

International Developments on Climate Change: Emerging Trends and Avenues for Influence and Collaboration

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Post-2012 Dialogue Process

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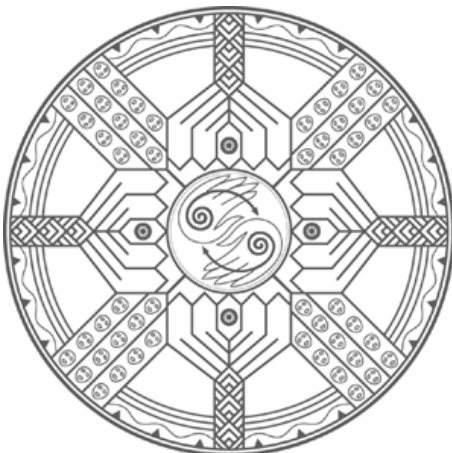


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Abbreviations and Acronyms

AP6	The Asia Pacific Partnership
AWG	<i>Ad Hoc</i> Working Group
ADB	Asian Development Bank
BioCF	Bio Carbon Fund
CCTP	Climate Change Technology Program
CCS	CO ₂ capture and storage
CDM	Clean Development Mechanism
CF-Assist	Carbon Finance Assist
CDCF	Community Development Carbon Fund
COP	Conference of the Parties
DNA	Designated National Authority
DOE	Department of Energy
EST	Environmentally-sound technologies
EGTT	Expert Group on Technology Transfer
EPA	Environmental Protection Agency
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas
GNEP	Global Nuclear Energy Partnership
IEA	International Energy Agency
IFI	International Financing Institutions
IGCC	Integrated Gasification Combined Cycle
IPCC	Intergovernmental Panel on Climate Change
IPHE	International Partnership for the Hydrogen Economy
JI	Joint Implementation
LDCF	Least Developed Countries Fund for Climate Change
MDG	Millennium Development Goals
MOP	Meeting of the Parties
NAEWG	North American Energy Working Group
NAPAs	National Adaptation Program of Action
NGACs	New South Wales Greenhouse Abatement certificates
PCF	Prototype Carbon Fund
PDD	Project Design Document
PFC	Perfluorocarbon
PIC	Policy and Implementation Committee
PUC	California Public Utilities Commission
RAF	Resource Allocation Framework
RGGI	Regional Greenhouse Gas Initiative
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCCF	Special Climate Change Fund
SD-PAMs	Sustainable Development Policies and Measures
SDRC	State Development and Reform Commission
SPP	Security and Prosperity Partnership
TF AAs	Trust fund administration agreements
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNEP FI	United Nations Environment Programme's Finance Initiative
UNEP	United Nations Environment Programme
UN	United Nations
WB	World Bank Group

1.0 Introduction

Over the last year, there has been a strong increase in the public's and media's attention/awareness on climate change. This has been due to combination of factors, including an unbroken chain (of ten years and counting) of record warm temperatures globally and strong media attention both at home and internationally. However, the rise to prominence of climate change as a public policy issue has yet to translate into any significant progress on the post-2012 debate.

The first phase of the Intergovernmental Panel on Climate Change (IPCC) report is being released in February 2007 and is expected to put forward much stronger evidence that human actions contribute to changes in climate. A growing acceptance of the science – that climate change is occurring and is impacted by anthropogenic interference – is generating an expanded discussion and debate of the economics of climate change.

In that respect, the *Stern Review on the economics of climate change*, released in 2006, reported that the economic costs of delayed action would lead to costs and risks higher than those associated with adaptation efforts and mitigation measures. Sir Nicholas Stern, former Chief Economist and Senior Vice-President of the World Bank, made it clear that efforts to combat climate change can provide sustainable growth opportunities and the earlier we act, the better it will be. Moreover he stressed that this is a global issue requiring worldwide collaboration, particularly in establishing a global carbon market. It should be noted that Stern's report is not universally accepted, including peers in his field of economics, but neither can there be any denying that it did work to vault the issue in the world's headlines last fall.

Probably the most promising venue for discussions on a future international climate change regime is the Gleneagle's Plan of Action, which put on track a venue for key developing countries (Mexico, South Africa, China, India and Brazil) to hold talks with G-8 countries on climate change and energy issues. Germany, this year's G-8 host, is planning to host a third meeting of the group. Discussions on future action also took place under the Convention Dialogue on Long-term Cooperative Action and the Kyoto Protocol and while some progress was made under Article 3.9 discussions, the Informal Dialogue and Article 9 discussions (which potentially could address broader global participation) emphasized the continued strong opposition of major developing countries towards any discrete GHG emissions mitigation commitments. In addition, the Asia Pacific Partnership on Clean Development and Climate (AP6) approved eight task force action plans. The World Bank released its Investment Framework for Clean Energy and Development; and the UNDP and UNEP signed a partnership agreement to link efforts on climate change.

The results of the mid-term US election are almost certain to move the climate change file forward there, particularly on developing domestic carbon trading systems. The European Commission also released ambitious proposals for a climate change and energy package that proposes the European Union (EU) commit to cut greenhouse gas (GHG) emissions by at least 20 percent by 2020. Business leaders expressed growing concern about the lack of clear signals from governments on the future of climate change and the expanding carbon market.

Despite these signals that countries are prepared to take on climate change more seriously, the fact remains we are still far from making the requisite progress. GHG data released by the UN in 2006 revealed that for all Annex I Parties taken together, GHG emissions in 2004 were 3.3 percent below the 1990 level. While economies in transition (EITs) are below the targets under the Kyoto Protocol, most of their emission reductions occurred between 1990 and 1999, with these countries having increased emissions by 4.1 percent between 2000 and 2004. GHG emissions from non-EIT parties Annex I Parties in 2004 were 11 percent above 1990 levels. Sectoral emissions decreased between 1990 and 2004 in Annex I countries, with the greatest reductions in agriculture (-20 percent) and industrial processes (-13.1). While there was a slight reduction in emissions from the energy sector, transportation experienced the greatest increase, growing 23.9 percent from 1990 to 2004.¹

¹ UNFCCC. 2006. *GHG Data 2006, Highlights from Greenhouse Gas (GHG) Emissions Data for 1990-2004 for Annex I Parties*. p. 2. <http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/ghg_booklet_06.pdf>

The purpose of this report is to examine critical discussions and events within and outside the United Nations Framework Convention on Climate Change (UNFCCC) process and to provide analysis on the implications for Canada's efforts to define a policy position for a post-2012 climate regime. An understanding of emerging trends and avenues of influence can assist in the identification of options to facilitate collaboration on climate change efforts in the near term and post-2012.

This report provides an update on international developments with Section 2.0 examining key issues arising out of Twelfth Session of the Conference of the Parties to the UNFCCC (COP-12) and the Second Meeting of the Parties to the Kyoto Protocol (MOP-2) and providing an overview of program delivery mechanisms within the UN. Section 3.0 provides an update on multilateral processes outside of the UN and addresses the latest outcomes from the G8, World Economic Forum, AP6 and technology agreements such as Methane to Markets. Section 4.0 covers key country interests and priorities, looking at the United States, EU, Australia, China, India, Brazil and African Countries. The final section provides a brief analysis of key issues influencing the development of a post-2012 regime in Canada.

2.0 United Nations Processes

2.1 UNFCCC and the Kyoto Protocol

COP-12/MOP-2 was held in November 2006 in Nairobi – the first such gathering in sub-Saharan Africa. While there was an unexpectedly positive result with an agreement on a work program on impacts and adaptation and constructive discussions on possible mechanisms for reducing deforestation in developing countries (albeit largely relevant for the post-Kyoto period), discussions on post-2012 and technology transfer basically stagnated.

Preparations for Post-2012 Commitments

There was modest progress on post-2012, particularly on Article 3.9, most felt that a lack of meaningful analysis limited dialogue and that fully formed post-2012 models are needed to improve the level of debate. Three lines of discussions on future commitments took place:

The *Ad Hoc Working Group* (Article 3.9) on further commitments for Annex I Parties held its second workshop in Nairobi, the first workshop having been held in Bonn in May 2006. Discussions resulted in an agreement for Annex-1 countries to continue with commitments Post-2012, but no deadlines for negotiations were set. The AWG agreed to ensure that there should be no gap between the first and the second commitment periods and that future commitments should be based on sound science and credible economics. Conclusions on a program of work were set out under three headings: analysis of mitigation potential and ranges of emission reduction objectives; analysis of possible means to achieve mitigation objectives; and consideration of further commitments. While these components held promise for some interesting discussions, the fact that this part of the post 2012 discussions is exclusively focused on Annex 1 commitments, and that the other components saw only retrenchment of G-77 and China positions on mitigation commitments (see below) left some observers wondering whether we were going to be entering a second phase of commitments which continued to accept the paradigm set out in the Berlin Mandate of 1995 – one which some major emitters from taking on mitigation commitments.

The *Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention* focused on advancing development goals in a sustainable way and realizing the potential of market-based opportunities. Presentations by major developing countries included China's review of its efforts to mitigate climate change including policies to promote energy efficiency, renewable energy, nuclear power, reforestation and biofuels. Brazil put forward a concrete proposal to reduce deforestation emissions in developing countries through an arrangement to provide financial incentives in the form of payments from developed countries. South Africa outlined a proposal for developing countries to pledge to Sustainable Development Policies and Measures (SD-PAMs). Brazil and South Africa emphasize that their proposals emphasized increased action from developing countries, but not new commitments. China and India were extremely hard-line regarding developing countries not taking on commitments.

Although one critic felt the session was more of a monologue than an interactive discussion, others felt it served its purpose by providing the occasion to put forward new proposals for the first time. The Dialogue will discuss adaptation and technology issues during the third workshop to be held in May 2007. The final workshop in September/October of 2007 will focus on crosscutting issues. Then a key decision will need to be made on how this dialogue will continue, and whether a mechanism will be set in place to convert at some point into serious talks on post 2012.

Proving a controversial topic, *Review of the Kyoto Protocol pursuant to its Article 9*, revealed firm negotiating positions on the part of developed and developing countries. The former favoured a thorough review linking to discussions on Article 3.9 (the AWG), while the latter wanted to focus on the achievement of Annex 1 parties in meeting their commitments. Developing countries led by China, indicated that they did not want such reviews to consider broadening commitments. China's stringent tone in insisting that nothing in the review should look at broadening commitments was somewhat surprising, more in tone, if not in substance. The resulting COP-MOP decision indicated that the review should not lead to new commitments for any Party, and that a second review of the Protocol would take place in 2008 with the scope and content to be decided at COP-13/MOP-3 in 2007.

Adaptation

The *Adaptation programme of work* was approved as the "Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change". The decision on the five year work program, with implications for Africa and vulnerable countries, included the identification of nine sub-themes: methods and tools; data and observations; climate modelling, scenarios and downscaling; climate-related risks and extreme events; socioeconomic information; adaptation planning and practices; technologies for adaptation; and economic diversification.

Discussions on the *Adaptation Fund* made some headway as the principles and modalities for its operations were agreed upon, but institutional arrangements were left undecided. Some Annex I countries suggested the fund be managed by the GEF, while LDCs expressed preference for management by an executive body such as the CDM Executive Board. It was agreed that monies would be available for national, regional and community-level adaptation efforts. Membership for the governing body would consist of Protocol parties with a majority from non-Annex I countries, and the Fund's governing agency would work under the direct authority of the COP/MOP. The SBI is to develop recommendations on the Fund's eligibility criteria, priority areas, monetization of the share of proceeds and institutional arrangements for consideration at COP-13/MOP-3. Many are hopeful that the Adaptation Fund will become operational by COP-13/MOP-3.

Technology Transfer

At best, technology transfer discussions stagnated, and some were of the view that it may have gone backwards in Nairobi. The mandate of the Expert Group on Technology Transfer (EGTT) was to be reviewed, but parties were not able to come to an agreement. Ghana for the G-77/China proposed to transform the EGTT into a Technology Development and Transfer Board and create a multilateral technology acquisition fund; but this was strongly opposed by developed countries. Parties decided to extend the term of EGTT for an additional year, and the mandate of the EGTT will be discussed again at COP-13/MOP-3.

Reducing Deforestation

Negotiations on the issue of reducing deforestation was relatively positive, with all participants agreeing that it was an important issue that needed to be addressed as a critical element in post 2012 discussions. The issue drew interest as Brazil elaborated its proposal whereby developed countries reducing deforestation rates would receive payment from a fund supported by Annex I countries. This differed from the Papua New Guinea and Costa Rica proposal presented in Montreal that promoted CDM-like credits for reduced deforestation. The proposals will be discussed at a meeting in March 2007 and the Subsidiary Body for Scientific and Technological Advice (SBSTA) will likely offer recommendations at COP-13.

Russian and Belarus Proposals

The Russian Federation proposed that appropriate procedures should be developed to enable Parties to the Kyoto Protocol to adopt voluntary commitments (unlike the legally binding commitments agreed to under the Kyoto Protocol.) Russia called for a COP/MOP decision entrusting the SBI to develop such procedures. However, the COP/MOP was not able to consider the proposal in detail during the conference. A separate workshop will be held in May 2007 to assess this proposal and it will be discussed under other matters at COP-13/MOP-3.²

The Kyoto Protocol saw its first amendment with the inclusion of Belarus as an Annex B country with an emission reduction target of 8 percent below 1990 levels. Belarus agreed that taking part in Kyoto for development advantages also meant avoiding “hot air” by ensuring that 7 percent of its allowances are unavailable for trading, and returns from emissions trading are used for other mitigation efforts.

2.2 Program Delivery Mechanisms within the UN System

UN Secretary General

Recently in office, the new Secretary-General of the UN Ban Ki-moon has been asked by Yvo de Boer, head of the UNFCCC, to convene a meeting with heads of government to decide the next steps for climate change action. Talks on Kyoto often involved junior cabinet members with a lack of clout and talks on climate change are growing more complex dealing with major issues such as world and local economies. There is an urgent need to find a solution to the curbing of emissions from China, Brazil, India and South Africa without hindering growth but rather lead to sustainable development. De Boer is in favour of incentives for this group of countries.

Global Environment Facility

The GEF is the financial mechanism of the UNFCCC and has been allocated responsibility for the management of two of the UNFCCC funds – the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). In 2006, the LDCF was funded by thirteen Annex I countries and supported the development and implementation of National Adaptation Programmes of Action (NAPAs). Eleven countries contributed to the SCCF in 2006, which focused on adaptation projects.³

COP-12/MOP-2 requested that the GEF find ways to address concerns from developing countries on co-financing of adaptation projects. Considerable internal review has taken place within the GEF over the past year in an attempt to streamline review and approval processes.

In August, 2006 the 32-member GEF Council agreed to a fourth replenishment of US\$ 3.13 billion over the next four years.⁴ This is the largest contribution in the history of the facility; although replenishment discussions proceeded slowly over 2005-06 because of the Resource Allocation Framework (RAF) and US demands for more control over how the money is spent. The GEF CEO/Chair noted during the August replenishment meeting that climate change is the most pressing global issue and should be tackled at all levels.⁵

Implementation of the RAF, a new system for allocating GEF resources to recipient countries, began in 2006. The RAF, which applies to GEF financing for biodiversity and climate change projects, is intended to increase the impact of GEF funding by distributing funds based on the capacity of a country to improve its environment, policies and practices.⁶ Developing countries have expressed dissatisfaction with the RAF over the lack of equity in access and allocation of funds.

² UNFCCC. 2006. *Conclusions on the report of the President on consultations concerning the proposal of the Russian Federation*. <http://unfccc.int/files/meetings/cop_12/application/pdf/cmp_6.pdf>.

³ Global Environment Facility (GEF). 2006. *Status Report on the Climate Change Funds*. <http://www.gefweb.org/Documents/Council_Documents/GEF_C28/documents/C.28.4.Rev.1ClimateChange.pdf>

⁴ Global Environment Facility (GEF). 2006. *World Environment Body Gets a US\$ 3.13 Billion Boost, New Funds will Combat Environmental Degradation*. GEF Press Release. http://www.gefweb.org/Whats_New/documents/News_Release_GEF_4th_Replenishment_Final.pdf.

⁵ Conservation Finance. 2006. *The GEF Assembly Meets in Cape Town*. <<http://conservationfinance.wordpress.com/2006/08/30/the-global-environment-facility-assembly-meets-in-cape-town/>>.

⁶ Global Environment Facility (GEF). 2006. *RAF At A Glance: GEF's New Framework for Allocating Resources*. <http://www.gefweb.org/Operational_Policies/Resource_Allocation_Framework.html>; Global Environment Facility (GEF). 2005. *The*

United Nations Development Programme and United Nations Environment Programme

In November 2006, UNDP and UNEP agreed to a Partnership on Climate Change to optimize and to unify the many assets of UN system at the country level in the area of climate change. The partnership aims to incorporate adaptation into national development plans and UN Cooperation Frameworks, and enable countries to access carbon finance and cleaner technologies to stimulate sustainable development. The Partnership will extend to all LDCs and other developing countries, with a particular emphasis on sub-Saharan Africa. Within the partnership, the UNDP focuses on on-the-ground project activities for adaptation and private sector efforts in regard to carbon finance. UNEP's focus is on technical analysis, tools and the provision of science-based guidance services for adaptation; and capacity building for Designated National Authorities (DNAs) in regard to the CDM.

UNDP and UNEP are also partners in the "Nairobi Framework", which aims to increase sub-Saharan Africa's access to the CDM. The UNDP-UNEP initiative will seek to reduce vulnerabilities in regional and community infrastructure, agriculture and health, and ensure that infrastructure projects, especially in vulnerable areas, will be planned with future climatic impacts in mind.⁷

The United Nations Fund for the Achievement of the Millennium Development Goals (MDGs) was launched in December of 2006, with the Government of Spain contributing US\$700 million to the fund. The Fund will contribute to the achievement of MDGs and focus on environment and climate change, democratic governance, conflict prevention and peace-building, and cultural diversity and development.⁸

World Bank

In response to the Gleneagles Communiqué on Climate Change, Clean Energy and Sustainable Development in July 2005, the World Bank began formulating the Investment Framework for Clean Energy and Development. The Framework is a roadmap for accelerating investments from private and public sources to bring modern and efficient energy services to developing countries. A Progress Report was table in August 2006 that noted the Framework would examine how to reduce the financing gap for electricity in developing countries and expand the provision of energy services in Sub-Saharan Africa; assist in the transition to a lower carbon economy; and assist countries to adapt to climate variability and change.⁹

Carbon Finance Unit Fund

The World Bank Carbon Finance Unit (CFU) uses money contributed by governments and companies in OECD countries to purchase project-based GHG emission reductions in developing countries and countries with economies in transition within the framework of the CDM and Joint Implementation (JI). The Unit manages ten funds including the Prototype Carbon Fund (PCF), the Community Development Carbon Fund (CDCF) and Bio Carbon Fund (BioCF) in addition to funds for Denmark, Spain, Italy, Netherlands and Europe. The main role of the Funds is to purchase credits, and there is concern in the Bank that the lack of a post-2012 agreement may limit further contributions to the Funds. There is interest in exploring options for a new facility that would be regime neutral to allow the Bank to extend carbon financing beyond Kyoto. An interesting trend in the CDCF is the support of private investors, more so than governments, for projects that produce community benefits as well as CERs.

Carbon Finance Assist

Carbon Finance Assist (CF-Assist) was established by the World Bank in 2005 to assist developing countries and economies in transition in developing and implementing CDM and JI projects thereby improving accessibility to the carbon market. In 2006 responsibility for the CF-Assist shifted from the CFU to the World Bank Institute.

⁷ United Nations Development Programme. (UNDP). *Helping Africa adapt to climate change* <<http://content.undp.org/go/newsroom/november-2006/africa-climate-20061115.en?categoryID=349427>>.

⁸ United Nations Development Programme (UNDP). 2006. *Spain and UNDP launch new fund to advance progress towards MDGs*. <<http://content.undp.org/go/newsroom/december-2006/20061218-spain-and-undp-mdgs.en>>.

⁹ World Bank. 2006. *An Investment Framework for Clean Energy and Development: A Progress Report*. Prepared for the Development Committee. <[http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21046509/DC2006-0012\(E\)-CleanEnergy.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21046509/DC2006-0012(E)-CleanEnergy.pdf)>.

3.0 Other Multilateral Processes

3.1 The G8

St. Petersburg Summit

The G8 Russian Presidency Summit was held in St Petersburg in July 2006. Priority themes included energy issues such as energy security and energy efficiency. Leaders discussed global energy-related challenges highlighting common goals and approaches to ensure sufficient, reliable and environmentally responsible supplies of energy. It was recognized that sustainable development depends on consistent access to energy which enforces the need for strong partnerships between energy producing and consuming countries. Dialogue on increasing energy interdependence and security of supply and demand issues, as well as on transparent and competitive energy markets was flagged fundamental in the development of a common energy security strategy.¹⁰ The resulting St. Petersburg Plan of Action consisted of efforts to: increase the predictability and stability of global energy markets; diversify the energy mix; promote energy efficiency and conservation; ensure reliability of energy infrastructure; and reduce energy poverty. The Plan also aimed to reduce barriers to energy investment and trade improving risk sharing in the supply chain. Countries also discussed plans to deploy safe and secure nuclear energy, and its contribution to global energy security.

The group also reaffirmed commitments to meet the UNFCCC objective of reducing GHGs and agreed that there was a need to accelerate discussions on an inclusive dialogue for a post 2012 climate change framework that includes the US, China and India. There was strong support for a stabilization goal for GHG concentrations.¹¹

The next G8 Summit will be held at Heiligendamm in June, 2007. The tentative agenda of the German presidency includes sustainable resource use and climate change under the heading of investment, innovation and sustainability. The overall theme is "Growth and Responsibility".¹²

Gleneagles Plan of Action

During the UK Presidency in 2006, the G8+5 signed the Gleneagles Plan of Action on climate change, which included agreement on a new Dialogue on climate change, clean energy and sustainable development between G8 countries and other interested countries with significant energy needs. Ministers from 20 of the world's major emitters gathered for an informal Gleneagles Dialogue meeting at Monterrey, Mexico in October 2006. Ministers acknowledged the need for immediate action to close the gap between current behavior and what needs to be accomplished in the fight against climate change. Key outcomes from the meeting were: a joint UK-South Africa approach to finding alternative international climate change frameworks to put before negotiators; a joint UK-Mexico-Spain-Development Bank study testing the applicability of the World Bank Energy Investment Framework to renewable energy projects; a European Commission energy efficiency conference to explore the scope for a global agreement; and widespread agreement on the vital importance of developing and deploying carbon capture and sequestration. The next Gleneagles Dialogue will be held in Germany in 2007 coinciding with the G8 meeting. Japan is due to receive a formal report on the progress of the Gleneagles agenda in preparation for its 2008 G8 Presidency.¹³

3.2 World Economic Forum

Climate change was high on the agenda of the World Economic Forum Annual Meeting in Davos in January 2007. Climate change was chosen by meeting participants as the shift most likely to affect the world in the future, narrowly beating the emergence of new markets. The five day meeting of global leaders and CEOs included seventeen sessions on climate change, reflective of the demand from members to give prominence to the issues of climate change and environmental security. Most

¹⁰ G8 Summit 2006. 2006. *Chair's Summary*. G8 Summit 2006 Web Site. <<http://en.g8russia.ru/docs/25.html>>

¹¹ *Ibid.*

¹² Sunderland, Laura. 2006. *The Prospective Agenda for the 2007 G8 Heiligendamm Summit*. G8 Information Centre. <<http://www.g8.utoronto.ca/evaluations/2007heiligendamm/2007agenda.html>>

¹³ Department of Trade and Industry. (DTI). 2006. *G8 Gleneagles Dialogue on Climate Change* <<http://www.dti.gov.uk/energy/policy-strategy/international/climate-change-g8/page21540.html>>.

interesting was the strong profile taken on by US politicians and corporations there, all giving very positive messages regarding the time to take actions on climate change.

3.3 The Asia-Pacific Partnership on Clean Development and Climate

The Asia Pacific Partnership (AP6) includes the US, China, Australia, South Korea, India and Japan. The AP6 is a voluntary, non-legally binding framework for international cooperation on the development, deployment, diffusion, and transfer of existing and emerging clean technologies and practices. The six partner countries represent about half of the world's economy, population and energy use, and they produce about 65 percent of the world's coal, 48 percent of the world's steel, 37 percent of world's aluminium, and 61 percent of the world's cement.

The inaugural meeting took place in January, 2006 at Sydney, Australia where ministers agreed on a Communiqué, Charter and Work Plan on the establishment of public-private Task Forces. Eight key sectors make up the Task Forces: cleaner fossil energy; renewable energy and distributed generation; power generation and transmission; steel; aluminum; cement; coal mining; and buildings and appliances. Three meetings of the Policy and Implementation Committee were held in 2006, and eight Task Force Action Plans were approved at the third meeting in October. The plans consist of sectoral assessments, capacity building, identifying best practices and technology research and demonstration. For more information on each Task Force, please see Annex 1 of this report.¹⁴

3.3 Technology Agreements

International Partnership for the Hydrogen Economy

The International Partnership for the Hydrogen Economy (IPHE) was established in 2003 to facilitate the transition to a hydrogen economy. The IPHE intends to get the ball rolling more quickly for the development of hydrogen and fuel cell technologies to improve energy security, environmental security and economic security. The Partnership provides a mechanism for research, development, demonstration and commercial utilization activities related to hydrogen and fuel cell technologies. It acts as a forum for advancing policies, and technical standards that could contribute to an effective transition to a hydrogen economy. Along with Canada, 16 other countries are part of the IPHE.¹⁵ The IPHE endorsed ten international hydrogen and fuel cell research projects at its September 2005 Steering Committee meeting and is now calling for proposals for projects to be endorsed in 2007.¹⁶

Carbon Sequestration Leadership Forum

The first international symposium on GHG reduction and CO₂ capture and storage (CCS) was held in Paris in 2005. A second gathering is scheduled for October 2007 that will focus on issues and strategies for controlling GHG emissions (with attention to post-2012 commitments and global and regional scenarios for emission reductions by 2050 including national strategies); industrial achievements in the field of CCS; future developments; the structuring of the CCS sector; market regulations and societal perceptions; and the establishment of an international market in accordance with the Kyoto Protocol.¹⁷

Methane to Markets

The Methane to Markets Partnership, launched by President Bush in November 2004, is an international initiative that promotes the use of methane recovery as a clean energy source. President Bush committed up to US\$53 million to Methane to Markets over the next five years.¹⁸ The Methane to Markets Partnership held its third annual Steering Committee meeting at Rome in December 2006. The goal of the meeting was to assess progress and re-commit to results-driven goals. Poland became the latest Partner country after submitting a letter of interest in November. The roster of countries is now at 19 with a

¹⁴ Asia-Pacific Partnership on Clean Development and Climate (AP6). 2006. *Asia-Pacific Partnership on Clean Development and Climate Executive Summary of Task Force Action Plans*.

<http://www.asiapacificpartnership.org/APP%20Action%20Plans/ExecutiveSummary%20_31%20Oct%2006_%20_2_.pdf>

¹⁵ International Partnership for the Hydrogen Economy (IPHE). 2006. "About Us". IPHE Web Site <<http://www.iphe.net/about.htm>>

¹⁶ IPHE. 2006. "IPHE Update", *IPHE Newsletter* <<http://www.iphe.net/IPHE%20Update%20April%202006.pdf>>

¹⁷ Carbon Sequestration Leadership Forum (CSLF). 2007. Home Page. <<http://www.cslforum.org/index.htm>>

¹⁸ Methane to Markets. 2007. *Methane to Markets Web Site*. <<http://www.methanetomarkets.org/>>

growing Project Network of almost 500 public and private sector organizations. The Asian Development Bank (ADB) is the second multilateral development bank to join the Partnership after the World Bank. A Methane to Markets Partnership Expo will take place at Beijing in October 2007 and will promote methane recovery and use project opportunities and technologies.¹⁹ China is an original member of the Partnership and will co-sponsor the event.

Global Nuclear Energy Partnership

In January 2007 the US released a strategic plan for a Global Nuclear Energy Partnership (GNEP) intended to work toward advanced nuclear recycling and reactor technologies. The aim is to help meet the growing worldwide energy demand by providing reliable, clean energy with minimal waste while making it impossible to separate plutonium for use in the development of nuclear weapons. The US Energy Policy Act of 2005 and the Department of Energy's (DOE) Nuclear Power 2010 program identified the need for urgent development of new nuclear power plants and redevelopment of national nuclear infrastructure.²⁰ The DOE has developed a strategy to safely enable a worldwide increase in the use of nuclear energy, without contributing to the spread of nuclear weapons capabilities and in a mode that disposes of nuclear power generation waste in a responsible manner. The GNEP Program Technology Action Plan strives to gather capabilities, resources and international partners to develop commercial scale facilities as early as possible and at a reasonable price. The first activity is the development of an action plan to lay out "convincing" directions for next steps for approval by the Secretary of Energy.²¹ Future plans include a government-industry partnership to build a nuclear fuel recycling center and a prototype advanced recycling reactor by June 2008.²²

4.0 Key Country Interests and Priorities

4.1 United States

Democratic Victories in the House and Senate: Impact on Climate Change Policy

On November 7th, 2006 the United States Democratic Party secured both the House of Representatives and the Senate. There is some hope that this change could lead to an increased emphasis on climate change issues. "We have an opportunity to put an emphasis on issues of clean energy, renewable energy, global warming, climate change, in a way that wasn't possible during the last several years," said the new Democratic Party head of the Senate energy committee, Jeff Bingaman.²³ Several of the winning governorship and congressional candidates support deployment of renewable energy for GHG reductions;²⁴ and there appears hope amongst senior Democrats that the President can be convinced that caps on GHGs are needed.²⁵

Barbara Boxer, the new chairperson of the Senate Environment Committee, intends to make the environment a bipartisan issue again and is pressing for the first US-wide legislation to cut carbon emissions.²⁶ In December 2006 she announced a planned proposal for a 'gold standard' on climate legislation attempting to reach an agreement on how to combat climate change which she hopes to table in 2007. Her proposal will consist of a plan to develop a bill similar to California's legislation on mandatory caps on GHGs emissions (which is discussed below). John Dingell (long a climate change sceptic) from the House is a veteran lawmaker and is expected to hold hearings on climate change and review the US Environmental Protection Agency's (EPA) controversial air emission regulations.²⁷

¹⁹ Methane to Markets. 2007.

²⁰ U.S. Department of Energy. 2007. Global Nuclear Energy Partnership Strategic Plan, Office of Nuclear Energy, Office of Fuel Cycle Management. <<http://www.gnep.energy.gov/pdfs/gnepStrategicPlanJanuary2007.pdf>>

²¹ *Ibid.*

²² *Ibid.*

²³ Miles, Nick. 2006. *US Democrats mull climate change*. BBC News. <<http://news.bbc.co.uk/2/hi/americas/6200748.stm>>

²⁴ Charter, D., and Baldwin, T. 2007. *Pressure to put changing climate higher on agenda*. The Times. <<http://www.timesonline.co.uk/article/0,,3-2536616,00.html>>

²⁵ Miles, Nick. 2006.

²⁶ Charter, D., and Baldwin, T. 2007.

²⁷ Samuelsohn, Darren. 2006. *New Congress could mean real movement on global warming*. For Environment & Energy Publishing <<http://www.energybulletin.net/22089.html>>

There is speculation that the administration is also softening, re: Bush's statement in his State of the Union identifying climate change as a real threat to be addressed. Democratic wins indicate that climate change and energy issues could be a growing concern for the American public which may influence action at the federal level, particularly in light of the 2008 elections. There are a number of bills circulating in the Senate that have in common a mandatory cap on emissions; states are increasingly taking action; and business is increasingly engaged on the issue of climate change. Action in the United States has the potential to make real impact on global emission reductions as the country is the largest emitter of GHGs and has experienced a GHG emission increase of 15.8 percent from 1990 to 2004.²⁸

Technology Emphasis

The Bush Administration set a target of cutting GHG intensity by 18 percent by 2012. In the effort to achieve the target the Administration invested more than US\$29 billion in understanding climate science, technology, international assistance, and in incentive programs for emission reductions from 2001 to the end of the fiscal year 2006. The Fiscal Year 2007 budget calls for \$6.5 billion for climate-related activities, including approximately \$3 billion for the Climate Change Technology Program (CCTP), over \$1.6 billion for the Climate Change Science Program, \$220 million for climate change-related international assistance programs, and nearly \$2 billion for energy tax provisions that may reduce GHG emissions.

Security and Prosperity Partnership of North America

The Security and Prosperity Partnership (SPP) of North America provides a framework for the US, Mexico and Canada to advance such issues as security, transportation, the environment and public health. In March 2006, Prime Minister Harper and Presidents Bush and Fox reaffirmed their commitments to the SPP. In 2006, the North American Energy Working Group (NAEWG) of the SPP released a second report, *North America - The Energy Picture II*, that identified North America as one of the world's most important regions for energy supply as it produced one-fourth of global energy and consumed approximately one-third of the world's commercial energy.²⁹ The NAEWG was established in 2001 to foster communication and cooperation among the three nations regarding energy issues of common interest and to strengthen energy trade and interconnections across the continent. The next meeting for the SPP will be held in Canada in 2007.

Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) is a joint effort by seven northeastern US states to cap and trade CO₂ emissions from power plants. It is the first mandatory cap and trade program for CO₂ emissions in US history. The states participating in RGGI are: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York and Vermont. Maryland recently adopted legislation requiring the state to join RGGI by June 2007; and the states of Illinois, Massachusetts and Rhode Island are expected to become members in the near future. Democrat Deval Patrick became governor in Massachusetts in the 1006 elections and is known to support RGGI.²⁵

The RGGI takes a flexible market-based approach to reduce power plant emissions while promoting energy efficiency and energy independence. CO₂ emissions from power plants are to be capped at approximately current levels of 121 million tons annually. This cap is likely to remain in place until 2015 at which point emissions would be reduced incrementally every four years to achieve a 10 percent reduction by 2019. This would reduce emissions from business as usual trajectories by approximately 35 percent by 2020. Coal-fired, oil-fired, and gas-fired electric generating units with a capacity of 25 megawatts or more will be included under RGGI.³⁰

The RGGI also has an agreement that 25 percent of allowances must go into strategic energy or consumer benefit efforts such as energy efficiency, new clean technologies and ratepayer rebates. Power

²⁸ UNFCCC. 2006, p. 18

²⁹ U.S. Department of Energy. 2006. *North American Energy Work Group Releases Updated Trilateral Energy Report*. Press Release, Washington D.C. <<http://www.energy.gov/news/3289.htm>>.

³⁰ Regional Greenhouse Gas Initiative (RGGI). 2006. *States Reach Agreement on Proposed Rules for the Nation's First Cap-and-Trade Program to Address Climate Change*. <http://www.rggi.org/docs/model_rule_release_8_15_06.pdf>.

plants can also purchase the allowances for their own use and funds from such sales must be used for energy programs.

In August 2006 the RGGI released a model set of regulations to be proposed and approved in each state to implement the program. Pending the completion of this process, the RGGI program will take effect on January 1, 2009. The RGGI also agreed to an amendment to the 2005 memorandum of understanding to simplify dealings with offset credits (reductions achieved outside the electricity sector). Offset credits may come from anywhere in the US as long as offset projects from outside the RGGI states are under the regulatory watch of a cooperating agency in that state. States or other US jurisdictions not participating in RGGI will need to enter into a memorandum of understanding with the RGGI state agencies and agree to take on certain administrative obligations to ensure the credibility of the offset projects. There is also an expectation that RGGI will accept credits approved by the CDM Executive Board (and California is examining the same issue).

California and GHG Emission Reductions

California is one of the most proactive states in regard to climate, and in August 2006 adopted a GHG emission reduction target of 25 percent by 2020. California's emission reduction plan aims to begin reducing CO₂ emissions in 2012, measure and set limits for GHG emissions of electric power plants, refineries, cement kilns and other major emitters; and create an emissions trading system, which is expected to become legally enforceable on January 1, 2012. A first example of the impact of the goal was Governor Arnold Schwarzenegger's January 2007 announcement that he will ask regulators to require the state's petroleum refiners and gasoline sellers to cut GHG emissions associated with the production and use of their products by 10 percent by 2020.

Californian companies have expressed interest in carbon trading and linking such a system with the RGGI. In December 2006, the California Public Utilities Commission (PUC) proposed to adopt a GHG emissions performance standard, as a step towards developing a carbon cap and trading system.

Governor Schwarzenegger and premier of Manitoba, Gary Doer signed an agreement in December 2006 to, over five years, explore carbon credit trading opportunities. The state and province will work to identify opportunities for exchanging carbon credits from reductions, especially those achieved through sustainable agriculture. Also included in the agreement is the sharing of expertise in technology transfer, namely geothermal technologies from Manitoba and solar power technologies from California.³¹ The California Governor also signed an agreement in 2006 with UK Prime Minister Tony Blair to develop new technologies to combat climate change.

4.2 The European Union

According to UN GHG data, the European Community reduced emissions by 0.6 percent from 1990 to 2004. The European Community is the second largest emitter among Annex countries if compared with nations that are individual states.³²

In addition to being Chair of the G8, German Chancellor Angela Merkel is rotating head of the European Council for the first six months of 2007. She has committed herself to progress on energy security and climate change, and vowed to press the US to join a post-Kyoto Protocol climate change agreement. Climate change, along with the rise in oil and gas prices and dependence on energy imports, has put energy policy at the forefront of debate within the EU.

The European Commission released ambitious new proposals in January 2007 for a climate change and energy package that proposes the EU commit to cut GHG emissions by at least 20 percent by 2020. The proposal for a broad EU energy policy aimed to increase deployment of renewables, decrease energy consumption, and reduce the dominance of large utility companies over EU gas and electricity markets. The proposals also intend to ease dependence on foreign suppliers encouraging the 27-nation bloc to act as one voice internationally on this issue. The proposals require approval from EU governments and the European Parliament. The Commission proposed that renewable energy sources make up 20 percent of

³¹ Point Carbon. 2006. "California, Canadian province sign carbon deal." *Carbon Market North America* <<http://www.pointcarbon.com/Home/Carbon%20Market%20North%20America/article19580-1325.html>>.

³² United Nations. 2006. p. 23.

the EU's energy mix by 2020 and that biofuels account for a minimum of 10 percent of fuel used by vehicles by 2020.

The European Commission also plans to release a Green Paper on climate change policies post-2012 in early 2007, which will launch a discussion on post-Kyoto. Given that some effects of climate change now appear unavoidable, the Commission will follow up its Green Paper on climate change adaptation, which was scheduled for release in December 2006, with a White Paper on the subject in 2007. It also plans to introduce several legislative initiatives on climate change, such as the proposal to amend the directive on the system for trading greenhouse gas emission quotas in the Community.³³

A review of the EU ETS, which will report by June 2007, will look at expanding the EU ETS to other sectors and other GHGs besides CO₂; bringing aviation into the trading scheme; harmonization in regard to what types of installations are covered by emissions trading; harmonisation on the allocation of emission allowances; guidelines for monitoring and reporting emissions and rules for third-party verification of emissions reports; and linking the EU ETS with existing or future schemes in third countries. The European Commission will develop new legislative proposals based on the review's recommendations; and if adopted these new rules would come into effect 2012 onward.³⁴

The EU has demonstrated resolve to remain in the forefront of global efforts to reduce GHG emissions, but industry is worried that a "going it alone" strategy will undermine Europe's global competitiveness and has stressed the need for developed and developing countries to join together to create a global strategy.³⁵ This reluctance reflects the results of the Stern Review that stresses that unilateral action will not be enough. For example, if Britain shut down all its power stations tomorrow, the reduction in GHGs would be cancelled out within 13 months by rising emissions from China.³⁶ In the spirit of not acting alone, President Bush is being challenged by Europe to back a post-Kyoto climate change agreement that would involve developed countries making a 30 percent reduction in GHG emissions by 2020 compared to 1990 levels.³⁷

4.3 France

France reduced its GHG emissions from 1990 to 2004 by 0.8 percent overall, however GHGs have increased by 0.2 percent from 2000-2004.³⁸

In November 2006, French Prime Minister Dominique de Villepin proposed a carbon tax on imports of industrial products from non-Kyoto nations. In January, President Chirac announced that it was necessary to begin a process for implementing a carbon tax on products from countries that have not committed to the post-2012 climate regime. Critics indicated that such taxes would be hard to implement and problematic under global trade rules.³⁹ In particular, EU trade commissioner Peter Mandelson spoke out against the proposal citing that it would be a probable breach of international trade rules. Villepin argued that the US and China should not be able to benefit from efforts to reduce climate change without having to take on some of the burden of costs.⁴⁰

³³ European Union. 2006. *Provisional Work Programme for 2007 of the Commission for Sustainable Development*. Directorate for Consultative Work- Commission for Sustainable Development. November 17.

³⁴ Europa. 2006. *Climate change: Commission sets out agenda for revising the EU emissions trading scheme from 2013*. Press Release, November 13.

<<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1548&format=HTML&aged=0&language=EN&guiLanguage=en>>

³⁵ Euractive.com. 2006. *Brussels heats up over climate change*. <<http://www.euractiv.com/en/sustainability/brussels-heats-climate-change/article-159568>>.

³⁶ Hinsliff, Gaby. 2006. *£3.68 trillion: The price of failing to act on climate change*. The Observer.

<http://observer.guardian.co.uk/uk_news/story/0,,1934381,00.html>

³⁷ Charter, D., and Baldwin, T. 2007. *Pressure to put changing climate higher on agenda*. The Times.

<<http://www.timesonline.co.uk/article/0,,3-2536616,00.html>>

³⁸ UNFCCC. 2006. p. 17.

³⁹ Reuters. 2007. "France's Chirac Says Wants EU Carbon Tax Post-2012". *PlanetArk*.

<<http://www.planetark.org/dailynewsstory.cfm/newsid/39702/story.htm>>

⁴⁰ World News: Europe. 2006. "Mandelson to dismiss French plan for 'carbon tax'"

<http://www.ezilon.com/information/article_17364.shtml>

4.4 Australia

Australia is in a similar situation to Canada in regard to GHG emission reductions. Both countries are far off their targets – Australia has increased its GHG emissions by 25.1 percent from 1990 to 2004, compared to an increase in Canada's emissions of 26.6 percent in the same time period.⁴¹

The State Government of New South Wales introduced a GHG Abatement Scheme (GGAS) in January 2003. Under the Scheme, electricity retailers and other parties are required by legislation to meet mandatory targets for GHG reductions. Obligations are met through the purchase and surrender of tradable certificates called New South Wales Greenhouse Abatement certificates (NGACs). The New South Wales Government set a target of reducing GHGs to 7.27 tonnes of CO₂e per capita by 2007 (or 5 percent below 1990 levels). The per capita amount is planned to continue at this level until 2012. There are 180 projects accredited and the GGAS has been extended beyond its original end date of 2012 to 2021 or until a national emissions trading scheme is in place. As of October 24th 2006, over 30 million NGACs had been created.⁴²

Interest in nuclear power as an option for GHG mitigation increased in Australia with the March 2006 release of a report, *Introducing Nuclear Power to Australia: An Economic Comparison*, that analyzed the potential of nuclear energy. The report indicated that nuclear power was a competitive alternative and that Australia should consider building nuclear power stations to help it meet obligations under the AP6. The five actions Australia agreed to under the AP6 are collectively expected to reduce GHGs by 38 million tonnes per year,⁴³ and the report argued that the same amount of reductions would result if 4 to 5 GWe of nuclear generation were substituted for present and planned coal-fired power stations.⁴⁴ The report stipulated that adding nuclear to Australia's energy mix would improve the security of electricity supplies and help to stabilize electricity prices when gas prices peak and gas imports are interrupted.

Australian Prime Minister John Howard asked his energy minister to provide a submission in 2007 to address some of the report's recommendations. Howard's interest in nuclear power has attracted considerable opposition. An Australian election will take place no later than early January 2008, at which time the Australian public will have an opportunity to voice their opinion on nuclear energy and the Kyoto Protocol. John Howard has argued against the Kyoto Protocol but the Federal Opposition is in full support of it.

4.5 China

China may not be keen on setting mandatory emission reduction targets post-2012 but it certainly is a country that needs to be meaningfully engaged if we are to effectively address this on a global basis. Emissions from China are nearly level with the US and are likely to increase as the Chinese get more cars and electrical goods such as the 30 million households who are expected to get digital TVs over the next few years.⁴⁵ The IEA's *2006 World Energy Outlook* indicated that China will need to invest about US\$3.7 trillion, 18 percent of the world total, to meet growing energy needs. Seventy percent of China's energy needs are currently met by coal, and every 7 to 10 days another coal-fired power plant opens in the country, which could help to explain why China is en route to overtake the US by 2009 as the largest emitter of CO₂.⁴⁶ In November 2006, Beijing's air quality was so poor that it was deemed "hazardous", causing flight delays and the closing of motorways.⁴⁷

Despite reluctance to engage in mandatory future targets for GHG reductions, China is taking actions that are having the effect of contributing to ghg reductions. China's 11th five-year plan stresses that the key

⁴¹ UNFCCC. 2006. p. 6.

⁴² NSW Greenhouse Gas Abatement Scheme. 2006. GGAS Newsletter. Issue 2. December 2006. Sydney. <http://www.greenhousegas.nsw.gov.au/documents/Newsletter_Issue2_Dec06.pdf>

⁴³ Gittus, John H. 2006. *Introducing Nuclear Power to Australia An Economic Comparison*. Prepared for the Australian Nuclear Science and Technology Organisation. <http://www.ansto.gov.au/ansto/nuclear_options_paper.pdf>

⁴⁴ Gittus, John H. 2006, *ibid*.

⁴⁵ Hinsliff, Gaby. 2006. *£3.68 trillion: The price of failing to act on climate change*. The Observer. <http://observer.guardian.co.uk/uk_news/story/0,,1934381,00.html>

⁴⁶ China News. 2006. China Releases First National Climate Change Assessment; Proposes Increased Prices on Energy Products <http://www.greencarcongress.com/2006/12/china_releases_.html>

⁴⁷ Coonan, Clifford. 2006. *The quest for clean energy: China's green revolution*. The Independent. <<http://news.independent.co.uk/environment/article2007478.ece>>

tasks for scientific and technological work are the enhancement of energy-saving technologies, renewable technologies, nuclear technology and efficient use of clean coal technology and CCS. Furthermore, the five-year plan lays out guidelines to cut nationwide energy consumption by 20 percent in 2010.⁴⁸ Other examples, include the province of Gansu, where officials have announced plans to build the world's largest solar power station and in Beijing, where plans are underway for renewable energy to supply a large part of the city's needs by the time it hosts the Olympics in 2008.

In December 2006, China's Ministry of Science and Technology and six other ministries jointly issued a preliminary report on the country's first national assessment of climate change and its impacts. The report is intended to serve as the country's scientific and technical reference in policy making and international cooperation. The full assessment will be released in 2007. A key conclusion of the report is China's recognition that increases in human-induced GHG emissions lead to global warming. Climate change is expected to aggravate water shortages in northern China, putting China's agriculture, forest and water sectors at risk. The report also highlights the vulnerability of coastal zones and coastal ecological systems and notes that climate change impacts could be worsened by natural disasters.⁴⁹ Recommendations for strong actions on climate change focus on the promotion of new energy technologies, energy conservation and expansion of energy resources. The report further argues that developing global climate change policies and measures to achieve sustainable development is critical and must be addressed by local, regional and national governments.

After the release of the report, China News reported that the State Development and Reform Commission (SDRC) approved a pricing scheme on the consumption of energy products. The scheme aims to promote energy conservation and the comprehensive use of energy products so that the prices can reflect the scarcity of resources. Approval of scheme by the State Council in 2007 will mean that prices of energy products will change greatly.⁴⁹

4.6 India

The Indian government appears to have two preoccupations in relation to climate change: the CDM and avoiding any legally binding limits on emissions. India's GHG emissions have been rising more rapidly than the world average. India's emissions grew by 57 percent from 1992 to 2002 which is greater than China's which grew by 33 percent and the global increase of 15 percent. India's CO₂ emissions are expected to increase by two-and-a-half times by 2030. India's interests are clearly with the CDM as the country accounts for the highest proportion of projects (29.2 percent of the global total). However, India's share of CERs is 11.5 percent compared with China's 43.2 percent.⁵⁰ In 2006, Indian companies made \$US 33.8 million by selling CERs. By 2012, India's likely earnings will be up to \$US 400 million.

4.7 Brazil

Approximately 70 percent of Brazil's GHG emissions result from deforestation, and there has been very limited progress in addressing this problem over the past decade. Brazil's energy mix is responsible for a relatively low level of GHG emissions due to the extensive use of hydroelectricity and biomass energy sources such as ethanol and charcoal. This situation is reflected in Brazil's proposal on the creation of financial incentives outside the Kyoto Protocol for countries that voluntarily reduce GHG emissions from deforestation.

4.8 African Countries

The COP-12/MOP-2 outcomes reinforced the "African COP" nickname with agreement on the Adaptation Fund, the Nairobi Work Programme on Adaptation and the Nairobi Framework on Capacity Building for the CDM - all issues of key importance for the continent. In addition the African COP opened discussions on the ethics and injustice of climate change as those who are most vulnerable contribute the least to climate change.

⁴⁸ Pasternack, Alex. 2006. *China's Green Revolution: How Far Will it (Not) Go?* Treehugger Business & Politics. <http://www.treehugger.com/files/2006/11/chinas_green_re_3.php>

⁴⁹ China News. 2006.

⁵⁰ Bidwai, Praful. 2007. "Carbon trading fraud". *Frontline*. Volume 23 – Issue 26:: Dec. 30, 2006-Jan. 12, 2007. <<http://www.hinduonnet.com/fline/stories/20070112002310400.htm>>

A 2006 World Bank report on the *State of the African Carbon Market* stated that although Africa will be hardest hit by climate change, it is also the continent that has benefited the least from the carbon market. As of the end of October 2006, 19 projects from Sub-Saharan Africa were in the CDM project pipeline, out of a total of 1274 projects for all developing countries.

Africa has not benefited much from the LDCF, SCCF, GEF or Adaptation Funds.⁵¹ Yet the need for adaptation action in Africa is imperative as the frequencies of natural disasters such as droughts, floods, tropical cyclones, landslides, and loss of biodiversity are already underway. Warming temperatures have raised the incidence of vector-borne diseases such as malaria. Rising sea levels is causing flooding, erosion, and the disappearance of low-lying wetlands and related biodiversity which in turn, affects social structures, human habitat, and economic infrastructure. Funding for action, particularly from an African standpoint, was a necessary priority for COP-12/MOP-2.

5.0 Post-2012 Climate Regime: The Impact of International Developments on Canada

5.1 Engaging the United States

The change in majorities in the US House and Senate could have a significant impact on global climate change discussions and positioning, but the jury is still out on this and in particular, how far John Dingell from the House will agree to press for reviewing the EPA's air emission regulations. Once clearer signals emanate out of Washington, one could expect increased investment flows in climate friendly directions. Canada will almost certainly be influenced by events in the US, for example, wishing to ensure, for example, that Canada's regulatory system for large emitters is commensurate with what'd be developed in the US. Offsets are likely to be a part of a US system and there has also been interest expressed in having a significant technology component that would provide incentives for investments at home. There are at least 10 bills before the Congress and the Senate that will be discussed by the spring of 2007. The results and directions in the States will prove instructive for Canada.

Canada is the top exporter of oil to the American market, exporting the equivalent of one million barrels a day. There are reports that US and Canadian oil executives and government officials meeting at a two-day oil summit in Houston in January 2006 made plans for a "fivefold expansion" in Alberta oil sands production in a relatively "short time span." While some have indicated that there was no such pledge, Washington insiders have indicated that President Bush is relying on Canada to help the United States lessen its reliance on Middle Eastern oil - a goal now defined as a national security objective.⁵² This interest in the oil sands could offer opportunities for Canada to engage the US in collaborative action and help to reduce the current dichotomy of commitments between the two countries.

Engagement in the AP6 is not expected to be an option in the next year as the AP6 is expected to remain as it is for the first two years, but may consider expanded membership after that. The results and outcomes of the organization should be closely monitored. The partnership with industry in the AP6 framework and the sectoral approach used to address GHG emissions could offer useful lessons on technology transfer, international technology cooperation and the development of a post-2012 regime that reflects the complexity of actors involved in delivering on GHG reduction commitments. Yet there is speculation that the Democrats are not likely to support the AP6, which is an initiative of President Bush. A contribution of US\$52 million for the AP6 has been requested, but the Senate has not yet passed the budget bill.

5.2 Engaging Industry

With growing acceptance of the climate change science and the increasing sensitization among business and industry, climate change is now understood to be a real threat with real costs. Business and industry are interested in engagement on climate change and on the international front they are also pushing for

⁵¹ Climate Change Campaign-Africa. 2006. Report of the National CSO-Media Workshop Towards UNFCCC COP-12. Nairobi.

⁵² CBC.ca. 2007. "U.S. urges 'fivefold expansion' in Alberta oilsands production". CBC News. January 18. <<http://www.cbc.ca/canada/story/2007/01/17/oil-sands.html#skip300x250>>.

decisions on a post-2012 framework, as well as undertaking international action on climate change. The Cement Sustainability Initiative is developing guidelines for using various waste products in cement kilns instead of carbon fuels; and the Electricity Utilities Project, a group of utilities from four continents, is preparing a report that calls for new partnerships between the companies and governments to develop incentives for R&D and energy efficiency.⁵³

The reality of the impacts and costs of climate change is reflected in the interest accorded climate change at the 2007 World Economic Summit and the increasing action of businesses in a number of countries, such as the recently formed USCAP. Across all Parties to the Kyoto Protocol, business and industry are encouraging negotiators to ensure that outcomes reflect long-term investment security. There is a call for certainty among business groups regarding a response to climate change.⁵⁴

Calls for a regulatory framework are increasing from industry in Canada, who require signals to guide long-term capital investment decisions. Some Canadian companies have gained experience with emission trading through subsidiaries and plants located in Europe, and there are lessons to be taken from the European and US state-level experiences. There is some discussion that Canada needs to gain experience with emissions trading to provide insights for the development of post-2012 climate change policy.

5.3 Recognizing the Costs and Benefits of Climate Change

Warnings in the Stern Review indicate that failure to act could lead to future economic damages equivalent to a reduction of up to 20 percent in global GDP. A report, *Adaptation and Vulnerability to Climate Change: The Role of the Finance Sector* produced by UNEP's Finance Initiative (UNEP FI), warned that losses from extreme weather events linked to climate change are doubling every 12 years and losses from climate impacts such as droughts, storms, hurricanes, and floods over the next few decades could reach one trillion dollars.⁵⁵ The release of the Fourth Assessment Report of the IPCC in 2007 is expected to add gravitas to the scientific and economic debates.

The Canadian public has identified the environment as the main issue of importance in recent political polls, and continued media attention on extreme weather events and the impacts of climate change in Northern Canada should keep this issue in the forefront. A real assessment of the costs and benefits of climate change in Canada – a Stern-like assessment – could help to guide the development of post-2012 climate change policy.

5.4 Identifying Linkages between Climate Change, Energy and other Sectors

Climate change is increasing linked with energy security and other sectors, such as transportation, development policy, finance, trade and investment, peace and security and diplomatic relations. Climate change is not just an environment issue, as it is connected to fundamental social, economic and geopolitical issues. For example, global energy demands are expected to grow by 60 percent over the next 25 years; and secure, reliable and affordable energy sources are fundamental to economic stability and development.

The UK is a leader in integrating climate change across a number of policy areas, and may offer lessons. For example, a member of an expert panel of international politicians on climate change, and senior Labour figure Stephen Byers, is promoting taxes to help change behavior including a 'global warming premium' on exotic fruit, vegetables and flowers transported from abroad. The Labour party is keen on policy debates on the issue, especially regarding green taxation and penalizing environmentally hazardous behavior.⁵⁶ In 2006, Foreign Minister Margaret Beckett, identified climate change as a priority area for the UK foreign mission and has promoted the consideration of climate change in a range of foreign policy issues. In addition, Denmark is playing an active role in integrating climate change in a

⁵³ Stigson, Björn. 2006. "Green business equals good business". *Scientific American*. special advertising section. December.

⁵⁴ International Institute for Sustainable Development (IISD). 2006.

⁵⁵ UNEP. 2006. Public Private Partnerships Unlock Climate Cover for the Vulnerable.

<<http://www.unep.org/Documents/Multilingual/Default.asp?DocumentID=485&ArticleID=5422&I=en>>.

⁵⁶ Hinsliff, Gaby. 2006. £3.68 trillion: The price of failing to act on climate change. The Observer.

<http://observer.guardian.co.uk/uk_news/story/0,,1934381,00.html>.

broader foreign policy framework, covering traditional diplomacy, trade and investment, security, energy and security and climate screening the Lisbon Agenda.

Canada will likely have to consider a broader framing of the climate change issue, beyond the environment box, to reveal opportunities to align goals across policy areas and identify a realistic framework for post-2012 climate change policy. A cross-government approach is increasingly recognized as an important element to achieve climate change objectives.

5.5. Promoting Action on Adaptation

Climate change is already being acutely experienced in Canada's North, offering the opportunity to bring attention to the impacts of climate change and the need for stronger and broader mitigation efforts. Plans for the International Polar Year (2007-08) could highlight how climate change is already impacting Canadian communities and ecosystems, and how Canada is adapting to these changes.

Adaptation generated considerable interest at COP-12/MOP-2, yet there is as yet a lack of concrete thinking on post-2012 beyond an "Adaptation Protocol" and a need for better post-2012 models. There is opportunity for Canada to be a leader by introducing innovative thinking and meaningful analysis for adaptation in a post-2012 regime.

5.6 Implications for Canada – Opportunities for Moving Forward

There are opportunities for Canada to influence the international debate – by engaging the US in energy security discussions that are linked with climate change; by developing real analysis and forward thinking on adaptation options for post-2012; by undertaking a Stern-like assessment of the costs and benefits for Canada; and by adopting national policies/regulations/programs that demonstrate real action and a cross-governmental approach.

But the ability to influence the international debate on post-2012 policy is partly dependent on maintaining a positive reputation internationally. In order to engage high emitting countries and be an effective player in the development of a post-2012 climate regime, Canada needs to strengthen its reputation and will by demonstrating progress in its commitment to address climate change.

Bibliography

Asia-Pacific Partnership on Clean Development and Climate. (AP6) 2007.
<<http://www.asiapacificpartnership.org/>>.

_____. 2006. *Asia-Pacific Partnership on Clean Development and Climate Executive Summary of Task Force Action Plans*.
<http://www.asiapacificpartnership.org/APP%20Action%20Plans/ExecutiveSummary%20_31%20Oct%2006_%20_2_.pdf>.

BBC News. 2006. *Global methane rise slowing down*.
<<http://news.bbc.co.uk/2/hi/science/nature/6170736.stm>>.

Bidwai, Praful. 2007. "Carbon trading fraud". *Frontline*. 23: 26, Dec. 30, 2006-Jan. 12, 2007.
<<http://www.hinduonnet.com/fline/stories/20070112002310400.htm>>.

Bureau of Oceans and International Environmental and Scientific Affairs. 2006. *USA Energy Needs, Clean Development, and Climate, Partnerships in Action*. Washington, D.C.: Bureau of Oceans and International Environmental and Scientific Affairs.
<<http://www.state.gov/documents/organization/75455.pdf>>.

Carbon Sequestration Leadership Forum (CSLF). 2007. Home Page.
<<http://www.csforum.org/index.htm>>

CBC.ca. 2007. "U.S. urges 'fivefold expansion' in Alberta oilsands production". *CBC News*. January 18.
<<http://www.cbc.ca/canada/story/2007/01/17/oil-sands.html#skip300x250>>.

Charter, D. and Baldwin, T. 2007. *Pressure to put changing climate higher on agenda*. The Times.
<<http://www.timesonline.co.uk/article/0,,3-2536616,00.html>>

China News. 2006. China Releases First National Climate Change Assessment; Proposes Increased Prices on Energy Products <http://www.greencarcongress.com/2006/12/china_releases_.html>

Climate Change Campaign-Africa. 2006. Report of the National CSO-Media Workshop Towards UNFCCC COP-12. Nairobi.

Coonan, Clifford. 2006. *The quest for clean energy: China's green revolution*. The Independent.
<<http://news.independent.co.uk/environment/article2007478.ece>>

Crossley, David. 2005. Energy Futures Australia Pty Ltd. *Energy Efficiency Certificates Trading Scheme in New South Wales, Australia* <<http://www.efa.com.au/EEtrading.pdf>>

Department of Trade and Industry. (DTI). 2006. *G8 Gleneagles Dialogue on Climate Change*
<<http://www.dti.gov.uk/energy/policy-strategy/international/climate-change-g8/page21540.html>>

Doyle, Alister. 2006. "Bush won't change climate policy, chief negotiator says". *Energy Bulletin*.
<<http://www.energybulletin.net/22089.html>>

Eule, Stephen D. 2006. "Hearing on U.S. Department of Energy's Climate Change Technology Program Strategic Plan." Before the Subcommittee on Energy, Committee on Science US House of Representatives. <<http://www.climatechange.gov/library/2006/testimony20sep2006.htm>>

Europa. 2006. *Climate change: Commission sets out agenda for revising the EU emissions trading scheme from 2013*. Press Release, November 13.

<<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1548&format=HTML&aged=0&language=EN&guiLanguage=en>>

Euractive.com. 2006 *Brussels heats up over climate change*.

<<http://www.euractiv.com/en/sustainability/brussels-heats-climate-change/article-159568>>.

Gittus, John H. 2006. *Introducing Nuclear Power to Australia An Economic Comparison*. Prepared for the Australian Nuclear Science and Technology Organisation.

<http://www.ansto.gov.au/ansto/nuclear_options_paper.pdf>

Global Environment Facility (GEF). 2006. *World Environment Body Gets A US\$ 3.13 Billion Boost, New Funds will Combat Environmental Degradation*. GEF Press Release.

<http://www.gefweb.org/Whats_New/documents/News_Release_GEF_4th_Replenishment_Final.pdf>

Global Environment Facility (GEF). 2006. *Status Report on the Climate Change Funds*.

<http://www.gefweb.org/Documents/Council_Documents/GEF_C28/documents/C.28.4.Rev.1ClimateChange.pdf>

Global Environment Facility (GEF). 2006. *RAF At A Glance: GEF's New Framework for Allocating Resources*. <http://www.gefweb.org/Operational_Policies/Resource_Allocation_Framework.html>

Global Environment Facility (GEF). 2005. *The GEF Resource Allocation Framework*.

<http://www.gefweb.org/documents/council_documents/GEF_C27/documents/C.27.Inf.8.Rev.1_RAF.pdf>

G8 Summit 2006. 2006. *Chair's Summary*. G8 Summit 2006 Web Site. <<http://en.g8russia.ru/docs/25.html>>

G8. 2005. Climate Change, Clean Energy and Sustainable Development, Gleneagles

<<http://usinfo.state.gov/gi/Archive/2005/Jul/11-561298.html>>

Hinsliff, Gaby. 2006. *£3.68 trillion: The price of failing to act on climate change*. The Observer.

<http://observer.guardian.co.uk/uk_news/story/0,,1934381,00.html>

IEA, 2006. *World Energy Outlook 2006*. International Press, London. Accessed: November 7, 2006. Available: <http://www.worldenergyoutlook.org/>.

Institute for Global Environmental Strategies (IGES). 2006. *Key Outcomes of the Nairobi Conference (COP12 and COP/MOP2) and Future Challenges*. Climate Policy Project, IGES.

<<http://www.iges.or.jp/en/news/cop12/summary.html>>

International Institute for Sustainable Development (IISD). 2006. ENB Vol. 12 No. 316 UNFCCC COP 12 & Kyoto Protocol COP/MOP 2 #10, *Earth Negotiations Bulletin*. Wed, 15 Nov 2006 <<http://www.mail-archive.com/enb@lists.iisd.ca/msg00319.html>>

International Partnership for the Hydrogen Economy (IPHE). 2006. "About Us". IPHE Web Site <<http://www.iphe.net/about.htm>>

IPHE. 2006. "IPHE Update", *IPHE Newsletter*

<<http://www.iphe.net/IPHE%20Update%20April%202006.pdf>>

Iran Daily. 2006. *Global Warming Could Cool Oil Prices* <<http://www.iran-daily.com/1385/2699/html/energy.htm>>

Methane to Markets. 2007. *Methane to Markets Web Site*. <<http://www.methanetomarkets.org/>>

Miles, Nick. 2006. *US Democrats mull climate change*. BBC News.

<http://news.bbc.co.uk/2/hi/americas/6200748.stm>

National Snow and Ice Data Center (NSIDC). 2006. *Arctic Sea Ice Shrinks as Temperatures Rise*. Press release. <http://nsidc.org/news/press/2006_seaiceminimum/20061003_pressrelease.html>.

North American Energy Working Group, Security and Prosperity Partnership, Energy Picture Experts Group. 2006. *North America – The Energy Picture II*
<<http://www.pi.energy.gov/pdf/library/NorthAmericaEnergyPictureII.pdf>>

NSW Greenhouse Gas Abatement Scheme. 2006. GGAS Newsletter. Issue 2. December 2006. Sydney.
<http://www.greenhousegas.nsw.gov.au/documents/Newsletter_Issue2_Dec06.pdf>

Pasternack, Alex. 2006. *China's Green Revolution: How Far Will it (Not) Go?* Treehugger Business & Politics. <http://www.treehugger.com/files/2006/11/chinas_green_re_3.php>

Point Carbon. 2006. "California ready to adopt emissions standard" *Carbon Market North America*
<<http://www.pointcarbon.com/Home/Carbon%20Market%20North%20America/article19580-1325.html>>

Point Carbon. 2006. "California, Canadian province sign carbon deal" *Carbon Market North America*
<<http://www.pointcarbon.com/Home/Carbon%20Market%20North%20America/article19580-1325.html>>

Point Carbon. 2006. "Boxer to push compromise on climate policy " *Carbon Market North America*
<<http://www.pointcarbon.com/Home/Carbon%20Market%20North%20America/article19580-1325.html>>

Politics, Guardian Unlimited. 2006. "Miliband plans carbon trading 'credit cards' for everyone".
<<http://politics.guardian.co.uk/green/story/0,,1969164,00.html>>

Regional Greenhouse Gas Initiative (RGGI). 2006. *States Reach Agreement on Proposed Rules for the Nation's First Cap-and-Trade Program to Address Climate Change*.
<http://www.rggi.org/docs/model_rule_release_8_15_06.pdf>

Reuters. 2006. *EU challenges world with new climate change target*
<http://today.reuters.co.uk/news/articlenews.aspx?storyid=2007-01-11T011343Z_01_L10243624_RTRUKOC_0_UK-ENERGY-EU.xml&type=worldNews&WTmodLoc=World-C3-More-8>

Reuters. 2007. "France's Chirac Says Wants EU Carbon Tax Post-2012". *PlanetArk*.
<<http://www.planetark.org/dailynewsstory.cfm/newsid/39702/story.htm>>

Samuelsohn, Darren. 2006. *New Congress could mean real movement on global warming*. For Environment & Energy Publishing <<http://www.energybulletin.net/22089.html>>

Stern, N. 2006. Stern Review on the economics of climate change. Prepared for the Prime Minister and the Chancellor of the Exchequer on the Economics of Climate Change. Cambridge University Press. Accessed: October 31, 2006. <http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm>

Stigson, Björn. 2006. "Green business equals good business". *Scientific American*. special advertising section. December.

Sunderland, Laura. 2006. *The Prospective Agenda for the 2007 G8 Heiligendamm Summit*. G8 Information Centre. <<http://www.g8.utoronto.ca/evaluations/2007heiligendamm/2007agenda.html>>

UNFCCC. 2006. *GHG Data 2006, Highlights from Greenhouse Gas (GHG) Emissions Data for 1990-2004 for Annex I Parties*.
<http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/ghg_booklet_06.pdf>

UNFCCC. 2006. *UN Secretary-General announces "Nairobi Framework" to help developing countries participate in the Kyoto Protocol.* Press Release.
<http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/061115_cop12_pressrel_1.pdf>

UNFCCC. 2006. "Review of the Kyoto Protocol pursuant to its Article 9" *Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol*, second session Nairobi, 6–17 November 2006.
<<http://unfccc.int/resource/docs/2006/cmp2/eng/misc03a02.pdf>>

UNFCCC. 2006. Report of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol on its second session, held at Nairobi from 6 to 14 November 2006
<<http://unfccc.int/resource/docs/2006/awg2/eng/04.pdf>>

UNFCCC. 2006. Conclusions on the report of the President on consultations concerning the proposal of the Russian Federation. <http://unfccc.int/files/meetings/cop_12/application/pdf/cmp_6.pdf>

UNFCCC. 2006. "Spirit of Nairobi" prevails as United Nations Climate Change Conference successfully concludes with decisions to support developing countries. Press Release
<http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/20061117_cop_12_closing-english.pdf>

United Nations Development Programme (UNDP). 2006. *Spain and UNDP launch new fund to advance progress towards MDGs.* <<http://content.undp.org/go/newsroom/december-2006/20061218-spain-and-undp-mdgs.en>>

United Nations Development Programme. (UNDP). *Helping Africa adapt to climate change*
<<http://content.undp.org/go/newsroom/november-2006/africa-climate-20061115.en?categoryID=349427>>

UNEP. 2006. *Wildlife Management Urgent in Climate-Changed World*
<<http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=485&ArticleID=5426&l=en>>

UNEP. 2006. Public Private Partnerships Unlock Climate Cover for the Vulnerable.
<<http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=485&ArticleID=5422&l=en>>

U.S. Department of Energy. 2007. Global Nuclear Energy Partnership Strategic Plan, Office of Nuclear Energy, Office of Fuel Cycle Management.
<<http://www.gnep.energy.gov/pdfs/gnepStrategicPlanJanuary2007.pdf>>

U.S. Department of Energy. 2006. *North American Energy Work Group Releases Updated Trilateral Energy Report.* Press Release, Washington D.C. <<http://www.energy.gov/news/3289.htm>>

US, DOE. "GEN IV Nuclear Energy Systems". DOE Web Site.
<<http://nuclear.energy.gov/genIV/neGenIV1.html>>

Welch, Dylan. 2006. *The future is nuclear: PM.* Theage.com.au. <<http://www.theage.com.au/news/national/we-need-nuclear-power-pm/2006/12/29/1166895459334.html>>

Wikinews. 2006. *PM John Howard's nuclear push causes alarm.*
<http://en.wikinews.org/wiki/PM_John_Howard's_nuclear_push_causes_alarm>

World Bank. 2006. *State of the African Carbon Market.* Press Release.
<<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21130644~menuPK:34463~pagePK:34370~piPK:34424~theSitePK:4607,00.html>>

World Bank. 2006. *An Investment Framework for Clean Energy and Development: A Progress Report*. Prepared for the Development Committee.

<[http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21046509/DC2006-0012\(E\)-CleanEnergy.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21046509/DC2006-0012(E)-CleanEnergy.pdf)>

World Bank. 2006. *Clean Energy and Development: Towards an Investment Framework*. Prepared for the Development Committee Meeting

<[http://siteresources.worldbank.org/DEVCOMMINT/Documentation/20890696/DC2006-0002\(E\)-CleanEnergy.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/20890696/DC2006-0002(E)-CleanEnergy.pdf)>

World News: Europe. 2006. "Mandelson to dismiss French plan for 'carbon tax'"

<http://www.ezilon.com/information/article_17364.shtml>

World Bank Carbon Finance Unit. CF-Assist: Program Description

<<http://carbonfinance.org/Router.cfm?Page=CFAssist&ItemID=3874&cp=1>>

Yahoo! News. 2007. *Japan calls for new system to manage global environment*

<http://news.yahoo.com/s/afp/20070108/sc_afp/usjapanfinanceclimate>

Annex 1: AP6 Task Forces

The following provides a brief overview of the eight Task Forces that work towards the goals and objectives of the AP6: cleaner fossil energy; renewable energy and distributed generation; power generation and transmission; steel; aluminum; cement; coal mining; and buildings and appliances.

1. Cleaner Fossil Energy

With the recognition that coal, oil and gas will remain part of the energy mix for the future of all six partner economies, and with increasing energy demands from Asia, the Cleaner Fossil Energy Task Force is working toward improving the efficiency and environmental performance of fossil fuels. It identified key coal and gas technologies that can contribute to GHG reduction such as Integrated Gasification Combined Cycle (IGCC), producing hydrogen from coal, and Ultra-Supercritical Pulverized Coal. The use of CO₂ capture and storage (CCS) can also play a significant role.¹⁴

2. Renewable Energy and Distributed Generation

The Task Force on Renewable Energy and Distributed Generation recognizes the importance of renewables in future energy sources and is focusing on energy access, energy security, poverty alleviation, and mitigating the economic and social effects of increasing fossil fuel prices. The Task Force is promoting renewable energy technologies, such as hydro, solar, geothermal and wind along with distributed generation. They are addressing barriers to technology transfer and financing associated with renewables and distributed generation technologies.¹⁴

3. Power Generation and Transmission

The Power Generation and Transmission Task Force is looking at increasing the efficiency of power generation and transmission in order to reduce GHGs. The goal to increase access to modern energy services is shared between India and China and improving generation capacity across all Partners is a common need so the share of power is likely to continue increasing. This Task Force is working to bring efficiency gains to all Partners through their activities which focus on Best Practices for Power Generation, Best Practices for Transmission and Distribution, Best Practices for Demand Side Management, and Information Sharing.¹⁴

4. Steel

Partners of the AP6 account for over 57 percent of the world's total production of crude steel. Growth in India and China reveal expected increases in production. The Steel Task Force identified technologies for GHG reduction and energy conservation within the global steel sector.

5. Aluminum

In the Aluminium sector, Partners account for approximately 37 percent of the world's production. Aluminium is one of the fastest growing sectors with much growth in developing nations. The Aluminium Task Force aims to advance the industry toward global perfluorocarbon (PFC) reduction objectives and address the management of waste by-products and emissions resulting from production processes. The Task Force promotes best practice performance, increased technical support, and flags obstacles for implementation of best available and affordable technologies. Aluminium associations from each partner agreed to a memorandum of understanding in May 2006 which includes a commitment to enhance the GHG performance of aluminium production processes and to enhance existing collaboration across the sector.

6. Cement

The Cement Task Force addresses social infrastructure and providing the foundation for global development as the material is often used for growth. The production process for cement is energy intensive and requires a large amount of natural resources for fuel and raw materials. The combined amount of CO₂ emitted from the industry around the world is approximately 2.2 billion tons which account for approximately five percent of global man-made CO₂ emissions. Energy accounts for up to 40 percent of the cost of cement production. Energy efficiency improvements are thus important for cost reduction in

addition to GHG reduction. Partners of the AP6 account for around 61 percent of global cement production. The Cement Task aims to conserve energy through sharing information on clean energy technologies, and cooperating further to diffuse such technologies, in addition to reducing emissions.¹⁴

7. Coal Mining

The Coal Mining Task Force is faced with addressing the world's most abundant and widely distributed fossil fuel. Over 58 percent of recoverable reserves are located in four AP6 countries: the US, China, India, and Australia. By 2030, the IEA states that coal-based power generation is projected to more than triple, with coal likely providing 33 percent of global electricity generation.¹⁴ The Coal Mining Task Force aims to improve coal mining and beneficiation efficiency, reduce coal's environmental impacts, and improve coal mining's safety record.

8. Buildings and Appliances

Together, buildings and appliances use between 20 and 40 percent of total primary energy in AP6 countries. Through addressing power demand in appliances, office and consumer electronics, and lighting, as well as building design and operations, the Buildings and Appliances Task Force will work to improve energy efficiency, especially in the residential and commercial sectors. This could lead to economic benefits and defer investment in energy supply.⁵⁷

⁵⁷ Asia-Pacific Partnership on Clean Development and Climate (AP6). 2006, *ibid.*