Faragó T., 2006: Dangerous human interference with the Earth's climate system: ..
In: Proc. International Conference on Climate Change -
Impacts and responses in CEE countries (Pécs, Nov. 5-8, 2005)
MTA-REC-KvVM, pp. 11-13 ISBN 963 508 519 2

Dangerous human interference with the Earth's climate system: increasing evidence and stronger consensus on actions at all levels

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The global problem and increasing knowledge base

The increase of carbon-dioxide in the Earth's atmosphere due to the combustion of fossil fuels was recognized long ago by scientists, however, this warning signal and the information on the possible global implications - warning on warming - was heard by high level decision makers only in the middle of the 1980s.

Other human activities inadvertently emitting carbon-dioxide or other greenhouse gases were also identified, but despite the evidence of the steady enhancement of these greenhouse gases in the atmosphere since the Industrial Revolution, there remained significant scientific uncertainties on

- attribution of all this growth (or at least its significant part) to human activities,
- possible changes in the state of the global climate system as a consequence of the gradual changes in the composition of the atmosphere and its radiation characteristics (the greenhouse effect),
- implications of the anticipated global change on regional and subregional climatic characteristics and environmental conditions,
- potential global impacts of these processes on terrestrial ecosystems and human societies.

The improved global observation, information collection and processing systems, the rapid development of the computer technology and computer based numeric models, and primarily, the increased research activities in all related scientific disciplines together resulted in significantly better understanding of the Earth's complex environmental system and much higher scientific evidence on the increasing global climate change hazard and its impacts. This improved knowledge was the catalyst to launch international political debate and negotiations on the objectives, principles, general directions and modalities of concerted actions to cope with this global hazard.

Global cooperation for better observations and research

The global scope and the complexity of the problem necessitated the widest possible international and multidisciplinary cooperation of the scientific community. The cooperation was extended and deepened within the existing UN, academic and other international organizations and networks, furthermore, new programs and new scientific units or bodies were established. The various stages of this strengthened cooperation covered:

- systematic observations of all components of the climate system and assessments of its behavior (past, ongoing and future process),

- studying the various natural and socio-economic governing factors, interconnections between the components of the global environment, vulnerability to and impacts of the climate change,

- options for response strategies and policies, including mitigation and adaptation actions.

Important developments in this process were the establishment of Global Climate Observation System, the Global Environment Monitoring System (and just recently, the GEOSS, i.e. the overarching system of all the relevant specialized observation systems), the Intergovernmental Panel on Climate Change (IPCC) and its three working groups, the ICSU's "Global Change" program. The adoption of the Framework Convention on Climate Change in 1992 gave a further boost to the international scientific collaboration as a policy-driven "demander" for the climate change related scientific information. The decision making body of the convention (the Conference of the Parties) an its secretariat initiated cooperation with many international research organizations and programs, moreover, it established a special advisory body (Subsidiary Body on Scientific and Technological Advice) to provide information for the convention process and serve as its link to the scientific community.

Regular reports on observed tendencies, scientific assessments, scenarios or outlooks were issued by the various international organizations and national research centers. The IPCC's comprehensive assessment reports was recognized by the overwhelming majority of the scientists and decision-makers as the most integrated and authoritative sources of information on the causes, processes, impacts of and response options to the natural and man made (anthropogenic) climate change.

International cooperation to cope with the climate change hazard

Shortly after the adoption of the report of the commission on environment and development (the Brundtland report) by the United Nations General Assembly, a resolution was passed on convening of a summit to deal with all the global challenges described in that report and another one to start negotiations on the ways and means to tackle the global climate change hazard.

Eventually that summit was convened in 1992 in Rio de Janeiro as the UN Conference on Environment and Development and the UN Framework Convention on Climate Change (UNFCCC) was already opened for signing during the high level segment of that conference - the "Earth Summit". The Summit agreed on general principles of environmentally sustainable development and also on a detailed international program towards such a development. The convention was based on those principles and the program (the Agenda 21) included a dedicated chapter on the protection of the Earth's atmosphere, which also dealt with the climate change problem. Five years later, a new legal instrument was elaborated, the Kyoto Protocol to the convention that already included modest but legally binding emission reduction commitments by the industrialized and "transition" countries.

The basic provisions of these documents, inter alia, are as follows:

- acceptance of key principles to tackle global environmental problems, including the increasing greenhouse gas emissions and the climate change hazard, namely, the

prevention and precautionary principles, common-but-differentiated-responsibility, polluter-pays etc.,

- objectives of mitigation and adaptation policies and measures, i.e. to stabilize greenhouse gas concentrations in the atmosphere at certain level; and to prepare for the changes in the environmental conditions, their adverse effects based on assessments of vulnerability,

- concrete greenhouse gas emission limitation and reduction targets - by the end of the present decade in case of the protocol,

- formulation of and implementation instruments for such mitigation (emission stabilization and reduction) policies and measures in light of the precautionary principle which are cost-efficient and which follow win-win approach as much as possible.

National tasks

At national level, the highest priority task is to have in place and implement relevant action programs, which take also into account the international agreements and respective obligations. In case of our country and other member states of the European Union, the Community's legal and programmatic instruments provide an expanding framework and binding provisions in this area, as well.

With respect to these national, EU and international requirements, the basic domestic activities include:

- monitoring and assessment of the national "contributions" to this global problem, i.e. completing inventories and assessment of past and projections of future national level emissions sector-by-sector and gas-by-gas;

- setting and implementing domestic mitigation measures, that is controlling emissions of the key greenhouse gases in light of the ultimate objective of the climate change convention and its protocol, the emission limitation commitment for Hungary under the latter instrument and taking also into consideration our proportional responsibility within the longer term overall emission reduction objective;

- introduction and implementation of the Community's regulations and measures in consistency with the European Climate Change Program, emissions' monitoring and reporting requirements, "emission trading system" etc.;

- assessment of possible impacts of the anticipated global climate change, evaluation of vulnerability and impacts, increase of adaptive capacities;

- further active participation in the international cooperation and in elaboration of the EU's positions, its further policies and regulations on these issues in close cooperation with other member and candidate states.

All these tasks can be fulfilled effectively only if our positions, plans and actions properly based on scientific background, active dialogue with all stakeholders and on a firm commitment to the future of our Planet's environment, well-being of present and future generations.

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