



NEWS AND INFORMATION

International Association of Hydrogeologists

The international groundwater organisation

Since 1956 a world-wide forum on the management of groundwater
for the benefit of mankind and the environment

July GW8 - Groundwater and poverty reduction in Africa



Women and children bear the brunt of water carrying in much of rural Africa; locating improved groundwater supplies close to the point of need can have a major impact on the lives of whole communities. Photo: Alan MacDonald, BGS © NERC 2000

In the week before the G8 conference of world leaders in the UK, IAH held its own "GW8" conference in London, a contribution to the debate on poverty reduction in Sub-Saharan Africa. The meeting brought together 130 key water professionals from the UK, Ireland, Germany, Nigeria, Norway, South Africa, Uganda and Tanzania. The participants from a range of professional backgrounds, represented NGOs

(UNICEF, WaterAid, Oxfam), universities, research institutes, donors (World Bank, DFID), African government departments (the Ministries of Water from Uganda and Tanzania) and many others. Four of the eight speakers were African professionals working in water.

The aims of IAH in convening the meeting were to raise the profile of groundwater in meeting the Millennium Development Goals (MDGs) by:

- Identifying the role of groundwater in increasing and extending water supply to help reduce poverty;
- Exploring ways that groundwater development could be more effectively undertaken.

The underlying resource for Africa's development

Reliable access to clean water is fundamental to reducing poverty in Africa.

It contributes significantly to all of the MDGs, for example in promoting gender equality, universal education (children often miss school because they are spending time collecting water) and most obviously those concerning health - reducing child mortality, maternal health and deaths from HIV/AIDs.

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To join IAH please visit the web site and either join on-line or download the membership application form

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Access to clean water can have many benefits in reducing poverty: improving health (therefore more time for production, less expenditure on health care); less time collecting water means more time to be spent on more productive tasks; better water supplies mean that children have more opportunities to go to school.

The presentations made it clear that groundwater is the only realistic option for increasing water supply in rural areas in many of the African countries which currently have the furthest to go in meeting the MDGs.

The Challenges

"Sub-Saharan Africa is lagging behind the rest of the world in trying to achieve the MDGs for water", Othneil Habila from UNICEF Nigeria told the conference. The rest of the world is likely to reach the target of reducing those without access to a clean reliable water supply by about 2020. At current rates of progress, Sub-Saharan Africa will not achieve the goals until 2050.

Of the 680 million people who live in Sub-Saharan Africa about 300 million still do not have access to a clean reliable water supply. Most of those (250 million) live in rural areas.

Alan MacDonald (British Geological Survey) reported that for nearly all of these communities groundwater is the only realistic option for water supply, but the physical, climatic and geological conditions are such that exploring and developing water supplies requires hydrogeological knowledge. In addition, the natural groundwater quality constraints provided by substances such as fluoride and arsenic require improvements in our scientific knowledge to locate useable, reliable and sustainable sources.

Despite the obvious need and the high profile given to the need for clean water, funds for improving access to clean water in rural areas and at the rural/urban interface have not increased. Callist Tindimugaya from the Ministry of Water in Tanzania gave the conference an example from Uganda: there has been a significant decrease in external funding for water supplies since 2002, even though the national contribution has been slowly but steadily increasing. The main reason is that development funds (including those from the UK's Department for International Development) are increasingly being given centrally to Government in the form of direct budget support, rather than to provide for specific projects. Unless there is a very strong voice for water in national poverty reduction strategies, these funds do not find their way to water, but are put into other priorities.

Money on its own is not enough. Expertise and

information about the nature and extent of the groundwater resources is also needed to avoid money being wasted on constructing unsuccessful or unreliable wells and boreholes. However, the meeting concluded that Africa faces major challenges:

- Expertise on how to develop groundwater throughout Africa is decreasing in Africa (Segun Adelana, South Africa and Vice President of IAH), due to a lack of appropriate training, poor recognition of groundwater professionals within countries and as Aids continues to take its toll. Existing capacity needs to be used more effectively and significant efforts are required to build capacity, by provision of postgraduate training in Africa and overseas, developing new research partnerships between northern and southern institutions and broad provision of "hands-on training" to those involved in day-to-day practice in water supply in Africa;
- Existing information that is vital for developing groundwater resources is not readily accessible - lessons learnt from successful or unsuccessful projects are not being used incrementally as a basis for new projects. As a result, some are drilling boreholes almost blind, with often very poor success rates and poor quality water - this is an ineffective use of funds. Even in new projects, the lack of groundwater expertise often does not allow proper collection of new data which in its turn would support future work;
- During the water decade of the 1980s, provision of rural water supplies from groundwater with handpumps was well fitted to demand levels, and the presumption that adequate groundwater resources existed was broadly valid. However, with population growth and urbanisation, many of the communities that were villages are now small towns, and small towns are bigger towns. With increasing per capita demand from domestic users, and for more diverse uses, piped systems become the newer aspiration. Questions of groundwater availability and resource management (all against the background of climate change), together with increased need for protection against the new pollution sources which are often associated with urbanisation, place increasing burdens on both the information base and the technical capacity.

Following the meeting, the organisers and the African visitors met to prepare a strategy by which the Association could help professionals in the African region by improved support networks and by helping to ensure access to the wealth of expertise and information that already exists.

Details can be found on the IAH web site at: www.iah.org/News/2005/051.html

President's Column FROM THE WATER TABLE

ON GROUNDWATER VISIBILITY AND GROUNDWATER BLINDNESS

We groundwater specialists are often heard complaining that 'our beloved materia prima' is too often overlooked or taken for granted and not given the attention, the investment, the management and, in some cases, even the development it deserves. What can be done to improve the situation?

I spend a good deal of time speaking about groundwater with 'key players' in the broader water resources sector and beyond. And the impression I get about these questions is a rather mixed one.

There is certainly a lot of '**groundwater blindness**' about. Take, for example, major international water conferences or national water resource plans, and look at their prospectus and programmes. How many times is the word 'water resource' or 'water' (with resource implications) written, but on closer examination what is being addressed is 'surface water' alone - and the statements made do not hold good for groundwater. Perhaps, we in the IAH should start a systematic campaign to rectify such imprecision and misuse.

At the political level, there has long been the tendency to 'turn a blind eye' to groundwater issues. This, no doubt, derives from the fact that waterwell development is dispersed, of small-scale, often with private capital and thus groundwater issues become intimately entwined with those of land ownership rights. In such circumstances the costs of political intervention are usually conceived as being much greater and more immediate than its potential benefits - there are no major 'public works' to be constructed and commissioned.

To improve this situation we have to recognise that '**groundwater visibility**' needs to be improved, with groundwater issues being expressed in political (not technical) language - with the risks of 'no action' and the 'policy entry points' clearly articulated. We should leave no doubt that groundwater resources are measurable, predictable and manageable and that politically realistic and economically effective action can (and should) be taken to optimise their productive use and necessary conservation.

IAH Members put high priority on '**groundwater policy advocacy**' - our broadcasting at the political and public level the socio-economic importance of groundwater and the need to invest in its sustainable management and protection in the interests of humankind and the environment. Thus the previous

IAH Executive made a start on promoting the international groundwater agenda at the 3rd World Water Forum and achieved excellent collaboration with both UNESCO and the World Bank (as principal funders) but also other UN agencies such as IAEA and FAO. This Forum had some important outcomes - including the launch of the International Groundwater Resources Assessment Centre (IGRAC) an increased interest by the Global Environment Facility (GEF) in groundwater and the International Law Commission on internationally-shared aquifers, but there remained a lack of high-level political exposure and national policy impact for our messages.

It is against this background that the IAH (through a small core team drawn from the Executive and Commission Chairs) is currently pursuing an invitation to promote and execute a GEF-Medium Sized Project on Groundwater with the World Bank as GEF Implementing Agency. This would allow policy messages on groundwater to be developed through thematic workshops at regional centres, with the aim of reaching a consensus on priority messages within the groundwater community, the various UN-Water agencies, the development banks, the World Water Council and the Global Water Partnership.

At a recent Planning Meeting (Vienna - 28-30 April 2005) the idea of creating a **World Commission for Groundwater** (WCGW) over 2-3 years was strongly endorsed. This will act as a platform for politically-influential players to engage with and convey major groundwater policy messages to national governments and environmental leaders.

Beyond this, we all have to re-double our efforts to utilise the more responsible sections of the mass media to increase public and political awareness of groundwater - remembering that out-of-public-sight invariably will also mean out-of-political-mind. In all forms of 'external communication' (including most critically that with other water-sector and environmental professionals) it will be essential to ensure that our products (maps, plans and communiqués) are ever more 'user friendly'.

And finally, we have to get a lot better at mobilising the 'primary groundwater users' in our cause. Paradoxically it is rare to find representatives of municipal water companies or utilities, major irrigators and high-value food producers and bottled water enterprises, and for that matter the defenders of ecosystems and biodiversity, demanding groundwater protection - despite the fact that the self-same groundwater is as much their 'aqua vitae' as it is ours.

2nd Workshop of the Iberian Regional Working Group on Hardrock Hydrogeology

Between 18 and 21 of May 2005, the IAH Portuguese Group organized the 2nd Workshop of the Iberian Regional Working Group on Hardrock Hydrogeology, in Évora, Portugal, in cooperation with the IAH Commission on Hardrock Hydrogeology and the Iberian Regional Working Group on Hardrock Hydrogeology. In 1997, the 1st Workshop of this Iberian Regional Working Group was organized by the IAH Spanish Group, in Miraflores, Madrid (Spain), in the presence of about 30 specialists.

The program included a two day workshop (18 and 19 May) and two days excursion to the hardrock aquifers of Alentejo, in the south part of Portugal. The first excursion was to North Alentejo, to observe the hydrogeological environment of the quartzite ridges, a visit to a water bottling plant and a second visit to a spa using a very special quality of water with pH11. The second visit was to South Alentejo to observe the hydrogeological conditions of two pyrite mines, one active and with all the ecological precautions to avoid water contamination and an old abandoned mine with high acid water and consequent environmental problems.

Knowledge of hydrogeological properties of hardrocks is very important for both Spain and Portugal as this environment covers a large part of both countries. The investigation of the hardrock aquifers needs to be more prominent, as many people depend on the water obtained from this kind of aquifers.

The main goal of the meeting was the exchange of information on achieved results and experience regarding adequate methodological approaches in the field of hardrock hydrogeology. Other objectives were the assessment of the state-of-art in hardrock

hydrogeology in different areas of the Iberian Peninsula and even the comparison between the studies in Iberian Peninsula and studies in other countries with the same kind of hydrogeological environments.

The workshop was attended by 40 specialists from Portugal, Spain, Czech Republic, Germany, Poland, Finland, Russia, Morocco and Mexico, who presented 24 oral presentations and 7 posters. The themes of the presentations in the workshop were:

- 1 Geophysical studies and water prospecting.
- 2 Groundwater flow systems and modelling.
- 3 Aquifer contamination.
- 4 Chemical and isotopic studies.
- 5 Statistical methods applied to hydrogeological data.
- 6 Hydrogeologic case studies and mapping.

Four of the sessions were the responsibility of invited speakers: Jiri Krásny (Czech Republic), Luís Ribeiro (Portugal), Lurdes Martínez-Landa (Spain) and Esa Rönkä (Finland).

With the support of some important sponsors, it was possible to organize the workshop without fees being paid by the participants and to bring some of the participants to the workshop without costs.

Thanks to all the participants, the Workshop has been a success, and it will have a future in the schedule of the Iberian Regional Working Group and of the IAH Commission on Hardrock Hydrogeology.



Participants at the Iberian Hardrock Hydrogeology workshop in Évora, Portugal

New Books from IAH/Balkema

Balkema, in association with IAH, has published the following books in 2005. All books in the IAH series are available to IAH members at a 60% discount

SP7 Groundwater Intensive Use



A. Sahuquillo, J. Capilla, L. Martínez-Cortina & X. Sánchez-Vila (eds) 2005 400pp. ISBN 0 415 36444 2, UK £75.00 (Approx. EUR 109.00/US\$ 124.00) before IAH discount

Groundwater Intensive Use is aimed to contribute to a more transparent, objective and unbiased information on the pros and cons of intensive groundwater development, based on the experience in many countries during the last decades. A first group of authors present the positive and negative general aspects of intensive use of groundwater. A second group of authors provide an overview on the specific situation in some significant regions of the world where there is an intensive use of this resource. The book is written by authors from different countries and disciplines. The scope is not only to present the conventional hydrogeological aspects of the issue, but more importantly, the ecological, legal, institutional, economic and social challenges and opportunities of such intensive groundwater use

SP6 Groundwater and Human Development



Emilia Bocanegra, Mario Hernández & Eduardo Usunoff (eds) 2005 ISBN 0 415 36443 4, 278 pp UK £64.00 (approx. EUR 79.00/US\$ 89.00) before IAH discount

Given the overwhelming availability of groundwater resources as compared to surface water resources, it has long been recognized that groundwater plays a central role in the development of human societies. Its direct and most visible use is for human supply, although it has profound impacts on health improvement and poverty alleviation. The XXXII IAH (International Association of Hydrogeologists) and VI ALHSUD (Latin-American Association of Groundwater Hydrology for Development) Congress on "Groundwater and Human Development", held between October 21 and 25, 2002, in Mar del Plata (Argentina), gathered over 400 participants from more than 40 countries, who were able to exchange experiences and knowledge from their research. This book contains selected papers, plenary lectures and material from several workshops held, as a way of showing the contribution of modern hydrogeology to addressing the ever-increasing need of human kind for meeting their demand for fresh and safe water.

SP5 Nitrates in Groundwater



Lidi Razowska-Jaworek & Andrzej Saduski (eds) 2005, 295 pp ISBN 90 5809 664 UK £59.00 (approx. EUR 79.00/US\$ 89.00) before IAH discount

Nitrates in Groundwater provides an overview of a wide spectrum of current studies of nitrates in groundwater. This volume includes 27 papers selected from those presented during the Euro meeting of the International Association of Hydrogeologists "Nitrate in Groundwater in Europe". The meeting, organised by the Polish Geological Institute, was held in Wisla in Poland in 2002. The problems presented and discussed in Wisla covered all aspects of nitrate pollution of groundwaters. For this reason the scope of the book extends beyond Europe. The papers have been grouped in five chapters: Origin of nitrates in groundwater, National and regional investigation of nitrates in groundwater, Modelling of nitrate transport and chemistry, National and regional studies, Monitoring and protection of groundwater from nitrate pollution.

The best way to order and be sure to obtain your 60% discount is to use the special IAH order form which can be downloaded from the IAH website at www.iah.org/order.htm The web page also gives details of ordering on-line, by post, fax and telephone.

Europe reaches political agreement on protecting groundwater

In December 2000 the European Union adopted the far reaching Water Framework Directive (WFD) which sets out the principle governing the management and protection of water in Europe for at least the next twenty years. Although the Directive covers groundwater, much of the detail could not be agreed and was left for later resolution in a new Groundwater "Daughter" Directive.

Many deadlines for completing this missing link have passed as the EU now much larger than when it started down this road, struggled to find words and procedures that would accommodate the different circumstances and aspirations across the 25 nations. At the European Environment Council on 24 June 2005 an agreement was reached although it is one which still leaves many practical questions unanswered and which has drawn criticism from environmental commentators.

The differing ambitions of the Member States (MS) made it difficult to reach a compromise. Two main questions held the attention of the Environment Ministers. While quality standards are fixed at the Community level for certain pollutants, the directive approach is largely based on the principle of subsidiarity. It would be up to the Member States to define the threshold values for pollutants that are a particular risk at national and/or regional level.

The question of nitrates was also sensitive. Ministers decided to preserve the existing Nitrates Directive, which only covers pollution from agricultural sources. The European Commission declared that it will continue to seek to strengthen the implementation of the Nitrates Directive if evidence from the implementation of the WFD shows it to be necessary.

Critics claim that the new directive backtracks on existing groundwater protection standards and object to concessions that have been made to meet national pressures.

EU Groundwater Working Group

Meanwhile the work of the EU Groundwater Working Group has continued with significant IAH representation. The three drafting groups have been set up.

GW1 - Groundwater Monitoring

Leaders: Johannes Grath (Austria) & Rob Ward (UK)

IAH Representative: John Chilton (UK)
(pjch@bgs.ac.uk)

It was agreed that a 'check list' for sound groundwater

monitoring practice should be provided that would simultaneously provide a point of reference for MS that had already invested in up-graded monitoring networks and guidelines for those MS in process of amplifying their networks. Contributions and suggestions were invited until mid-July 2005, with the first draft due in mid-October 2005 and the final document in December 2005.

GW2 - Groundwater Protected Areas

Leader: Tony Marsland (UK)

IAH Rep: Donal Daly (Ireland) (donal.daly@gsi.ie)

It was concluded that the activity should be largely restricted to 'drinking water protected areas' but some consideration of ecosystem and habitat related groundwater protection was also required. In the former context a distinction was made between:

- 'Statutory protected areas' which essentially comprised the entire recharge areas of groundwater bodies;
- 'Voluntary safeguard zones' equivalent to special protection zones of parts of groundwater bodies associated with public water-supply sources.

The issues of how 'quantity protection' (resource conservation) should be incorporated and how far the work should extend beyond protected area definition and monitoring into protection implementation were discussed. The time schedule for the group's work is similar to that for GW1.

GW3 - Prevent & Limit Discharge to Groundwater

Leader: Wouter Gevaerts (NICOLE)

IAH Rep : Thierry Pointet (France)
(thierry.pointet@brgm.fr)

It was agreed that the main focus should be:

- Assessing the effectiveness of existing regulations for the control of all direct and indirect discharges to groundwater;
- Considering the harmonisation of site/activity specific risk assessment methods and definition of necessary pollution 'prevent and limit' measures;
- The management of megasites of industrially-contaminated land and the control of agricultural land-use practices would be outside the terms of reference. The time schedule for the group's work is similar to that for GW1.

Further details and web links can be found at <http://www.iah.org/News/2005/051.html>

IAH News

New team for HJ

Over the past six months the team overseeing Hydrogeology Journal under Executive Editor Cliff Voss has completely changed. We welcome Maria-Theresa Schafmeister (Germany), Bridget Scanlon (USA) and Craig Simmons (Australia) as new Managing Editors, Sue Duncan (UK) as Technical Editorial Assistant and Catherine O'Flynn (UK) as Journal Administrator. Cliff Voss introduces the team and thanks their predecessors in this issue of HJ.

Arsenic Contamination of Groundwater in South and East Asian Countries



The detrimental health effects of environmental exposure to arsenic have become increasingly clear in the last few years. High concentrations detected in groundwater from a number of aquifers across the world, including in South and East Asia, have been found responsible for health problems ranging from skin disorders to cardiovascular disease and cancer. The problem has increased greatly in recent years with the growing use of tubewells to tap groundwater for water supply and irrigation. The water delivered by these tubewells has been found in many cases to be contaminated with higher than recommended levels of arsenic. In the study region, countries affected include Bangladesh (the worst affected), India, Myanmar, Nepal, and Pakistan (South Asia); and Cambodia, China (including Taiwan), Lao People's Democratic Republic, and Vietnam (East Asia). The World Bank and the Water and Sanitation program have collaborated on a study which focuses on the operational responses to arsenic contamination and is designed to be of practical use to those who invest in water infrastructure in the affected countries, including governments, donors, development banks, and non-governmental organizations (NGOs). The study is written up in two volumes under the title *Towards a More Effective Operational Response - Arsenic Contamination of Groundwater in South and East Asian Countries* - Report number 31303, 2005. Volume 1 is the policy report and Volume 2 the technical report. PDF copies of both volumes can be obtained by searching using the report number on <http://www-wds.worldbank.org> The reports can be ordered from the World Bank or from the Water and Sanitation Program <http://www.wsp.org/>

Groundwater in International Law

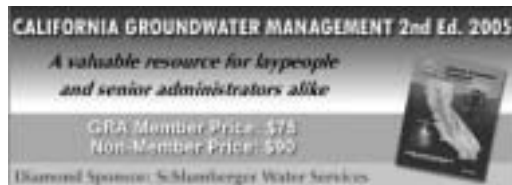


Up to now international law has paid much less attention to groundwater than to surface water. However, slowly a body of rules dealing with this vital resource is emerging that indicates a trend towards more comprehensive international regulation. It is against this backdrop that UN Food and Agriculture

Organisation (FAO) and UNESCO have joined forces to produce a new report *Groundwater in International Law: Compilation of treaties and other legal instruments*. It brings together binding and non-binding international law instruments that, in varying degrees and from different angles, deal with groundwater. Its aim is to report developments in international law and to contribute to detecting law in-the-making in this important field. Stefano Burchi, Senior Legal Officer, and Kerstin Mechlem, Legal Officer, Development Law Service, FAO, were responsible for the scope and structure of the publication, for the selection of legal materials and their arrangement. It is published in English in the FAO series *Legislative Studies* 86; ISBN 925105231X. A copy can be ordered from the FAO Online Publications catalogue:

<http://www.fao.org/icalog/inter-e.htm> (price \$US30) or downloaded as a pdf file from: <http://www.fao.org/documents/> - in each case search using the ISBN number.

California Groundwater Management



The second and updated edition of *California Groundwater Management* has just been published by the Groundwater Resources Association of California (GRA). The increasing demand for water has focused attention on improving groundwater management in California. California uses more groundwater than any other state in the USA. "To initiate a greater understanding of the latest groundwater management issues and practices, and the critical role of groundwater in California's overall water resources plan, GRA commenced a comprehensive update of its book (initially published

in 1997)", stated Thomas Johnson, GRA's president. Michael Campana of the University of New Mexico has said *California Groundwater Management* is an excellent resource that will find wide acceptance, not only in California but elsewhere as well. The table of contents from *California Groundwater Management, Second Edition (2005)*, ordering information and details about GRAs May 2005 programs are available at GRAs Web site, www.grac.org

First Ecuadorian Hydrogeological Congress, Quito, 4-6 May 2005

Emilio Custodio, IAH Past President reports that from 4 to 6 May, 2005, in Quito (Ecuador) the 1st Ecuadorian Congress on Hydrogeology was held alongside the 12th Latin American Geological Congress and the 9th Ecuadorian Congress on Geology, Mining, Oil and Environment. A still small but active group of hydrogeologists from Ecuador has been mobilized and during the Congress the recently organized Ecuadorian Association of Hydrogeologists (current president Eng. Juan A. Neira, and Secretary Eng. Oscar Larrea) met to receive the legal statutes of the Association, signed by 22 people. They have now convened their first elections, scheduled for 3rd June, 2005.

IAH Commission on Managed Aquifer Recharge hold workshop and plenary at ISMAR 5 in Berlin.

The 5th International Symposium on Management of Aquifer Recharge, ISMAR 5, was held in Berlin, Germany, on 10 - 16 June 2005 to discuss 'Recharge Systems for Protecting and Enhancing Groundwater Resources'. Details from www.ismar2005.org

A one-day UNESCO-IAH sponsored workshop was held during the meeting on 11 June, the topic under discussion being 'Benefits, problems and solutions in implementing appropriate MAR in developing countries'.

Implementation of sustainable MAR often calls for institutional strengthening, removing unrealistic expectations, improved access to investigation methods and access to resources. The workshop allowed presentation of some positive ideas and actions emerging in a number of countries. These include mapping in Southern Africa to identify target MAR sites, DFID projects in India and Nepal, World Bank resourced projects in India, Latin American initiatives and needs in northern Africa. Discussion was stimulated by a series of short talks and brief country reports allowing the delegates to explore the main problems and solutions. These talks were followed by focus group discussions and a feedback summary session. The key issues raised included:

- Lack of skills to implement schemes in fractured rock areas could be resolved through input from universities, research to develop understanding of impacts and sharing of international experience;
- MAR still happens in an ad hoc manner in many countries and has yet to be accepted as a mainstream activity. This result in difficulties in applying regulations where they exist and lack of control or monitoring where they do not. Education and marketing of MAR is needed from political leaders to schoolchildren;
- Where the main objective of MAR is saline intrusion control and quality improvement, rather than quantity, then the results of decades of research need to be applied in areas new to the technique through information dissemination, applied research and collaboration;
- UNESCO - IAH can play a key role in information dissemination through media and workshops as well as promoting international demonstration projects.

The Plenary Session held on the evening of Monday 13 June was well attended and gave the opportunity for working groups to report progress. Reports of activities and international research programmes were also given; for example the EC ALERT and GABARDINE projects and AWWARF activities. Links to these activities are posted on the web site with fuller reports of the meeting: (www.iah.org/recharge).

MAR has set up a new series of working groups to address the current topical issues and they held their first meetings during the conference. They are: Regulations and MAR, Benefits of MAR, Role of MAR in Integrated Catchment Management and Training in MAR. A proposal from the Regional Workshop held in Lahore in April/May 2005 was that regional groups on MAR should be established to co-ordinate activities and share information. You are welcome to join the Working Groups or to form a regional group on MAR. Please contact Peter Dillon or Ian Gale via the IAH recharge web site.

The next plenary meeting of IAH-MAR will be held at the IAH Congress, 9 - 13 October 2006 in Beijing, China.

IAH-Portuguese Group meeting in Lisbon, 12 May 2005

The Portuguese Group of IAH convened a meeting, in the Faculty of Geology of the University of Lisbon, to present and discuss groundwater issues related to the European Water Framework Directive and the present draft of the Groundwater Daughter Directive. It was a 3 hour-long meeting attended by about 100

people. The panelists were Dr. A. Gonçalves Henriques (LNECT-IST), Dr. M. Oliveira Silva (Univ. Lisbon/National Water Council), Dr. Luis Ribeiro (Techn. Univ. Lisbon), Dr. Teresa Melo (Univ. Aveiro) and E. Custodio (UPC, Spain and Past-President of IAH).

Part of the discussion from the floor referred to the poor quality and control of drilling activities for water and how they are degrading. They mentioned about 800 drilling companies operating in the country, only a few fully qualified and suffering from unfair concurrence and a total of 300,000 wells in the country. Concerns have been raised about the difficulty in defining and complying with reference quality guidelines when natural recharge exceeds them due simply to climatic conditions. This means that many aquifers have to be considered an exception that has to be justified. This will be an additional challenge compared with countries that more commonly have groundwater already complying with the guidelines.

There is a lot of work to do to tell people and hydrogeologists what the Water Framework Directive is and the country's responsibility in adapting the legislation correctly.

Note on the Workshop on Governance and Management of Groundwater in Arid and Semi-Arid countries 3-8 April 2005, Cairo, Egypt

The meeting was organized by the International Groundwater Resources Management group of the World Meteorological Organization (Dr. Keith Kennedy) with the help of the UNESCO Office in Cairo, and the collaboration of UNEP, IAEA and Islam DB, and hosted by the Ministry of Water Resources and Irrigation, Nile Water Sector, Cairo, Egypt.

Total attendance was about 60 experts, including a large representation from Middle-East and North-Africa and Sub-Saharan countries (11 and 10 participants respectively). There were representatives of IGRAC, UNESCO-IHP, WB-GW.MATE, GWP, IAEA, FAO, RAMSAR, IWMI, NGWA and IAH.

Some IAH members were present, including the President and the Past-President (partly supported by IAH and UNESCO).

The workshop was organized into six working themes, each with a moderator, two coordinators and a secretary.

- 1 Information availability and access.
- 2 Land use and ecosystem linkages.
- 3 Societal interface.
- 4 Legal and regulatory aspects.
- 5 Finance and economics.
- 6 Pollution protection and remediation.

Each theme occupied half a day, with plenary presentations from invited experts and attending experts (based mostly on case studies presented as posters), with discussion. For exchange of ideas 3 to 4 separate group meetings were organized to put together the different people, taking care that theme experts be represented in each of the groups. Results of discussions were presented for comments as well as the personal thinking of developing countries and organizations on the workshop results. All this is now being summarized in a final report.

The circumstances, advancements and major obstacles of developing countries were widely discussed in the framework of existing, highly variable government and administrative situations. Providing water to people and farmers is the main concern, with needs that currently exceed sustainable development. Quantity is the concern and quality and the environment are at present secondary, as happened in the past and still happens in many other areas of the world. However, attention is needed not to repeat the costly and damaging past experiences and knowledge transfer, establishment of effective institutions and support from developing nations is needed.

**4th World Water Forum
Mexico City
March 16th-22nd, 2006**

*The theme of the 2006 Forum is
Local Actions for a Global Challenge*

*There are many opportunities for participation - these can be found on the forum web site:
<http://www.worldwaterforum4.org.mx>*

ANNIVERSARY COLLOQUIUM

Dijon - France
29 May - 4 June 2006

29 May 2006 (1st day): Darcy Day

Darcy's personality, his work, development of permeability concept, modern applications of permeability measurements (e.g. disposal of dangerous substances)

30 May 2006 (2nd day): IAH Day

Development from 1956 to 2006, objectives, prospects, assessment for growth and further evolution, role of hydrogeology in the modern world (organised by IAH Executive and Council)

31 May & 1 June 2006 (3rd-4th days): Aquifer Days

Management of large aquifers (objectives - preservation of good groundwater quality and non-renewable resources), monitoring networks, numerical modelling

2-4 June 2006: Post-Congress Excursion (optional)

French-Swiss Jura (karst, thermalism), reception in Evian, famous Source of Vaucluse (World Hydrogeological Reference)

COLLOQUE ANNIVERSAIRE

Dijon - France
le 29 Mai - le 4 Juin 2006

29 mai: Journée Darcy

la personne, son oeuvre, applications modernes des mesures de perméabilités (stockages de déchets dangereux)

30 mai: Journée AIH

évolution de l'AIH de 1956 à 2006, perspectives d'avenir, objectifs, axes de réflexion pour une croissance basée sur une organisation évolutive, la place des hydrogéologues dans le monde moderne...AIH Council

31 mai et 1 juin: Gestion des Grands Aquifères
réseaux de contrôle, modélisations, objectifs (dont préservation des ressources de bonne qualité et des ressources non renouvelables.)

2 et 4 juin: Excursions

le Jura franco-suisse (le karst, le thermalisme), réception à Evian, la célèbre Source de Vaucluse (référence hydrogéologique mondiale)

**Registration details will be available shortly.
Further information from aih@brgm.fr**

ANNIVERSARY 2006

2006 is the 50th anniversary of the founding of IAH at the International Geological Congress in Mexico City in 1956. It is also the 150th anniversary of the publication of Darcy's Law. In recognition of these events IAH will be holding two celebrations, one in Europe and one in Asia.

34th ANNIVERSARY CONGRESS

Beijing China
9 - 13 October 2006

The 34th Congress and 50th Anniversary congress of the International Association of Hydrogeologists will be celebrated in Beijing, China from 9-13 October 2006

Groundwater - present status and future task

The sub-themes are:

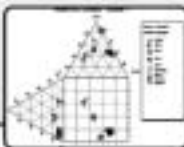
- Water resources and sustainable development
- Exploitation and utilisation of groundwater - past and future
- Understanding regional groundwater systems
- Groundwater conservation and ecological implications
- Sustainable utilisation of groundwater in urban and rural areas
- Special groundwater themes.

The first circular and registration form were circulated with Hydrogeology Journal Issue 13:3. Registration is also available on the Congress web site.

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<h2 style="text-align: center;">Software Solutions</h2> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>HydroGeo Analyst</p> <p>Groundwater & Borehole Data Management</p>  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Visual MODFLOW Pro</p> <p>3D Flow & Transport Modeling</p>  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>AquaChem</p> <p>Water Quality Analysis</p>  </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>WHI UnSat Suite & Visual HELP</p> <p>Unsaturated Flow & Transport Modeling</p>  </div> <div style="border: 1px solid black; padding: 5px;"> <p>AquiferTest Pro</p> <p>Pumping Test & Slug Test Analysis</p>  </div> <div style="text-align: center; margin-top: 10px;">  <p>VISIT US ON THE WEB TO GET YOUR FREE DEMO CD TODAY!</p> </div>	<h2 style="text-align: center;">Training Seminars</h2> <p>Waterloo Hydrogeologic, Inc. has been offering professional training seminars since 1989. During this time, we've earned a reputation for delivering innovative courses that combine state-of-the-art modeling technologies with practical applications.</p> <p style="text-align: center;">Hands-On Learning!</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Applied Groundwater Flow & Contaminant Transport Modeling:</p> <p>Theory and Hands-on Applications using MODFLOW, MODPATH, MT3D & WinPEST</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>GIS Data Management for Groundwater Modelers:</p> <p>Understanding Data Sources, Data Analysis and Visualization as Part of Model Development</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Finite Element Groundwater Modeling:</p> <p>Advanced Applications for Saturated/Unsaturated Flow & Transport, Density-Dependent Flow and Heat Transport</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Regulatory Review of Hydrogeology Studies:</p> <p>Approaches and Insights for Reviewing Groundwater Modeling Reports</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Aquifer Test Analysis:</p> <p>Principles of Pumping Test Design and Techniques for Aquifer Test Analysis</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Water Quality Data Management & Interpretation:</p> <p>Applications using AquaChem and USGS PHREEQC</p> </div> <div style="text-align: center; margin-top: 10px;"> <p>Course Locations:</p> <p>Canada • USA • Chile • Dubai Brazil • Saudi Arabia • Turkey Australia • Hungary</p> </div> <div style="text-align: center; border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>Register Today!</p> </div>
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Waterloo Hydrogeologic, Inc. has been developing and distributing groundwater and environmental software for over 15 years. Our products are recognized around the world for having the most intuitive graphical interface designs while still offering a powerful suite of tools to help you complete your projects fast.



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Conference Listing

Summary details of conferences with e-mail or web addresses are given below. For a fuller list of conferences and more details, including links to web sites visit www.iah.org/confs/

2005

September 7-10, Menton, France. EWRA 2005 - 6th International Conference, European Water Resources Association. Web: <http://www.cig.ensmp.fr/ewra2005>

September 7-11, Zaragoza, Spain. Sixth international conference on geomorphology with special session on evaporite karst processes and problems. Web: <http://wzar.unizar.es/actos/SEG/index.html>

September 11-16, Freiberg, Germany. Uranium Mining and Hydrogeology IV. Web: <http://www.geo.tu-freiberg.de/umh/index.htm>

September 11-19, Beijing, China. Use of Water and Land for Food and Environmental Sustainability. 19th Congress of ICID. Web: www.icid2005.org

September 13-18, Huesca, Spain. CMTW-IAH Annual Meeting 2005. e-mail: cuchi@unizar.es

September 14-19, Belgrade, Yugoslavia. International Conference on Environmental (Geoecological) Problems in Karst. Organised by the Serbia and Montenegro Committee of IAH. Web: <http://www.cvijic-karst2005.org.yu/>

September 18-21, Saskatoon, Canada. 58th Canadian Geotechnical and 6th Joint IAH-CNC and CGS Groundwater Specialty Conferences. Web: <http://www.geosask2005.ca>

19-22 September, České Budejovice, Czech Republic. 12th National Hydrogeologic Congress. Web and on-line registration: <http://www.cah.cz>,

September 24-28, Santonio, Texas, USA. Tenth Multidisciplinary Conference on Sinkholes and the Engineering and Environment Impacts of Karst. Web: <http://www.asce.org/conferences/karst2005>

October 4-7, Brazil. 2nd Brazilian Southeast Hydrogeology Symposium. Web: <http://www.abas.org/perfuradores/>

October 4-8, Alicante, Spain. International Workshop "From data gathering and groundwater modelling to integrated management". Web: <http://www.fcis.org/PUB/INFO/AIH-GE.HTM>

October 5-6, Athens, Greece. 7th Hellenic Hydrogeological Conference and 2nd MEM Workshop on Fissured Rocks Hydrogeology. Registration: www.iah-hellas.geol.uoa.gr; Contact: stoumaras@geol.uoa.gr

October 16-19, Salt Lake City, Utah, USA. Geological Society of America. Web: <http://www.geosociety.org/meetings/2005/>

October 23-25, Río Cuarto, Córdoba Province, Argentina. IV Congreso Argentino de Hidrogeología (IV Argentine Hydrogeology Congress) and II Seminario Hispano-Latinoamericano sobre Temas Actuales de la Hidrología Subterránea (II Spanish-Latin American Seminar on Current Issues in Hydrogeology). Web: www.unrc.edu.ar

November 2, London, UK. Recent Advances in Dating and Tracing Groundwater incorporating the 2005 Darcy Lecture. Web: <http://www.geolsoc.org.uk/>

November 15-18, Vigyan Bhawan, New Delhi, India. XII International Rainwater Catchment Systems Conference. Web: <http://www.ircsa2005.org>

November 22-25, New Delhi, India. XII World Water Congress of the International Water Resources Association. http://www.iwra.siu.edu/conferences/new_delhi2005.pdf

November 24-25 Orleans, France. Colloque du comité français de l'AIH sur l'eau souterraines et les phytosanitaires. E-mail: AIH@brgm.fr

November 28-December 2, Auckland, New Zealand. Joint conference organised by the new Zealand Hydrological Society and the IAH Australian National Chapter. Web: <http://www.hydrologynz.org.nz/society-conferences.html#nzhs05>

December 1-4, UNESCO HQ, Paris, France. Fourth International Water History Association Conference: Water and Civilization. Web: <http://www.iwha.net>

2006

January 24, London, UK. Catchment Scale Hydrogeology. Web: <http://www.geolsoc.org.uk/>

February 1-4, New Delhi, India. International Groundwater Conference on Groundwater (Perspectives, problems and challenges). E-mail: alr_jnu@yahoo.co.in

March 16-22, Mexico. 4th World Water Forum. Web: <http://www.worldwaterforum4.org.mx/home/home.asp>

April 24-28, Malaga, Spain. AQUAinMED International Congress "Ground Water in Mediterranean Countries". Web: <http://www.igme.es>

May 23-25, Marrakech, Morocco. Integrated Water Resources Management and Challenges of the Sustainable Development. Web: <http://www.fstg-marrakech.ac.ma/gire3d> or <http://www.ucam.ac.ma/gire3d> or <http://www.lih.rwth-aachen.de>

May 26-29, Baile Herculane, Romania. 4th International Conference "Climate Change: the Karst Record" (KR4). Web: <http://www.karst.ro>

June 21-23, Jugowice in Sowie Góry Mts., Poland. Fourth Workshop of the Regional Working Group of the Bohemian Massif - IAH Commission on Hardrock Hydrogeology. E-mail: hmar@ing.uni.wroc.pl

June 20-24, Mexico City, Mexico. As2006: Natural Arsenic in Groundwaters of Latin America - Occurrence, Health Impact, Remediation, Management. Web: http://www.lwr.kth.se/Personal/personer/bhattacharya_prosu_n/As-2006.htm

September 4-10, Yogyakarta, Indonesia. Volcano: life, perity and harmony. Web: <http://vig2006.recent.or.id/>

September 14-17, Nottingham UK. Engineering geology for tomorrow's cities. 10th Congress of International Association of Engineering Geology. Web: www.iaeg2006.com

21-23 September, Neuchâtel, Switzerland. 8th Conference on Limestone Hydrogeology. Web: <http://www.hydrokarst.org/?lang=en>

October 9-13, Beijing, China. XXXIV Congress of IAH. Details from nizengshi@tom.com

October 16-18, Bangkok, Thailand. 3rd Asia Pacific Association Hydrology and Water Resources (APHW) conference "Wise Water Resources Management Towards Sustainable Growth and Poverty Reduction". Web: to be launched soon <http://www.thirdaphw.org>

2007

September 17-21, Lisbon, Portugal. "Groundwater and Ecosystems: Interdependencies" 35th Congress of IAH. E-mail: achambel@iol.pt