



1  
REPORT

REGIONAL MEETING G-WADI / LAC

Juan Dolio, Dominican Republic, July 1st, 2011

*G-WADI: A Global Network on Water and Development Information in Arid Lands*

## INDEX

I. Introduction	3
II. Objectives	4
III. Opening Act and G-WADI Program Information	5
IV. Presentations of Participating Countries	7
V. Exchange of Ideas	12
VI. Discussion	13
VII. Possible Lines of Action	15
VIII. Working Plan – Short Term Action	16
List of Participants	17

Report prepared by Guido Soto and Manuel Soto of CAZALAC.

The authors are grateful for the collaboration received from Jorge Ellis, Specialist in Natural Science, from the Office of UNESCO in Ecuador, in the elaboration of this report.

## I. INTRODUCTION

G-Wadi, is a program that is part of the International Hydrological Program (IHP) of UNESCO. It was established in order to constitute a global scientific community capable of receiving, integrating and distributing material coming from diverse networks, centers, organizations and individuals about the information on water and development in arid areas.

Thus, G-Wadi is a network destined to strengthen the overall capacity for management of water resources in arid and semi-arid zones throughout the world, through networks of regional cooperation. This is how G-WADI looks to promote international and regional cooperation and local initiatives for these purposes, such as alliances with NGO's.

Some of the global network's main objectives include achieving:

- A better understanding of special characteristics of hydrological systems and management of water needs in arid zones;
- To strengthen the capacity of individuals and institutions;
- Widespread of information on water in arid zones (institutions, community of users and public in general);
- Exchange of experiences; and
- To promote integrated watershed management and promote the development and use of adequate decision supporting instruments.

The CAZALAC center, along with the International Hydrological Program PHI/LAC, the University of Gante, the Pontificia Universidad Catolica of Valparaíso (PUCV), UNESCO's Chair of Eremology Course from the University of Gante, with the support and collaboration of: The Flemish Interuniversity Council (VLIR), the Global Information Network on Water and Development in Arid Zones (G-WADI), the Global Water Partnership (GWP-South America) and the Chilean Committee of the International Hydrological Program of UNESCO (CONAPHI-Chile), developed, during December of 2010, the ASADWA International Conference (Arid and Semi Arid Development Through Water Augmentation). In the frame of this conference, the first G-WADI/LAC Regional Meeting took place, in order to create the G-WADI network in the region of Latin America and the Caribbean, and in order to establish a working group for this program in the Region, coordinated by CAZALAC.

One of the main results of this Meeting was the establishment of CAZALAC to assume the Technical Secretary of the Network in the Region, in addition to the identification of the first tasks to be conducted in order to consolidate the network.

Later, in the framework of the Regional Meeting of the International Hydrological Program, celebrated in Juan Dolio, Dominican Republic, the second Regional Meeting of the G-WADI Group took place, in order to establish a strategic program for the implementation of the network and to define the main lines of action for the Region.

## **II. OBJECTIVES**

- Definition of the main lines of action of the G-WADI/LAC Network.
- Expand the Network to a higher number of participating countries.
- Definition of short-term actions 2011-2012.

## **MEETING AGENDA**

### **III. OPENING AND G-WADI PROGRAM INFORMATION**

The opening of the Network meeting, served to welcome participants such as Mr. Alberto Tejada, representative of the International Hydrological Program of UNESCO; Will Logan, representative of the International Center for Integrated Water Resources Management under the auspices of UNESCO – ICIWaRM; and Guido Soto, Executive Director of the Center of Water for Arid and Semi-Arid Zones of Latin America and the Caribbean – CAZALAC.

Mr. Alberto Tejada referred to the G-WADI Program's inception, indicating how the network had achieved significant development in Asia and Africa. He also added that the ICIWaRM Center had acquired global coordination of the Program, implementing the G-WADI Website.

Will Logan added insights about the G-WADI Program as a tool of coordination, in which the Website would promote the exchange of information, where different regions can edit their own pages and, how at the same time, this instance could become a stimulus of coordination and coordinated work between diverse specialists and Centers.

Mr. Tejada also explained that G-WADI is a network which has collaborated in the development of several activities such as:

- WADIS Hydrology Courses
- Hydrology Modeling Courses
- Provision of financial resources such as Project seed capital (mostly funds from Flanders).

#### **G-WADI Website Presentation**

Will Logan made his presentation of the new G-WADI Network's Website, in charge of ICIWaRM. Some of the most relevant information shown on the Website is regarding space destined for Regional Centers, Files, Tools and Resources, Working Networks, Technical Secretary and News.

Additionally, Mr. Logan noted the possibility for regional program coordinators to access, add and modify content on projects, actions and regional programs installed on the G-WADI Website. CAZALAC expressed their interest in the use of this tool, in order to upload and distribute contents of the G-WADI/LAC Network.

## CAZALAC Presentation

The Director of CAZALAC, Mr. Guido Soto, made an exposition on the main activities carried out in the previous period. He mentioned initiatives of: Publication of an Atlas of Arid Zones in Latin America and the Caribbean (technical document in English and Spanish, publication of Atlas in Website of the Center through Google Maps), progress in the project of Regional Analysis of Frequency of droughts in pilot areas of ALC (methodological progress, courses and shops conducted recently, publication on the CAZALAC Website of first version of Drought Atlas in pilot area included within the region of Coquimbo and O'Higgins – Chile, etc.).

Additionally, CAZALAC informed on activities such as:

- Development of previous G-WADI/LAC Regional Meeting (December 2010) after which the Center assumed control of coordination of the network in the ALC region.
- Beginning of implementation of the Project "Development of a model for sustainable water management at Valle del Huasco (Huasco Valley), through the evaluation of environmental flows and economical value of hydrological services", Region of Atacama, Chile.
- Development of the initiative on Desalination by Reverse Osmosis for the supply of water in Isla Damas (Damas Island) of the Pingüino de Humboldt National Reserve, in the Region of Coquimbo, through a system of photovoltaic energy.

Finally, information on future initiatives was given, in relation to:

- Project: IAI-CAZALAC Training Institutes
- Escuela Latinoamericana de Física de Suelos-ELAFIS. 2013 / Latin American School of Soil Physics
- Management of water and soil through production systems of deficient irrigation in the Bolivian highlands and focus on COSWAND groups.
- CAZALAC as a Center of Mitigation of Drought in Latin America and the Caribbean.
- Hydro-climatic variability and methodologies of estimation of extreme events.
- Joint actions between the Convention on Desertification (UNCCD), the PHI/LAC and CAZALAC.

#### **IV. PRESENTATIONS OF PARTICIPATING COUNTRIES**

##### **Presentation representative of Chile. Desertification and Threats in Climate Changes**

Mr. Wilfredo Alfaro, of CONAF-Chile and Focal Point to the UNCCD, developed the presentation titled “Desertification and Threats in Climate Changes”. His exposition referred to the situation in Chile, as one of the most affected countries by desertification and global drought, as well as the current challenge which represents monitoring the impact of the global change in the regime of water in dry lands as a factor of desertification, degradation of soil and drought in the country. Additionally, he referred to the importance of the role played by networks of information when dealing with the challenge of stopping the advance of the desert and desertification, and to make progress in the creation of the World Atlas of Desertification.

##### **Presentation of México.**

Mr. Israel Velasco, of the Mexican Institute of Water Technology (IMTA in Spanish), and representative of the National Mexican Committee for the International Hydrological Program, exposed the development of a Project in the State of Sinaloa in which the methodology of Papadakis agro-climatic characterization was applied.

Additionally, he explained how the subject of droughts and climate changes were being dealt with in Mexico, and the implementation of a tool for the detection and evaluation of period of extreme rain applying the SPI Index, detection of humid and deficient periods, methodologies which are tools that can be applied in the implementation of Programs of Regional Water Planning.

##### **Presentation of Brazil.**

Mr. Patrick Thomas, of the National Water Agency (ANA) of Brazil, explained hydrology conditions in the northeast of the country, one of the five biggest hydrological regions in Brazil (the most arid one), where 20% of the population lives, and only 2% of the total available water exists in this region. In this area, constituted primarily by a great semi-arid zone where marked humid and dry periods alternate, precipitation is highly concentrated for three months during the year; the reference evotranspiration is much higher than the precipitation and geological characteristics are usually adverse.

This is an area where large dams have been built, over 500 of them with individual storage capacities of 10.000.000m<sup>3</sup> each; and where important investments in conduction and distribution are taking place.

Another important program is the construction of cisterns with water harvesting systems, calculated for a family of 5 people. This works with a system in which banks donate the cisterns, hence there are not investment costs, and families must cover operation and maintenance costs.

### **Presentation of Peru.**

Mr. Julio Ordoñez, Technical Secretary of the CONAPHI-Peru and SENAMHI Officer, presented “Arid and Semi-arid Zones – Peru; Actions and Projects”. Some of the main aspects referred to were the Availability of Water, existing Hydro meteorological Network of Stations, Surveillance and Monitoring of Water, the 2010-2011 Water Regime, Climate Changes and Evolution of Glaciers, Scenarios of Water Availability, Maps of Hyper-arid, Arid, Semi-arid, Sub-humid, dry and humid Zones in Peru. 2005 Map of Arid and Humid Zones – 2010, Surveillance of Water Drought in basins in the regions of Arequipa, Moquegua and Tacna, and finally, Projections.

As far as the water situation in Peru, Mr. Ordoñez made reference to that fact that 70% of Peruvians live in the coastal area, and only possess 2% of the water available in the country; and in specific, between Tacna and Arequipa, the two most affected regions, the availability of new water resources have been officially been reported as depleted. In general, the precipitation in these arid areas is concentrated and intense, with long period of drought throughout the year. Another important problem is the clogging of dams and reservoirs in up to 50%, which results in a noticeable reduction in the storage capacity of these systems. Regarding glaciers, which 50% of those in South America are in Peru, are clearly in significant decline.

The map of Arid Zones in Peru, elaborated in collaboration with CAZALAC; has been well received by specialists and institutions, and has been enhanced with greater amounts of information. The latter has given rise to monitoring of drought incorporating the methodology of the SPI Index. Additionally, this map has been updated with information from other maps and products (Map of Desertification, Map of Water Stress, Update of Climate Map, Update of Map of Rainfall Zones and Subzones on Climate Changes and Impact of Arid and Semi-arid Zones with Water Stress).

## **Presentation of Venezuela.**

Mr. José Sottolano, part of the General Management of Basins, of the Venezuelan Ministry of Environment, explained the situation in Venezuela, as well as main activities on water resources in arid and semi-arid zones (Atlas of Arid and Semi-arid Zones in Latin America and the Caribbean, Project of Sustainable Development for Semi-arid Zones in the Lara and Falcon States, Alternative Energy Sources, Study on the Occurrence of Droughts in the region of Central Plains in Venezuela, based on the SPI Index., Monitoring of Fire Risk – Operational Program during the time of Drought in Venezuela, Forecast of Fire Danger based on output of the MM5 Model – Operational during times of drought, and the Program of Forestation and Management of Forest Areas, named “Misión Árbol” (or “Mission Tree” in English).

## **Presentation of Ecuador.**

Mr. Cristobal Punina, National Secretary of Water (SENAGUA) of Ecuador, explained the water situation in Ecuador, in addition he also commented on main actions being carried out regarding these issues.

On diagnosis exposed, was that water issues are not incorporated amongst the larger issues in water changes, for which progress is necessary in this regard.

On the other hand, as far as administration and financial issues, he mentioned that 20% of Ecuador’s foreign debt is composed of financing of hydraulic projects. Examples of important projects can be seen in the Guayas and Marabi basins.

In another aspect, he informed on the elaboration of a drought contingency plan, and the incorporation of these important issues in the frame of the Plan Ecuador.

## **Presentation of Argentina.**

Mr. Juan Carlos Bertoni, of the Universidad Nacional de Cordoba, Argentina conducted the presentation “Aspects referred to Droughts and Water Shortage in Argentina”, in which he described the hydrological situation in the country and also described the results of the Map of Arid Zones elaborated in collaboration CAZALAC for Argentina.

Additionally, he presented the map of hydric and eolic erosion, and the situation in Argentina regarding water management. With respect to the latter, he explained that each province is autonomous in the administration of the natural resources in general, and water in particular, this means that laws and province regulations are important and decisive in the management of natural resources.

He also mentioned an important turn in Argentina which happened in 1992 in benefit of natural resources and water.

Administratively, in relation to water management at present there are various institutions at different levels such as> the Federal Water Council, the Basin Committee, the National Federal Plan of Water Resources, Sector Plans of Underground Water, and as far as the monitoring of droughts, there is the National System of Meteorological Radars which contribute information in theses aspects. In addition, work is being done on methodologies of study and monitoring of droughts (PDI and SPI Indexes).

### **Presentation of the Dominican Republic.**

Mr. Pedro García, of the Ministry of Environment and National Resources of the Dominican Republic, spoke about the beginning of a Project link with UNCCD activities. He also recalled, as a key figure to understand the water situation in the Dominican Republic, that 60% of the country is classified as arid and yet, there is evidence of a general increase in precipitation, there are areas where the annual rainfall is in order of 350 - 400mm / year (Trujillo lake Basin).

Water management falls on the Ministry of Environment, but the Institute of Water Resources , the Institute for Aqueducts, the Water Supply Corporation, and local governments (municipalities) also participate in this task.

While the 6400 Act considers basin organizations, there is no current water law, which facilitates better management of water resources.

Regarding droughts, they are considered within actions of the National Office of Meteorology and the IDNRHI.

## **GUEST PRESENTATIONS**

### **Presentation Group of Snow and Ice**

Mr. Fair Ramírez, from Colombia and Coordinator of the Group of Snow and Ice for South America, revised subjects of the evolution of glaciers and the impact of Climate Changes on them.

### **Presentation of the UNCCD.**

Mr. Richard Cox of the Unit of Coordination for ALC of the UNCCD, developed his presentation on the Convention of Desertification and its relation with water issues.

The UNCCD was established in 1994, but has begun only a few years ago to get involved to water issues.

The UNCCD is a member of the UN Water Group, along with 27 organisms. Additionally, he announced that during 2012, the UNCCD will begin participating in the WWAP in Marseille.

The Convention is working on water issues: It will participate in the World Water Forum, and is in the process of drafting a declaration, as well as the in Stockholm in the Stockholm International Water Week (SIWW), and on the Global Dialogue on Drought at the COP (UNCCD), regarding three points: relate water issues to the UNCCD, evaluation of progress in mitigation of drought and the evaluation of impacts.

Mr. Cox then referred to existing mechanisms of coordination in the ALC Region and where the issue of WATER could be included.

- Regional Action Programs (Period 2008-2018)
- Networks of Theme Programs
- Sub-regional Action Programs
- Regional Meetings
- Regional Executive Committee
- Regional Priorities.
- Unit of Regional Coordination and GH

Finally, Mr. Cox explained the need of cooperation between UNCCD with the PHI and the UNESCO, for which he suggested these contacts begin within countries.

## **V. EXCHANGE OF IDEAS**

Mr. Israel Velasco proposes further actions around the monitoring of droughts, while exploring the possibility of receiving more collaboration from the NOAA.

The proposal to create a summary document of the G-Wadi/ALC emerges from the Group of Snow and Ice.

The identification of characteristics and contributions of the G-Wadi program emerges from the discussion between the representatives of Brazil, Dominican Republic, Mexico and Argentina:

- Promotes inter-relation – increased communication.
- Promotes the development of water policies for arid areas within countries, which in general are hard to identify.
- Going abroad for resources.  
(Various interventions).

Patrick Thomas from Brazil, places emphasis on the diffusion of actions of the program. Instances and/or mechanisms of distribution:

- COP of Climate Changes.
- Rio+20: It is possible to make water management present in areas of shortage.
- Use the World Atlas to highlight arid areas.
- Identify new criteria in order to determine the type of help required (Example: Polygons in NE Brazil).
- Identify instruments in each country.

Additionally, ideas emerge regarding actions such as the development of a diagnosis of dry lands and water management, as well as carrying out initiatives on Education and Water Culture; Monitoring.

## VI. DISCUSSION

Presentations were followed by a debate and exchange of ideas. Participants expressed their interest in issues of the G-WADI network, as well as their pertinence for the construction of an instance of exchange of experiences and knowledge, and the possibility of a coordinating entity in future actions between different institutions and countries. One of the desirable outcomes of the successful establishment of the network would be to support water management in countries, in order to improve access to water, as well as water quality and quantity.

Additionally, possible obstacles were mentioned, as well as weaknesses found in different initiatives regarding monitoring networks and availability of information, lack of scientific information (future scenarios and models, long term vision). The lack of coordination in joint actions, and deficient positioning of the problem at decision taking levels, and the need of more sensitization of affected communities.

As far as the consolidation of links of the network in the region, it is also desirable to promote assignment of Focal Points in countries, which will become an active part of the G-WAS/LAC Network.

In this sense, promotion of dialog between scientists and politicians within countries and in the region, establishing common bridges for the exchange of information and knowledge, is intended through consolidation of the network.

Another possible action, desirable in the medium term, is the involvement and interaction with other international initiatives such as the UNCCD. With this respect CAZALAC shares an important link, having developed joint actions with the Convention, keeping currently an agreement of collaboration.

Participants mentioned the need to identify, in context of the region, which is the aggregate value contributed by the network to the service of countries, as well as strengths of the program, weaknesses and installed capacities, as well as new opportunities which emerge. It is important to somehow clearly differentiate between the network and other existing initiatives, and based on this, contribute, add value and achieve synergy with these initiatives.

Additionally, it would be important to identify possible sources of financing in the region, under the new context of water shortage and the growing need to impulse actions of integrated management of water resources and efficient technology in the use and recycling of water.

In order to promote good practices around management and the use of water resources arises the proposal to make use of installed capacities in the region, and already developed experiences, conducting a revision and systematization of such experiences, from the point of view of implemented methodologies, results reached and generated base information. One point of this initiative would be given by finding actions to be systemized in countries which form part of the network.

Actions of systemization and regional experiences, as well as documents elaborated, should be prepared with appropriate languages, messages and extensions for each target audience (professionals, scientists, and specially decision takers).

It is also important to consider the establishing a culture of prevention in regions, at a level of population and especially around government officials and decision takers. As far as ideas, they should be based on prevention and establishing a water culture. A good example of this is the fact that social, environmental, economical and political costs of droughts exceed the costs of floods, yet they are not nearly as important at a national level.

On the other hand, it is important to prioritize certain areas in the region which may be especially sensitive to structural shortage of water resources. In this sense, a base tool for this would be given by the Atlas of Arid Zones, elaborated and published by CAZALAC.

Possible necessary and desirable actions within countries include establishing a base line and map of actors connected to the network, as well as all main initiatives currently being developed.

Finally, in the context of establishing and positioning of the network, it would be best to explore and take advantage of opportunities emerging from the Conference Rio + 20 and all other possible initiatives which may emerge from this instance.

Some priority lines in which the network should focus its actions on the short term, were identified from the exchange of ideas.

## VII. POSSIBLE LINES OF ACTION

- Diffusion and positioning (make synthesis of knowledge on management of water resources in arid and semi-arid zones).

The possibility to review and systemize successful experiences regarding issues of the G-WADI network in countries of the region is proposed. Hopefully all developed methodologies, main products and results reached will be reviewed, and in the process, collect generated base information.

Main Issues:

- Rain Water Harvesting
  - Harvesting of Water from Fog and Dew
  - Aquifer Refilling
  - Desalinization for Rural Development
  - Recycling of Water Resources
  - Efficient use of Water
- 
- Management of Water in Drylands at a Global and National Level

Based on the revision cited above, further action is proposed for the network and its impact at a level of countries in the region. For this, it would be necessary to develop a global vision of the knowledge we have on water resources, draw up summaries on programs and projects currently in development, identify and collect existing databases, and diagnosis of the state of water management on drylands and possible links to climate change.

- Develop and Implement a Strategy of Diffusion

## VIII. WORK PLAN – SHORT TERM ACTIONS

(G-WADI LAC as a network of regional exchange)

- Appointment of Focal Points before G-WADI by CoNaPHIs. Secretary of PHI LAC will perform the corresponding effort.
- Diagnosis based on date/matrix (prepared by Guido Soto and Juan Carlos Bertoni) which includes an institutional mapping, linked to the G-WADI issue: plans/programs, relevant publications etc., as well as ongoing projects, data bases, information networks – December 2011.
- Explores the possibility to participate in preparatory regional events for the COP (Ecuador will consult and inform CAZALAC).
- Inclusion of G-WADI LAC in other issues of the CoNaPHIs LAC meeting agenda in Rio+20 (coordination in charge of COBRAPHI).
- Generate space for G-WADI LAC in G-WADI website (coordination between CAZALAC and ICIWarM).
- Find information and news from all members of the network for publishing as online news in LAC G-WADI Global Network.
- Prepare an annual report to be presented in the meeting of the LAC G-WADI network members.
- Prepare a meeting report exposing main agreements (CAZALAC with help from PHI-LAC)
- Prepare a road map including information of countries

## LIST OF PARTICIPANTS

Juan Carlos Bertoni  
Technical Secretary of CoNaPHI / Sub- Secretary of Human Resources  
Hipólito Irigoyen 250, Floor 11, Of. 1139 Buenos Aires, Argentina  
Tel: (54 11) 434 974 34/115/712  
[jcbertoni@arnet.com.ar](mailto:jcbertoni@arnet.com.ar) / [jcbertoni@gmail.com](mailto:jcbertoni@gmail.com)

Patrick Thomas  
President of the CoNaPHI  
Manager of Billing for Use of Water Resources  
National Agency of Water (ANA)  
Sector Policial Sul, Área 5, Block 3,  
Bloco L,  
Brasilia DF 70610-200  
Brasil  
Tel: (55 61) 210 95437  
Fax: 310 52040  
[patrick@ana.gov.br](mailto:patrick@ana.gov.br)

Cristobal Punina  
Representative Focal Point IHP / SENAGUA  
National Secretary of Water in Ecuador  
Av. Eloy Alfaro y Amazonas  
Building MAGAP 3rd Floor  
Quito, Ecuador  
Tel: (593 2) 554 154/55 4376  
Fax: 554 171 /55 4251  
[secretarianacional@senagua.gov.ec](mailto:secretarianacional@senagua.gov.ec)

Julio Ordoñez  
Representative of CoNaPHI  
General Director of Hydrology and Water Resources - SENAMHI  
Jr. Cahuide N°785 Jesus María  
P.O 1308  
Lima 11, Perú  
Tel: (511) 614 1409  
Fax: 471 7287  
[jordonez@senamhi.gob.pe](mailto:jordonez@senamhi.gob.pe)

José Gregorio Sottolano  
President of CoNaPHI  
President  
National Institute of Meteorology and Hydrology - INAMHE  
National Highway Baruta-Hoyo de la Puerta, Caracas  
Venezuela  
Tel.: (58 212) 535 3000 Fax: 535 3002  
[jsottolano@yahoo.com](mailto:jsottolano@yahoo.com)

Wilfredo Alfaro  
National Focal Point of Convention on Desertification (UNCCD) Forestry Administration(GEFOR)  
National Forestry Corporation  
Av. Bulnes N° 285. Depto. 603, Santiago  
Chile  
Tel: (56 2) 663 01 71/ 663 03 87  
[wilfredo.alfaro@conaf.cl](mailto:wilfredo.alfaro@conaf.cl) / [puntofocalchile@yahoo.es](mailto:puntofocalchile@yahoo.es)

Israel Velasco  
Mexican Institute of Water Technology (IMTA) Paseo Cuauhnáhuac 8532, Colonia Progreso Jiutepec, Morelos  
México  
Tel: (52 777) 329 3600 ext 858  
[ivelasco@tlaloc.imta.mx](mailto:ivelasco@tlaloc.imta.mx)

Pedro García  
In charge of Department of Project Cooperation and Tracking  
Ministry of Environment and Natural Resources.  
Av. John F. Kennedy, Km. 6 1/2,  
Highway Duarte, Los Jardines del Norte  
Santo Domingo, República Dominicana  
Tel: (809) 547 3888 Fax: 732 5700  
[pedro.garcia@ambiente.gob.do](mailto:pedro.garcia@ambiente.gob.do)

Jair Ramírez  
Coordinator  
Group of Snow and Ice Labor /Working  
Topographer  
INGEOMINAS - Bogotá  
Diagonal 53 34-53  
Bogotá, Colombia  
Tel.: (571) 220 0203 ext. 2551  
Fax: 222 3764  
[jairamir@ingeminas.gov.co](mailto:jairamir@ingeminas.gov.co)

Guido Soto  
Executive Director  
Water Center of Arid and Semi-arid Zones for Latin America and the Caribbean -CAZALAC  
Benavente 980  
La Serena, Chile  
Tel: (56 51) 204 493  
Fax: 334 814  
[gsoto@cazalac.org](mailto:gsoto@cazalac.org)

Robert A. Pietrowsky  
International Center of Integrated Management of Water Resources  
Director  
Institute for Water Resources  
U.S. Army Corps of Engineers  
7701 Telegraph Road Alexandria VA, 22315-3868  
USA  
Tel: (1 703) 428 8250 F a x : 4 2 8 8 1 7 1  
[Robert.A.Pietrowsky@usace.army.mil](mailto:Robert.A.Pietrowsky@usace.army.mil)

William S. Logan  
International Center of Integrated Management of Water Resources  
Deputy Director  
Institute for Water Resources  
Institute for Water Resources  
U.S. Army Corps of Engineers 7701 Telegraph Road  
Alexandria VA, 22315-3868 USA  
Tel: (1 703) 428 6054  
[will.logan@usace.army.mil](mailto:will.logan@usace.army.mil)

Richard Byron-Cox Programme Officer  
UNCCD Regional Coordinating Unit  
for Latin-America and the Caribbean  
Tel: 49 228 815 2812  
[rbcoc@unccd.int](mailto:rbcoc@unccd.int)

Alberto Tejada-Guibert  
Director a.i., Division of Water Sciences, UNESCO Secretary, International Hydrological  
Programme  
1 rue Miollis, 75732 Paris Cedex 15, FRANCE Tel : (331) 4568 4096  
Fax: 4568 5811  
[ja.tejada-guibert@unesco.org](mailto:ja.tejada-guibert@unesco.org)

Jorge Ellis  
Specialist in Natural Sciences  
Representative for Bolivia, Colombia, Ecuador and Venezuela  
UNESCO Quito  
Veintimilla E9-53 between Plaza and Tamayo  
Quito, Ecuador  
Tel. (593) 2 2528911 Fax: 2504435  
[j.ellis@unesco.org](mailto:j.ellis@unesco.org)

Víctor Pochat  
Regional Manager for Latin America and the Caribbean  
International Hydrological Program for Latin America and the Caribbean (PHI- LAC)  
[vpochat@unesco.org.uy](mailto:vpochat@unesco.org.uy)

Zelmira May  
Technical Assistant  
International Hydrological Program for Latin America and the Caribbean (PHI- LAC)  
Regional Office of Science and Technology  
UNESCO for Latin America and the Caribbean  
[zmay@unesco.org.uy](mailto:zmay@unesco.org.uy)

UNESCO Montevideo  
Luis Piera 1992 Floor 2  
11200 Montevideo, Uruguay  
Tel: (598 2) 413 2075  
[phi@unesco.org.uy](mailto:phi@unesco.org.uy)