



Technological Framework for Integrated Water Resources Management

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An initiative is presented to the international scientific community to collaborate in the creation of a Technological Framework for Integrated Water Resources Management (TF/IWRM), in a phased multiyear endeavour with the support of a suitable funding scheme. The objectives include: a) To develop the TF/IWRM with six components: integration interface, technological platforms, information systems, coordinated models, process methodologies, and complex applications. The TF/IWRM will give support to the establishment or improvement of instruments for water resources management, and to the consensus building by involved river basin organisms and countries, as well as to the informed social participation. b) To apply the TF/IWRM in modular form in three demonstrative projects in selected river basins of different continents and languages. c) To establish an internet Portal of the cooperation partnership to diffuse the advances in the development of the TF/IWRM, as well as the results of the demonstrative projects. d) To establish a protocol for the distribution of the TF/IWRM and continuous support for users.

The TF/IWRM will be attractive at international level based on the following objective characteristics: user friendly, affordable, integrated, modular, coherent, flexible, technologically up to date, adaptable and transferable. The TF/IWRM will be oriented to the formulation and evaluation of long term scenarios in various aspects, including: hydrology, population, land use, water use by sector, hydraulic infrastructure, water administration, and economic environment.

The motivation for the initiative stems from the reality that environmental, economic,

and social problems associated to water resources management are complex and worsening in large regions, both in developed and developing countries. Though, they are more acute in these last ones. The international scientific community has expressed once and again the necessity to approach this problematic in an integrated manner, with a river basin approach. The international organisms and financial institutions have adopted policies based on this principle, and an increasing number of countries have incorporated it in their legislations. In order to put in practice the integrated water resources management it is necessary more than the speech and the political will at high level. It is indispensable the effective contribution that only up to date technology can do to this matter.

There are a large number of models and computer applications, developed during decades by public organizations, research centers and specialized companies in many nations. These tools deal separately with different aspects of water resources management. There are, in addition, a reduced number of applications that integrate several of these aspects. Some of them are of free access, while others are distributed commercially. Its application in local or regional projects has been, in general, advantageous for decision making.

However, in most of the river basins of the world, particularly of the developing countries, the available technology for decision making is not applied for diverse reasons that may include: high cost of software platforms and commercial applications; inadequacy caused by complexity, language, units of measurement or structure of institutions; lack of integration of models; lack of documentation, training or technical support; technological and commercial dependency from suppliers.

The lack of application of an adequate technological framework has the following results: repetition of efforts of applications development and processes; use of simple and vague models; decision making without support. At the end, the persistence and worsening of water related problems causes the increase in the number, complexity and scale of conflicts.

Meanwhile, there exist opportunities to change the undesirable situation: diversity of models and specialized literature available; experiences of successful development and implantation; better databases of regional, national and global scope; and capacity of technological development with new tools. This situation calls for the collaborative creation of a TF/IWRM, its application in demonstrative projects, and the propagation of the experience at the international level.