

# Preface

The water crisis of the twenty-first century is not only a crisis of scarcity and water stress, but above all, a crisis in management. New and creative water management and governance possibilities can, on the other hand, be developed based on an interaction among researchers and managers by means of supporting management projects and training courses. Moreover, permanent strategic analysis and technological forecasting are increasingly necessary to reduce the vulnerability and the risks of shortages, deterioration of water quality and of scarcity.

Based on this assumption and understanding that this is indeed a challenge that requires action, the Brazilian Academy of Science (ABC) put together a Water Resources Study Group, in March 2008, and gave them the task of gathering renowned Brazilian researchers who work with the water issue, to establish the Academy's vision on strategies for optimizing uses of water resources in our country. In May 2008, at ABC's Magna Meeting, the study group held its first meeting, together with the symposium "Water Resources in Brazil: Strategic Challenges." These two events were crucial for the launching of the core study areas of the Study Group coordinated by the Academic José Galizia Tundisi.

In August 2008, the Group, in partnership with the Inter-American Network of Academies of Sciences (IANAS) and with the Inter-Academy Panel on International Issues (IAP), promoted a Regional Seminar and a Training Course for the Americas, focused on "Water, environment and society: an integrated approach." In addition to several Brazilian water resources researchers and managers, this event, which was held in the city of São Carlos, counted with the participation of researchers and managers of 13 countries of Latin America and of the Caribbean region, all of them highly qualified professionals linked to the national water systems of their respective countries.

In September 2008, the Group held a business meeting where they decided upon the production of a White Paper on Waters in Brazil, presenting a strategic vision on the use of water resources in the country. For the making of a first version of this paper, work groups were created with the challenge of elaborating articles on crucial strategic issues. The groups worked intensely throughout the year of 2009 and presented the results of their initial efforts at the symposium "The Water Crises and National Development: A Multidisciplinary Challenge." The meeting was held in

Belo Horizonte, in October 2009, in a partnership between ABC, the Federal University of Minas Gerais (UFMG), and Research Support Foundation of Minas Gerais (FAPEMIG).

This publication brings to the public a summary of the discussions held in Belo Horizonte, representing the first product of the ABC's Study Group on Water Resources. New analysis and assessments will be developed in the following months, aimed at consolidating the White Paper on Waters in Brazil. Through these efforts, ABC tries to contribute to the Brazilian society in this crucial issue for the improvement of the quality of life of our people.

It is important to highlight that this work is developed based on an innovative point of view, which aims at overcoming a dichotomy that exists today between ground water and surface water. Based on an integrated and holistic point of view, the water cycle is seen in its entirety, and it is understood that there is one common source of problems (pollution, overexploitation, excessive use) that result in different processes (eutrophication, contamination) and symptoms (toxicity, salination). The Group's work attempted to link technological and ecological solutions integrating quantitative and qualitative aspects of the water resource. Such a perspective allows for a sustainable management of the water resources based on conceptual connections that foster an articulated work among the different fields of science, which then supply a systemic approach that enables managers the possibility of an integrated action focused on anticipating problems and solutions.

With this initiative, ABC seeks to encourage the work of researchers and managers of water resources, promoting a greater integration between these two communities. Such interaction will facilitate the exchange of information to those who need this knowledge to develop a management process that is rational and structured on scientific information. Furthermore, the strengthening of the dialogue among these two agents will enable that managers present to scientists the main problems and constraints of management, thus promoting the development of new researches and innovations that aim at meeting the pressing needs in the field of water resource management.

Finally, it is worth noting that this initiative of ABC falls within the scope of the Millennium Goals of the United Nations (UN), which has as one of its components to improve water availability, in a long term and sustainable way, to the millions of men and women who today do not have satisfactory access to this crucial asset for human existence.

We cannot miss highlighting the fundamental support of the Ministry of Science and Technology (MCT) and its agencies the National Council of Scientific and Technological Development (CNPq) and the Financier of Studies and Projects (FINEP), in promoting the works of ABC's study groups, among which is the Study Group on Water Resources. We would also like to thank the support of the Botanical Institute of the Environmental Department of the State of São Paulo, without whose support the publication of this book would not have been possible.

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Waters of Brazil

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