Submission from Colombia with views on research dialogue, including ongoing activities associated modalities and ways to enhance the dialogue (Research and Systematic Observation-SBSTA)

The government of Colombia welcomes this opportunity to present it's views on research dialogue, including ongoing activities, associated modalities and ways to enhance the dialogue related to research and systematic observations.

Colombia, through its Institute of Hydrology, Meteorology and Environmental Studies – IDEAM, has worked over the last 10 years on vulnerability assessments related to climate impacts. Over the last 7 years the country has been developing and implementing specific pilot projects on issues of adaptation to climate change with the support of multilateral and international agencies and the participation of local environmental authorities and NGOs.

The results and lessons learned of these pilot projects made possible to identify lines of research and to enhance the adaptation actions undertaken at the local level. Through this process, the country has gathered some elements and guidance that have served as inputs for the design of the National Adaptation Plan that is now under construction.

As a complement to these processes, IDEAM participates in international initiatives of regional scope in which the experiences and lessons learned from the neighbouring countries have been shared. Colombia is has also taken part in cooperation agreements agendas to support adaptation projects in the region. Nevertheless, the exchange of research and the capacity to implement systematic observation is still week and needs more enhancement and tools.

Some of the research topics and priority issues to be treated in the research dialogue should include:

- Adaptation Sector: Agriculture in dry climates (arid, semiarid and dry sub-humid), with threat of meteorological drought in the integrated management of water resources
- Tools, methodologies and best practices for assessing vulnerability
- Strengthening ministries and institutions for decision making and project implementation, with support of academia and science, with outcomes of mechanisms that are put in place, that can then be translated into a sub-regional level for their implementation
- Presence of technical experts in the regions, provision and facilitation of data and information – including the following databases and platforms of information (among others):
    - database on financial instruments
    - database on complementary networks and initiatives
    - database of existing information, sources and literature
    - collection of tools, methodologies and best practices,
    - platform for a permanent discussion, knowledge transfer, and technology development

Ways to improve Knowledge Management at the local level:

- Research on mountain environments, their relationship with climate (glaciology and study of high mountain ecosystems), and adaptation in mountain ecosystems.
- Liaison between climate models and processes (eg. water)
- Monitoring of impacts of climate change (Glacier Global Monitoring Service, GGMS)

- Natural disasters, risk reduction related to climate change
- Perspectives on issues of human disaster and climate change

Monitoring tools for biodiversity, carbon stocks:

- Territorial analysis including land occupation, in order to identify regional and sectoral vulnerabilities for integrated risk management.
- Instruments of territorial and environmental planning: Analysis of prospective scenarios including variability, climate change and socio-economic and cultural aspects.
- Cultural adaptation and climate change.
- Food Security / autonomy / sovereignty and climate change including climate variability.
- Hydro-climatic warning system with community participation.
- Methodologies and protocols for the analysis of impacts of climate change and multi-criteria evaluation incorporating social, political, economic and environmental aspects for the formulation of adaptation measures.
- Design of a methodology and protocol multi-criteria to evaluate the effectiveness of proposed incentives.
- Appropriate technologies for adaptation / mitigation, including cost / benefit of them.
- Intercultural communication and adaptation.
- Public policy and climate change.
- Modelling the information towards statistical, geo-statistical, mathematical and cartographical models.
- Primary information, baseline
- Specific social, cultural and economic data and indicators regarding climate change
- Information on organization, solidarity, social tissue and other community responses to the impacts of climate change
- Impact indicators
- Downscaling methodologies and protocols designed for the national level to the regional levels and the formulation and implementation of adequate adaptation measures
- Systematization of ancestral and native knowledge in order to include them in politics and plans.
- Ecosystem-based adaptation, valuing environmental goods and services in terms of climate change.
- Strengthening of the capacity for the development of GHG emissions inventory

Integrated water resources management to address climate variability and climate change:

- Strengthening of the hydro meteorological network of reference supporting the modernization of monitoring instruments for both the record and for making information
- Training and exchanges with international research institutes in terms of experience in the design and implementation of monitoring networks (surface and groundwater) and development of methodologies and modelling of the vulnerability of water resources to climate variability and climate change.
- Strengthening capacity on issues of treatment of hydro meteorological information.
- Information systems and databases management for the development of projects related to the vulnerability of water resources to climate variability and climate change.
- Capacity for the use of specialized equipment and software for modelling.
- Financing regional research projects and modelling