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STATES - OAS**

**UNESCO/OAS ISARM Americas Programme
TRANSBOUNDARY AQUIFERS OF THE AMERICAS**

4th COORDINATION WORKSHOP

San Salvador, El Salvador

November 20th- 22nd, 2006

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UNESCO/OAS ISARM AMERICAS PROGRAMME (Transboundary Aquifers of the Americas)
FOURTH COORDINATION WORKSHOP
San Salvador, November 20th – 22nd, 2006

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LIST OF ACRONYMS

ALHSUD	Asociación Latinoamericana de Hidrología Subterránea para el Desarrollo
DSD/DDS	Department of Sustainable Development /Departamento de Desarrollo Sostenible
FAO	Food and Agriculture Organization/Organización de las Naciones Unidas para la Agricultura y la Alimentación (United Nations/Naciones Unidas)
GEF/ FMAM	Global Environment Facility/Fondo para el Medio Ambiente Mundial
GS/OAS/SG/OEA	General Secretariat of the Organization of American States/Secretaría General de la Organización de Estados Americanos
IAH/AIH	International Association of Hydrogeologists/Asociación Internacional de Hidrogeólogos
IHP/PHI	International Hydrological Programme/Programa Hidrológico Internacional
IDEA	Instituto de Derecho y Economía Ambiental de Paraguay
IGRAC	International Groundwater Resources Assessment Centre
ISARM	Internationally Shared Aquifer Resources Management/Gestión de los Recursos Acuíferos Internacionalmente Compartidos
NC/CN	National Coordinator/Coordinador Nacional
SNET	Servicio Nacional de Estudios Territoriales
TTU	Texas Tech University
UN/ECE	United Nations Economic Commission for Europe / Comision Economica de las Naciones Unidas para Europa
UNESCO	United Nations Educational, Scientific, and Cultural Organization/Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
UNESCWA	United Nations Economic and Social Commission for Western Asia/Comision Economica y Social de las Naciones Unidas para Asia Occidental
UN ILC/CDI NU	United Nations International Law Commission / Comision de Derecho Internacional de las Naciones Unidas

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- The Servicio Nacional de Estudios Territoriales – SNET of El Salvador, in particular Mrs. Elda de Godoy, General Director and Ms. Ana Deisy Lopez, Director of the Water Resources Dept. for the invaluable support in hosting the Workshop;
- The ISARM-Americas National Coordinators for their essential contribution to accomplish the Programme tasks and their enthusiasm;
- The UNESCO offices in Uruguay and Costa Rica for their support in organizing the event;
- Mrs. Lyda Ugas, DSD/OAS Staff Project Technical Assistant at the GS/OAS Headquarters- Washington D.C., for the support in the exchange of information with Member States during the year, and helping organizing the workshop.

UNESCO-OAS ISARM AMERICAS PROGRAMME
IV COORDINATION WORKSHOP
SAN SALVADOR, EL SALVADOR, November 20th – 22nd, 2006

BACKGROUND

The global “Internationally Shared Aquifer Resources Management - ISARM Programme” was launched at the 14th Session of UNESCO IHP Intergovernmental Council in June 2000, in cooperation with several other international organizations, notably the Food and Agriculture Organization (FAO), the United Nations Economic Commission for Europe (UNECE), the United Nations Economic and Social Commission for Western Asia (UNESCWA) and the International Association of Hydrogeologists (IAH). It aims to promote the recognition and understanding of transboundary groundwater resources, and foster collaboration among the countries sharing the same resource to achieve consensus on legal, institutional, socio-economic, scientific, and environmental aspects. Another important objective of the ISARM Americas Programme is the identification of case-studies of particular interest.

The UNESCO/OAS ISARM-Americas Programme is the regional initiative for the American hemisphere and is jointly coordinated by the UNESCO International Hydrological Programme (IHP) and the Department of Sustainable Development – previously known as Office for Sustainable Development and Environment - of the Organization of American States (DSD/OAS).

One of the most important objectives of the ISARM Americas Programme is to create a comprehensive Inventory of Transboundary Aquifers of the Americas, a collection of data regarding the hydro-geological characteristics, the actual use of the shared groundwater and the legal and institutional aspects.

From the start of the activities in 2003 up to December 2006, the Programme has assessed the prevalence of transboundary aquifers in the Western Hemisphere, with the contributions of a network of National Coordinators, which represent 25 countries of the American hemisphere. Three previous Coordination Workshops¹ have been held respectively in Montevideo, Uruguay, on September 24th - 25th 2003, El Paso on November 10th-12th, 2004, and in Sao Paulo, Brazil, in November 30th – December 2nd, 2005. According to the Inventory, up to January 2006, 68 transboundary aquifers were identified: 29 located in South America, 18 in Central America, 17 in North America, and 4 in the Caribbean.

During the First Coordination Workshop in Montevideo, the countries proposed nine transboundary aquifers as possible case-studies for project implementation, using the ISARM approach. They are located in areas of particular concern in the Americas: arid and semi-arid regions; areas extremely vulnerable to natural hazards and to climatic variability due to climate change; areas with severe land/water degradation

¹ Workshop Reports of the three events are available in pdf. files at the OAS web-site: [HTTP://WWW.OAS.ORG/DSD/ISARM/ISARM_INDEX.HTM](http://www.oas.org/dsd/isarm/isarm_index.htm) and the UNESCO/IHP Virtual Library: <http://www.unesco.org.uy/phi>.

due to increased urbanization and industrialization, extensive agriculture and deforestation, which heavily impact entire ecosystems; and areas of potential water use conflict, with high levels of poverty and health uncertainty.

In 2004, the ISARM-Americas Steering Committee² identified three priority case-studies of transboundary aquifers from the list: the Artibonito and Masacre aquifers in the Hispaniola Island (Haiti – Dominican Rep.) as an example of inter-mountainous and coastal transboundary aquifers in Small Islands Developing States (SIDS); the Yrenda-Toba-Tarijeno aquifer system in the Gran Chaco Americano (Argentina-Bolivia-Paraguay), representing transboundary aquifers in semi-arid zones of South America; and the Hueco Bolson aquifer (Mexico-USA), as a striking example of transboundary aquifer systems in urban areas.

To date other three priority case-studies have been selected: the Pantanal transboundary aquifer system, shared by Bolivia, Brazil and Paraguay, the Ostua-Metapan between El Salvador and Guatemala and the Rio Negro transboundary aquifer system, between Honduras and Nicaragua.

SUMMARY

The Fourth UNESCO/OAS ISARM-Americas Workshop has been held in San Salvador, El Salvador, on November 20th – 22nd, 2006. The meeting (Agenda, annex 1) was organized in collaboration with the Servicio Nacional de Estudios Territoriales – SNET, and with the support of UNESCO-IHP and the UNESCO offices of Montevideo and San Jose.

Sixteen ISARM Americas National Coordinators attended the meeting together with officers from international organizations and invited experts from different institutions (List of Participants, annex 2).

The workshop started with the revision and approval of the last version of the manuscript “TRANSBOUNDARY AQUIFER SYSTEMS IN THE AMERICAS – Preliminary Assessment”, the first of three volumes to be published by the UNESCO/OAS ISARM Americas Programme by 2008. The manuscript will be sent to the editor by January 2007 for publication; it represents the main outcome of the first phase of the Programme activities and will provide hydrogeological baseline information, gathered during the first three years of activities of the Programme. The publication was compiled as a result of a continuous and valuable effort made by the American Member States. The manuscript, which includes synoptic tables for each sub-region, presents a compilation of geological and hydrogeological information, as well as present use groundwater, expected demand and future scenarios. A sketch-map for each transboundary aquifer system integrates the information together with a geological or hydrogeological section or model when provided by the countries. A series of recommendations on future actions necessary for the sustainable management of the transboundary aquifers of the Americas concludes the book.

² The Steering Committee consists of UNESCO-IHP and OAS experts

The workshop was also devoted to the presentation and discussion of the results of the second phase of the Programme, which is focused on the identification of the legal and institutional issues related to transboundary groundwater in the American countries.

An ad hoc questionnaire was prepared and circulated during the year 2006 (UNESCO/OAS ISARM Americas Legal Questionnaire, annex 3). Almost the totality of the countries of the ISARM network responded to the call and filled up the questionnaire with very detailed information. A group of legal experts consisting of officers from international organizations - namely UNESCO, OAS, FAO - and experts from Ministries of Foreign Affairs, academia and NGOs of American countries analyzed the information made available.

The response of the Member States to the questionnaires is a highly valuable source of information and constitutes the basis for the second volume of the ISARM Americas series. The volume will focus on integrating the hydrogeological baseline provided in the first book with the institutional and legal aspects related to the use and management of transboundary groundwater in the Americas. It will aim to provide indications for a regional approach towards implementing integrated groundwater management in the transboundary context, within the current legal and institutional framework, and will also take into account international legal developments such as the United Nations International Law Commission's draft articles on the law of transboundary aquifers. The publication of this second volume is planned for the end of the year 2007.

At the end of the Workshop, the participants discussed the plan of activities for the year 2007-2008; the Member States representatives were also briefed on upcoming international events related to shared aquifers.

Mr. Alfonso Rivera, the National Coordinator for Canada, kindly offered to host the UNESCO/OAS ISARM-Americas V Coordination Workshop in Montreal in September 2007. He presented a preliminary plan for a four-days meeting (annex 4) including a one-day field trip to the Châteauguay transboundary aquifer, shared by the State of Quebec in Canada and New York State in the USA.

1. WELCOME TO PARTICIPANTS AND WORKSHOP OPENING

The workshop was opened by **Mrs. Maria Concepcion Donoso**, regional hydrologist at the UNESCO Regional Office for Science and Technology for Latin America and the Caribbean. Mrs. Donoso remarked that this Workshop was the first UNESCO/OAS ISARM Americas meeting taking place in Central America and thanked Mrs. Elda de Godoy, General Director of the Servicio Nacional de Estudios Territoriales – SNET, and Mrs. Ana Deisy Lopez, Director of the SNET Water Resources Dept. and ISARM National Coordinator for El Salvador, for the kind hospitality and excellent organization. She also congratulated the ISARM group for the results accomplished during the year 2006, for the active and enthusiastic participation of the countries and for the effective inter-agency cooperation between UNESCO and OAS.

Mrs Elda de Godoy, General Director of the Servicio Nacional de Estudios Territoriales – SNET, addressed the participants with welcoming remarks stressing the importance of achieving the outcomes expected from the workshop, in particular regarding possible legal frameworks and institutional schemes to improve the management and protection of shared groundwater resources.

Ms. Ana Deisy Lopez, Director of the SNET Water Resources Dept., welcomed the participants wishing a productive workshop, and explained the organization and logistics of the meeting.

Mr. Nelson Da Franca dos Anjos, Principal Water Resources Specialist of the DSD/OAS and General Coordinator of the UNESCO/OAS ISARM Americas Programme, thanked the Salvadoran authorities and the participants.

Mr. Da Franca started the activities of the meeting with a brief explanation of the workshop objectives and the structure of the agenda, and presented the work done by the countries and the agencies during the year 2006 for the finalization of the last draft of the volume “TRANSBOUNDARY AQUIFERS IN THE AMERICAS – Preliminary Assessment”.

The templates³ of the transboundary aquifers together with the list of authors and web-sites of the participating country institutions were then distributed to the National Coordinators for the last revision and approval. To edit the final version of the templates, the ISARM National Coordinators formed small groups, each of them representing the riparian countries sharing the same transboundary aquifer system.

2. REVISION OF THE TEMPLATES AND AGREEMENTS ON THE FINAL EDITION OF THE BOOK “TRANSBOUNDARY AQUIFER SYSTEMS IN THE AMERICAS – Preliminary Assessment”

Each group of National Coordinators presented the changes made in the text of the templates and their justification.

In particular there was agreement on:

- removing two profiles from the book (for the Guarani Aquifer system and for the Caiua) and
- adding the location of the profiles on the maps when the geographical coordinates were provided.

Several corrections were made on the list of authors and web-sites, and the following modifications were also recommended:

- 1) to clearly specify that the information provided is still “preliminary” and that efforts will be made to potentially prepare a more detailed version;
- 2) to define the meaning of “preliminary” with respect to the sub-regions and countries;
- 3) to change the term “aquifer” to “aquifer system” in the title and in the text, according to the current definition, clearly expressed by Prof. Ofelia Tujchneider ;

³ Templates of the aquifers include a compilation of climatic, morphological, geological, hydrogeological information, groundwater actual use, expected demand and future scenarios. Each template has been prepared by the ISARM Americas National Coordinators and their collaborators between the end of 2005 and the beginning of 2006.

- 4) to modify the sentence “...maps prepared by IGRAC” into “...edited by IGRAC” in the title and text, based on the fact that the countries elaborated the map while IGRAC edited them homogenizing the structure and legend, as agreed with the ISARM Steering Committee;
- 5) to add the disclaimer sentence in the first page of the publication;
- 6) to add in the text a discussion on problems and potential conflicts related to the joint management of transboundary groundwater;
- 7) to proceed expeditiously with the preparation of the second volume, focused on problems and opportunities of shared aquifer systems under different perspectives, including legal issues, socio-economic and if possible environmental.

Mrs. Donoso explained that:

- All UNESCO publications include a disclaimer as standard policy of the agency;
- The ISARM National Coordinators have been endorsed by the IHP National Committees or Focal Points or/and their respective government institutions therefore they are considered to represent their countries in the discussions.
- A sentence explaining that the published data are “*preliminary*” already exists in the text. There is the possibility though to change the sub-title “*preliminary assessment*” into another, like “*state of the art*” or “*state of knowledge to date*”.

It was then agreed to:

- change the term “*aquifer*” into “*aquifer system*” in the title, and maintain “*preliminary assessment*” in the descriptive sub-title;
- increase the size of the maps and cross sections, and wherever necessary add the word “system”;
- maintain the original design of the book as physical description of the identified transboundary aquifer systems, as agreed at the UNESCO/OAS ISARM Americas I Coordination Workshop in Montevideo;
- prepare two other volumes that will follow the publication of this first book devoted to the analysis of the legal and institutional issues and to the socio-economic and management aspects respectively, as discussed in the III Coordination meeting in San Paulo in 2006;
- send to Mr. da Franca de los Anjos all additional information and changes to be inserted into the book by December 10th, 2006. The General Coordinator will integrate all the comments of the National Coordinators, and prepare the final version.

The Regional Hydrologist of UNESCO at the Technical Secretariat of the IHP in Montevideo will be responsible of the final edits and of the printing of the volume.

3. LEGAL SECTION

The second part of the workshop started with the presentation of Mrs. Raya Stephan, water law specialist, consultant for UNESCO-IHP, on the draft articles on the Law of transboundary aquifers prepared by the UN International Law Commission –ILC and adopted at first reading in June 2006.

3.1 THE PROCESS AT THE UNITED NATION INTERNATIONAL LAW COMMISSION – UN ILC: THE DRAFT ARTICLES ON THE LAW OF TRANSBOUNDARY AQUIFERS

In the framework of UNESCO IHP's ISARM programme, a multidisciplinary ad-hoc task force of experts has been established by UNESCO to assist the Special Rapporteur of the UN ILC on the preparation of a new international legal instrument on Transboundary Aquifers. The group of experts held meetings in Paris and Tokyo, participated in working groups in Geneva with ILC members and in briefings NY for the delegates at the UN GA 6th Committee, and prepared documents and technical notes on transboundary aquifers at the request of the Special Rapporteur.

Mrs Stephan provided a comprehensive overview on the process that took place at the UN ILC in the preparation of the draft articles on the law of transboundary aquifers starting from the First Report of 2003 to the Third Report of 2005, as well as on the on-going activities in 2006.

A summary of the overview presented by Mrs. Stephan is provided in Annex 3

The draft of the Convention is currently at the Ministry of Foreign Affairs of each UN Member State for evaluation, revision and comments until the 1st of January 2008.

Mrs Stephan's presentation was followed by a lively discussion among the participants.

Many interventions pointed out the challenge of translating science into legal terms and perspectives. The follow up discussion focused on the scientific aspects not taken into account in the current draft articles, in particular:

- Definition of aquifer: Art. 19 do not include the recharge and discharge areas.
- Different types of recharge, local and regional. Local and regional flows should be considered in the articles.
- Important inter-relations between aquifer and dependant ecosystem should be taken in due consideration.
- The problem of vast recharge areas of regional aquifers, and sovereignty implications.
- Regional aquifers: the problem of geologic timing has to be considered for the long-term planning of aquifer management.
- While a geologic formation (aquifer) can be easily identified as transboundary, it could be more difficult to assess the transboundary nature of the transmissibility of an aquifer, which is in fact very often unknown even at a local scale.

Additional considerations and comments were:

- Countries could be more willing to implement joint measures to protect and preserve the aquifers, rather than engage in joint management. In fact, whenever aspects related with transboundary aquifers management are considered, the principle of sovereignty of each country prevails in the decisions.
- Countries have to deal with different perspectives on groundwater, depending on the sector of the government involved: from a vision based on preservation and conservation of the resource (ministries of environment), to exploitation oriented one in the case of water agencies, to a more holistic vision in the case of geologic agencies.

3.2 OBJECTIVES OF THE II PHASE OF THE ISARM AMERICAS PROGRAMME: THE LEGAL QUESTIONNAIRE

Mrs. Stephan described the background and the objectives of the II phase of the ISARM Programme and the contents of the questionnaire.

During the UNESCO/OAS ISARM AMERICAS II Workshop held in El Paso in 2004, the Member States agreed on the need to identify the legal and institutional present situation and potential gaps as a priority at a regional level and requested to have them more specifically addressed by the Program. In their recommendations, they pointed out the need to:

- Take into account other countries' examples and experience in the preparation of groundwater (GW) regulations, laws and agreements.
- Support information exchange.
- Base the formulation of legislative instruments on technical information.
- Adopt or learn from, whenever the case, laws and regulations for surface waters.
- Strengthen the institutions.

At the conclusion of the Phase I “Inventory of Transboundary Aquifers of the Americas”, celebrated in the ISARM Americas III Workshop (Sao Paulo, Br, 2005), the countries agreed to start in the year 2006 the subsequent Phase II “Institutional and Legal issues”, which included a Diagnostics of the Institutional and Legal Framework.

A questionnaire (UNESCO/OAS ISARM Americas Legal Questionnaire, annex 4) on legal issues, based on the questionnaire of the ILC, was prepared by a group of legal experts, consisting of:

Raya Stephan (UNESCO-IHP)
 Claudia de Windt (OAS/DSD)
 Stefano Burchi, Kerstin Mechlem (FAO)
 Marcella Nanni, Water Law Specialist
 Gabriel Eckstein (TTU)
 Patricia Abad (IDEA, Paraguay)

Lilian del Castillo Laborde (School of Law, University of Buenos Aires)

The objective of this questionnaire on legal issues, referred to as the “legal questionnaire”, was to collect legal information related to groundwater and transboundary aquifers. The questionnaire was then divided in four parts:

1. Domestic level : water law, GW regulations/provisions, institutions in charge of water issues
2. Federal States : competence for water issues, and GW in particular (central State vs. federated states)
institutions in charge of water issues
aquifers between the States
3. Transboundary aquifers
4. Other agreements related to water and natural resources.

The ad hoc questionnaire was circulated during the year 2006. Almost the totality of the countries of the ISARM network filled up the questionnaire with very detailed information, which was subsequently analyzed and presented during the workshop (see synoptic tables, annex 4).

3.3 PRESENTATION OF THE LEGAL QUESTIONNAIRES AND DISCUSSION

All the ISARM National Coordinators attending the meeting⁴ provided a useful outline of the existing (or the lack of) national regulations, agreements and international treaties concerning groundwaters and transboundary groundwaters in their countries. The presentations provided comprehensive overviews, and a wealth of examples and considerations.

Mrs. Stephan presented a synthesis of the water-related laws and institutional frameworks of the Member States participating to the UNESCO/OAS ISARM Americas Programme, grouping the countries according to regions and to the central/federal nature of administrative arrangements. She also identified the countries having joint legal mechanisms, international agreements and/or cooperation frameworks (annex 4). She observed that in general the countries in the Americas have laws regarding surface and ground water at national level; nonetheless very often they have complex institutional frameworks, with conflictive roles and overlapping duties.

Mrs Stephan further clarified that the draft articles of the Law on Transboundary Aquifers represent a legal framework useful to facilitate agreements among countries sharing groundwater resources, but do not have direct influence on national legislations.

⁴ Argentine, Brazil, Canada, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay, United States.

To conclude her presentation Mrs Stephan presented as a suggestion, a guiding chart for further analysis of the legal situation of groundwaters and transboundary aquifers in the Americas, based on the answers to the questionnaire.

- Water law : general principles for water management
- Groundwater :
 - Legal status (ownership)
 - Protection against depletion (control of extraction and use) (quantity)
 - Protection against pollution (quality)
- Transboundary aquifers : cooperation/agreement/joint mechanisms
- Transboundary surface water : cooperation/agreement/joint mechanisms

A discussion among the ISARM Americas National Coordinators followed and several suggestions and recommendations emerged, among others:

- ✓ The difficulty in taking decisions very often relates to the limited knowledge of groundwater resources. Therefore it is of the utmost importance to gather more scientific and technical information and have a clear understanding of what are the uncertainties.
- ✓ Preliminary decisions can be based on simple models of the aquifers.
- ✓ Science must maintain an important role, but this doesn't preclude considering social issues and management aspects.
- ✓ By comparing the results of the legal/institutional questionnaire and the draft articles of the Law of Transboundary Aquifers, it appears that there is a need to clearly identify the gaps while the process for the Convention negotiation is still on-going.
- ✓ Other legal tools like memorandums of understanding as an alternative to treaties can be used to progressively reach the agreements.
- ✓ Preliminary agreements and information exchange can be used to allow the start of shared management and ensure continuity to the process.

The special guests that were invited to the workshop to form a Panel of Legal Experts⁵ concluded the discussion with a series of interventions. The experts provided written summaries of their interventions. These summaries are reported below, with the English translation when necessary. The original Spanish summaries are presented in Annex 6.

⁹ The Panel consisted of: Lilian del Castillo Laborde, School of Law, Buenos Aires University, Ministry of Foreign Affairs, Argentina - Ariel Walter Gonzalez, Ministry of Foreign Affairs, Argentina - Gabriel Eckstein, Texas Tech. University, School of Law, USA.

1st. Intervention: **Ariel Walter Gonzalez**,
Ministry of Foreign Affairs, Buenos Aires, Argentina
Translation

**OBSERVATIONS REGARDING LEGAL ISSUES AND THE LEGAL QUESTIONNAIRE
OF ISARM AMERICAS**

English Version

The legal and institutional setting of transboundary aquifers in our region may be approached from three different perspectives.

- A “national” perspective which emerges from the comparative analysis of the responses to the Questionnaire prepared by the National Coordinators of the ISARM Programme. Such exercise allows to reach the following preliminary conclusions:
 - The legal frameworks of all States lack norms specifically applicable to transboundary aquifers systems.
 - A high level of “institutional anarchy” transpires from the responses – i.e.: there is a multiplicity of institutions actually or potentially responsible for aquifer regulation, without provisions for coordination among them and/or subordination.
 - The responses show on the other hand constraints that have or could have negative impacts on the management of transboundary aquifers. These constraints originate mainly from the different management regimes existing in the countries sharing a groundwater resource.
 - No reference is made to concrete – i.e.: not of a purely declaratory nature - protection/conservation norms for transboundary aquifers.

- A “sub-regional or regional” perspective, which would recommend to derive lessons from the so far only example of legal framework oriented to the regulation of a transboundary aquifer existing in the region: the draft agreement relative to the so called “Guarani Aquifer System”, now in its final stages of negotiation, and soon to become legally binding. In particular, the text under negotiation shows that, for the portion of the aquifer located in a State’s territory, the exclusive sovereignty of each State prevails whenever the management aspects are addressed. On the other hand, the same States appear amenable to establish cooperation frameworks for aspects related to the protection – conservation of the aquifer’s resources.

- An “international” perspective which would require the adoption as the starting point of the draft articles approved upon first reading by the ILC. Both in their conceptual basis and in the content of the draft articles, possibilities of cooperation are envisaged in the field of protection/conservation, while the management of transboundary aquifers is subject to the sovereignty of States.

The three above perspectives would allow to reach the following main conclusion, which is consistent with the spirit of Agenda 21 (see Cap.18, paras. 25d and 39a): an effective legal regulatory framework for a transboundary aquifer/aquifer system might be more easily achieved leaving to each State involved the responsibility over the management of the shared groundwater resource within its own territory, thereby avoiding highly sensitive sovereignty and property aspects, and focusing instead on the protection/conservation of the resource (*“more than its*

ownership, what matters is its protection”). The regulation of protection/conservation would have to:

- apply to the transboundary aquifer system in its totality and considered as part of an ecosystem. It might be advisable to start by regulating aspects related to the quality of the water contained in the transboundary aquifer system.;
- be based on the precautionary principle, which could be in this case be formulated as follows: the lack of scientific knowledge/understanding of the impacts of a specific activity on the aquifer system does not entitle *per se* to execute the activity in question;
- recognize that it is primary responsibility of each State sharing the aquifer – or of each State including in its territory a recharge or discharge area, not to cause or tolerate any damage affecting another State sharing the same aquifer;
- take into consideration the peculiarities of the aquifer/aquifer system.

**2nd Intervention: Lilian del Castillo Laborde, School of Law, University of Buenos Aires
Ministry of Foreign Affairs, Buenos Aires, Argentina
Translation**

**OBSERVATIONS REGARDING LEGAL ISSUES AND THE LEGAL QUESTIONNAIRE
OF ISARM AMERICAS**

English Version

In Spanish, to extract groundwater is described as “to light” the water, meaning to bring it from the dark where it lies to the surface and to the light. The task of ISARM achieves the function of “lightening” the knowledge on groundwaters, from the point of view of its evaluation and classification as well as from the legal and institutional, to which one has to add the important social and economical impact.

Groundwater is a hidden, invisible resource, which was because of this characteristic occulted from the knowledge related to its quantification, and its legal regulation. From this aspect, it can be said that it is resource of the XXIst century, because in this period the demand of progress towards the search and systemization of the existing information, towards obtaining more and better data, and towards the development of national, regional and international legal frameworks.

The legal and institutional aspects are reflected for the Americas in the answers of the legal questionnaire which was elaborated for the ISARM project. Even if the content of the answers was not analyzed in details, it appears that the countries have various regulations applying to water, some of which apply to groundwater, as well as projects referring to the legal regulation of transboundary aquifers. The very useful presentations in this workshop put in evidence that the countries have consider useful, except for some special circumstances to draft agreements specifically related with this issue. It is found in elaboration, like it was explained, the agreement of the four countries where the Guarani aquifer is located establishing the basic norms which regulate its future running. On the other side, bilateral and regional agreements on transboundary waters were adopted, in which transboundary aquifers can be included, as it can be the case of the agreement on the limited sovereignty on the river Lempa, but without dealing directly with the use and protection aspect of aquifers.

The norms on aquifers are scarce and recent at the national level, and are an inspiration for transboundary aquifers. This brings the opportunity to progress in a simultaneous and coherent way in the regime of transboundary aquifers, so that both legal levels, the domestic and the international, evolve and influence each other.

The circumstance to find the whole legal framework in development brings a unique opportunity to elaborate a coherent legal framework, for the international legal framework can only be applied through the national legislation, and the national legislation to its turn has to be harmonized with

the transnational regime. Nevertheless, the objective that has to be reached is the development of reference frameworks at the international, regional and national levels.

At the international level, the draft articles developed by the International Law Commission provides an adequate starting point so that the countries can discuss and adopt later on general principles for the use and protection of transboundary aquifers. Nevertheless the draft articles are the reference framework at the international legal level to be considered in the preparation of regional, trinational, or bilateral agreements.

At the regional level, the reference framework in each region can be provided by general agreements which reflect the climatic, cultural, economic or social specificities of each region, which will act as the legal regional framework for the special agreements that are concluded in the same region. One example of this type of regional legal framework is the agreement still under elaboration by the four countries of the Guarani Aquifer, Argentina, Brazil, Paraguay and Uruguay.

At the national level, as it is not possible to dictate laws to be applied in each country, which will be an interference in the internal affairs of each State regarding its natural resources, a possibility would be to develop a series of directives or guidelines to which the countries can adhere when adopting domestic legislation regarding groundwaters and transboundary aquifers. Another possibility would be to develop a Model Law in which these regulative principles are integrated, in the form of a law, and which will act as a suggestion to be analyzed by the countries when developing their own legislation. There is no substantial difference between a series of directives for the use and protection of aquifers and a Model Law on the same topic, the only difference is the form of the drafting. To chose one or another of these two forms will depend on what is considered more useful in order to collaborate with the legislative task of the countries.

The content of the directives or general principles have to be of such nature as to be applicable in all circumstances, which differ in each region. Among them, the necessity to achieve the inventory of the aquifers and to determine, inter alia, the different quality of their waters, and their recharge. Another would be to know the levels of abstraction, which requires the setting of a user's registry. In sum, a series of directives aiming to know the quantity of available water and the quantity of used water in each political entity, would it be a State or a sub-national entity. These principles on the use concern the quantitative aspects of aquifers. Another group of principles should be related inter alia, to the control of the qualitative aspects of aquifers, the necessity to control the condition of untreated water in the aquifers, the requirements for abstraction. In this aspect, it is recommended that the States establish specific registries for the big users, such as water and sanitation providers, industrial users and others.

Nevertheless, the contribution to this stage of the ISARM program could be the development of reference normative frameworks at the difference mentioned levels, international, regional and national, using for them the common elements of the national regimes that have appeared in the

answers to the legal and institutional questionnaire, the norms included in regional agreements and in the draft articles of the ILC.

3rd Intervention: **Gabriel Eckstein**,
Texas Tech University, USA
Original Version

**OBSERVATIONS REGARDING LEGAL ISSUES AND THE LEGAL QUESTIONNAIRE
OF ISARM AMERICAS**

Gabriel Eckstein

Below are notes based on my comments offered during my participation on the panel of legal experts presented at the ISARM Americas meeting on 21 November 2006.

The Questionnaire

- Excellent opportunity to compare:
 - the extent to which ground water is addressed in the various countries;
 - different legal systems, mechanisms, and processes used by the countries to address ground water issues
 - differences in legal approaches and institutions used to address ground water issues in countries sharing a specific transboundary aquifer

- The purpose of ISARM is to provide information so as to allow countries to make informed decisions. In developing a comparison of the legal systems, mechanisms, processes and institutions, countries will be better equipped to manage those aquifers that are transboundary. Accordingly, I would recommend that the questionnaire be expanded, based on Mrs Stephan's chart⁶ to include other aspects in the comparison. This might include:
 - whether the countries have any constitutional provisions that are relevant to transboundary aquifers;
 - the property status of ground water in each country (e.g., private property, owned by the state, etc.);
 - whether the countries have signed any international agreements that may be relevant (e.g., Paraguay and Venezuela have both signed, but not ratified, the 1997 Watercourse Convention);
 - identification of the domestic institution(s) in each country that is responsible for data generation and collection (which is often different from the institution responsible for resource management and regulation).

- I would also separate the comparison of countries with a federal system from those without. Otherwise, the type of information provided and presented may be difficult to compare and contrast.

⁶ See annex 4 in this Report

Effort of the UNILC in formulating the draft articles on transboundary aquifers

- Significant development because it marks the first time that ground water has been both directly and officially addressed by the international community
- Two points that are especially noteworthy:
 - **Sovereignty** – one of the hallmarks of the draft articles is the emphasis on state sovereignty. Sovereignty refers to a country’s right to do anything it wishes within its jurisdiction without interference from other nations. In simpler terms, sovereignty is an argument over the ownership of property. The emphasis on sovereignty in the draft articles is simply a reflection of reality because sovereignty is entrenched in international politics, relations, and law and states enjoy considerable rights to do what they want within their jurisdiction because of sovereignty. In the case of transboundary aquifers, sovereignty refers to ownership of property or territory. Hence, when an aquifer is found underneath one country’s territory, that country can make a strong claim that it has absolute right (or near absolute right) to do anything it wants with regard to the portion of the aquifer that underlies its territory. This is true regardless of the science of ground water. Moreover, because sovereignty helps to define the existence and authority of states, states are very reluctant to relinquish any amount of sovereignty. Thus, it is unlikely that any international effort to minimize or overcome sovereignty could ever succeed.
 - Overcoming sovereignty:

Local/Regional Approach – On a local or regional basis, sovereignty may be overcome. The European Union is one example where sovereignty was diminished by local and regional approaches. In the EU, the populations and governments of each country willingly agreed to reduce their sovereign authority (e.g., trade policy, tourism policy, etc.) in order to benefit from the creation of the EU and all of its constituent organs. To some extent, this was a “bottom-up” approach. It was not mandated or pursued from the international arena, but rather from a local and nation-to-nation perspective. Public participation was a key factor in this endeavor. In relation to transboundary aquifers:

- local and public participation is crucial to ensuring that any agreement is relevant to the local circumstances and characteristics;
- the local communities on both sides of a border have the most to gain or lose from an agreement;
- while sovereignty may be relevant to the country and its leaders, it may not be as relevant to the local communities on both sides of the border, who often share more in common with each other than with their leaders in far-off capital cities.

Quality/Quantity – quantity issues directly relate to sovereignty because they concern ownership of and control over the resource. Quality issues, however, can transcend sovereignty and in most nations, are not tied to property ownership. Rather, they are related to health and environmental concerns. While the international legal principles of equitable and reasonable utilization and of no significant harm focus on quantity issues, they also encompass issues related to

water quality. Accordingly, in some cases, focusing on quality issue may provide an opportunity to avoid or partially circumvent problems created by sovereignty. One of the obstacles with focusing on quality, however, relates to the question: for whom or what is the quality protected? Referring back to the comments on the anthropocentric focus of the draft articles (and most of international law), quality is most often related to human health. It is rarely related to protecting water quality for the sake of the environment by itself.

- **Anthropocentric Perspective** – the draft articles, and water law in general, are very human-centered. Even where articles discuss concepts and legal principles of conservation and preservation, the focus is on human beings. For example, where a provision advocates conservation measures or the protection of the functioning of an aquifer, it is not for the purpose of protecting the aquifer for its own sake. Rather, the purpose of the provision is to protect the aquifer for the benefit of people – ensuring the water is available for people now and into the future. Likewise, where provisions discuss prevention of pollution and protection of the environment, they do so with the purpose of protecting human health and the environment for people.

- The draft articles (like the 1997 Watercourse Convention) constitute a framework of principles that are intended to guide nations in developing more specific regional or local agreements. For example, the principle of equitable and reasonable utilization and the factors used to assess the principle are vague precisely so as to allow the relevant countries to determine, on a local basis, what equitable and reasonable utilization would mean to them in the management and allocating of a specific transboundary aquifer. Thus, the suggestion that a stretch of territory along a transboundary aquifer should be demarcated for the purpose of applying certain rules may be a valuable idea, but only where the two (or more) aquifer states agree that this is one of the mechanisms that is appropriate for their aquifer.

4. STRUCTURE OF THE BOOK ON LEGAL AND INSTITUTIONAL ISSUES

The response of the countries to the questionnaires is an invaluable source of information and constitutes the basis for the second volume of the ISARM Americas series.

The participants of the meeting discussed the objectives, the structure and contents of the book.

The volume will focus on integrating the hydrogeological baseline provided in the first book with the identified institutional and legal aspects related to transboundary groundwater in the Americas. It will aim to provide indications for a regional approach towards implementing integrated groundwater management in a transboundary context, within the current legal and institutional framework, and will also address the potential of taking into account international legal developments such as the United Nations International Law Commission's draft articles on the law of transboundary aquifers.

The country representatives agreed that the book should:

- be addressed to the decision-makers at the national level, and to international organizations, multi-lateral cooperation agencies, donors, academia, etc.;
- provide a review of the present state of groundwater related legal and institutional frameworks in the Americas as of 2006, and be a useful guideline identifying examples of best available practices;
- contain information correctly processed, referenced, and approved by the countries;
- be edited by the end of the year 2007;
- maintain a structure similar to that of the previous volume;
- consist of three main parts, as follows:

PREFACE

INTRODUCTION

PRELIMINARY ASSESSMENT OF THE TRANSBOUNDARY AQUIFER SYSTEMS OF THE AMERICAS UP TO 2006 (SYNTHESIS AND CONCLUSIONS VOL. I)

1. LEGAL AND INSTITUTIONAL SITUATION IN THE REGION

1.1 BACKGROUND AND METHODOLOGY

1.2 SITUATION IN NORTH AMERICA (TEMPLATES)

1.3 SITUATION IN THE CARIBBEAN (TEMPLATES)

1.4 SITUATION IN CENTRAL AMERICA (TEMPLATES)

1.5 SITUATION IN SOUTH AMERICA (TEMPLATES)

2. ANALYSIS OF THE INFORMATION

3 CONCLUSIONS AND RECOMENDATIONS

(INCLUDING CONTRIBUTIONS TO THE UN ILC CONVENTION, IF AGREED UPON AMONG THE MEMBER STATES)

AUTHORS

PARTICIPATING INSTITUTIONS AND WEBSITES

REFERENCES

Chapters 1.1 - 1.4 will consist of templates filled up by each country of the four sub-regions, adopting the same approach used to edit the first volume.

The participants agreed on the following structure and contents for the template:

COUNTRY:	TRANSBOUNDARY WITH:
INSTITUTIONS	LEGISLATION
Institutions at national level (ministries, agencies)	Water Law – Carta Magna
Sub-national institutions (at province/county level)	Country Constitution
Interinstitutionnel mechanisms (Multi-national mechanisms, etc.)	Secondary laws
Other institutions (municipalities, etc.)	Groundwater: legal situation (national – transboundary)
	Link to the decrees
	Groundwater protection (national – transboundary)
ANALYSIS OF INSTITUTIONAL GAPS (i.e. no comply)	LEGAL GAPS (if any)

5. UNESCO-OAS ISARM AMERICAS 2007-2008 ACTIVITY PROGRAMME

Finally the future activities of the ISARM Americas for the years 2007-2008 were planned, based on the actions identified and agreed upon for the II Phase of the Programme during the III Coordination Workshop in Sao Paulo in 2005, which were:

- * Execution of a diagnostics of the legal and institutional frameworks of the countries of the Americas that share aquifer systems;
- * Analysis of the socio-economic situation and eco-hydrologic diagnostics in the areas where the transboundary aquifers are located;
- * Definition of a regional vision for the sustainable management of the transboundary aquifer systems of the hemisphere.

The activities, described were grouped in:

- 1) Publications
- 2) Case-studies
- 3) Capacity building
- 4) Research
- 5) Events

5.1) Publications

The publication of three volumes was confirmed, each focused on different topics related to transboundary aquifers.

The preliminary titles and the editing/publishing time-table are as follows:

THE UNESCO-OAS ISARM AMERICAS SERIES	PHASE II
Inventory of the Transboundary Aquifer Systems of the Americas – Preliminary assessment - 1st Vol.	Publication at the beginning of 2007
Transboundary Aquifer Systems of the Americas: Legal and Institutional Issues - 2nd Vol.	Editing and publication by 2007
Transboundary Aquifer Systems of the Americas: Socio-economic and Environmental Aspects – 2008 - 3rd Vol.	Editing in 2007 Publication in 2008

The activities to be carried out during the year 2007 for the **2nd volume** (*Legal and Institutional Issues*) are:

- Preparation of the templates with the information extracted by the legal questionnaires
- Revision, integration and approval of the countries
- Analysis of the information by the legal experts (Chapters 1-3)
- Revision and final approval of the countries (UNESCO/ OAS ISARM Americas V Coordination Workshop in 2007)
- Publication of the Volume (end of 2007)

The activities to be carried out during the year 2007-2008 for the **3rd volume** (*Socio-Economic and Environment Aspects*) are:

- Preparation of an ad hoc questionnaire
- Gathering information in the countries
- Preparation of the templates for the publication
- Revision, integration and approval of the countries
- Preliminary analysis

- Revision and final approval of the countries (UNESCO/ OAS ISARM Americas VI Coordination Workshop in 2008)

The ad hoc questionnaire will be prepared by a group of experts selected among the countries,⁷ with the support of the ISARM Americas Steering Committee.

Based on the information and analysis provided by the three Volumes, the participants agreed to aim for the present action of a preliminary regional vision for the sustainable management of the aquifer systems of the Americas to be introduced and discussed during the UNESCO ISARM World Conference at the beginning of 2008. The regional vision will be further discussed and detailed during the UNESCO/OAS ISARM Americas VI Coordination Workshop, late in 2008.

5.2) Case-studies

The current activities for supporting possible project implementation of the priority case-studies, identified by the Programme in the past years, will continue during the year 2007. The up-dated list of the case-studies was presented:

ON-GOING CASE -STUDIES (2006):

- BOLSON DEL HUECO (MX.+USA)
- ARTIBONITO-MASACRE (RD + HT)
- TOBA-YRENDIA- CHACO TARIJENO (AR+PY+BO)
- GUARANI (AR+BR+PY+UY)

POTENTIAL CASE-STUDIES, SUPPORTED BY ISARM AMERICAS IN 2007 – 2008

- PANTANAL (BR / BO / PY)
- OSTUA-METAPAN (SV – GT)
- RIO NEGRO (NI- HD)
- ZARUMILLA (EC / PE)

5.3) Capacity Building

During the year 2006 Mrs. Ofelia Tujchneider, Full Professor of Groundwater Resources Management at the Universidad Nacional del Litoral, Santa Fe, Argentina, had been selected by the ISARM Americas Steering Committee as Representative for the UNESCO/OAS ISARM Americas to coordinate this initiative. The activity will mainly focus on the elaboration of capacity-building courses related to transboundary aquifer topics. The courses will be at regional level and will be addressed to different kinds of expertise and might be offered in different languages.

⁷ A preliminary discussion was entertained with the representatives of Mexico (for the part of aquifer management), of Argentina, Brazil, Paraguay and Uruguay (the “Guarani group” for the legal and institutional part) and of Canada and the USA (for the environmental part).

5.4) Research

During the annual meeting held in Asuncion (Paraguay) in September 2006, the Latin American Association of Groundwater Resources for Development - ALSHUD had decided to up-date the Hydrogeological Map of South America. It was envisaged to geo-reference the map and adopt a more detailed scale. The ISARM Americas Programme will facilitate the scientific exchange among the countries to support this initiative.

5.5) Future events

Below is the list of the ISARM events planned for the years 2007-2008:

UNESCO/OAS ISARM Americas V Coordination Workshop - 2007

Hosting country: Canada, Montreal

Tentative date: Sept. 2007

UNESCO ISARM World Conference

Hosting country: France, Paris

Tentative date: beginning of 2008

UNESCO/OAS ISARM Americas VI Coordination Workshop - 2008

Hosting country: To be confirmed

Tentative date: end of 2008

Mr. Alfonso Rivera, the National Coordinator for Canada, kindly offered to host the UNESCO/OAS ISARM-Americas V Coordination Workshop in Montreal on September 2007. He presented a preliminary plan for a four-days meeting (annex 7) including a one-day field trip to the Châteauguay transboundary aquifer, shared by the State of Quebec in Canada and the state of New York in the USA.

Mrs. Donoso described the logistics planned for the UNESCO ISARM World Conference and the main topics which will be discussed during the event. She also described the potential products that the American region could bring to the event, like for example didactic material for training courses, reports of projects in the region, publications of academia and organizations, the three volumes of the UNESCO/OAS ISARM Americas series and preliminary guidelines for the sustainable management of transboundary aquifers, and the IGRAC and WHYMAP maps.

6. FINAL RECOMMENDATIONS

Several final suggestions and ideas were offered by the participants before closing the section, among others:

- To take advantage of the on-going case-studies as a useful tool for exchange of information among the countries;

- To find an on-line site where to archive the information already collected⁸ and the information which will be provided in the future by the countries;
- To reach agreement on IGRAC being the repository of the data archives;
- To create a mirror-image of the IGRAC repository at the UNESCO office in Montevideo.

7. CLOSURE OF THE WORKSHOP AND PRESENTATION OF THE OSTUA-METAPAN CASE-STUDY TO THE SALVADOREAN AND GUATEMALAN AUTHORITIES

The closure of the workshop was celebrated on the 22nd of November, with the participation of **Mr. Hugo Barrera**, Minister of Environment of the Republic of El Salvador and **Mr. Luis Ferrate'**, Consul of Guatemala in El Salvador. Many authorities attended the event, including **Mr. Julian Muñoz**, Regional Coordinator of the Trifinio Plan Secretariat, **Mrs. Esperanza Rivas**, Technical Assistant of the Vice-Presidency of the Rep. of El Salvador, and **Mr. Rogelio Sotela**, Representative of the OAS in El Salvador.

Mrs. Michela Miletto, Water Resources Specialist of the OAS/DSD and Liaison Officer for UNESCO to the OAS, introduced the presentation of the National Coordinators for Guatemala and El Salvador on the transboundary aquifer system Ostua-Metapan, identified as a priority case-study by the ISARM Americas Programme.

Mr. Fulgencio Garavito, ISARM National Coordinator for Guatemala and **Mr. Mario Guevara**, ISARM Deputy National Coordinator for El Salvador presented the results of the field-reconnaissance mission that took to the area of the Ostua- Metapan aquifer and the Lake of Uija, and described the preliminary vision for the transboundary aquifer system and dependant ecosystem.

Mr. Shammy Puri, Water Resources Specialist and UNESCO-IHP consultant and ISARM Programme Coordinator, explained the main concepts of the vision for the area of the Lake of Uija and Ostua-Metapan transboundary aquifer system under the eco-hydrologic perspective. He also proposed a preliminary program of activities to be developed in the area during the implementation of a possible project.

Mr. Luis Ferrate', Consul of Guatemala in El Salvador expressed his interest for the on-going activities of the UNESCO/OAS ISARM Americas Programme and his support to the development of the Ostua- Metapan case-study.

Mr. Hugo Barrera, Minister of Environment of El Salvador, thanked the participants from member states of the Americas and the international organizations attending the UNESCO/OAS ISARM Americas workshop in San Salvador. He outlined the importance of actions focused on the protection of the environment, and reiterated his commitment to the mitigation of land/water degradation in El Salvador and to the cooperation with other Central American countries.

⁸ All the information collected has been archived, in agreement with UNESCO, by the OAS/DSD, where it is still located up to date.

Mrs. Maria Concepcion Donoso acknowledged the support received from the authorities of the two countries for their support, congratulated the country representatives for the excellent contributions to the meeting and concluded the event wishing a successful continuation of the activities during the year 2007.



Programa hidrológico internacional



ORGANIZACION DE LOS ESTADOS
AMERICANOS - OEA

UNESCO/OAS ISARM AMÉRICAS PROGRAMME

TRANSBOUNDARY AQUIFERS OF THE AMERICAS

4TH COORDINATION WORKSHOP

HOLIDAY INN HOTEL

SAN SALVADOR, EL SALVADOR

NOVEMBER 20-22, 2006

PROVISIONAL AGENDA

NOVEMBER 20

8:00 - 8:30

WELCOME ADDRESS TO THE PARTICIPANTS BY ARCHITECT MRS. ELDA DE GODOY, DIRECTOR GENERAL, NACIONAL SERVICE FOR TERRITORIAL STUDIES -SNET

8:30 – 12:00

PRESENTATION, REVIEW AND APPROVAL OF THE BOOK “TRANSBOUNDARY AQUIFERS OF THE AMERICAS – INTERIM EVALUATION”

12:00 – 14:00

14:00- 18:30

LUNCH

- **PRESENTATION OF PHASE II OF THE UNESCO/OAS ISARM AMERICAS PROGRAMME**
- **INFORMATION ON THE DRAFT ARTICLES ON THE RIGHT OF TRANSBOUNDARY AQUIFERS OF THE INTERNATIONAL LAW COMMISSION, ILC, Raya Marina Stephan, UNESCO-IHP.**
- **THE WORK OF THE ILC ON THE DRAFT CONVENTION ON TRANSBOUNDARY WATERS**

- **OBJECTIVES OF THE LEGAL QUESTIONNAIRE IN THE FRAMEWORK OF THE PROGRAMME AND ITS STRUCTURE (Raya Marina Stephan, UNESCO-IHP)**

- **PRESENTATION OF THE LEGAL QUESTIONNAIRES BY THE COUNTRIES: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haití, Mexico, Nicaragua, Panamá, Paraguay, Perú, United States, Uruguay, y Venezuela.**

NOVEMBER 21

9:00 – 9:30	SYNTHESIS OF THE COUNTRIES’ ANSWERS TO THE QUESTIONNAIRE ON LEGAL AND INSTITUTIONAL ASPECTS OF THE TRANSBOUNDARY AQUIFERS OF THE AMERICAS– RAYA MARINA STEPHAN, UNESCO-IHP
9:30 – 10:30	ANÁLISIS OF THE STATUS OF THE LEGAL AND INSTITUTIONAL ASPECTS OF THE TRANSBOUNDARY AQUIFERS OF THE AMERICAS - EXPERT PANEL: COUNSELOR ARIEL GONZÁLEZ, LILIAN LABORDE, GABRIEL ECKSTEIN
10:30- 10:45	<i>COFFEE BREAK</i>
10:45- 12:00	DISCUSSION
12:00- 14:00	<i>LUNCH</i>
14:00– 15:00	SYNTHESIS OF THE DISCUSSION, AND CONCLUSIONS
15:00 – 16:00	PLANNING FOR FUTURE ACTIVITIES OF PHASE II
16:00- 16:15	<i>COFFEE BREAK</i>
16:15 – 18:00	PRESENTATION OF OTHER ACTIVITIES OF THE PROGRAMME (PROJECT STATUS, INITIATIVE ON CAPACITY-BUILDING, HELP....)

NOVEMBER 22

8:30 – 10:30	PRESENTATION OF THE PROGRAMME AND MEETING RESULTS
	PRESENTATION OF THE STUDY CASE “THE OSTUA-METAPAN, SV-GT TRANSBOUNDARY AQUIFER”
11:30	ADDRESSES BY DR. HUGO BARRERA, MINISTER OF ENVIRONMENT AND NATURAL RESOURCES OF EL SALVADOR, AND BY THE AMBASSADOR EXTRAORDINARY AND PLENIPOTENTIARY, REPRESENTATIVE OF GUATEMALA TO EL SALVADOR, JOSÉ BARRIOS TARACENA.
	<i>WORKSHOP CLOSURE</i>

ANNEX 2

PROGRAMA UNESCO/OEA ISARM AMÉRICAS (ACUÍFEROS TRANSFRONTERIZOS DE LAS AMÉRICAS)

UNESCO/OAS ISARM AMERICAS (TRANSBOUNDARY AQUIFERS OF THE AMERICAS)

4º.TALLER DE COORDINACION/4TH. COORDINATION WORKSHOP
SAN SALVADOR, EL SALVADOR – NOV. 21-22, 2006/SAN SALVADOR, EL SALVADOR – NOV.- 21-22, 2006

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ANNEX 3

SUMMARY OF THE OVERVIEW PRESENTED BY R. STEPHAN IN THE PROCESS AT THE UN ILC – DRAFT ARTICLES ON THE LAW OF TRANSBOUNDARY AQUIFERS

In his first report submitted in 2003 (A/CN.4/533), the Special Rapporteur addressed the background of the topic⁹. At this stage, the scope of his study was limited to groundwaters “that are shared by more than two States but are not covered by article 2 (a) of the Convention on the Law of the Non-navigational uses of international watercourses”¹⁰. He indicated that he intended to conduct studies on the practice of States with respect to uses and management, including pollution prevention, and case of conflicts, as well as domestic and international rules. The addendum (A/CN.4/533/Add.1) provided a hydrogeological overview of the groundwater resources of the world.

The second report (A/CN.4/539) presented in 2004 includes seven draft articles. The Special Rapporteur decided to drop the term “shared” and to speak of “transboundary aquifers”. He also decided to cover all groundwater. The draft articles presented deal with: the scope, the obligation not to cause harm, the general obligation to cooperate, the regular exchange of data and information, and the relationship between different kind of uses. The addendum includes a presentation of aquifer models, some case studies and a selected bibliography.

In 2005, the Special Rapporteur submitted his third report on transboundary groundwaters which contain complete set of draft articles on the law of transboundary aquifers on:

- Equitable and reasonable utilization with specific factors concerning aquifers
- Monitoring
- Protection, preservation and management
- Consideration of non-recharging aquifers
- Assistance to developing States

In June 2006 the ILC adopts the draft articles (19) at first reading. The draft articles are divided into five parts¹¹:

- II. Introduction
- III. General principles
- IV. Protection, preservation and management
- V. Activities affecting other States
- VI. Miscellaneous provisions

The draft articles apply to : (article 1 on Scope):

⁹ A/CN.4/533 §19 -

¹⁰ The Convention on the Non-Navigational Uses of International Watercourses, adopted by the UN General Assembly on 21 May 1997, based on the draft articles presented by the International Law Commission in 1994; defines a watercourse as “ **a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus**”. (article 2).

¹¹ www.un.org/law/ilc ; *under Report, and then Shared Natural Resources*.

- The utilization of transboundary aquifers and aquifer systems;
- Other activities that have or are likely to have an impact upon those aquifers;
- Measures for the protection, preservation and management of those aquifers.

In Part II, The general principles are:

*Sovereignty: the draft articles recognize the sovereignty of each aquifer State over the portion of a transboundary aquifer or aquifer system located within its territory

*The first core principle of international water law “Equitable and reasonable utilization” implyin mainly:

- The equitable and reasonable accrual of benefits
- To maximize the long-term benefits, and
- To establish a utilization plan considering present and future needs, and alternative water sources

The draft articles propose factors relevant to the application of the equitable and reasonable utilization principle. Among these factors :

- Population dependent on the aquifer
- Social, economic and other needs, present and future
- Natural characteristics of the aquifer
- Contribution to the formation and recharge
- Role of the aquifer in the related ecosystem

The list provided is not limitative, and no priority is given to one factor over the other. The draft articles provide that: The weight to be given to each factor is to be determined by its importance with regard to a specific transboundary aquifer or aquifer system in comparison with that of other relevant factors. In determining what is equitable and reasonable utilization, all relevant factors are to be considered together and a conclusion reached on the basis of all the factors. However in weighing different utilizations of a transboundary aquifer or aquifer system, special regard shall be given to vital human needs (article 5§2).

* The second core principle of international water law : the obligation not to cause significant harm:

by the utilization, or other activities through the transboundary aquifer to the other aquifer States.

* The general principle of international law : the general obligation to cooperate . For the application of this principle aquifer States should establish joint mechanisms of cooperation.

One of the first application of the general obligation to cooperate between aquifer States is theRegular exchange of data

In Part III on the Protection, preservation and management, the following provisions are provided:

*Protection and preservation of ecosystems dependent on the transboundary aquifer

* Protection of Recharge and discharge zones

* Prevention, reduction and control of pollution

* Monitoring

Monitoring is acknowledged in the draft articles as indispensable for the proper management of a TB aquifer. Aquifer States should ideally reach joint monitoring based on an agreed conceptual model of the aquifer.

* Management:

According to the draft articles, “Aquifer States shall establish and implement plans for the proper management of their transboundary aquifer or aquifer system. They shall, at the request by any of them, enter into consultations concerning the management of the transboundary aquifer or aquifer system. A joint management mechanism shall be established, wherever appropriate” (article 13).

In the last two parts the two provisions worth mentioning are the following : Notification & Consultation on Planned Activities

Scientific and technical cooperation with developing States

Such a cooperation can be provided directly States or through competent international organizations.

- UNESCO-IHP plays a central role in this field and is the global intergovernmental scientific programme of the United Nations system responding to the specific national and regional needs and demands of its Member States.

ANNEX 4
UNESCO/OAS ISARM Americas Programme
LEGAL QUESTIONNAIRE – 2006
ISARM Americas

Questionnaire on the legal and institutional frameworks for transboundary groundwater management in the Americas

Following the recommendations of the countries during the ISARM Americas II Coordination Workshop (El Paso, 2004), and the activities defined during the III Coordination Workshop (Sao Paulo, 2005), the second phase of the ISARM Americas will focus on the identification of Institutional and Legal Frameworks for transboundary groundwaters in the countries of the Americas.

In this regard, the following questionnaire has been established to conduct a survey among the countries of the Americas, and seek first hand information on existing legal and institutional frameworks on groundwater management. Should you require additional information, please do not hesitate to contact (R.Stephan@unesco.org; cdewindt@oas.org; mmiletto@oas.org; lugas@oas.org)

I. Domestic legislation and institutions

1. Does your country have domestic legislation on water resources (i.e., a Water Resources Act, a Water Services Act, and/or Water Resources Regulations ?
2. In particular, does your country have a specific regulation on groundwater resources, either as part of general water resources legislation, or as separate groundwater legislation? Could you give an indication of the main provisions concerning groundwater, such as abstraction, licensing, pollution prevention zoning mechanisms etc.
3. If the answer to question I 2 is yes, please provide the text, or indicate source where such a text can be obtained.
4. What is the governmental institutional set-up for water management in your country, at national and sub-national level? (Give full name of institution(s), and a brief description of the relevant internal structure and mandate). Is there any specific government institution for groundwater management?
5. Are there any institutional arrangements (and supporting legal provisions) for stakeholder and user participation in groundwater management?

II. Federal States

1. Are there domestic aquifers in your country which extend over the boundaries of two or more political sub-divisions (states, provinces)?
2. If yes, are there any arrangements or agreements among them on the use or management of such aquifers or on any other form of cooperation regarding them?
3. Are there any provisions on the **allocation** of groundwater resources?
4. If yes, please describe these provisions and how they work in practice.
5. Are there any provisions on the **use** of water resources? 6.If yes, please describe these provisions and how they work in practice. .
6. . Are there any provisions on the **joint management** of groundwater resources?
7. If yes, please describe these provisions and how they work
8. Please provide with the text of the arrangement or indicate source where such a text can be obtained

III. Transboundary aquifers (common to two or more countries)

1. Are there any arrangements or agreements with your neighboring States on the use or management of these aquifers or for any other cooperation for them, whether at the local, regional or national level?
2. If yes, please provide with a copy of the agreements/arrangements, or indicate source where such agreement can be obtained.
3. Are there joint bodies/mechanisms among the States concerned on the management or other form of cooperation regarding these aquifers?
4. If yes, please provide with information describing the legal basis, role and function of the joint bodies/mechanisms
5. If the answer to questions to 1 and 3 is yes, please provide with similar information as described in questions II 3 to II 7.

IV. Rivers, lakes or other surface water bodies

1. Does your State have any agreement concerning the river(s), lake(s) or other surface water body(ies) it has in common with its neighbour(s) ?
2. If yes, do you know if this agreement includes provisions on groundwater resources ?
3. 3. If the answer to question 2 is yes, please provide the text of the agreement, or indicate source where such an agreement can be obtained.

V. International Cooperation (non-water specific)

1. Does your State have any agreement on cooperation with its neighbour(s), that includes provisions on water resources?
2. If yes, please provide the agreement, or indicate source where such an agreement can be obtained.

ANNEX 5

UNESCO/OAS ISARM Americas Programme

**SYNOPTIC TABLES OF WATER-RELATED LAWS AND INSTITUTIONS OF THE AMERICAN
COUNTRIES**

*Extracted by the Legal Questionnaires filled up by the countries in 2006 and synthesized by
Raya Stephan (UNESCO-IHP)*

Country	Water Law	GW regulations/provisions	Institutions	Other
Costa Rica	Ley de Aguas 1942 120 leyes y decretos	<u>Ley 5516 (2 mayo 1974)</u> Registro para la inscripcion de las personas o empresas que perforan el subsuelo para extracción de agua subterranea <u>Reglamento (decreto 30387-MINAE.MAG):</u> Permiso de perforación Zonas de limitaciones	Ministerio de Ambiente y Energia : rector Servicio Nacional de Aguas Subterraneas, Riego y Avenamiento (SENARA) : investigación Instituto Costarricense de Acueductos y Alcantarillados : servicio de agua para poblaciones	Water : public good (Constitution) Dispersion legislative Legislacion se centra en las aguas superficiales Congreso trabaja sobre nueva Ley de Recursos Hidricos
Republica Dominicana	Law No 5852 (29.03.62) Dominio de Aguas Terrestres y Distribucion de Aguas Publicas Law No 6 (8.9.65) : creation of the Instituto Nacional de Recursos Hidraulicos (INDRHI) Law No 62(17.8.2000) General Law on Environment and Natural Resources	Law No 487 (15 October 1969) : control de la explotacion y conservacion de las aguas subterraneas : use of GW, rights and obligations of users, capacity of regulating agency to enforce control measures, procedures for application of well drilling. →reglamento de aplicación NO 2889 (20.05.1977, mod. Aug.2000 y Julio 2004): establish requirements and procedure for necessary permits for the use of GW and discharge, with the aim of adequate protection (quality and quantity) Normas Ambientales sobre Calidad de Aguas Subterraneas y Descargas al subsuelo (Julio 2004)	Secretaria de Estado de Medio Ambiente y Recursos Naturales Instituto Nacional de Recursos Hidraulicos	

Country	Water Law	GW provisions/regulations	Institutions	Other
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Nicaragua	Anteproyecto de Ley de aguas	Ley sobre permisos de perforación y establecimiento de un registro nacional de pozos (gaceta diario Oficial 16 Julio 1969)	Ministerio del Ambiente y los Recursos Naturales (MARENA): Dirección General de Recursos Naturales y Biodiversidad/Dirección de Recursos hídricos y cuencas	
		Decreto 107 (2001) : Política Nacional de Recursos hídricos: Planificación y administración integrada de los recursos hídricos, forma unitaria las aguas subterráneas y superficiales, y su cantidad y calidad solo atributo	→desarrollar programas para establecer zonas de protección, zonas de veda y rondas de protección para la preservación de la calidad de los cuerpos de aguas subterráneas y	

Country	Water Law	GW provisions/regulations	Institutions	Other
El Salvador	Anteproyecto de Ley de Aguas (Octubre 2006) Ley de Medio Ambiente : proteccion de los recursos hidricos		Ministerio de Medio Ambiente y Recursos Naturales (MARN): competencia en la gestion, uso, proteccion y manejo de las aguas y ecosistemas →permiso ambiental Administración Nacional de Acueductos y alcantarillados (ANDA) Ministerio de Agricultura y Ganaderia	Politica de Gestion Integrada de Recursos Hidricos Gestion de las aguas se da de manera segmentada por usos Asociaciones Rurales de Agua Asociaciones de Desarrollo Comunal
Belize	Water Industry Act (2001): facilitate the privatization of potable water services in the municipalities			Draft National Water Resources Policy and Legislation Bill →Establishment of a National Water Commission
Guatemala			Ministerio del Ambiente y Recursos Naturales INSIVUMEH : evaluar y cuantificar los recursos hidricos →investigaciones y estudios de aguas subterranas	Ley de proteccion y mejoramiento del medio ambiente (decreto 68-86) Gestion de los acuíferos no es abordado propiamente dicho
Bolivia	Ley General del Ambiente No 1332 (27/04/1992) que establece los reglamentos superficiales y subterranas	Reglamento Título IV de las Aguas Subterranas Decreto Ley No 1752 de 1975 Ley de Aguas subterranas No 2769 de 1992 Decreto Ley No 69-ADM/GA y seguimiento.	Ministerio del Ambiente y Recursos Naturales (decretos 1351, 1162, 2006) Autoridades locales de agua (Administraciones Tecnicas de los Distritos de Riego (ATDRs) (68) →aprobar estudios y autorizar obras de irrigacion + otorgar derechos de uso (superficiales y subterranas)	

Paraguay	No existe una ley general de aguas Ley de regulación del servicio de agua potable Ley de creación del Sistema Nacional del Ambiente	Codigo Civil : dominiabilidad del agua subterranea Resolucion 50/2006 Secretaria del Ambiente : pena por utilización de aguas superficiales y subterraneas sin licencia ambiental Resolucion 2155/2005 : especificaciones tecnicas para perforación de pozos para captación de aguas subterraneas	Gran diversidad de instituciones involucradas en la gestion del agua generalmente sin coordinación y con superposición de atribuciones Secretaria del Ambiente: acuíferos tranfronterizos.	
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Chile	Codigo de Aguas	Resolucion DGA No 341 2005 : normas de exploracion y explotacion de aguas subterraneas	Direccion General de Aguas (DGA)	Asociaciones de usuarios permitidas por el Codigo de Aguas Codigo de Aguas : economia de mercado, agua bien nacional de uso publico, se entrega a los particulares derechos de aprovechamiento sobre ellas. Derecho se puede transar en el mercado.
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Ecuador	Ley de Aguas (05.1972) Reglamento (01.1973)	<p>Titulo VIII L. de Aguas Concesion de Derechos de Aprovechamiento de Aguas Subterraneas (art 43 al 47) : Consejo Nacional de Recursos Hidricos concede derechos de aprovechamiento, autorice trabajos de perforación o alumbramiento,, conceda licencia para perforación, recabe información de prospección y perforación de aguas subterraneas</p> <p>Capitulo XXXIII del Reglamento De las Aguas Subterraneas y su Concesion (art120 al 124): regula de una forma muy general la exploracion, perforación, explotacion y uso del agua subterranea</p>	<p>Consejo nacional de Recursos Hidricos : organismo rector del agua</p> <p>Agencias de Aguas (AGAs) : 11 AGAs : ambito territorial : provincias→no coincide con las cuencas hidrograficas</p> <p>Corporaciones Regionales de Desarrollo</p> <p>Consejos Provinciales</p> <p>Ministerio del Ambiente</p> <p>Instituto Nacional de Meteorología e Hidrologia (INAMHI)</p>	
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Uruguay	Codigo de Aguas- Decreto Ley 14.859 (15.12.1978) (mod. Ley 16.170, art.457 28.12.1990; Ley 16.320 art 251 1.11.1992) Leyes de Medio Ambiente Ley de Riego con destino agrario (ley 16.858 3.9.1997): regula la construccion de obras hidraulicas y el aprovechamiento de aguas para riego.Ley de Dominio de las Aguas (ley 17.142 23.06.1999) Ley de Conservación de Suelos y Aguas (ley 15.239, 23.12.1981)	Prevencion de la contaminación de las aguas (Decreto 253/79 9.05.1979 y mod) Sanciones pro contravención al Codigo de Aguas (decreto 123/99, 28.04.1999) Plan de gestion del Acuífero Guaraní (Decreto 214/00 de 26.09.2000, y comp.) Juntas de riego (decreto 128/03 2.04.2003) Registro publico de Aguas, decreto 460/03 (7.11.2003)	Ministerio de vivienda, ordenamiento territorial y medio ambiente (2006) : formulacion de las politicas nacionales de agua y saneamiento Direccion General de Secretariav :→Direccion Nacional de Aguas y Saneamiento	Constitución (reforma 2005): El agua es un recurso natural esencial para la vida.El acceso al agua potable y el acceso al saneamiento, constituyen derechos humanos fundamentaParticipación efectiva de los usuarios y de la sociedad civil en todas las instancias de planificación, gestion y control.
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Country	Federal level (central State)	Provincial level	Domestic aquifers
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Canada	<p>Control over water Interdepartmental Committee on Water : focal point for coordinating the policy among federal departments and agencies</p> <p><u>Institutions</u> Environment Canada Natural Resources Canada Agriculture and Agri-food Canada Health Canada Indian and Northern Affairs Canada</p>	<p><u>British Columbia:</u> Ministry of Environment : Water Act GW protection regulation</p> <p><u>Saskatchewan:</u> Saskatchewan Watershed Authority GW regulations under the Saskatchewan Watershed Authority Act</p> <p><u>Manitoba:</u> Manitoba Water Stewardship GW and Water well act Water well regulations</p> <p><u>Quebec</u> Ministere du Developpement durable, environnement et parcs GW catchments regulation IWRM 33 watershed agencies</p>	
USA		Rights to use GW are regulated by States through application of common law, state statutes and regulations, or judicial precedent	
Mexico	<p>Ley de Aguas Nacionales/Reglamentos Comision Nacional del Agua Nivel central Nivel regional : 13; jurisdicción sobre regiones que corresponden aproximadamente con las grandes cuencas hidrologicas Nivel estatal : en las ciudades capitales de las entidades federativas Consejos de cuencas Comites Tecnicos de aguas subterraneas</p>		<p>Acuiferos interregionales y transfronterizos: competencia del nivel central de la CNA Acuiferos interestatales : competencia regional</p>

Argentina	<p>Lista de 20 leyes y decretos</p> <p>Subsecretaria de recursos hidricos (SSRH) (Secretaria de Obras Publicas del Ministerio de obras y servicios publicos) : politica hidrica nacional (contribuciones de las provincias, consultas con expertos en las aeras de planeamiento y gestion de los recursos hidricos)Secretaria de Desarrollo Sostenible y politica ambiental (Ministerio de Desarrollo Social y Medio Ambiente) : conservación y recuperacion del medio ambiente y de los recursos naturalesInstituto Nacional del Agua y del Ambiente (Secretaria de recursos naturales y desarrollo sostenible) : realizar estudios, investigaciones y desarrollo tecnologico en el area de los recursos hidricos a fin de contribuir a su conocimiento, aprovechamiento, administracion, control y preservación</p> <p>Consejo Hidrico Federal (COHIFE)</p>		
Brazil	<p>Ley 9.433 (8.01.1997) : politica nacional de aguas:</p> <ul style="list-style-type: none"> - agua en el dominio publico - recurso natural limitado - uso humano prioritario - cuenca hidrografica : unidad de planeamiento - gestion descentralizada y participativa <p>Dominio de cuerpos de aguas de la Union, y dominio de los estados (aguas subterranas)</p> <p>Secretaria de Recursos Hidricos (Ministerio del Medio Ambiente) : formular la politica nacional de recursos hidricos</p>	<p>Estados de la Union regulen las aguas de su dominio</p> <p>Diversos estados poseen legislación especifica sobre aguas subterranas (Pará, mato Grosso, Sao Paulo, Minas Gerais, Goias...</p>	

	Consejo Nacional de Recursos Hidricos Comites de cuencas hidrográficas Consortios intermunicipalidades de cuencas hidrograficas		
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Country	Cooperation/Agreement	Joint mechanism
Costa Rica		
Republica Dominicana		
Nicaragua		
El Salvador	Programa Trinacional de manejo de la zona del Trifinio (Guatemala, Honduras, El Salvador) : tema de loa acuíferos reciente en el Programa, estudios preliminares de investigación	
Belize		
Guatemala		

Bolivia	<p>Acuifero tranfronterizo Amazonas y Pantanal Bolivia/Brazil: se acuerdo que este acuifero debe ser estudiado , concertaciones en reuniones OEA/UNESCO-ISARM.</p> <p>Idem : Titicaca (Bolivia-Peru)</p> <p>Agua Dulce (Bolivia-Paraguay), Ollague Pastos Grandes (Bolivia-Chile), Puenos (Bolivia-Argentina)Yrenda-Toba-Tarijeño (Bolivia-Argentina-Paraguay) : propuesta de proyecto al GEF dentro del Programa Marco de la Cuenca del Plata, para profundizar el conocimiento y propiciar la gestion conjunta.</p>	
Paraguay	<p>Memorando de entendimiento entre los cuatro paises del MERCOSUR : investigaciones y gestion sustentable del sistema acuifero Guarani Sistema acuifero SAYTT (Argentina, Bolivia y Paraguay)</p> <p>Sistema acuifero Pantanal (Brasil, Bolivia y Paraguay)</p>	
Ecuador	<p>Proyecto especial binacional Puyando Tumbes : elaboraci3n de los Estudios de Caracterizaci3n Hidrol3gica-Isot3pica del area del Acuifero de la cuenca del Rio Zarumilla y monitoreo de la calidad del agua de la cuenca del rio Puyando-Tumbes.</p>	
Venezuela	<p>Cooperaci3n tecnica :intentos de estudios:</p> <p>Rep. Colombia : acuifero La Guajira; acuifero Pamplonita-Tachira</p>	

Canada	British Columbia/Washington Env. Corp. Council: Abbotsford-Sumas Aquifer Ial Task Force → recommendations to the Council on both W quality and W resource management issues on both sides of the border.	
Mexico	Minute 242	US border : CILA

ANNEX 6
(Original Spanish versions-2)

1^{era}. Intervención: **Ariel Walter González**,
Ministerio de Relaciones Exteriores, Argentina

IV TALLER DE COORDINACION ISARM
PANEL “SITUACION DE LOS ASPECTOS LEGALES E INSTITUCIONALES DE LOS
ACUIFEROS TRANSFRONTERIZOS DE LAS AMERICAS”

Intervención Ariel Walter González
(Aspectos principales)

- La situación jurídica e institucional de los acuíferos o sistemas acuíferos transfronterizos en nuestra región puede abordarse con tres enfoques. Una óptica “nacional” aconseja examinar comparativamente las respuestas de los cuestionarios preparadas por los Coordinadores Nacionales del Programa ISARM. Este examen permitiría alcanzar las siguientes conclusiones preliminares:
 - a) En general, los ordenamientos jurídicos de los Estados carecen de normas específicamente aplicables a la reglamentación de acuíferos o sistemas acuíferos transfronterizos;
 - b) Se advierte asimismo una importante “anarquía institucional” –es decir, una multiplicidad de instituciones competentes o pasibles de ser competentes en dicha reglamentación, sin que existan vínculos de coordinación o subordinación entre las mismas;
 - c) Las respuestas muestran, por otra parte, limitaciones que tienen o son pasibles de tener un impacto negativo en la gestión de acuíferos o sistemas acuíferos transfronterizos. Estas limitaciones surgen principalmente de la existencia de niveles de gestión disímiles entre los Estados del acuífero; y
 - d) Se observa un silencio significativo de normas referidas a la protección o preservación con efecto práctico –es decir, no meramente declarativas- de los acuíferos o sistemas acuíferos transfronterizos.
- Un enfoque subregional o regional aconseja extraer enseñanzas del por el momento único esquema jurídico, con posibilidades ciertas de resultar en breve vinculante, orientado a la reglamentación de un sistema acuífero transfronterizo en la región: el proyecto de acuerdo relativo al llamado “Sistema Acuífero Guaraní”, que se encuentra en sus instancias finales de negociación. En particular, el articulado de este proyecto muestra que, cuando se abordan aspectos de la gestión del acuífero o sistema acuífero, prevalece una referencia contundente a la soberanía exclusiva de cada Estado del acuífero en la parte de este último que se encuentra en su territorio. En cambio, esos Estados se muestran dispuestos a establecer esquemas de cooperación en aspectos referidos a la protección / preservación del acuífero o sistema acuífero.

- Un enfoque internacional requiere tomar como punto de partida el proyecto de artículos aprobado en la materia en primera lectura por la Comisión de Derecho Internacional. Tanto la génesis como el contenido de ese proyecto sujeta, una vez más, los aspectos de gestión de los acuíferos o sistemas acuíferos transfronterizos a la soberanía de los Estados, ofreciendo posibilidades de cooperación en materia de protección / preservación.

Los tres enfoques precedentes permitirían extraer la siguiente conclusión principal, consistente con el espíritu de la Agenda 21 en la materia (ver, en especial, Capítulo 18, puntos 25 d) y 39 a)): **una reglamentación jurídica efectiva de un acuífero o sistema acuífero transfronterizo parecería ser más fácil de lograr si esa reglamentación deja a cada Estado del acuífero la responsabilidad de asegurar la gestión de la parte del acuífero o sistema acuífero situada en su territorio, procurando evitar las siempre sensibles cuestiones de propiedad o soberanía, y concentrándose en cambio en los aspectos de protección / preservación (“*más que de quién es, importa cómo se protege*”).** Esta protección / preservación tendría las siguientes características principales:

- a) aborda al acuífero o sistema acuífero transfronterizo de manera integral, concibiéndolo como parte de un ecosistema. Sin perjuicio de ello, cabe admitir que, estratégicamente, puede convenir comenzar por reglamentar cuestiones relativas a la calidad de las aguas del acuífero o sistema acuífero transfronterizo;
- b) se basa en un criterio de precaución, que podría aquí formularse como sigue: la falta de conocimientos científicos sobre el impacto de una determinada actividad sobre el acuífero o sistemas acuífero transfronterizo no habilita *per se* a ejecutar dicha actividad;
- c) se refiere principalmente a la obligación de un Estado del acuífero –o Estado en el que se encuentre una zona de recarga o descarga- de no causar o tolerar un perjuicio sensible a otro Estado del acuífero; y
- d) tiene debidamente en cuenta las particularidades del acuífero o sistema acuífero pertinente.

2^{da} Intervención: **Lilian Laborde del Castillo**

Universidad de Buenos Aires, Ministerio de Relaciones Exteriores, Argentina

ANALISIS DE LA SITUACION DE LOS ASPECTOS LEGALES E INSTITUCIONALES DE LOS ACUIFEROS TRANSFRONTERIZOS.

PANEL DE EXPERTOS

Lilian Laborde del Castillo

En español, extraer el agua subterránea se describe como ‘alumbrar’ el agua, es decir, traerla de la oscuridad en la que reposa hacia la superficie y hacia la luz. De un modo similar, la tarea de ISARM cumple la función de ‘alumbrar’ el conocimiento de las aguas subterráneas, tanto desde el punto de vista de su evaluación y clasificación como desde su regulación legal e institucional, a lo que se agrega su importante impacto económico y social.

El agua subterránea es un recurso escondido, no visible, que por esa misma característica ha estado también oculto al conocimiento en relación a su cuantificación y a su regulación jurídica. En este aspecto puede decirse que es un recurso del siglo XXI, porque en este período ha hecho eclosión la demanda de avanzar hacia la búsqueda y sistematización de la información existente, hacia la obtención de más y mejores datos, y hacia la elaboración de marcos jurídicos nacionales y regionales o internacionales.

Los aspectos legales e institucionales están reflejados para las Américas en las respuestas al Cuestionario Legal que se ha elaborado a los fines del Programa ISARM. Si bien no se ha analizado en detalle el contenido de las respuestas, se advierte que los países tienen diversas regulaciones referidas al agua, algunas dentro de ellas que pueden aplicarse a las aguas subterráneas, y proyectos en lo que se refiere a la regulación jurídica de los acuíferos transfronterizos. Las muy útiles exposiciones realizadas en este Taller ponen en evidencia que los países no han considerado necesario, salvo alguna circunstancia especial, elaborar acuerdos relacionados específicamente con la materia. Se encuentra en elaboración, según se ha explicado, el acuerdo de los cuatro países en los que se ubica el acuífero Guaraní estableciendo las normas básicas que regularán su conducta futura. Por otra parte, se han adoptado acuerdos bilaterales o regionales sobre aguas transfronterizas en las que incidentalmente puedan estar incluidos los acuíferos transfronterizos, como puede ser el acuerdo sobre el punto trifinio del río Lempa, pero sin tratar directamente los aspectos de la utilización y protección de los acuíferos.

Las normas referidas a los acuíferos son escasas y recientes a nivel nacional y son una aspiración en relación con los acuíferos transfronterizos. Esto brinda la oportunidad de progresar en forma simultánea y concordante en el régimen del agua subterránea, de manera que ambos niveles normativos, el interno y el internacional, evolucionen y se influyan mutuamente.

La circunstancia de encontrarse en formación el marco jurídico en su totalidad brinda una oportunidad única para elaborar un marco jurídico coherente, ya que el marco normativo internacional no puede aplicarse sino a través de las legislaciones nacionales y las legislaciones nacionales a su vez deben ser armónicas con el régimen transnacional. Por lo tanto, el objetivo que debería buscarse es la elaboración de marcos de referencia normativos a nivel internacional, regional y nacional.

En el ámbito internacional, el Proyecto elaborado por la Comisión de Derecho Internacional proporciona un adecuado punto de partida para que los países puedan debatir y posteriormente adoptar un conjunto de principios generales para la utilización y protección de los acuíferos transfronterizos. El Proyecto es por lo tanto el marco de referencia en el nivel

normativo internacional para ser considerado cuando se redactan acuerdos regionales, trinacionales o bilaterales.

En el ámbito regional, el marco de referencia en cada región lo pueden proporcionar acuerdos generales que reflejen las particularidades climáticas, culturales, económicas o sociales de cada región, que a la vez operarán como el marco jurídico regional para los acuerdos parciales que se celebren en la misma región. Un ejemplo de este tipo de marco normativo regional es el acuerdo que se encuentra en elaboración por los cuatro países del acuífero Guaraní, Argentina, Brasil, Paraguay y Uruguay.

En el ámbito nacional, como no es posible dictar leyes para ser aplicadas por cada país, puesto que ello sería interferir en los asuntos internos de cada Estado con respecto a sus propios recursos naturales, una posibilidad sería elaborar un conjunto de directivas o principios a los cuales los países podrían adherir al adoptar sus legislaciones internas referidas a las aguas subterráneas y los acuíferos transfronterizos. Otra posibilidad sería elaborar una Ley Modelo en la cual se incorporarían esos principios ordenados en la forma de una ley, que operaría como una sugerencia para ser analizada por los países al elaborar sus propias legislaciones. No existe diferencia sustancial entre un conjunto de Directivas para el uso y protección de los acuíferos y una Ley Modelo sobre el mismo tema, sólo difieren en la forma de redacción. Escoger una forma u otra dependerá de lo que se considere más útil para colaborar con la tarea legislativa de los países.

El contenido de las directivas o principios generales deben ser de tal naturaleza como para poder ser aplicables en todas las circunstancias, que varían en cada región. Entre ellos, la necesidad de llevar a cabo el inventario de los acuíferos y de determinar la diferente calidad de sus aguas, sus formas de recarga, entre otros elementos. Otro sería la necesidad de conocer los niveles de abstracción, lo que requiere la creación de un registro de usuarios. Es decir un conjunto de directrices dirigidas a conocer la cantidad de agua disponible y la cantidad utilizada en cada unidad política, sea un Estado o una unidad subnacional. Estos principios de utilización se dirigen a los aspectos cuantitativos de los acuíferos. Otro conjunto de principios deberían estar relacionados con el control de los aspectos cualitativos de los acuíferos, la necesidad de controlar la disposición de aguas no tratadas en los acuíferos, los requisitos para la abstracción, entre otros. En este aspecto, sería recomendable que los Estados establezcan registros específicos para los grandes usuarios, ya sea proveedores de servicios de agua y saneamiento, usuarios industriales, u otros.

Por lo tanto, la contribución de esta etapa del Programa ISARM podría ser la elaboración de los marcos de referencia normativos en los diferentes niveles mencionados -internacional, regional y nacional- utilizando para ello los elementos comunes de los regímenes nacionales según surgen de las respuestas al cuestionario legal e institucional, las normas que se incorporen en los acuerdos regionales y el Proyecto de la CDI.

ANNEX 7

UNESCO/OAS ISARM Americas Programme

PROPOSED PLAN FOR THE UNESCO/OAS ISARM Americas V COORDINATION WORKSHOP IN 2007 MONTREAL, CA

Alfonso Rivera, ISARM National Coordinator for Canada

AGENDA

- Day 1: Workshop
- Day 2: Field trip to
Châteauguay TA (Quebec/New York)
- Day 3: Workshop
- Day 4: Half a day workshop



DAY 1 (8H30-17H30)

- Invited presentations
 - 30-min high-level presentation of book
 - 30-min IJC invited speaker (i.e., GLB)
 - 30-min IBWC invited speaker (i.e., USA-Mx)
- Presentation Phase II
 - Legal, institutional
 - Status of 2nd book (chapters, etc)

DAY 2 (8H00-18H30)

- Departure 8 am from Montreal
 - 1h30 trip to Châteauguay
 - 10h-12h: tour of aquifer with 3 stops
 - 12h-13h30: Lunch on site
 - 14h-17h: tour of aquifer with 4 stops

- **Return to Hotel**

DAY 3 (9H00 -17H30)

- **Presentation/Discussion Phase III**
 - **Sustainable development**
 - **Monitoring**
 - **Modelling**
 - **Resource management**
- **Case studies**
 - **Distribution of 1st Book**
 - **Status of 2nd book (chapters, etc)**

DAY 4 (8H30 -12H00)

- **Presentation of program**
- **Synthesis and Results of workshop**
- **Next Steps**

POTENTIAL SPECIAL GUESTS, INVITED SPEAKERS:

- **GSC**
- **USGS**
- **IJC**
- **IBWC**
- **MOE QUEBEC**
- **OTHERS (?)**

ADVANTAGES

- **Direct flights from:**
 - **Mexico City**
 - **Many American Cities**
 - **Argentina**
 - **Brazil**
 - **Caribbean**

- **Possibilities of instantaneous translation:**
 - **English-Spanish**
 - **English-French**
 - **French-Spanish (?)**