

International Association of Hydrogeologists
COMMISSION ON MANAGEMENT OF AQUIFER RECHARGE
ANNUAL REPORT 2008

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Web site: www.iah.org/recharge

Aims of Commission

IAH-MAR was established in January 2002 by the IAH Executive aiming “to expand water resources and improve water quality in ways that are appropriate, environmentally sustainable, technically viable, economical, and socially desirable. It will do this by encouraging development and adoption of improved practices for management of aquifer recharge. This will be achieved by increasing awareness of MAR among IAH members, related professions and the community, by facilitating international exchange of information between members (e.g. via a web page and an email list), by disseminating results of research and practical experience (e.g. via conferences and reference database), and by undertaking joint projects and activities identified as important by its members.”

Activities in 2008:

Plenaries

Prof Uwe Troeger agreed to convene a plenary session of the Commission at the IAH Congress Oct 2008 in Toyama, Japan. Information on this the session will be pasted on the IAH-MAR web site in due course. This followed a highly successful Plenary attended by more than 200 delegates in the opening session of ISMAR6 symposium was held in Phoenix, Arizona on October 28th to November 2nd 2007. The next Plenary sessions are being organised for **Sept 2009 at IAH/IAHS Congress in Hyderabad**, and **Oct 2010 at ISMAR7 in Abu Dhabi**.

Poster Papers Collated for ISAR4, ISMAR5, ISMAR6

Enrique Fernández Escalante, has undertaken a project to assemble and publish anthologies of the poster papers presented in the three most recent international symposia of the series supported jointly by IAH-MAR and ASCE/EWRI on Managed Aquifer Recharge; i.e. Adelaide (Sept 2002), Berlin (June 2005) and Phoenix (Nov 2007). Thanks to Enrique’s persistence three volumes were released by DINA-MAR project in late 2008 on the IAH-MAR website under the names P-ISAR4, P-ISMAR5 and P-ISMAR6. These can be downloaded from <http://www.iah.org/recharge> or from <http://www.dina-mar.es>

Global MAR inventory

International Groundwater Resources Assessment Centre (IGRAC), directed by Dr Peter LeTitre, has drawn together a database of Managed Aquifer Recharge at a global scale. Information gathered is available via the IGRAC portal, <http://www.igrac.nl/>, to provide a shared knowledge resource, and a summary of this information is intended to be available in 2009 in pdf form. IGRAC is supported by UNESCO, WMO and the government of The Netherlands. The MAR inventory was initiated at the IAH-MAR Plenary in 2002.

Establishment of IAH-MAR Network in China

An IAH-MAR network was established in China in October 2008 at a Managed Aquifer Recharge workshop organised by AusAID and the China, Shandong Province and Jinan City

Bureaux of Water Resources and hosted by University of Jinan. The Coordinator of the network is Dr Weiping Wang is establishing a Chinese web site which will contain the proceedings of the workshop (in Chinese), brief descriptions of MAR projects in China and links to the IAH-MAR website (in English) hosted by the British Geological Survey. About 50 attendees at the three-day workshop heard presentations from active researchers and projects in China and visited a major MAR project involving a surface water and groundwater dam to control coastal saline intrusion, enhance groundwater recharge and secure water supplies for a rapidly growing urban and agricultural area. The proceedings will also be published by the Yellow River Conservancy Press in April 09.



Managed Aquifer Recharge workshop organised by AusAID and the China, Shandong Province and Jinan City Bureaux of Water Resources and hosted University of Jinan, led by its President, Prof Cheng Xin. Workshop organisers were Dr Weiping Wang (U. Jinan) and Dr Joanne Vanderzalm (CSIRO).

East Asia informal MAR network

As an outcome of an informal get together over dinner during ISMAR5 a small group from East Asia, including researchers from Japan, Taiwan, Thailand, Indonesia and Vietnam have formed a cooperative group to progress exchange of information and to visit each others MAR projects. In 2008 they met in Pintung, Taiwan to observe MAR projects there, including river bank and pond filtration, organised by Prof. Cheh-Shyh Ting.

Spanish MAR Activities

Managed Aquifer Recharge in Spain is the subject of active research and accelerating expansion and improvements in operations. A successful conference organised by the DINA-MAR Project was held in Madrid in early summer 2008. Seven researchers presented results of their MAR investigations, from SAT techniques to MAR in urban areas, and even explored the increase in recharge in forests by mean of MAR techniques. Enrique Fernández Escalante, Grupo Tragsa,

Madrid reported that the meeting hall was completely full and very positive comments were received from attendees. The program and papers presented (in Spanish) are found at the web site below as zipped pdfs.

<http://www.dina-mar.es>

<http://www.dina-mar.es/private/textos/1-dina-mar.zip>

A further conference and workshop are planned in 2009 and the Spanish Geological Survey is planning a special edition on MAR in its journal in 2009.

Water Reclamation and Aquifer Recharge Workshop in Mexico

The 2nd regional Reclaim Water Workshop was run in Mexico City, 14 -16 April 2008 was supported by the European Commission through the RECLAIM WATER Project (6th Framework Programme) and the Instituto de Ingeniería (Reuse Treatment Group) of the Autonomous University of Mexico (UNAM), led by Prof Blanca Jimenez. Two days of presentations on water recycling through intentional and unintentional groundwater recharge of sewage effluent and consequences for groundwater levels, water quality and human health provided a basis for a study tour of the Mezquital Valley on the 3rd day. This dry area north of Mexico City is where the city's effluent is discharged for irrigation of a vast area of crops. New springs now used for drinking water supplies or bathing reveal significant improvements in water quality during aquifer passage. Quantitative risk assessments are emerging which will help define management practices that will sustain human health protection.



Delegates attending the 2nd regional Water Reclamation and Aquifer Recharge Workshop was run in Mexico City, 14-16 April 2008.

This meeting enable information exchange between the international project team, operators, researchers, regulators and technology suppliers on a regional level. More information on the RECLAIM WATER project led by Prof Melin, University of Aachen and containing more than 15 partner organisations in 6 continents is at: www.reclaim-water.org. IAH-MAR supported the EC Proposal for this project by offering its services in helping to disseminate information about the project and its outcomes. The Commission is willing to do this for all types of research, demonstration, training and technology transfer in the field on MAR.

Progress on Working Group activities initiated at UNESCO-IAH-MAR meeting at ISMAR6

Six new work groups were initiated; their objectives being;

1. governance review, and
2. document benefits and costs of MAR projects
 - an Australian Govt funded project will be published in Feb 2009 to start to address both these issues. <http://www.nwc.gov.au/www/html/996-mar--an-introduction---report-no-13--feb-2009.asp?intSiteID=1>
 - more work is needed on an international front (volunteers welcome)
3. publication of MAR materials in Spanish and Chinese;
 - The UNESCO publication by Ian Gale entitled 'Strategies for MAR in semi-arid areas' has now been translated into Spanish by UNESCO and is available from the IAH-MAR web site. ('Estrategias para la Gestión de Recarga de Acuíferos (GRA) en zonas semiáridas').
 - See DINA-MAR web site (above) for Spanish publications on MAR.
 - Dr Weiping Wang has translation of Ian's document into Chinese for UNESCO and publication is due shortly.
 - In 2009 a Chinese MAR web site will be established by University of Jinan.
4. MAR movie; - no progress. Information welcome from anyone on any videos of MAR projects or educational videos on MAR.
5. Clogging review; - no progress. Volunteers welcome.
6. MAR demonstration and training network; - a small meeting is planned at International Groundwater Symposium, Bangkok 16-19 Feb 2009 to explore ways of advancing this concept, oriented towards appropriate and selective use of MAR to efficiently achieve UN Millennium Development Goal for Water Supply

Future Symposia

- **ISMAR7 will be in Abu Dhabi, United Arab Emirates 9-13 October 2010.** As more details are known they will be posted on the iah-mar website: www.iah.org/recharge
- At IAH/IAHS Congress in **Hyderabad 7-11 Sept 2009** there will be an IAH-MAR Plenary session, and also IAH Symposium G3: Groundwater resource management in hard rock areas will have a section on MAR in Fractured Rock led by Dr Victor Heilweil of USGS (heilweil@usgs.gov). This is an excellent opportunity to assemble a strong set of papers on a topic of considerable complexity and growing importance. Other sessions also present many opportunities for a wide variety of papers on MAR. <http://www.appliedhydrology.org/iahs/iahshome.view;jsessionid=CFED0A72C9DFB5DCBEA465DD3BC21EC5>
- At IWA Water Reuse'09 Symposium, **Brisbane 21-25 Sept 2009** there will be a theme on water recycling via aquifers (MAR) <http://www.reuse09.org/> Abstracts for the symposium are due 3 April 09. There will also be an AusAID workshop on MAR with recycled waters, particularly aimed for developing countries. Contact Peter Dillon (see iah-mar web site).

Related News

Groundwater Replenishment partners win 2008 Stockholm Industry Water Award Orange County Water District and the Orange County Sanitation District, California, USA, were presented with the prestigious 2008 Stockholm Industry Water Award on August 21 during the 2008 World Water Week in Stockholm. The Districts jointly developed the Groundwater Replenishment (GWR) system, a water purification system which will provide enough water to meet the needs of an additional 500 000 people without diminishing groundwater resources for current or future generations.

The GWR System diverts highly treated sewer water that is currently discharged into the ocean and purifies it through a series of advanced techniques: microfiltration, reverse osmosis, ultraviolet disinfection and hydrogen peroxide. The cleaned water is returned to the groundwater basin to increase both water supply and quality. The GWR system has established a blueprint for large-scale wastewater purification that is already being emulated in dry regions and nations, such as Singapore.

The Stockholm Industry Water Award honours and encourages business sector contributions to sustainable development in the water sector and is presented each August at the World Water Week in Stockholm. It was established in 2000 by the Stockholm Water Foundation in collaboration with the Royal Swedish Academy of Engineering Sciences and the World Business Council for Sustainable Development. For more information visit the Stockholm International Water Institute (SIWI) website: www.siwi.org.

Website and Email list

On behalf of IAH the Co-Chairs wish to thank the British Geological Survey for hosting and maintaining the IAH-MAR web site, and Flinders University via Centre for Groundwater Studies which has continued to host the email list which can be joined from the website. There are more than 200 members on this list. Anyone wishing to be informed of IAH-MAR Commission activities and news is welcome to join. If non-members of IAH find this helpful, this gives only a sample of the benefits of joining as a full member of the IAH family.