

Adaptive Governance and Integrated Water Resources Management in Argentina¹

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Since the early 2000s, international organizations and national and provincial authorities in Argentina have promoted a number of institutional initiatives to implement Integrated Water Resources Management in the country. The two main initiatives are the adoption of the Guiding Principles of Water Policy, and the ongoing design of the National Federal Plan of Water Resources. These are complemented by the creation of the Federal Water Council, a new nation-wide venue that gives the provincial and national governments the chance to engage in discussions related to the improvement of water management in the country. We analyze the process leading to the creation of this set of new institutions through the theoretical lens of *Adaptive Governance*, and assess how well national and provincial authorities have faced the challenges of representation (who participates in decision-making processes) and process design (how decisions are reached) that are so critical in the early stages of addressing interjurisdictional water problems. Drawing on in-depth interviews with decision-makers, we also identify other challenges to AG in Argentina, including the problem of discontinuation of policy efforts that could lead to a better implementation of IWRM principles, and the pervasive presence of *personalismo* in making decisions that affect water management.

Keywords: Adaptive Governance, Integrated Water Resources Management, Developing Countries.

1. Introduction

The integrated management of water resources is inherently complex, since “maximizing the ... economic and social welfare (that results from water use) ... without compromising the sustainability of vital ecosystems” (Global Water Partnership 2000a)

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requires important coordination efforts to channel the input of many actors with stakes in that process. In federal systems of government, this complexity may be exacerbated because multiple governmental agencies from different levels of government tend to retain regulatory power over the use of and access to the resources (Feiock and Scholz 2010, Feiock 2009).

In this article we examine the ongoing process to introduce the main tenets of Integrated Water Resources Management (IWRM from now on) in Argentina, a federal country. The aforementioned process dates back to the early 2000s when the Sub-Secretariat of Water Resources (the country's main bureaucratic agency for water resources) and the provincial governments started to promote two policy initiatives that explicitly ask for the implementation of IWRM in the country. The first of these initiatives was the design of the Guiding Principles of Water Policy (from now on, "the Guiding Principles"), a set of 49 principles which should guide policy efforts at a national scale and contain explicit appeals to implementing an IWRM framework. The second initiative was the development of a National Federal Plan of Water Resources ("the National Plan") that would contain clear guidelines to protect the availability and quality of water resources on a nationwide scale. These two initiatives were complemented with the creation of the Federal Water Council (COHIFE for its Spanish acronym), a venue where representatives from the provincial and national governments meet to discuss water-related issues and set policy guidelines based on the Guiding Principles.

We analyze the process leading to the creation of this set of new institutions and evaluate how stakeholders have faced some of the central challenges to *adaptive governance* ("AG" from now on—see Folke et al., 2005 for a review), which we see as a major stepping stone to achieve the integrated management of water resources. AG is the coordination of efforts by "previously independent systems of users, knowledge, authorities, and organized interests" (Scholz and Stiftel 2005) to achieve sustainable solutions to complex water management problems, and so in this sense it is a precondition for attaining the integrated management of water resources—in itself a "call for joint governance" (Medema et al., 2008).

In particular, we analyze how well national and provincial authorities have faced two challenges to AG: the challenge of *representation* that demands that all relevant stakeholders be given a proper voice in decision-making processes and the challenge of *process design* that requires policy making processes to be designed in ways that facilitate collaborative engagement and both vertical and horizontal policy integration (see Lubell and Edelenbos, this volume). Given that the integrated management of water resources must rest on policy-making platforms that are both flexible and inclusive of multiple visions on how water must be managed, the study of how Argentina has responded to these two AG challenges is relevant to assess the likelihood of achieving IWRM in the country.

To perform our analysis, we conducted in-depth interviews with individuals working for different governmental water agencies both at the provincial and national levels of government. In particular, our findings show that policy discontinuity and *personalismo/amiguismo* are two institutional features that may work against the probability of achieving

a truly successful integration in the management of natural resources. Given that these characteristics tend to be common in countries with weak institutions to manage water resources, readers may find that some of the lessons we derive from our case study may be generalized to similar countries.

The next section briefly describes how water resources are distributed in the country and the institutional framework that regulates their use and appropriation. Later sections describe in more detail the efforts in the last decade to enrich that institutional framework incorporating IWRM principles and guidelines, and the way relevant actors have faced the challenges to AG in the process of doing so. We close our paper with a discussion of other challenges to achieving IWRM in Argentina. We hope our examination of the Argentine case can contribute to a broader discussion on the conditions that may hinder IRWM as a guiding framework for a better management of water resources across the globe.

2. Water resources and the institutions that regulate them

Argentina is the second largest country in South America, covering 2,791,810 square kilometers² that contain a wide range of climates and landscapes, from tropical forests in the north, to sub-polar climates in the southern-most portion of Patagonia, with a predominance of mild climate in the central area. Rain precipitation varies widely across the national territory, from an average of 50 millimeters/year in the west, to averages above 7000 millimeters/year in the southern Patagonian forests (Dardis and Rodríguez, 2011).

In general, the country is well endowed with water resources to support its medium-size population of 40,117,096³, but distribution of these resources is very uneven across the territory (Sub-secretariat of Water Resources 2006). This results in a distinct pattern of “water-rich” and “water-poor” provinces, with the former mostly located in the central and northeastern parts of the country, and the latter in the remaining portions of the territory.

Some important problems that result from existing patterns of water use include the increase of salinization and erosion of the soil where intensive agriculture is prevalent (Auge, 2006), and the reduction of quality in the resources as a consequence of its use for mining activities in the west and southwest (Dardis and Rodríguez, 2011). Also, contamination of water bodies resulting from the excessive use of agrochemicals in agricultural activities is a common problem (Viglizzo and Jobbágy, 2010), as are interprovincial disputes over the use of rivers such as the Salí-Dulce in the north and central portion of the country, and the Atuel and Salado in the west.

Problems that are inter-jurisdictional in nature demand comprehensive solutions but coordinated behavior among jurisdictions has proven difficult to achieve because of the fragmented way in which provinces in general have historically managed their water resources. This is in no small measure a result of the constitutional rules that determine

²National Geographic Institute. Available at: <http://www.ign.gob.ar/AreaProfesional/Geografia/DatosArgentina>

³ 2010 Census, National Institute of Statistics and Censuses. Data Available at: <http://www.indec.gov.ar/>

the ownership of natural resources in the county. Even though Article 41 in the National Constitution states that the national government must establish the “minimum thresholds of protection” of natural resources in the country, Article 124 states that the “original domain (ownership) of natural resources belong to the provinces.”⁴ In practice, this last article functions as a serious impediment to achieve the integrated management of water resources, since provincial governments invoke it when they decide to withdraw from inter-jurisdictional efforts to manage shared resources.⁵

This legal framework to regulate water resources is complemented with the national “Law on Environmental Management of Water” (Act 25688) composed of 10 articles was passed by Congress in 2002; the law assigns the national government the responsibility of drafting a “National Plan for the preservation and rational use of water resources” (Art. 7).

The highest national authority on water issues is the Sub-Secretariat of Water Resources, part of the Ministry of Federal Planning, Public Investments, and Services. The second most-relevant federal agency with stakes in water management issues is the Secretariat of Environment and Sustainable Development, which is part of the Office of the Chief of Cabinet.

At the province level, the existence of multiple agencies with overlapping regulatory capacity over water resources is the norm rather than the exception, which makes integrated water resources management exceedingly difficult. Moreover, the joint, inter-provincial management of water resources is complicated by the large variance across provinces of both their legal frameworks to manage water resources and the technical and financial capacity of their water agencies. The province of Mendoza, for instance, located in the dry west, has one of the oldest, better-developed frameworks of water regulations in the country, and even has specialized courts to solve disputes on property rights over water resources. On the other hand, other provinces have only recently begun to develop their water management institutions, with many of them designing and implementing their provincial Water Codes in the last two decades.

⁴ A detailed analysis of how the coexistence of these two articles may be an obstacle for the proper management of natural resources in the country can be found in Sabsay (1997). For an outstanding description of the country’s legal framework to regulate water resources, see Cavalli (2007).

⁵ The conflict over the use of the Atuel river is a good case in point. The Atuel flows from the southern area of the province of Mendoza (upstream user) into the northern section of the province of La Pampa (downstream user). It is a body of water of vital importance for regional economies in both provinces, since it supports irrigation for agricultural activities, and recreational opportunities along its course. In the last decades Mendoza built multiple dams on the river with the purpose of increasing water storage capacity and energy generation, thereby decreasing the amount of water that enters La Pampa. Throughout the years, La Pampa has pressured Mendoza into allowing higher volumes of water to flow downstream, with mixed results. In 2008, representatives of both provinces and the federal government signed an agreement, establishing that the total volume of water in the river should be allocated in equal parts to both provinces. However, Mendoza’s legislature has failed to ratify this agreement since then, often invoking article 124 in the National Constitution that grants the provinces the domain over natural resources. There are no clear signs the conflict will be solved in the short term.

Local governments can also impose and enforce their own legislation to regulate water quality. In practice, there is a wide variance in how local governments design and enforce regulations that affect the availability and quality of water resources.

3. Efforts to implement IWRM in the country

Despite a weak overarching legislation to address water management problems at a national scale, in the last decade, national and provincial authorities have engaged in different policy initiatives to help improve the management of water resources in the country. Chief among them are the creation in 2003 of the COHIFE (which seeks to improve coordination among the provinces and the national government on water-related issues), the adoption of the Guiding Principles of Water Policy, also in 2003, and the design of the first part of the National Plan for Water Resources that concluded in 2007.

The Guiding Principles and the National Plan explicitly incorporated Integrated Water Resources Management as the main guiding framework for future management efforts in the country. The importance assigned to IWRM did not spontaneously emerge among decision-makers, nor was it mostly a response to bottom-up pressures of water users at the local level. Rather, the approach emerged partly in response to mounting pressure from different international organizations interested in promoting it as a response to the excessive fragmentation of water resources management in Latin American countries (Inter-American Development Bank 1998, GWP-CEPAL 2003).

In the specific case of Argentina, the need to introduce IWRM in the country was originally highlighted in a technical report prepared by the World Bank in 2000 at the request of the national Sub-Secretariat of Water Resources. The report included as a “top priority” the passing of a National Water Resources Management law that should promote the creation of a “modern legal framework (facilitating) . . . the integrated management of the country’s water resources” (World Bank 2000). That modern legal framework would include the creation of a federal water council with representation of all provinces, as well as the formulation of a national water master plan that would contain the basic guidelines for a more effective integrated management of water resources in the country (see Annex 6, World Bank 2000).

In the years following the release of the report, the national government through the Sub-Secretariat of Water Resources and with the support of all provincial governments made a conscious effort to achieve those goals, first by devising a series of “guiding principles” that would serve as the main guidelines for the future design and implementation of the national water master plan. In 2002, the Sub-Secretariat promoted the organization of a series of provincial, regional, and national workshops to outline the principles. The workshops, in which 3,000 individuals participated, were open not only to governmental authorities, but also to the general public, environmental NGOs, professional associations, business organizations, educators and university researchers. As a result of this process,

49 Guiding Principles were agreed-upon by the participants. Many of these principles make explicit references to the need of implementing the IWRM framework in the country. Principle #17, for instance, states that the integrated management of water resources must be embraced to face the great diversity of social, economic, and environmental variables that affect or are affected by water management practices, while principle #27 assigns the national government responsibility for “promoting the integrated management of water resources in the national territory.”⁶

One of the principles (#30) stated the need to create a Federal Water Council (COHIFE) as a venue where water management issues could be discussed by the provinces and the national government. COHIFE started functioning in March 2003, and one of its most important accomplishments was coordinating the drafting of the National Plan for Water Resources.⁷ The draft was the result of a new round of workshops that took place across the country between January and March 2007 and were attended by over 700 people (SSRH-COHIFE 2007). The workshops worked to identify water management problems that would eventually need to be tackled at the local, regional, and national levels, including issues such as water scarcity and overuse, floods and droughts, decaying water quality, reduced flows in rivers and aquifers, and conflicts among users.

Unfortunately, the process slowed down considerably after the draft was presented in 2007, and as of July of 2013, a final version of the plan has still not been produced. There is general agreement among the individuals we interviewed for this article that the scarcity of critical financial resources is the main obstacle to the planning process, though there are other reasons that help explain this stalemate. Chief among them is the still prevalent sense among province-level authorities that coordinating actions with other jurisdictions is not always an optimal choice to make from an economic standpoint.⁸ Despite the fact that the process to finalize the plan has been delayed, we believe that the steps of designing

⁶ The Guiding Principles are available (in Spanish) at: <http://www.cohife.org.ar/PrincipiosRPH.html>

⁷ The draft was named Base Document for the National Plan for Water Resources and is available at <http://www.hidricosargentina.gov.ar/Base-PlanNac.pdf>.

COHIFE has a General Assembly, an Executive Committee, and a General Secretariat. The General Assembly (in charge of establishing the “general policy of the council” – Article 5 of COHIFE’s Organic Chart) is formed by representatives from the provinces, the autonomous city of Buenos Aires, and the national government. The Executive Committee is simply a subset of the General Assembly in charge of implementing the decisions adopted by it, and it is formed by six provincial representatives and a representative from the national Sub-Secretariat of Water Resources. Finally, the General Secretariat takes on administrative tasks and is run by the Sub-Secretariat of Water Resources.

⁸ There are multiple examples to back up this claim. The province of Tucumán, for instance, has historically avoided meaningful action toward curbing contamination in the Salí-Dulce river produced by citrus and sugar cane growers, who contribute strongly to the provincial economy. The river runs through Tucumán and then enters the provinces of Santiago del Estero and Córdoba, which have complained for decades about high pollution levels generated upstream. Tucumán was seemingly forced to engage in conversations with other provinces in the basin when the federal government infused fresh financial resources in 2007 to reactivate the Interjurisdictional Committee of the Salí-Dulce River Basin, but the advances produced in this forum can be regarded as slow at best.

the Guiding Principles, creating COHIFE, and engaging stakeholders to identify the main water management problems in the country are valuable because at least they indicate incremental efforts geared toward implementing the IWRM framework in Argentina.

Next, we examine these efforts and evaluate whether they are useful to achieve effective solutions to joint water management problems of an inter-jurisdictional scale. We think the literature on Adaptive Governance (AG) can be a fruitful tool to evaluate these initial steps because it identifies the conditions under which the “wicked problems” of fragmented water management are more likely to be solved.

4. Adaptive Governance and IWRM

In complex and fragmented policy-making systems involving many actors trying to reach their individual goals, the word *governance* refers to the articulation of different positions to reduce the likelihood of conflict, thus enabling the conditions for collective action needed to solve cooperation problems (Stoker 1998). But articulation alone is not sufficient to sustain cooperation. Given the fact that environmental, social, political, and economical scenarios change in complex arenas, governance needs to be adaptive. This is accomplished when “long-term, sustainable policy solutions to wicked problems (are devised) through coordinated efforts involving previously independent systems of users, knowledge, authorities, and organized interests” (Scholz and Stiftel 2005, 5).

The creation of the Guiding Principles, COHIFE, and the draft of the National Plan for Water Resources that we described in the previous section can be thought of as initiatives that contribute to AG since in each case one of the main goals was to bring together actors from different levels of government and organizational background to discuss water management problems that exceed the limits of individual jurisdictions. Of course, attaining AG is not easy and actors face challenges that, if not addressed properly, may preclude the solution to collective action dilemmas.

Scholz and Stiftel (2005) identify different challenges to AG, two of which are particularly important in the earlier stages of decision-making processes that bring stakeholders together: the challenge of *representation* – determining who participates in the discussions about new procedures and institutions to deal with wicked management problems, and the challenge of *process design* – how decisions are made and whether actors embrace the decision rules or not.

We think that AG scholarship and the IWRM framework complement each other because when policy actors face these challenges successfully they can more easily integrate different views about how to manage water resources. In this sense, achieving AG is akin to creating a “holistic institutional approach” that can generate “coordinated policy making at all levels (from national ministries to local government or community-based institutions)”, a cardinal tenet of Integrated Water Resources Management (Global Water Partnership 2000b, 15).

To evaluate whether the two challenges were successfully met in the process leading to the creation of the Guiding Principles, COHIFE, and the first stage of the National Plan,

we conducted eleven in-depth interviews with current and former government officials who were involved in the process at one time or another at both the national and provincial levels. The interviews were conducted in February and March of 2012, and respondents included the highest provincial authorities with jurisdiction over water issues from the provinces of La Rioja, Formosa, Tierra del Fuego, La Pampa (two respondents), Entre Ríos, San Juan, and Tucumán. We selected provinces based on the single criterion of covering major geographic areas in the country, from the dry west (San Juan, La Rioja) to the wetter northwest and northeast (Tucumán, Entre Ríos, and Formosa), the semi-arid center-south (La Pampa), and Patagonia (Tierra del Fuego).

In addition to the representatives from these provinces, we interviewed a high official from the national Sub-Secretariat of Water Resources and a former *Secretario* of that agency, now working as an international consultant with UNESCO. We also interviewed the new director of the Sub-Secretariat of Water Resources in the province of Córdoba (since December of 2011) with the goal of probing whether new public officials know how the initial steps to implement the IWRM framework developed. Argentina has a long history of institutional instability (Spiller and Tommasi, 2010), coupled with a historically weak bureaucratic capacity at the subnational level to deal with the management of water resources (with a few exceptions). Finding out how familiar new high-level provincial authorities are with the process of promoting IWRM can hint at the chances of the process moving forward smoothly.

Though the data do not allow us to assess conclusively whether IWRM precepts can be successfully implemented in the country, they provide a wealth of material to understand the obstacles for such implementation, which will be discussed later.

4.1. *The Challenge of Representation*

The challenge of *representation* consists in determining who should be represented in the new procedures and institutions that are designed to deal with “wicked problems”, with what resources, and with what authority (Scholz and Stiffler 2005, 6). As explained by Berardo and Gerlak (2012), scholars interested in the management of common-pool resources have long recognized “the importance of having all interests heard in decision-making processes, including those of actors who may not have a formal role in such processes” (Ostrom 1990 and Lebel et al., 2006). Widespread, inclusive deliberation (where many voices are represented) helps develop trust and social capital (Adger 2000, Gunderson et al., 2006), which results in more flexible decisions that are easier to enforce because the gamut of social interests is more likely to be represented (Mock 2003 and Wester et al., 2003).

In the case of the design of the Guiding Principles of water policy and the first stage of design of the National Plan, this challenge was met successfully thanks to the organization of the open, well-attended workshops, which all the individuals we interviewed saw as critical forums for the exchange of ideas and the build-up of trust among participating actors.

“The good thing is that the workshops in 2002 and 2007 were really open. In the case of the process to design the Guiding Principles, for instance, it took about three years with over 3000 people working through more than ten versions of the draft document. Pretty much the same thing happened with the National Plan, though there were fewer participants. In our province, organizing these workshops was really positive, since we all met face-to-face, identified our common problems, and sought solutions” (Interview #10).

The open nature of the workshops and their success in attracting actors with different organizational backgrounds is undoubtedly one of the high notes of the process. However, one important caveat is that not all the provincial workshops were equally inclusive, particularly in 2007 when actors identified water management problems that should be eventually tackled in the National Plan for Water Resources. Publicly available data on workshop attendance shows that in some cases only governmental actors participated in them (although such cases are a minority).⁹

Thus we believe that optimism about the effect of the participation of non-governmental actors must be tempered, since it remains to be seen whether citizens (either individually, or as members of non-governmental institutions) have a real chance of offering sustained input on decision-making processes that affect the management of water resources. This point can be further illustrated by an observation about the inner functioning of COHIFE – the main formal forum in the country to make decisions that affect water resources. Even though the council has the attribution of “promoting the participation of communities of organized users in water management” and “creating Special Commissions and Advising Committees” to help governmental representatives make decisions on water management issues, up to the writing of this article there have been no examples of such kind of participation by non-governmental actors.¹⁰

The disparate levels of participation in some of the provincial workshops and the absence of formal and stable venues inside COHIFE for the participation of non-governmental actors suggest that there is room for improvement in the near future in terms of how to face the representation challenge at a national level. The integrated management of water resources demands the consideration of different policy views from as wide a cast of actors as possible – even if those actors do not have a formal vote on decision-making processes – and that involvement needs to be both continuous and stable, two conditions that have not been clearly met.

⁹ Source: http://www.hidricosargentina.gov.ar/politica_hidrica_minutas.php?seccion=rec_h&link=link1&pagina=2 (last accessed June 25th 2013).

¹⁰ In 2011, a Special Commission was formed to discuss possible solutions to the problem of excessive Arsenic in groundwater, but the commission only included a representative of the Sub-Secretariat, and a representative from each of the thirteen provinces facing this particular problem who were already part of the General Assembly (Buenos Aires, Catamarca, Chaco, Córdoba, Formosa, Jujuy, La Pampa, La Rioja, Mendoza, Salta, Santa Fe, Santiago del Estero and Tucumán).

4.2. *The Challenge of Process Design*

The challenge of *process design* refers to the need of adopting decisions in a way that is satisfactory for all actors involved in the process of discussing water issues. Especially in the case of fragmented policy-making systems, where different jurisdictions impose dissimilar regulations on shared resources, successful process design improves vertical and horizontal integration, thus becoming an important variable to solve inter-jurisdictional water management problems.

In the case we study, process design has been handled successfully in the sense that it has made conflict among actors less likely; one of the important reasons for this is that all the new water management institutions that we analyze in this article have resulted from decision-making processes based on consensus. The Guiding Principles were designed consensually by participants in the 2002 workshops, and the stakeholders that identified water problems in the 2007 workshops also did so through consensus. Furthermore, decisions inside COHIFE are not adopted unless all parties agree to them. The fact that actors participating in these institutions have embraced consensus as the preferred mechanism to adopt decisions signals the presence of important coordination efforts.

Needless to say, successful coordination is not easy: it requires the spending of considerable resources and the leading participation of actors who can broker relationships among others to prevent conflict (Berardo and Scholz 2010). A number of the individuals we interviewed claimed that the process that started in 2002 and concluded in 2007 with the drafting of the national plan hinged on the critical coordination efforts spearheaded by key individuals working in the different provincial water bureaucracies.

“There were some individuals that were incredibly important in moving the process of designing a water plan forward. Many of the directors of the water agencies in the different provinces made incredible efforts and were important at different times. I don’t think you could say there was a leader pushing the process forward all the time, but rather different people that adopted a leadership role when it was needed” (Interview #11).

Furthermore, according to the opinion of many of our respondents, the enhanced horizontal coordination that resulted from the work of different provincial authorities was coupled by vertical coordination efforts promoted by the Sub-Secretariat of Water Resources. One of the questions we included in our interviews asked whether the national government fulfilled a coordination role in the process of designing the Guiding Principles and the National Water Plan. With no exception, interviews acknowledged the critical role played by the Sub-Secretariat of Water Resources in promoting the organization of the workshops and securing the participation of different agencies and non-governmental actors in the national workshops in 2002 and 2007. This finding supports the claim that “meaningful stakeholder participation (in the integrated management of water resources) generally requires some type of government oversight” (Creighton 2004, cited in Davis 2007, 430).

It is also important to point out that according to most of our respondents horizontal and vertical coordination efforts have increased since the creation of COHIFE,

a venue which clearly occupies the central position in the national “ecology of (water) policy games” (Lubell et al., 2010). COHIFE has served as a forum for discussing the reactivation of inter-jurisdictional basin-level committees, the design of a national plan for underground water resources, and the harmonization of provincial laws, among other issues (Interview #5, Interview #3). In addition, COHIFE is seen as a venue where conflict between provinces can be prevented and partially deactivated, because the council favors the emergence of trust-based relationships among the actors that participate in it (Interview #4, Interview #8, Interview #9, Interview #10).

In summary, the new institutions for water management have dealt relatively well with the challenge of process design since consensus-based decision-making and sufficient coordination efforts have eased the transition from a historically fragmented water management style to a more holistic approach to solve water problems. Nevertheless, one must be cautious in assessing the real chances of IWRM to take root in the country as the leading water management framework. Specifically in regard to the performance of COHIFE, it seems that the venue remains rather ill-prepared to help advance IWRM. Its main limitation (in addition to the aforementioned lack of formal inclusion of non-governmental actors in decision making) is perhaps its unstable financial situation. Even though COHIFE is supposed to be financed by all its members, not all provinces have contributed their share of funds to support its activities. On this point, a majority of respondents claimed that this failure to contribute responds not to a lack of political support for COHIFE, but rather to the insufficient foresight by some provincial governments at the moment of approving their budgets and appropriating funds for the venue. Whatever the case, we believe that the failure to properly fund the venue may indicate that its existence is not a top priority for some of its members.

A second limitation, obviously linked to the first one, is that COHIFE still lacks a permanent technical staff, and so the range of decisions that can be reached is narrowed by the unavailability of technical expertise (Interview #10); this undermines the capacity of the venue to contribute to “scientific learning”, another necessary component element of Adaptive Governance (Scholz and Stiftel 2005).

Finally, it is not clear whether COHIFE can serve as a venue to solve conflicts of a somewhat large magnitude. Despite the fact that one of its goals is to “become a mediating or arbitrating venue (when the parties in conflict request it) in all issues related to inter-jurisdictional waters” (Article 3, COHIFE’s Organizational Chart), in practice the venue favors the adoption of agreements on issues over which there is little initial disagreement to begin with (Interview #9). Whether the venue can evolve from “all talk” to “all action” would probably depend on the adoption of a strong political compromise by all jurisdictions to abide to majority-based decisions.

5. Additional Problems for the Implementation of IWRM in Argentina

In addition to the limitations highlighted in the previous two sections, the information collected helped us identify three additional barriers to achieving AG, which we surmise

impede the integrated management of water resources in Argentina. These problems are: a) a still incomplete and poorly-articulated institutional framework to manage water resources, b) the absence of sustained efforts to implement the National Plan for Water Resources (“policy discontinuity”), and c) the prevalence of *personalismo/amiguismo* in political relationships among decision-makers.

5.1. *An Underdeveloped Institutional Framework to Manage Water Resources*

Even though there have been clear advances in the development of new institutions to improve water management in the country, most of the individuals we interviewed agreed that the institutional framework remains weak. Not only has the National Plan not come to fruition, but the Law on Environmental Management of Water (Act 25688) passed in 2002 can be considered a very weak instrument to contribute to the management of water resources on a national scale. The provincial government of Mendoza (through its Department of Irrigation) even made a presentation to the national Supreme Court arguing the unconstitutional character of the law since it bestows on the national government ample powers to regulate aspects of the management of natural resources that, according to Art. 124 of the national constitution are owned by the provinces.

In April of 2010, provincial and national authorities through their delegates in COHIFE and COFEMA (the Environmental Federal Council) concluded that the law needed to be modified to become fully operative, but there were no clear definitions about how exactly an improved version of the law should look like. As of July of 2013, the law has not been modified and so the country remains without a strong legal overarching instrument regulating the management of water resources on a national scale. We believe the absence of a comprehensive and effective piece of legislation is a critical weakness that considerably diminishes the possibility of integrating water management efforts across jurisdictions.

Finally, another indication of the institutional weakness to manage water resources in many parts of the country is the lingering feeble functioning of most inter-jurisdictional basin committees. Both Act 25688 and the Guiding Principles (principle 19) explicitly state that coordinated activities among jurisdictions must be accomplished taking “water hydrological basins” as planning units, which demands the creation and/or operation of existing basin-wide, interprovincial committees. There are thirteen such committees currently operating in Argentina, but a majority have not been able to trigger sustained collaboration among the involved jurisdictions.¹¹ Some of our respondents observed that

¹¹ Fortunately, there are exceptions to this overall pattern. Two examples are the Interjurisdictional Authority for the Limay, Neuquén and Negro river basins (AIC, formed by the provinces of Buenos Aires, Río Negro, and Neuquén), and the Interjurisdictional Committee of the Colorado River (COIRCO, formed by the provinces of Buenos Aires, La Pampa, Río Negro, Mendoza, and Neuquén). In both cases these inter-jurisdictional venues have functioned without interruption for a somewhat prolonged period of time (COIRCO since 1975, AIC since 1985).

unless the inter-jurisdictional basin committees can be strengthened throughout the country, accomplishing the integrated management of water resources will remain difficult (Interview #5, Interview #7, Interview #3).

We contend that this goal will remain difficult to achieve, in part because of the presence of Article 124 in the Argentine National Constitution. By stating that natural resources belong to the provinces, the article discourages inter-jurisdictional cooperation whenever a province (usually the upstream user in interprovincial river basins) finds it economically disadvantageous to curtail certain uses of the shared water resources as they pass through its territory.¹²

5.2. *Policy Discontinuity in the Creation of the National Plan for Water Resources*

One of the more noteworthy findings, as we studied the process leading to the adoption of the Guiding Principles, the creation of COHIFE, and the design of the National Plan, was the abrupt discontinuation in the efforts toward the latter. Since 2007, no significant advances have taken place to finalize it.

This discontinuity in the efforts to design the plan has obvious negative consequences that may affect its eventual implementation. The most significant is the “organizational unlearning” that takes place when the process stalls or slows down nearly to a halt (Interview #8, Interview #6, Interview #5). Engaging a multitude of stakeholders in a collaborative process that involves identifying inter-jurisdictional water problems demands a considerable expense of both time and financial resources, and whatever outputs this process produces need to be rapidly turned into input for decision-making processes for a number of reasons.

First, water management problems are unlikely to be stable, and so jurisdictions may change their priorities as particular events take place. Flooding, for instance, usually pushes the issue of infrastructure development to more prominent places in governmental policy agendas. So problems identified in 2007 may become less critical as events unfold in time. The fact that there is still no final National Plan for Water Resources six years after stakeholders identified pressing water management problems opens a question mark on whether the plan will effectively address the priorities the stakeholders will have at the moment the plan is finalized (rather than the priorities that were set in 2007).

Second, stalling the process of designing the National Plan for Water Resources may also lead to the unwanted effect of stakeholders withdrawing (explicitly or not) their support in the future. If the process of identifying problems demands clear organizational efforts (producing, sharing, and processing information in exchanges with other actors,

¹² The national constitution of Brazil (another federal system of government), for instance, establishes in its 20th article that all lakes, rivers, or watersheds that extend over the boundaries of an individual state (sub-national governments) or that serve as the limit with other countries, remain in the domain of the federal government. We believe this type of legal arrangement would help water-policy related transactional costs since the ownership of the water resources are more narrowly defined, which in turn increases the likelihood of attaining the integrated management of water resources.

among the most important), but produces no clear short-term benefits, then many actors may not find it worthwhile to participate further, which in turn could undermine the legitimacy of such a process.

The problem of policy discontinuity becomes even more important when one considers that jurisdictions may have to “re-learn” the details of the process as new authorities replace the old ones. A new director of a provincial Sub-secretariat of Water Resources who took office in December of 2011 claimed in an interview to be “unaware of the existence of a process to design a National Federal Plan of Water Resources.” The fact that the highest authority on water issues in one of the most important provinces in the country does not know of the existence of the plan hints that policy discontinuity is a very serious issue that is likely to negatively impact the chances of reaching IWRM in the future.

5.3. *Personalismo/Amiguismo as a Distortive Force in the Process of Promoting IWRM*

A third potential problem we identified is the prevalence of *personalismo* in determining what issues make it into the policy agenda and how these issues are addressed, even in the presence of seemingly open processes that incorporate multiple stakeholders. *Personalismo* exists when the preferences of a small number of powerful individuals drives decision-making, and is widely considered to be one of the defining features of Latin American organizational culture (Osland et al., 1999; Sanchez-Burks et al., 2000).

A number of the individuals we interviewed noticed that the process of promoting the implementation of IWRM has been positive in terms of incorporating a wide diversity of actors. However, they also claimed that in the end, achieving real inter-jurisdictional coordination depends on the political will of the highest provincial authorities, in particular the governors, and the type of relationship they have with the national executive power. Interviewees mentioned that financial assistance from the top down to improve water infrastructure, for instance, is heavily dependent on how close a relationship the governors have with the president’s office, and also noticed that this way of doing business may end up negatively impacting the new institutions designed to improve the management of water resources across the country.

“You know how policy-making works in this country... many times the (national) government makes decisions to spend money for water projects based on political sympathies with the provincial governments, and it turns out that those decisions may be good for the province that receives the money, but not for other provinces that may suffer negative effects from those projects. COHIFE should have a saying in those decisions because this is in the Guiding Principles we approved back in 2003, which say that the provinces should participate in these decisions, but then the relationship between the president and the governors trumps this framework” (Interview #11)

Obviously, when water management policy at the provincial levels is mostly affected by the type of bilateral relationships that are established between the provincial governments and the president, the real capacity of the national institutions to promote

IWRM dwindles because they require that water management problems be dealt with in a comprehensive, multi-lateral fashion incorporating as many affected jurisdictions as possible. From an Adaptive Governance perspective, the remnants among political elites of a policy-making style based on political sympathies and the exchange of political favours is likely to reduce the chance of successfully facing the challenges of representation and process design, because making decisions bilaterally implies neglecting truly open, inclusive decision-making processes.

The obstacles we have identified in this section help elucidate why IWRM remains an unfulfilled promise in Argentina. Furthermore, we assert that barring the removal of these obstacles, achieving IWRM in the country will be extremely difficult because the existing formal institutions are simply not powerful enough to trigger real inter-jurisdictional cooperation.

6. Conclusion

Our goal in this paper has been to examine the challenges to Adaptive Governance in Argentina in the process leading to the creation of a new set of institutions that affect water management, theoretically through the implementation of IWRM. We proceeded under the assumption that achieving adaptive governance should lead to an increased chance of successfully implementing IWRM in the long term, because it improves horizontal and vertical integration among different levels of government and boosts the chances of coordinating views on how to solve inter-jurisdictional water management problems.

Our findings are mixed. On one hand, the adoption of the national Guiding Principles of Water Policy, the creation of the Federal Water Council (COHIFE), and the elaboration of a draft of a Water National Plan in 2007 represent positive initiatives. Particularly in a country where coordinated efforts among the national and subnational levels of government on water management issues have been historically weak, these initiatives signal that there is interest (mostly by national and provincial specialized bureaucrats) in changing the nature of decision-making processes from the piecemeal, individualistic approach of the past to a more inclusive one in which multiple actors collaborate to figure out solutions to common problems.

Yet some factors continue to impede integration of water resources management. The fact that the provinces retain constitutional, formal ownership over natural resources may slow down collaboration between multiple provinces. A second important limitation is that policy discontinuity emerged when the process of creating the national water plan slowed down after the approval of a first draft in 2007. Most policy-making advances incrementally, especially when financial constraints arise, but processes that slow down excessively may cause some participants to withdraw support for the process. The design of the plan needs to get back on track quickly to prevent actors from changing their priorities, and to make sure that IWRM does not become an anachronistic label among water policy-makers. Finally, another limitation our interviews identified is that some of the decisions made to address water management problems may be based on political sympathies between the federal and provincial governments, rather than on joint assessments

of the problems by all affected jurisdictions. When decisions that affect multiple jurisdictions and users are made bilaterally (between the federal government and individual provincial governments), horizontal and vertical coordination are limited at best, and thus the integrated management of water resources becomes a harder goal to achieve.

Overall, our findings confirm that designing an institutional framework to advance the integrated management of water resources in developing countries is difficult and time-consuming. Scarce financial resources to design and implement needed planning efforts usually coexist with frail bureaucracies that have limited technical capacity and can even be used in extreme cases as the political arms of elected politicians seeking to discipline their opposition or reward allies.

There are exceptions to this trend. Brazil, for instance, has one of the most modern institutional frameworks to manage water resources. A national “Water Law” (Act 9433) was passed in 1997 that sparked the creation of the National Water Resources Management System of Brazil, a comprehensive system that regulates the use of water resources in the country and is implemented through the work of different organizations operating at both the state and national levels, such as the National Water Resources Council, the National Water Agency, the State Water Resources Agencies, and the River Basin Committees. Key for the system’s success has been its capacity to generate sustained local-level knowledge on water management problems (using public participation in the process), to instrument policy evaluation approaches based on sound science and proper cost-benefit analyses, and to favor coordinated responses to management problems when they exceed the boundaries of single jurisdictions (Braga et al., 2009; GWP, 2004). For IWRM practitioners and those that propose it as a valuable framework to think about water problems a quick comparison between the Argentine and the Brazilian case can provide some simple, yet powerful lessons. First, formal constitutional-level rules that facilitate inter-jurisdictional cooperation instead of thwarting it must be in place before the process of promoting IWRM starts. Second; cooperative efforts should be sustained in time once they have begun, lest organizational investment in the process go to waste thus undermining its legitimacy. Finally, water management decisions should be made in the context of a well-developed polycentric system, with multiple decision-making arenas operating at the local, provincial, and national levels. It is only in a strong “ecology of policy games” (Lubell et al., 2010) where policy actors have a real opportunity to engage in policy learning and use relevant local-level knowledge to improve their water management efforts.

References

- Adger, W. Neil. (2000). “Social and ecological resilience: are they related?” *Progress in Human Geography* 24(3): 347–364.
- Auge, Miguel. (2006). “Agua Subterránea: Deterioro de calidad y reserva” (online) [cited December, 2011]. Available at: <http://sedici.unlp.edu.ar/ARG-UBA-LIB-0000000002/10602.pdf>
- Berardo, Ramiro, and John T. Scholz. (2010). “Self-Organizing Policy Networks: Risk, Partner Selection and Cooperation in Estuaries.” *American Journal of Political Science* 54(3):632–649.

- Berardo, Ramiro, and Andrea Gerlak. (2012). "Conflict and Cooperation along International Rivers: Crafting a Model of Institutional Effectiveness." *Global Environmental Politics* 12(1):101–120.
- Braga, B.P.F., R. Flecha, P. Thomas, W. Cardoso, A.C. Coelho. (2009). "Integrated Water Resources Management in a Federative Country: The Case of Brazil." *International Journal of Water Resources Development*, 25(4): 611–628.
- Calcagno Alberto, Nora Mendiburo, and Marcelo Gavino Novillo. (2000). "Informe sobre la Gestión del Agua en la República Argentina". (online) [cited December, 2011]. Available at: http://cap-net-esp.org/document/document/120/S6_-_Gestion_del_Agua_en_Argentina.pdf
- Cardwell, Hal E., Richard A. Cole, Lauren A. Cartwright, and Lynn A. Martin. (2006). "Integrated water resource management: Definitions and conceptual musings." *Journal of Contemporary Water Resources Education*, 135(1):8–18.
- Cavalli, Luis Alberto. (2007) "Derecho de Aguas". Documentos de Trabajo N° 168, Facultad de Derecho y Ciencias Sociales, Universidad de Belgrano.
- Dardis, Natalia and Andrés Rodríguez. (2011). "Recursos Hídricos Argentina 2011" (online) [cited December, 2011]. Available at: http://issuu.com/_cda_/docs/rhargentina?mode=window&backgroundColor=%23222222
- Davis, Matthew. (2007). "Integrated Water Resource Management and Water Sharing." *Journal of Water Resources Planning and Management* 133(5): 427–445.
- Director of the Department of Hydraulics, Province of San Juan. Interview conducted on March 2nd, 2012.
- Director of the Department of Hydraulics and Basin Management, Province of Entre Ríos. Interview conducted on February 9th, 2012.
- Director of the Provincial Water Authority, Province of Formosa. Interview conducted on February 16th, 2012.
- Director of Water Administration, Province of La Rioja. Interview conducted on February 17th, 2012.
- Director of Water Resources, Province of Tierra del Fuego. Interview conducted on February 23rd, 2012.
- Dourojeanni, Axel, Andrei Jouravlev, & Guillermo Chavez. (2002). "Gestión del agua a nivel de cuencas: teoría y práctica." Comisión Económica Para América Latina (CEPAL), División de Recursos Naturales. (online) [cited December, 2011]. Available at: <http://www.bvsde.paho.org/bvsacd/cd27/cuencas.pdf>
- Feiock, Richard C., Annette Steinacker, and Hyung Jun Park. (2009). "Institutional Collective Action and Economic Development Joint Ventures." *Public Administration Review* 69(2):256–270.
- Feiock, Richard C., and John T. Scholz (eds.). (2010). *Self-organizing Governance: Collaborative Mechanisms to Mitigate Institutional Collective Action Dilemmas*. NY: Cambridge University Press.
- Global Water Partnership. (2000a). "Setting the Stage for Change". Stockholm, Sweden.
- Global Water Partnership. (2000b). "Integrated Water Resources Management." Technical Advisory Committee Background Paper No. 4. Stockholm, Sweden.
- Global Water Partnership. (2004). "Brazil: Progress towards the integration of water resources management (#289). Porto Alegre, Brazil: Tucci, C.E.M., Forratini, G., Cordeiro, O. & Porto, M. (online) [cited October, 2012]. Available at: http://www.gwptoolbox.org/index.php?option=com_case&id=180&Itemid=43
- Global Water Partnership. (2006). "Setting the Stage for Change". Second informal survey by the GWP network giving the status of the 2005 WSSD target on national integrated water resources management and water efficiency plans. Stockholm, Sweden.
- Global Water Partnership. (2000). "Setting the Stage for Change". Second informal survey by the GWP network giving the status of the 2005 WSSD target on national integrated water resources management and water efficiency plans. Stockholm, Sweden.
- Gunderson, Lance H. and C.S. Holling (2002). *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington, DC: Island Press.
- Interamerican Development Bank. (1998). *Estrategia para el manejo integrado de los recursos hídricos*. No ENV-125. Washington, DC.
- Jønch-Clausen, Torkil, and Jens Fugl (2001). "Firming up the Conceptual Basis of Integrated Water Resources Management." *Water Resources Development*, 17(4):501–510.
- Lebel, Louis, John M. Anderies, Bruce Campbell, Carl Folke, Steve Hatfield-Dods, Terry P. Hughes, and James Wilson. (2006). "Governance and the Capacity to Manage Resilience in Regional Social-Ecological Systems". *Ecology and Society* 11(1): 19.

- Lubell, Mark, Adam Douglas Henry, and Michael McCoy. (2010). "Collaborative Institutions in an Ecology of Games." *American Journal of Political Science* 54(2): 287–300.
- Peña, Humberto and Miguel Solanes. Global Water Partnership–CEPAL. (2003). "Effective Water Governance. Action through partnership in South America". Paper presented at the Third Water Forum. Kyoto, Japan.
- Medema, Wietske, McIntosh, Brian S. and Jeffrey, Paul J. (2008). "From premise to practice: a Critical assessment of Integrated Water Management Approaches in the Water Sector". *Ecology and Society* 13(2):29.
- Mock, Gregory. (2003). "Transboundary Environmental Governance: The Ebb and Flow of River Basin Organizations". In *World Resources 2002–2004*. Washington, DC: World Resources Institute.
- Osland, Joyce S., Silvio De Franco and Asbjorn Osland. (1999). "Organizational implications of Latin American culture." *Journal of Management Inquiry* 8(2):219–234
- Ostrom, Elinor. (1990). *Governing the Commons. The Evolution of Institutions for Collective Action*. New York, NY: Cambridge University Press.
- Pochat, Víctor. (2005). "Entidades de gestión del agua a nivel de cuencas: experiencia Argentina" (online) [cited December, 2011]. Available at: <http://www.eclac.org/publicaciones/xml/5/22905/lcl2375s.pdf>
- Pochat, Víctor. (2011). "International Agreements, Institution and Projects in La Plata River Basin." *Water Resources Development* 27(3):497–510.
- Sabsay, Daniel. (1997). "El Nuevo Artículo 41 de la Constitución Nacional y la Distribución de Competencias Nación–Provincias." *Doctrina Judicial* 3(28): 783–787.
- Sanchez-Burks, Jeffrey, Richard E. Nisbett and Oscar Ybarra. (2000). "Cultural styles, relational schemas, and prejudice against out-groups." *Journal of personality and social psychology* 79(2):174–189.
- Scholz, John T., and Bruce Stiftel. (2005). *Adaptive Governance and Water Conflict. New Institutions for Collaborative Planning*. Washington, DC: Resources for the Future Press.
- Secretary of Water Resources, Province of La Pampa. Interview conducted on February 14th, 2012.
- Secretary of Water Resources (former Secretary), Province of La Pampa. Interview conducted on February 9th, 2012.
- Spiller, Pablo and Mariano Tommasi. (2010). "Un país sin rumbo ¿Cómo se hacen las políticas públicas en Argentina?" In Scartascini, Carlos, Pablo Spiller, Ernesto Stein and Mariano Tommasi (eds.) *El juego político en América Latina. ¿Cómo se deciden las políticas públicas?* Washington, DC: Inter American Development Bank. Pp: 75–116
- Stoker, Gerry. (1998). "Governance as theory: five propositions." *International Social Sciences Journal* 50(155):17–28.
- Sub-secretary of Water Resources, Province of Córdoba. Interview conducted on February 28th, 2012.
- Sub-secretary of the Department of Water Resources, Province of Tucumán. Interview conducted on March 7th, 2012.
- Sub-Secretariat of Water Resources, Federal Government. Interview conducted on February 9th, 2012.
- Sub-Secretariat of Water Resources, Federal Government (former Director). Interview conducted on February 10th, 2012.
- Subsecretaría de RecursosHídricos-ConsejoHídrico Federal. (2007). "Plan Nacional Federal de los Recursos-Hídricos." Available at: <http://www.hidricosargentina.gov.ar/documentos/PlanNac16-05-2007.pdf>
- Viglizzo, Ernesto and Esteban Jobbágy. (2010). "Expansión de la frontera agropecuaria en Argentina y su impacto ecológico-ambiental" (online) [cited December, 2011]. Available at <http://www.inta.gov.ar/anguil/info/pdfs/giga/Expansi%C3%B3n%20Frontera%20Agropecuaria%202010.pdf>
- Wester, Philippus, Douglas J. Merrey and Marna de Lange. (2003). "Boundaries of consent: stakeholder representation in river basin management in Mexico and South Africa". *World Development* 31(5):797–812.
- World Bank. (2000). "Argentina. Water Resources Management. Policy Elements for Sustainable Development in the 21st Century. Main Report." Report No. 20729-AR.