Science and ICTs for decision making and governance

Science plays a crucial role in identifying and analyzing the challenges faced by society and in generating the knowledge to respond appropriately. Thus, scientific data and information is essential to support good decision making and policy development.

In fact, information and communication technologies (ICTs) are transforming governance at many levels, in part by facilitating the involvement of more actors, whose effective interaction relies on the open availability of high quality data and information. A common pool of scientific data creates a knowledge infrastructure—*the public domain for science*—from which the whole of society should benefit in an equitable way.

Effective interaction between the various stakeholders involved in, or affected by, policies formulated on the basis of scientific data requires transparency in data collection and dissemination. The values of certainty and uncertainty, with respect to original scientific data, must be well understood by all parties to ensure the rational use of knowledge derived from this data.

In preparation for the World Summit on the Information Society (WSIS: Geneva 2003 and Tunis 2005), the International Council for Science (ICSU) and the Committee on Data for Science and Technology (CODATA) solicited input from the international science community to develop action plans that address global issues.

The following text reflects the opinion of world experts who attended an open forum on *Science in the Information Society* sponsored by ICSU, CODATA and UNESCO (Paris, March 2003). In addition to **Governance and Decision Making**, participants identified three other themes: **Universal access to scientific knowledge**; **Policy issues for scientific information**, and the use of ICTs for **Improving education and training**. Without exception, achieving the full potential of ICTs in these areas requires input from many stakeholders and cooperation at national, regional, and international levels. In this context, European Commission policies will have a major influence on the shape of the information society.

For more information on these topics, as well as the overarching **Agenda for Action**, visit: www.icsu.org

Actions required

In order to ensure that ICTs effectively support good decision making and governance, a number of challenges must be overcome. Firstly, long-term monitoring and collection of high quality scientific data are not sufficiently valued by some governments. This is coupled by inadequate dialogue between scientists, decision makers and civil society and the need to achieve a better balance between scientific independence and societal needs. There is an increasing need to ensure interoperability between established systems for data collection and dissemination and new, ICT-based methods. Finally, efforts must be made to overcome existing difficulties in establishing working links and understanding between traditional and modern knowledge systems, which can be further exacerbated by the use of ICTs.

The S&T Community calls on interested parties to actively pursue the following initiatives:

- **Increase public investment in the collection and management of scientific data necessary to underpin sound decision making.** Governments should be made better aware of the importance of integrating scientific data from research into policy and decision making. It is particularly important to prioritize essential data collection activities in the poorest countries.
- **Ensure long-term support for the collection of data and the maintenance of scientific databases.** In many areas, particularly those relating to environmental change or public health, long-term monitoring is essential to produce a useful data set. Established data-sets must be maintained, up-dated, and made widely available.
- **Ensure that scientific data collected is of the highest quality.** If data are to be used as a sound basis for informing national or international policy, data collection methods must comply with international standards. Data collection and dissemination must be undertaken in total transparency to ensure its acceptance as a legitimate support to local, national, and international decision making.
- **Encourage closer involvement of the media as a bridge between scientists, decision makers, and the public.** Converting and diffusing the information derived from scientific data into relevant public action requires an intermediary that can be trusted. Efforts should be made to improve communication between scientists and journalists and other stakeholder groups to ensure that each party understands the constraints of the other and can better evaluate the relevance of the scientific information to specific local situations.
- **Carry out research and development on new and more inclusive governance mechanisms at local, national, and international levels for the information society.** ICTs provide new opportunities to include all stakeholders, including people from the communities directly affected, in policy formation and problem management. Effective and efficient strategies for participatory decision making should be identified and developed.

The S&T community has identified three principles for enhancing decision making and governance through the use of ICTs:

- **Data created with the use of public funds should be recognized as a public resource and remain publicly accessible.**
- **Standardization and quality assurance of scientific data and information are required for sound decision making.**
- **Use of ICTs should ensure the open access and transparency essential for the effective use of data by decision makers.**