 10/26/98	TIME: 10:20 am

Number of pages including cover sheet:

Subject: AID package on Developing countries

Messages: State will provide comments to AID,
please call to coordinate, especially
on talking points.

Can you look at them before the
Stu & Wendy meeting ??

THANKS!

Victoria
647-6985

DRAFT

Developing Country Game Plan for COP4

This memo outlines a proposed approach for developing country contacts for Buenos Aires. The proposed meetings in week of one would be at staff level and form the basis for the issues at the high-level contacts during week two.

USAID Administrator Brian Atwood may be available during week two conduct the G-77 regional group meetings, at which he could discuss ongoing USG support for sustainable development and climate change programs in the relevant regions.

Week One:

Bilaterals with key countries:

India
China
Philippines
Brazil
Mexico
South Africa
Indonesia
Korea
Zimbabwe
Others?

Subregional Group Meetings, focussed on particular areas of common interest/opportunity.

Pacific Islands
Caribbean Islands
SADC
West Africa
Central America

Week Two:

Ministerial Bilaterals
TBD

G-77 Regional Meetings
Africa
AOSIS
GRULAC

DRAFT

Talking Points for G-77 Meetings at COP4

Goal: Impress upon G-77 delegations the benefits of early engagement in climate change policy

1. Climate change poses a very serious threat to sustainable development. Its impacts will be most felt by those least prepared to cope. We need to work together to address this global challenge. *— (denial by net)*
2. We in the U.S. have an obligation to take action - and we are (add domestic action key points).
3. Developing countries also need to act. As President Clinton has made very clear, however, the U.S. does not seek or support climate actions by developing countries which would undercut economic development goals. *just as the US can grow + address all nations believe could same*
4. To the contrary, we strongly believe that actions to reduce the rate of growth in greenhouse gasses (e.g., more energy efficient industry, greater utilization of indigenous renewable energy resources, cleaner transportation systems) can be a net benefit for economic development and help address local air quality/health problems. *— (denial by net) with expand*
5. The market-based mechanisms in the Kyoto Protocol provide an additional opportunity for developing countries to benefit from climate action: *esp to the*
 - The Clean Development Mechanism (CDM) can help attract foreign direct investment *in the energy sector*. It can also be used by your government to generate capital flows for national clean energy projects. For example, an effort to improve thermal efficiency in power plants could be partially financed by the revenues from the carbon credits under CDM. *7?*
 - Should your country opt to take on a "growth target" for ~~emissions below a "business as usual" scenario~~ you would then be in a position to engage in the emissions trading regime set up under the Kyoto Protocol. This billion dollar market will offer rich dividends to countries that can engage in low-cost carbon abatement. *7*
6. This USG stands ready to work with you to examine more closely the potential benefits under CDM and emissions trading

DRAFT

-2-

for your country. Specifically, in the case of country, USG programs/assistance immediately available include:

USAID
USCS
USDOE
USEPP
etc.



U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

DRAFT

Africa Deliverable (Buenos Aires)

I. USAID Climate Initiatives for Africa

Building on our ongoing work in the region and our extensive field presence, USAID proposes to expand our climate related program with the following initiatives:

1. Training workshops in West Africa and Southern Africa: USAID will convene two workshops on a regional basis to train in-country personnel in emissions inventories using IPCC methodology, as well as to explore methodologies and tools for mitigation analysis. These workshops will build on GEF-funded support for National Communications, and seeks to fill a critical need for long-term capacity building.

2. African CDM Capacity Building Initiative: Discussions are underway with USAID Africa Bureau on a CDM initiative focussed on capacity building. It is anticipated that the initiative would focus on West Africa and Southern Africa as priority regions and would engage NGOs, governments and the private sector.

3. Vulnerability & Adaptation: USAID will work with other donors to convene a major regional workshop in mid-1999 on vulnerability and adaptation issues facing Africa.

4. Energy/Climate Ministerials, led by Secretary Richardson.

1. SADC (Angola?)
2. West Africa (Senegal)
3. North Africa (Morocco/Egypt)

II. Climate-related Programs through 2002

USAID is undertaking the following climate-related activities in Africa:

1. Central African Regional Program for the Environment (CARPE): CARPE is a 5 year, strategic planning and knowledge-based activity designed to generate sufficient understanding of the causes of deforestation and biodiversity loss in the Congo Basin, and identify the most cost-effective mitigation approaches.

DRAFT

2. Ghana Energy: USAID, with the GOG, is preparing a draft energy plan to address short and long term energy issues in Ghana, covering oil, gas, electricity, renewables and energy efficiency. Increased foreign investment and support for privatization are keystones of the strategy.

3. Southern African Development Community (SADC): USAID is supporting the 13 Southern African Development Community countries to prepare a new regional energy development action plan, with a strong emphasis on attracting foreign investments and encouraging privatization. In addition, USAID assists operation of the Southern African Power Pool (SAPP) in order to facilitate increased electrical trade in the SADC, create a more competitive electricity trading environment, and work with the SAPP Environmental Sub-committee to address GCC problems.

4. Egypt Power Sector Support Project: Part of a program to support accelerated private sector-led growth, this project emphasizes support for improving the policy environment to increase efficiency and sustainability. Specific activities include support for establishment of a regulatory commission that will rationalize the process of setting rates, and support for raising the rate of return on investment in the sector. Support is also provided for infrastructure development.

5. Egyptian Environmental Policy Project: The project addresses policy reforms throughout the environmental sector, with an initial focus on energy efficiency, pollution prevention, and sustainable tourism.

6. Egypt Cairo Air Improvement Project: The project addresses factors in air quality including inefficient energy use in industry, ineffective pollution standards for industry and transportation, and lack of a sustainable institutional framework to manage the threat to air quality. It supports pilot activities (such as adoption of pollution control devices at plants), new technology applications (such as use of compressed natural gas in public buses), and institutional constraints (such as strengthening the capacity of the Egyptian Environmental Affairs Agency).

7. Energy Efficient Housing in South Africa: This USAID/South Africa project is promoting energy efficient housing designs to increase savings in space heating and CO2 emissions and is currently being implemented in two communities. The aim is to develop a low cost model for environmentally sound and energy efficient housing that can be incorporated into South Africa's ongoing housing delivery program.

8. Famine Early Warning System (FEWS) Project: This project develops and improves policies, strategies and programs to address natural disasters and vulnerability to climate change.

DRAFT

Its four components address early warning, vulnerability assessment, response planning and capacity building.

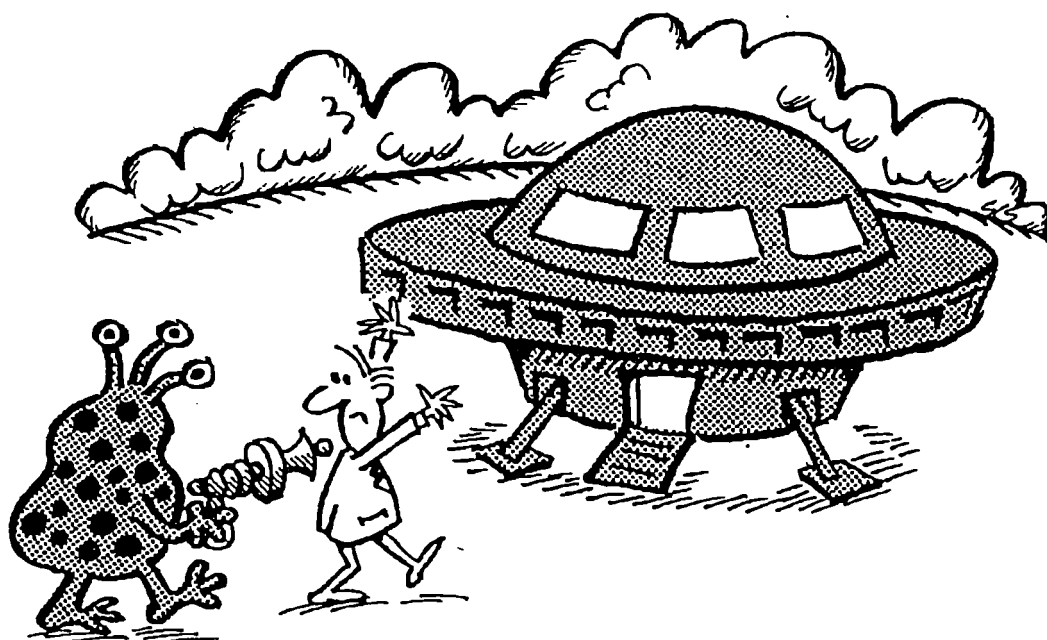
9. Alternatives to Slash and Burn (ASB): USAID supports the International Centre for Research in Agroforestry (ICRAF) to identify, develop, and catalyze a portfolio of "best-bet" land use options for people farming in forest margin lands. The best-bet system assesses global environmental benefits of carbon sequestration and decreased emissions from forest burning along with subsistence needs of the farmers and income generation opportunities which can contribute to rural poverty alleviation.

10. ICRAF Agroforestry: USAID supports ICRAF in its activities to monitor the dynamics of tropical forest margins and research the genetic resources of agroforestry trees.

11. Support for the International Livestock Research Institute (ILRI): USAID supports ILRI research on sustainable management of fragile lands in mixed crop-livestock systems in the highlands of East Africa, feed utilization improvements for increased livestock productivity and reduced methane production for small ruminants and cattle, and agricultural productivity and environmental protection through soil and water conservation, feed supplementation strategies, etc.

WinFax PRO Cover Page

Sorry about the
delay in getting back
to you. I was...

**MESSAGE:**

Dan: Here is some info on Turkey that I hope is useful. I am leaving on travel tomorrow afternoon but could be reached in the morning either at my home phone (301-208-11469) or my cell phone (301-758-3370) if you would like to discuss it before about noon.

If the trip were to occur at the end of next week or after I would try and accompany you. Good luck.

Phone: 202-586-0154, Fax: 1-202-586-4341

To: Dan Reifsynder

Fax Number: 647-0191

From: Department of Energy

Pages: 8

Date: 9/21/98

Dan:

I have attached some material that we hope you can use in Turkey. We would be able to do a more elaborate set of comparisons with more time. I faxed you earlier today a country brief that was prepared by our Energy Information Administration. That material may be useful reading for the plane. I would particularly note the information in the brief on Turkey's electricity generating capacity changes projected for the next decade where there will be significant expansion in the use of coal-based generation. This reality is consistent with most of the energy-related CO₂ projections we have found for Turkey. These projections indicate a significant growth in CO₂ emissions.

We suggest that in your meetings you propose some process where experts get together in a process that could discuss specific proposals. Of course, Turkey will not change their position on the acceptability of a target based on the material we have provided. Continuing the dialogue on several levels is probably desirable. A technical level discussion may reveal more about their real concerns and allow the USG to better target its diplomatic muscle.

Figure 1 is a graphical representation of Turkey's annual energy related carbon emissions from 1980 to 1996 -- the latest year for which data is available. The information on Turkey's energy policy that is contained in the EIA country brief suggests that the steep slope is likely to continue well into the next century. In fact a straight-line extension of this emissions growth indicates that if this trend were to continue, Turkey's emissions would be about 65 MMTC in 2012. [I am sorry that the various data we are providing has both emissions in carbon and in CO₂. I just didn't have time to normalize the data.]

Table 1 presents some IEA data on Western European countries and Turkey. GDP, population, energy CO₂ emissions, and emissions intensity per dollar of GDP are provided for 1973, 1990, 1993 and in most cases for 2010. The projected emissions for 2010 represent the IEA estimate in 1997 based on those countries policies, but does not include the Kyoto Protocol or the proposals on burden sharing within the EU. Note that even before the Kyoto outcome, Turkey was projected to move from being the sixth largest European emitter in 1990 to the 3rd largest emitter in 2010. After burden sharing Turkey will be close to the UK in 2010.

Possible Target Formulations:

We have concerns about basing a target for Turkey on per capita emissions. The concern is principally that it would establish a precedent for targets using per capita. This would work to detriment of the U.S. and does not have a superior intellectual basis to other normalizing procedures. For example, emissions per unit of landmass or per unit of GDP would seem to have at least an equal. Landmass, for example, would account for national differences that would influence transportation emissions. Per capita doesn't reflect that.

For your reference however, the EIA has estimated that per capita emissions in Western Europe would increase at a rate of 1.2% in the absence of Kyoto. Turkey's per capita emissions growth is well above that. One type of target would be to limit their per capita emissions growth to that of the average for Europe, e.g., 1.2%.

Another type of target could be based on emissions intensity per dollar of GDP. Referring to Table 1, one can see the comparison across Western European countries. Note that except for the very poorest countries, emissions intensity is declining, i.e., emissions are not growing as fast as GDP. Turkey is like the poorest EU countries. However, the estimates in Table 1 are pre-Kyoto, so the results may very well be different if that was taken into account. Unfortunately we don't have those estimates yet but they could be made.

Several possibilities around emissions intensity are possible. For example, if Turkey were to keep its emissions intensity growth from 1993 to 2010 equal to that of the period 1973 to 1993, its emissions intensity in 2010 would only be 0.91 rather than the 1.02 which IEA projects. This represents an 11% reduction from the baseline, i.e., emissions intensity would grow, but not by as much.

Another possibility is to ask Turkey to reduce its emissions intensity from its projected 2010 intensity by 7% which is equal to the reduction from 1990 levels which the U.S. would achieve. This would yield an emissions intensity of 0.95 rather than 1.02.

If Turkey were asked to keep a constant emissions intensity from 1990 to 2010 then their emissions intensity in 2010 would be 0.91. That would be a 10% reduction from 1990 levels. This type of target basically requires that Turkey's emissions growth equal its economic growth. As noted above, this is considerably less performance than is expected from its Western European neighbors and of the U.S.

FIGURE 1
Historic Energy Related CO2 Emissions for Turkey

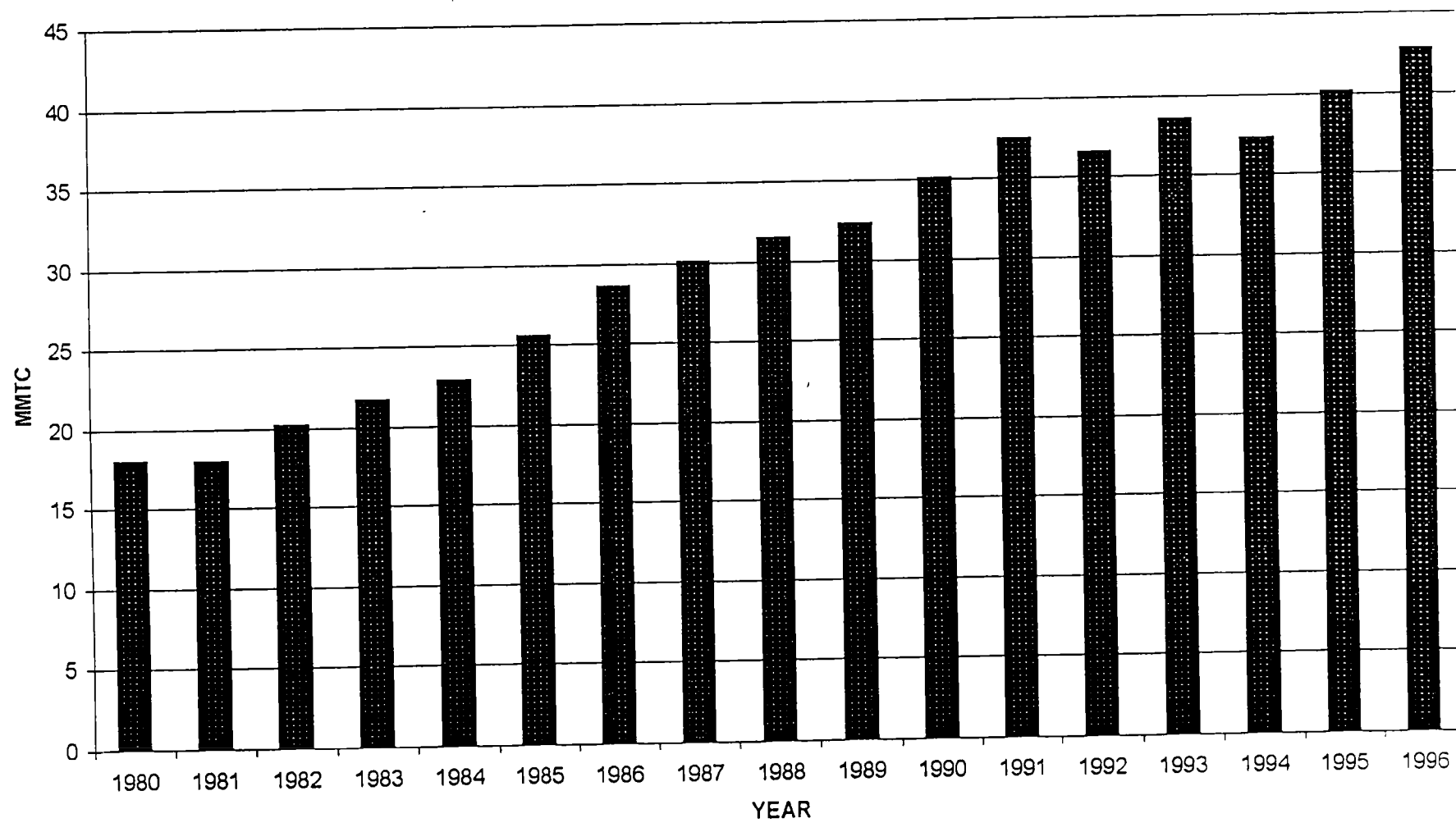


TABLE 1
OECD Europe minus Turkey

	GDP (billion 1990 US\$)				POPULATION (millions)		ENERGY RELATED CO2 EMISSIONS (MT C)					
	historical	1990	1993	projected 2010	historical	1990	1993	projected 2010	historical	1990	1993	projected 2010
Austria	104.9	158.4	166.9	221.6	7.6	7.7	8.0	8.2	58.6	59.4	57.1	66.1
Belgium	133.7	192.0	196.6	289.7	9.7	10.0	10.1	10.0	139.1	109.5	113.2	122.5
Denmark	94.8	129.1	133.9	191.2	5.0	5.1	5.2	5.4	59.6	53.4	59.2	45.2
Finland	82.9	134.8	119.4	191.0	4.7	5.0	5.1	5.2	49.4	53.8	54.3	99.0
France	800.0	1195.0	1203.0	1851.9	52.1	56.7	57.7	61.8	497.2	379.3	367.9	404.6
Germany	1137.0	1640.0	1704.0	2756.8	79.0	79.4	81.2	78.6	1076.3	983.1	897.8	893.6
Greece	55.5	81.8	84.3	150.3	8.9	10.1	10.4	11.0	36.3	72.6	74.5	136.4
Ireland	23.2	45.0	49.3	110.7	3.1	3.5	3.6	3.7	23.2	33.3	33.5	45.2
Italy	679.0	1095.0	1103.0		54.8	56.7	57.1		349.6	408.2	404.5	
Luxembourg	6.7	10.3	10.9	19.0	0.4	0.4	0.4	0.4	16.3	10.9	11.5	7.8
Netherlands	193.2	283.7	296.7	469.7	13.4	15.0	15.3	16.1	151.3	161.5	171.9	165.4
Norway	65.5	115.4	125.2		4.0	4.2	4.3		27.8	31.7	34.6	
Portugal	40.4	67.2	68.6	124.2	8.6	9.9	9.9	10.2	17.6	41.6	45.9	66.2
Spain	315.5	491.9	500.6		34.8	38.9	39.1		147.9	217.4	222.8	
Sweden	166.6	229.8	218.2		8.1	8.6	8.7		89.0	52.8	52.7	
Switzerland	179.8	226.0	223.5	307.5	6.4	6.7	6.9	7.6	46.1	44.4	43.2	44.2
United Kingdom	698.0	976.0	972.0	1454.1	56.2	57.5	58.2	61.0	666.2	584.0	567.2	623.5
TOTAL	4776.7	7071.4	7176.1	8137.7	356.9	375.3	381.1	279.2	3451.5	3296.8	3211.8	2719.7
Turkey	71.3	150.7	174.1	415.0	38.5	56.6	59.5	78.1	57.0	138.5	148.8	424.5
Sources	1	1	1	2	1	1	1	2	1	1	1	2

Energy Policies of IEA Countries - 1996

Energy Policies of IEA Countries - 1997

Note: no predictions for Italy, Norway, Spain and Sweden for 2010

CO2) Emissions per \$ GDP (MT CO2/GDP (billion 1990 US\$))

	historical	1990	1993	projected
	1973			2010
	mt CO2 / GDP (billions 1990 US\$)			

Austria	0.56	0.38	0.34	0.30
Belgium	1.04	0.57	0.58	0.42
Denmark	0.63	0.41	0.44	0.24
Finland	0.60	0.40	0.45	0.52
France	0.62	0.32	0.31	0.22
Germany	0.95	0.60	0.53	0.32
Greece	0.65	0.89	0.88	0.91
Ireland	1.00	0.74	0.68	0.41
Italy	0.51	0.37	0.37	
Luxembourg	2.43	1.05	1.06	0.41
Netherlands	0.78	0.57	0.58	0.35
Norway	0.43	0.27	0.28	
Portugal	0.43	0.62	0.67	0.53
Spain	0.47	0.44	0.45	
Sweden	0.53	0.23	0.24	
Switzerland	0.26	0.20	0.19	0.14
United Kingdom	0.95	0.60	0.58	0.43
TOTAL	0.72	0.47	0.45	
Turkey	0.80	0.92	0.85	1.02

Sources

Turkey Notes

From Discussions w/Turkish Delegation, Bonn Mtgs on Climate Change, 6/98

On Target:

Turks noted that Turkey would not agree to reduction of GHG emissions below 1990 levels for the first commitment period.

Noted that throughout 1990's, emissions have been low, as energy consumption remains 1/5th to 1/4th OECD average (VERIFY)

Turkey sought deletion from Annex I (UNFCCC) lists -- and USG support in this endeavor.

US noted that UK has suggested on behalf of EU that Turkey enter Annex B with a special target (e.g., taking advantage of "Article 10"-like provision or amendment process."

Turks considered such an Annex B opt-in option "difficult to explore" and noted its preference for "per capita approach."

Suggested that they would be preparing

Intended For: Stephen H. Muller
Author: Mario E. Merida
Subject: Turkey and ghg commitment

This Item is In Progress

O Turkey

Steve -- according to my notes from Bonn, in a "bilat" session we held with the Turks (which I attended), they suggested, in exchange for removal from Annex I, voluntary commitment(s) to 1) a "reasonable target, perhaps a 200 percent increase in CO2 emissions," 2) to be "below the OECD average in 2010", or 3) a commitment (not quantified) to hold emissions to 1/2 the OECD average in 1995.

Follows a quick-and-dirty analysis of these several "options."

		1995			1995
1990 emissions, CO2 (Turkey)	138.5	160.5	OECD	10661.5	11090.6
Turkey pop.	56.2	61.6	OECD	960.6	1000.7
CO2/pop	2.46	2.6	OECD	11.1	11.08

Projections -- Turkey

	2010	% change, 1990
CO2	424.5	206.5
pop	78.14	39.0
CO2/pop	5.43	1.2

OPTION 1: under business-as-usual conditions, the IEA projects Turkey's energy-related carbon emissions to increase 206.5% -- only slightly more than the somewhat "off-the-cuff" 200% target offered by Turkish delegates in Bonn.

OPTION 2: Under business-as-usual conditions, Turkey's per capita CO2 emissions in 2010 are far less than the OECD-wide amount projected by the IEA.

OPTION 3: Under BAU conditions, Turkey's per capita average CO2 emissions in 2010 are less than 1/2 the 1995 OECD-wide average.

NOTE: Thus, options 1 and 3 would seem to require little effort from Turkey. We should note on option 2, however, that OECD projections ignore Kyoto-related reductions affected throughout the OECD, thus the "bar" would be somewhat lower for comparison purposes.

George Aldridge
Belize
301-3265
2000

Turkey

Key Indicators

	1988	1989	1990	1991	1992	1993	1994	1995
CO ₂ Emissions from Fuel Comb. (Mt of CO ₂)	115.72	125.79	138.48	141.26	144.00	148.84	146.67	160.50
TPES excl. comb. renew. (Mtoe): TPESexcl	38.81	40.84	45.26	46.24	47.71	50.92	49.62	55.18
TPES incl. combustible renewables (Mtoe)	46.73	48.77	52.46	53.45	54.92	58.07	56.76	62.19
GDP (billion 1990 US\$ using exch. rates)	137.57	137.91	150.68	152.07	161.17	174.14	164.64	176.48
GDP (billion 1990 US\$ using PPPs)	304.01	304.77	332.98	336.06	356.18	384.82	363.82	389.99
Population (millions)	53.72	54.89	56.20	57.31	58.40	59.49	60.58	61.64
CO ₂ / TPESexcl (t CO ₂ per toe)	2.98	3.08	3.06	3.05	3.02	2.92	2.96	2.91
CO ₂ / GDP (kg CO ₂ per 1990 US\$)	0.84	0.91	0.92	0.93	0.89	0.85	0.89	0.91
CO ₂ / GDP (kg CO ₂ per 1990 US\$ PPP)	0.38	0.41	0.42	0.42	0.40	0.39	0.40	0.41
CO ₂ / Population (t CO ₂ per capita)	2.15	2.29	2.46	2.47	2.47	2.50	2.42	2.60

1990 CO₂ Emissions by Sector

million tonnes of CO ₂	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	67.94	64.00	6.54	138.48
Public Electricity and Heat Production	21.69	1.64	4.97	28.30
Unallocated Autoproducers	3.38	2.17	-	5.55
Other Energy Industries	1.89	3.67	0.04	5.60
Manufacturing Industries and Construction	24.65	12.36	1.43	38.44
Transport (incl. Intl. Aviation Bunkers)	0.06	28.34	-	28.39
<i>of which: Road</i>	-	25.62	-	25.62
Other Sectors	12.36	15.02	0.10	27.48
<i>of which: Residential</i>	12.36	9.08	0.10	21.54
Unallocated Non-Energy Use	-	0.77	-	0.77
Diff. due to Losses and/or Transformation	- 0.83	0.11	0.00	- 0.73
Statistical Differences	4.75	- 0.08	-	4.68
<i>Memo: International Marine Bunkers</i>	-	0.38	-	0.38

1995 CO₂ Emissions by Sector

million tonnes of CO ₂	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	66.66	80.76	13.08	160.50
Public Electricity and Heat Production	30.44	3.01	6.02	39.47
Unallocated Autoproducers	3.02	2.76	0.94	6.71
Other Energy Industries	1.93	4.61	0.02	6.56
Manufacturing Industries and Construction	21.32	14.03	3.37	38.73
Transport (incl. Intl. Aviation Bunkers)	0.01	36.22	0.07	36.31
<i>of which: Road</i>	-	31.23	-	31.23
Other Sectors	9.96	19.05	2.63	31.63
<i>of which: Residential</i>	9.96	11.19	2.63	23.77
Unallocated Non-Energy Use	-	1.54	-	1.54
Diff. due to Losses and/or Transformation	- 1.96	- 0.07	0.04	- 1.99
Statistical Differences	1.93	- 0.39	-	1.54
<i>Memo: International Marine Bunkers</i>	-	0.58	-	0.58

United States

Key Indicators

	1988	1989	1990	1991	1992	1993	1994	1995
CO ₂ Emissions from Fuel Comb. (Mt of CO ₂)	4 957.25	5 034.68	4 907.51	4 899.47	4 960.56	5 128.38	5 177.53	5 228.52
TPES excl. comb. renew. (Mtoe): TPESexcl	1 849.09	1 881.82	1 852.74	1 865.14	1 892.36	1 945.21	1 977.36	2 007.69
TPES incl. combustible renewables (Mtoe)	1 921.49	1 950.79	1 915.00	1 929.25	1 965.75	2 012.04	2 045.78	2 078.27
GDP (billion 1990 US\$ using exch. rates)	5 278.54	5 422.42	5 489.60	5 464.66	5 600.10	5 790.80	6 027.08	6 149.52
GDP (billion 1990 US\$ using PPPs)	5 278.54	5 422.42	5 489.60	5 464.66	5 600.10	5 790.80	6 027.08	6 149.52
Population (millions)	245.02	247.34	249.91	252.64	255.41	258.12	260.65	263.06
CO ₂ / TPESexcl (t CO ₂ per toe)	2.68	2.68	2.65	2.63	2.62	2.64	2.62	2.60
CO ₂ / GDP (kg CO ₂ per 1990 US\$)	0.94	0.93	0.89	0.90	0.89	0.89	0.86	0.85
CO ₂ / GDP (kg CO ₂ per 1990 US\$ PPP)	0.94	0.93	0.89	0.90	0.89	0.89	0.86	0.85
CO ₂ / Population (t CO ₂ per capita)	20.23	20.36	19.64	19.39	19.42	19.87	19.86	19.88

1990 CO₂ Emissions by Sector

<i>million tonnes of CO₂</i>	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	1 781.73	2 099.06	1 026.72	4 907.51
Public Electricity and Heat Production	1 517.08	87.70	152.66	1 757.43
Unallocated Autoproducers	-	-	-	-
Other Energy Industries	2.58	164.81	104.23	271.62
Manufacturing Industries and Construction	249.63	203.78	346.32	799.73
Transport (incl. Intl. Aviation Bunkers)	-	1 419.55	36.01	1 455.57
<i>of which: Road</i>	-	1 141.46	-	1 141.46
Other Sectors	34.30	188.95	382.83	606.08
<i>of which: Residential</i>	5.70	79.44	239.68	324.82
Unallocated Non-Energy Use	-	89.33	-	89.33
Diff. due to Losses and/or Transformation	- 18.11	- 17.02	-	- 35.14
Statistical Differences	- 3.74	- 38.04	4.67	- 37.11
<i>Memo: International Marine Bunkers</i>	-	91.05	-	91.05

1995 CO₂ Emissions by Sector

<i>million tonnes of CO₂</i>	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	1 855.04	2 184.69	1 188.79	5 228.52
Public Electricity and Heat Production	1 614.77	48.78	176.31	1 839.86
Unallocated Autoproducers	95.38	-	123.60	218.97
Other Energy Industries	1.57	158.23	107.96	267.75
Manufacturing Industries and Construction	165.83	186.33	299.08	651.25
Transport (incl. Intl. Aviation Bunkers)	-	1 541.47	38.30	1 579.77
<i>of which: Road</i>	-	1 269.17	0.15	1 269.32
Other Sectors	6.35	187.33	429.33	623.02
<i>of which: Residential</i>	5.24	87.57	264.22	357.03
Unallocated Non-Energy Use	-	89.08	-	89.08
Diff. due to Losses and/or Transformation	- 25.15	- 32.59	-	- 57.74
Statistical Differences	- 3.70	6.04	14.22	16.56
<i>Memo: International Marine Bunkers</i>	-	85.98	-	85.98

OECD Total Key Indicators

	1988	1989	1990	1991	1992	1993	1994	1995
CO ₂ Emissions from Fuel Comb. (Mt of CO ₂)	10 535.7	10 738.7	10 661.5	10 709.4	10 728.9	10 842.5	10 968.6	11 090.6
TPES excl. comb. renew. (Mtoe): TPESexcl	4 072.9	4 159.9	4 157.6	4 209.1	4 241.3	4 307.3	4 376.0	4 455.9
TPES incl. combustible renewables (Mtoe)	4 207.1	4 300.7	4 290.8	4 345.8	4 387.0	4 449.1	4 521.2	4 606.1
GDP (billion 1990 US\$ using exch. rates)	15 977.5	16 514.2	16 919.1	17 076.2	17 341.3	17 548.1	18 051.0	18 400.5
GDP (billion 1990 US\$ using PPPs)	14 890.6	15 379.9	15 757.6	15 883.3	16 149.2	16 384.1	16 855.8	17 165.1
Population (millions)	944.3	952.2	960.6	968.8	977.2	985.4	992.9	1 000.7
CO ₂ / TPESexcl (t CO ₂ per toe)	2.59	2.58	2.56	2.54	2.53	2.52	2.51	2.49
CO ₂ / GDP (kg CO ₂ per 1990 US\$)	0.66	0.65	0.63	0.63	0.62	0.62	0.61	0.60
CO ₂ / GDP (kg CO ₂ per 1990 US\$ PPP)	0.71	0.70	0.68	0.67	0.66	0.66	0.65	0.65
CO ₂ / Population (t CO ₂ per capita)	11.16	11.28	11.10	11.05	10.98	11.00	11.05	11.08

1990 CO₂ Emissions by Sector

million tonnes of CO ₂	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	3 707.5	5 047.5	1 906.4	10 661.5
Public Electricity and Heat Production	2 586.6	405.7	321.1	3 313.4
Unallocated Autoproducers	143.9	46.9	20.5	211.3
Other Energy Industries	54.5	355.4	161.7	571.5
Manufacturing Industries and Construction	878.2	637.9	625.4	2 141.5
Transport (incl. Intl. Aviation Bunkers)	0.5	2 753.4	43.5	2 797.4
<i>of which: Road</i>	-	2 263.8	0.8	2 264.6
Other Sectors	211.9	732.7	681.4	1 626.0
<i>of which: Residential</i>	127.6	331.9	446.8	906.2
Unallocated Non-Energy Use	6.5	152.5	-	159.0
Diff. due to Losses and/or Transformation	- 168.1	- 3.8	46.0	- 125.9
Statistical Differences	- 6.4	- 33.2	6.9	- 32.8
<i>Memo: International Marine Bunkers</i>	-	224.7	-	224.7

1995 CO₂ Emissions by Sector

million tonnes of CO ₂	Coal	Oil	Gas	Total
Total CO₂ Emissions from Fuel Combustion	3 553.2	5 268.9	2 268.5	11 090.6
Public Electricity and Heat Production	2 684.0	342.1	403.6	3 429.7
Unallocated Autoproducers	229.1	58.7	155.9	443.7
Other Energy Industries	44.5	367.6	175.8	587.9
Manufacturing Industries and Construction	681.9	619.1	608.0	1 909.0
Transport (incl. Intl. Aviation Bunkers)	0.4	3 018.4	51.7	3 070.4
<i>of which: Road</i>	-	2 504.4	1.2	2 505.7
Other Sectors	94.1	752.4	802.3	1 648.8
<i>of which: Residential</i>	69.1	354.5	524.3	947.9
Unallocated Non-Energy Use	3.6	161.2	-	164.8
Diff. due to Losses and/or Transformation	- 189.2	- 29.5	51.3	- 167.3
Statistical Differences	4.7	- 21.1	19.9	3.6
<i>Memo: International Marine Bunkers</i>	-	226.7	-	226.7

CO₂ Emissions / Population

		tonnes CO ₂ / capita											
1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995		
2.27	Non-OECD Total												
	OECD												
15.32	Canada	15.95	15.59	15.34	15.70	16.21	16.58	15.51	15.17	15.35	15.29	15.60	15.90
3.46	Mexico	3.58	3.59	3.39	3.49	3.46	3.61	3.58	3.65	3.67	3.59	3.71	3.46
18.83	United States	19.33	19.43	19.15	19.69	20.23	20.36	19.64	19.39	19.42	19.87	19.86	19.88
15.13	North America	15.52	15.53	15.24	15.64	16.01	16.13	15.52	15.32	15.33	15.59	15.61	15.56
7.06	Austria	7.37	7.44	7.35	7.58	7.13	7.32	7.70	8.14	7.27	7.14	7.20	7.45
10.47	Belgium	10.52	10.67	10.71	10.78	10.83	11.09	10.97	11.73	11.63	11.21	11.59	11.55
16.48	Czech Republic	16.74	16.44	16.89	16.48	16.18	15.57	15.15	13.69	13.35	12.29	11.92	11.65
10.16	Denmark	10.52	12.29	12.15	12.10	11.27	10.09	10.36	12.21	11.09	11.38	12.31	11.58
8.85	Finland	8.89	10.51	10.93	12.20	10.92	11.04	10.77	11.26	9.88	10.71	11.96	10.65
7.36	France	7.09	6.99	6.65	6.64	6.41	6.69	6.66	6.95	6.51	6.37	5.99	6.23
12.80	Germany	13.14	13.30	13.31	13.25	13.09	12.69	12.38	11.88	11.30	11.05	10.89	10.83
5.29	Greece	5.46	5.95	5.62	6.08	6.52	7.14	7.13	7.09	7.24	7.15	7.39	7.33
7.26	Hungary	7.51	7.46	7.30	7.38	7.06	6.81	6.57	6.36	5.89	6.00	5.66	5.61
6.95	Iceland	7.72	7.49	7.82	8.31	8.02	8.49	9.34	8.21	8.42	8.80	9.03	8.75
7.56	Ireland	7.51	7.93	8.51	8.78	8.68	8.87	9.49	9.40	9.17	9.38	9.68	9.73
6.26	Italy	6.30	6.39	6.43	6.76	6.84	7.16	7.21	7.33	7.32	7.11	7.03	7.40
24.71	Luxembourg	27.10	27.80	27.00	25.36	26.02	27.68	28.43	29.54	28.90	28.98	27.13	21.80
9.78	Netherlands	10.33	10.36	10.59	10.72	10.74	10.72	10.80	11.26	11.05	11.24	11.36	11.57
6.69	Norway	6.97	7.10	8.16	7.54	6.85	7.70	7.42	7.54	7.54	7.97	7.82	7.84
2.88	Portugal	2.80	2.68	3.02	3.11	3.28	4.16	4.20	4.35	4.80	4.65	4.70	5.13
5.17	Spain	4.96	4.96	4.90	4.92	5.03	5.47	5.56	5.77	5.99	5.67	6.02	6.30
7.05	Sweden	6.85	7.46	7.40	6.94	7.07	6.58	6.16	6.08	5.96	6.04	6.36	6.35
6.36	Switzerland	6.26	6.36	6.71	6.30	6.34	6.04	6.52	6.49	6.48	6.18	6.22	5.93
1.78	Turkey	1.83	1.97	2.10	2.24	2.15	2.29	2.46	2.47	2.47	2.50	2.42	2.60
9.81	United Kingdom	9.49	10.02	10.18	10.33	10.23	9.98	10.15	10.23	10.07	9.73	9.65	9.64
7.95	Europe	7.95	8.10	8.12	8.18	8.07	8.10	8.08	8.10	7.87	7.69	7.64	7.72
8.59	European Union	8.59	8.78	8.77	8.87	8.79	8.84	8.83	8.91	8.65	8.47	8.45	8.55
13.96	Australia	14.31	14.22	14.13	14.70	14.65	15.50	15.52	15.34	15.45	15.96	15.81	15.84
7.31	Japan	7.74	7.54	7.48	7.39	8.01	8.27	8.62	8.74	8.83	8.72	9.11	9.17
5.98	New Zealand	6.22	6.93	6.68	6.95	7.26	7.65	7.51	7.54	8.12	7.86	7.89	8.19
8.02	Pacific	8.44	8.28	8.22	8.22	8.76	9.10	9.41	9.50	9.61	9.57	9.90	9.96
0.60	OECD Total	10.82	10.88	10.79	10.97	11.16	11.28	11.10	11.05	10.98	11.00	11.05	11.08
3.96	World *	4.01	4.05	4.06	4.13	4.18	4.18	4.08	4.06	3.98	3.95	3.90	3.92
n.a.	Annex I Parties	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	12.02 e	n.a.	11.61	11.45	11.16	11.18
n.a.	Non-Annex I Parties	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1.71 e	n.a.	1.75	1.78	1.82	1.87

* Includes international marine bunkers.

e IEA Secretariat estimate.

CO₂ Emissions / GDP using exchange rates

		kilogrammes CO ₂ / US\$ using 1990 prices and exchange rates											
		1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
2.30	Non-OECD Total *	2.29	2.33	2.33	2.35	2.35	2.31	2.26	2.31	2.28	2.24	2.15	2.13
	OECD												
0.88	Canada	0.87	0.82	0.79	0.79	0.78	0.80	0.76	0.76	0.78	0.77	0.76	0.77
1.14	Mexico	1.16	1.16	1.16	1.19	1.19	1.22	1.17	1.17	1.16	1.13	1.14	1.16
1.01	United States	0.98	0.97	0.94	0.94	0.94	0.93	0.89	0.90	0.89	0.89	0.86	0.85
1.01	North America	0.98	0.96	0.93	0.94	0.93	0.93	0.89	0.90	0.89	0.89	0.86	0.86
0.40	Austria	0.42	0.41	0.40	0.41	0.37	0.37	0.37	0.39	0.34	0.34	0.34	0.34
0.64	Belgium	0.63	0.63	0.63	0.62	0.60	0.59	0.56	0.60	0.58	0.57	0.58	0.57
7.03	Czech Republic	7.00	6.83	6.88	6.67	6.42	5.91	5.85	6.13	6.39	5.96	5.63	5.23
0.47	Denmark	0.47	0.52	0.50	0.50	0.46	0.41	0.41	0.48	0.44	0.44	0.46	0.42
0.40	Finland	0.39	0.45	0.46	0.49	0.42	0.41	0.40	0.45	0.41	0.45	0.49	0.42
0.40	France	0.39	0.38	0.35	0.34	0.32	0.32	0.32	0.33	0.31	0.31	0.28	0.29
0.74	Germany	0.74	0.73	0.71	0.70	0.67	0.63	0.60	0.56	0.53	0.53	0.51	0.49
0.73	Greece	0.74	0.78	0.73	0.80	0.82	0.87	0.87	0.85	0.87	0.86	0.88	0.85
2.51	Hungary	2.52	2.49	2.40	2.29	2.18	2.09	2.06	2.14	2.03	2.07	1.91	1.89
0.33	Iceland	0.36	0.34	0.33	0.33	0.33	0.35	0.38	0.33	0.36	0.38	0.38	0.36
0.79	Ireland	0.76	0.78	0.84	0.82	0.78	0.74	0.73	0.71	0.66	0.66	0.63	0.58
0.40	Italy	0.39	0.38	0.37	0.38	0.37	0.38	0.37	0.38	0.37	0.37	0.36	0.37
1.30	Luxembourg	1.35	1.35	1.22	1.13	1.06	1.03	1.05	1.04	0.99	0.92	0.84	0.66
0.61	Netherlands	0.63	0.62	0.62	0.62	0.61	0.58	0.57	0.59	0.57	0.58	0.57	0.57
0.29	Norway	0.29	0.28	0.31	0.28	0.26	0.29	0.27	0.27	0.26	0.27	0.26	0.25
0.55	Portugal	0.54	0.51	0.55	0.53	0.53	0.64	0.62	0.62	0.67	0.65	0.66	0.70
0.52	Spain	0.49	0.48	0.46	0.44	0.43	0.45	0.44	0.45	0.46	0.44	0.46	0.47
0.30	Sweden	0.28	0.30	0.30	0.27	0.27	0.25	0.23	0.23	0.23	0.24	0.25	0.24
0.22	Switzerland	0.21	0.21	0.22	0.20	0.20	0.18	0.20	0.20	0.20	0.19	0.19	0.19
0.83	Turkey	0.81	0.86	0.88	0.88	0.84	0.91	0.92	0.93	0.89	0.85	0.89	0.91
0.71	United Kingdom	0.67	0.69	0.67	0.65	0.61	0.59	0.60	0.62	0.61	0.58	0.56	0.55
0.59	Europe	0.57	0.57	0.56	0.55	0.52	0.51	0.50	0.50	0.49	0.48	0.47	0.46
0.56	European Union	0.55	0.55	0.53	0.52	0.50	0.49	0.48	0.48	0.46	0.46	0.45	0.44
	Australia	0.93	0.90	0.89	0.89	0.87	0.90	0.90	0.91	0.91	0.91	0.87	0.85
0.41	Japan	0.41	0.38	0.37	0.36	0.36	0.36	0.36	0.35	0.35	0.35	0.36	0.36
0.48	New Zealand	0.49	0.54	0.51	0.53	0.56	0.59	0.59	0.60	0.65	0.60	0.58	0.59
0.45	Pacific	0.46	0.43	0.42	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.41	0.41
0.72	OECD Total	0.71	0.70	0.68	0.67	0.66	0.65	0.63	0.63	0.62	0.62	0.61	0.60
1.07	World **	1.06	1.06	1.04	1.05	1.04	1.02	0.99	1.00	0.98	0.97	0.95	0.94
n.a.	Annex I Parties	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.80 e	n.a.	0.77	0.76	0.72	0.72
n.a.	Non-Annex I Parties *	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1.82 e	n.a.	1.81	1.80	1.78	1.78

* Excludes Albania, DPR of Korea and Viet Nam.

** Includes international marine bunkers. Excludes Albania, DPR of Korea and Viet Nam.

e IEA Secretariat estimate.

Total CO₂ Emissions from Fuel Combustion

Million tonnes of CO ₂		Million tonnes of CO ₂												
1990	1993		1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
238.1	3 477.2	Non-OECD Total	8 786.9	9 139.7	9 519.9	9 959.6	10 319.9	10 469.5	10 361.4	10 530.5	10 388.7	10 419.4	10 325.7	10 649.0
		OECD												
405.0	390.1	Canada	409.9	404.6	402.1	416.8	435.9	454.0	431.1	426.6	438.3	442.7	456.2	470.8
278.6	258.2	Mexico	273.0	279.6	269.6	283.1	286.3	304.7	308.2	320.5	328.4	327.9	345.0	327.6
409.5	4 411.2	United States	4 567.6	4 632.9	4 608.0	4 781.7	4 957.3	5 034.7	4 907.5	4 899.5	4 960.6	5 128.4	5 177.5	5 228.5
393.0	5 059.4	North America	5 250.4	5 317.2	5 279.8	5 481.5	5 679.4	5 793.4	5 646.8	5 646.5	5 727.2	5 898.9	5 978.8	6 026.9
53.3	53.3	Austria	55.7	56.3	55.6	57.4	54.2	55.8	59.4	63.7	57.3	57.1	57.8	60.0
112.9	103.2	Belgium	103.7	105.2	105.6	106.4	107.5	110.2	109.3	117.3	116.8	113.0	117.3	117.1
169.4	169.7	Czech Republic	172.4	169.4	174.1	169.8	166.7	160.5	157.0	141.1	137.8	127.0	123.2	120.4
56.1	52.0	Denmark	53.8	62.9	62.2	62.0	57.8	51.8	53.2	62.9	57.3	59.0	64.1	60.5
44.9	43.0	Finland	43.4	51.5	53.7	60.2	54.0	54.8	53.7	56.5	49.8	54.3	60.8	54.4
421.6	403.4	France	389.9	386.4	369.1	370.9	359.7	377.4	378.0	396.6	373.6	367.0	346.8	362.0
404.0	999.9	Germany	1 023.2	1 033.2	1 034.2	1 029.5	1 022.6	998.3	982.3	950.1	910.6	897.1	886.6	884.4
49.4	52.1	Greece	54.0	59.1	56.0	60.8	65.4	72.0	72.5	72.7	74.7	74.2	77.0	76.6
80.4	77.2	Hungary	79.6	79.0	76.9	77.5	73.8	70.8	68.1	65.6	60.4	61.3	57.5	57.8
1.6	1.6	Iceland	1.9	1.8	1.9	2.0	2.0	2.1	2.4	2.1	2.2	2.3	2.4	2.3
26.4	26.5	Ireland	26.5	28.1	30.1	31.1	30.7	31.2	33.2	33.1	32.5	33.4	34.6	34.9
357.5	354.3	Italy	357.0	362.0	364.3	383.3	387.5	405.8	409.3	416.0	416.0	406.0	402.1	423.8
9.7	9.0	Luxembourg	9.9	10.2	9.9	9.4	9.7	10.5	10.9	11.4	11.4	11.5	11.0	8.9
135.7	140.5	Netherlands	149.0	150.1	154.3	157.2	158.5	159.2	161.5	169.8	167.8	171.9	174.7	178.8
27.2	27.6	Norway	28.8	29.5	34.0	31.6	28.8	32.5	31.5	32.1	32.3	34.4	33.9	34.2
27.9	28.7	Portugal	28.0	26.8	30.2	31.1	32.7	41.3	41.6	42.9	47.4	45.9	46.6	50.9
195.6	197.2	Spain	189.8	190.5	188.9	190.1	194.6	212.1	215.9	224.6	233.7	221.8	235.7	247.0
63.2	58.7	Sweden	57.1	62.3	61.9	58.3	59.6	55.9	52.8	52.4	51.7	52.6	55.9	56.1
37.7	41.2	Switzerland	40.7	41.5	44.1	41.7	42.3	40.6	44.3	44.6	45.0	43.2	43.8	42.0
79.2	85.3	Turkey	89.8	99.1	108.0	118.0	115.7	125.8	138.5	141.3	144.0	148.8	146.7	160.5
160.7	553.3	United Kingdom	536.2	567.9	578.9	589.0	584.5	572.3	584.0	591.6	583.9	566.0	563.3	564.8
14.6	3 477.7	Europe	3 490.4	3 572.8	3 594.1	3 637.3	3 608.5	3 641.0	3 659.3	3 688.5	3 606.4	3 547.8	3 541.6	3 597.5
19.0	3 075.0	European Union	3 077.2	3 152.5	3 155.1	3 196.7	3 179.1	3 208.6	3 217.7	3 261.7	3 184.6	3 130.9	3 134.1	3 180.3
24.0	115.2	Australia	222.9	224.5	226.3	239.1	242.1	260.7	264.8	265.1	270.2	281.7	282.1	286.0
80.4	871.7	Japan	929.4	910.1	908.9	901.8	981.6	1 018.2	1 065.4	1 083.6	1 097.2	1 086.7	1 138.4	1 150.9
19.1	19.3	New Zealand	20.3	22.7	21.9	23.0	24.1	25.5	25.2	25.7	28.0	27.4	27.8	29.3
24.4	1 106.2	Pacific	1 172.6	1 157.3	1 157.0	1 163.9	1 247.8	1 304.3	1 355.4	1 374.4	1 395.4	1 395.8	1 448.3	1 466.2
32.0	9 643.3	OECD Total	9 913.4	10 047.2	10 030.9	10 282.8	10 535.7	10 738.7	10 661.5	10 709.4	10 728.9	10 842.5	10 968.6	11 090.6
95.2	277.1	World Bunkers	285.6	304.1	322.3	318.5	337.4	334.4	377.6	396.2	398.9	398.5	402.8	410.0
65.3	18 397.6	World	18 985.9	19 491.0	19 873.1	20 560.9	21 193.0	21 542.6	21 400.5	21 636.1	21 516.5	21 660.4	21 697.1	22 149.6
n.a.	n.a.	Annex I Parties	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	14 041.8 e	n.a.	13 718.3	13 600.7	13 315.0	13 404.6
n.a.	n.a.	Non-Annex I Parties	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6 981.1 e	n.a.	7 399.3	7 661.1	7 979.4	8 335.0

e IEA Secretariat estimates.



United States Department of State

*Bureau of Oceans and International
Environmental and Scientific Affairs*

Washington, D.C. 20520

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TO:	E – Anne Pence	Fax: (202) 647-9763
	EB – Victoria Greenfield	(202) 647-5713
	G – Nigel Purvis	(202) 647-0753
	OES – Rafe Pomerance	(202) 647-0217
	CEA – Joe Aldy	(202) 395-6870
	CEA – Jeff Frankel	(202) 395-6947
	CEQ/NSC – David Sandalow	(202) 456-2710
	DOC – Larry Campbell	(202) 482-0325
	DOE – Rick Bradley/Debbie Stowell	(202) 586-2062
	DOE – Mark Mazur	(202) 586-9626
	DOJ – Scott Siff	(202) 514-0557
	EPA – David Doniger	(202) 260-5155
	EPA – David Gardiner	(202) 260-0275
	EPA – Sharon Saile	(202) 565-2141
	Treasury – Bob Boorstin	(202) 622-0073
	Treasury – David Wilcox	(202) 622-2633
	USAID – Jeff Seabright	(202) 216-3230
	USDA – Margot Anderson	(202) 690-4915
	WHCCTF – Jim Rubin	(202) 456-2311

FROM: OES/EGC – Dan Reifsnyder *JAR*

SUBJECT: Revised Responses to G-77/China Q's on Flex Mechs

Attached for one last look are the revised draft responses to the questions on the flexibility mechanisms posed by the G-77/China at the Bonn UNFCCC meetings in June. We had hoped to have these out to the Umbrella Group today, since there is to be one last round of review and comments from them before the New Zealand meeting. Because these have been around previously, and because of the urgent need to send this latest version out for review and comment to the Umbrella Group, we request that you let us know whether there are any significant problems no later than COB Monday, August 17.

Our intention is to send the revised draft out to the Umbrella Group on Monday evening, August 17. Please call/fax us no later than 3:00 p.m. on Monday, August 17, with major problems only. Many thanks.

Attachment: Revised Answers (19 pages)

Responses to G-77/China Questions on Flexibility Mechanisms

The following document is a set of answers, submitted by Canada on behalf of Australia, Canada, Iceland, Japan, New Zealand, Norway, Russian Federation, Ukraine, and United States to questions posed by the G-77 and China in FCCC/SB/1998/MISC.1/Add.5.

General

1. What are the points of difference and points of similarity among the three mechanisms provided for in the Kyoto Protocol to the Convention?

Key similarities:

o All three market-based mechanisms work to the benefit of the environment, because they will assist Annex I Parties in meeting their emissions targets and, ~~in the case of JI and CDM, provide~~ an additional incentive to develop and transfer technologies and practices that will reduce emissions.

o Moreover, all three mechanisms will help Parties to meet their emissions targets cost-effectively.

o All three mechanisms involve adjustments in the assigned amounts of Annex I Parties.

o All three mechanisms will provide opportunities for potentially significant technology and resource transfer, from both the public and private sector, to countries with economies in transition and developing countries.

o All three mechanisms permit private sector participation, with responsibility for meeting Protocol obligations remaining with governments.

Key differences:

o Joint implementation (JI) and the clean development mechanism (CDM) both involve specific projects, while emissions trading does not.

o With respect to JI and the CDM, there may be similarities with regard to types of projects, the ways in which baselines are calculated, and methods for measurement of emissions reductions. However, there are also differences, given that JI reductions are ultimately subtracted from the assigned amount of a Party with a national target, whereas CDM reductions are not; therefore, additionality criteria are particularly critical to the integrity of the CDM.

o Emissions trading and JI involve reallocating assigned amounts, with the aggregate remaining constant; in contrast, CDM units are “extra-budgetary,” adding additional units to the original Annex I aggregate assigned amount.

o Emissions trading, JI and the CDM are mechanisms to assist Annex I Parties in meeting their emissions targets. However, the CDM also serves as a mechanism to assist in achieving sustainable development in Parties not included in Annex I by encouraging investment and transfer of technology.

o Emissions trading and JI will involve transactions among Annex I Parties and entities, whereas the CDM will involve transactions among Annex I and non-Annex I Parties and entities.

o Of the three mechanisms, only the CDM calls for the establishment of an Executive Board and requires certification by internationally selected operating entities.

o In terms of decisions on any rules/guidelines, the COP is to make such decisions regarding emissions trading, whereas the COP/moP is to make such decisions regarding JI and CDM.

o Article 12 (CDM) requires further rules regarding project certification, whereas Article 6 (JI) does not.

o JI and emissions trading are to be “supplemental” to domestic actions of Annex I Parties, while, concerning CDM, Annex I Parties may use CDM reductions to contribute to compliance with “part of” their Article 3 commitments; further, while the COP/moP is authorized to determine “part of,” the COP (or COP/moP) is not authorized to elaborate the meaning of “supplemental” under Articles 6 and 17.

Apart from any similarities and differences among the three mechanisms, all should be implemented so as to minimize complexity, provide cost-effective opportunities for meeting emissions targets, keep transaction costs low, and support fungibility of credit units.

2. How to ensure that domestic actions by developed countries are their primary means of GHG limitation and reduction, and that the overseas mechanisms remain supplemental to such domestic actions by developed countries for the purpose of meeting their quantified emission limitation and reduction commitments?

o At the outset, it should be noted that the Protocol does not call for domestic actions to be the “primary means” of limiting greenhouse gas emissions. As will be recalled, proposals related to JI and emissions trading that would have required domestic actions to be the “main means” of meeting Article 3 targets did not command consensus and were not included in the Protocol.

o All Annex I Parties are undertaking, and planning to undertake, domestic action to reduce emissions. (Please refer to national communications for examples of Parties' domestic actions.)

-- Several Parties have announced specific measures to begin domestic actions to encourage early reductions of greenhouse gases through better diffusion of existing technology, to fund additional research to develop new technology, to continue or enhance the use of economic incentives, and to implement national greenhouse gas emissions trading systems.

-- Parties' domestic actions will be examined through the process for in-depth review of national communications.

o Concerning suggestions that the carefully negotiated compromise term "supplemental" in Articles 6 and 17 be quantified, such an approach is not authorized by the Protocol and would be unwise as a matter of policy:

-- As indicated in the Non-Paper on Principles, Modalities, Rules and Guidelines for an International Emissions Trading Regime (FCCC/SB/MISC.1/Add.1/Rev.1), international emissions trading will be more effective in achieving emissions reductions at lowest cost if there are no restrictions on the quantity of assigned amounts units able to be transferred or acquired to contribute to compliance with a Party's assigned amount. If the flexibility inherent in these mechanisms is restricted, the result will be to increase substantially the cost of achieving our environmental objectives.

-- Such a quantitative restriction on emissions trading would be technically difficult to design, and could require an administratively burdensome government monitoring and approval regime to implement, adding significantly to transaction costs.

3. How can it be ensured that these mechanisms lead to real and verifiable limitation and reduction of GHG emissions by developed countries?

The Kyoto Protocol establishes legally binding emissions commitments for Annex I Parties. As a result, accurate measurement and reporting will be critical to the successful implementation of the Protocol, regardless of the extent to which Parties elect to use the flexibility mechanisms.

Having said that, there are ways that the mechanisms can be structured so as to provide additional incentives for accurate measurement and reporting:

-- Article 6 (JI) already provides that an Annex I Party cannot acquire emission reduction units if it is not in compliance with its obligations under Articles 5 and 7.

-- As indicated in the Non-Paper on Principles, Modalities, Rules and Guidelines for an International Emissions Trading Regime (FCCC/SB/MISC.1/Add.1/Rev.1), we support linkages in the emissions trading rules between the ability to engage in trading and compliance with Articles 5 and 7.

-- Concerning CDM, Article 12 reflects the importance the negotiators put on the need for ensuring real reductions. CDM projects will be verified on the basis of agreed guidelines for calculation of project or technology baselines, measurement of emissions reductions resulting from the project, and transparent reporting of results, open for third party evaluation. The experiences gained during the ALJ Pilot Phase may provide valuable information on useful methodologies in this respect.

4. How to ensure that the COP or COP/mop will maintain the responsibility for every stage of defining, developing, structuring, and institutionalizing the mechanisms?

o Under the Protocol (and as noted in part above), the COP and COP/moP have different functions with regarding to the three mechanisms. For example, elaboration of the CDM will require substantial COP/moP decision-making with respect to both substantive and institutional issues. In contrast, JI under Article 6 could be implemented without further decisions by the COP/moP (i.e., because the Article provides that the COP/moP "may" further elaborate guidelines). Concerning Article 17, while any rules/guidelines adopted by the COP would govern emissions trading, trading is not legally dependent upon the adoption of such rules.

5. What are the specific roles of the SBSTA and the SBI with regard to these mechanisms?

o The SBSTA and SBI will continue to serve the function of recommending decisions to the COP or COP/moP to facilitate the implementation of the Protocol, taking into account the submissions of Parties, the FCCC Secretariat, other international bodies, and the input of non-governmental organizations. Specific roles will be identified as progress is made.

6. What will be the systems for ensuring independent auditing, verification, and accountability of the working of the mechanisms?

o As noted above, the three mechanisms have different provisions when it comes to such issues as verification, auditing, etc. For example:

-- Article 6 (JI) authorizes, but does not require, further guidelines on verification and

reporting.

-- Article 12 contains the most extensive requirements, including an explicit mention of "independent auditing and verification" of project activities.

o Of course, accurate measurement and reporting (including guidelines for standardized reporting) will be critical to the integrity of the Kyoto regime, given that the key obligations involve legally binding emissions limitation targets.

o Depending upon the particular mechanism and its requirements, the use of existing mechanisms in the private sector (for tasks such as auditing and accounting) could be advisable, given that many such mechanisms have already been tested in the demanding private sector markets.

o The expert review process of implementation of Article 3 obligations (to which all three mechanisms relate) will also play an important role in promoting the integrity of the mechanisms.

o Finally, public dissemination of emissions and assigned amount data, through appropriate reports on the Internet for example, can help to ensure that any interested individual or organization can check the accuracy of both the emissions and assigned amount data.

Article 6 Projects

1. What will be the elements of the guidelines for projects under Article 6, in particular, for ensuring transparency, accountability, reporting, and verification?

o Article 6 already contains key criteria and guidelines for cooperative activities under this Article and does not require further guidelines to be developed.

o Articles 3.10. and 3.11 of the Protocol establish that emission reduction units transferred between Annex I Parties as a result of projects under Article 6 are to be added or subtracted from Parties' assigned amounts. Thus, activities under Article 6 will not change the total assigned amounts of Annex I Parties, only the distribution of these amounts among individual Parties.

o Changes in assigned amounts will be reported in the national communications of Parties and can be tracked on this basis. However, it would be useful to initially build on the Uniform Reporting Format from the AIJ Pilot Phase to ensure that project activities are carried out and measured in accordance with established guidelines and methodologies.

- o Guidelines providing for the use of simplified, standardized methods to assess additionality (such as thresholds for specific projects or sectors) would promote transparency.

- o It should also be noted that the overall expert review process (including expert review of inventories) regarding compliance with Article 3 (of which JI is a component) will necessarily play a role with respect to accountability and verification.

2. What will be the criteria for deciding the baseline of projects?

- o Article 6.1(b) requires that a JI project "provide[] a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur."

- o The AIJ Pilot Phase and related work have provided considerable information on how to establish baselines. The basic criterion is to establish a baseline to enable measurement of the additional effect of the project activity compared to business-as-usual. This baseline will vary between different sectors and countries.

- o An approach in which standardized sectoral criteria are used, with requirements for transparent and detailed information on methodologies and assumptions in determining them, and built on IPCC guidelines, could be developed based on the existing AIJ results.

3. How can compliance with Articles 5 and 7 of the Protocol be ensured, and how is this related to the work to be accomplished under Article 18?

- o Accurate measurement and reporting are critical to the integrity of the Protocol generally, given the nature of the target obligations.

- o Article 18 may ultimately be relevant to promoting compliance with Articles 5 and 7.

- o However, it would not appear helpful to rely exclusively on Article 18, particularly given that the Article 18 procedure may require ratification and therefore potentially substantial time to become operative.

- o Rather, the mechanisms themselves should be structured to provide their own incentives to comply with Articles 5 and 7.

- o In the case of JI, the Protocol itself (through Article 6.1(c)) provides that an Annex I Party may not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 and 7. Such a provision should provide a useful incentive for Annex I Parties, at least those interested in JI, to comply with the Protocol's measurement and reporting provisions.

o In addition, we believe the COP should focus early attention on elaborating measurement and reporting guidelines called for under Articles 5 and 7. Such work will be important not only for flexibility mechanisms, but for the Protocol generally.

4. What will be the procedure for transferring or acquiring emission reduction units resulting from projects under Article 6?

o The transfer of emission reduction units between Annex I Parties, which amounts to adjustments in their assigned amounts, will have to be approved and agreed by the involved Parties.

o Based on this approval and agreement, adjustments will have to be recorded in these Parties' national communications and annual inventories.

o The Parties will be subject to any guidelines, including for verification and reporting, that COP/moP may further elaborate.

5. What will be the system for auditing and verifying projects under Article 6?

o In contrast to CDM, which involves international auditing and verification, Article 6 relies on national mechanisms.

o Each Party involved in JI will have the responsibility to approve, monitor, and report each JI project in which it or one of its legal entities is involved.

o The COP/moP may develop further guidelines concerning the credibility and transparency of national verification systems.

o The extent to which a JI project meets applicable international criteria can also be the subject of the expert review process of implementation of Article 3 obligations, to which JI is obviously related.

6. How will "legal entities" to be involved in these projects be defined and how will the responsibility of the Party over "legal entities" for the purpose of the projects be ensured?

o It is up to individual Annex I Parties to decide if and how it will allow its "legal entities" to participate. If it does allow some or all legal entities to participate, it is up to that Party to ensure, through its domestic system, that such entities participate in a way that is consistent with any relevant Protocol provisions or rules adopted thereunder.

o However, an Annex I Party's domestic decision to allow private sector participation does not absolve that Party of its obligations, at the governmental level, under the Protocol. In other words, the responsibility to comply cannot be transferred to "legal entities."

7. How will the benefits of a project under Article 6 be equitably shared between the participating Parties?

o Allocation of the direct benefits of a project are a matter for negotiation between those involved (noting the requirement under Article 6.1(a) that any project have the approval of the Parties involved).

o JI projects could also enhance the capacity of host countries to take domestic action of their own and could create other secondary benefits in the host country, such as a reduction in local pollution effects.

8. What will be the reporting criteria of a project under Article 6 to the COP/mop?

o The COP/moP is authorized, under Article 6.2, to further elaborate guidelines, including for reporting. Thus, reporting criteria could be developed, possibly taking into account the uniform reporting format for AJJ under the pilot phase.

o Reports should include, at a minimum, information on the project; what baseline emissions and "with-project" emissions were, and how they were determined; ancillary environmental impacts; and adequate information to demonstrate that the project was accepted by the Parties involved.

Article 12- Clean Development Mechanism

1. What will be the criteria for ensuring a balance wherein each CDM project attains the objective of assisting developing country Parties in achieving sustainable development in accordance with their national priorities and strategy, and assisting developed country Parties in achieving compliance with their commitments under Article 3?

o Article 12.5 provides that emission reductions resulting from each project activity are to be certified on the basis of, inter alia, voluntary participation approved by each Party involved.

o Thus, a host country will have the opportunity to ensure, in accordance with whatever criteria it deems appropriate, that any proposed CDM project in which it is potentially involved respects its national priorities and strategy concerning sustainable development.

2. How to ensure that the CDM shall be subject to the authority and guidance of the Conference of Parties serving as the meeting of the Parties to the Protocol?

o Article 12.4 expressly provides that the CDM shall be subject to the authority and guidance of the COP/moP.

o The oversight role of the COP/moP will be carried out through:

-- its mandate for the Executive Board;

-- its ongoing review of the operation of the Executive Board and operating entities; and

-- its elaboration of the governing modalities and procedures for ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.

3. How to ensure that the Executive Board of the CDM shall function under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Protocol?

o See the response to question 2 above.

4. What will be the constitution, character and functions of the Executive Board of the CDM?

o The constitution, character and functions of the Executive Board will in part depend on the form and functions of the CDM as a whole.

o It is therefore logical and practical to decide first on the functions of the various aspects of the whole mechanism before starting to consider what functions and form the various institutional components might have. We look forward to further discussing this important issue with the G-77 and China, as well as other Parties.

o Regarding the constitution of the Executive Board, it can be said now that:

-- Board members should have professional expertise in matters related to project development and project financing, with sufficient expertise in climate change mitigation efforts.

-- It should be composed of an equal number of Annex I and non-Annex I Parties that are

geographically representative within each of those categories.

5. How will the emission reductions of a CDM project be certified? What will be the certification procedure, and by whom will this be accomplished?

The assurance that these reductions are “real, measurable, and long term” will be established through monitoring, evaluating, certifying and verifying of project activities by the operational entities and independent auditing. The emission reduction benefits from project activities will have to be certified based on an agreed upon set of methodologies, guidelines and principles. Reductions will be determined as they actually occur and will reflect the performance of the project as measured against a set of performance measures. Reporting of CDM activities, both by Parties and by the operational entities, will provide additional information on transfers and acquisitions of certified emission reduction benefits. We have a preference for independent and decentralized operational entities to reduce potential transaction costs.

6. How to define and quantify “part” in “...part of quantified emission limitation and reduction commitments” in Article 12.3 (b) of the Protocol?

o Article 12.3(b) provides that Annex I Parties may use the certified emission reductions accruing from project activities to contribute to compliance with “part of” their commitments under Article 3, as determined by the COP/moP.

o While the COP/moP is clearly authorized to elaborate the meaning of, e.g., by quantifying, “part of,” it would not be wise for the COP/moP to do so, at least in the early stages:

-- Fewer projects would be initiated and therefore direct benefits (e.g., new technology, investment) to non-Annex I Parties would be reduced.

-- If the “scale” of CDM project activities is diminished, fewer funds would be available for adaptation (Article 12.8) efforts in vulnerable developing countries.

-- Imposing a ceiling on CDM project activities would create implementation problems for individual Annex I Parties, for example, how would an Annex I Party (much less a particular company) know whether it will ultimately be able to use any given project activity to implement Article 3, particularly as that Party approaches the ceiling?

7. How to ensure the responsibility and role of governments at each stage of the CDM projects?

- o Responsibility for implementing obligations under the Protocol rests with governments.

- o To the extent that a Party chooses to allow its private sector to participate in the CDM, it is a matter of domestic responsibility to ensure that such participation is consistent with any Protocol provisions, or rules/guidelines adopted thereunder.

- o Non-Annex I governments will have a key role in determining which projects within their borders are eligible for certification under the CDM and in determining if and how private entities under their jurisdiction will participate in the CDM.

- o Within the framework established by the COP/moP (and Executive Board, as appropriate), Parties will have full discretion to determine the extent of their participation in CDM projects and resulting certified emission reductions.

8. How will it be ensured that the operational entity of the CDM, as designated by the COP, functions under the authority of the COP, and that its governance is separate from those of existing institutions?

- o First, the COP/moP will have the role of designating any operational entities of the CDM.

- o Second, operational entities will be subject to whatever substantive and procedural rules/guidelines govern operation of the CDM.

- o Third, operational entities will be supervised by the Executive Board, which in turn functions under the authority and guidance of the COP/moP.

9. How will Article 12.6 of the Protocol be implemented? What will be the criteria and processes for the CDM for arranging due funding?

- o In our view, the bulk of CDM projects will already have investment support. In some instances, Parties will provide funding for project activities; in other instances, private investors (project developers) would provide the necessary funding. Investments will flow based on the availability of qualifying projects, the potential rate of return on investments, and the value of certified emission reductions if there is a market.

- o In those cases where funding does not exist, the CDM is to assist in arranging such funding, for example, by acting as a clearing-house and making widely known the nature of the proposed projects for which funding is necessary.

o While a “process” will be needed to assist in arranging funding (so as, for example, to ensure that there is no potential conflict of interest between institutions that are certifying emission reductions and that may also be arranging financing), it is not clear that “criteria” will be necessary, in that the CDM will not itself be providing funding.

10. How to ensure the independent auditing and verification of CDM projects activities?

o Ensuring independent auditing and verification of CDM projects is the very objective of the modalities/procedures to be elaborated by the COP/moP under Article 12.7.

o Auditing and verification rules need to be both robust and cost-effective, inasmuch as any funds spent on auditing and verification will ultimately be drawn from projects -- and will therefore decrease the number of projects undertaken.

o Entities involved in auditing and verification should not be the same as those involved in project development or promotion.

o Using existing institutions, including those already in use in the financial sector, may substantially streamline the process, and lead to a robust system built on already proven principles.

o Multiple operational entities may be valuable, as each may develop expertise in individual regions or types of projects that will engender greater confidence in their results.

11. What will be the criteria for deciding the baseline of projects?

o Correctly identifying all of the greenhouse gas sources associated with a project is critical to:

-- accurately measuring the emission benefits resulting directly and indirectly from the project; and

-- designing the project so as to maximize the greenhouse gas emission benefits.

o Baseline emissions of projects may be established using a standardized baseline for each project category to be decided by the COP/moP.

o One method of establishing baselines (for example, to determine “additionality”) is by employing a “benchmark” approach. A benchmark is a standard of performance which can be either historical or forward-looking. Such an approach to evaluating additionality could use

performance standards or other criteria to distinguish between those activities that generate greenhouse gas reductions in excess of baseline reductions and those that do not. Simply put, those activities that perform better than the benchmark meet the additionality criterion, where those that perform worse do not.

12. When should the benefits of CDM projects accrue to the participating developed country Parties?

o It depends upon which benefits are being referred to:

-- If an Annex I Party is investing in a project, the financial benefits will accrue in accordance with relevant contractual relationships.

-- Regarding participation by an Annex I Party in the CDM through acquiring certified emission reductions, such reductions would be certified as they occur from project activities (including from 2000 to 2008) and could be used during the commitment period to assist in meeting Article 3 commitments.

13. What will be the action for non-compliance if a CDM project goes against the CDM criteria?

o This hypothetical posed seems unlikely, given that

-- international certification is going to be required for a project to qualify as a CDM project; and

-- certification of a precise number of emission reductions will take place post facto (i.e., reductions will not be certified prospectively, but rather retroactively, once they have been measured as real).

o However, assuming such a case, the consequence would be that any reductions achieved from that project could not be used by an Annex I Party to meet part of its Article 3 commitment.

14. How to define "a share of the proceeds", and how will this share be apportioned between administrative expenses and adaptation?

o A "share of the proceeds" should be a part of the certified emission reductions resulting from a project activity (as opposed to a part of project costs, not all of which may be

relevant to the "additional" component).

o The apportionment between administrative expenses and adaptation funds cannot be determined until the institutional and operational structure of the CDM is determined. The lower the administrative costs, however, the greater amount of funds will be available for adaptation.

15. How will the responsibility of a Party be ensured over the private/public entities authorized by the Party to be involved in CDM projects?

o It will be up to the domestic system of an Annex I Party to ensure that any entities it authorizes to participate in CDM do so in a manner consistent with relevant Protocol provisions and rules/guidelines adopted thereunder.

o Responsibility for compliance with Protocol obligations ultimately rests with the Party, not with entities which may have been authorized domestically to participate.

16. How to ensure that CDM projects are equitably distributed so as to benefit all developing country parties, in particular the least developed country parties, and that the distribution of projects does not exacerbate existing regional/sub regional imbalances?

o The Secretariat should be requested to report at regular intervals to the COP/moP on the regional distribution of CDM projects.

o In addition, Parties should be encouraged to assist developing country Parties in capacity-building and other activities to facilitate utilization of the CDM in potential host countries, based on requests for such assistance from such countries. Some such activities are already underway, but further capacity building should be encouraged as the CDM is being further elaborated.

o The CDM is a market-based mechanism, and investment decisions (particularly from the private sector) will influence the distribution of CDM projects. Developing countries can influence the distribution of CDM project activities by promoting an investment climate that will encourage the development of CDM projects within their borders.

17. How will it be ensured that the financing for CDM projects shall be additional to ODA and other international funding, additional to and separate from the financial obligations under GEF, and additional to the financial obligation of the Parties as provided in the Convention and the Protocol?

o It is expected that the bulk of CDM financing will come from the private sector, in which case the issue of ODA funding and financial obligations under the Framework Convention does not arise.

o Further, the establishment of the CDM would not alter in any way the funding obligations of Annex I Parties under the Framework Convention. In the case where a Party government were to participate in the CDM, it could not "double count" CDM funding as also in implementation of its funding obligations under Article 4.3 of the Framework Convention.

18. How will the additional economic benefits, if any, of a CDM project be shared equitably between the participating Parties?

o It is not entirely clear what is meant by "additional economic benefits" in this question (a term not found in Article 12). However, the share of benefits from project activities is entirely a matter to be resolved through negotiations between the Parties or private entities involved in the specific project.

19. How will the participating Parties report their CDM projects to the COP/mop?

o Unlike in Article 6, Article 12 of the Protocol does not specifically address reporting of project activities or certified emission reductions resulting from individual projects.

o The use of certified emissions reductions from CDM project activities to meet Article 3 commitments will be reported pursuant to Article 7 of the Protocol; more detailed reporting requirements could be part of the modalities/procedures to be adopted under Article 12.7, to the extent they relate to auditing and verification.

20. What are the implications of Article 12.10 of the Protocol?

o Article 12.10 provides for the accrual of credits from 2000 to the beginning of the first commitment period.

o The provision:

-- gives an incentive to Parties and their private entities to start projects early, which would be of benefit to both Annex I and non-Annex I countries, as well as the atmosphere;

-- provides for investments and new technologies in non-Annex I countries earlier than

during the first commitment period;

-- will provide a share of proceeds from project activities that will assist vulnerable developing country Parties to meet the costs of adaptation sooner.

o Recognizing that the modalities, procedures, and institutions necessary for the operation of the CDM may not be operational until after the year 2000, it should be made clear that operational entities may retroactively certify emission reductions obtained from the year 2000 resulting from a project activity begun before the CDM is operational, provided the emission reductions meet any applicable criteria.

AIJ Pilot Phase

Although a question section on the AIJ Pilot Phase was not included in the G-77 MISC.1/Add. 5 document, we have provided additional comments on this issue:

What are the next steps for the AIJ pilot phase?

o Parties are in the process of submitting their third report on Activities Implemented Jointly to the UNFCCC. These reports will provide the foundation on which the UNFCCC Secretariat will prepare a synthesis report for consideration at COP4, leading to a decision on the AIJ pilot phase.

o To move toward a decision to continue or end the pilot phase, the following steps are necessary:

-- Prepare a synthesis report on progress of the AIJ pilot phase to include discussion of methodological issues, baseline calculations, potential and actual emission reductions from projects, geographic and sectoral distribution of projects, institutional structures established in Annex I and non-Annex I Parties, and lessons learned;

-- Solicit comments from Parties on the Synthesis report in advance of COP4 and prepare a report on Party submissions;

-- Solicit comments from Parties on the Uniform Reporting Format, and prepare a report for consideration;

-- Between COP4 and COP5, a final assessment of the AIJ Pilot Phase could be carried out to summarize the experience gained. Such an assessment could be carried out by the Secretariat based on a decision by COP4, and should include procedures for further inputs from Parties, as well as from major groups outside Governments.

Emissions Trading, Article 17

1. How will the emission rights and entitlements of developed country Parties be determined and created for trading emissions? Will this be consistent with the principle of equity keeping in view the historical and current responsibility of developed countries to climate change and the ultimate objective of the Convention?

o The question appears to contemplate some further negotiation concerning the allocations from which emissions trading begins.

o The allocations from which emissions trading begins are the assigned amounts reflected in the Protocol.

o These original assigned amounts were negotiated so as to reflect enhanced developed country responsibilities (in that they do not apply to developing countries) and to reflect "equity" (in that they are differentiated in light of various equitable considerations).

o If Article 3 principles of the Framework Convention are to be invoked in the context of emissions trading, it should be noted that Article 3.3 provides that "policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost." Emissions trading certainly provides the opportunity to implement greenhouse gas emissions targets at the lowest possible cost.

2. How to ensure that any emissions trading between the developed country Parties shall be supplemental to domestic actions for the purpose of meeting their quantified emission limitation and reduction commitments?

o Please refer to the answer given for Question 2 in the General Section.

3. How to ensure that emissions trading between developed country Parties will lead to real and verifiable limitation and reduction of GHG emissions for meeting the objective of the Convention, and contributing to the protection of the environment?

o Please refer to the answer given for Question 3 in the General Section.

o In addition:

-- Accuracy of measurement and reporting by Annex I Parties is critical to the successful

implementation of the Protocol's target obligations, regardless of emissions trading. Prompt work on measurement and reporting guidelines is therefore of high priority.

-- Emissions trading will not have adverse environmental effects. Trading will serve to reallocate existing assigned amounts among Annex I Parties, with the aggregate obligation of Annex I Parties remaining constant. At the very least, it will be "environment-neutral." Much more likely is that emissions trading will greatly contribute to environmental protection by enabling compliance with Article 3 commitments.

-- Some have expressed concern that some Parties will have "extra" emissions allowances, which should not be traded because that would permit emissions that would not otherwise occur. Apart from the technical and administrative problems that such an approach would entail (and the fact that the Protocol permits such trading), it is simply not true that the trading of such allowances would lead to higher emissions than would be the case in the absence of trading, because a Party with "extra" emissions allowances would in any event be allowed to "bank" such allowances under Article 3.13 for use in a subsequent commitment period.

4. What will be the environmental or economic impacts in any area due to emissions trading between developed country Parties?

o The environmental aspects are addressed in the response to question 3 above.

o From an economic point of view, emissions trading among Annex I countries should lead to emissions reductions where abatement costs are lowest, thus minimizing the economic impacts. Emissions trading should provide the greatest global benefit by maximizing the use of limited financial resources. The voluntary nature of participation generally in the trading system, as well as in each trade in particular, in effect ensures that each of the participants will be made better off because Parties will only choose to trade if and when it is to their advantage to do so.

5. How to ensure that any emissions trading between developed country Parties fully reflects the principle of equity between developed and developing countries?

o Emissions trading, in that it only reallocates assigned amounts and does not change the overall assigned amount of Annex I Parties, will not alter the "equity" between developed and developing countries that was established by adopting the Kyoto Protocol.

6. How to ensure that emissions trading between developed country Parties shall conform to the principles, modalities, rules, and guidelines including any compliance procedure to be defined by the COP?

o Some views on this matter are contained in the Non-Paper, FCCC/SB/1998/MISC.1/Add.1/Rev.1.

o Once principles, modalities, etc. were adopted under Article 17, they would govern emissions trading and Annex I Parties would be bound to follow them.

o To the extent that an Annex I Party chose to allow the participation of its private sector, it would be the domestic responsibility of that Party to ensure that such participation was consistent with any Article 17 rules, etc.

o Apart from any compliance procedure that may ultimately become effect^{ive} pursuant to Article 18, the trading rules under Article 17 could (and should) provide appropriate compliance-related elements. For example,

- there should be linkages between the ability to trade and being in compliance with measurement and reporting obligations under Articles 5 and 7, as well as maintaining appropriate national recordation systems;

- there should be annual reporting on trading activity to the designated authority;

- there should be public dissemination of emissions and assigned amount data;

- there needs to be an assessment for compliance at the end of the commitment period, with appropriate disincentives particularly relevant to emissions trading built into the system.

o One disincentive under the trading rules could be to deny or to restrict the right of a Party (and therefore its legal entities) if they are found to be in breach of the trading rules and/or are no longer in compliance with the conditions for participation in the system.

We look forward to a full exchange of views on the principles, modalities, rules and guidelines for emissions trading at COP4, as requested by decision 1/CP.3.

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FROM: USAID/G/ENV/DAA, David Hales

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CCTF	Dirk Forrister	343-1162	343-1060
	Steve Seidel	343-1162	343-1060
USAID	David Hales	216-3174	712-1750
DOL	Ed Montgomery	219-4902	219-5108
DOD	Sherri Goodman	703-693-7011	703-695-6639
	Garry Parks	703-614-1158	703-697-1887
NEC	Peter Orszag	456-2223	456-5358
	Bill Antholis	456-5334	456-2198
CEQ/NSC	David Sandalow	456-2710	456-6224
State	Victoria Greenfield	647-5713	647-6985
	Sue Binnaz	647-1370	736-7115
CEA	Adele Morris	395-6870	395-5012
USDA	Margot Anderson	690-4915	720-6186

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U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

AUG 6 1998

MEMORANDUM

TO: Distribution

FROM: G/ENV/DAA, David Hales

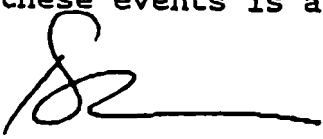
SUBJECT: Technology Cooperation Agreement Pilot
Project Activities

The Technology Cooperation Agreement Pilot Project (TCAPP) was launched last August to facilitate technology transfer of clean energy technologies to countries including Brazil, China, India, Indonesia, Kazakhstan, Mexico and the Philippines. In addition to USAID sponsorship, the project is supported by the U.S. Department of Energy and the U.S. Environmental Protection Agency, and works closely with private sector entities and international donor organizations.

The TCAPP will hold two meetings this Fall that are consistent with the Clean Growth Initiative, and which are essential to the President's Climate Change Initiative.

On September 24, 1998, USAID, and the Business Council for Sustainable Energy will host a Private Sector meeting to promote discussion of Private Sector engagement in market development and the acceleration of clean energy investment. Administrator Brian Atwood will open and participate in the meeting, as will EPA Assistant Administrator, David Gardiner, and others from USAID.

On October 9, 1998, the TCAPP team, lead by Ron Benioff of the National Renewable Energy Laboratory, and Jeff Seabright of USAID, among others, will host a Technology Cooperation Agreement Donor Workshop for multilateral and bilateral donor organizations, officials from participating countries, and various private sector organizations including the UN Foundation. Material on each of these events is attached to this memorandum.



Attachment: A/S

TECHNOLOGY COOPERATION AGREEMENT PILOT PROJECT

A Partnership to Open Markets for Clean Energy Technologies and Facilitate Sustainable Development

Technology transfer of clean energy technologies through foreign direct investment strengthens markets and assists developing countries in meeting their urgent economic development goals. However, regulatory, financial and institutional barriers inhibit investment, denying clean energy products and services to consumers in the developing world and constraining market development in these sectors. The U.S. Agency for International Development, as part of its billion dollar Climate Change Initiative has recently launched a project to assist developing countries in an effort to stimulate private investment in clean energy technologies. This project, known as the Technology Cooperation Agreement Pilot Project (TCAPP) aims to foster investment by removing market barriers and stimulating private sector activity.

What is the Technology Cooperation Agreement Pilot Project?

The Technology Cooperation Agreement Pilot Project (TCAPP) was launched in August 1997 to facilitate technology transfer of clean energy technologies in Brazil, China, India, Indonesia, Kazakhstan, Mexico, and the Philippines. Clean energy sources include renewable energy, energy efficiency and natural gas. The project is supported by several government agencies, including the U.S. Agency for International Development, the U.S. Department of Energy, and the U.S. Environmental Protection Agency, international donor organizations and the private sector.

The project has three goals:

- Foster private investment in clean energy technologies which reduce greenhouse gas emissions and speed economic development
- Engage in-country and international donor support for actions to build sustainable markets for clean energy and clean energy technologies
- Establish technology cooperation agreements as organizing structures for coordinating in-country, donor and private sector climate change mitigation efforts

The TCAPP is being implemented in three stages. In the **first stage**, country teams identify priority areas and work with technical advisors from the U.S. government and other stakeholders to define actions that donor organizations, the country, and the private sector could take to accelerate the deployment of the priority technologies. During the **second stage** of the project, the country teams receive feedback from technical experts, donor organizations and private companies, which help them refine the technology priorities and actions to more effectively stimulate market development. The **third stage**

**The U.S. Agency for International Development and the
Business Council for Sustainable Energy**

invite you to attend a

PRIVATE SECTOR MEETING
FOR THE
TECHNOLOGY COOPERATION AGREEMENT PILOT PROJECT

Date: Thursday, September 24, 1998
Time: 9:00 a.m. - 11:30 a.m.
Location: Administrator's Conference Room
U.S. Agency for International Development
Ronald Reagan Building, 14th and Constitution Avenue, NW
Washington, DC

The U.S. Agency for International Development, as part of its \$1 billion Climate Change Initiative, has recently launched a project to assist developing countries in an effort to stimulate private investment in clean energy technologies. This project is known as the Technology Cooperation Agreement Pilot Project (TCAPP) and is supported by the U.S. Department of Energy and the U.S. Environmental Protection Agency.

The aim of the TCAPP is to accelerate private sector investment in clean energy sources in developing countries. The pilot project matches developing country energy priorities with private sector investors. To achieve its objectives, funding and resources from the U.S. government and other sources will be used to accelerate technology transfer and to remove investment barriers to clean energy and clean energy technologies. The project aims to enhance the marketplace, but it can only succeed if it involves the private sector.

The countries involved in the TCAPP represent some of the biggest emerging markets for energy development – China, Mexico, Brazil, the Philippines, India, Kazakhstan, and Indonesia. As a leader in the sector, we want to hear your views on the project and how you think the private sector can best participate to ensure its success. Further, the TCAPP is being promoted as a model for multilateral technology cooperation agreements, which increases the urgency of getting private sector advice early in the process.

The meeting will feature opening remarks by U.S. AID Administrator Brian Atwood, and presentations on the TCAPP's objectives, status of country frameworks, the private sector's partnership with the TCAPP and donor participation with the TCAPP. The presentations will be followed by a group discussion.

Participants will consider the following questions:

- How can the private sector best participate in the TCAPP?
- What specific actions should be taken to facilitate market development and accelerate clean energy investment in TCAPP countries?
- How can the TCAPP be structured to provide the greatest benefit to the private sector?

RSVP: Please fax back this form below, or respond with the information below via email to:
Lisa Jacobson, Director, International Programs
Business Council for Sustainable Energy
Fax: (202) 785-0514 E-mail: ljacobson@bcse.org

Name: _____	Title: _____
Company: _____	
Address: _____	
Telephone: _____	Fax: _____ Email: _____
YES, I will attend the TCAPP Private Sector meeting _____	
NO, I will not be able to attend the TCAPP Private Sector meeting, but please send me information _____	
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Technology Cooperation Agreements Donor Workshop

Date: Friday, October 9, 1998
Time: ~~TBD~~ 9:00 am to 4:30 pm
Location: TBD, Washington, DC

Background

In August 1997, the Technology Cooperation Agreement Pilot Project (TCAPP) was launched to develop model climate change technology cooperation agreements that would stimulate greater use of clean energy technologies (renewable energy, energy efficiency, and natural gas) in developing countries. The project is supported by the U.S. Agency for International Development, the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the National Renewable Energy Laboratory.

Under TCAPP, intergovernmental teams in Brazil, China, Kazakhstan, Mexico, and the Philippines have been preparing frameworks that identify the most promising opportunities for enhancing private investment in clean energy technologies. In addition, the Business Council for Sustainable Energy and the Environmental Enterprises Assistance Fund have established a process for obtaining input from international energy companies and the private finance community on the actions identified in these frameworks. This project is providing practical models for the concept of technology cooperation agreements advanced by the International Energy Agency.

The meeting on October 9 is to discuss opportunities to use the TCAPP frameworks and process to attract private investment for the clean energy priorities established by the countries.

Workshop Goals

- Present the draft country frameworks and process for engaging the business and financial community
- Present a strategy for using TCAPP to attract sustained private investment in clean energy technologies
- Determine how to make TCAPP most valuable to the donor community and increase the involvement of the donor community in future efforts to use the TCAPP process to stimulate private investment

Participants

We expect 30-40 participants from among:

- Multilateral and bilateral donor organizations
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- Officials from the participating countries
- U.N. Foundation and other international foundations
- Collaborating institutions

For More Information

Please contact:

Ron Benioff
Energy and Environment Team Leader
National Renewable Energy Laboratory
Tel: (303) 384-7504
Fax: (303) 384-7419
E-mail: ron_benioff@nrel.gov

Technology Cooperation Agreement Pilot Project Donor Workshop — October 9, 1998 Invitation List

Bilaterals

AUSTALIA

Mr. Robert Glasser
Infrastructure and Environment, AusAID

Canada

John R. Drexhage, Manager for Climate Change, International Global Air Issues Branch

Gretchen De Boer
Environment Advisor

Louis-Philippe Mousseau
Senior Environmental Policy Advisor

Germany

Holger Lipton
GTZ

Mr. Joachim Metzner
GTZ

Mr. Peter Christmann
Ministry for Economic Co-operation and Development

Mr. Joseph Gamperl
KFW

Mr. Winfried Hamacher
GTZ

ITALY

Mr. Domenico Bruzzone
Directorate General for Co-operation and
Development, Ministry of Foreign Affairs

Japan New Energy and Industrial Technology Development Organization (NEDO)

Shigemoto Kajihara

Netherlands Ministry of Foreign Affairs

Ard Kant, Director of Netherlands JI Program

NORWAY

Ms Inger-Marie Bjønness
Environmental Programme; NORAD

Ms Inger Ness
Ministry of Foreign Affairs

SWEDEN

Mr. Mats Segnestam
Environment Policy Division, Sida

SWITZERLAND

Mr. Han-Peter Egler
Development Division; Investment Promotion and
Mixed Financing Section

United Kingdom

Allan Davis

OECD

Mette Buche

Jan Corfee Mociot

European Commission

Ms. Liselotte Isaksson

Multilaterals**Asian Development Bank (ADB)**

Bindu Lohani

Global Environment Facility (GEF)

Alan Miller, GEF Secretariat

Frank Rittenhauer

Inter-American Development Bank (IDB)

Jaime Millan

Connie Smyser

IEA

Hans Jurgen-Koch

United Nations Development Program (UNDP)

Dr. Richard Hosier, Principal Technical Advisor

Susan McDade, Energy Programs

Regional Officer for UNDP GEF/Climate Programs for Asia

Regional Officer for UNDP GEF/Climate Programs for Latin America

Ms. Karen Jorgensen, Assistant Director, Sustainable Energy and Environment Division

United Nations Foundation

Nicholas Lapham

United Nations Environment Program (UNEP)

Rohit Khanna, Associate Program Officer, GEF, UNEP

Mr. Uttam Dabholkar, Division of Policy, Inter-Agency and External Affairs

United Nations Framework Convention on Climate Change (UNFCCC)

Dennis Tirpak, FCCC Secretariat

World Bank

Graham Barrett, Regional Officer for South Asia, World Bank

Mario del Carril, Regional Officer for Latin America/Caribbean, World Bank

Mr. Charles Feinstein, Senior Environmental Specialist, GEF, World Bank

Shamima Khan, ASTAE Country Coordinator for the Philippines

Eric Martinot, Environment Department

Jan Pakulski, Regional Officer for Europe/Central Asia, World Bank

Dana Younger, IFC

Mr. Kadir Yurukoglu, ASTAE Country Coordinator for Kazakhstan

Country Officers for Brazil, China, Kazakhstan, Mexico, Philippines



U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

AUG 6 1998

MEMORANDUM

TO: Distribution

FROM: G/ENV/DAA, David Hales

SUBJECT: Technology Cooperation Agreement Pilot
Project Activities

The Technology Cooperation Agreement Pilot Project (TCAPP) was launched last August to facilitate technology transfer of clean energy technologies to countries including Brazil, China, India, Indonesia, Kazakhstan, Mexico and the Philippines. In addition to USAID sponsorship, the project is supported by the U.S. Department of Energy and the U.S. Environmental Protection Agency, and works closely with private sector entities and international donor organizations.

The TCAPP will hold two meetings this Fall that are consistent with the Clean Growth Initiative, and which are essential to the President's Climate Change Initiative.

On September 24, 1998, USAID, and the Business Council for Sustainable Energy will host a Private Sector meeting to promote discussion of Private Sector engagement in market development and the acceleration of clean energy investment. Administrator Brian Atwood will open and participate in the meeting, as will EPA Assistant Administrator, David Gardiner, and others from USAID.

On October 9, 1998, the TCAPP team, lead by Ron Benioff of the National Renewable Energy Laboratory, and Jeff Seabright of USAID, among others, will host a Technology Cooperation Agreement Donor Workshop for multilateral and bilateral donor organizations, officials from participating countries, and various private sector organizations including the UN Foundation. Material on each of these events is attached to this memorandum.

Attachment: A/S

TECHNOLOGY COOPERATION AGREEMENT PILOT PROJECT

A Partnership to Open Markets for Clean Energy Technologies and Facilitate Sustainable Development

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Technology Cooperation Agreement Pilot Project

Donor Workshop — October 9, 1998

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Mr. Joachim Metzner
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Mr. Peter Christmann
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