Preface

It was just after the 2nd World Water Forum had been held in The Hague, and the Millennium Development Goals of the United Nations had been adopted by the General Assembly. The World Summit on Sustainable Development in Johannesburg, South Africa, and the 3rd World Water Forum in Kyoto had been planned, but had not been announced publicly. It was the end of October 2000 when an International Symposium "Can Science and Society Save the Water Crisis in the 21st Century?" was held in Tokyo. There were many reports detailing serious situations concerning water in the world, and several research programmes and operational initiatives to tackle these water issues were announced at the Symposium. As I participated in and listened to the discussion at the Symposium I was surprised that all the speakers emphasized the importance of contributions from social scientists, policy makers and mediators, and that no input was anticipated from hydrologists or engineers to solve the world water issues, even though most of the participants had hydrological or engineering backgrounds. Many of the international participants at the Symposium were strongly involved in the administration of the International Association of Hydrological Sciences (IAHS), and one of them was Dr John Rodda, the IAHS president at that time. He came up with the idea to establish a Hydrology 2020 Working Group (H2020) under IAHS in response to my persistent question: "is it really true that hydrological science can contribute little to solving the world water issues?"

There was an earlier working group, the Hydrology 2000 Working Group, also under IAHS, which reported their view of hydrology in 2000 as IAHS publication no. 171 (the "Red Book" series of IAHS) entitled: *Hydrology in 2000*.

To form H2020, the nine commissions of IAHS were asked to nominate two young hydrologists under the age of 35, and the World Meteorological Organization (WMO), and United Nations Education, Science, and Culture Organization (UNESCO) were asked to nominate one each as well (see Appendix 1). The final selection was made taking account of gender and geographical location (see Appendix 2 for member affiliations and biographies). The members were expected to meet each other for the first time at the VIth General Assembly of IAHS in the summer of 2001. However, only three of the H2020 members could come to the meeting at Maastricht, in The Netherlands. Therefore, in practice, the first meeting of the group was held in January, 2002, at The University of Edinburgh, Scotland, UK, and, in addition to H2020 members becoming acquainted, the Mission Statement of H2020 was formulated. Summaries of each of the Group's meetings are contained in Appendix 3.

The second meeting was held in conjunction with the Kovacs meeting of IAHS, UNESCO-IHP and WMO, at the headquarters of UNESCO in Paris, France, in June 2002. H2020 members were asked to be the rapporteurs of each theme of IHP V in the Kovacs meeting, at which a flyer detailing the Group's activities was disseminated (see

Appendix 4), and the framework for the Group's next meeting was discussed in the H2020 meeting.

The third meeting was held at the General Assembly of the International Union of Geodesy and Geophysics (IUGG)/IAHS at Sapporo, Japan, in July 2003. An intermediate report was presented, and an open workshop to discuss the report was held in the Assembly, followed by an H2020 meeting to set the framework of the final report.

The fourth meeting was held in Calgary, Canada, in October 2004. It was originally planned for December but was brought forward in order to meet the publication deadline so that the final report of H2020 could be made available at the IAHS Scientific Assembly in 2005. However, it was found that the draft prepared for the fourth meeting in Calgary could be much improved with some revisions, and hence, the H2020 group decided to delay the publishing schedule.

The fifth meeting was held at the VIIth IAHS Scientific Assembly in Foz do Iguaçu, Brazil, in April 2005. The penultimate draft of the report "Hydrology in 2020" was introduced at a workshop, and the vision, the roadmap, and the key messages of the report were discussed with general participants of the Assembly.

The sixth meeting held in Stockholm during the World Water Week in August 2005 was the final editorial meeting for the group. All the report contents were examined and discussed, and the working group members reflected on some of the review comments given on the draft report presented in April 2005.

It took longer than expected to complete this report by the Hydrology 2020 Working Group of IAHS. This was in part because the Group could only have meetings annually due to the lack of robust financial support for their travel. As it turned out, we felt that we should have met more frequently, at least twice a year, to maintain our motivation. Giving a higher priority to drafting the report also means having longer meetings (more than three days) so that there is a productive opportunity for writing, just as the Hydrology 2000 Working Group did 20 years ago. Nowadays the early 30s is a very crucial and stressful age for researchers, and it was impossible to find a time slot among the H2020 members for a meeting longer than three days.

Nevertheless, we are proud of this report: *Hydrology 2020: An Integrating Science to Meet Water Challenges*. There are already several documents reviewing the latest achievements of hydrological science and outlining the prospects for the discipline. However, we believe this report is unique and valuable to the research community, particularly for young hydrologists, and also for all the stakeholders concerned with world water issues. We have tried to illustrate the capability that hydrological science will, and should have in 2020, and what we should start doing now in order to achieve this.

We are sure that this report will be a milestone capturing the state of the art in hydrological science at the beginning of 21st Century, and a chart for young hydrologists (including us) to explore the new frontiers in hydrology. We are also certain that it will be a guide for those involved with developing and implementing water policies. We are aware of the expectations of us from more senior generations to lead hydrological science in the coming few decades. As Dr Rodda mentioned in his message (see Appendix 1), "it is a valuable investment for the future of hydrology", and we would like to bring an end to the expectation. In a sense, this report is something like a resolution for us, and we will be judged in roughly 15 years. We will be very happy if hydrological science is further advanced and its capability for solving practical problems in society is even more enhanced in 2020.

Taikan Oki, Chair of H2020
on behalf of the Hydrology 2020 Working Group members
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