



CAZALAC

Water Center for Arid and Semiarid Zones in Latin America and the Caribbean

Newsletter N°9 - February 2004

PRESENTACIÓN

Dear Friends:

¹The variation of poor rainfall amounts and the high evaporation potential are the most crucial factors in arid and semi-arid environments. The communities living in these territories have historically included the use of traditional agricultural methods, dry barren land cattle raising and limited options of underground water use. However, the introduction of modern agriculture methodologies, irrigation ditches, power pumping and the growth of cities and townships has completely changed this original environmental balance.

In addition, the available water resources are not the only important variable when planning, developing and managing water resources. Quality is equally relevant, in particular in arid zones where the amount of rainwater incoming to the system is small. In these cases, there is high risk of accumulating salts in the ground and, for underground water, the risk represented by fertilizers and other agriculture consumables in addition to urban and industrial waste that, in total, further reduces the amount of water available for use. Another point, often negative, is torrential rainfall and sudden floods that may cause human life losses and serious damages to both the economy and the environment.

In any case, underground water resources accumulated under the surface significantly help to offset the important variability of rainfall in these territories. Thus, the evaluation of superficial and underground water resources must be done rigorously, including a thorough understanding of both resources use and development, visualized as an interactive and mutually dependant set.

There is a significant variety of methods and practices to improve water use in dry zones, like superficial run-off water management, artificial recharge of underground water deposits, sewage recycling, and desalinization, among others. However, appropriately ensuring water quality is essential. Therefore, there is an increasing need of a deep knowledge and understanding of hydrologic processes by direct users, professionals and researchers related with the different issues regarding water resources in arid and semi-arid zones, especially in relation to permanent changes in the relevant scenarios resulting from the increasing pressure represented by population and weather changes that can already be perceived. Therefore, to achieve an effective and sustainable management, it will be necessary to keep an appropriate knowledge level, a continuous monitoring and a science structure that will make it possible to permanently assess the effect of human activities on land and water resources.

From CAZALAC's home office we therefore encourage all those involved in water management and research in arid and semi-arid zones in Latin America and the Caribbean to reinforce dialogue, so that together we progress towards a better quality of life in our societies and an improved nature around us.

Guido Soto, Executive Director.

¹ Note: Extract adapted from UNESCO's publication: Understanding Water in a Dry Environment - Hydrological processes in arid and semi-arid zones (2003). Chapter 8, S. M. Seth, Human impacts and management issues in arid and semi-arid regions.

FIRST MEETING TO ASSESS CAZALAC FORMATION AND START UP



Ministry of the Flemish Community
Science and Innovation Administration



The Water Center for Arid and Semi-Arid Zones in Latin America and the Caribbean (CAZALAC) started up in 2003 with the project Formation and Start Up of CAZALAC, under a covenant between the Chilean Government and the UNESCO, with the financial support of the Flanders Government, Belgium. The first meeting to assess this project was held on January 22 and 23, 2004 in La Serena, where CAZALAC has its home office. The UNESCO, the Chilean Government and the Flanders Government (Belgium) were represented in the Directing Committee.

The main objectives of this meeting were, on the one hand, to assess and review the Center's goal fulfillment in the first year of operation and, on the other, to define the activities to be developed in 2004 and 2005.

The account presented by the Center's Executive director was favorably evaluated by the Directing Committee and mainly referred to the actions taken to establish the juridical and administrative basis and to provide basic facilities and staff in the first stage and to develop a disseminating program (web site, newsletters) for the Center. The valuable support of the UNESCO- Flanders fiduciary fund was highlighted, as well as the important technical support provided by UNESCO-Paris, the Regional Hydrologist of UNESCO-ROSTLAC and the Flanders Government, in addition to the assistance provided by experts from several organizations and countries that collaborated in the Center activities during 2003.

The **workshop on strategies to develop the Center** (January 2003), which was held to set the Center's program guidelines and the role to be played by CAZALAC in LAC was favorably evaluated, as well as the **international course on soil hydrology in arid zones**, developed in November 2003, within the framework of the ELAFIS. Also, the activities and results from several international meetings and workshops where the Center participated were reported (Wadi: UNESCO-Paris; Delft: Water Education; La Habana: UNCCD; Montevideo: Isarm).

The views regarding the expectations of UNESCO and the Chilean and Flanders Government have for CAZALAC were agreed upon and how each will collaborate to continue progressing with this project, considering that the CAZALAC project is a particular priority for the international collaboration of the Science and Innovation Management Ministry of Flanders.

It was also concluded that the Center needs to start actions aimed at obtaining UNESCO's sponsorship and that - at a domestic level - it must take the steps required to become an actually international organization. A complete text of the meeting report can be found in CAZALAC's web site.

PARTICIPANTS:

UNESCO:

Dr. Alberto Tejada-Guibert, Associate Secretary, International Hydrologic Program (PHI), Water Science Division.

Flanders Government:

Dr. Rudy Herman, Head Researcher, Technology and Innovation Div., Management of Science and Innovation, Flanders Ministry.
Dr. Donald Gabriels, Soil Department, University of Ghent, Flanders.

Chilean government:

Eng. Carlos Salazar, Head of the Study and Planning Dept., General Directorate of Water, representing the President of CAZALAC's Board of Director, Eng. Humberto Peña, General Water Resources Director and President of CONAPHI-Chile.
Eng. Edmundo González, teacher at University of La Serena, representing the Principal of the La Serena University, a member of CAZALAC's Board.

Dr. Roberto Pizarro, professor of the subjects Basin Management and Hydrology, School of Forest Engineering, School of Forest Sciences, University de Talca.

CAZALAC:

Eng. Guido Soto, the Center's Executive Director.

Experts Invited:

Dr. Deyanira Lobo, Institute of Edaphology, School of Agriculture, Universidad Central de Venezuela and Coordinator of ELAFIS.

Eng. Arturo Ruiz, Regional Water Resources Director (Alternate), for the IV Region Coquimbo.

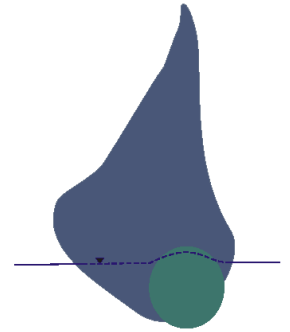
Eng. Manuel Soto, CAZALAC.



FIRST COLOMBIAN HYDRO-GEOLOGY CONGRESS – MARCH 17 TO 19, 2004

The First Colombian Hydro-geology Congress will be held in Medellín, Colombia on March 17 – 19, 2003.

The program of this congress is aimed at resuming discussions and presenting the progresses in the underground water field. This instance will allow making a balance of progress obtained at a local and global scale on a regular basis. Topics will focus on proposing and identifying underground water resources as a social and economic development factor for the country.



Objectives:

- To present the progresses obtained in the following disciplines: underground water resources, hydrology, geology, hydro-geology, engineering, chemistry, environmental sciences and techniques and well digging, among others.
- To invite water managers, users and politicians interested in this issue to exchange information on underground water resources.
- To analyze national policies on underground water sustainable management and preservation in forums.

More information can be requested from: Alberto Lobo - Guerreo Uscátegui, President of the Colombian Hydro-geologist Association – ACH. // Executive Secretary: Maria Consuelo Vargas Quintero. Ingeominas. mvargas@ingemin.gov.co Phone: (571)220 01 49.

This congress will develop specific topics to integrate and discuss relevant aspects of underground water resources in Colombia as a developing driving element.

General topics of presentations

- Water and culture
- Environmental hydro-geology
- Isotopic geo-chemistry and hydrology
- Underground water and geotechnia
- Underground water and mining
- Thermal and mineral water resources
- Groundwater deposit recharge
- Groundwater deposit management
- Regulations and policies.

Special Lectures

Experts will present lectures on the following topics

- Underground Water Management in Geotechnia.
- Hydro-geology in fractured rocks.
- Intensive use of Underground Water Resources.
- Climate changes

WATER EXPO 2004 – CUBA, MAY 4 TO 8, 2004

The 5th Edition of the International Expo of Water Products and Technology, EXPO WATER 2004 will take place in La Havana, Cuba on May 4-8, 2004 in the PABEXPO exhibition precinct.

The National Institute of Water Resources will use this opportunity to organize the 1st Scientific – Technical Expo Water Symposium 2004, to create a participation space that will encourage and ease the exchange of technical and scientific experiences among hydraulic researchers and professionals and other related fields

Master lectures presented by renown personalities, round tables, workshops and poster exhibitions will take place in this event.



The following issues will be addressed in this meeting:

- Water treatment technologies.
- Techniques and methods to monitor water quality.
- Equipment for water laboratories.
- Measurement equipment and instruments.
- Submarine emissary building techniques.
- Specialized equipment to build conducts in urban networks: directed drilling, micro-tunnels. Moles.
- Technologies for small hydro-power facilities.
- Irrigation machines, equipment and systems.
- Hydraulic work monitoring and measuring equipment.
- Technologies to drill water wells.
- Technologies for rotating drilling used in geological, hydro-geological and soil mechanic studies.
- Underground water geo-physical and monitoring methods.
- Equipment to measure the hydrological cycle parameters.
- Software to design water supply facilities, irrigation systems and shrimp cultivation facilities.
- SIG for Network Mapping.
- Automatization and monitoring of water supply services. Remote command and remote control systems.
- Flood prevention and automatic systems to monitor superficial water run-off.
- Dam waterproofing.

The 1st Science and Technique Symposium will address the following issues and fields:

WETLANDS

Regulation and integrated management
Artificial wetland projects and management

WATER AND SANITATION

Making water drinkable, desalinization and disinfecting
Sewage treatment
Sanitary planning

HYDROLOGY

Mathematics models
Hydrologic prevention and disaster mitigation
Hydro-geology, contaminant haulage, salt intrusion

HYDRAULIC ENGINEERING

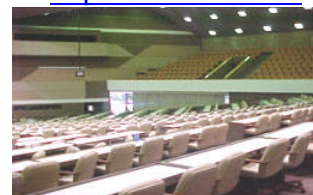
Ditch hydraulics
Exploitation current gauging
Hydro-technical works

Additional information at the following e-mail:

aimee@hidro.cu and in the web site: <http://www.hidro.cu>

Place of event: La Havana
Convention Palace

<http://www.complejopalco.com>



CAZALAC – UNCCD COVENANT



Since some guidelines and objectives of both institutions regarding the water resources issue in arid zones of LAC coincide, a cooperation covenant between CAZALAC and the United Nations Convention to Combat Desertification is in progress.



The cooperation between the UNCCD and UNESCO - the focal point of which will be CAZALAC for those issues regarding water resources in Latin America and the Caribbean - will develop according to the following modalities:

- Support the LAC member countries to carry out activities required by the Convention, particularly with respect to designing and implementing national, sub-regional and regional programs – at the relevant levels – in relation to sustainable water use and management to combat desertification and drought.
- Regular consulting between both organizations, to ensure a continuous information exchange regarding the progress in designing and implementing the actions expected from the region.
- Support and development of joint campaigns aimed at obtaining funds to implement the planned activities.
- An activity report indicating the contributions made by each institution to the process will be prepared and exchanged on a regular basis.

The agreement draft is in its last preparation and approval stage by both institutions. Final subscription is expected for March 2004.

We expect that this agreement and any subsequent initiatives resulting from its implementation will generate an improvement of water management in the regional arid and semi arid zones, as the actions developed jointly by both institutions – as well as by those that may add up – will have a greater support and coordination.

SIXTH POST-GRADUATE ENVIRONMENTAL HYDROLOGY COURSE - APRIL - JULY 2004



The Department of Geologic Sciences, which belongs to the School of Exact and Natural Sciences of the University of Buenos Aires, will carry out the sixth version of the post-graduate course of Environmental Hydro-geology, addressed to licentiates or doctors in geologic, biologic, chemistry, physics sciences, engineers and similar specialties.

This course will be developed in the University City, (UBA), Pavilion II (1428), Buenos Aires, from April 5 to July 26, 2004, on Mondays from 17:00 to 19,30. Only 25 students will be accepted in the course. Forty five class and seminar hours will be provided in total, in addition to a final test. An approval certificate will be delivered.

Dr. Miguel Auge, Regular Teacher of Hydro-geology at the University of Buenos Aires and Researcher for CONICET will be the professor in charge of the course, miguelaug@uolsinetis.com.ar

Enrollment cost: \$ 300

More information and enrollment form can be requested from:

Secretary of the Geologic Science Department - Ciudad Universitaria - Pabellón II (1428) Buenos Aires - Telefax 4576 3329

geol@gl.fcen.uba.ar

Aspects to be addressed in the course are:

- 1. Suitability of underground water resources.** Environmental hydro-geology, definition and insertion in hydrologic sciences. Global preservation of natural resources. Water in the planet. Water use in the World. Water in Argentina.
- 2. Contamination sources,** types (natural, directly and induced artificial sources) and characteristics according to its origin (urban, domestic, industrial and agricultural).
- 3. Characteristics and behavior of contaminants.** Sub-saturated zone dynamics. Behavior of most common pollutants (nitrates, pesticides, metals, hydrocarbons). Saturated zone; specific and diffuse contamination; examples.
- 4. Superficial – underground water relation.** Affluent and effluent rivers, their incidence in the contamination of either resource; examples.
- 5. Flow mechanisms and contamination in environments with inter-granular porosity and fissuring.** Dynamics differences, in transportation and spot areas; examples.
- 6. Delimitation of risk zones; principles and measures.** Protection perimeters. Monitoring. Vulnerability levels; methods to determine it; examples.
- 7. Quality, productivity and availability management and preservation.** Types of deposits; secured flow; examples.
- 8. Remedies.** Frequently used techniques and methods to improve water and soil quality; examples.
- 9. National and international standards and legislation** on environmental preservation, problem for applicability.
- 10. Local and foreign examples of water deposit impairment** due to over-exploitation and pollution. Remedies attempted, limitations.

IV URUGUAYAN GEOLOGY CONGRESS – SEPTEMBER 8 – 10, 2004



The URUGUAYAN GEOLOGY SOCIETY Directing Commission has made an invitation addressed to the neo-scientific community to participate in the IV URUGUAYAN GEOLOGY CONGRESS and also in the II ENVIRONMENTAL GEOLOGY AND TERRITORIAL REGULATIONS MEETING OF THE MERCOSUR, to be held in Montevideo next September 8, 9 and 10.

The Organizing Commission of this event is composed by: Enrique Massa (President), Elena Peel (Secretary), Adriana Mezzano (Treasurer), and the following directors: Roberto Carrión, Miguel Curbelo, Walter Heinzen, Alberto Manganeli, Rossana Muziom y Andrés Pérez.

The participating projects, related to any of the above topics, must be original and submitted before April 30, 2004. Presentation standards are available at the web site www.sugeologia.org. Accepted and enrolled projects will be published in Rom.

ORGANIZER
Uruguayan Geology Society
www.sugeologia.org

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EVENT AGENDA

- Stratigraphy and Paleontology
 - Sedimentology
 - Structural Geology
- Geo-tectonics and Geo-physics
 - Petrology and Geo-chemistry
 - Mineralogy
 - Economic Geology
 - Ore Resources
 - Regional Geology
 - Geo-techniques
 - Basin management
- Territorial Regulations
- Mining and Environment
 - Geo-morphology and edaphology
 - Geologic risks
 - Geo-indicators
 - Hydro-geology
- Mining and Environmental Legislation
 - Geology teaching

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Heading photograph: Salina Grande Wetland, IV Region Coquimbo – Chile