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Promoting international co-operation in learning—the role of the International Association of Hydrological Sciences

L'encouragement de la coopération internationale en savoir—le rôle de l'Association Internationale des Sciences Hydrologiques

Rodda J. C.

International Association of Hydrological Sciences,
Institute of Hydrology, UK

Abstract

This paper presents a summary of the activities of the Association, a water orientated non governmental organisation, in relation to the learning society. It looks at the history of IAHS, its current challenges and future aims.

Résumé

Cet article présente un résumé des fonctions de l'association, une organisation non gouvernementale qui adresse les problèmes de l'eau, en relation de la société cognitive. L'article considère l'histoire de l'association, les défis présents et les buts futurs.

1. Introduction

As the oldest of the non profit making international non governmental organisations dealing with hydrology and water resources, the International Association of Hydrological Sciences (IAHS) has made a unique contribution to the world of education and learning and its related areas of economic activity, since it was established in 1922. During these nearly 80 years, the world at large has experienced many far reaching changes, a considerable number impacting on the water environment and on society generally. Some of these changes have been reflected in the activities of the Association and have altered the pattern of its endeavours, many in relation to learning. These changes have not only affected the science of hydrology, but they have also altered the structure of IAHS and how the Association functions. Furthermore, they have become more intrusive over the last decade or so, particularly as economic pressures have built up. Now there are new challenges arising, some scientific, some technological and some due to socio-economic factors, while fresh ones can be foreseen on the horizon which may be potent in causing further alterations to the Association.

2. Mission statement

Many organisations have adopted mission statements over the last 5 to 10 years, statements which purport to encapsulate what that particular body is attempting to do. The IAHS mission statement appears in the initial part of its statutes (IAHS 1996), the basic rules of the Association which govern the way it operates:

To promote the study of Hydrology as an aspect of the earth sciences and of water resources

- o to study the hydrological cycle on the Earth and the waters of the continents; the surface and groundwaters, snow and ice, including their physical chemical and biological processes, their relation to climate and to other physical and geographical features as well as the interrelations between them;
- o to study erosion and sedimentation and their relation to the hydrological cycle;
- o to examine the hydrological aspects of the use and management of water resources and their change under the influence of man's activities;
- o to provide a firm scientific basis for the optimal utilisation of water resources systems, including the transfer of knowledge on planning, engineering, management and economic aspects of applied hydrology;

To provide for discussion, comparison and publication of research results.
To initiate, facilitate and co-ordinate research into, and investigation of those hydrological problems which require international cooperation.

Naturally this statement has faults, which may be common to those adopted by similar professional scientific bodies and organizations. For example, it tries to be all embracing and not to be too specific, it incorporates some outmoded ideas, it needs to be brought up to date and there is always the question of whether or not such a mission can be accomplished. The discovery of significant quantities of water on the Moon in March 1998 and the possibility of water on other moons suggests that the term 'earth sciences' may no longer be appropriate to IAHS. In a similar vein, the reference to 'man's activities' may deserve a change to an equivalent gender free phrase. These and other alterations will, no doubt, be incorporated into the next statutes of the Association, when a revised version is set before a future IAHS General Assembly for its approval. While such amendments can be significant, perhaps more important to discussions here are the references to the learning society, such as to the gaining of knowledge, to the transfer of knowledge and to the provision of a forum for the discussion, comparison and publication of research results. To initiate, facilitate and co-ordinate research is another phrase worthy of note in the current context.

3. History

An outline of the history of the Association illustrates its past contribution to the world of learning and it provides a platform for an understanding of what the future might bring. When they drew up a history of IAHS, Volker and Colenbrander (1995) identified four phases in the development of the Association and the discussion here will follow that classification.

Phase 1: The first participation of hydrology in international scientific cooperation, 1922-1939

After discussions at the 1922 Rome General Assembly of the International Union for Geodesy and Geophysics (IUGG), an International Branch of Scientific Hydrology was established. The term 'scientific' was used in order to distinguish the Branch from those who used rods and twigs to find water and from those interested in the com-

mercial exploitation of mineral waters. A Commission for Glaciers was formed as part of the Branch at the Madrid Assembly in 1924 and at the Prague Assembly in 1927, the Commission absorbed the International Glacier Commission which had been established in 1894. The first of the 'Red Books' was published for the Madrid Assembly, to be followed by similar volumes for the succeeding 20 assemblies. At Madrid, a Commission on Statistics was set up with the tasks of trying to bring some uniformity into the publication of hydrological data and to make inventories of national water resources. At this time hydrologists from some 25 countries were involved in the work of the Branch, which in 1933 became the International Association of Scientific Hydrology (IASH) at the Lisbon Assembly. During the 1930s the commission structure emerged within the Association, when commissions for potamology, limnology, instruments and measurements and subterranean waters were established alongside the existing bodies. At the time of the Washington Assembly in 1939, the Association had produced 26 publications in the form of Red Books.

Phase 2: Recognition and expansion of IASH, 1948-1970

Post war growth saw both hydrology and IASH expand, because of the increasing demand to control and manage water resources through the construction of hydraulic works, because of the need to provide forecasts of floods and to design defences against them and because of a number of other needs. The assemblies in Oslo (1948), Brussels (1951) and Rome (1954) saw an increasing number of volumes published by the Association and then in 1956, IASH convened its first symposium outside an IUGG assembly, in order to meet the demand for more frequent meetings. This symposium was held at Dijon to commemorate the 100th anniversary of the publication by Darcy in 1856 of the law on groundwater flow. In 1956, Professor Leon Tison, who had become Secretary General of the Association in 1948, started the publication of a Quarterly Bulletin, carrying both news of the Association and scientific papers. He also handled the publication of the Red Books, editing the papers, getting them published by a local printer and mailing them himself. More volumes of the Red Books appeared containing scientific papers for symposia and for the general assemblies, then in 1959 Publication No. 50 was produced. For the 1963 Berkley General Assembly, the Association published 5 volumes of proceedings containing more than 2000 pages covering the topics of; snow and ice, evaporation, surface waters, subterranean waters, erosion, precipitation and soil moisture.

In the late 1950s, IASH started to co-operate with the United Nations and its agencies with interests in water, particularly with UNESCO and the World Meteorological Organization (WMO). In 1961, Professor Tison became the first Vice President of what was later to become WMO's Commission for Hydrology (WMO 1986) and when UNESCO launched the International Hydrological Decade in 1965, Professor Tison was reputed to have been one of the three fathers! The Association helped UNESCO formulate programmes and it contributed to the activities of IHD working groups. One of the benefits of the this co-operation was the joint convening of symposia and the publishing of the proceedings, first with UNESCO in 1967 for the Symposium on Fractured Rocks and then in 1972, with WMO, for the Symposium on the Distribution of Precipitation in Mountainous Areas. In 1967 a new series of co-edited publications on Snow and Ice was started with UNESCO, dealing primarily with the fluctuation of glaciers.

Phase 3: Transformation of IASH into IAHS and further growth, 1971-1981

When Professor Tison was forced by ill health to resign from the position of Secretary General, it became obvious that because of the increasing work load and also because of the new thrusts in hydrology and new ideas about the grouping of water

Table 1. The Commission and Committee Structure of IAHS

International Commission on Surface Water	ICSW
International Commission on Ground Water	ICGW
International Commission on Continental Erosion	ICCE
International Commission on Snow and Ice	ICSI
International Commission on Water Quality	ICWQ
International Commission on Water Resources Systems	ICWRS
International Committee on Remote Sensing & Data Transmission	ICRSDT
International Committee on Atmosphere-Soil-Vegetation Relations	ICASVR
International Committee on Tracers	ICT

In 1981 the Association, with UNESCO and WMO, started the annual award of a silver medal known as the International Hydrology Prize to hydrologists who had made an outstanding contribution to the science. The Prize was first awarded to Professor Tison for the excellence of his contribution to Association and for his expertise in research and skills in teaching. The Prize has been awarded every year since to hydrologists who have distinguished themselves and brought credit to the science. The Hamburg Assembly agreed to establish an annual award to mark the contributions of young scientists to the Association. The award, which is in the form of a certificate and money, is known as the Tison Award. It is made on the basis of the best paper or papers presented in one of the publications of the Association. The Hamburg Assembly also set up the Hydrology 2000 Working Group, a group of young hydrologists who reported to the Vancouver Assembly in 1987 on probable state and shape of hydrology in the year 2000AD. This volume makes interesting reading as the year in question nears.

In 1983 the name of the Bulletin was changed to the Hydrological Sciences Journal and it became a bimonthly in 1988. The proceedings of the 1984 symposium on the Hydrochemical Balances of Freshwater Systems appeared as IAHS Publication No.150, only 13 years having elapsed since Publication No.100 had been published, compared to 37 years between Numbers 1 and 50. The Newsletter, which had been published by the Secretary General since the 1970s, was put on a more formal basis towards the end of the 1980s, being produced three times a year with a circulation of up to 1000 copies. Two new series of publications were launched in 1989; IAHS Information in Chinese and the Blue Books, a series of monographs written at the invitation of the Association. IAHS Information is a magazine which appears 4 times a year containing selected reviews, reports and papers culled from IAHS sources and which is circulated widely in China. The Blue Books are a series of Special Publications, the initial one having the title Hydrological Phenomena in Geosphere-Biosphere Interactions. Specialised symposia continued to be organised by the Commissions and Committees of the Association, independent of General Assemblies and Scientific Assemblies, to the extent that in the early 1990s, 7 or 8 Red Books appeared in most years. Indeed in 1991 IAHS Publication No. 200 appeared—the proceedings of the Fourth International Symposium on Land Subsidence. UNESCO provided financial support to this publication as a contribution to the IHP, while a number of other Red Books received financial support from a range of bodies and sources during the 1990s. Since 1992 there have been a series of colloquia, known as the George Kovacs Colloquia which have been organised jointly by IAHS and UNESCO for the two or three days directly before the meetings of the Intergovernmental Council of the IHP. The Association continues to work closely with both UNESCO and WMO. IAHS is represented at Council and Commission meetings and in the subsidiary bodies of both. UNESCO and WMO are represented at the meetings of the IAHS Bureau and play influential parts in the affairs of the Association.

Probably the most important IAHS initiative in support of the transfer of knowledge to

developing countries was started in 1991, when the Association's Task Force for Developing Countries (TFDC) commenced the mailing of Red Books and, in some cases, the Hydrological Sciences Journal, to libraries in nations in need. Over 70 addresses were selected covering many countries in all continents, on the understanding that the publications are made available to hydrologists and other scientists outside the recipient organisation. The list of addresses has been revised a number of times subsequently, but the main thrust of this important initiative is continuing.

4. For the future

As the Millennium approaches, like many other scientific and professional bodies IAHS is examining its role and considering its future. Where will the new scientific initiatives occur? What will be the impediments to progress? How can the small international community of hydrologists influence events or, at least, be carried along in the strongest part of the current of progress?

The contribution of hydrology to the learning environment has been strongly influenced by technological progress during the last 20 years or so. Easy access to computers and the rise of remote sensing, together with the information revolution have transformed the science in manner that would be unimaginable to the founders of IAHS. These innovations must be part of the accelerating pattern of Schumpeter waves (Economist 1999) which characterise the bursts of innovation which started with the Industrial Revolution in the 18th Century. Their consequences and side effects may radically influence the way the Association operates during the coming decades. Video-conferencing, electronic publishing, satellite based systems such as for global positioning, biotechnology, a base on the Moon and other advances may have serious impacts on hydrology and on IAHS activities. However they may be overshadowed by the coming water crisis and the continuing need for hydrology to react to it.

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