

INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES
International Union of Geodesy and Geophysics
Union G od esique et G ophysique Internationale
ASSOCIATION INTERNATIONALE DES SCIENCES HYDROLOGIQUES

Minutes of the IAHS Bureau Meeting 1999

University of Birmingham during IUGG General Assembly

First meeting: Tuesday 20 July 1999; 9.00 – 18.00

Present: JC Rodda, U Shamir, GJ Young, P Hubert, K Takeuchi, Z Kundzewicz, A Gustard (ICSW), E Sudicky, E Hoehn (ICGW), B Hasholt (ICCE), G Jones (ICSI), NE Peters (ICWQ), A Rango (ICRSDT), K Jensen (ICASVR), A Dassargues (ICT), A Askew (WMO), R Feddes, J De Vries, H Colenbrander, M Moss

Regrets: C Onstad, S Simonovic, AI Johnson

Second meeting: Saturday 24 July; 9.00 – 18.00

Present: JC Rodda, U Shamir, GJ Young, C Onstad, P Hubert, K Takeuchi, Z Kundzewicz, E Hoehn (ICGW), B Hasholt (ICCE), E Morris (ICSI), NE Peters (ICWQ), S Simonovic (ICWRS), A Rango (ICRSDT), K Jensen (ICASVR), C Vorosmarty (ICASVR), A Dassargues (ICT), A Askew (WMO), H Gehrels, D de Boer, J Bogen

Third meeting: Thursday 29 July; 14.00 – 18.00

Present: JC Rodda, U Shamir, GJ Young, C Onstad, P Hubert, K Takeuchi, L Gottschalk, L Oyebande, Z Kundzewicz, E Servat, S Demuth (ICSW), D Lerner (ICGW), G Jones (ICSI), NE Peters, B Webb (ICWQ), S Simonovic (ICWRS), D Rosbjerg (ICWRS), A Rango (ICRSDT), A Dassargues (ICT), A Sz oll osi-Nagy, (UNESCO), A Askew (WMO), G Schultz, A Hall, H Colenbrander, JA Boswinkel, C Van den Akker

Agenda

1. Welcome

The President, John Rodda, welcomed all members of the Bureau and extended a particular welcome to all guests.

2. Adoption of agenda

The agenda was adopted with minor changes in timing of some of the items to accommodate the particular schedules of individual members.

3. Adoption of minutes of the last Bureau meeting held at Paris

The minutes of the Paris meeting were adopted without changes.

4. Actions arising from Paris Bureau meeting

The Secretary General noted that all action items had been dealt with and that many of the topics would again be taken up at this meeting.

5. Summary report of President

The President reported on his activities over the past 4 years and in particular over the past twelve month period. These activities have been documented in the May 1999 issue of the IAHS Newsletter; they are included as Annex 1.

6. Summary report of Secretary General

The Secretary General reported on his activities over the past 4 year period. These activities have been documented in the May 1999 issue of the IAHS Newsletter; they are included as Annex 2.

7. Report of Chair of Nominations Panel

The Chair of the Nominations Panel, Henny Colenbrander, gave an detailed report of the actions taken in arriving at a slate of officers to stand for election. His report is included as Annex 3.

8. Update on revisions of Statutes

The Secretary General reported on suggested changes to be made to the Statutes and Bye-Laws of the Association and to Regulations for Commissions. He noted the need to make changes given the desire of the Bureau to change all Committees to Commissions. He also noted that there was now the opportunity also to make minor changes to the wording of the Statutes and Bye-Laws to make them more internally consistent. The changes suggested would have to be ratified in the IAHS Plenary sessions. He noted that there was also the opportunity to standardise the Regulations for Commissions to make them more simple without changing their essential meaning. Commissions represented in the bureau meeting while this topic was under discussion (all except ICSI) agreed that these changes would be desirable but that they would have to be ratified during Plenary sessions of the Commissions.

[The finally agreed new Statutes and Bye-Laws and Regulations of Commissions are included as Annex 4. (ICSI decided to retain its existing Regulations)].

9. Report of Task Force on Fee for Services

The Chair of the Task Force, Pierre Hubert, reported briefly on the activities during the past year. The conclusion of the Task Force is that at the present time there is no need for a fee for services. The report of the Task Force is included as Annex 5.

10. Summary of major items raised by Commissions and Committees

Brief highlights of activities in the past year were given by the representatives of Commissions and Committees.

11. International Hydrology Prize and Tison Award

The President, John Rodda, reported that Dr Mark Meier, a Past President of the Association would be awarded the International Hydrology Prize for 1999. Zbyszek Kundzewicz, reporting for Slobodan Simonovic, Chair of the Awards Committee for the Tison Award, indicated that Dag Lohmann would be given the Award for 1999. [Citations were given at the first Plenary session of IAHS and will be included in the next Newsletter].

It was agreed that Alain Dassargues would be Chair of the Tison Award Committee for the next Tison Award. It was noted that the criteria for the Award needed some revision. It was agreed that the amount of the Award should be increased to \$1000 plus a free subscription to HSJ for one year and that self-nomination for the Award would no longer be permitted. Action: Zbyszek Kundzewicz, after consultation with Presidents of Commissions, to draw up a revised set of guidelines for the Tison Award.

12. Report of IAHS Ltd

Des Walling, Chair of IAHS Ltd, reported on progress towards being recognised as a charity within the UK. His report is included as Annex 6. It is hoped that Charitable status will be achieved soon.

13. Update on IAHS at Maastricht 2001

This item was a major topic and discussion took place during all three of the bureau sessions. At the first session Reinder Feddes, Chair of the Scientific Organizing Committee, supported by Co de Vries, introduced the recommendations of the Committee; at the second session Hans Gehrels continued the discussion, there having been considerable debate in the intervening days; in the third session Jan-Anne Boswinkel, supported by Cees Van den Akker further elaborated on options. Alain Dassargues had been co-opted to act as focal point for discussion between the Dutch members of the Scientific Organizing Committee and members of the bureau. The outcome was that an outline program was agreed with a new style of format for an IAHS Scientific Assembly; it was decided to have initial and closing sessions at which all attendees would participate with the intervening sessions comprising a series of symposia and workshops designed within an overarching theme. Reinder Feddes was requested to finalize the program, and, if possible, to recommend principal convenors for each symposium and workshop, by 15 August. A first circular for the Assembly would be produced in time for distribution along with the next IAHS Newsletter. Looking ahead to 2005, Gerry Jones advocated a joint IAHS/IAMAS Assembly to be held in Montreal, Canada. He reported the strong enthusiasm for this on behalf of the Canadian National Committees for IUGG, IAHS and IAMAS. The Bureau reaction to this proposal was generally enthusiastic, but it was noted that there may be other invitations which would all have to be considered on their merits.

14. Summary report of Treasurer

The Treasurer, Charles Onstad, reported on the fairly good financial standing of the Association. He cautioned that considerable efforts would be needed to promote sales of Red Books and the Journal, which remain the backbone of the Association's finances. The report of the Treasurer is included as Annex 7.

15. Report of the Editor and IAHS Press

The Editor, Zbyszek Kundzewicz, presented his report as Editor and that of Penny Kisby on behalf of the IAHS Press office. The report is included as Annex 8.

Zbyszek Kundzewicz, after receiving praise from the President for his excellent handling of the role of Editor over the past 2 years (enthusiastically endorsed by the entire Bureau), was re-appointed to the post of Editor for the next 4 year period.

16. Statements of the WMO and UNESCO representatives

Arthur Askew, on behalf of WMO and Andras Szöllösi-Nagy, on behalf of UNESCO presented brief summaries of major activities within their organizations.

WMO Note was made of the series of major WMO meetings over the past few years:

The WMO Congress XII in 1995 and the WMO Congress XIII in 1999 – it was noted that the Operational Hydrology Programme of WMO no longer exists, it having been replaced by the Hydrology and Water Resources Programme, reflecting the increasing emphasis on water resources than just operational hydrology; there is increasing consideration of Capacity Building, Sustainable Development and Water-related issues

CHy-X had taken place in December 1996 and the Advisory Working Group (AWG) had met in November/December 1998 and was scheduled to meet again in September 1999 – Working Groups on Basic Systems and Applications had been set up to implement the tasks of CHy.

Cooperation with UNESCO-IHP is strong, as witnessed in the Joint WMO/UNESCO Conference in February 1999; the AWG will meet in conjunction with the IHP Bureau in September 1999.

It was noted that Prof Obasi had been re-elected to a further term as Secretary General of WMO.

UNESCO A report was presented of the series of recent meetings in which UNESCO Division of Water Sciences was involved including Water: a Looming Crisis, Water and the Learning Society and the Joint WMO/UNESCO Conference of 1999.

It was reported that IHP-V is coming to an end with about 70% of activities having been completed; 2 new volumes in the International Hydrology series had recently been completed. The substantial links to other UN-related water programs were noted including the links to International Isotope Hydrology Programme of IAEA.

Particular mention was made of the HELP initiative. The IAHS Bureau endorsed the proposition that HELP should underpin the IHP-VI initiatives and that it should form the focus for the up-coming Kovacs Symposium.

The Vision process of WWC, housed at UNESCO, Paris is involving considerable effort on the part of the IHP Secretariat and is a major initiative for UNESCO in the coming months.

The New World Water Development Report is being produced (a biennial report).

The creation of UNESCO Water Centres around the world was noted: IRTCUD, IRTCES and CATHALAC already established – new centres in Africa being envisaged and a new centre on Water Conflict Resolution having been recently established in Valencia.

Changes in personnel within the Water Sciences Division were noted: Mr Zebidi having retired, Mr Salih having moved from Cairo to Paris and Mr Mandalia now supervising the HELP initiative.

Lars Gottschalk agreed to act as IAHS liaison with the CHy of WMO and the IHP of UNESCO. The Secretary General agreed to forward all relevant documentation to Lars Gottschalk.

17. Links with other organizations

World Water Council Uri Shamir presented a brief overview of the activities of the World Water Council and of preparations for the Vision for Water for the 21st Century to be held at The Hague in March 2000. Considerable concern was expressed regarding the way in which the affairs of the WWC were being conducted. There was a detailed debate on whether IAHS should remain on the Board of Governors of the WWC and whether IAHS should renounce its membership of the WWC. Opinion was divided although a majority of bureau members were in favour of IAHS withdrawal from WWC, with the proviso that it would be best to withdraw after, or in coordination with other NGOs, particularly IWRA.

Commission on Sustainable Development It was reported that the CSD recognizes the critical situation of water resources in many regions of the world. The ACC-SWR is very active in coordination of efforts

through many individual projects. Al Rango noted the lack of cooperation between IAHS and FAO.

ICSU / IUGG: Changes within ICSU were reported and concerns raised that issues within the Earth Sciences in general were not being adequately addressed by ICSU. It was agreed that Jake Peters would represent IUGG on SCOPE and that Gordon Young would represent IUGG on the Working Group on Water Research (the successor to SCOWAR).

IWALC: The Secretary General reported that IWALC had met informally during the UNESCO/WMO conference on Hydrology in February 1999. He also reported that he was unwilling to continue as Chair of IWALC in the future as, in his opinion, the committee could be effective with only email communication.

FRIEND: A report on FRIEND was provided by Alan Gustard, although he was unable to present it in person; it is included as Annex 9.

HELP: Jake Peters presented a report on the HELP project, a very major new initiative; it is included as Annex 10. The strong links with UNESCO IHP were noted and the Bureau agreed that, as far as possible, the HELP initiative should be incorporated within IHP-VI activities.

IGBP: Charles Vörösmarty presented an update on IGBP initiatives relevant to IAHS; his report is included as Annex 11; Charles agreed to represent IAHS on IGBP business.

18. Reports of Task Force on Developing Countries and Training Assistance Program

Pierre Hubert, Chair of the Task Force reported on activities during the past years. His report has been included in the last Newsletter; it is included as Annex 12. The President thanked Pierre Hubert for his great efforts under difficult circumstances over the past 4 years. Lars Gottshalk agreed to replace Pierre Hubert as Chair of the Task Force for the next 4 year period.

19. Report of Honorary President

The Honorary President, Ivan Johnson, unfortunately could not attend the meeting and a report was not presented.

20. Introduction of the new officers

At the third session of the Bureau several newly-elected officers were able to attend. The President welcomed them to the bureau meeting and wished them well with their coming endeavours for the Association and its Commissions.

21. IAHS/WMO Working Group on GEWEX

Gert Schultz reported on his 10 years as Chair of the Working Group. His report is included as Annex 13. The Bureau agreed on the appointment of Alan Hall as successor to Gert Schultz as Chair of the Working Group. The President wished the Alan Hall well in the coming 5 years of his Chairmanship.

22. Strategy for holding future Bureau meetings

The alternatives for holding meetings of the full bureau every year as opposed to only at Assemblies of the Association (every 2 years) was not discussed in detail. No recommendation was made.

23. Other business

Resolutions IAHS resolutions to be brought to IUGG for adoption were discussed. In light of recommendations coming from IAHS Workshop 1 on Global Data Bases an IAHS resolution was drafted and submitted to IUGG. It is included in Annex 14 along with a press release introducing it. In addition hydrological input to a general resolution on Geophysical Data Bases was discussed. IAHS strongly supported this resolution. The text of the final resolution is also included within Annex 14. IAHS also supported the resolution concerned with Radio Frequencies.

Global Data Bases As a follow-up to supporting the resolution on Geophysical Data Bases and recommendations coming out of Workshop 1, an IAHS Working Group on Global Data Bases was formed. Charles Vörösmarty agreed to Chair this WG and all Commissions were invited to participate. Action: Charles Vörösmarty.

IGBP Charles Vörösmarty was appointed as IAHS representative to IGBP. Action: Charles Vörösmarty.

Megacities initiative An IUGG Task Force on Megacities has been set up under the leadership of Grant Heiken. Uri Shamir and Kuniyoshi Takeuchi agreed to represent IAHS on this Task Force.

SCOR (Scientific Committee on Oceanographic Research) initiative Within IUGG SCOR has been active in promoting research on the flux of water through groundwater into the oceans. A Working Group currently exists. IAHS has been asked to support the creation of a new Commission (possibly inter-association) on this topic. Considerable interest was expressed by Bureau members on the topic and it was decided that ICGW should take lead responsibility in promoting the topic, with possible involvement of

ICT, ICWQ and ICSW. It was thought that, at this time, a new Commission was not needed but the existing Working Group should be strengthened.

Discussion of a strategic science plan for IAHS. After considerable debate, Kuniyoshi Takeuchi was requested to initiate a widespread discussion within IAHS on the need for and contents of a long-term strategic science plan for the Association. Action: Kuniyoshi Takeuchi.

Recognition of efforts of officers The need to recognize the efforts and hard work of past officers was expressed following a request for such coming from Dr Liu Guowei. While such a need was accepted by the bureau, the Secretary General was reluctant to recognize efforts by all officers, some of whom had not been particularly active. On the other hand, there was agreement that a letter of congratulation and welcome was in order for newly appointed officers. Such a letter might spell out the major responsibilities and obligation of officers to the Association / Commissions. It was also suggested that the terms of appointment and obligations of officers might be written into the IAHS Handbook. Action: Secretary General to write letters to all newly appointed officers.

24. Venue for next meeting

It was decided that the venue for the next meeting of the bureau would be Unesco, Paris in early June, 2000, in conjunction with the next Kovacs Symposium and the next session of the Intergovernmental Council for the IHP.

25. Closure

The President closed the meeting at 17.45.

List of Annexes

1. Report of the President
2. Report of the Secretary General
3. Report of the Chair of the Nominations Panel
4. The revised Statutes and Bye-Laws and Regulations of Commissions
5. Report on Task Force on Fees for Services
6. Report of IAHS Ltd.
7. Report of the Treasurer
8. Report of the Editor and IAHS Press
9. Report on FRIEND
10. Report on HELP
11. Report on IGBP
12. Report on Task Force on Developing Countries
13. Report on WMO/IAHS Working Group on GEWEX
14. Resolutions on Global Hydrological Data Bases and on Geophysical Data Bases

Annex 1 Report of the President, as published in News 66

Presidential perspectives on periods of office, whether for four years or for shorter, are not particularly easy to put together, for either international or national scientific bodies. How to identify the highlights is perhaps easier than picking out the points which need special attention and reporting on how these areas of difficulty have been dealt with.

Setting aside these difficulties, your President has to report that, in general terms, the health of the Association has been sound over the last four years. Of course, the Association was in very good shape at Boulder, thanks to the successes achieved during Uri Shamir's presidency. But largely due to the recent economic slowdown, the financial position of the Association deteriorated and the balance sheet went into the red for several years subsequently. Fortunately the last year has seen a turn around in the finances, which has resulted from the efforts of the Secretary General, Treasurer, Editor and the staff of the IAHS Press, together with very welcome help from the Director of the Institute of Hydrology.

Over the four years, the Association continued to organise a large number of symposia, some in cooperation with other bodies, and to publish the proceedings as 'Red Books'. Titles dealing with GIS, erosion and sediment yield, ground water modelling, destructive water, the humid tropics and on the hydrology and ecology of headwaters are amongst those published. Six volumes were produced for the Rabat Assembly, which was an outstanding success, especially because of the excellence of the support provided by our Moroccan hosts. Each year six issues of the Journal have been appearing, including several most attractive 'Special Issues' contributed by different Commissions and Committees. Several new 'Blue Books' have been produced in the growing series of special publications. Indeed IAHS continues to be the world's largest publisher in the field of hydrology and water resources. Most leading topics are being addressed, however the words 'snow and ice' have not appeared in an IAHS title since 1993. In addition to the scientific publications, in order to disseminate views and news across the hydrological community, the Secretary General has produced the IAHS Newsletter three times a year.

With UNESCO, several George Kovacs Colloquia have been convened, the 1998 Colloquium: 'Water— a Looming Crisis' attracting a record number of participants to Paris and creating wide interest in the problems of water. With UNESCO and WMO, the Association continues to make the annual award of the International Hydrology Prize to distinguished hydrologists, while a series of young hydrologists have been presented with the Tison Award, to mark the outstanding quality of their scientific contributions to one of the Association's publications. Also with UNESCO and WMO, the Association continues to share in the planning and managing of the hydrological programmes of these specialised agencies of the United Nations, through attendance at the Intergovernmental Council of the IHP, at the Commission for Hydrology and at their subsidiary bodies. The Secretary General has chaired the committee set up for liaison between international non governmental bodies concerned with water, such as IAH, ICOLD and ICID. The Past President has attended meetings of the Board of Governors of the World Water Council, and has been a very active Vice President of the International Union of Geodesy & Geophysics.

Personal memories of people and places also play a part in the life of most presidents. Ivan Johnson's tours of his office and of the Rockies during Boulder were a pleasure to many. Arni Snorreson's lecture to the IAHS dinner in Rabat, with his slides of the massive flood in Iceland sparked by the eruption under the glacier, broke new ground.

The smiles on the faces of Lenna Tallaksen, Bente Clausen and Henrik Madsen, as they received the 1998 Tison Award from Jake Peters at the 'Water —a Looming Crisis' colloquium were well worth seeing. The constant flow of jokes from Franz Nobilis — these and other features of life in IAHS make the task of the president a very enjoyable experience.

John C. Rodda

Annex 2 Report of the Secretary General, as published in News 66

Assessing accomplishments and shortcomings over a period of four years is a most useful process. One is forced to consider all aspects of the job, consider which aspects pose the greatest challenges, which functions have been relatively simple and which tasks have, unfortunately, not been achieved with all the hoped-for success. It is also an opportunity to explain to a broad community what the post of Secretary General involves.

For simplicity, the duties of the Secretary General might be broken down into *Keeping the Records* and *Facilitating Communication*. These functions are performed to support the two primary mandates of the Association which are to promote cutting-edge science and to facilitate and encourage dissemination of knowledge and understanding throughout the scientific community with particular attention to including scientists from economically disadvantaged countries.

Keeping the Records is a fairly straightforward but essential set of activities including:

- Arranging for and taking minutes of meetings, particularly the meetings of the IAHS Bureau at which most of the important decisions regarding the activities of the Association are made.
- Maintaining a database of Members, National Representatives and other contacts (an activity now performed largely by the staff at IAHS Press).
- Publishing the IAHS Handbook, including revisions of the Statutes and Bye-laws of the Association.
- Assisting with the process of nominating and electing new officers for the Association and its Commissions and Committees.

Clearly, all of these activities are performed with the assistance and cooperation of a large number of individuals. These activities in combination take considerable amounts of time, but they are relatively easy to accomplish.

Facilitating Communication involves many individuals, agencies and institutions and is accomplished through a number of mechanisms. This is a core activity, at the very heart of the purpose of the Association. Essentially the same function is, of course, performed by the Secretaries of Commissions/Committees within the Association or by the Secretary General of our parent body, the International Union of Geodesy and Geophysics (IUGG). The challenges here are very "human"—individuals come from different cultures and situations; their agencies and institutions have differing mandates, modes of operation and agenda. It is only human to have sensitivities and idiosyncrasies, which are not always predictable, and mistakes in judgement are all too easy to make.

The types of communication necessary for the functioning of the Association are many and include communication:

- within the Bureau of the Association, and with and within its Commissions;
- with Individual Members of the Association (now numbering over 2300);
- with National Representatives of the Association and its Commissions;
- with other Associations within the IUGG structure;
- with Governmental Organizations of which UNESCO, WMO and the Commission for Sustainable Development of the United Nations system are of greatest importance;
- with Nongovernmental Organizations in the water sector (of which there are very many);
- with other scientific bodies such as the American Geophysical Union and the European Geophysical Society.

The mechanisms for communication include the arranging of meetings—assemblies, symposia, workshops and meetings of working groups and task forces—and the production of Newsletters (such as this). From our symposia come a series of Red Book publications (now numbering over 250). These publications are supplemented by the production of the *Hydrological Sciences Journal* and series of Special Publications.

Modes of communication have changed dramatically over the past few years and continue to evolve at a remarkable rate. The advent of e-mail has quickly led to the decline in use of letter mail and faxes; the internet is proving enormously useful in disseminating information quickly and at low cost. However, the challenge here for an organization such as IAHS with its worldwide audience is that electronic communication is not universally available. It is hoped that this situation will change so that all may benefit from these advances in technology—but until that time we must continue to operate with several modes of communication to serve all our constituents.

The Association has achieved much in the last four years and I have felt honoured and privileged to be part of its efforts. There are still great challenges ahead, perhaps most important of which is the greater involvement of our colleagues in Latin America, Africa and several parts of Asia. However, the frustrations of not achieving quite as much as was hoped for, have been far outweighed by the stimulation and exhilaration of working with a really friendly set of colleagues, particularly the staff at IAHS Press at the Institute of Hydrology in Wallingford, UK.

Let us hope we can all meet in Birmingham this July to continue our work in a cooperative, stimulating and friendly manner.

Gordon J. Young

Annex 3 Report of the Chair of the Nominations Panel

The following comment is prepared by Henny Colenbrander, supported by Marshall Moss, both members of the IAHS Nomination Panel for the elections at Birmingham, July 1999

1. General remarks

The main goals of restructuring the IAHS nomination & election procedure in the years 1989 – 1993 were:

- 1.1 to reduce the length of the period one can serve as an IAHS officer, this to obtain sufficient and regular 'new blood'
- 1.2 to make the nomination & election procedures for new officers more transparent and to change the system of election by 'co-option', that means to reduce the influence of outgoing officers on the election of their successors
- 1.3 to realize continuity of the Bureaus of the Association and its Scientific Commissions it should be statutory, that not all officers are retiring at the same time.

To achieve these goals the IAHS Statutes & Bye-laws were, after many years of deliberations, changed at the Scientific Assembly at Yokohama in 1993, in particular the Articles 7.3 & 7.4 of the Statutes and Article 6 of the Bye-laws. However, the changes introduced do not completely meet the goals mentioned above. Therefore it is proposed to adapt some of the current Articles again.

2. Proposed changes of IAHS Statutes & Bye-laws

- 2.1 With respect to the above point 1.1, Article 7.3; 7th para of the Statutes should be adapted to avoid that a person can serve the Bureau of the Association in different capacities for more than three terms in total. The Secretary General and Treasurer can serve already for a maximum of 12 years (8th para) and the Editor is appointed by the Bureau and can serve without limit (9th para). Proposed change and addition of 7th para:

“ The President and Vice-Presidents may not be re-elected to the same office and may not serve as Bureau officer more than three terms in total plus possible half terms as President-Elect and immediate Past President.”

Since the same rule should apply for the Scientific Commissions the following addition to Article 7.4, 4th para, 2nd sentence should be made:

“..... but for not more than one additional term. No one, however, may serve as Commission officer more than three terms in total plus possible half terms as President-Elect and immediate Past President.”

- 2.2 With respect to point 1.2, Article 6, 1st para. of the Bye-laws should be adapted as follows:
“ The Bureau shall establish a Nomination Panel of not less than three members not being current officers, at least 10 months”

Since also in this respect the same rule should apply for the Scientific Commissions the following adaptation of Article 6.1, 1st para should be made:

“ Each of the several Scientific Commissions shall establish a Nomination Group of not less than three members, not being current Commission officers, at least 10 months”

3. Proposed changes of some other Articles.

For a further improvement of the rules describing the nomination & election procedure a number of other Articles of the Statutes & Bye-laws should be changed i.e.

Article 7.2 of the Statutes:

“ Voting in the Plenary Administrative Session shall be by countries with a National IAHS Committee/Representative, each country having one vote, with the provision that its IUGG subscription has been paid up to the end of the year preceding the voting. This voting may also by mail but the vote must be received by the IAHS Secretary General ten days before the start of the General Assembly. If the vote has been by mail then the country cannot.....may vote.
“

Article 6, 3rd para. of the Bye-laws:

“ On the basis of available nominations from the National Committees, the IAHS Bureau and Scientific Commissions (but not from individual officers of the latter two bodies), the Panel shall prepare a list.....professional distribution.”

Article 6, 5th para of the Bye-laws:

“ A person may be a candidate for more than one office except the candidate for President-Elect of the IAHS Bureau who may notat the same time.”

4. Additions to the Nomination Form

It is worthwhile to add to the Nomination Form, to be completed by the nominee, items on:

- their full postal address, telephone & fax-numbers and e-mail address
- their current job

5. Final remarks

- It is felt that the National IAHS Committees should be stimulated to participate more actively in the nomination and election process, in particular the NC's of less developed countries. The unsatisfactory geographical distribution of nominees is strongly determined by the lack of interest of the NC's of these countries.
- IAHS officers should demonstrate a positive feeling regarding the elections and be cooperative minded in this respect.
- How can (less developed) countries formally be accepted as IAHS member in case they do not pay IUGG dues.
- Should some further additions made to the IAHS Bye-laws on:
 - *) the set up of a Teller Committee;
 - *) the decision on extension of the nomination period.;
 - *) who has to take action in case for a position no one has been nominated.

Henny J. Colenbrander, Velp, the Netherlands 8 July, 1999

Annex 4 New Statutes and Bye-Laws for the Association and Regulations for Commissions (excluding ICSI)

The following are the proposed Statutes and Bye Laws of IAHS for adoption at the IUGG General Assembly, Birmingham, 1999. Changes to the existing Statutes and Bye Laws are in italics; the major change relates to changing International Committees to International Commissions.

Statutes

1. THE OBJECTIVES OF THE ASSOCIATION

- 1.1. To promote the study of Hydrology as an aspect of the earth sciences and of water resources;
 - 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 factors as well as the interrelations between them;
 - to study erosion and sedimentation and their relation to the hydrological cycle;
 - to examine the hydrological aspects of the use and management of water resources and their change under the influence of man's activities;
 - to provide a firm scientific basis for the optimal utilization of water resources systems, including the transfer of knowledge on planning, engineering, management and economic aspects of applied hydrology.
- 1.2. To provide for discussion, comparison, and publication of research results.
- 1.3. To initiate, facilitate, and coordinate research into, and investigation of, those hydrological problems which require international cooperation.
2. The Association is a constituent body of the International Union of Geodesy and Geophysics (IUGG). The Association is subject to those Articles of the Statutes and Bye-laws of the Union that apply to associations and also to these Statutes.
3. Any country adhering to the Union also adheres to the Association, and is entitled to send delegates and otherwise to participate in its work. All scientific meetings of the Association or of its components are open to such delegates.
4. The Association performs its activities in the framework of the International Council for Science (ICSU) and IUGG, in cooperation with the United Nations and its specialized agencies and through direct contacts with other international organizations.
5. The Association shall comprise: the Plenary Session, the Bureau of the Association, the Scientific Commissions, the Panels and Working Groups and the International Association of Hydrological Sciences Limited. The Association shall maintain contact with the several adhering countries through their National Representatives or National Committees (often subcommittees or sections of the IUGG National Committees) and Regional Committees.

Scientific Commissions: Units of the Association having defined scientific responsibilities in specific hydrological fields or subjects. Divisions are corresponding units of the Scientific Commissions.

Panels or Working Groups: Ad hoc units to report on specific problems, either scientific or administrative.

National Committees: National Committees of IAHS are administrative bodies for maintaining contacts with the Association. They may include representatives to the Scientific Commissions of IAHS.

National Representatives: Each member country of IUGG shall appoint a National IAHS Representative who is responsible for maintaining contact with the Association, taking part in the work of the National Committee of IAHS, if one such is established.

Regional Committees: Regional Committees are administrative bodies which examine subjects of particular concern within specific regions.

The International Association of Hydrological Sciences Limited: This is a UK Registered Charity having as part of its Memorandum and Articles of Association objects which are identical to those of this Association and coming within the framework of ICSU and IUGG.

Individual Members: Even though membership of IAHS is by country, individuals may request to be registered

for so-called individual membership. To qualify for such membership an individual must work in one or more fields of hydrology and endeavour to participate in IAHS activities. The individual members are not permitted to vote on administrative matters.

PLENARY SESSION

6. A Plenary Session of the Association shall be convened in accordance with the Bye-laws of the Union. At least one Plenary Session of the Association shall be held during a General Assembly of the IUGG and during a Scientific Assembly of the Association. Each adhering country may be represented by one or more delegates to the Plenary Session.

6.1. The Plenary Session has final authority on questions of a scientific character.

6.2. The Plenary Session shall consider the state of hydrological sciences, the trends in their development, and questions relating to the organization of symposia on important programmes, taking into consideration the appropriate programmes of other international organizations.

6.3. Each participant present at the Plenary Session shall have one vote on scientific matters.

7. The final authority of the Association in all matters of administration and finance shall be vested in the Plenary Administrative Session of the Association.

7.1. The Plenary Administrative Session shall consist of the President, the President-Elect or immediate Past-President, the Vice-Presidents, the Secretary General, the Treasurer, the Editor, the President or other designee of each Scientific Commission in existence at the time, the Chairman of IAHS Limited and one voting delegate from each adhering country, appointed by that country to vote in the Plenary Administrative Session.

A quorum shall consist of the President (or Vice-President acting as President), the Secretary General, or his deputy, and voting delegates from at least 10 countries.

7.2. Voting in the Plenary Administrative Session shall be by countries, each country having one vote, with the provision that it has voting rights in IUGG at that time. This voting may also be by mail but if the vote has been by mail then the country cannot vote at the Plenary Session again. Only those officers of the Association and its Scientific Commissions who are also voting delegates of their countries may vote.

7.3. The Plenary Administrative Session, during the General Assembly of the IUGG, shall elect for the Association, in accordance with the Bye-laws, the President-Elect, three Vice-Presidents, the Secretary General, the Treasurer, and such other elective officers as may be deemed necessary.

The election shall be held during the IUGG General Assembly, in accordance with Articles 7.1, 7.2 and 7.6.

The period of office for all Association officers except the President, shall be the interval between elections at two successive IUGG General Assemblies.

The President-Elect shall become President, and the President shall become immediate Past-President, two years after the elections at the IUGG General Assembly.

If a Scientific Assembly is held during the second year after the elections, the President-Elect shall become President at the beginning of the Scientific Assembly.

The term of immediate Past-President shall be from the time the new President takes office to the next election of a President-Elect. At any time there shall be in the Bureau either a President and President-Elect or a President and a Past-President.

The President and Vice-Presidents may not be elected to two successive terms of the same office.

The Secretary General and the Treasurer shall be eligible for re-election, but not for more than two additional terms.

The Editor shall be appointed by the Bureau, and shall be eligible for re-appointment without limit.

The President-Elect shall assume the office of President if this office becomes vacant. If there is no President-Elect the Bureau shall appoint one of the Vice-Presidents to be President.

If the office of the Secretary General or that of the Treasurer or that of the Editor shall become vacant between IUGG General Assemblies, acting officers shall be appointed by the President to serve the remainder part of the term.

7.4. The Plenary Administrative Session has the power to form and discontinue Scientific Commissions. Their terms of reference shall be included in the Bye-laws of the Association.

The Plenary Administrative Session during the IUGG Assembly shall be informed of the President-Elect, three Vice-Presidents and Secretary elected during the Plenary Administrative Session of each of the Scientific Commissions.

The office of President-Elect of each Scientific Commission shall be established under the same terms as outlined in Article 7.3 for the Association.

The Presidents of the Scientific Commissions may not be re-elected to two successive terms of the same

office. The Vice-Presidents and the Secretary shall be eligible for re-election but for not more than one additional term.

The Scientific Commissions have the power to fill vacancies that may occur between elections.

7.5. The Plenary Administrative Session has the power to form and discontinue Regional Committees, which may be formed on the initiative of several National Committees or National Representatives. Their Officers shall be elected by those National Committees, or National Representatives. Regional Committees shall examine hydrological subjects of particular concern to a specific region, and may conduct regional meetings on such subjects. Regional meetings shall be open to all adhering countries, and the Scientific Commissions may designate a representative to appear on their behalf at these meetings. Each Regional Committee may propose a set of regulations for its organization and governance for approval by the Plenary Administrative Session of the Association.

7.6. The Plenary Administrative Session may elect an Honorary President, who shall serve life or until such time as he/she resigns from this office. The Honorary President may participate as a non-voting member in any Association meeting, including those of the Bureau, and may be requested by the Bureau to undertake specific tasks in support of the Objectives of the Association.

7.7. In questions involving finance, voting in the Plenary Administrative Session shall be as in Article 7.2, except that upon the request of two voting delegates, the number of votes for each country shall be one greater than the number of its category of membership in the Union as defined in the Statutes of the Union.

7.8. An adhering country not represented at a Plenary Administrative Session may forward its vote on any pertinent item on the agenda, including elections of Association officers, by mail.

7.9. Voting by post on administrative matters between Plenary Sessions of the Association can be authorized by the Bureau.

THE BUREAU

8. The Bureau of the Association shall consist of the President, the President-Elect or immediate Past-President, three Vice-Presidents, the Secretary General, the Treasurer, the Editor and Presidents of the Scientific Commissions in existence at the time and the Chairman of the International Association of Hydrological Sciences Limited. The immediate Past-President shall remain a Bureau member during the period between the end of his/her office and the election of a new President-Elect. The President shall convene the Bureau at least every other year to guide the affairs of the Association.

PRESIDENT, SECRETARY GENERAL, TREASURER AND EDITOR

9. The President shall be the executive officer of the Association and shall direct its affairs in accordance with the decisions of the Plenary Session of the Association. The President shall be assisted by the Vice-Presidents.

10. The Secretary General, in consultation with the President, shall manage the business of the Association, conduct the correspondence, preserve the official documents and administrative records. The Bureau may authorize the Secretary General to employ administrative and secretarial personnel to assist him/her in the performance of his/her duties to the Association. The Secretary General shall also take any action necessary to ensure that the Objectives of the Association are fulfilled in a manner which complies with the relevant Law governing administration, taxation, Contract and Tort or their equivalent in any country where the Association is operational including the appointment of a person or corporation if required to protect and represent the Association in any such matters and he/she shall be indemnified by the Association in respect of the costs of any such action.

11. The Treasurer, or acting Treasurer, shall collect the funds of the Association and disburse them in accordance with the decisions of the Plenary Session of the Association and the Bureau. He shall maintain records of all financial transactions of the Association and submit annual reports thereon to the Bureau as required by the Statutes and Bye-laws of IUGG. In agreement with the Secretary General he shall arrange for the subscriptions, sales, and storage of the publications of the Association.

11.1. The funds of the Association shall be invested in accounts of the Association. They shall be at the disposal of the Treasurer and the Secretary General as may be deemed necessary and as specified in Article 11, but provisions shall be made to enable the President to transfer the funds or part of them to an acting Treasurer appointed according to Article 7.3.

12. The Editor shall prepare for publication by the Association original papers, reviews and other material in a form in accordance with the decisions of the Plenary Session and the Bureau.

COMMISSIONS

13. The following provisions shall govern Scientific Commissions that are created under Article 7.4.

13.1. The Scientific Commissions shall keep abreast of their fields of hydrology and determine the trends in research on the most urgent problems of hydrology that are of common interest to many countries. The Scientific Commissions shall study the questions voted by their Plenary Session.

13.2. The Scientific Commissions shall participate actively in the preparation of symposia on appropriate scientific problems.

13.3. The Scientific Commissions shall be styled "International Commission on ...".

13.4. The National Committee (or National Representative) for IAHS of each adhering country may designate one representative on each Scientific Commission and on each Regional Committee with which it desires to affiliate. Such representatives may vote on all administrative and scientific matters before the Scientific Commission or Regional Committee and may correspond directly with the Officers of a Commission or such Committee on all matters of concern to that Commission or such Committee. All participants present at a meeting of a Commission or such Committee may vote on scientific matters.

13.5. While the regulations for all scientific commissions should be as similar as possible, each Scientific Commission may propose a set of regulations for its organization and governance for approval by the Plenary Administrative Session of the Association.

13.6. The Scientific Commissions may establish Divisions and ad hoc working groups to report on specific problems.

PANELS, WORKING GROUPS AND RAPPORTEURS

14. The Plenary Session or the Bureau may create panels or working groups and appoint rapporteurs to undertake either:

- (a) ad hoc scientific programmes; or
- (b) activities of a pro tempore regional nature; or
- (c) specific administrative or organizational tasks.

The Chairman and members of all such groups shall be appointed by the President, to whom they shall report. Such groups shall exist only during the term between two successive IUGG General Assemblies.

IAHS LIMITED

15. The International Association of Hydrological Sciences Limited.

15.1. The International Association of Hydrological Sciences Limited shall deal with those matters set out in its Memorandum and Articles of Association (a copy of which shall be held by the Secretary General) and is a registered Charity in the United Kingdom.

15.2. Membership of the Limited Company is restricted to Individual Members of the Association. The Limited Company will deal inter alia with the IAHS publishing programme including the arrangements for the Hydrological Sciences Journal.

15.3. The International Association of Hydrological Sciences Limited shall have as its Board the Secretary General and those persons appointed by the President. The Chairman of the Limited Company will report to the President. Because of requirements under English Law, at least half the Board of the Limited Company, who shall also be Directors, must be ordinarily resident in the United Kingdom.

15.4. For the purpose of continuity of administration of the Limited Company, the President shall have absolute discretion regarding the appointment of the Chairman and the Board.

BYE-LAWS: AMENDMENTS

16. Within the framework of these Statutes, the Plenary Administrative Session of the Association shall have the power to adopt or amend Bye-laws by a simple majority.

17. Proposals by adhering countries for a change of any Article of the Statutes must reach the Secretary General at least six months before the date of the meeting at which they are considered by the Plenary Administrative Session of the Association. The Secretary General shall notify all adhering countries of any proposed changes at least four months before the named date.

18. The Articles of these Statutes may be changed only by a majority of two-thirds of the votes cast at a

meeting of the Plenary Administrative Session of the Association by voting members who are present or who vote by post, provided that the total number of favourable votes is not less than one-half the number of the members of the Plenary Administrative Session of the Association eligible to vote.

19. The Statutes are prepared in English and French, and the English text shall be considered the authoritative text. Questions of interpretation as between the texts shall be decided by the President.

Bye-laws

1. The following Scientific Commissions have been established in accord with Article 7.4 of the Statutes:

International Commission on Surface Water;
 International Commission on Groundwater;
 International Commission on Continental Erosion;
 International Commission on Snow and Ice;
 International Commission on Water Quality;
 International Commission on Water Resources Systems;
 International Commission on Remote Sensing;
 International Commission on Atmosphere-Soil-Vegetation Relations;
 International Commission on Tracers.

The Commissions shall follow the Regulations of the Scientific Commissions. Commission-specific modifications of these regulations are subject to approval by the Plenary Administrative Session of the Association and shall become part of the Bye-laws.

All Commissions will be concerned with natural processes and these processes as modified by human activities or with processes, technologies and applications. Relations to the environment will be considered as appropriate.

Whenever Scientific Commissions are referred to in the Bye-laws, it implies "International Commissions".

2. The several Scientific Commissions shall prepare scientific reviews of the state of research in their respective fields of hydrology, noting achievements and trends, with particular emphasis on significant problems for attack. The reports should be submitted in English or in French and include a summary in the other language. The report shall reach the Secretary General at least four months before the Plenary Session of the Association, for distribution among the officers of the Association including those of the several Scientific Commissions and among the National Committees, and for publication in the reports of the Plenary Session of the Association. The President of the Association shall introduce these reviews in his address to the Plenary Session of the Association, together with his recommendations as to the course of research.

3. The Scientific Commissions shall meet at the IUGG General Assemblies and Scientific Assemblies of the Association unless authorized otherwise by the Bureau. A Scientific Commission may also schedule other meetings under the regulations it adopts according to Statutes Article 13.6.

4. The Scientific Commissions may invite advisors from non-adhering countries to participate in the work of the Scientific Commissions. These advisors may not vote.

5. Each Scientific Commission shall show on its stationery or other formal documents its identification with the International Association of Hydrological Sciences.

NOMINATIONS AND VOTING FOR OFFICE

6. The Bureau shall establish a Nomination Panel of not less than three members at least 10 months before an IUGG General Assembly to receive and consider suggestions and prepare nominations for the President-Elect, the three Vice-Presidents, the Secretary General and the Treasurer.

At least nine months before an IUGG General Assembly the Secretary General shall inform all National Committees of the membership of the Nomination Panel, asking them to send their nominations to its Chairman not later than six months before the General Assembly in order to be considered by the Panel. On the basis of available nominations from the National Committees, the IAHS Bureau and from the Scientific Commissions, the Panel shall prepare a list of candidates, seeking to achieve a reasonable balance in their geographical and professional distribution.

Each nomination for office must include a résumé of the candidate's qualifications relevant to the office for which the candidate is nominated. A signed statement of the candidate's willingness to stand for office must also be provided. The nomination shall not be considered without submission of the résumé and consent form.

A person may be a candidate for more than one office except the candidate for President-Elect who may not be a candidate for any other office of the Association. No one may hold more than one office at the same time.

The list submitted for voting shall contain the candidates proposed by the Nomination Panel and mention the names of all other nominees submitted.

The voting on the list shall be by the Plenary Administrative Session of the Association or by mail according to Article 7.2 of the Statutes.

6.1. Each of the Scientific Commissions shall establish a Nomination Group of not less than three members at least 10 months before an IUGG General Assembly to prepare nominations of Commission officers. At least nine months before an IUGG General Assembly the Secretary General shall inform all National Committees of the membership of these groups, asking them to send nominations to the Chairman of the Nomination Panel not later than six months before the General Assembly. The Chairman of the Panel shall furnish each Nomination Group with the names of candidates appropriate to each Scientific Commission. On the basis of available nominations from the National Committees and respective Scientific Commissions each Nomination Group shall then prepare a list of candidates for Scientific Commission officers. The preparation of the list shall be done in consultation with the Panel Chairman.

The nominations for Commission officers shall follow the same procedure as that for the Bureau officers (Article 6) except that the nominee for President-Elect may be a candidate for more than one office.

The voting on this list shall be by the Plenary Administrative Session of the Scientific Commissions or by mail according to Article 7.2 of the Statutes. The results shall be given to the Chairman of the Nomination Panel who shall draw up a list of Scientific Commission Officers to be announced at a Plenary Session of the Association in Administrative Session.

6.2. The list of candidates for Association and Commission Officers shall normally contain more than one name for each office. The Chairman of the Nomination Panel shall distribute the list to the National Committees at least three months before an IUGG General Assembly.

The list submitted for voting shall include both the candidates proposed and the names of all the other nominees submitted.

6.3. Voting on the list of candidates for both Association and Scientific Commission officers shall be done by secret ballot. To be elected, each candidate must obtain a simple majority of votes. For those offices not filled in the first round of voting, a second round shall be held on the two highest ranking candidates of the first round. In the case of a draw in the second round, the President shall decide.

NATIONAL COMMITTEES

7. The National Committees or the National Representatives shall disseminate information on the Association within their countries and shall solicit papers for symposia or for publication in the Hydrological Sciences Journal.

8. National Committees shall be invited to present their views on hydrological and water resources research and on matters relating to the management of the Association to the Bureau and the Plenary Sessions, as a contribution to the discussion on future activities of the Association.

9. Where the National Committee for IAHS has not appointed or designated a person or persons to cast its vote as specified by the Statutes in the Plenary Session or at a meeting of a Scientific Commission or other committee, the delegates present are invited to select one of their number for this purpose.

10. The Association should encourage the formation of National Committees for hydrology in all countries that adhere to the Union. Where such National Committees do not exist, de facto or de jure delegates who have attended General Assemblies and symposia of IAHS are invited to petition the National Committee for IUGG to form a national group for discussion of questions before IAHS or its Scientific Commissions or to designate delegations to a General Assembly.

11. National Committees shall designate a delegate to the Plenary Sessions of the Association and each of the Scientific Commissions. The names of such delegates should be given to the Secretary of the pertinent body at least one day in advance of any Administrative Session.

AGENDA, SYMPOSIA AND PUBLICATIONS

12. The Bureau of the Association shall organize the agenda for the Plenary Sessions of the Association.

13. Suggestions for the agenda of the Plenary Session of the Association must reach the Secretary General at least

three months before the date of the meeting. However, a question which has not been placed on the agenda may be discussed if a proposal to that effect be approved by two-thirds of the votes of the delegates to the Plenary Session.

14. A Scientific Assembly may be held once during the four-year period between the General Assemblies of IUGG.

Guidelines for organizing symposia

15. Symposia for which the Association has primary responsibility (referred to as IAHS symposia in this By-law) should meet the following conditions and be accepted by the Bureau:

- (i) a subject having an important role in the development of hydrology;
- (ii) proposed by a National Committee or by officers of the Association or of its Scientific Commissions;
- (iii) a member country expressing readiness to serve as host and presenting evidence of adequate support.

15.1. IAHS symposia (with subject outline) should be announced by the Secretary General not later than 18 months before the date of the symposium, by post to each National Committee and published in the Journal of the Association.

15.2. IAHS symposia are organized jointly with a relevant organization of the host country and may be supported by or organized in collaboration with other international organizations. Preference shall be given to those symposia where there is evidence of adequate national support.

15.3. The Association may support or take partial responsibility in symposia of other international organizations according to arrangements formulated through exchange of correspondence and approved by the Bureau.

16. The Editor is authorized to arrange for the publication of a periodic Journal to provide a line of communication with the National Committees and with the world hydrological community.

GENERAL

17. Scientific Commissions, Panels, Working Groups and the International Association of Hydrological Sciences Limited shall account to the Treasurer in January of each year on all funds received from the Association and from other sources for their activities and disbursed by them during the preceding year.

18. Corporate Subscribers: The Bureau of the Association is authorized to accept institutions with an interest in hydrology as Corporate Subscribers who, for an annual fee established by the Bureau, shall be entitled to receive a copy of each Journal published by the Association, a 20% discount on any IAHS publication other than the Journal, copies of all notices and information circulars, and to a listing in the Journal.

19. The President may invite representatives of the UN specialized agencies or other observers, advisors or consultants to attend Plenary Sessions or meetings of the Bureau, with voice but without vote.

20. The legal domicile of the Association shall be established by the Bureau.

21. The Secretary General shall publish the Statutes and Bye-laws at least once in each period between General Assemblies of the IUGG.

22. The Secretary General keeps a list of hydrologists who are willing and qualified to participate actively in the work of the Association. These hydrologists are designated as Individual Members of IAHS. The Secretary General will notify the Secretaries of the Scientific Commissions of the Individual Members interested in their respective Commission.

Regulations of the Scientific Commissions

There are nine Scientific Commissions in IAHS:
International Commission on Surface Water (ICSW)

International Commission on Groundwater (ICGW)
 International Commission on Continental Erosion (ICCE)
 International Commission on Snow and Ice (ICSI); (note: ICSI has its own regulations)
 International Commission on Water Quality (ICWQ)
 International Commission on Water Resources Systems (ICWRS)
 International Commission on Remote Sensing (ICRS)
 International Commission on Atmosphere-Soil-Vegetation Relations (ICASVR)
 International Commission on Tracers (ICT)

Each Commission has the following Terms of Reference:

The Commission shall be responsible for the advancement of the science of the water cycle as a whole and for the topics of specific focus of the Commission within the International Association of Hydrological Sciences (IAHS), a constituent body of the International Union of Geodesy and Geophysics (IUGG).

The Commission shall also explore possibilities for expanding the scientific basis for utilizing water. Emphasis should be given to the extension of knowledge in the specific field pertinent to the focus of the Commission; the particular needs of the practitioner, especially in developing countries should be considered.

Regulations

1. The objectives of the Commission shall be:
 - (a) To advance research and to foster improved understanding in the field of the hydrological cycle as a whole and relative to the specific focus of the Commission in particular, recognizing interactions with other systems; the activities of the Commission should be coordinated with the objectives of the other IAHS Scientific Commissions and external water-related agencies;
 - (b) To communicate and transfer research results by the organization of meetings and by the publication of information;
 - (c) To encourage, facilitate and organize research both nationally and internationally.
2. The Commission shall organize meetings, open to all interested scientists, at General and Scientific Assemblies of the Association or of the Union and at relevant symposia. The purpose of these meetings is to further the aims of the Commission.
3. The Commission is subject to those articles of the IAHS statutes and bye-laws that apply to Scientific Commissions.
4. The Commission shall consist of its Officers, National Representatives, and other Corresponding Members, and at events such as General Assemblies of the Association or of the Union or symposia organized by the Commission, of delegates to the Commission appointed by member countries of the Union.
5. The Commission may establish Divisions to provide a special focus on selected topics. Divisions of the Commission shall foster the activities and objectives of the Commission in specific areas of scientific interest. The creation or abandonment of Divisions shall be determined by vote of the Commission at a Plenary Session. The Divisions can organize subdivisions.
6. The Commission shall have power to set up working and task groups and to appoint persons to posts in other organizations where appropriate.
7. The Commission shall have the authority to appoint non-voting observers to the Commission.
8. The affairs of the Commission shall be organized by its Bureau consisting of the President, immediate Past-President or President-Elect, three Vice-Presidents, the Chairs of its Divisions (where existing) and the Secretary.
9. The National Committee for IAHS in each member country shall nominate a Representative to the Commission. It will be the responsibility of the Commission Representative to further the aims of the Commission in his/her country and to correspond directly with the Officers of the Commission on scientific and administrative matters which affect the Commission. Such Representatives shall be entitled to one vote on all administrative and scientific matters before the Commission and may correspond directly with Officers of the Commission. Each

National Committee shall inform the Secretary of the Commission of the name of their Representative at least 24 hours before any administrative meeting of the Commission.

10. Where a National Committee for IAHS has not appointed a Representative to the Commission, or where National Committees of IAHS do not exist and there are interests to the Commission, delegates of a member country to General Assemblies may be invited to nominate one of their number to represent that country and the nominated representative shall be entitled to one vote on all administrative matters before the Commission. The name of the nominated delegate shall be given to the Secretary of the Commission at least 24 hours before any administrative meeting of the Commission.
11. All participants from IUGG-member countries at Commission meetings may vote on scientific matters. Only the National voting delegates may vote on administrative matters. At business meetings of the Commission, the President shall announce which items are administrative and which are scientific matters.
12. The Officers of the Commission shall be elected by the Plenary Session of the Commission meeting at the time of the IUGG General Assembly as an administrative matter. The President shall be elected for one period and may not be re-elected to the same office. The Vice-Presidents and Secretary shall be elected for one period initially and may be re-elected for one more additional period. The procedures for nomination and election of officers are given within the bye-laws of the Association, article 6.
13. The Commission Officers shall have power to fill, until the next IUGG General Assembly, any vacancy occurring in the Bureau of the Commission. In compliance with the IAHS statutes article 7.4, such service shall not be counted.
14. Any decision at a Commission meeting on scientific or administrative matters (excluding the Regulations), shall be adopted if approved by a majority of those present and eligible to vote.
15. Any alteration to the Regulations proposed by the Commission Officers or any delegate of an IUGG member country, should be submitted to the Secretary of the Commission at least three months before an IUGG General Assembly. The amendments shall be adopted if they are carried by a two-thirds majority of eligible voters at the General Assembly of the Commission.
16. A Plenary Administrative Session of the Commission shall be held during each General Assembly of the Union. If necessary, a Plenary Administrative Session of the Commission may be held during a Scientific Assembly of the Association.
17. At least four months before a General Assembly the President of the Commission or designated alternate shall prepare and submit to the Secretary General a scientific review of the state of research achievements and trends in the fields covered by the Commission. The report should give particular emphasis to significant problems and needs for particular research.
18. The Secretary of the Commission shall correspond regularly with National Representatives through the distribution of the IAHS Newsletter or by other appropriate means. Periodic advice on Commission activities should be given together with the dissemination of general information.
19. The Secretary is entitled to collect, accept and disburse funds on behalf of the Commission only with the knowledge of the Bureau of the Association and subject to audit by the Bureau.
20. The Commission shall have the power to deal with any matter affecting the Commission business that is not provided for in these regulations, after appropriate consultation with the bureau of IAHS.

Annex 5 Report of the Task Force on Fees for Services

To be attached later

Annex 6 Report on IAHS Ltd

IAHS Ltd was established in January 1992 as a means of regularising the financial management of IAHS commercial activities in the UK, and more particularly the publishing activities of IAHS Press. Advice received from both legal and financial advisors indicated that formation of a limited company was the best means of avoiding potential tax liabilities. The Board of directors of the company comprises a chairman and four board members, all of whom are Officers or members of IAHS, and a secretary. The original intention was to also seek charitable status for the company, so that any profits would not be taxed. In the event, the application for charitable status was not pursued to a successful conclusion. The lack of charitable status has not caused problems to date, since the accounts have shown a trading loss and in this situation there is no tax liability. A summary of the accounts for the past three years is provided below.

Year Ending	Dec. 31st 1997	Dec. 31st 1996	Dec. 31st 1995
Turnover	£155987	£145207	£113287
Deficit	£20560	£22692	£11610

Whilst the current situation is satisfactory from the taxation perspective, professional advice has recommended that the company should now seek charitable status in order to avoid any future tax liability. After consultation with IAWQ and other Associations which have faced similar problems, a solicitor was engaged to prepare the application for charitable status and to undertake the necessary negotiations with the Charity Commission. This process has taken nearly two years and has involved modification of the Memorandum of Association of IAHS Ltd, in order to conform to the requirements for the granting of charitable status. Most of the problems have now been satisfactorily resolved with the Charity Commissioners and the application for charitable status has been provisionally accepted. Approval of a draft resolution to amend the Memorandum of Association is now awaited from the Charity Commissioners. Once this is received, the resolution will be formally endorsed by the members of the Board and submitted to the Charity Commissioners and it is anticipated that IAHS Ltd will be formally granted charitable status as of January 1st 2000. The Board members will then also serve as charity trustees.

The Board of Directors of IAHS Ltd currently comprises:

Des Walling (Chairman)

John Rodda

Gordon Young

Chuck Onstad

Terence O'Donnell

Penny Kisby serves as Secretary

Des Walling, Chairman of IAHS Ltd, 17 July 1999

Annex 7 Report of the Treasurer

As I reported in the last newsletter, IAHS finances since the General Assembly in Boulder in 1995 declined through calendar year 1997. In 1996, the IAHS Bureau began taking action to reduce the expenses of the Association and make provisions to increase income. First, all travel of Association officers is carefully considered in terms of its cost relative to benefits accrued or if the duty can be performed by someone, representing IAHS, closer to the meeting venue. Secondly, in 1997, the staff at IAHS Press was reduced resulting in a saving of over US\$17,000 per year. Existing staff have picked up the additional responsibilities with little increase in overtime pay. The third and most significant measure taken was the re-negotiation of our agreement with the Institute of Hydrology, the home of IAHS Press. This action resulted in a significant decrease in the costs of operating the IAHS Press office, but without our hosts suffering any financial hardships. Finally, in 1998, the Bureau approved a plan to initiate a charge of US\$30 per registrant for symposia organized by Commissions of IAHS. This concept is already being employed for registrants at both General and Scientific Assemblies.

As indicated earlier, please note that from the end of 1994 to the end of 1997, IAHS account balances declined by about US\$100,000. During 1998, the balances increased by about US\$12,500 and up to 30 June, 1999, the account balances have increased a further US\$10,000, a positive trend that we all hope will continue long into the future.

Charles Onstad

Annex 8 Report of the Editor and IAHS Press for the period June 1998–July 1999

IAHS publishing has been based at the Institute of Hydrology since 1972 and over the years the output has grown considerably. Originally there were four issues of *Hydrological Sciences Journal* (HSJ) each year; in 1988 this was increased to six. Our annual output now includes between six and 10 Red Books (series of Proceedings and Reports), the occasional Blue Book (series of Special Publications), and three issues of the Newsletter.

Advances in technology have changed the publishing world. Now it is rare for a paper to be retyped as most arrive in electronic form. Increasingly papers have figures as graphics files and, although there is a wide range of facilities and software on hand at the Institute of Hydrology, the range of graphics files is extensive and not all graphics can be inserted into document files without much time-consuming effort. Faced with the choice of getting a publication out on time or having all papers 100% electronic, our priority is still to get papers out on time by leaving spaces for figures and inserting hard copies of figures in the spaces! During the last two years the number of papers submitted with graphics has increased and now the majority of published papers in HSJ and our other publications are totally electronic.

We often struggle to cope with the many duties that all international publishing houses face, particularly with publicity and marketing. Earlier this year we paid for information on the 1998 Red Books to be disseminated by e-mail to over 30 000 libraries and organizations world-wide through the European Environmental Information Dissemination Database based at Hamburg. In the following week there was a 50% increase in the number of “hits” on the IAHS Homepage, but there has been no obvious increase in sales so we cannot yet judge if this form of dissemination is cost effective.

Last year we established a database of hydrology meetings worldwide which we use to generate the “Diary of forthcoming events” for HSJ and the “Calendar of meetings organized/sponsored by IAHS” for the Newsletter. We ask convenors of all hydrology-related symposia, conferences and workshops to send meetings information to IAHS Press for this database. In particular we want information on IAHS organized/sponsored meetings as soon as titles, dates, topics and contact information are finalized. In the last year we have sent IAHS flyers, circulars, Newsletters etc. for display at all IAHS organized/sponsored meetings.

A database on IAHS publications, which includes information on sponsors, was also started. Annex 8A lists all the publications produced at IAHS Press since the previous Bureau meeting in 1998. All can be bought from IAHS Press or from the IAHS office/bookstand at Birmingham.

In agreement with the decision of the IAHS Bureau (Baltimore General Assembly, 1989), five new Associate Editors of *Hydrological Sciences Journal* were invited to serve from 1998/99 for a period of six years, while those Associate Editors appointed in 1992 have now retired. Dr T. P. Burt, Dr B. E. Goodison, Dr P. Hubert, Dr R. P. Ibbitt and Mr G. Oberlin are thanked for their contribution to the success of HSJ. The new Associate Editors are Dr F. Chiew (Australia), Dr A. Coudrain-Ribstein (France), Dr A. Dassargues (Belgium), Dr W. F. Krajewski (USA) and Dr R. Vogel (USA). Dr Pierre Hubert has continued assisting with translation and checking of French abstracts and papers, which is gratefully acknowledged.

Two further Special Issues of HSJ have been published: the August 1998 issue, backed by ICASVR, consisted of papers selected from oral and poster contributions to the Rabat Workshop: Monitoring and Modelling of Soil Moisture: Integration over Time and Space. As no proposals were received from ICSI in time for production of a Special Issue in 1999, it was agreed to invite selected papers from contributions to the International Workshop on Sustainable Management of Water Quantity and Quality, organized jointly with the Chinese Hydraulic Engineering Society and held at Wuhan University of Hydraulic and Electric Engineering, Wuhan, China from 12 to 15 May 1998. This August 1999 Special Issue was guest-edited by Professor Xia Jun and Professor Kuniyoshi Takeuchi under the title Barriers to Sustainable Management of Water Quantity and Quality, and is also available as a separate publication. No further Special Issues are planned at present.

Detailed information on statistics of contributions, geographic distribution of authors, topical distribution of papers for 1997–1998 is given in Annex 8B.

Annex 8C presents the number of subscriptions, number of papers published and price(s) of HSJ since 1998 as well as an analysis of subscriptions.

Towards the end of 1998 the administration of IAHS membership was transferred to IAHS Press and Jill Gash has effectively managed the database since then.

We are pleased that the publishing programme for 2000 and 2001 (see Annex 8D) is already fairly full.

The new Special Publication (*The Hydrology of the Nile*) published this year is selling well. The previous Special Publication had been published in 1995 and it would be good to produce one a year instead of having such a long gap between publications in this series. It has been suggested that a publication on the Amazon and one on some of the major rivers in Russia/CIS would be appropriate to follow the Nile publication. We ask for proposals of whom best to approach to author these titles. We also welcome your proposals for other titles. All proposals should be sent to both Zbigniew Kundzewicz and Harry Salz.

Finally we would like to remind IAHS officers who are convenors of IAHS meetings that:

- * Circulars/leaflets of meetings may be distributed with HSJ (about 700 addresses—we need 800–1000 copies sent to IAHS Press) and/or with an issue of the IAHS Newsletter (3100 to all addresses, including UNESCO regional offices, WMO, etc., or about 2500 to IAHS members only). HSJ is published at the beginning of February, April, June, August, October and December and the Newsletter is published at the beginning of January, May and September. The deadline for receipt of circulars/leaflets is about two weeks before publication.
- * Announcements of IAHS organized/sponsored meetings are published in both HSJ and the Newsletter. The copy deadline for articles is about six weeks prior to the beginning of the publication month.

ANNEX 8A

Publications produced by IAHS Press since the last Bureau meeting (Paris, 1998) and before IUGG 99 at Birmingham

Publication	Title	Authors/Editors	Description of publication	Place/date of meeting	Date publ'd	No. of copies rec'd	No. of pages
HSJ	<i>Hydrological Sciences Journal</i>	ed. by Zbigniew Kundzewicz	bimonthly scientific journal	-	Feb., April, June, Aug., Oct. and Dec. each year	approx. 850 each issue; more of Aug. Special Issues	approx. 1000 each year
Newsletter	IAHS Newsletter (3 issues a year since June 1997)	compiled by Sec. Gen.	Contributions from IAHS officers, IAHS Press and Comms; reports on meetings; announcements; calendar of IAHS meetings	-	Sept. '98; Jan., May '99	2000–3000 each issue	?24 each issue
Publ. no. 249	Modelling Soil Erosion, Sediment Transport and Closely Related Hydrological Processes	ed. by W. Summer, E. Klaghofer & W. Zhang	Pre-published papers for symposium	Vienna/13–17 July 1998	08/07/98	703	454 + x
Publ. no. 250	Groundwater Quality: Remediation and Protection	ed. by M. Herbert & K. Kovar	Pre-published papers for symposium	Tübingen/21–25 September 1998	21/09/98	750	598 + xviii
Publ. no. 251	Sustainable Reservoir Development and Management	by the ICWRS Project Team/ed. by K. Takeuchi, M. Hamlin, Z. W. Kundzewicz, D. Rosbjerg & S. P. Simonovic	Report of IAHS/ICWRS Project team on Sustainable Reservoir Development and Management	-	11/12/98	726	190 + x
Publ. no. 252	Water Resources Variability in Africa during the XXth Century (Variabilité des Ressources en Eau en Afrique au XXème Siècle)	ed. by E. Servat, D. Hughes, J.-M. Fritsch & M. Hulme	Pre-published papers for conference	Abidjan, Ivory Coast/16–19 November 1998	10/11/98	700	462 + x
Publ. no. 253	Hydrology in the Humid Tropical Environment (La Hidrología en el Medio Tropical Húmedo)	ed. by A. Ivan Johnson & Carlos A. Fernández-Jáuregui	Post-published papers for symposium	Kingston, Jamaica/17–23 November 1996	December 1998	636	458 + xiv
Publ. no. 255	Hydrological Extremes: Understanding, Predicting, Mitigating	ed. by L. Gottschalk, J.-C. Olivry, D. Reed & D. Rosbjerg	Pre-published papers for Symposium HS1 at IUGG 99	Birmingham/29–30 July 1999	13/07/99	684	314 + xiv
Publ. no. 256	Interactions Between the Cryosphere, Climate and Greenhouse Gases	ed. by M. Tranter, R. Armstrong, E. Brun, G. Jones, M. Sharp & M. Williams	Pre-published papers for Symposium HS2 at IUGG 99	Birmingham/26–27 July 1999	13/07/99	614	est. total 288
Publ. no. 257	Impact of Land-Use Change on Nutrient Loads from Diffuse Sources	ed. by L. Heathwaite	Pre-published papers for Symposium HS3 at IUGG 99	Birmingham/19–20 July 1999	13/07/99	664	272 + viii
Publ. no. 258	Integrated Methods in Catchment Hydrology—Tracer, Remote Sensing and New Hydrometric Techniques	ed. by Ch. Leibundgut, J. McDonnell & G. Schultz.	Pre-published papers for Symposium HS4 at IUGG 99	Birmingham/22–23 July 1999	13/07/99	652	284 + xii
Publ. no. 259	Impacts of Urban Growth on Surface Water and Groundwater Quality	ed. by J. Bryan Ellis	Pre-published papers for Symposium HS5 at IUGG 99	Birmingham/19–21 July 1999	13/07/99	700	438 + x
Spec. Publ. no. 5	The Hydrology of the Nile	by J. V. Sutcliffe & Y. P. Parks	Report with 12 chapters	-	19/02/99	650	180 + xii

ANNEX 8B

Additional technical information on *Hydrological Sciences Journal* in 1997 and 1998**Geographic distribution of authors:**

HSJ is indeed the most international hydrological journal. Authors from 41 countries published their contributions in 1997 and 1998.

1997		1998		1997–1998	
Country	Number of authors	Country	Number of authors	Country	Number of authors
UK	21	USA	18	UK	32
USA	11	India	14	USA	29
Italy	9	UK	11	India	21
France	8	Germany	10	France	17
India	7	The Netherlands		The Netherlands	16
				Italy	15
				Germany	12

Continent	Number of authors		
	1997	1998	1997–1998
Europe	76	60	136
Asia	17	23	40
North America	15	23	38
Africa	6	12	18
Australia and Oceania	1	7	8
South and Central America	1	7	8

Citations to HSJ and impact factor:

In the 1997 volume of HSJ, there were 41 citations to earlier HSJ papers, therein 11 to papers from 1995 and 1996 volumes. In the 1998 volume, the numbers of citations were: 37 and 10, respectively. Therefore, based on the data of 1997–1998, the average number of fast citations in HSJ (in the period of two years following the year of publication) of a paper published in HSJ is 0.169. This is less than a half of the total number of citations, as measured by ISI impact factor.

Thematic coverage of research papers in HSJ:

An attempt was made to segregate contributions after their thematic coverage, following the structure of IAHS commissions

Commission/Committee	1997	1998	1997 and 1998
ICSW	14	22	36
ICGW	13	9	22
ICSI	1	1	2
ICCE	6	3	9
ICQW	4	7	11
ICWRS	27 [*]	12	39
ICSVAR	3	19 [†]	22
ICT	4	0	9
ICRS	0	1	1

* therein 10 papers published in the Special Issue of 1997.

† therein 9 papers published in the Special Issue of 1998

ANNEX 8C

Summary of prices, number of subscriptions, number of papers published and extents of *Hydrological Sciences Journal* since the last IAHS Bureau

	1998 (vol. 43)	1999 (vol. 44)
Price: full	£130/US\$215	£134/US\$222
Member (50%)	£65/\$107.50	£67/US\$111
80% discount*	£26/US\$43	£26.80/\$44.40
Subscriptions:		
Full	504	471
Members	71	57
Financ. disadv.* members	5	21
Free	54	54
TFDC†	71	67
<i>Total</i>	<i>705</i>	<i>670</i> ‡
Papers	56	29§
(no. of pages)	(916)	(454)
Total pp./vol.**	990 + <i>ix</i>	502 + <i>x</i>

* introduced in 1998 for IAHS Members in financially disadvantaged countries (minimum subscription is £9.00/US\$15);

† free subscriptions funded by the IAHS Task Force for Developing Countries;

‡ 1999 figures valid to 30/06/99;

§ accepted papers awaiting publication in forthcoming (October, December 1999, February 2000) issues = 29,

11 invited papers were published in the August Special Issue (in press);

** includes papers, announcements, book reviews, diary of forthcoming events; preliminary pages and adverts are in italics.

Analysis of *Hydrological Sciences Journal* Subscriptions

Description	1998 (at 31/12/98)			1999 (at 30/6/99)		
	Number of subs	Price (£)	Price (\$)	Number of subs	Price (£)	Price (\$)
Direct subscriber (£)	39	130.00		28	134.00	
Direct subscriber (\$)	1		215.00	6		222.00
paid via central account (£)	3	130.00		1	134.00	
IAHS Member (£)	62	65.00		53	67	
IAHS Member (\$)	9		90.00	4		111.00
subscription via agent (£)	323	117.00		313	120.60	
subscription via agent (\$)	138		107.50	123		199.80
Abstracting/copyright agency	17	0		16	0	
Associate Editors	30	0		30	0	
TFDC	71	0		67	0	
Complimentary	7	0		8	0	
Members Financ. Disadv.	5	26.00		21	26.80	
Total	705			670		

ANNEX 8D

Forthcoming Publications from IAHS Press

Publication	Title	Authors/Editors	Planned date for publ	Place/date of meeting	Description of publication
HSJ	<i>Hydrological Sciences Journal</i>	ed. by Zbigniew Kundzewicz	Feb., April, June, Aug., Oct. and Dec. each year	-	bimonthly scientific journal
Handbook	IAHS Handbook 1999–2003 (combined English and French edition or separate editions?)	compiled by Sec. Gen.	end 1999	-	Info on Association, serving officers, Comms, publications, prizes, Nat. Reps
Newsletter	IAHS Newsletter (3 issues each year)	compiled by Sec. Gen.	end April, end August, end December	-	Contributions from IAHS officers, IAHS Press and Comms; reports on meetings; announcements; calendar of IAHS meetings
Catalogue	IAHS Catalogue of Publications 2000	Compiled by Penny Kisby/Frances Watkins	April 2000	-	Cumulative list of titles in IAHS Red Book and Blue Book series; information on HSJ and other IAHS publications
Publ. no. 254	Regionalization in Hydrology	ed. by Bernd Diekkrüger, Mike Kirkby & Ulrich Schröder	August 1999	Braunschweig/ 10–14 March 1997	28 post-published papers for conference (originally planned for summer 1998!)
Publ. no. 260	Assessing and Managing Health Risks from Drinking Water Contamination: Approaches and Applications	ed. by Eric Reichard et al.	November 1999	Santiago, Chile/ 7–10 September 1998	Post-published papers for conference. Estimated 20 oral papers and 5 posters
Publ. no. 261?	Drainage Basin Dynamics and Morphology	edited by Marwan Hassan & Mike Church	March 2000	Jerusalem/ 22–29 May 1999	Post-published papers for conference (selected by theme)
Publ. no. 262?	Calibration and Reliability in Groundwater Modelling—Coping with Uncertainty	Karel Kovar & Fritz Stauffer	March 2000	Zürich, Switzerland/ 20–23 September 1998	Post-published papers for conference
Publ. no. 263?	Tracers and Modelling in Hydrogeology	ed. by Alain Dassargues et al.	May 2000	Liège, Belgium/ 23–26 May 2000	Pre-published papers for TraM'2000 conference
Publ. no. 264?	The Role of Erosion and Sediment Transport in Nutrient and Contaminant Transfer	ed. by Mike Stone	July 2000	Waterloo, Ontario, Canada/ 10–14 July 2000	Pre-published papers for symposium
Publ. no. 265?	Debris-Covered Glaciers	ed. by Masayoshi Nagawa & Charles Raymond	September 2000	Seattle/ 13–15 September 2000	Pre-published papers for workshop. Approx. 30 papers expected
Publ. no. 26?	Remote Sensing and Hydrology 2000	probably Al Rango et al.	late 2000	Santa Fe/ 3–7 April 2000	Post-published papers for symposium
Publ. no. 26?	Integrated Water Resources Management	ed. by Miguel A. Marino et al.	end 2000	Davis, California, USA/ 9–12 April 2000	Post-published papers for symposium
Publ. no. 26?	Extremes of the Extremes	Arni Snorrason et al.	early 2001	Reykjavik/ 17–19 July 2000	Post-published papers for symposium
Publ. no. 26?	Maastricht symposia		July 2001	Maastricht, The Netherlands/ 18–27 July 2001	Pre-published papers for five(?) symposia
Publ. no. 26?	Natural and Enhanced Restoration of Groundwater Pollution	ed. by David Lerner et al.	June 2001	Sheffield, UK/ 18–21 June 2001	Post-published papers for Groundwater Quality 2001 Conference
Publ. no. 26?	HydroGIS 2000	ed. by Karel Kovar & Peter Nachtnebel	2001?		Post-published papers for conference
Publ. no. 26?	World Catalogue of Floods	compiled by R. Herschy	2001?	-	Updated edition of Publ. 143 which was compiled by J. A. Rodier & M. Roche
Publ. no. 26?	FRIEND 2001	ed. by A. Gustard et al.	March 2002	Cape Town, South Africa/ March 2002	Pre-published papers for conference

Penny Kisby, Frances Watkins, *IAHS Press*, Zbigniew Kundzewicz, *Editor, IAHS*

Annex 9 Report on FRIEND

Northern European FRIEND

The recent International Conference on “Quality, Management and Availability of Data for Water Resources Management” in Koblenz, Germany from 22-26 March 1999, convened jointly by the Dutch and German IHP Committees, provided an ideal opportunity for FRIEND participants to meet at a number of collaborative meetings.

On 21 March the sixth annual meeting of the Steering Committee of Northern European FRIEND was held. The meeting was well attended by 24 official nominees and observers from the countries of Northern European FRIEND including representatives from other organisations such as World Meteorological Organisation (WMO), Experimental Research Basin Network (ERB), Global Runoff Data Centre (GRDC) and the International Geosphere-Biosphere Programme (IGBP-BAHC). The meeting learnt of progress in each of the five research project groups since the last meeting in Postojna, Slovenia in October 1997. FRIEND participants in each group have continued to be very active in their research and have presented the results of their work at a number of conferences and through a range of journals. Most groups had met at least once during the last year.

One of the most notable achievements during the year has been the establishment of a Regional Data Centre of the European Water Archive (EWA) in St Petersburg, Russia with the help of funding from INTAS (International Association for the promotion of cooperation with scientists from the New Independent States of the former Soviet Union). This Centre supplies hydrological data to the EWA from the New Independent States of Russia, Ukraine and Belarus. It is now fully operational with over 9000 station years of gauged daily flow data from over 230 catchments successfully transferred to the EWA. This work will have lasting benefits, enabling FRIEND research to be extended into new areas and by improving the technological capability in these FSU countries.

Another achievement has been the success of the Low Flows group in attracting European Commission funding for a project on the Assessment of the Regional Impact of Droughts in Europe (ARIDE) which aims to investigate the temporal and spatial coherence of drought on a pan-European scale. In addition, three members of the Low Flows Group (Bente Clausen, Lena Tallaksen and Henrik Madsen) in June 1998 received international recognition for their work by winning the prestigious Tison award for their paper “On the definition and modelling of streamflow drought duration and deficit volume”. The next Low Flow group meeting will be held at the University of Warsaw from 22-28 May 2000.

The NE FRIEND Steering Committee welcomed the UNESCO proposals for IHP VI and look forward to commenting on the role of FRIEND in the programme. The meeting also supported a proposal by Southern African FRIEND to host the next international FRIEND conference in Cape Town in 2002 to present the results of the current phase of FRIEND. It will be accompanied by a FRIEND Report.

Alpine and Mediteranean (AMHY) FRIEND

43 scientists from 14 countries attended the last AMHY Steering Committee meeting in Istanbul from 14-16 October 1998. The meeting was preceded by a seminar at which there were a number of parallel scientific sessions with presentations on a wide range of research topics including heavy rains and flash floods, low flows, erosion and solid transport and natural disasters. Dr Eric Servat has succeeded Dr Guy Oberlin as coordinator of AMHY FRIEND and may be contacted at Centre IRD Hydrologie, BP 5045,34032 Montpellier Cedex, France (eric.servat@mpl.ird.fr).

Southern Africa FRIEND

Following the successful completion of the first phase of the project with the publication of Southern Africa FRIEND by UNESCO (1997, Technical Documents in Hydrology Series No. 15), a second phase of the project is commencing in 1999. The work programme will be developed at the fifth Steering Committee meeting to be held at Windhoek, Namibia on 9 September 1999. Further details on the project may be obtained from Dr S. Mkhandi, University of Dar es Salaam, Tanzania (water@udsm.ac.tz).

Nile FRIEND

The Third Steering Committee Meeting of the Nile FRIEND project was held in Khartoum from 4-6th July 1999. The meeting was attended by representatives of six of the ten Nile basin countries: Egypt, Sudan, Ethiopia, Kenya, Uganda and Tanzania. There were no representatives from Rwanda, Burundi, Eritrea or the Democratic Republic of the Congo. Representatives of UNESCO, IH and IHE, Delft, the Netherlands also attended the meeting.

The meeting decided that the principle research themes should be regional flood frequency analysis, sediment modelling and watershed management, rainfall-runoff modelling and drought and low flow studies.

There are two main constraints on active participation by regional partners, namely exchanging data, and lack of finance. The data exchange issue is becoming less significant, and it seems that most countries are now willing to supply data for specific research. However, unless a major donor is willing to put up some money, the real research effort will continue to be limited. However, overall, the group is enthusiastic with a general willingness for collaboration. Further information may be obtained from Dr R.K. Kachroo, University of Dar es Salaam, PO Box 35131, Tanzania (water@udsm.ac.tz)

Hindu-Kush/Himalayan (HKH)FRIEND

There has been much recent activity on this project. Several project groups have recently held inception meetings: the Database Group met from 3-5 March 1999, and the Snow and Glacier Group met from 8-10 March 1999. In April 1999 members of the Northern European FRIEND Low Flow group contributed to a low flow training course in Kathmandu, Nepal from 19-25 April 1999. This represents part of on-going collaboration between the two FRIEND groups. Recently Afghanistan expressed an interest in formally joining the project. Information on HKH FRIEND may be obtained from Prof S.R. Chalise, ICIMOD, PO Box 3226, Kathmandu, Nepal (chalise@icimod.org.np).

Asian-Pacific FRIEND

A science plan for Asian-Pacific FRIEND, which had been developing since May 1998, was recently published by UNESCO (Jakarta) as part of the Technical Documents in Hydrology Series, No. 2. The plan developed by the Regional Steering Committee for Southeast Asia and the Pacific, outlines, in detail, research plans for five working groups and is based on more than 50 research proposals originating from twelve participating countries. One proposal is to establish an Asian Pacific Water Archive. Further details may be obtained from Prof. K. Takeuchi, Yamanashi University, Takeda 4, Kofu 400-8511, Japan (takeuchi@mail.yamanashi.ac.jp)

West and Central Africa FRIEND

This project, involves thirteen countries and a steering committee meeting was held in Abdijan in November 1998. Further details may be obtained from Dr Afouda at the Universite Nationale du Benin, Dept de Mathematiques, BP526 Cotonou, Benin (Afoudab@france-mail.com)

FRIEND/AMIGO Caribbean

This project has been initiated in 1999 and includes 28 countries and administrative dependencies of the Caribbean region. The first steering committee meeting will be held in Mexico on 1-3 December 1999. The contact point for further information is Mr Eduardo O. Planos Gutierrez, Instituto de Meteorologia, Lomo de Casablanca, Municipio Regla, CP11700, La Habana, Cuba (planos@met.inf.cu).

FRIEND Inter-Group Coordination Committee (FIGCC)

This committee, established in Slovenia in 1997, held its first meeting on 22 March 1999 in Koblenz. The Project Coordinators of eight international FRIEND projects, namely Northern European FRIEND, Alpine and Mediterranean FRIEND, Southern African FRIEND, Central and West African FRIEND, Hindu-Kush-Himalayan (HKH) FRIEND and Asian-Pacific FRIEND met to discuss liaison between groups and common issues. There is already evidence of growing Inter-Group cooperation with members of the Low Flows Group (Northern European

FRIEND) organising and running a low flow training course for HKH scientists in Kathmandu in April 1999. Participants of the Database Group from GRDC also ran a Regional Training Course on Database Management there in May 1998. A colour brochure has recently been produced by the Institute of Hydrology on behalf of UNESCO outlining the work of the different international FRIEND groups.

Subsequent to the meeting FIGCC and UNESCO received a proposal for the establishment of a new FRIEND project in Central Asia focussing on the influence of glaciers on water availability in large Asian rivers. Other new FRIEND initiatives are also being developed in South and Central America and the Middle East.

Recent FRIEND publications

Publication	Publication date	Publisher	Editor/Author
Conference Proceedings: Developments in hydrology of mountainous areas, Stara-Lesna 1994, and FRIEND-AMHY Group Annual Report No. 4 (IHP project No. H-5-5/H-5-6) IHP V, Technical Documents in Hydrology, No. 8, 314p. SC-97/WS/15	August 1997	UNESCO	
FRIEND-AMHY Group Annual Report No. 5, Thessaloniki annual meeting (1995). IHP V, Technical Documents in Hydrology, No. x, 406p.	(Autumn 1997)	UNESCO	
General FRIEND Report No. 3. A selection of contributions among the researches and studies undertaken inside FRIEND Groups during the period 1994-97 Cemagref Press - UNESCO, Antony - Paris, 437p. ISBN No. 2-85362-475-7	September 1997	Cemagref Press	G. Oberlin & E. Desbos
FRIEND '97 - Conference Proceedings Regional Hydrology: Concepts and Models for Sustainable Water Resource Management IAHS Publ. No. 246 ISBN No. 1-901502-35-X, 363pp	September 1997	IAHS	A. Gustard, S. Blazkova, M. Brilly, S. Demuth, J. Dixon, H. van Lanen, C. Llasat, S. Mkhandi & E. Servat
FRIEND '97 - Conference Proceedings Regional Hydrology: Concepts and Models for Sustainable Water Resource Management LOC Proceedings of oral presentations - <i>Acta hydrotechnica</i> 15/18(1997) , 203p., Ljubljana	September 1997	Local Organising Committee	M. Mikoš
FRIEND '97 - Conference Proceedings Regional Hydrology: Concepts and Models for Sustainable Water Resource Management LOC Proceedings of poster presentations - <i>Acta hydrotechnica</i> 15/19(1997) , 177p., Ljubljana	September 1997	Local Organising Committee	M. Mikoš
Inventory of FRIEND Research Basins, Netherlands Committee for IHP-OHP, Report 97.1, De Bilt, 113 pg.	July 1997	Netherlands Committee for IHP-OHP	H.A.J. van Lanen & H.F. Gertsen
Advances in regional hydrology through East	September	Institute of	A. Gustard & G.A.

Publication	Publication date	Publisher	Editor/Author
European Cooperation, 42pp	1997	Hydrology	Cole
Southern African FRIEND Technical Documents in Hydrology Series, No 15	1997	UNESCO	UNESCO
Seminaire international annual du groupe AMHY de FRIEND , Annual Report No. 5 (1995-96), PHI-V, Technical Documents in Hydrology No. 11	1997	UNESCO, Paris/GIS AMHY	
Catalogue of Rivers for Southern Asia and the Pacific, Volume II	December 1997	UNESCO-IHP Regional Steering Committee S.E.Asia and the Pacific	Jayawardena, A.W., Takeuchi, K. & Machbub, B.
Advancing cooperation between GEWEX Continental Scale Experiments and FRIEND	Sept 1998	Institute of Hydrology	Gustard, A. & Rees, H.G.
International FRIEND brochure	1998	UNESCO	Institute of Hydrology
On the definition and modelling of streamflow drought duration and deficit volume	1997	Hydrol. Sci. J. 42(1), 15- 33	Tallaksen, L.M., Madsen, H. & Clausen, B.
Proceedings of Low Flows Expert Meeting 10-12 June 1998, Belgrade, Yugoslavia FRIEND – UNESCO IHP-V1.1 Project FRIEND-AMHY Group Topic on Low Flows ISBN-86-80049-80-8	1998	University of Belgrade	Vukmirovic, V., Radic, Z. & Bulu A. (eds)
Establishment of a Regional Data Centre of the European Water Archive for the European Territory of the former Soviet Union	1999	INTAS	Rees, G. & Cole, G.A.
Asian Pacific FRIEND , IHP-V, Technical Documents in Hydrology, No. 2	1999	UNESCO Jakarta Office	Regional Steering Committee for Southeast Asia and the Pacific

Annex 10 Report on HELP

Hydrology for Environment, Life and Policy (HELP)

Providing the scientific basis for improved land and water management through a global network of experimental basins

Outline Proposal

July 1999

1. Introduction

In response to, and in the light of, several recent international conferences and documents on freshwater issues a UNESCO sponsored meeting of International water experts was convened in November 1998 to consider the need for a new hydrological research initiative to deliver the scientific basis for future sustainable water management. Following this meeting an outline proposal for a new world-wide hydrology initiative was prepared. The initiative is provisionally named *Hydrology for Environment, Life and Policy (HELP)*. A history of the initiative through December 1998 is in Appendix I.

The organizing principle behind HELP is that its research should be directly responsive to the water related public policy and development issues that are internationally recognized as of major importance at the beginning of the new millennium. The initiative recognizes that the basic hydrological unit is the drainage basin. The primary objective is therefore to establish a global network of representative hydrological catchments covering key climatic, hydro-geological, biophysical, socio-economic and policy environments.

HELP will be based as much as possible on existing monitoring sites, thereby capitalizing on current and historic hydrological knowledge. It will also develop new scientific knowledge where key gaps exist, for example to provide data and models for more accurate assessment of freshwater resources and ground truth data for global climate models.

The initiative will be complementary to and build upon the activities of other water related international programs in the UNESCO-IHP, WMO, WCRP (GEWEX, CLIVAR), GEMS/Water and IGBP-BAHC (see Section 5 for more details).

The global extent and seriousness of future water scarcity and pollution problems will require the combined efforts of many countries throughout the world. It is therefore vital to build national capacities, especially in developing countries, both in terms of hydrological infrastructure and through education and training in hydrological techniques.

2. Policy issues

The vital importance of water in sustaining human and environmental health has been widely recognized in numerous national, international and global fora. All of the most recent water resource and water quality assessments and policy documents support the rising concerns and the urgent need for action to address global water management issues. Key policy issues relating to freshwater have been identified as follows:

2.1 Water use in providing food for a growing population

Current projections estimate that by 2050 most of the world's population may not have sufficient water to grow their basic food requirements. This enormous food gap seems unavoidable in water scarce regions unless more efficient use can be made of existing water resources. A major effort is therefore required to look at the technical and non-technical aspects of increasing the efficiency with which water is used in both rain fed and irrigated agriculture. To ensure that any consequent impacts on downstream (and/or upstream) water users is taken into account this work needs to be carried out within a catchment framework.

2.2 Competition for water and potential conflicts

Expanding populations in water scarce regions will inevitably lead to increased competition, both on a national and an international level, for the limited water available in rivers and aquifers. On the other hand, water also provides a powerful tool for cooperation and has often been the vector for parties in conflict to achieve agreement. Improved information on water resources is essential to address potential conflicts over water.

2.3 Water quality impacts on human health

Human health is still seriously at risk due to water quality problems, especially in developing countries. This problem is likely to increase as increasing population pressure leads to further water quality degradation. Globally, information on water quality is extremely scarce, yet this is essential if the risks to much of the world's population are to be properly assessed and addressed.

2.4 Environmental water needs

Wetlands and biodiversity are threatened by water withdrawals and water pollution. Some consistent quantitative basis for deciding on the effects of sub-optimal water supply need to be evolved as an objective means for apportioning limited water between environmental and human needs. The degree and extent of water pollution effects on ecosystems also need to be much more clearly identified, if this escalating problem is to be effectively managed.

2.5 Impacts of climate variability and change on water resources

The Intergovernmental Panel on Climate Change (IPCC) recently concluded that the increasing cost of climate change and variability, in terms of loss of human life and capital due to floods, storms and droughts, are the result of the lack of adjustment and response in society's policies and use of resources. This places the emphasis of the solution on water resource management, which needs to quantify and account for possible future changes in water resources due to climate change and variability.

2.6 Improved communication between hydrologists and society

Sustainable water resources management policies require both a sound understanding of hydrological processes and a proper understanding of the desires and constraints of the full suite of water users. New mechanisms are needed to improve the communication between technical experts in the field of hydrology and stakeholders such as farmers, water managers and policy makers etc. Ultimately hydrologists need to not only provide the technical information to comply with current legislation, but also the information required to formulate new water laws.

3. Objectives

Existing international scientific programmes typically report on the state of the art in one particular aspect of the water sciences. The HELP programme is different from and complementary to these existing programmes since it aims to

- acknowledge and respond to societal needs and incorporate involvement of stakeholders and relevant scientific disciplines;
- recognize population growth as the principle driver in future demands for fresh water;
- contain an explicit and flexible capacity building element. This will enable appropriate participation by both developed and developing world nations.

The HELP programme is expressly focused on providing the scientific basis for developing sound water policy and development. It will be strongly guided by the results of past and current hydrological studies, as well as the future scenarios being developed (e.g. in Vision 2000 and by the IPCC). The primary objective of the initiative is to provide the process understanding required to derive effective tools for improved land and water management within a drainage basin framework. This objective is fully in line with the concept of Integrated Water Resource Management (IWRM) which has been widely recognized as an important approach for meeting current and future challenges in the water sector.

HELP will also provide a means of applying existing knowledge in a range of environments and at a range of scales. It will also develop new scientific knowledge where significant gaps exist. For example, HELP could provide the data and models to improve current global assessments of freshwater resources and water quality. The initiative could also provide the much needed ground data for improving global scale climate models.

4. Project design

The HELP programme is focused on establishing a global network of representative hydrological catchments covering key climatic, hydro-geological, biophysical, socio-economic and policy environments. The international network is likely to evolve according to priorities set by the participants, and financial possibilities. Different regions may have different priorities. An international steering committee could be formed to provide advice on baseline measurements, methods and ways of networking with other HELP participants. The programme is to be discussed and promoted at a range of international meetings and support will also be sought from national, international and

global organizations.

It is envisaged that catchments within the HELP initiative should:

- cover a range of bioclimatic zones, socio-economic structures and cultural environments
- be representative of the surrounding area to allow generalization to a wider region
- preferably be part of existing international networks, e.g. FRIEND, ERB, WHYCOS, GTOS, etc.
- for some, be located within GEWEX and CLIVAR continental scale programmes (GAME, GCIP, etc.)
- preferably have been operational for a few decades allowing historical and/or proxy data to be analysed
- from the start of the HELP programme, be observed for at least 10-20 years but with the aim of being made permanent

After some time it is anticipated that worldwide there could be as many as 100 to 200 catchments in the network.

The study design will be iterative, combining past, current and emerging issues with process understanding gained from data analysis. Appropriate consultations between stakeholders and scientists should be maintained throughout this iterative process.

5. Relation to existing programmes

The initiative will be complementary to and build upon the activities of other water related international programs in the UNESCO-IHP, WMO, WCRP (GEWEX, CLIVAR), GEMS/Water and IGBP-BAHC. For example, the HELP programme could provide GEWEX and CLIVAR with the long term globally extensive ground based measurements of the hydrological cycle required to test large scale models and remote sensing techniques. This link should also create a worldwide capability to interpret understanding of global processes directly into the water environment at a catchment scale where it is most relevant to human and environmental welfare. HELP would also expand existing hydrological research from data collection and the analysis of current status and trends, into scenario analysis and the compilation of robust land and water management strategies for the next millennium.

The GEMS/Water programme could be strengthened via links into a more extensive network of ground based global observations. In the IHP FRIEND the emphasis has been on the collection and analysis of river flow data measured at national network sites. The HELP programme would complement FRIEND by focusing on the understanding of the entire catchment water balance including water quality. Further links and discussion are required with existing programmes to ensure that the appropriate synergies are optimally exploited.

A Succinct History of the Origins of the Global Water Quality Initiative (ACC-SWR) and Hydrology for Environment, Life and Policy

GLOBAL WATER QUALITY INITIATIVE

October 1996

During the ACC-SWR (United Nations Administrative Coordination Committee, Sub-Committee on Water Resources) 17th Session held in UNESCO, Paris, the Chapter on **Water Resources** for submission to the Commission of Sustainable Development (CSD) was reviewed. The section devoted to water quality was considered too brief, and was thought to reflect the lack of scientific attention (especially in experimental hydrology) in comparison to water quantity. Mention was made of the need of an equivalent “international hydrological decade” focusing this time on water quality, which should be based on selected drainage basins and focusing on “processes” linked with societal needs. Concern was also expressed at the declining Canadian support for the water quality database GEMS-WATER, Burlington, Canada. Any new programme would not be in competition with GEMS-WATER, but instead would reinforce as well as complement it.

UNESCO, UNEP and the UNU supported the concept of a Global Water Quality Initiative, and requested UNESCO to prepare a document in collaboration with UNEP and UNU. This document would be re-considered at the 18th Session, ACC-SWR, Vienna.

July 1997

A water-quality task group met in Paris and prepared a document entitled, *A Comprehensive Global Water-Quality Initiative* (GWQI).

October 1997

The above document was reviewed and the principal criticism was that it was too technically-orientated and more management/policy needed to be included. WHO offered to revise the document which was accepted.

January 1998

A revised GWQI document for the CSD was presented to the ACC-SWR Harare meeting, January 1998. This version was essentially the same as the previous one (July 1997) but with a reduction in the “science”.

April 1998 (*Commission of Sustainable Development, New York*)

The GWQI was mentioned at the ECOSOC Substantive Session as part of the report of the CSD. The report highlighted that the GWQI proposal was particularly critical to those countries where the problem of non-existent or unreliable data was particularly acute. The report mentioned that the proposal was developed by UNESCO, UNEP, UNU, Department of Economic and Social Affairs, and WHO. The intervention of the EU is worth citing:

“This year’s Commission on Sustainable Development has confirmed the need for a much better coordination within the UN system in the field of freshwater. We strongly hope that the ACC Subcommittee on Water will be able to promote a better harmonisation and streamlining of its members’ programmes. The issue of data collection and dissemination both at the national as well as the international level is essential for good water management. The European Union therefore welcomes the increased attention which is being paid by the ACC Subcommittee on Water to this problem in particular in the context of the comprehensive global water quality initiative.”

June 1998

During the course of the Conference “Water: A Looming Crisis?”, we became aware of the separate Global Water Partnership proposal entitled, Water Quality proposal (February 1998), lead authored by J. Kindler. It was agreed that the contents of the GWQI and GWP proposals reciprocated each other, and a possible merger should be considered. The former was stronger on the technical aspects, the latter stronger on the management/policy aspects.

July 1998

Jake Peters (leading author of the GWQI) made a first attempt at combining the two documents for internal consideration.

August 1998

Informal meetings at the GWP TAC (Technical Advisory Committee) in Stockholm agreed to hold an

administrative meeting in the Fall to assess more formally the feasibility of combining the two documents. This process was subsequently agreed to be initiated in Warsaw in November 1998, as part of the TAC meeting.

Hydrology for Environment, Life and Policy

March 1998

We were approached by members of the GEWEX community for UNESCO to consider the possibility of operating a 2nd International Hydrological Decade.

April 1998

During the joint GEWEX (ISLSCP)-IGBP/BAHC Science workshop (hosted by UNESCO), the IHP Secretariat received Professors J. Shuttleworth and Eric Wood to discuss the “2nd International Hydrological Decade” issue.

July 1998

The Exeter Statement (British Hydrological Society, UK Exeter Symposium) requested consideration being given to a 2nd International Hydrological Decade by UNESCO and WMO. At the same meeting it was informally decided that an exploratory expert group would be established (sponsored by the IHP, as UNESCO would be the lead agency) to consider the Exeter Statement request. The Institute of Hydrology, UK agreed to act as the host.

September 1998

After discussions within the IHP Secretariat and with selected UN partners/scientific individuals, the proposed title *Experimental Hydrological Decade* was put forward to avoid confusion (and conflict) with existing titles of international programmes, including the IHP.

October 1998

Informal meeting between the IHP Secretariat and Dr J. Wallace, Director, Institute of Hydrology, UK on the planning of the Expert Group meeting.

December 1998

Expert group to meet (hosted by the Institute of Hydrology) on the feasibility of an *Experimental Hydrology Decade*, as part of IHP-VI, 30 November-1 December. The basic elements of the program were discussed and a strawman outlined. The acronym for the program is **WHIPD**, which stands for **World Hydrology Initiative for Policy and Development -- Providing the scientific basis for improved land and water management through a global network of experimental basins**. The Acronym was subsequently changed to **Hydrology for Environment, Life and Policy**.

Annex 11 Report on IGBP

IGBP Congress Report

The International Geosphere-Biosphere Programme (IGBP) is a consortium of approximately 2000 scientists organized around a set of key scientific themes represented by eleven Programme Elements including eight Core Projects, and three cross-cutting Framework Activities. The initiative is lead by an IGBP SC, headed by Professor Berrien Moore of the University of New Hampshire (USA), with the Secretariat's Office located in Stockholm SWEDEN. The broad mandate of the IGBP is to articulate and study the Earth as a set of integrative components linking biosphere, atmosphere, hydrosphere, oceans, and cryosphere. The biogeochemistry of the planet, and particularly human-induced changes to world's terrestrial ecosystems and aquatic ecosystems, and their corresponding impacts on the world's climate and overall Earth System is at the heart of the initiative.

It is important to note that IGBP science is funded predominantly through nationally funded projects. The IGBP promotes these scientific investigations by providing support to key members of the scientific community to attend workshops and open science meetings and for the publication of reports. It also catalyzes the preparation and distribution of community-wide data bases. Seventy-seven National Committees of the IGBP encourage national scientific communities to participate in and enhance IGBP activities.

From 7 May through 13 May 1999, the IGBP held its second Congress at Shonan Villaage, Japan. The Congress brought together the Scientific Steering Committees from each of the IGBP Programme Elements. The SSCs convened in closed session for two full days at the start and the end of the Congress to review ongoing research activities and to plan future Programme Element and inter-Programme Element work. In addition, there were several inter-Programme Element meetings to foster cross-fertilization of ideas and to coordinate supporting activities across the individual Programme Elements. Further, there were several plenary sessions with both programmatic and scientific keynote addresses. There were also a series of presentations made by the Japanese IGBP community and affiliates, which led to the participation of these scientists during much of the course of the Congress. The participants at the IGBP Congress comprised perhaps the single largest group of leading Global Change scientists and the meeting was dedicated toward creating a stimulating environment for developing further their common interests.

The First Congress (held in Bad Munstereiffel, Germany in 1996) focused on consolidation of individual Programme Element activities and on establishing a framework for continued research within the IGBP. The Second Congress was formally convened to emphasize a synthesis of Programme results. To promote the IGBP Synthesis two full days were devoted to plenary talks summarizing key scientific findings from each of the eleven individual Programme Elements, the IGBP at large, and the Japanese Committee for the IGBP. These were followed by three days of Synthesis Working Sessions devoted to 26 cross-Element initiatives.

Of most direct relevance to IAHS are, naturally, water-related components of the IGBP. These are evident among several of the individual Programme Elements as well as under their subsidiary activities. Principle among these are the IGBP-BAHC ("Biospheric Aspects of the Hydrological Cycle"), PAGES ("Past Global Changes"), LUCC ("Land Use / Cover Change") and LOICZ ("Land-Ocean Interactions in the Coastal Zone"). For example, under BAHC, several Key Themes are of direct interest and relevance to IAHS -- Theme 1 ("Energy, Water, and Carbon Fluxes at the Patch Scale"), Theme 2 ("Evaluation of the Role of Belowground Processes"), Theme 3 ("Parameterization of Land-Atmosphere Interactions"), Themes 4 & 5 (on Vegetation-Climate Interactions), Theme 6 ("Influence of Climate Change and Human Activities on Mobilization and Transport of Water and Constituents through Riverine Systems"), and Theme 7 ("Mountain Hydrology and Ecology"). In addition, the IGBP-DIS (Data and Information System) Framework Activity has helped to develop several hydrology-relevant data bases including those on global soils properties, land cover, and wetlands distribution. The international Global Change System for Analysis Research and Training (START) (jointly administered by the IGBP, World Climate Research Program, and

International Human Dimensions Project) fosters regional research networks, education for young scientists, and capacity-building in developing countries. As an example of the type of activities catalyzed by IGBP, the BAHC Core Project, the Pan-African START, and the African Ministers Conference on the Environment are jointly organizing a workshop on the sustainability of freshwater resources in Nairobi KENYA from 26-30 October 1999. The purpose of this workshop is to bring together the science of global and regional change to the policy and management communities.

Also of interest to IAHS is the newly-formed IGBP Water Initiative, headed by Michel Meybeck of the University of Paris VI, which will integrate several of the individual Programme Element activities under a single umbrella. The emphasis of the Water Group reflects the IGBP's more general scientific interests and hence focuses upon climate change vs direct human impact on inland waters (for both quantity and quality), global fluxes from land-to-ocean for key constituents (suspended materials, carbon, nutrients), and impacts of global change on upland drainage systems as well as on inland and coastal ecosystems.

Dr. Charles J. Vorosmarty

Annex 12 Report of the Chair of the Task Force on Developing Countries, as published in News 66

For the last four years, the Task Force for Developing Countries (TFDC) has continued his activity, which is to disseminate free of charge IAHS literature (Hydrological Science Journal and Red Books) to different institutions, mainly Universities and Research Institutes, who encounter financial problems to keep in contact with international publications. There is a list of regular beneficiaries, about 90 institutions, who receive the Journal and the Red Books related to the topics they have chosen. We try to have a close connection to these institutions, to be sure that our mailings arrive safe and sound and that the literature is made available to researchers. Some addresses have had to be deleted due to lack of regular contact. Some others have been added but it has not been possible, for financial reasons, to fulfil all the requests, most often quite sounded, that you received especially after the edition of the 1998 Catalogue of Publications. Besides this regular support to selected institutions the TFDC is also referred to for selective requests originating from institutions or even from individuals. Once again, it has not been possible to fulfil all the requests and, like for the choice of regular TFDC beneficiaries, a difficult and frustrating decisions had to be made for each request. I hope that these choices have not been to unwise and that they represent a good use of this important budget (about 30,000 \$) dedicated by IAHS to TFDC activities.

Establishing links with hydrologists from all countries and continents is a fundamental task of IAHS. We got some successes in this direction with Africa, especially through TFDC activity. It is worthwhile to note that the African Association of Hydrologists (AAH) is born and is looking for close relations with IAHS, that we will have to define in common during the next congress. The recent Abidjan symposium (November 1998), sponsored among others institutions by IAHS and AAH, has been a major event for hydrology in Africa. If we now look at Latin America, we know that important hydrological activities are undertaken there and that national and regional hydrological associations are active, but we still lack of contacts with our south American colleagues. We hope that the Manaus symposium on large rivers to be held next November, which is supported by IAHS, and which will be attended by hydrologists from all over the world will open a new era.

Pierre HUBERT

Annex 13 Report on WMO/IAHS Working Group on GEWEX

1. Working Group Meetings

The last meeting of the IAHS/WMO Working Group for GEWEX was held along with the IAHS General Assembly in Rabat, Marocco, May 1997. The next meeting is to be held at the IUGG General Assembly in Birmingham on 26 July 1999.

The main topics on the agenda are the reports on the five projects of the Working Group dealing with (1) large-scale hydrological models, (2) precipitation measurements, (3) WMO project on evapotranspiration, (4) global runoff data center and (5) MOPEX; reports of the reporters of the Working Group on their topics: (1) high mountain areas, (2) landsurface processes, (3) parameterization of soil moisture and (4) fresh water flows into oceans. Furthermore, future activities of the Working Group with high relevance for the GEWEX project are to be discussed.

2. Meeting of the GEWEX Hydrometeorological Panel (GHP) in Boulder, Colorado, USA, September 1998.

At the **GHP meeting in Boulder**, 1998, certain recommendations have been made, some of which are of particular interest to hydrologists. One recommendation states, that large-scale hydrological models suitable for coupling with GCMs should be improved with respect to inclusion of more physically based components and consideration of lateral flows. It was further suggested, that each CSE calibrates and validates these models in an uncoupled mode, then couple them to a GCM within their region and then take action to intercompare the results in a transferability exercise over all CSEs. This process would require defining a consistent interface at which the atmospheric and hydrological models would be coupled, that considers such parameters as soil moisture, energy fluxes, precipitation, etc.. Analysis of the required complexity and the variability of these parameters in the coupled mode would lead to the determination of the existence of teleconnections and their strength relative to the various CSE hydrological regimes. This, in turn, would allow a determination of the capability of the coupled models to predict hydrological variables.

After a presentation of the chairman of the IAHS/WMO Working Group for GEWEX at GHP in Boulder, GHP formulated a recommendation "that each CSE creates an awareness among water resource managers of the potential use of GEWEX/GHP predictive tools, demonstrate, where applicable, the potential benefits for improved performance of water resources systems in a applying GEWEX/GHP products."

In Boulder, again, the CATCH project in West Africa was discussed and progress was recognized. It was recommended, that CATCH is added to the GHP CSE matrix of contributions to GEWEX.

From the report on the GHP meeting in Boulder 1998, a brief passage on the GEWEX Working Group should be cited:

"A review was of IAHS/GEWEX Working Group activities, that included Dr. G. Schultz gave a special report on requirements from the water management community. It was recommended, that the GHP endorsement of the work of the IAHS/GEWEX Working Group be re-affirmed and that a potential area of interest for GHP was the application of ensemble forecast to water management. Action was given to Dr. Schultz to carry back to the IAHS/GEWEX Working Group the interest of GHP in ensemble model techniques being applied to water resource management. The GHP POCs were asked, to consider Dr. Schultz's evaluation of the water management community's needs with respect to their application of prediction products only after their level of success has been proven to the extremely high."

Since Dr. Schultz will retire from his job as chairman of the IAHS/WMO W.G. for GEWEX, GHP wishes to be informed, whom IAHS will propose as Dr. Schultz's successor in the GHP.

3. Model Parameter Estimation Experiment (MOPEX)

As mentioned in my report to the Bureau at Paris, June 1998, John Schaake made the proposal to start a "Model Parameter Estimation Experiment (MOPEX)". In the meantime, MOPEX is well on the way and there will be the first meeting of a newly formed MOPEX steering group on 28 July 1999 in Birmingham.

4. Workshop HW 4 at Birmingham "Regionalization of Parameters of Hydrological and Atmospheric Landsurface Models"

The workshop is convened by the IAHS/WMO W.G. for GEWEX together with ICRSDT and IAMAS. Conveners of the workshops are four scientists, three of which are members of the Working Group. During the preparation of the workshop, it became clear, that it will be well attended and many prominent hydrologists and meteorologists will present and discuss papers and interesting ideas at this workshop in Birmingham.

5. Change of chairman of the IAHS/WMO Working Group for GEWEX

The present chairman of the W.G. had this job for about ten years now (since IAHS at Baltimore, 1989). Now it seems to be the time for a change in chairmanship of the W.G. There have been discussions between IAHS (John Rodda and Gordon Young) and WMO (Arthur Askew) as the supporters of the W.G., and the present chairman of the W.G. in order to find a suitable candidate for the chairmanship. It was suggested, that Alan Hall (Australia) should be the successor of Gert Schultz as chairman. This point should be discussed and decided at the IAHS Bureau Meeting in Birmingham.

6. Looking back at a ten years period of work, as W.G. chairman, member of the Scientific Steering Group for GEWEX and since 1996 member of the GEWEX Hydrometeorological Panel

- (1) The status of the few hydrologists in the Scientific Steering Group (SSG) was rather difficult, since it was dominated by meteorologists and scientists working in the space agencies. It took several years to convince the group, that hydrology plays an important role in the global water cycle and that it is not sufficient to model hydrology (in form of landsurface processes) in a rather simple way. Especially the neglect of lateral flows (in quantity and time delay) was eventually recognized as a mistake. New GCMs now comprise more sophisticated hydrological components.

Since GEWEX is mainly carried on by the five continental scale experiments (CSEs), all major activities of GEWEX are concentrated on these large-scale experiments. These are huge multi-disciplinary projects (meteorology, oceanography and hydrology) and cover continental scale hydrology. For "normal" hydrologists, it is difficult to make a contribution to these efforts, since the CSEs cover more or less everything in large-scale water circulation science.

- (2) Thus, the W.G. understood its task mainly in providing opportunities for meteorologists and hydrologists to meet and discuss development and eventually coupling of atmospheric and hydrological large-scale models. Highlights in these efforts were:

- a special workshop organized by the W.G. "Hydrology in Atmospheric Models" held at Yokohama, Japan, July 1993. The discussions of this workshop together with a thorough analysis of existing landsurface schemes for atmospheric general circulation models were published in number 3 of the "IAHS Special Publications": "Coupling large-scale Hydrological and Atmospheric Models", published in April 1995. This publication is a comprehensive presentation of problems at the interface between atmospheric and hydrological large-scale models.

- a further workshop was organized by the IAHS/WMO Working Group for GEWEX together with the Institute of Hydrology (Wallingford) in November 1996 "Continental Scale Hydrological Models: Charting the Future". The presentation at this workshop as well as the discussions were published in November 1997 as a publication of ICSU/IUC/WMO-WCRP and can be ordered from WMO.
- Various further symposia were organized in the framework of IAHS activities at various IAHS general assemblies. The last one of these is workshop HW 4 "Regionalization of Parameters of Hydrological and Atmospheric Landsurface Models" which will be held at Birmingham, 27 and 28 July 1999.

Gert A. Schultz, Bochum, July 1999

Annex 14 Resolutions of IAHS and on IGEMS

Press release at the XXII General Assembly of the International Union of Geodesy and Geophysics
University of Birmingham, 26 July 1999

WATER DATA ARE AN ENDANGERED SPECIES

A number of major floods and related disasters have occurred in recent years which have resulted in the loss of thousands of lives and billions of dollars in damage to property, most notably due to massive floods in China and the destruction resulting from Hurricane Mitch. Significant flooding even occurred recently here in Birmingham. Technology is available which could dramatically reduce and often eliminate such tragedies and, where the funds are available, this technology has indeed proved most effective, with one major proviso – the necessary basic data which is required to design and operate the necessary flood forecasting and management systems (each of which must be tailor-made to suit local conditions) must be collected over years, and preferably decades. In many critical locations **these data are simply not available.**

The lack of data has also prevented the development of effective management strategies for water quality problems in many areas. These problems include areas impacted by the agriculture and agrochemicals, and solid and liquid wastes from a wide range of sources, particularly where water is scarce.

More than this, it is now widely recognised that the World faces a serious and developing crisis because of a shortage of freshwater for domestic and agricultural use in many countries. Even in England there is a problem with water shortages. How serious are these problems and what can we do to improve the situation?

This shortage of data limits our ability to study the root causes of these problems, limits the extent to which we can identify which areas are at risk and develop appropriate management strategies and means that many millions, even billions of dollars are invested in major water management and flood abatement projects which then fail to achieve their purpose and can even aggravate the problems they were designed to overcome.

Why are these data not available? Data collection is expensive, in particular because we need to collect water data over long periods of time, typically 20 to 50 years, and because, if data are to be of any use, they must be carefully stored, analysed and made available to users, but the cost of data collection is minimal compared to the human lives and property damage that could be saved if we only had the basic data that are needed.

The current policies of many countries require government departments to cut costs and even sell their services.

Water data networks are very vulnerable in this context. Recent years have seen major cuts in the networks of stations which collect water-related data, not only in the poorer countries of the World, but also in the industrially advanced countries of Europe and North America.

We need to maintain a broad range of flora and fauna if we are to maintain a healthy and productive natural environment. Likewise, we need to collect a wide range of data if we are to maintain a healthy flow of information to those who make vital decisions on water projects. In this sense, **the networks that collect water data networks are an endangered species.**

Among the 4000 plus scientists attending the 22nd Assembly of IUGG in Birmingham, some 400 are here to discuss water-related matters under the auspices of the International Association of Hydrological Sciences (IAHS). Problems resulting from a lack of data are repeatedly being raised – not only a lack of data, but also **a lack of willingness by many countries to permit access to the water data they already have.**

In May 1999, the World Meteorological Organisation, a specialised agency of the United Nations, adopted a resolution on the exchange of hydrological data, establishing a policy of encouraging free and unrestricted access, but this assumes that the data are themselves exist in the first place. For this reason, IAHS has adopted a resolution calling on national and international institutions to do all in their power to arrest the decline in water observation networks and strengthen observing programmes in areas where we are short of the essential data that are so vital to the safety of the World's population and to socio-economic development.

Governments have an obligation to protect their populations and manage their scarce resources of freshwater.

Scientific understanding and technology are widely available to serve this purpose but unless water observing networks are restored and strengthened urgently, it will not be possible for Governments to fulfil their obligations.

Water data networks are therefore an endangered species.

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IAHS RESOLUTION ON HYDROLOGICAL OBSERVING NETWORKS

THE INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES:

EXPRESSES CONCERN at the past and continuing decline of national hydrological observing networks*, in both developed and developing countries, leading to a severe decline in the total quantity of data being collected world-wide;

RECOGNISING:

- (1) that this loss of information is undermining our ability to monitor the state of the world's water resources and to assess the risk of floods, droughts and damage to health, infrastructure and the natural environment,
- (2) the urgency for a comprehensive vision of the world's freshwater, and
- (3) that humans are now and will continue to be an integral part of the terrestrial water cycle, but that there is a severe lack of information on water demands, infrastructure and their impact on the hydrological regime;

ENCOURAGES national and international agencies to:

- (1) ENSURE that representative observation networks for hydrological variables are maintained, both now and in the future,
- (2) SEEK mechanisms by which to initiate or resume observations in locations where serious data gaps now exist,
- (3) PROMOTE the free and unrestricted transfer of hydrological data, in particular through the application of WMO Resolution 25 (Cg-XIII),
- (4) PROMOTE the use of existing national and global data archives and their continued development,
- (5) COMPILE systematic information on water use and infrastructure and other pertinent socio-economic data,
- (6) ASSIST WMO and UNESCO in identifying and disseminating critical hydrological data sets, socio-economic data related to water, as well as derived products.

IAHS also ENCOURAGES individual scientists and institutions to make wise and appropriate use of the data on which their work depends and to acknowledge clearly the origin of those data.

Resolution: Integrated Global Earth Monitoring Systems (IGEMS)

The International Union of Geodesy and Geophysics

Recognizing that:

1. contemporary science and technology have now made it possible to observe in a sustained fashion (i.e., monitor) geophysical phenomena, processes, and fields across all disciplines and in a truly global and near-real-time (synoptic) fashion (using remote sensing as well as direct sensing) for the first time, making Earth System Science fully feasible;
2. the International Council for Science (ICSU) -- together with CEOS (Committee on Earth Observing Satellites), IGFA (International Group of Funding Agencies (for global change research)), IOC (Intergovernmental Oceanographic Commission), WMO (World Meteorological Organization), UNEP (United Nations Environmental Program) -- already has a well established Federation of Astronomical and Geophysical Services (FAGS), has moved forward with planning an Integrated Global Observing Strategy (IGOS) that links GOOS (Global Ocean Observing System), GCOS (Global Climate Observing System) and GTOS (Global Terrestrial Observing System), and with analogous initiatives underway in seismology, geodesy, geomagnetics, volcanology, hydrology, and other geophysical disciplines;
3. the IUGG has a well established role in fostering long-term geophysical observations for the

* within this resolution, references to hydrological networks, observations, data and information relate to both the quantity and quality of all forms of freshwater and related sediment and solute loads, including surface water, precipitation, snow and ice, soil water and groundwater.

benefit of both geophysical research and human society, perhaps most notably through its several Permanent Services;

And noting with concern that:

4. national geophysical observing systems are declining in many countries;

Affirms that:

- IUGG will continue to play a leading role in the evolution and utilization of an Integrated Global Earth Monitoring Systems (IGEMS) theme for the benefit of all geophysicists and societies;

And urges:

- governments and international agencies to sustain and improve national and international geophysical monitoring systems and promote the free and unrestricted transfer of data.