

**Climate Information for Decision-Making:
Institutional Changes for Effective Communication**

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Graduate Institute**

REPORT

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Background:

This paper summarizes key findings from a project of three workshops, organised by the Centre for International Governance (CIG) at the Graduate Institute in the spring of 2009 and one side event organized at the World Climate Conference 3 (WCC-3) in Geneva on 2 September 2009.

The project was supported by the Federal Office for the Environment and was implemented in collaboration with the Political Science Department of the Graduate Institute. In focused discussions within small groups of experts one central question was targeted: How to bridge the gap between providers and end users of climate, weather and water information, both in the private and in the public sector?

This question was examined with regard to a range of sectors such as agriculture, energy, tourism and insurances by means of a critical analysis of selected climate information products used by the humanitarian community, development actors and by the private sector. Cross-cutting issues such as water management, food security, disaster risk reduction and index insurances were also addressed in discussions during the three workshops.

The following insights owe considerable input to the meetings of participants. However, its limits and potential misinterpretations are the sole responsibility of its authors. Also visit our website for more information about the climate project: <http://graduateinstitute.ch/cig/CIGhome/climate.html>

Results:

There is a clear trend towards pro-actively adapting to climate variability both in the private and in the public sector

Building capacity to anticipate climate variability has been a strategy pursued by the energy and insurances sector for a considerable time now. Among the experiences showcased in this project is *Electricité de France (EDF)*, whose Research and Development Department employs 30 meteorologists and hydrologists to deal with climate and weather risk management issue. Also, associations of insurers like *Mission Risques Naturels* in France organise an appropriately packaged and targeted

dissemination of available public flood zoning data sets to their members thanks to a partnership with public authorities.

Numerous early-warning systems have been developed in recent years in response to increased hydro-meteorological events, especially in the tropics. Furthermore, according to the Red Cross, much better disaster risk preparedness is possible today. Seasonal forecasts are becoming increasingly important in supporting pre/post disaster humanitarian response and fundraising.

Regional Climate Outlook Forums (RCOFs) are a tool developed by the World Meteorological Organisation (WMO). They are based on a consensus-building process with a main focus on seasonal prediction on a multi-national scale. RCOFs are now widely used in Africa and other tropical zones, mainly for socio-economic sectors like agriculture. However, humanitarian organisations need specific information and RCOFs do not yet seem well equipped to answer such needs. Explaining the potential of these RCOFs to the humanitarian community could be a good starting point for a better communication between the WMO and the humanitarian community. Except for the health sector, humanitarian policy-makers and the regional climate community do not seem to have explored the full potential of this tool.

Information on climate variability is more readily used than long-term climate scenarios

There is a strong demand for real-time data as well as short-term and seasonal forecasts (i.e three to six month ahead). However, there seems to be less interest in long-term climate projections except for climate-sensitive economic sectors like energy and insurances, where long-term planning is important.

EDF presented a simulation of the impacts of climate change on the electricity demand in France until the end of the 21st century. With higher air temperature, simulation results show that the net effect is an increased need for energy (i.e. an increase in cooling needs, but a decrease in heating needs). This could have important implications for long-term planning of the company's infrastructure.

Producing real-time hydrologic predictions for the hydroelectricity sector or for flood management is a growing market of which the company e-dric.ch is a leader. This small Swiss firm has developed a programme that simulates river discharges in real-time over a period of three days all over Switzerland. It produces virtual measurements based on a deterministic model, historical data up to 30 years ago as well as real-time meteorological and discharge measurement data. Discharge simulations in real-time allow for continuous inflow predictions to be made for adaptation in the buying and selling of electricity.

Index insurances for the agricultural sector are another tool, showcased by the Food and Agricultural Organization (FAO), built on historical data and current meteorological measurements, and thereby a product typically based on climate variability information and not on long-term climate change information.

Information needs depend on the planning horizon and strategic choices of users

Is climate change a new field of work for the humanitarian community? There is a considerable debate among humanitarian organizations and policy-makers about their role in this issue. Should they only respond to current emergencies like a fire service? This would mean that humanitarian planning is focused on meeting the immediate needs of a crisis-affected population on a time-scale of hours to a few days. Decision-making is mostly limited to emergency response. Or does climate change require humanitarian organisations to extend their planning horizon and preparedness? The answer is clear for the Red Cross, whose strategy it is to anticipate and prepare months ahead for events that finally may not occur. However, they consider taking such risks part of the humanitarian organizations responsibility and preparedness an aspect to be further pursued in humanitarian aid.

Data policy: The rules of the game are not the same for everybody

The availability of relevant climate and weather information can be highly variable. Public-private partnerships can facilitate the access and fine-tuning of publicly collected climate and meteorological data, as exemplified by the EDF- Météo France cooperation. In Switzerland companies must pay to access MeteoSwiss data, while access is free for public research institutes. This unequal access to weather data in Switzerland can create market distortions which are disadvantageous for small and medium-sized enterprises, and increase the cost of climate services. Collaborations with public research institutes are often necessary to facilitate the use of publicly collected data.

On a global scale, the intergovernmental organisation Group on Earth Observations (GEO) coordinates efforts to build a Global Earth Observation System of Systems (GEOSS). The most significant data input follows common data sharing principles with data being free of charge, including for private sector companies.

Deficits in the transmission and communication of information to the local level

The transmission of information to the local level is one of the major challenges in making climate and weather information useful and relevant for vulnerable communities. These users, as pointed out by a scientist working in disaster risk reduction in South America, frequently experience a massive deficit in early-warning systems, for example in highly vulnerable countries such as Peru and Columbia. Warnings on extreme events and the dangers associated with them often do not reach the local level in time. Scientists are only at the beginning to learn how to disseminate such information in the most effective way.

Prior assumptions among international scientific and adaptation communities about local capacity to interpret climate and weather information can also interfere with adequate communication at the local level. For example, assumptions that farmers are unable to understand probabilistic forecasts have been increasingly challenged. Workshop participants noted that peasants in West Africa do understand the concept of probability as it is also part of their favourite pastime, the French game "PMU". The real challenge is to use this local understanding of probability and adaptation in the context of climate

forecasting and to develop mechanisms for communication and processing of information adapted to the need of users.

Greenhouse Gas Mitigation and Equity

The tourism sector has made efforts to calculate its emissions of GHG and to address the issue of equity between developed and developing countries. It was suggested that this was an example of good practice which other economic sectors could draw upon. The World Tourism Organisation (UNWTO) showed that tourism contributes only about 5% to global greenhouse gas emissions with 75% of these coming from air and car transport. For the UNWTO, a major concern is that efforts at GHG mitigation should not produce negatively impact tourism activities in developing countries as these activities make an important contribution to development needs. Tourism in many developing and in least developed countries is one of the main sources of foreign exchange and revenue. UNWTO seeks to integrate equity concerns in developing creative strategies of mitigation and adaptation in the sector.

Building climate services and organizations

Climate and weather information is rarely transmitted in a linear fashion from those who supply it to users with diverse needs and demands. The creation of “boundary organizations” which facilitate dialogue by defining the science-policy boundary, authority, and accountability between users and providers can facilitate the definition and delivery of climate services. Experiences analyzed in this project show that such boundary organizations and services can come in different shapes. Some climate sensitive sectors have long ago developed their own climate support services, relying largely on private resources as for example sector associations or public-private partnerships. R&D departments of large companies working in climate-sensitive sectors are examples of user-oriented interfaces, as presented by EDF, the largest French home and business energy supplier.

New partnerships between humanitarians and the scientific community are improving the preparedness and response time of Red Cross teams. The International Federation of the Red Cross (IFRC) receives scientific information from the International Research Institute for Climate and Society (IRI), which is specifically designed to meet such needs, in particular concerning the prediction of natural hydro-meteorological hazards like tropical cyclones. Custom-tailored partnerships and services are thus more likely to deliver credible, but also relevant and timely information.

Climate information is only one aspect of engaging science in the development of climate products and climate services. Geographical data, earth observations, and socio-economic information are also critical and already in use for building these products. National or international climate services and organizations are important not only as providers of scientific information. They also as serve as platforms for expanding the network of boundary organizations and partnerships which will bring science and users together to define and implement relevant climate products and services.