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Item 8 of the provisional agenda

Research and systematic observation

Views on issues from the research event at the twentieth session of the Subsidiary Body for Scientific and Technological Advice

Submissions from Parties

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its twentieth session, welcomed the exchange of views among representatives of government research programmes and international programmes and bodies during the event requested by the SBSTA, and held at the twentieth session of the SBSTA, on research in response to the recommendations of the Third Assessment Report of the Intergovernmental Panel on Climate Change. The following were noted as requiring further consideration:
 - (a) The need to assess the adequacy of research activities and their international coordination to meet the needs of the Convention
 - (b) The importance of social as well as natural sciences, and the interaction between the two, in responding to the research needs arising from the assessment reports of the IPCC
 - (c) The enhancement of the capacity of developing countries to contribute to and participate in global climate change research efforts, such as those coordinated by the World Climate Research Programme (WCRP), the International Geosphere–Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP) and DIVERSITAS.
2. The SBSTA requested Parties to submit to the secretariat, by 15 September 2004, their views on how to adequately address the main issues arising from the event requested by the SBSTA, in particular those mentioned in paragraph 1 above, for consideration by the SBSTA at its twenty-first session. It requested the secretariat to compile these submissions into a miscellaneous document.
3. The secretariat has received five such submissions. In accordance with the procedure for miscellaneous documents, these submissions are reproduced* in the language in which they were received and without formal editing.

* 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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* This submission is supported by Bulgaria and Romania.

PAPER NO. 1: AUSTRALIA

**SBSTA-20 Event
on
Research in Response to the Recommendations of the TAR of the IPCC**

Australian Submission to SBSTA-21

September, 2004

The 20th session of the Subsidiary Body for Scientific and Technological Advice invited Parties to submit their views on:

- a) The need to assess the adequacy of research activities and their international coordination to meet the needs of the Convention
- b) The importance of social as well as natural sciences, and the interaction between the two, in responding to the research needs arising from the assessment reports of the IPCC
- c) The enhancement of the capacity of developing countries to contribute to and participate in global climate change research efforts, such as those coordinated by the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP) and DIVERSITAS.

[Ref: Document FCCC/SBSTA/2004/L.4, paragraph 7 and 8]

Introduction

Australia welcomes the opportunity to submit views on how to adequately address the main issues from the event at SBSTA-20 on research needs in response to the recommendations of the Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change (IPCC). Australia commends the work of the IPCC in identifying research needs in the TAR and its continuing work on preparing for the Fourth Assessment Report (AR4). The outstanding contributions made by the IPCC Chair and Bureau members merit particular recognition, as do the dedicated efforts of the many teams of authors, reviewers and technical support staff. The following comments relate to each of the specific issues identified by SBSTA-20.

a) The need to assess the adequacy of research activities and their international coordination to meet the needs of the Convention

The role of the IPCC is to assess on a regular basis the state of the scientific, technical and socio-economic information relevant to the understanding of climate change, its potential impacts and options for adaptation and mitigation. The IPCC has been very effective in fulfilling its role, through the production of its Assessment Reports, Special Reports and other publications. Australia supports the IPCC continuing as the primary forum for assessing the adequacy of climate change research.

In completing the Third Assessment Report (TAR), the IPCC has identified a range of outstanding issues which should be the focus of research contributing to the Fourth Assessment Report (AR4). High priority areas for action included

- systematic observations and reconstructions
- modelling and process studies

- quantitative assessment of sensitivity, adaptive capacity and vulnerability to climate change
- understanding dynamic responses of ecosystems to multiple stresses
- 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

The first area of climate monitoring has been taken up by the Global Climate Observing System (GCOS), and the Second GCOS Report on the Adequacy of the Global Observing Systems for Climate (2AR) was presented to SBSTA in 2003. A five to ten year implementation plan based on the 2AR is currently being finalised for presentation to SBSTA-21. The plan is expected to detail the actions required by all nations to ensure that the global community will have the basic observations needed for understanding and managing climate change. The plan will consider the international, regional and national activities required for observations in the atmospheric, ocean and terrestrial domains.

Much of the high priority actions identified in the TAR involve research that is coordinated internationally through the Earth System Science Partnership (ESSP). The research includes the physical and biogeochemical aspects of the natural environment as well as socio-economic issues.

Australia notes that it will be important for SBSTA to monitor progress against the GCOS implementation plan. We consider the ESSP provides a clear mechanism for cooperation and collaboration across the individual research programmes and complements the GCOS implementation plan, which is focused on observations from the natural environment, and does not include socio-economic data.

b) The importance of social as well as natural sciences, and the interaction between the two, in responding to the research needs arising from the assessment reports of the IPCC

Research indicates that human activity, since the pre-industrial era, is contributing to climate change, and so socio-economic studies are vital to our understanding and managing climate change. It is apparent that, as the IPCC Assessments have evolved since 1988, the focus of research has gradually shifted from fundamental questions in the natural sciences towards more societal issues. Current international research is concentrating on key problems on the behaviour of the climate system to anthropogenic forcing. There remain many outstanding issues on the behaviour of the climate system to both natural and anthropogenic forcings, and the AR4 is expected to report progress in these areas.

The Earth System Science Partnership (ESSP) of the global change research programmes is facilitating international collaboration to progress the research required to address these socio-economic issues. In particular, ESSP is coordinating four cross-cutting joint projects which involve studies on

- developing policy-relevant knowledge of the natural and human dimensions of the global carbon and energy systems (Global Carbon Project - GCP)
- developing strategies to address global food provision incorporating socio-economic aspects of adaptation (Global Environmental Change and Food Systems – GECAFS)
- understanding the human responses to changes in the global water cycle and associated biogeochemical cycles (Global Water System Project – GWSP)
- understanding the links between changes in the earth system and human health (Global Change and Human Health).

Australia supports the work of the ESSP and considers that it provides a balanced portfolio of climate change research activities that appropriately incorporates social and natural sciences in responding to the

research needs of IPCC assessment reports. We expect that ESSP research activities will have pertinent results to feed into the AR4 process across all three IPCC Working Groups.

c) The enhancement of the capacity of developing countries to contribute to and participate in global climate change research efforts, such as those coordinated by the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP) and DIVERSITAS.

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 Second Report of GCOS on the Adequacy of the Global Observing Systems for Climate (2AR), and the associated implementation plan will include 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.

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: JAPAN

Japan's Views on Research Relevant to the United Nations Framework Convention on Climate Change

Japan welcomes the opportunity to submit its views on research relevant to the United Nations Convention on Climate Change in response to FCCC/SBSTA/2004/6 para.103.

IPCC Third Assessment Report (TAR) contains much information that is useful for the work of COP and SBs to meet the needs of the Convention. Also, it contains important recommendations for further action to address remaining gaps in information and understanding. We believe that this set of information should be used in various ways to support the work of COP and SBSTA on further strengthening their efforts to address the issue of climate change. Therefore, SBSTA should make the best use of the information contained in the TAR for the existing agenda items, and it should also continue its discussion to ensure linkage between the work of UNFCCC and that of the scientific community.

Japan believes that climate change issue should be tackled with the participation of all countries, and be based on the latest scientific knowledge and a long-term perspective. The TAR provides much useful information for this purpose. We need to consider how we can best use the TAR in pursuing this goal. In Japan's submission in March and August 2002 and January 2003, we presented our views on this issue and we will address it further in our submission that will be presented by the end of January 2005.

We must plan and implement measures to address climate change using the best available scientific knowledge at each stage. While full consideration should be given as to how to use existing scientific knowledge, we also need to provide our views on priorities and questions to the scientific community so that limited resources are best utilized for research that meet the needs of policy makers.

It is Japan's view that the following subjects are those to which the scientific community should give priority in their research and assessments.

1. Further development of modeling and process studies to reduce scientific uncertainties

Japan has been promoting studies in order to address the issues pointed out by the TAR. Based upon the Science and Technology Basic Plan (2001-2005) decided by the Government of Japan on March 30, 2001, the Council for Science and Technology Policy (CSTP) chaired by the Prime Minister of Japan with Members consisting of concerned Ministers and experts, identified 5 areas including global warming* and global water cycle for research initiatives as strategies for the environment research field to be promoted in an interdisciplinary way.

Activities conducted through these initiatives (such as the "Kyo-sei" Project**, Global Environmental Research Fund and other scenario based projection studies conducted by Meteorological Research Institute) have high potential in addressing climate change projection studies to meet the IPCC TAR requirements and contribute to the Fourth Assessment Report (AR4). The Earth Simulator (ES), the most advanced parallel supercomputer in the world with the peak performance of 40 teraflops is used by some of these activities. From these experiences, we consider it is important to further develop modeling and process studies, as follows:

(i) Improve understanding of the mechanisms and factors leading to changes in radiative forcing.

This issue has always been pointed out and seems to be ever lasting. We think it can not be resolved for modeling and process studies without closer coordination with global

* "Global warming" is used here based on the IPCC reports that the climate change we are facing is observed and projected to show global warming.

** A five-year project launched in 2002 to address global issues such as global warming and extreme events. It consists of climate change modeling and process studies, and water cycle studies.

observation/monitoring studies, because some processes related to radiative forcing including the indirect effect of aerosols are scarcely observed and understood. International policy makers have been showing encouraging developments on global observation since the G8 Summit in Evian in 2003. Expecting such developments to further continue, we would also like to emphasize the important roles of closer interaction with basic studies on the issue.

(ii) Understand and characterize the important unresolved processes and feedbacks, both physical and biogeochemical, in the climate system.

There remain a number of physical and biogeochemical processes and feedbacks unresolved both in the atmosphere and the oceans. We consider it a feasible and realistic way, particularly in terms of climate modeling, to parameterize these feedbacks and processes most appropriately, making use of updated outcomes of basic research based on available observations. It is then again important to get close coordination with basic research and observation activities.

(iii) "Improve methods to quantify uncertainties of climate projections and scenarios, including long-term ensemble simulations using complex models":

A relevant request was already made by the Co-chairs of the IPCC/WG1 and the Chairs of the Working Group on Coupled Modeling (WGCM) and Coupled Model Intercomparison Project (CMIP) of World Climate Research Programme (WCRP) on scenario related projection studies. In order to address this issue, we consider it very important to develop a coupled atmosphere-ocean general circulation global model with high resolution and improved physical processes capable to make a 100 year-scale scenario-based projection experiments, as a climate model responding to the above request.

(iv) "Improve the integrated hierarchy of global and regional climate models with a focus on the simulation of climate variability, regional climate changes and extreme events.

From a regional point of view, the future behaviors of tropical cyclones, monsoons, severe storms and/or extreme events are deeply concerned about and we think their projections are becoming increasingly important. These phenomena are basically affected by topographies, ocean currents and other fine geographical structures. However studies on the projections of such regional and extreme events have been limited by the capacity of computers.

With an advanced super-computer like the ES, a global climate model of super-high horizontal resolution in the atmosphere can be applied by a time-slice method for a limited time span (e.g. 10-20 years) to already climate changed (or globally warmed) state which is projected by a lower resolution climate model.

The further way to promote finer resolution model is to develop a regional climate model nested in a global model. This method has also been applied in Kyo-sei Project to develop a regional model covering Japan and surrounding areas with the horizontal resolution of several km which can resolve cloud activities, severe rain storms and other local events. This way of regional modeling is valuable from the standpoint of saving computer resources and has also been developed by research groups with conventional computers.

(v) Link more effectively models of the physical climate and the biogeochemical system, and in turn improve coupling with descriptions of human activities.

Existing climate models have projected climate change due to the change of atmospheric constituents, green house gases in particular, but not the way around. The important role of feedback effects of the atmospheric constituents and other climate elements (not only physical but also biogeochemical) on the climate system and the need to consider the issues in terms of the Earth system have been increasingly recognized by the international research community, as seen by the recent consideration by the WCRP to launch a 10-year Programme from next year under the title of "Coordinated Observation and Prediction of the Earth System."

We think it is highly valuable to eventually introduce carbon cycle, atmospheric chemistry and the ecosystems both on land and in the ocean fully into the climate model to form an integrated model so that their feed-back effects are able to be duly projected.

As for the improvement of coupling with descriptions of human activities, we feel the linkage needs to be strengthened. The recent development here is to have been providing projection outcomes as soon as possible to impact study groups. Linkage with scenario studying groups and other social science groups on land-use, land-use change and forestry needs to be improved.

In addition, with the striking increase in various Earth observation data including in-situ and satellite observations, a need to analyze such huge amount of data and transform them into useful information is increasing. We have addressed that development and improvement of the methods to produce uniform and dynamically-consistent reanalysis dataset by integrating a variety of inhomogeneous observation data measured by various methods in atmosphere, ocean, and land areas. We think this approach contributes to above-mentioned subjects in many aspects.

2. Promotion of systematic observation

IPCC TAR identified promotion of systematic observation, such as reversing the decline of observational networks, observational foundation for climate studies and observation of the spatial distribution of greenhouse gases and aerosols to be high priority areas for action to reduce uncertainties and to project future climate changes.

In the past years, countries have promoted systematic observations under the frameworks of existing international programmes and initiatives including the World Meteorological Organization/Global Atmosphere Watch (WMO/GAW), the Global Climate Observing System (GCOS), ARGO and the Integrated Global Observing Strategy Partnership (IGOS-P), and recently the international community has made a significant progress in further promoting international cooperation in this area. Based on the G8 Evian Summit Action Plan and the Declaration of the first Earth Observation Summit (EOS) held in 2003, countries and international organizations are establishing a comprehensive, coordinated and sustained Global Earth Observation System of Systems (GEOSS). The ad hoc Group on Earth Observations (GEO) is undertaking an extremely important task of developing a 10-Year Implementation Plan to establish GEOSS, and COP invited that GEO treat global climate monitoring as a priority and to adopt a balanced approach to the application of in situ and remote-sensing systems for climate monitoring. The Framework Document for a 10-Year Implementation Plan was adopted at the EOS II, held in Tokyo in April 2004, and the Plan itself is now being developed for the adoption at EOS III to be held in February 2005. As a country that has stressed the importance of promoting systematic observation in various international forums, we are pleased with this progress, and consider that we should continue to give priority to promoting research and systematic observation, through contribution to GEOSS.

3. Enhancement of capacity of developing countries on global climate change research

Japan would like to stress the importance of strengthening international cooperation to enhance the capacity of developing countries on global climate change research. Japan has been supporting the Asia-Pacific Network for Global Change Research (APN) with a close cooperation among 21 member countries from the Asian-Pacific region.

APN launched a new program called "Scientific Capacity Building and Enhancement for Sustainable Development in Developing Countries" (CAPaBLE), a significant achievement which is expected to develop and enhance scientific capacity in developing countries to improve their decision-making in the target areas related to climate change. APN started to fund two comprehensive research projects; one is to assess climate change and its impacts on water resources and agriculture, another is to analyze mitigation options by integrated assessment model. APN also funds activities to enhance the capacity building of aspiring scientists on climate change.

PAPER NO. 3: NETHERLANDS ON BEHALF OF THE EUROPEAN COMMUNITY
AND ITS MEMBER STATES

**SUBMISSION BY THE NETHERLANDS ON BEHALF OF THE
EUROPEAN COMMUNITY AND ITS MEMBER STATES**

This submission is supported by Bulgaria and Romania.

Brussels, 3 September 2004

**Subject: Research and Systematic Observation. Views on topics raised in document
FCCC/SBSTA/2004/L.4**

The Netherlands, on behalf of the European Community and its Member States, welcomes the opportunity to submit their views regarding agenda item 6 on the following topics as requested in document FCCC/SBSTA/2004/L.4:

- a) The need to assess the adequacy of research activities and their international coordination to meet the needs of the Convention.
- b) The importance of social as well as natural sciences, and the interaction between the two, in responding to the research needs arising from the assessment reports of the IPCC.
- c) The enhancement of the capacity of developing countries to contribute to and participate in global climate change research efforts, such as those coordinated by the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP) and DIVERSITAS.

Introduction

The EU wishes to thank all the people that gave presentations and participated in discussions with the parties at the special side event during SBSTA20. The EU believes that scientific research is pivotal to the Convention and ultimately to the formulation of an adequate response to climate change. It therefore wishes to further develop this SBSTA agenda item.

Process towards identifying the adequacy of research

In its 3rd Assessment Report the IPCC provided a summary of research needs largely from a scientific point of view, though with awareness of policy relevance. In addition it is common practice for research managers, funding bodies and users to review from time to time research needs.

However the EU considers that there has only been a limited assessment and identification of gaps in research needs of the Parties from the perspective of meeting the objectives of the Climate Change Convention (SBSTA/2002/MISC.15 and SBSTA/2002/INF.17). However no conclusions were drawn at that stage.

The EU recognises that the autonomous development of science does not necessarily meet all the scientific and technological information needs of the UNFCCC. Therefore the EU considers that it would be timely to undertake a more rigorous assessment of the research needs of the Parties with respect to the

Convention, building on the earlier exercise of SBSTA 17, the work of the IPCC and other national and international scientific bodies and other actors working in the field, including the private sector. Such work should be seen as part of a developing dialogue between science and policy on climate change.

The EU suggests that to meet the collective research needs of the Parties with respect to the objectives of the Convention, the Secretariat should be asked to commission an independent study to:

- a) Review research requirements identified in previous submissions at SBSTA 17.
- b) Seek further clarification from Parties and adjust/enhance these requirements.
- c) Review with the international research bodies and the IPCC, how far existing research can deliver the requirements raised by the Parties, to identify gaps in existing research programmes.
- d) Propose ways these gaps could be filled by new work or adjustments to existing research programmes.
- e) Initially identify timescales and resource requirements for additional or more focussed research.
- f) Review particularly the activities and needs of developing countries, with respect to their participation in international research.

Such a review is likely to identify areas of cross-cutting research which in itself will tend to drive co-operation between the physical and social sciences.

The reviewers should be asked to report their initial findings to SBSTA 23 and to the international research bodies they consulted. The latter should be invited to provide their reactions to SBSTA also.

Such a process should contribute to improving understanding of the scientific, technical and socio-economic issues surrounding risks of climate change and options to minimise risks through mitigation and adaptation strategies. The EU recognises that science funding is largely a national issue but also recognises that in the climate area there is a strong need to tackle the issue through existing international research programs due to its scale, urgency and interdependency.

Pending the outcome of the review, the EU would also encourage Parties and the international science bodies to review the issues raised in SBSTA/2002/MISC.15 and INF.17, and to undertake initial actions to address the research needs identified at SBSTA 17.

EU-experiences in linking natural and social sciences

There is a growing tendency within the EU to form inter-disciplinary research centres to address global environmental issues which cover both natural and socio-economic sciences. Furthermore where research is undertaken specifically to meet policy requirements there is often a need for cross-cutting interdisciplinary research, although it is accepted that more needs to be done in this regard.

Developing Country research

Several EU member states have programmes to assist institutions in developing countries in conducting research (e.g. national communications, GHG inventories, vulnerability and adaptation assessments, research and systematic observation) and to assist students from developing countries through scholarships and training.

PAPER NO. 4: UNITED STATES OF AMERICA

**Submission of the United States
FCCC/SBSTA/2004/6
Research and Systematic Observations
September 21, 2004**

The United States is pleased to provide the Secretariat with additional views on how to adequately address the main issues from the event held at the 20th session of the SBSTA on research in response to the recommendations of the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The chief issues were in three areas.

- 1) The need to assess the adequacy of research activities and their international coordination to meet the needs of the Convention

Assessment of research, including its ability to contribute to providing the best possible scientific basis for actions taken under the Convention, is certainly appropriate. Such periodic assessments, especially with consideration of the latest material and input from the science community, can be valuable in helping leverage funds in support of continuing and future activities, identifying important research gaps, and identifying successful approaches to addressing research problems.

The IPCC assessment has been and remains exceptionally useful in assessing the full range of scientific activities, including research, that are relevant to international policy-making in the climate/global change arena. The United States looks to the Conference of the Parties process to ascertain when the Convention has specific needs for research and to communicate these needs to the research community. However, we consider it unnecessary to undertake, in addition to the IPCC process, another major assessment of research related to climate/global change.

The U.S. Government has developed a Strategic Plan for the U.S. Climate Change Science Program. That plan provides the basis for identifying and prioritizing those elements of climate science that the U.S. intends to implement. Development of the plan involved a comprehensive examination of research and observation needs, transparent review by all the international scientific stakeholder communities, and establishment of defined goals for the research.

The U.S. National Academies of Science evaluated the document and stated that the Climate Change Science Program had “responded constructively to the National Academies’ review and other community input in revising the strategic plan. In fact, the approaches taken...to receive and respond to comments from a large and broad group of scientists and stakeholders...set a high standard for government research programs.” The National Academies concluded that the revised strategic plan was ambitious and broad in scope, encompassing areas of long-standing importance together with new or enhanced cross-disciplinary efforts, and could “effectively guide research on climate and associated global changes over the next decades.”

Since the release of the Strategic Plan in July 2003, the Climate Change Science Program has been moving from planning to implementation. The program brings together the resources and expertise of 13 departments and agencies in the U.S. federal government. This program has implemented an interagency management structure to assure joint planning of ~\$2 billion (annual budget) in directly sponsored research and to leverage related research conducted by the collaborating U.S. agencies.

The Climate Change Science Program plans to release 21 synthesis and assessment products over the next four years. The purpose of these products are as follows: (1) to convey the most up-to-date information available, drawing on the evolving body of climate and global change research; (2) to

address a full range of scientific issues from past/present conditions to evaluation of options for response; and (3) to evaluate and report on levels of confidence. These synthesis and assessment products will be available for use by the Framework Convention on Climate Change, as well as the Intergovernmental Panel on Climate Change. In fact, the output of the entire program will be available for the full use of the scientific and user communities throughout the world, as transparency of process and availability of information are core principles of the program.

- 2) The importance of social as well as natural sciences, and the interaction between the two, in responding to the research needs arising from the assessment reports of the IPCC

The importance of the social sciences in the global change research agenda has long been recognized, and efforts to improve interaction between these two areas are being actively undertaken. The IPCC has been instrumental in identifying problems that require continued research in these fields. We should make every effort to move toward more interdisciplinary, integrated work. Effective integration of findings and true interdisciplinary research is critical to understanding and addressing climate and global change.

The international global change research programmes (e.g.- IGBP, IHDP, WCRP, and Diversitas) are seeking to further promote interdisciplinary research and its more effective international coordination, for example, through their recent establishment of the Earth System Science Partnership (ESSP) in which all four programs participate.

In the United States, efforts are also underway to make steps toward interdisciplinary work and effective integration of the social and natural sciences through a variety of efforts, including the development of a suite of 21 synthesis and assessment products of the U.S. Climate Change Science Program. Continued support for research in the natural sciences and additional support for research in the social sciences are essential prerequisites for successful integrated, interdisciplinary work to support decision making.

- 3) The enhancement of the capacity of developing countries to contribute to and participate in the global climate change research efforts, such as those coordinated by the WCRP, IGBP, IHDP, and DIVERSITAS

The enhancement of global research capacity and eventual global coverage of observations is clearly necessary and of high priority as signaled by U.S. support and hosting of the Group on Earth Observations and the System for Analysis Research and Training (START) program, as well as U.S. leadership in and support for the Inter-American Institute for Global Change Research (IAI); the Asia-Pacific Network for Global Change Research (APN); the International Research Institute for Climate Prediction (IRI); and the Consultative Group on International Agriculture Research (CGIAR). These efforts include substantial components directed to enhancement of the capabilities of scientists from developing countries not only to participate in such regional research, but also to contribute to global-scale studies such as those undertaken under the umbrellas provided by the WCRP, IGBP, IHDP, and DIVERSITAS.

The contributions of developing countries cannot be underestimated in improving our understanding of the climate system. Capacity building is an essential tool for increasing capability for climate monitoring and performing analyses of the observed climate. Without these capabilities, our predictive capabilities for the climate system are severely limited.

With regard to bilateral climate activities, the United States cooperates in bilateral climate activities with a number of countries and regions of the world. Through this important network of bilateral and regional partnerships, the United States is advancing the science of climate change, enhancing the technology to monitor and reduce greenhouse gases, and assisting developing countries through capacity building and

technology transfer. Significant progress is being made on many aspects of the United States' international climate change agenda through establishment of results-oriented "action plans" with bilateral and regional partners. These partners include Australia, Brazil, Canada, the seven Central American countries under CONCAUSA (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), the European Union, India, Italy, Japan, Mexico, New Zealand, the People's Republic of China, the Republic of Korea, the Russian Federation, and South Africa.

PAPER NO. 5: UZBEKISTAN

Opinion on studies and systematic observations

Republic of Uzbekistan supports the efforts of FCCC Secretariat in the area of studies and systematic observations

Republic of Uzbekistan taking into account the results which it presented in "Second report on adequacy of global climate observation systems (...) and basing on the results presented in...., concludes the following:

1. It is necessary to continue the assessment of adequacy of activities and its international coordination to meet the Convention needs:

Republic of Uzbekistan makes great efforts for the preservation of the existing hydrometeorological network with the 24-hour daily observations on climate: during the last 10 years the number of hydrometeorological stations was almost not changed. This provides for storing of the long-term historical data series which are needed for the assessment of climate change and development of adaptation measures. A good deal of information was collected and for some stations it is longer than 100-year period. However, the analysis of homogeneity of observation series is needed regarding strong local anthropogenic impacts on climate (making of water storages and discharge lakes, irrigated areas, drying of the Aral Sea, etc.)

Republic of Uzbekistan concludes that it is necessary to:

- Update a current surface observation system
- Continue its equipping with the modern instruments and equipment
- Reconstruction of aerological network which is laid up at present due to the high cost of aerological observations.

Republic of Uzbekistan carries out monitoring of climatic system and exchange of climatic data on bilateral (Russia, Kazakhstan, Kirgizstan, Tajikistan) and multilateral (WMO) basis. The information which is received by exchange needs systematization of its collection and analysis as well as wide access to it of the experts in investigation of the regime of the area wetting, development of methods of the water resources states and systems of early prevention of droughts which are the most prior tasks in the problem of climate change for Central Asian region.

Republic of Uzbekistan notes that the clarification and explanation of causes of climatic changes require additional studies for which it is necessary to create a regional data base using the unique methodology with homogeneous information on hydrometeorological characteristics. The creation of such specific data base under UNFCCC aegis with the open access for scientists and experts in different fields to it will provide for the following:

- To coordinate national studies and carry out them on the unique information basis, starting with creation of regional climate scenarios, assessment of impacts on climate change, study of climatic variability;
- Will facilitate the solution of problem of the water resources vulnerability regarding climate change, promote the adaptation/working out and apply the relevant models of the water resources management with the account of transboundary character of the regional rivers.

It is necessary to pay more attention to characteristic of the extreme phenomena which play an important role in the assessment of the impact and adaptation, as well as the assessment of risk and vulnerability. At the first stage it is necessary to assess a natural climatic variability basing on international programs CLILAR and WCDMP (World Climate Data and monitoring Program), especially on recommendation ETCCDMI (Expert Team on Climate Change Detection, Monitoring and Indices).

II. It is important to provide for coordination of social and natural sciences to meet the research needs which arise in regard with the reports on IPCC evaluation.
