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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

**SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE**

**Twenty-fourth session**

**Bonn, 18–26 May 2006**

**Item 5 of the provisional agenda**

**Research and systematic observation**

**Research needs and priorities relating to the Convention**

**Submissions from Parties**

**Addendum**

1. In addition to the five submissions contained in document FCCC/SBSTA/2006/MISC.3, two further submissions have been received.
2. In accordance with the procedure for miscellaneous documents, these submissions are reproduced\* in the language in which they were received and without formal editing.

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\* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

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PAPER NO. 1: AUSTRALIA

**Research needs and priorities relating to the Convention**

**Australian Submission to SBSTA-24**

**March, 2005**

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The 22nd session of the Subsidiary Body for Scientific and Technological Advice in May 2005, invited Parties to submit to the Secretariat their views on identified research needs and priorities relating to the Convention.

(Ref FCCC/SBSTA/2005/4, para. 77)

Australia welcomes the opportunity to submit views on research needs and priorities relating to the Convention including information relating to the enhancement of the capacity of developing countries to contribute to and participate in climate change research

Australia considers that research priorities identified by the IPCC in their Third Assessment Report (TAR) (which will presumably be updated for the Fourth Assessment Report, AR4) still provide the most useful list of activities that research programmes will determine priorities from. This list is determined by the research community itself rather than driven from a political framework. However, the research priorities of the IPCC do not always match exactly with the needs of the Convention and thus a Party-offered list of research needs could be a useful supplement to highlight research needs of policy makers. High priority areas for action include:

- systematic observations and reconstructions, including re-analyses
- modelling and process studies including feedback processes such as those associated with aerosols
- quantitative assessment of sensitivity, adaptive capacity and vulnerability to climate change, including through regional modelling
- understanding dynamic responses of ecosystems and biodiversity to multiple stresses arising from climate change
- improved tools for integrated assessment to investigate the consequences of policy options
- investigation of technological and social innovation options for mitigation
- improved methodologies for analysis of mitigation options
- evaluation of mitigation options in the context of development, sustainability and equity
- ice coverage, particularly in the arctic
- land surface and carbon cycle modelling
- ocean acidity and related impacts on ecosystems
- thermohaline circulation, particularly as it contributes to the rate of warming
- research on impacts, particularly of extremes (Tropical Cyclones, ENSO, storms, extreme weather)

The recent finalisation of the GCOS Implementation Plan is a major step forward in the need for quality systematic observations. Strengthening the coordination and implementation of the terrestrial part is key. Research to underpin sustained operations is another.

Much of the high priority actions identified in the TAR involve research that is coordinated internationally through the research programmes of WCRP, IGBP and IHDP. The research includes the physical and biogeochemical aspects of the natural environment as well as socio-economic issues

The IPCC Third Assessment Report identified the decline in observing networks as a major limitation on progress in understanding and quantifying climate change. The collection and analysis of data is vital for all nations individually and for the international community as a whole. Observations are the foundation for all research and understanding, and so it is necessary for all nations to have adequate observing networks and analysis facilities. The importance of capacity building to enhance observing and analysis in developing countries was highlighted in the GCOS Implementation Plan which includes strategies to facilitate this process. The GCOS Cooperation Mechanism is one of these strategies, and it will lead to a more coordinated approach to capacity building in the consolidation of baseline observing networks.

WCRP, IGBP, IHDP and DIVERSITAS have established the System for Analysis Research and Training (START) as a capacity-building arm of the global change research programmes. START has been effective over the last decade in conducting a range of activities (including workshops, fellowships and guest lectureships) to promote capacity building especially in parts of Africa and Asia. As a non-governmental organisation, START works closely with intergovernmental programmes, such as the Asia Pacific Network for Global Change Research (APN) and the Inter-American Institute (IAI).

The international organisations, such as WMO and IOC, also maintain substantial capacity building programmes focused on enhancing the capabilities of member nations in their respective disciplines. These activities build the professional capabilities of developing countries across relevant disciplines for climate change research. Indeed there have been excellent examples of cooperation between the international agencies and START; for example, WMO and START have cooperated on capacity building activities on climate and agriculture. There has also been collaboration on workshops on the analysis of climate extremes through CCL, WGCCD and START.

Australia considers that in addition to direct participation in data collection and analysis, it is important for all countries to have the capability to contribute to and benefit from the international research activities of the global research programmes. Australia supports the efforts of a wide range of capacity building programmes (including those outlined above) and consider that capacity building programmes already in place provide a strong foundation for the capacity enhancement of developing nations with regard to global climate change research efforts.

PAPER NO. 2: CHINA

**China's Views on Research Needs Relating to the Convention**

The document FCCC/SBSTA/2005/L.6 invites Parties to submit information on identified research needs and priorities relating to the Convention, including information relating to the enhancement of the capacity of developing countries to contribute to and participate in climate change research. China would like to take this opportunity to express the following views.

Scientific research and assessment on climate change are extremely important for the implementation of the Convention. It is the view of China that there are still large uncertainties in climate change sciences. Key scientific issues to be solved include the understanding of causes of climate change, especially the identification of anthropogenic climate change, the sensitivity of climate system to various forcing, including atmospheric greenhouse gases and aerosols, the reliability of the anthropogenic climate change projection by climate models, the attribution of the impact to anthropogenic climate change, the net impacts of the anthropogenic climate change on natural and socio-economic systems both on global and regional scales, the impact of mitigation of anthropogenic climate change on natural and socio-economic systems and the novel technologies for mitigating anthropogenic climate change.

In order to further reduce the scientific uncertainties, the following fields should be given priorities:

- **Detection, identification and projection of anthropogenic climate change**
  - analysis of observed climate change in the last 100 years;
  - processes and feedbacks of climate system;
  - sensitivity of climate models;
  - methods to attribution of climate change to any specific forcing;
  - development and improvement of global and regional climate models used for projecting future climate change probably induced by human activities.
- **Impact of, and adaptation to anthropogenic climate change**
  - attribution of the identified impact to anthropogenic climate change;
  - assessment of both positive and negative aspects of impact of anthropogenic climate change;
  - development of integrated impact assessment models.
- **Impact of mitigation on socio-economic systems**
  - improvement of models for mitigation assessment;
  - assessment of impacts of mitigation on sustainable development;
  - development of applicable technologies for mitigation, including hydrogen-energy technology.
- **Capacity building in developing countries.**
  - engagement of scientists and research institutions from developing countries in internationally cooperative climate change research programs;
  - setup of institutions for training experts from developing countries;
  - enhancement of the capacity for national communications;
  - simplification of procedures for the KP Mechanisms including CDM;
  - international cooperative research that facilitates the transfer of technology for mitigating climate change.

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