



## Statement on Water and the Environment Dichiarazione su Acqua e Ambiente



12-14 November 2005

*Extra Series 26*

Città del Vaticano, 2006

pp. 20

(English, Italian)

A scientific workshop on 'Water and the Environment' was held at the Pontifical Academy of Sciences on 12-14 November 2005. Underlying the programme of the workshop was the basic premise that the survival of humanity and all species on earth depend upon the fate of water. Where water is absent, life is absent. The common symbol of life for mankind and all species, valued and respected in all religions and cultures, today water is symbolic of social equity. There are two facets to the question of 'Water and the Environment'. The first belongs strictly to the natural sciences and centres on the understanding of the hydrologic cycle and its interactions with the living and non-living components of the earth and its atmosphere. The second facet pertains more to the social sciences and focuses on the fair distribution of water, considering both quality and quantity aspects, as well as the impact of these issues in the economical and spiritual growth of people around the world. These two facets are inextricably linked, with scientific knowledge providing a basis for well-informed decisions expected from the policymakers involved, decisions that will affect all humanity over many generations to come. The main emphasis of the workshop was on the first of the above-mentioned facets. It dealt in particular with up-to-date scientific research bearing on the impact of hydrologic dynamics on issues concerning sustainable development, in which water resources are of paramount importance. Contamination, ill-planned industrial development, mega cities, are just a few of many threats to these vital resources. Some hope of success in countering these threats is provided by concepts such as the so-called Integrated Resources Management — 'a (management) process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems' (Global Water Partnership, TAC Background Paper, No. 4). Such coordinated development and concomitant decision-making needs firm scientific underpinning, in which the science of Hydrology — with its intimate links with Ecology and with its geophysical sister sciences, Geomorphology, Geology, Climatology and Meteorology — has a key role to play. In the words of Hedin *et al.* (Report to the U.S. National Science Foundation, 2002), 'this disciplinary convergence will over the next several decades transform our understanding of basic processes that control the stability and sustainability of natural environmental systems. The ensuing findings will have extraordinary implications for our abilities to predict and manage how humans impact the health of ecosystems across local, regional, and global scales. Such knowledge is a critical component of a safe, sustainable and prosperous future'. The workshop was organized around recent advances in research in five main areas — Biodiversity, Global Hydrology, Climate Change, Land-Atmosphere Interactions, and River Basins — with hydrologic dynamics providing the unifying theme to the discussions. Particular emphasis was placed on the investigation of feedbacks and interactions between the five areas, with the goal of identifying some of the main scientific challenges that need to be faced in the immediate future. The presentations and discussions of the different topics took place in the Casina Pio IV in an environment which could be described by the eloquent words of Paul VI characterizing the attitude of a scientist: 'On the one hand, he must honestly consider the question of the earthly future of mankind and, as a responsible person, help to prepare it, preserve it, and eliminate risks; we think that this solidarity with future generations is a form of charity to which a great many men are sensitive today, in the framework of ecology. But

at the same time, the scientist must be animated by the confidence that nature has in store secret possibilities which it is up to intelligence to discover and make use of, in order to reach the development which is in the Creator's plan. This hope in the Author of nature and the human spirit, rightly understood, is capable of giving new and serene energy to the researcher who is a believer' (Paul VI, Papal Addresses, The Pontifical Academy of Sciences, Scripta Varia 100, Vatican City 2003, p. 208 f.). ...