THE SHENZHEN DECLARATION
ON GLOBAL HYDROLOGICAL SCIENCE AND PRACTICE

Water is an essential natural resource on our planet for which there is no substitute. A sufficient supply of freshwater is crucial for human health, food security, industrialization and economic development. However, freshwater is a finite resource and is unevenly distributed in time and space. As a result, different countries and regions in the world are facing different water problems and challenges, e.g. water scarcity in the Middle East and North Africa, floods in Southeast Asia, water scarcity and pollution in China, water and poverty in Africa and South America, and trans-boundary water issue on all continents. Water security has now become the most important issue for the world economy and global sustainability. In addition to climate change, human activities have also deeply affected the natural hydrological cycles, and hydrology is now complemented by socio-hydrology. Mismanagement and overuse of water pose long-term threats to human well-being. Evaluating and responding to those threats constitutes a major challenge to water researchers and managers alike.

In response to the clear imperative to include human impact as integral to hydrological research, the International Association of Hydrological Sciences (IAHS) launched the hydrological decade 2013-2022 with the theme "*Panta Rhei:* Change in Hydrology and Society". This *Panta Rhei* program aims to reach an improved interpretation of the processes governing the hydrological cycle by focusing on their changing dynamics in connection with rapidly changing human systems.

Hydrological knowledge plays a key role in understanding the hydrological cycle and providing the basis for the integration of hydrological processes with human activity and social demands for water security. It is because of the fundamental importance of hydrological knowledge that we are gathered here in Shenzhen, on the occasion of the *International Conference on Hydrological Knowledge Innovation and its Practices in Developing Countries* to discuss current water management issues and challenges. This international workshop brings together scientists from all over the world (in particular from developing countries) and various disciplines that share a common interest in the co-evolution of coupled human-water system under human impacts as well as climate change. A fundamental theme of this conference is to understand the available

hydrological knowledge and to brainstorm on hydrological innovations to meet the grand water challenges worldwide, in particular in developing countries.

The existing focus on water security has delivered undoubted benefits to people around the world, but equally, we need to consider wider sustainable development goals in the context of the global human-water system. Solving water problems must be a joint obligation of environmental scientists, social scientists, engineers, policy-makers, and a wide range of stakeholders. These realities motivate the water community assembled in Shenzhen to make a set of core recommendations to governments, communities, enterprises, water users and providers and all other relevant stakeholders.

(1) There is a need to strengthen hydrological science through collaboration of scientists from different countries and disciplines, and among scientists, engineers, policy-makers and stakeholders;

(2) There is an urgent need for developing countries to significantly strengthen hydrological science and guarantee water security to achieve the UN's Sustainable Development Goals;

(3) Open access to hydrological and meteorological data is vital for hydrological research, and policy makers should work together with scientists to make this happen;

(4) China will intensify its support to the development of hydrological science and the promotion of the *Panta Rhei* program in developing countries, in particular the countries in the *Silk Road Economic Belt and the 21st-Century Maritime Silk Road* and in *sub-Saharan Africa*;

(5) In supporting the development of hydrological sciences, cooperation should be sought with existing regional capacity building networks, such as WaterNet in southern Africa.

(6) There is a need to develop a multi-national and multi-disciplinary cooperation framework with a concrete working plan in order to provide capacity building, monitoring equipment, remote sensing techniques, and software packages for developing countries.