FROM GICC, THE FRENCH RESEARCH PROGRAMME ON MANAGEMENT AND IMPACTS OF CLIMATE CHANGE, TO CIRCLE, A COORDINATED EUROPEAN INITIATIVE INCLUDING RUSSIA

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Франция создала программу GICC с целью развития национальных научных исследований в области изучения воздействия изменений климата. В настоящее время этот проект включен в инициативу EC CIRCLE, которая стремится объединить европейские страны в единую сеть, направленную на исследование воздействий изменения климата и адаптации к этим воздействиям.

Background

While climate is subject to a natural variability, some of its recent changes are induced by human activities. The general public and the authorities are increasingly worried by such modifications that are likely to entail adverse impacts on biosphere, ecosystems, natural resources, infrastructures, economies, and more generally on the well-being of future generations.

As evidence of this growing awareness, the United Nations have tackled this issue by setting up the Framework Convention on Climate Change (UNFCCC). Its Article 2 provides that "the ultimate objective of this Convention... is to achieve... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner."

The Intergovernmental Panel on Climate Change (IPCC), created to deal with such topics, brings further information in its third report (2001). According to the latest studies, there is new and stronger evidence that most of the warming observed over the last fifty years is connected with human activities. Consistent results from various surveys show an anthropogenic signal in the climate record of the past thirty-five to fifty years. Consequently, in view of the worldwide threat faced by natural and human systems, it is vital to understand the nature of the risks involved by climate change, to estimate the extent of such hazards, and to evaluate the results to be provided by future adaptive responses.

Assessing all the components involved in the dangerous interferences with the climate system requires to analyse the interactions of both climate change and socio-economic conditions, since they are closely interwoven. It is essential to understand the actual part played by socio-economic factors; as it is critical to weigh up adaptive capacity and responses, results of mitigation actions, etc... The concern for a sustainable development must take into account the consequences of climate change, which only scientific research can objectively and factually define.

1. The French GICC Programme

1.1. Mission and objectives

Within this context, the French Ministry for Ecology and Sustainable Development (MEDD) and the Inter-Ministerial Mission on Greenhouse Effect (MIES) have set up the GICC Programme (Management and Impacts of Climate Change). Its mission consists in promoting and developing French scientific research on the national impacts of climate change and associated physical mechanisms. The main objective, downstream, is to provide public policy and decision makers with reliable scientific information. GICC would thus help them tune adaptive tools and techniques, and optimise strategies aimed at preventing and mitigating these impacts.

This scope is in line with the aforementioned UNFCCC and the Kyoto Protocol; it also corresponds to the will of the French government to undertake interdisciplinary studies in the field of climate change, as materialised by the setting up of the National Plan to Combat Climate Change (PNLCC) and the creation of the National Observatory on the Effects of Climate Warming (ONERC). It is quite logical that France should enter upon a considerable research in this domain, since it is concerned by a wide range of issues: Remember that this

country offers a variety of natural landscapes and climatic regions facing quite different socio-economic situations, including overseas territories that raise specific questions.

1.2. Management and implementation

The GICC federative programme is essentially managed by the French Ministry for Ecology and Sustainable Development (MEDD), in close collaboration with the Inter-Ministerial Mission on Greenhouse Effect (MIES). The many French partners involved in this project include several national institutions and a number of scientific organisations. Some are implicated on a permanent basis (e.g. the French Agency for Environment and Energy — ADEME, the French Ministry of Agriculture), while others may be occasionally associated on specific issues (e.g. the French Institute on Biodiversity — IFB).

The managing structure of the GICC programme consists of a Steering Committee, which gathers representatives of the main public stakeholders and is co-chaired by the French Ministry for Ecology and Sustainable Development and the Inter-Ministerial Mission on Greenhouse Effect. This Committee is in charge of guaranteeing the scientific excellence of the programme and its relevance to the expectations of its main stakeholders; it is the body invested with decision-making powers. Besides, it relies on a Scientific Advisory Council that provides independent expertise and recommendations. In particular, the Scientific Council assists the Steering Committee with the definition of scientific calls and the organisation of scientific workshops and outreach events. It also performs the major task of peer-reviewing proposals and reports. The MEDIAS-France governmental organisation has been entrusted with the global coordination of the overall project.

The GICC programme is divided into two phases with specific leading themes:

— GICC-1 (from 1999 to 2004);

— GICC-2 (from 2003 to 2006).

Every year, a call for proposals is issued, which enables to focus on determined aspects of the leading themes. Since the selected projects typically last from two to three years, the overlaps between calls for proposals and phases allow a progressive adaptation of the whole programme in view of the lessons learnt. Synthesis workshops and outreach events are also organised.

2. GICC Phase-1

This phase focused on the following issues:

— international negotiations;

— strategies to reduce GHG emissions in France and in the European Union;

— assessment and impacts of risks linked to climate change, with related adaptive strategies;

— methodological developments.

A set of eight themes was selected (see hereunder). Thanks to the above described overlapping approach that allows to take into account intermediate results, these themes have been elaborated and refined. The choice of the various topics of the four calls for proposals issued during this period proceeds from this method.

In November 2004, a final workshop on the main results obtained through phase-1 enabled to derive a set of recommendations and conclusions, which are specified hereunder for each of the eight initial themes:

Theme 1. Evolution scenarios regarding the mean and extreme characteristics of climate during the 21st century: Even though temperature and pressure evolutions (with their associated uncertainties) are now reasonably understood, extreme events remain to be addressed to a greater degree.

Theme 2. Interactions between climate, economy and society at various timescales: The importance of defining "trajectories" to orient decision-making processes has been clearly highlighted. Even if inter-comparison of economic tools has been fairly achieved, other points must be better assessed, such as uncertainties (quantitative estimations are now required) and damages. Retroactions should be taken into proper account.

Theme 3. Part played by forest sequestration of carbon and farming practices in climate-related policies: Forestry issues are still not understood enough. Farming proves to be a key sector regarding GHG reduction. In-depth studies of comparative costs have to be undertaken.

Theme 4. Bridging national and international actions: The obvious need to increase the awareness of governments and negotiators implies that the scope cannot be limited to economic aspects, but is bound to be extended to social and political sciences.

Theme 5. Towards new inventories of direct and indirect emissions of GHGs and aerosols: Key questions have been identified, and the critical necessity for an overarching comprehensive methodology (uncertainties, scales, stakeholders) has been acknowledged.

Theme 6. Impacts of climate change on the terrestrial biosphere: Productivity and phenology changes are now fairly addressed. However, the lack of databases is still obvious and must be filled. Links to biodiversity need to be established.

Theme 7. Impacts of climate change on hydrosystems: The programme has allowed to obtain significant preliminary results. It is now indispensable to design an overarching methodology that should reckon with changes in anthropogenic activities.

Theme 8. Impacts of climate change on health: Interdisciplinary teams have been successfully set up. It is necessary to switch from a statistical to a mechanist approach through process modelling. Animal and vegetal health should be integrated into this research.

To conclude about the first phase of GICC, a lot of significant issues have been investigated, and valuable results have been derived from this research. This initial period made it possible to identify gaps, possible synergies, and ways to proceed, thus allowing a better definition of the second phase of the programme.

It is worth mentioning as well that, in the meantime, France has been developing its "Climate Plan", in keeping with the requirements of the Kyoto Protocol. This Plan too benefits by the input gained through the first phase of GICC.

3. GICC Phase-2

The general objective remains to develop knowledge that will help decision-makers choose the best strategies to prevent the increase of greenhouse effect and to adapt to climate change. This goal must be achieved within the dual scope of the international negotiations ensuing the Kyoto Protocol and the implementation of the measures of the French National Plan to Combat Climate Change. Besides the follow-up and deepening of first-phase studies (especially regarding the consequences of climate change on the risks linked to the frequency and intensity of extreme events), the second phase of GICC intends:

1) to focus on a regional dimension regarding comprehensive topics related to climate change, including scientific issues (mean climatic trends, extreme events...), societal perception, eco-

nomic and environmental impacts, implementation of governmental policies to combat GHGs and related technological innovations;

2) to further study the connections of climate change with biological sciences, human health, biodiversity and emerging or re-emerging diseases.

A most important outcome brought by the conclusions of GICC-1 is the strong will of its partners to open to international cooperation. Climate change is clearly a worldwide concern, as no particular country is safer from its impacts: borders simply do not rule in this matter.

4. Enlarging the scope

If we take a look at what is currently happening all over Europe, we realise that France is studying climate change impacts through its GICC programme, that Germany is doing the same through DEKLIM, and so on. Of course, each country has features and policies of its own, but sharing research efforts would suppress pointless and costly duplications, allow to exchange results, and enable to tackle new issues at new scales. For example, whereas research on climate change impact is often managed at a local scale to address local matters, part of the lessons learnt could be applied to many regions. Take for instance studies led on melting glaciers in a country with mountainous areas: their results could benefit to other countries facing the same problem.

Similar considerations led the European Community to launch the European Research Area. Within this scope and the 6th Framework Programme, the ERA-NET scheme has been created, to favour the coordination and cooperation of national and regional programmes. ERA-NET co-ordination actions allow the networking of national stakeholders who fund research programmes in a very wide range of domains, in order to exchange information, define research priorities at the European scale, and issue common calls for proposals.

The interest to bring the GICC programme to a European scale is patent for its partners, since it would allow to set up synergies, to benefit by an economy of scale and to deal with new themes, such as regional-scale impacts.

MEDIAS-France and the French Ministry for Ecology and Sustainable Development have in turn established various contacts with this aim, that have led to involve the GICC programme in the CIRCLE project, described hereunder. The French programme could become a major actor of the planned Concerted Action, in particular as regards the sub-regional scale of the Mediterranean basin and the link with Russia, where currently Siberian Integrated Regional Study (SIRS) is in process of initiation now. Its Scientific Council would be closely involved in the definition of the synergies and new approaches of this international initiative.

5. The CIRCLE (Climate Impact Research Coordination within a Larger Europe) initiative

Within the scope of ERA-NET, the Austrian Agency for Environment (Umweltbundesamt) has defined an initiative regarding the impact of and adaptation to climate change. Such a project aims at enhancing, within the European Union, the cooperation of national programmes that address research on climate change. This is the CIRCLE project, that consists of two stages: a Specific Support Action — accepted by the Directorate-General for Research of the European

Commission — whose purpose is to collect information on the various programmes concerned, and a Concerted Action, aimed at leading actual exchanges and actions.

The Specific Support Action is currently under completion. A key meeting was held in Helsinki from 12 to 15 April, 2005, attended among others by Russia. Consequently, the project is bound to enter into the Concerted Action stage, to be completed in 2009. This Concerted Action has been submitted to the European Commission in March 2005, after its careful preparation during a meeting held at the German Aerospace Centre (DLR, Bonn, Germany, February 2005) and recently was successfully evaluated.

The CIRCLE project currently consists of members and observers, who may become members in the course of the project. At the time being, members include the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Italy, the Netherlands, Norway, Portugal and Sweden. Observers include the Republic of Ireland, Israel, Poland, the United Kingdom and Russia. It is planned that after official launching the SIRS program the latter in particular could become an active member.

The CIRCLE Concerted Action is to lead closely interwoven activities, that will address several levels.

The so-called "vertical" activities will be undertaken, namely:

1. Learning, i. e. exchanging knowledge and experience gained from national programmes, and reciprocating information on their areas of focus and their scientific and managerial practices, in order to learn from each other.

2. Planning, i. e. deciding strategic issues, determining ways to collaborate, and defining substantial and feasible activities to support each other in the future.

3. Connecting, i. e. establishing operational links between programmes by implementing plans and creating synergies that should result in concrete mutual benefits.

4. Fulfilling, i. e. achieving the first strategic re-structuring of the funding of the European Research on Climate Change Impacts by bringing about trans-national activities.

On the other hand, "horizontal" activities consist in:

1. Leading, i. e. operationally managing the project at the consortium level, seeing to the high quality of its outputs, and encouraging a common viewpoint among the partners.

2. Ensuring continuity, i. e. creating a platform so that the coordination achieved will continue after the termination of the project, and preparing future joint activities.

3. Grouping, i. e. supporting and organising area-related groups within the consortium, e.g. neighbouring countries wishing to address similar issues related to their geo-climatic area.

4. Spreading, i. e. creating awareness by disseminating project results at various levels according to definite targets, in order to supply relevant information to decision-makers, other research programmes and networks, researchers...

The members of CIRCLE are not limiting their work to their own countries and to the projects already involved. Conferences and workshops with programme managers and research policy-makers will be organised, working groups will analyse possible funding mechanisms and structures, thus trying to involve as many European participants as possible. The ultimate goal is to create a platform for collaborative activities and to establish a knowledge base from which joint research activities could be proposed, therefore laying the base for a strong pan-European network aimed at research on climate change impact, bringing sound information to policy advisors and makers at the national and European Community levels.

Conclusion

The climate change that has been evidenced for the last decades is known to be largely due to human activities. Its impacts are affecting the whole living planet, and will continue doing so if international responses are not implemented.

As already mentioned, frontiers do not apply to climate, and cross-border projects are necessary to cope with specific environmental problems. Many instances of this need for international cooperation may be found. For example, the melting of glaciers in mountains, the impacts on agriculture and more generally the evolution of natural and cultivated species in geographical, ecological and economical terms, the evolution of water resources availability and sharing between competitive usages, the natural and economic impacts of extreme events, the new threats for human health, are some topics that raise serious concerns.

The subject of this paper demonstrates that it is possible to work together for our sustainable development. From the Atlantic European rim to the Kamtchatka, GICC, CIRCLE and SIRS (Siberian Integrated Regional Study) projects can be part of the regional/global answers to amend or at least mitigate the impacts of a disturbed climate. Russian scientists can bring an unique contribution to that ambitious co-operation plan. The CITES and ENVIROMIS international conferences can and must be an outstanding yearly 'rendez-vous' to start from the scientific state-of-art in order to draw up plans to go further on.

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