

## **FOURTH WORLD WATER FORUM**

SESSION FT5.33

MARCH 21ST, 2006, 16:45- 18:45

CASA MONTEJO 2

### **THE MANIFOLD DIMENSIONS OF GROUNDWATER SUSTAINABILITY**

#### **SESSION REPORT**

##### **SESSION CONVENERS**

Royal Academy of Sciences (Spain) (RAS)  
National Ground Water Association (USA) (NGWA)  
Instituto Geológico y Minero de España (IGME)

##### **KEYNOTE SPEAKERS AND PANELLISTS**

Ramón Llamas (RAS)  
Stephen Ragone (NGWA)  
Juan Antonio López Geta (IGME)

Alice Aureli (UNESCO)  
Rubén Chávez (CONAGUA)  
Juan Fornes (IGME)  
Luis E. Marín (UNAM)  
Jaroslav Vrba (UNESCO-IHP)  
Rubén Covarrubias (CONAGUA)

##### **CONVENORS GENERAL REMARKS ABOUT THE SESSION**

The main goal of the session was to present and to discuss the results of the INTERNATIONAL SYMPOSIUM ON GROUNDWATER SUSTAINABILITY (Alicante, Spain 24-27 January, 2006) and the ALICANTE DECLARATION. The contents were enriched by two local actions of CONAGUA, which were presented by Ruben Chávez and Ruben Covarrubias. Juan Antonio Lopez Geta and Juan Fornés presented two other local actions by the IGME

The emphasis of the debate was on the characteristics, pros and cons of the INTENSIVE GROUNDWATER USE SILENT REVOLUTION. This is a new and recent phenomenon that up to now has deserved scarce attention from the high-level water decision-makers but that is crucial in the real water policy of arid and semiarid regions.

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##### **SYNOPSIS**

The agenda of the session is the following:

## THE MANIFOLD DIMENSIONS OF GROUNDWATER SUSTAINABILITY

TUESDAY MARCH 21ST, FROM 16:45 TO 18:45

### FIRST PART. Presentation by the conveners (45 MINUTES)

1. Ramon Llamas. (Spanish Royal Academy of Sciences) (10 minutes). Origin and aim off this session and what does groundwater sustainability means?
2. Stephen Ragone (National Ground Water Association) (10 minutes). The Alicante Declaration.
3. Juan Antonio Lopez Geta (Instituto Geologico y Minero de España) (10 minutes) The characterization of groundwater bodies in the European Union Water Framework Directive.
4. Questions from the audience and answers (15 minutes).

### SECOND PART. Round Table. Panelists from the ISGWAS and CONAGUA and the audience (80 MINUTES)

Panelists (about 6 minutes each)

1. Alicia Aureli (UNESCO) Groundwater in the Intern, Hydrological Program.
2. Rubén Chavez (CONAGUA) Determinación de la disponibilidad media de las aguas nacionales en México.
3. Juan Fornes. The Internet groundwater information system in Spain.
4. Luis E. Marin (UNAM) Using the Trialogue for Groundwater Sustainability.
5. Jaroslav Vrba (UNESCO-IHP) Groundwater sustainability Indicators.
6. Rubén Covarrubias (CONAGUA) Estabilidad del acuífero del Valle de Santo Domingo- México.
7. Questions form the audience and answers (about 25 minutes).

### **LOCAL ACTIONS PRESENTED DURING THE SESSIONS**

Four local actions were presented during the session. The first three were already included in our proposal.

1. LA 1698 Determinación de la Disponibilidad media anual de las aguas nacionales de México CONAGUA.
2. LA 1764 Information system on groundwater in Spain IGME.
3. LA 1765 Groundwater bodies characterization in Spain, IGME (this local action will be presented jointly with the previous one in order to save time.
4. LA 0598 Estabilización del acuífero del Valle de Santo Domingo CONAGUA.

### **LESSON LEARNED**

As previously mentioned the main goal of the session will be to debate the ALICANTE DECLARATION, which is appended here.

The **Alicante Declaration** is the action agenda that resulted from the debates held during the celebration of the **International Symposium on Groundwater Sustainability (ISGWAS)** that was held in Alicante, Spain, on January 23rd-27th, 2006.

The ISGWAS symposium is part of the Interacademy Panel's (IAP) Water Program for the triennium 2004-2006. The IAP delegated in the Spanish Royal Academy of Sciences (RAC) the organization of the symposium. The RAC subscribed an agreement with the Geological Survey of Spain (IGME), who was responsible for the organization, coordination and financing of the ISGWAS Symposium.

Individuals can endorse the Alicante Declaration by sending an e-mail to: [mc.hernandez@igme.es](mailto:mc.hernandez@igme.es). Under Subject write: "Alicante Declaration", and include in the message your name and country. The deadline for individual endorsements is May 1st, 2006.

Institutional endorsements are also encouraged. Institutions who wish to endorse the Alicante Declaration should contact Juan Antonio López Geta, Director of Hydrogeology and Groundwater of the Geological Survey of Spain at [lopez.geta@igme.es](mailto:lopez.geta@igme.es) for more information. There is no deadline for institutional endorsements.

**The Alicante Declaration**  
**The Global Importance of Ground Water**  
**A call for action for its responsible use, management and governance**

Water is essential for life. Groundwater—that part of all water resources that lie underneath land surface—constitutes more than ninety five percent of the global, unfrozen freshwater reserves. Given its vast reserves and broad geographical distribution, its general good quality, and its resilience to seasonal fluctuations and contamination, groundwater holds the promise to ensure current and future world communities an affordable and safe water supply. Groundwater is predominantly a renewable resource which, when managed properly, ensures a long-term supply that can help meet the increasing demands and mitigate the impacts of anticipated climate change. Generally, groundwater development requires a smaller capital investment that surface water development and can be implemented in a shorter timeframe.

Groundwater has provided great benefits for many societies in recent decades through its direct use as a drinking water source, for irrigated agriculture and industrial development and, indirectly, through ecosystem and streamflow maintenance. The development of groundwater often provides an affordable and rapid way to alleviate poverty and ensure food security. Further, by understanding the complementary nature of ground and surface waters, thoroughly integrated water-resources management strategies can serve to foster their efficient use and enhance the longevity of supply.

Instances of poorly managed groundwater development and the inadvertent impact of inadequate land-use practices have produced adverse effects such as water-quality

degradation, impairment of aquatic ecosystems, lowered groundwater levels and, consequently, land subsidence and the drying of wetlands. As it is less costly and more effective to protect groundwater resources from degradation than to restore them, improved water management will diminish such problems and save money.

### **Call for Action**

To make groundwater's promise a reality requires the responsible use, management and governance of groundwater. In particular, actions need to be taken by water users, who sustain their well-being through groundwater abstraction; decision makers, both elected and non elected; civil society groups and associations; and scientists who must advocate for the use of sound science in support of better management. To this end, the undersigned recommend the following actions:

- Develop more comprehensive water-management, land-use and energy-development strategies that fully recognize groundwater's important role in the hydrologic cycle. This requires better characterization of groundwater basins, their interconnection with surface water and ecosystems, and a better understanding of the response of the entire hydrologic system to natural and human-induced stresses. More attention should be given to non-renewable and saline groundwater resources when such waters are the only resource available for use.
- Develop comprehensive understanding of groundwater rights, regulations, policy and uses. Such information, including social forces and incentives that drive present-day water management practices, will help in the formulation of policies and incentives to stimulate socially- and environmentally-sound groundwater management practices. This is particularly relevant in those situations where aquifers cross cultural, political or national boundaries.
- Make the maintenance and restoration of hydrologic balance a long-term goal of regional water-management strategies. This requires that water managers identify options to: minimize net losses of water from the hydrologic system; encourage effective and efficient water use, and ensure the fair allocation of water for human use as well as ecological needs, taking into account long-term sustainability. Hydrological, ecological, economic and socioeconomic assessments should be an integral part of any water-management strategy.
- Improve scientific, engineering and applied technological expertise in developing countries. This requires encouraging science-based decision-making as well as "north-south" and "south-south" cooperation. Further, it is important that funds be allocated for programs that encourage the design and mass-dissemination of affordable and low-energy consuming water harnessing devices for household and irrigation.
- Establish ongoing coordinated surface water and groundwater monitoring programs. This requires that data collection become an integral part of water-management strategies so that such strategies can be adapted to address changing socio-economic, environmental, and climatic conditions. The

corresponding data sets should be available to all the stakeholders in a transparent and easy way.

- Develop local institutions to improve sustainable groundwater management. This requires that higher-level authorities become receptive to the needs of local groups and encourage the development and support of strong institutional networks with water users and civic society.
- Ensure that citizens recognize groundwater's essential role in their community and the importance of its responsible use. This requires that science and applied technology serve to enhance education and outreach programs in order to broaden citizen understanding of the entire hydrologic system and its global importance to current and future generations.

## **KEY MESSAGES**

The key message was a reinforced **ALICANTE DECLARATION** in agreement with the results of the debate in the session.

## **ORIENTATIONS FOR ACTION**

1. On Tuesday, March 21<sup>st</sup> CONAGUA (Dr. Felipe Arreguín) organized an **INTERNATIONAL ROUND TABLE WITH THE PRESS ON GROUNDWATER ISSUES**. Dr. Arreguín, Prof. Llamas and Ing. Ruben Chavez answered that questions of the journalists
2. The two world leaders scientific magazines on groundwater (Hydrogeology Journal and Ground Water) have invited to Steve Ragone and Ramon Llamas to write an invited editorial in each magazine to present the results of the debate on the **ALICANTE DECLARATION** in the FT5.33 session.

Madrid, March 25<sup>th</sup>, 2006