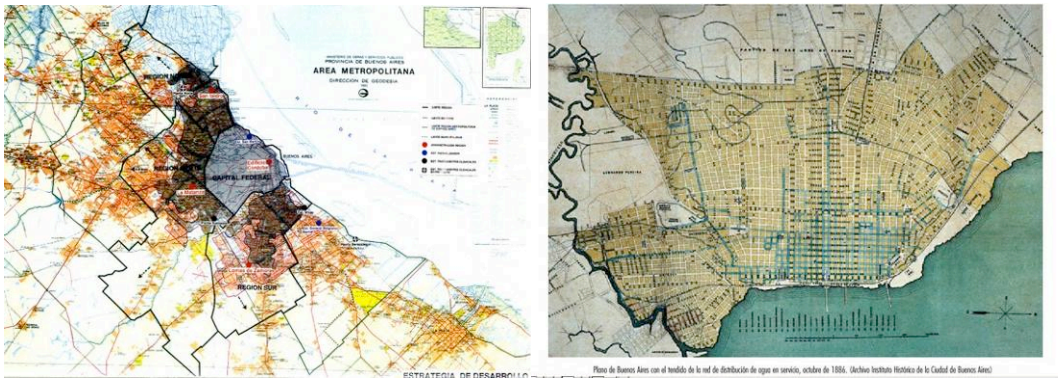
EAUX, VILLES et TERRITOIRES
WATER, CITIES and LANDS
Governance and access to water in the Americas



Plano de Buenos Aires con el tendido de la red de distribución de aguas en servicio, octubre de 1886. (Archivo Instituto Histórico de la Ciudad de Buenos Aires)

Project presented by Graciela Schneier-Madanes (UMR 7169)
To the SHS Department
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WAT-CIT-TER, WATER, CITIES and LANDS
Governance and access to water in the Americas

This project brings together three French research units (laboratories) :
- Centre de recherche et de documentation sur l'Amérique latine - CREDAL umr 7169 ;
- Pôle de recherche pour l'organisation et la diffusion de l'information géographique - PRODIG umr 8586 ;
- le Centre d'enseignement et de recherche Eau Ville Environnement - CEREVE de l'Ecole Nationale des Ponts et Chaussées

With three research centers at universities in the Americas :
- Centro de Estudios Transdisciplinarios del Agua - Universidad de Buenos Aires (Argentina);
- Centro de Investigaciones Juridicas de la Facultad de Derecho Universidad Diego Portales (Chile);
- Udall Center for Studies in Public Policy - University of Arizona (United States)

The urban water research network of CNRS (GDR 2524 « rés-eau-ville »), which works on social, urban and territorial water management is the initiator of this project. Joint activities with members of the universities (publications, seminars) have contributed to preparation of the research program. The universities in the Americas work on law, economy, politics, policies, and other environmental issues related to water.

At an international level, little research jointly examines social (geography, urbanism, political science, law), physical and engineering issues; and few international programs employ a comparative regional approach to analyze technical, institutional, social, and political issues.

Governance and access to water are today at the core of international debates on water. Each member of the GDRI team has been selected because of a speciality in some issue. The « integrated approach to water » will be studied in an interdisciplinary perspective through geography, urban hydrology, law, economy, natural sciences, and other relevant disciplines.

The main goal of this project is therefore to undertake collaborative international and interdisciplinary research.

SCIENTIFIC PROJECT

The core of this project consists at developing comparative research between France and the Americas (North, Central and South America). This « research geography » has the goal to confront on the same research object – **water governance** – through the Anglo-saxon, the French and the Latin American social sciences methodologies.[1]

During the nineties Latin America has undergone important changes in its water management systems (privatisations).The United Sates is confronting water management at different scales (local, state, federal). The French water management model is challenged by Europeanization.

The research fields selected –**access to water and governance** – are at the center of the international debate on water. Each partner has been selected because of their specialization in one or more thematic areas. Through the collaborative approach proposed by the GDRI they all wish to explore « integrated water management » in an interdisciplinary collaboration which includes geography, urbanism, hydrology and urban hydrology, law, economy and natural sciences, chemistry, etc.

OVERVIEW

The 1990s constituted a turning point in approaches to water management all over the world. The decade was characterized by the commodification, internationalization, and institutionalization of a "global vision of water".

Following the water decade (the 1980s), themes such as the administration of the resource itself, the management of public services, and the lack of access to such services on the part of disinherited populations, became issues of central importance.

A new international approach (United Nations *Millennium Development 2000*) defined objectives and deadlines for the whole world: the fight against poverty, hunger, disease, the degradation of the environment, and discrimination against women. The crux of these ambitions was expressed in the following terms: **"universal access to drinking water must be achieved by 2015."**

The new global model of water management suggested by lenders and backers outlined the necessary pre-conditions that would guarantee access to water: the privatization of services,[2] decentralization, and participation. The approach was adopted by a number of governments, but applied with widely varying degrees of efficiency in various countries and regions. Meanwhile the strictly public and centralized management model remains largely predominant.

[1] Conceptual differences are important (i.e. service public is not « public utilities ».

[2] The use of the term « privatisation » is *stricto sensu* inexact. In most cases, long-terms concessions (generally 30 years in duration) are granted, which, theoretically, implies role-sharing between the authority granting the concession (which retains ownership of the installations) and the concessionaire. Nevetheless, this use of the term is not anodyne: it is designed to highlight the rupture with the previous system of state management.

The question of the financing of infrastructure is of central importance to the task of providing a universal service guaranteeing access to water for all (Camdessus Report, 2003).[3] Another pre-condition is the **good governance of water** based on the involvement of a number of different actors, particularly on the local level (communities, NGOs). *A growing recourse to the private sector would enable the public sector to increase its efficiency while at the same time encouraging a process of commodification of water.*

The arrival of water on the economic, institutional, social and intellectual scene has been accompanied by a steady stream of research work.

Access to water

A vast international bibliography (World Bank) as well as work by the French GDR99 networks (Camdessus Report, 2003), particularly centered on economic and legal approaches bears witness to this movement of ideas.[4]

A number of theoretical arguments have been advanced. Economists and political analysts refer to water either as "a public commodity" accessible to the greatest number that is to be considered as being in the public interest (Hugon 2005); or as an "impure public commodity"; or, for proponents of the neo-institutional approach, as "a right" (Ménard, Shirley, 2002); or again, for political economists, as a "primary commodity" (NU "the human right to water" 2002).

From the perspective of sustainable development, water has become a "common inheritance" (Ollagnon 1989, Godard 1990, Petrella 2003), while for political scientists, it is a "socially constructed commodity" which, internationally, expresses the asymmetrical position of actors in the field (Strange 1996 quoted by Hugon 2005). Corollary to these approaches are the numerous debates on forms of regulation (commercial, administrative, contractual), partnerships, and levels of management.[5]

- The network approach

Typically, international organizations opt for the "network" approach. Urban water supply is characterized by accessibility, which defines and determines territories. To the degree that they structure urban areas spatially, technologically and institutionally, networks can also exert an influence.

Urban planners and, in general, the proponents of this approach, use the water network (or its absence) as a unit of analysis determining accessibility.

In France, such theoretical work has developed apace thanks to the convergence between the social sciences and operational disciplines (Offner, Coutard, 2003), and to specialised studies on urban networks (Coing, Barraqué 2003). Dupuy's *urbanisme des réseaux* (1987) presented a *networked* vision of the city.

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[3] In this context, the gradual emergence of social and scientific movements revolving around the notion of human rights and water as a "heritage" should be underlined.

[4] Euzen, A., Ghiotti, D., Haghe J.P. Dossier L'eau à la rencontre des territoires. Paris, Cybergéo http://193.55.107.45/eauville/intro.htm

[5] Hugon, Ph. L'eau est-elle un bien privé ou public ?, Toulouse, *Sciences de la société*, No. 64, February 2005

At the heart of the network-based approach is the socio-economics of water (Lorrain, 1995; Bouba-Olga and Chauchefoin, 2003) based on the relationship between cities and big business. Territorial monopoly makes it possible to take the view that a given urban territory and the delegated management covering it are identical.

As for the network's governance, research examines stakeholder action like urban water companies as actors in urban governance (Schneier Madanes, 2003) and practices of local people and NGOs. The absence of networks in suburban areas of developing cities (de Gouvello, 2001; Llorente and Zerah, 2002; Jaglin, 2003) has fostered the development of grassroots organizations examined by anthropological and sociological research. Perceptions of water have become an important issue (Wateau 2004, Euzen 2005, Aubriot 2005).

Governance : civil society (economic and social stakeholders, participation)

Originally defined as "a country's capacity to organize the development of its water resources in a sustainable fashion,"[6] governance has become a notion with a wide range of different meanings.

It is possible to isolate three models in the literature over the course of the last fifteen years: the PPP (public-private partnership) promoted by financial backers and large service companies (Lorrain, 1996); "water for all" or the social contract approach to water management (Pertella, 2003); and the public-private-users framework dear to the NGOs (Olivier, 1998).

Europe, and France in particular, are receiving increasing attention from analysts of water governance. The changes introduced in water management (European Framework Directive, privatizations, the emergence of users) encourage a dynamic whereby the fields of influence of various actors are redefined (inter-communality, associations), thus favouring the creation of new "territorialities" of variable geometry. The spatial management of water has gradually become a public policy theme, raising the question of what kind of territorial units are best suited to sustainable management.[7]

This "global model" provokes a variety of reactions from local companies, ranging from acceptance, to negotiation, to rejection leading to projects being entirely abandoned, to the explosion of veritable "water wars" (Fournier and de Gouvello, 2000) which, after contracts have been signed, frequently pit multinational companies against local firms.[8] In Latin America pockets of resistance to water reforms have emerged and, in a recent development, been integrated into worldwide though nebulous anti-globalization networks.[9]

From an operational point of view, the principles of the French model[10] have been applied since the 1992 Dublin Conference and reinforced in 2003 at the 3rd edition of the World Water Forum in Kyoto, in spite of opposition expressed in

[6] Pena H, Solanes, M. Effective Water Governance in the Americas: A Key Issue, Kyoto, Third Water Forum, March 2003.

[7] See bibliogaraphy in Appendix 2

[8] This last is also based on networks of influence which underwrite the diffusion of the new policy, for example the International Network of Basin Organizations, which includes 134 organizations from 51 countries and which is financed by member countries, the European Union, the World Bank and the Inter-American Development Bank.

[9] Varady, R. See bibliography (2007)

[10] In 1992, France integrated these evolutions within the framework of its Second Water Law.

The Hague in 2000. The framework and contents of the reforms of water policy should incorporate these principle : a decentralized system based on catchment areas involving the participation of all stakeholders and encouraging an open attitude to the private sector within the framework of “good governance”.

At the same time, the public is becoming increasingly aware of the strategic importance of water.

Land and urban water management

Certain major legal principles underpinning the public services – continuity, equality and adaptability – have contributed to defining urban territories. Bodies responsible for managing water services, be they public or private, dispose of a chronological monopoly of a given territory. For the exponents of this approach, urban territory includes the urban portion of administrative concessions.

Changes in the field of water management (European Framework Directive, privatizations, emergence of users) have generated a dynamic involving the realignment of the spheres of influence of various actors (inter-communality, associations) (Pezon, Petitet, 2004), a realignment which defines new “territorialities” of variable geometry.

It should be underlined that the spatial management of water has gradually become a theme in public policy. This raises the question of what kind of territorial units would be most appropriate for sustainable management (Mermet and Nancy, 2003). In this instance, the concept of “urban territory” overlaps with the notion of “territories of demand” interacting with water territories considered as a resource.

Another process which emerged in the 1990s is the generalization of the catchment area-based approach to a global scale, a process which reinforces the internationalization of the French experience.[11] France’s adoption of the Water Framework Directive (WFD) and its introduction into French legislature by means of Law 2004-338 of April 21, 2004 calls for “an improved articulation between urban, agricultural and tourist-sector planning, and planning in the area of water distribution.” The multiple uses to which various territories are put contribute to or are adjudged to be responsible for causing pollution and modifying the way in which hydrosystems function. With its objective of achieving a “good ecological state”, the Directive has imposed targets to be met by 2015 and promises heavy sanctions for countries not meeting those targets. Within this framework of extreme territorial complexity and of competition between various geographical areas, development projects and the actors behind them are vehicles for a number of important social, environmental and financial issues.

Water policy reform calls into question the ways in which territories and societies are organized and how their heritage, tourist-sector and environmental components are to be rearranged (How will inter-communal dynamics evolve? How will contracts between different institutional levels be cast? Will management territories and decision-making territories develop?). Will the current and anticipated strategies of various actors (farmers, local authorities,

[11] Framework Directive 2000/60 for an EU Water Policy; European Parliament and European Council, 23 October 2000 (*JOCE* No. L327, 22 December, 2000).

users, distribution companies, etc.) influence the way in which certain spaces are managed, particularly high-density peri-urban spaces in which conflicts over territorial rights and water resources are fuelled by a high degree of competition between users (Ghiotti, 2006)?

Environment and water quality

Latest wave of theories concerning water and urban territories involves a combination of the social and environmental sciences. Here, the relationship is based on an "anthropologized milieu" within the framework of a hydro-system analyzed in terms of an anthropo-system (CNRS "Environment, Life and Society" program).

At the present time, the dominant model of analysis is characterized by an integrated approach (preservation of the resource, equitable distribution and rationalized consumption, active management of pollution and waste water) and the integration of stakeholders into the process of water management (Maksimovic, Tejada-Guibert, 2001). This model relegates the urban territory concept to the level of a sub-category of river management highly dependent on resource planning. The principle of the vulnerability and possible exhaustion of water resources, and the participative approach to water as a commodity constitute the basis of international thought about water (Deutsch 1995, Laganier 2005)

The issue of the quality of water and its relationship to the environment is a much-discussed one. Sanitation, which remains a central concern in the field of urban hydrology, is also becoming an important area of study in urban environmental sciences. The objective is to contribute to the implementation of an integrated water cycle.

Urban spaces are subject to human action which manifests itself in different forms, including not only planning and urban infrastructure management policies, but also the practices of consumers. The urban water cycle is part of the global functioning of the city. Urban hydrology is evolving toward a "human hydrology" a "hydrology of highly anthropologized milieus focusing on a water cycle either already or potentially perturbed and modified by human activities." This implies comparative, inter-disciplinary approaches, notably in:

- The evaluation of the efficiency of urban water management systems, and
- The impact of such practices and consumer uses on how the urban water cycle is managed (pollution, re-use)

The limited quantity of unpolluted water available for future use as a resource for food production and drinking water supply is one of the major challenges faced around the world. A global water quality criteria is necessary in order to preserve the microbiological and chemical properties of it. Indirect reuse of treated wastewater can increase the water supply in areas in which the water demand by the urbanized population has exceeded the available natural water sources, becoming a limiting factor for economic (agricultural and industrial) requirements (Gómez et al., 2006).

A major issue relating to all water reuse schemes is public opinion. Communities tend to be favourable in general to reusing water, at times in fact demanding that it is undertaken (e.g., the Western Australia State Water Strategy). Most people,

however, tend to become less favorable toward reused water as it physically comes closer to them. In other words, they are very supportive of the irrigation of public open spaces in some ill-defined region, but bulk at the use of reused water in the household or when the chance of personal physical contact increases. The amount of public unease about water reuse also depends on the type of reused water and treatment levels. For example, people have much less concern about using untreated captured stormwater than they have about highly treated sewage effluent.

Pharmaceuticals are chemicals used for diagnosis, cure, mitigation, alteration or prevention of disease, or to improve a state of health, a structure or a function of the human body. Such drugs are used in large quantities in human and veterinary medicine. Surprisingly little is known about the ultimate fate of most drugs after their intended use but, with the development of more sensitive analytical techniques in recent years, evidence of the presence of human pharmaceutical compounds in aquatic systems around the world has been mounting. Consequently, these compounds have been attracting increasing attention as potential water pollutants.

The contributions of individual partners

This overview is based on research conducted in France.[12] The approach described above must now begin to encompass international research projects of which several are ongoing. The GDRI intends to develop this overview by

[12] The "rés-eau-ville" Urban Water Networks research group, GDR 2524 is currently preparing an "overview of water and cities" for the CNRS's City Environment Program.

including Anglo-Saxon (starting with the United States) and Latin American work in the field.

In Latin America, in parallel with institutional transformations, a number of long-term research projects are currently being conducted (several of them conjointly with France). In Brazil, legal analysts are studying the Water Law (1997) which incorporates the participation of users. In Mexico, institutional approaches are accompanying the constitution of a Commission tasked with restructuring water management at the national level, and the *Archivo historico del agua* has made it possible to gain a historical perspective on multidisciplinary research. In Argentina, Columbia and Chile, researchers are working on economic approaches and regulation, as well as environmental aspects (notably aridity).[13]

Two partners are working specifically on the relationship between the environment and water quality: the Centro de Estudios Transdisciplinarios del Agua (UBA) and the CEREVE (ENPC), which is recognized in France of one of the leading research centers currently focusing on the question.

Legal scholars are studying the influence of these approaches on current legal systems (Universidad Diego Portales, University of Arizona, PRODIG). In particular, research on the interactions between law and the environment constitute a major objective. The environmental problematic, and specifically that of water, are the focus of a number of teams: water and the protection of biodiversity, institutionality and environmental norms, human rights (D.Herve, C.Bauer).

In terms of issues concerning the United States-Mexico border, the CREDAL has a long scientific tradition. Today, the cross-border water issues dealt with by the University of Arizona are complementary to research pursued by Varady, Browning Aiken, and Wilder. Several research centers in Mexico are taking an active interest in the GDRI's research program.

In the United States, notably at the University of Arizona, innovations in the field of water management cover technical, environmental and legal aspects. The re-cycling of water (technical and managerial techniques for using a given quantity of water more than once) and its "re-allocation" (change of use) are currently being studied as options for dealing with demand from growing populations (Megdal, Scott).

The University of Buenos Aires and the University of Arizona are working on these issues. Arizona is a pioneer in the field of water shortage situations (arid zones and areas of rapid urbanization)[14] and possesses substantial international experience (Chile, Bolivia). Another interesting field of research is the analysis of the practices of Native American populations, which raise socio-cultural and institutional questions in terms of access to water.

The University of Arizona has a number of centers in which scholars are currently working on water-related issues, including the Udall Center for Studies in Public Policy, the Bureau of Applied Research in Anthropology, Water Resources

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[13] See, for example, Bauer, C , *In the image of the market : the Chilean model of water resources management, International Journal of Water*, Vol 3, No. 2 special issue, guest editors: Aguilera-Klink, F and Petit, O 2005 or Schneier-Madanes, G « L'Amérique Latine : l'eau en(jeu) , Paris, *AGIR revue de stratégie* February 2004.

[14] See also Lentini, E. « Urban development in arid areas of Argentine, Paris /Urumqi, Actes de la Conférence internationale *Eau et developpement durable en zones aride et semi-arides,* 2006

Research Center, Office of Arid Lands, SAHRA - Sustainability of Semi-Arid Hydrology and Riparian Areas which is a center belonging to the National Science Foundation (NSF), the Arizona Water Institute, etc

PRINCIPAL AREAS OF INTEREST

Access to drinking water: law and rights, the market and regulation
Governance: economic, legal and civil actors, participation
Urban and territorial management
Environment and water quality

PROGRAM

A scientific management committee made up of representatives of the partners jointly runs the program and appoints a coordinator. A Scientific Council made up of external experts evaluates the group's work. The GDRI could be renewed after a period of four years.

Given the organization approach that has been chosen – a collective approach based on the exchange of information and the joint elaboration of scientific programs – objectives to be met have been divided into a planning phase (2007) and two stages with specific aims.

STAGES

2007 - Planning
Creating the GDRI by establishing operational principles, mobility between sites with a view to encouraging exchanges, developing communication tools, defining fields and territories. In the first year, a program of research activities will be elaborated.

2008 / 9 - Thematic fields
Work on fields which have been identified; inter-disciplinary construction (notions, categories) Thematic seminars (University of Arizona, Diego Portales), publications and website.

2010 / 11 - Promotion
Seminars (Chile, Argentina, France), production of books and other means of communication, conferences, implementation of teaching and research programs.

APPENDIX 1 - PARTNERS

List of national and international partners:
Details of research centers and their directors

FRANCE

CREDAL Centre de Recherche et Documentation sur l'Amérique Latine
UMR CNRS 7169 - Université Sorbonne Nouvelle Paris 3
Director: Graciela Schneier-Madanes g.schneier@univ-paris3.fr
Other researchers: Maria del Carmen Macias, 2 doctorants Fabiano Diniz, Andrea Catenazzi
Themes: globalization, urban water management

PRODIG Pôle de Recherche d'Organisation et de Diffusion de l'Information Géographique
UMR CNRS 8586 - Université Paris 1
Director: Agathe Euzen (CR1) agathe.euzen@univ-paris1.fr
Other researchers: Jean-Paul Haghe (C), Nadia Belaïdi (CR2).
Themes: territorial management, water law, quality, perception of water

ENPC Ecole Nationale des Ponts et Chaussées
CEREVE www.enpc.fr/cereve
Director: Bruno Tassin tassin@cereve.enpc.fr
Other researchers: Bernard de Gouvello, Jean C Deutsch, José F.Deroubaix
Themes: urban hydrology, water quality, urban management

THE AMERICAS

Argentina
Universidad de Buenos Aires:
Centro de Estudios Transdisciplinarios del Agua, Facultad de Ciencias Veterinarias
Director: Dr Rubén Hallu, ceta@fvet.uba.ar
Other researchers: Dra Alicia Fernandez Cirelli, E. Lentini, J.Garaicochea
Themes: water quality; regulation; urban water management
www.uba.edu.ar

Chile
Universidad Diego Portales
Centro de Investigaciones Juridicas
Director: Dominique Herve
Other reseachers: Javier Couso et 1PHD en cours à l'University of Arizona
Themes: environmental law, protection, water law, human rights
www.udp.cl

United States
University of Arizona
UDALL Center for Studies in Public Policy
Water Resources Center
Director: Prof. Robert Varady, udallctr@u.arizona.edu
Other researchers: A. Browning-Aiken (Pr), ChriScott (RJr)
Other centers : C .Bauer (Sr) M.Wilder (Sr), S.Megdal.
Themes: public policy, water law, global networks
http://udallcenter.arizona.edu

APPENDIX 2 - ANTECEDENTS

JOINT PUBLICATIONS

2003 - Eaux et réseaux : les défis de la mondialisation. Schneier-Madanes G., de Gouvello B.(dir.) Paris, Travaux et Mémoires IHEAL/La Documentation Française, 2003. 346 pages. I
Articles de B de Gouvello, G Schneier-M, E. Lentini

2003 .- Alicia Fernandez Cirelli , Cecilia D. Di Risio (ed.) El agua en Iberoamérica. Aspectos de la problematica urbana.Buenos Aires, CYTED Programa iberamericano de ciencia y tecnologia para el desarrollo, 2003 Articles :E. Lentini

2004 – Euzen, A., Ghiotti, D., Haghe J.P. Dossier « L'eau à la rencontre des territoires. » Paris, Cybergéo http://193.55.107.45/eauville/intro.htm

2005 - Société civile et marchandisation de l'eau. Expériences internationales. Toulouse, Presses Universitaires du Mirail, Sciences de la société, n°64.

2005 - « Eau et pouvoirs » dossier. Lyon, Economie et Humanisme, n°372, trim., mars..

2005 – Bauer Carl J., In the image of the market : the Chilean model of water resources management, International Journal of Water, Vol 3, n°2 Spécial issue, guest editors : Aguilera-Klink, F and Petit, O 2005

2007 - Varady, Robert "A flood of institutions? Global water initiatives and sustainable management in arid and semiarid regions" Xinjiang University / EPHE, Actes de la Conférence internationale Eau, écosystèmes et développement durable en zones aride et semi-aride

2008 - Courel Marie Françoise, Schneier-Madanes G., *Water and sustainable development in arid and semi-arid areas,* New York, London, Dordrecht , Springer (en préparation). Articles de : A.Fernandez Cirelli, J.C.Jimenez, E.Lentini (UBA), R.Varady, Ch.Hutchinson, J.Valdés, T.Maddox (UA)

SEMINARS / INTERNATIONAL CONFERENCES / ASSOCIATIONS

2005 "Systems of regulation of the public water service" Paris, « rés-eau-ville » European seminar in collaboration with the Euromarket program (EU) Communications: E.Lentini, P.Bauby

2005 – 2006 Seminarios CEPAL : Miguel Solanes, E.Lentini

2005 IHWA International Water History Association (IHP International Hydrological Program UNESCO). Members of the Bureau: R.Varady, G.Schneier-Madanes

2006 – "WATARID Water, ecosystems and sustainable development in arid and semi-arid zones", International conference, University of Xinjiang, Teheran, Ecole Pratique des Hautes Etudes
Scientific Committee: R.Varady, E.Lentini. Scientific contact: G.Schneier-Madanes. Communications: A.Euzen, Miguel Solanes

Since 2005 – “The city and water: a social science/environmental science inter-disciplinary approach”, multi-diciplinary seminar (CREDAL - PRODIG) CNRS and CEREVE

APPENDIX 3 – BIBLIOGRAPHY (SELECTION)

Bauby Pierre, *Reconstruire l’action publique*, Paris, Syros, 1998.
Bauer,Carl J *Siren Song, Chilen Water law as a model for International Reform, Washington DC, RFF Press, 2004*
Blomquist William, Heikkila Tanya, Schlager Edella, « Building The Agenda For Institutional Research In Water Resource Management » *Journal Of The American Water Resources Association American Water Resources Association, august 2004*
Bouba-Olga Olivier et Chauchefoin Pascal, *Les services de distribution d'eau et d'assainissement en Europe : entre gestion locale et organisation globale.* (2003).
Bravard, J-P., Pourtier, R., (ed.) « Les territoires de l’eau », *Bulletin de l’Association de Géographes Français*, Paris, sept. 2003.
Clarimont, S. « Espace public et contestation : l'exemple du débat autour du plan hydrologique national espagnol ». *Bulletin de l’Association des géographes Français*, n°1,78-90, 2002.
Coing, H. « Services urbains et ville : nouveaux enjeux ». *Sociétés Contemporaines*, n°32, 57-71, 1998.
Coutard, O, Hanley, R ., Zimermann R. *The Social Sustainability of Technological networks*, New York-London, Routledge, 2005
Dorrier-Apprill E., Jaglin, S. « Gestions urbaines en mutation : du modèle aux arrangements locaux », Paris, *Autrepart*, L’Aube, 2002.
Dupuy, G, *L’urbanisme des réseaux*, Paris, A.Collin, 1991.
Fernandez Cirelli Alicia , Di Risio Cecilia D. (ed*.) El agua en Iberoamérica. Aspectos de la problematica urbana*.Buenos Aires, CYTED Programa iberamericano de ciencia y tecnologia para el desarrollo, 2003
Flores, L & Hervé, D., “Chile: Early Attempts to Develop Access and Benefit Sharing Regulations”, en Santiago Carrizosa, Stephen Brush, Brian Wright & Patrick MacGuire (Eds.), *Accessing Biodiversity and Sharing the Benefits: Lessons from Implementing the Convention on Biological Diversity*, IUCN Environmental Policy and Law Paper Nº54, IUCN, Gland, Switzerland & Cambridge, UK, 2004, pp. 227-241.
Fournier, J.M. *L’eau dans les villes d’Amérique Latine*, Paris, L’Harmattan, 2001.
Ghiotti, S. *Eau et territoires*, Paris, CNRS éditions, 2006
Haghe, J.P.*Les eaux courante et l’Etat en France (1789-1919),* Paris, EHESS thèse de doctorat, 1998.
Hervé, D & Durán, V., “Riesgo Ambiental y Principio Precautorio: Breve Análisis y Proyecciones a partir de dos casos de estudio”, en Revista de Derecho Ambiental, Centro de Derecho Ambiental, Universidad de Chile, LOM Ediciones, Santiago, 2003, pp.243-250.

Jaglin, S. « Services urbains et cohésion sociale en Afrique Australe (Afrique du Sud, Namibie,Zambie) : une laborieuse ingeniérie », *Flux* n°31-32, jan-juin 1998.
Lorrain, D. *Gestions urbaines de l’eau*, Paris, Economica, 1995.
Luginbuhl, Y. « Les paysages écartelés » in Passet R. et Theys, J. (éd.) Les héritiers du futur, Groupe de prospective " Environnement " de la DATAR, L'Aube,1995.

Llorente, M., Zerah M-H., The urban water sector : Formal versus informal suppliers in India.New Delhi, *Urban India*, National Institute of Urban Affairs, vol XXII, 2003.
Maksimovic, C, Tejada-Guibert J.A., Roche, P.A., *Les nouvelles frontières de la gestion urbaine de l'eau*, Paris, UNESCO PHI - Presses de l'ENPC, 2001.
Megdal Sharon *Making and Environmental Security*, Springer, AK/Nato Publishing Unit, 2007, 81-90.
Megdal Sharon, Avery Christopher, Consoli Carla, Glennon Robert "Good Intentions, Unintended Consequences: The Central Arizona Groundwater Replenishment District,", *Arizona Law Review*, Vol 49, No. 2, 339-359, Summer 2007.
Narcy,J-B., Mermet, L. « Nouvelles justifications pour une gestion spatiale de l'eau », Paris, *Natures, sciences, sociétés*, Elsevier, 2003.
Pezon Ch., Petitet S., L'intercommunalité en France de 1890 à 1999, la distribution d'eau potable en question. Arras, communication à la *Journée d'études « Les territoires de l'eau* », Université d'Arras, 2004.
Schneier-Madanes, G et de Gouvello, B *Eaux et réseaux, les défis de la mondialisation*, Paris, IHEAL-La Documentation française, 2003.
Varady Robert, Meehan Katharine, Rodda John, Mc Govern Emily, Iles-Shih Matthew « Strengthening Gobal Water Initiatives » Washingt DC Heldreft Pub, *Environment,* march/april 2008