

International Association of Hydrogeologists
COMMISSION ON MANAGEMENT OF AQUIFER RECHARGE
ANNUAL REPORT 2009

Co Chairs: Peter Dillon (Australia) - peter.dillon@csiro.au

Ian Gale (UK) – i.gale@bgs.ac.uk

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 2009:

1. Plenaries

A plenary session of the Commission held at the joint IAH/IAHS Congress Sept 2009 in Hyderabad, India was attended by 27 participants. Topics covered included; Launch of the 3Rs book http://www.cpwec.nl/UserFiles/File/3r_managing_the_water_buffer_2009.pdf , announcement of MAR-NET, progress of working groups, regional and country activities as well as communication activities. The presentations shown at the plenary are on the IAH-MAR web site at http://www.iah.org/recharge/MAR_meetings.htm . The next Plenary Session is to be held in October 2010 at ISMAR7 in Abu Dhabi.

2. Launch of MAR-NET

A workshop of the Commission held on 10 September 2009 at the joint IAH/IAHS Congress in Hyderabad, India was attended by 38 participants. The vision, activities, specific objectives and membership of the network are described at <http://www.iah.org/recharge/downloads/MAR-NET%20flyer-Sept%202009.pdf> . The inaugural meeting of MAR-NET had the theme of “*Lessons from MAR experiences in India*” at which invited speakers from CGWB, NGRI and other leading groups from India as well as Central Asia gave presentations. These were followed by discussion on six key questions. Notes from the meeting are at: <http://www.iah.org/recharge/downloads/MAR-NET%20Workshop%20Hyderabad%2010Sept%202009.pdf>

3. Websites

During 2009 IAH-MAR websites were established in Spanish (thanks to Enrique Fernandez-Escalante, TRAGSA, Madrid) and Chinese (thanks to Weiping Wang, University of Jinan, China). Material on these sites is derived from selected translations from the English web site (maintained by Ian Gale and John Talbot at BGS, UK) as well as from original publications in Spanish and Chinese.

The sister websites are found at:

www.iah.org/recharge <http://www.dina-mar.es/> <http://china-mar.ujn.edu.cn>

4. Email List

Flinders University has hosted the email list for IAH-MAR since 2002. In July 2009 the Centre for Groundwater Studies was subsumed into the new National Centre for Groundwater Research and Training and that Centre has agreed to continue to run the email list. There were 300 active emails on the list in September 2009, up from 200 in 2002, but new members have been just balancing the attrition rate since about 2006. The list can be joined from the English website

http://www.iah.org/recharge/MAR_contacts.htm for IAH members and non-members alike. We hope non-members of IAH find this helpful and encourage you to join IAH and enjoy the full benefits of membership.

5. Progress of Working Groups (established at Plenary at ISMAR6, Phoenix 2007)

Six new work groups were initiated in Dec 2007; their objectives and progress are as follows;

1. **Governance review** - an Australian Govt funded project will result in a publication on policy framework for managed aquifer recharge expected mid 2010. More work is needed on an international front (volunteers welcome)
2. **Document benefits and costs of MAR projects** - an Australian Govt funded project was published in Feb 2009 that starts to address both these issues for eight stormwater ASR projects and an agricultural pond infiltration project.
<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 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 (<http://www.dina-mar.es/>) for Spanish publications on MAR.

Dr Weiping Wang has translated the document into Chinese for UNESCO and web-published it in mid-2009 at the Chinese MAR web site established by University of Jinan. <http://china-mar.ujn.edu.cn>

4. **MAR movie**; - Enrique Fernandez-Escalante has started to collate an inventory of DVDs, videos Information welcome from anyone on any videos of MAR projects or educational videos on MAR.
5. **Clogging review** - no progress. Volunteers welcome with information on rates of clogging and unclogging of wells and basins.

6. MAR demonstration and training network; ✓ towards appropriate and selective use of MAR to efficiently achieve UN Millennium Development Goal for Water Supply. A small meeting was held at International Groundwater Symposium, Bangkok 16-19 Feb 2009 to explore ways of advancing this concept. It was agreed to establish a UNESCO-IAH Network to progress this and at Hyderabad in Sept. 2009. MAR-NET was launched, and meetings were held to advance MAR-NET in India, China, and sub-Saharan Africa.

7. Workshops and meetings in 2009:

- Bangkok, Thailand, 16-20 Feb 2009. Int. Symp. on Efficient Groundwater Management. UNESCO/IAH-MAR network meeting held at symposium to identify objectives and activities for MAR-NET. (See photo of delegates below).
- Kuala Lumpur, Malaysia, Mar 2009
- Singapore, June 2009
- Hanoi, Vietnam, 29-30 June 2009
- Hyderabad, India, 6-12 Sept 2009
http://www.iah.org/news_current_popup.asp?id=90
- Brisbane, Australia, 21-25 Sept 2009 <http://www.reuse09.org/>
- Mallorca, Spain, Oct 2009
- Cape Town, South Africa, Oct 2009
- American Groundwater Trust 28-29 Sept 2009
http://www.agwt.org/events/1Aquifer_Mgmt&ASR.htm
- 3Rs book launched in Stockholm water week.
http://www.cpwc.nl/UserFiles/File/3r_managing_the_water_buffer_2009.pdf

8. Future Symposia

ISMAR7 will be in Abu Dhabi, United Arab Emirates 9-13 October 2010.

<http://www.ismar7.org/index.php>



Delegates at UNESCO/IAH-MAR network meeting in Bangkok

UNESCO-Italy-Vietnam Workshop: Adapting to climate change: evaluating impacts of sea level rise by climate change on coastal zones and - solutions for monitoring saltwater intrusion and sea level rise, Hanoi 29-30 Jun 2009.

The meeting consisted of about 60 scientists from Institutes of the Vietnam Academy of Science and Technology, Ministries of Planning and Investment, Science and Technology, Natural Resources and Environment, and representatives of regional government and various UN agencies.

Sea level is rising at 2mm/yr, typhoon intensity and frequency is increasing, irrigation is increasing as electrification spreads out. Over many areas of coastal Vietnam, and on islands such as Spratley Islands, groundwater supplies are salinising. Fortunately the predominant well type is shallow dug wells rather than tube wells which can significantly reduce piezometric pressures and accelerate saline intrusion. The Vietnamese coastline is 3822km long, and the area of land lower than 10m above sea level is 40% of the area of Vietnam, is inhabited by 76% of the population and accounts for 91% of GDP. MAR can play a supporting role with demand management and supplemental supplies to protect groundwater resources

The workshop and field trip to Ninh Thuan to assess potential for MAR were organised by Phan Kim Van (Institute of Geosciences Hanoi) and Giuseppe Arduino (UNESCO Jakarta).



Mallorca Workshop on Managed Aquifer Recharge

20-23 Oct 2009

Intl Water Resources Assoc, Spanish Group

This workshop was organised by Jose Antonio de la Orden, Jose Manuel Murillo, Rosa Maria Mateos and Alfredo Baron Periz at Caixa Forum, Palma de Mallorca. It had an excellent attendance, with a large number of international delegates and Spanish-English translation. Huge advances are being made in Spain in applying MAR for water security and protecting aquifers. Jose de la Orden and Jose Murillo edited a special issue of the Boletin Geologico y Minero, Journal of Earth Sciences 120 (2) devoted to MAR and containing 15 papers.



Participants of the Mallorca workshop on the field tour

MAR-NET Cape Town Workshop - 26-29 October 2009

This workshop at University of Western Cape was attended by ~ 60 people from 10 African countries, including 11 invited UNESCO delegates, 3 foreign invitees, post-graduate students from the UNESCO Chair Centre for Groundwater at UWC.

Nine invited lecturers including Dr Marcel Tchaou, UNESCO IHP rep for SADC region Prof. Yongxin Xu (UNESCO Chair in Groundwater at UWC) and Dr R. C. Jain (CGWB, India) gave two days of talks. The third day was devoted to a field visit to Atlantis MAR site that involves harvesting stormwater and sewage for treatment and recharge via infiltration ponds and recovery from a nearby well field, softening and augmenting the drinking water supply. On the fourth day presentations were made by UNESCO delegates to outline their concepts for the possibilities for MAR in their countries and to form plans for activities of the UNESCO-IAH network on MAR (MAR-NET) that would address the UN Millenium Development Goal for Water Supply.



Attendees at MAR-NET workshop visited Atlantis MAR water recycling system hosted by Dr Gideon Tredoux.

It was noted that in 2008 Africa had 340 million people without access to safe drinking water supplies, yet as a continent less than 4% of the water resource was committed.
