

Submission on Specific Research Themes
by
Republic of the Gambia
on behalf of
the Group of Least Developed Countries (LDCs)

Views from Parties on specific themes to be addressed at the research dialogue meeting to be held in conjunction with the thirty-sixth session of the SBSTA, *and* Information from Parties on the technical and scientific aspects of emissions by sources, removals by sinks.

Background

Article 4.1 of the Climate Change Convention states that all Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall:

- (g) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;
- (h) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies.

According to Article 5 of the Convention, Parties shall support and further develop, as appropriate, international and intergovernmental programmes and networks or organizations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimize duplication of efforts.

Climate Relevant Research and Information

Accordingly, climate and climate change research is carried out nationally, regionally and globally to better understand the science behind climate variability and change. The evidence and information acquired from evolving understanding of the physical, natural, social and economic aspects of climate change can then provide an essential basis for issues under consideration in the UNFCCC process. At the regional and international levels, climate-related research is conducted and coordinated by a variety of international programmes and organizations. The major ones are the International Council for Scientific Union (ICSU), the World Climate Research Programme (WCRP), the International Geosphere–Biosphere Programme (IGBP), the Man and Biosphere (MAB) Programme, the International Human Dimensions Programme (IHDP), the integrated programme of biodiversity science and its societal relevance (DIVERSITAS), the Arctic Monitoring and Assessment Programme (AMAP), the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA), the International

START Programme, the Asia Pacific Network for Global Change Research (APN), the Inter-American Institute for Global Change Research (IAI), as well as partnerships and networks, such as the Earth System Science Partnership. At the national level, particularly in Least Developed Countries, research in climate change is limited to simulation of impacts of climate change at the sectoral level. Information on national and cooperative research activities can be found in Parties' national communications.

Climate change relevant research focuses on a wide range of topics such as climate processes, climate variability, climate modeling and projection, including extreme events; impacts of and vulnerabilities to climate change, including adaptation to it, and climate change mitigation. It also covers a broad spectrum of sectors, society, economies and ecosystems, as well as cross-cutting and interdisciplinary research.

The UNFCCC secretariat works in close collaboration with these regional and international research programmes and organizations and facilitates dialogue and communication on the research needs and priorities expressed by Parties of the Convention to the scientific community. The Secretariat also compiles information of research results and capacity building needs contained in National Communications of Parties.

Assessment and Communication of Scientific Information:

The Intergovernmental Panel on Climate Change (IPCC) has a well established role in the Convention process in communicating scientific information to the Convention through its regular assessment reports and its wide range of special reports and technical papers. Although it does not carry out its own research, it plays a key role in assessing the information from worldwide climate research in peer-reviewed literature, journals, books and other sources. The information contained in IPCC reports covers the whole spectrum of climate and climate change from causes (drivers and attribution), technical and scientific aspects of emissions by sources, removals by sinks, the mitigation of these emissions and concentrations in the atmosphere, impacts of climate change and adaptation to these impacts, and climate change policy relevant and decision making information. It also has an important function in identifying priority needs for further research activities. The Outreach Task Force of IPCC develops materials to support dissemination of climate change information that is useful for adoption at regional and national levels.

LDC Group Submission for the Research Dialogue:

Based on the background information provided above and the urgent need for further research to promote understanding of the science of climate variability and change, narrow down uncertainties and facilitate decision-making, policy formulation and proper planning under changing climate, the LDC Group submits the following for consideration and inclusion in the presentations and discussions during the planned Research Dialogue.

Research Themes

1. Emerging issues and research needs on them since the IPCC 4th Assessment Report (AR4);
2. Temperature stabilization scenarios and the review of the long-term global goal at different levels of increased averaged surface temperatures (1.5°C, 2°C, 3°C, 4°C, etc.) and the adaptation needs and costs at these different levels of increased global warming;
3. Low mitigation scenarios, including *inter alia*, technological and economic feasibility, policy implications for short, medium and longer term and including regional economic implications of mitigation pathways.
4. Temporal dynamics of the airborne fraction and its relation to the efficiency of natural sinks;
5. Geo-engineering techniques and the many uncertainties surrounding them especially regarding effects on physical climate system, biogeochemical cycles, possible impacts on human and natural systems, effectiveness and costs as well as long term commitment;
6. End-to-end research on global warming and sea level rise estimates with treatment of the full effects of changes in ice sheet flow Greenland and Antarctica;
7. Develop downscaling models to improve climate change scenarios at country level in LDC's and support the quantification of seasonal forecasting and the intensity and frequency of extreme weather events (floods, drought, rainfall etc);
8. Development of methods and tools to study and report on anthropogenic greenhouse gas emissions and removals from blue carbon ecosystems (oceans, mangroves, salt marshes sea grasses, meadows, etc).

Information on

1. Information on emerging issues and recent climate change research findings and uncertainty management, particularly arising from the IPCC Fifth Assessment process, the UNEP Global Environment Alert System (GEAS) etc.;
2. More information on the IPCC new representative concentration pathways (RCPs) selected to allow investigating a wide range of possible future scenarios;
3. Information on blue carbon and the multiple impacts of carbon dioxide on oceans, ocean acidification and related consequences for fisheries, and other related sectors and ecosystems;
4. Research needs to support policies and strategies on adaptation (including extreme weather and climate events), mitigation (including technical and socio-economic aspects of the achievement of low emission pathways) and the much under-appreciated co-benefits of mitigation;
5. Gaps in data and information, and the need to strengthen and expand systematic observation networks necessary for understanding changes in the climate and supporting research;
6. Improved data from the largest glaciers and ice caps and a more mechanistic understanding of glacier dynamics, are critically needed to understand full impacts of sea level rise on Island and deltaic nations;

7. Sector specific and integrated research capacity building needs and priorities, in particular in the LDC's, including water resources, agriculture, coastal ecosystems and blue carbon;
8. Ways and means to enhance communication of research outcomes and the science-policy dialogue under the Convention.

These list are non-exhaustive.