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**GREENHOUSE GAS AND CLIMATE CHANGE ISSUES –
PROGRESS REPORT: JULY 2002 TO MARCH 2003**

RESEARCH REPORT 39

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SUMMARY

No specific issues were noted during this reporting period. A steady increase in the number of countries ratifying the Kyoto Protocol occurred. The Clean Development Mechanism of the Protocol has also been actively progressed. Various Annex I countries are implementing carbon-restraint strategies, principally by encouraging companies and the public to involve in greenhouse gas emissions reduction and sequestration activities, providing incentives for the use of renewable energy, and introducing carbon taxes and penalties.

The following sections provide brief accounts of activities that have been undergoing related to the Kyoto Protocol, the Intergovernmental Panel on Climate Change (IPCC), and in various countries and regions for the past six to nine months.

1 KYOTO PROTOCOL

As of 24 February 2003, the number of parties that have ratified the Kyoto Protocol reached 105. Key parties in the Annex I countries that are yet to ratify include the United States of America, the Russian Federation and Australia.

To enter into force the Protocol now requires only the ratification of the Russian Federation. The Russian Parliament is expected to act within the next several months. Widespread political support suggests that the Protocol may enter into force in mid-2003. The United States of America and Australia continue to state that they will not join the Protocol.

At the eighth session of the Conference of the Parties (COP-8), held in New Delhi in October/November 2002, Clean Development Mechanism (CDM) procedures were refined, making the Mechanism fully operational. It also provided detail guidance to the CDM Executive Board and documents on the simplified modalities and procedures for small-scale CDM projects. Examples of CDM activities will be given later in respective countries that are participating in these projects.

2 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

Following the successful conclusion of the Third Assessment Report (TAR) in 2001, the IPCC has initiated the planning process for the production of the Fourth Assessment Report. This report is scheduled to be completed by 2007.

Other IPCC activities undertaken recently or will be staged in the near future include:

- A paper on “Climate Change and Biodiversity” was produced in 2002 for the United Nations Convention on Biological Diversity;
- A workshop on “Dangerous Levels of Greenhouse Gases” took place in January 2003 in Geneva;
- An expert meeting on “Climate Change and Sustainable Development” will be held in Sri Lanka in March 2003;
- Another revision of the “Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories” is scheduled to start in 2003;
- A report on “Good Practice Guidance for Land Use, Land-Use Change and Forestry” is planned for release in 2003; and
- A report on “Definitions and Methodological Options to Inventory Emissions from Direct Human-Induced Degradation of Forests and Devegetation of Other Vegetation Types” will also be produced later in 2003.

3 AUSTRALIA

In August 2002, the Australian Greenhouse Office (AGO) published the “Australian Greenhouse Gas Inventory 2000” (NGGI 2000). According to the United Nations Framework Convention on Climate Change (UNFCCC) inventory accounting methodologies, Australia’s 2000 net greenhouse gas emissions totalled 535.3 million tonnes of carbon dioxide equivalent. Total net greenhouse gas emissions increased by 6.3% over the period 1990 to 2000. From 1999 to 2000, emissions increased by 2.1%.

In August 2002, the AGO also published a series of reports and papers on the National Carbon Accounting System (NCAS) development. These documents provide details of the methodology and data used in NCAS, greenhouse gas emissions from land use change in Australia, and guidance on progress towards Australia's 108% emissions target in matters related to forestry, land use and land-use change.

In November 2002, the AGO produced an "AGO Factors and Methods Workbook". This Workbook aims to provide a unified and single set of emission factors for use by all AGO programs, including Greenhouse Challenge and Australian Greenhouse Abatement Program. The Workbook will be updated periodically and notification made through the AGO web sites.

The AGO is also undertaking a review of methodologies for estimating carbon dioxide emissions from iron and steel production. This review is the response to a recent international review of the Australian NGGI, and will align the Australian methodology to that recommended by the IPCC. The review proposes that carbon dioxide emissions from iron and steel reductant use, particularly coal and coke, be accounted in the industry sector, rather than the energy sector as in the present Australian practice.

In February 2003, the Federal Minister for the Environment and Heritage, Hon Dr David Kemp, addressed the "Beyond Kyoto: Economic Impacts and Alternative Mitigation Strategies Conference" in Melbourne. He emphasised the need to:

- Get the climate science right;
- Deal with the issues of climate change, both domestically and internationally;
- Develop an effective global response;
- Involve developing countries in emission reduction; and
- Engage in partnership on energy for sustainable development and Clean Development Mechanism.

While the Federal Government has maintained its decision that it is not in Australia's interests to ratify the Kyoto Protocol at the present time, various State governments have taken initiatives in implementing carbon-constrained strategies. Notable activities include:

- The NSW State Government Electricity Supply Amendment (Greenhouse Gas Emissions Reduction) Act 2002;
- The Queensland Energy Policy: Clean Energy Strategy;
- The Western Australian Sustainability Strategy (Greenhouse-focused actions 2.15 to 2.23, on pages 225-226) and WA Greenhouse Strategy (under development); and
- The Victorian Greenhouse Strategy that includes various actions to promote the development of renewable energy in the State.

The NSW Government ESA Act, assented on 16 December 2002, aims to reduce greenhouse gas emissions associated with the production and use of electricity and encourage participation in activities to offset the emissions of greenhouse gases by:

- Establishing greenhouse gas benchmarks for participants in the electricity industry and large users of electricity;
- Establishing a scheme for recognition of activities that reduce or promote the reduction of greenhouses emissions and trading of certificates created; and

- Imposing a penalty (up to AU\$ 15 per tonne of carbon dioxide equivalent) on persons who fail to meet greenhouse gas benchmarks in any year.

In 2002, Australia and USA signed the “Australia-US Climate Action Partnership” (CAP). Several specific activities have been identified for the initial phase of the CAP, including:

- Climate models that will more accurately represent critical processes such as those associated with radiation, aerosols and cloud;
- Improved understanding of the role of Antarctica and the Southern and Indian Oceans in the climate system; and
- Changes in the global carbon budget through expanded observations in the Southern Hemisphere.

Key Australian participants in the CAP include the AGO; Department of Industry, Tourism and Resources; Department of Foreign Affairs and Trade; Bureau of Meteorology; CSIRO and Australian Antarctic Division.

4 UNITED STATES OF AMERICA (US)

Despite its withdrawal from the Kyoto Protocol, a number of climate change initiatives have advanced in the US. Notable ones are its cooperative efforts with various countries in the world, including Australia, Japan, Canada, New Zealand and the European Union (see individual countries summaries), discussions with the Russian Federation as well agreements with various Non-Annex I countries, such as China and India.

In “Our Changing Planet”, published in November 2002 as a supplement to the President’s Fiscal Year 2003 Budget, substantial provisions have been made in the following climate change areas:

- Greenhouse gas reduction technology and R&D, with significant funding designated for the US Department of Energy and Bush’s “clean coal” initiatives;
- R&D in underground sequestration of carbon dioxide, fuel cells, hydrogen and other breakthrough and renewable energy technologies;
- The Biodiesel Program to be administrated by the Department of Agriculture; and
- National Climate Change Technology Initiatives and Funds.

The above document also highlights the theme of US R&D in climate change science, namely “from Discovery to Comparative Analysis”. It embraces aspects from three broad tiers of activities:

- Scientific inquiry, which has been the core activity over the years, with several key issues continuing to await resolution;
- Observations and monitoring systems; and
- Development of decision-support resources, including analyses on environmental, economic, and energy system outcomes of various proposed scenarios.

In addition to Federal Government initiatives, various States of the US have also undertaken climate change actions. In a report entitled “Greenhouse & Statehouse: the Evolving State Government Role in Climate Change”, published in November 2002, case studies of activities from nine states are described. The report also presents trends in state climate change actions and concludes with the potential of state initiatives and their implications to national policies.

The US Federal Government published its “Emissions of Greenhouse Gases in the United States 2001” in December 2002, as a requirement of its Title XVI, Section 1605 (a) of the Energy Policy Act of 1992. Highlight of this document include:

- US emissions of greenhouse gases in 2001 totalled 6,905 million tonnes of carbon dioxide equivalent, a reduction of 1.2% from 2000;
- The above reduction is the largest percentage annual decline in US greenhouse gas emissions during the 1990 to 2001 time frame;
- On average, US greenhouse gas emissions increased at 1.0% per annum since 1990, and the total increase from 1990 to 2001 amounted to 11.9%; and
- US is the first country that adopted the new set of Global Warming Potentials as published in the IPCC Third Assessment Report; while other countries, including Australia, still use the set from the Second Assessment Report. The effect on US total emission level, however, is not significant.

5 JAPAN

Japan ratified the Kyoto Protocol on 4 June 2002. Just before that, on 31 May 2002, it delivered its third National Communication to the UNFCCC. This Communication presents details of Japan’s greenhouse gas inventories to 1999, policies and measures to manage global warming, and projections of future emission levels resulting from these policies and actions.

A new Guideline has been produced, describing more than 100 domestic measures that will help Japan to achieve its 6% reduction commitment stipulated in the Kyoto Protocol. A statutory Kyoto Protocol Target Achievement Plan is being drafted based on the new Guideline, to form part of the revised Law Concerning the Promotion of Measures to Cope with Global Warming. Major target components include:

- No increase in carbon dioxide emissions from energy sources compared to that of 1990;
- 2% reduction of emissions from development of innovative technology and public efforts; and
- 3.9% removals of emission inventory through carbon sink activities in Japan.

Japan, through the Ministry of Economy, Trade and Industry (METI), has since progressed to committing assistance to domestic industry in CDM and Joint Implementation (JI) development and implementation. Notable examples include discussions with China on CDM and the Russian Federation on JI. Also, it has announced plans to increase the acreage of national forests to meet its Kyoto obligations through carbon sequestration.

The Cabinet of the Japanese Government has recently approved METI’s plan for the introduction of a tax on coal and restructuring of other energy taxes starting from October 2003, and allow the Ministry of the Environment to use some of the tax revenue to reduce emissions of greenhouse gases. The coal tax will be introduced at a rate of 700 Yen/tonne; existing taxes on LNG and LPG will be increased from 780 Yen/tonne to 1080 Yen/tonne. Coking coal will be exempted from the coal tax until April 2005. Legislation to implement these measures was introduced into the Diet in February 2003.

In April 2002, Japan and the US agreed to promote cooperation on reduction of greenhouse gases through investigation of market incentives, as well as identification of promising avenues for research. Research priorities identified include: improved computer climate

models; expanded international data exchanges; natural sinks; monitoring of polar regions; and development of renewable and alternative energy sources. The agreement also highlighted the importance of continuing assistance to developing countries through human resources development, technology transfer and financial cooperation in the context of climate change.

6 CANADA

Canada ratified the Kyoto Protocol on 17 December 2002. Since then, debates and reviews have focused on deliberations of the specific Canadian greenhouse policy proposals. The Federal Government is currently refining and finalising with the Provinces on the implementation of programs on emissions reduction in transportation, renewable energy supply, industrial development, and various forms of flexibility mechanism.

The Canadian Government is developing details of its national emissions trading system, which was proposed initially in April 2002. The Canadian National Climate Change plan, published in November 2002, intends to allocate a relatively small share of national efforts to purchasing emissions reduction credits through international emissions trading, emphasising its commitment to reducing national greenhouse emissions by domestic measures. Notwithstanding that, the Government has indicated that it will provide financial assistance to Canadian companies involved in CDM projects, should the price of the Certified Emission Reduction (CER) be above Can\$ 15 per tonne of carbon dioxide equivalent.

The Government is also evaluating potential adverse impact from climate change regulations on the competitiveness of Canadian industries and export. In addition, the government is progressing on the creation of a Greenhouse Technology Subsidy Fund and an Energy Efficiency Fund to assist companies in commercialising R&D and prototype technologies related to climate change.

Canada is actively promoting biofuels, such as biodiesel and ethanol, and providing incentive to stimulate interest in these areas among the agricultural and transportation sectors. It also encourages the development of a fast rail system, linking between Montreal and Toronto, thus reducing emissions from the current diesel-based tracking system.

In 2002, Canada and US expanded their bilateral efforts to address global climate change. Areas of cooperation include the development of clean coal technology, renewable energy, and the capture and storage of carbon dioxide. Other activities include market-based mechanisms and capacity building in developing countries.

7 NEW ZEALAND

New Zealand ratified the Kyoto Protocol on 19 December 2002. The Government has now proposed the introduction of a new carbon emissions tax that would be applied, initially, on carbon fuels. The tax is part of a series of measures designed to aid New Zealand's effort to achieve its Kyoto Protocol target. Part of the revenue raised by the carbon tax would be offset by cuts to other taxes.

The proposed tax, up to NZ\$ 25 per tonne of carbon dioxide equivalent, will be effective from 2007, if the Kyoto Protocol comes into force. Farmers will be exempt from the tax in the current proposal. The impact of such a tax would be increases in fuel and electricity prices by 6 to 12 percents.

The New Zealand Government's preferred greenhouse policies include the use of negotiated greenhouse agreements for industry sectors whose competitiveness with overseas companies

would be jeopardised by the carbon tax. In addition to energy efficiency and conservation, the policies also encourage research on emission reduction in the agriculture sector, as well as sink credits from forestry.

In October 2002, the New Zealand and US governments signed an enhanced climate change cooperation agreement. Themes of this cooperation include: climate change science and monitoring in the Pacific; climate change research in Antarctica; greenhouse emission accounting; and emissions reduction technologies.

8 EUROPEAN UNION (EU)

All EU member countries ratified the Kyoto Protocol on 31 May 2002, and are now actively pursuing measures to reduce greenhouse gas emissions. Their greenhouse inventories, projections to future and strategies for greenhouse emissions reduction are provided in respective third national communications to the UNFCCC by individual countries, submitted between 2001 and 2002.

In 2002, increased wind-power capacity was noted in the EU, with Spain reporting 44% capacity growth and Germany 22% growth, while the UK wind market size has doubled during the year. The UK has also diversified its renewable energy portfolio by establishing funds to enhance the national capacity in biofuels. The UK Government has now commissioned two companies to build wave and tidal power generators in the seas off Scotland and Wales.

Many EU countries are engaging in CDM projects. In particular, the Netherlands Government, through its agency Senter, has been very active in this area. Recently, the Netherlands has provided a commitment to the Brazilian steel producer V&M to purchase 5 million tonnes of carbon dioxide equivalent, with a contract value of Euro 15 millions. Another CDM agreement has also been signed between the Netherlands and Nicaragua governments. Various discussions between the EU and the Russian Federation on JI are also in progress.

EU environment ministers met in Brussels on 9 December 2002 and agreed on the ground rules for EU-wide trading of carbon dioxide and later other greenhouse gas emission allowance. The EU is now continuing its deliberation on the details of this regional emissions trading scheme, which will likely be a mandatory cap and trade system commencing in 2005.

In March 2003, The EU and the US signed a cooperation agreement on climate change research and energy issues. Areas of cooperation identified include: carbon cycle; aerosol-climate interactions; feedbacks (e.g. from water vapour and thermohaline circulation); integrated observation systems and data; carbon capture and storage; and hydrogen technology and infrastructure.

9 NON-ANNEX I COUNTRIES

Most Non-Annex I countries have now ratified the Kyoto Protocol, including China, India and South Africa. While there are no obligations for these countries to reduce greenhouse gas emissions in the first commitment period of 2008 to 2012, many countries are actively engaging in projects that have the potential to reduce greenhouse gas emissions. Most of these projects are planned or progressed under the Clean Development Mechanism.

The Chinese Government has recently announced plans to invest 1.5 billion Yuen (approximately US\$ 200 million) in a wind power generation project in Fujian Province in

Eastern China. The plans propose the construction of wind farms to a total capacity of 200 MW, and will be built in a period of five years from approval.

Just before the COP-8 in October/November 2002, India approved six CDM projects under the “prompt start” scheme. These projects are mainly related to biomass and wind power generation, and will eliminate more than 26 million tonnes of carbon equivalent of greenhouse gases. Details of these project are being negotiated with Senter, the Netherlands Government agency in these ventures.