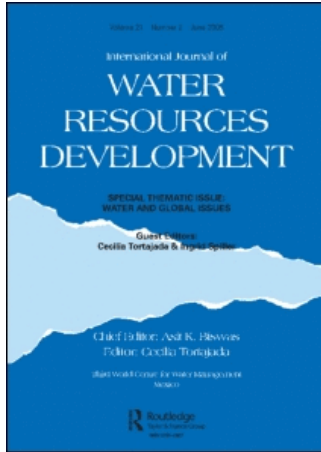


This article was downloaded by:[University of Arizona]
On: 7 March 2008
Access Details: [subscription number 787035412]
Publisher: Routledge
Informa Ltd Registered in England and Wales Registered Number: 1072954
Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



International Journal of Water Resources Development

Publication details, including instructions for authors and subscription information:
<http://www.informaworld.com/smpp/title-content=t713426247>

The Dilemma of Water Management 'Regionalization' in Mexico under Centralized Resource Allocation

Christopher A. Scott^a; Jeff M. Banister^b

^a Department of Geography & Regional Development and Udall Center for Studies in Public Policy, University of Arizona, Tucson, USA

^b Department of Geography & Regional Development and Journal of the Southwest, Southwest Center, University of Arizona, Tucson, USA

Online Publication Date: 01 March 2008

To cite this Article: Scott, Christopher A. and Banister, Jeff M. (2008) 'The Dilemma of Water Management 'Regionalization' in Mexico under Centralized Resource

Allocation', International Journal of Water Resources Development, 24:1, 61 - 74

To link to this article: DOI: 10.1080/07900620701723083

URL: <http://dx.doi.org/10.1080/07900620701723083>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article maybe used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

The Dilemma of Water Management 'Regionalization' in Mexico under Centralized Resource Allocation

CHRISTOPHER A. SCOTT* & JEFF M. BANISTER**

*Department of Geography & Regional Development and Udall Center for Studies in Public Policy, University of Arizona, Tucson, USA; **Department of Geography & Regional Development and *Journal of the Southwest*, Southwest Center, University of Arizona, Tucson, USA

ABSTRACT *Mexico's evolving water management framework is predicated on: (1) integration of water resources planning and management; (2) decentralization from federal to 'regional' (river basin) levels; and (3) privatization of service provision. This paper focuses on Mexico's recurring federal-regional tensions, highlighting the historical case of the Yaqui River, and analyzing the current decentralization impasse. Although important advances have been made with irrigation management transfer, river basin councils, nascent user participation in groundwater management, and water and energy legislation, integrated water resources management (IWRM) remains an elusive goal, principally due to inherent institutional and procedural contradictions in water resource allocation. The next steps in the Mexican model—to open decision making to public scrutiny and devolve allocation of water and financial resources—will prove the most difficult, more because of entrenched interests than for lack of an 'IWRM roadmap'.*

Introduction

Globally, Integrated Water Resources Management (IWRM) emerged as a conceptual approach to release water resources planning (and to a lesser extent its development and management) from the vice-grip enforced, indeed required, by 'hydraulic despotism' that prevailed for much of the 20th century. However, taking the next step of implementing integrated plans was a leap of faith that banked heavily and in many cases naively on the conformity of large water resources bureaucracies to open themselves to integration. This entailed transparency, accountability and dialogue in political and public circles in which conventional water managers found themselves ill-equipped to defend the central tenets of their profession, virtually exclusively, engineering. They saw their power base being eroded in the integration process. In countries with large water bureaucracies, the pace of 'integration' (immersing water management and managers in broader institutional, political, and public decision-making processes) has been excruciatingly slow (Shah *et al.*, 2004).

Correspondence Address: Christopher A. Scott, Department of Geography & Regional Development and Udall Center for Studies in Public Policy, University of Arizona, Tucson, AZ 85721, USA. Email: cascott@email.arizona.edu

0790-0627 Print/1360-0648 Online/08/010061-14 © 2008 Taylor & Francis
DOI: 10.1080/07900620701723083

IWRM was conceived on the drawing boards of global development paradigm designers (read Stockholm, Dublin, Rio, the World Water Forum process, Bonn, WSD, etc.), concerned with water sector development as a means to pursue broad social and economic growth (Varady & Meehan, 2006). However, the design of paradigms was at least one step removed from water resource implementation and management in real-world situations. As a result of glossing over the full complexities and intricacies of water management in operational terms, there never has been a clear, concise IWRM roadmap; indeed, the planning process is incapable of capturing such complexity.

It is necessary to provide a broad characterization of the functional attributes of water resources planning and management. There is a structural dualism inherent in the professional roles played, on the one hand, by public policy makers and planners whose objectives are centred on social welfare with a distinct bias on the electoral balance sheet, and on the other by technocrats charged with efficiency, functionality, and effectiveness, attributes these same technocrats, it might be added, would not be averse to using when characterizing their own trade. As long as water agencies retained a single purpose (or single function) water use mandate, e.g. irrigation or hydropower, but not urban water supply which will be returned to subsequently, there were few barriers separating technocrats from policy makers: an engineer (or other career professional) with the right charisma or 'inside track' faced little difficulty in becoming the head of the irrigation department.

However, the inexorable process of institutional diversification resulting from bureaucratic reform or public sector modernization combined multiple functional attributes into single, invariably larger governmental bureaucracies. For example, this occurred in Mexico with the relocation of irrigation from agriculture to the water resources portfolio of public administration; the Ministry of Water Resources (*Secretaría de Recursos Hidráulicos*, SRH) was a gargantuan bureau with cabinet-level status, created in the 1940s when party and state became fused in large technocratic agencies. In the new context that emerged in the 1990s (water subsumed under the environment ministry), the functional barrier between technocrat and policy maker was heightened, making it increasingly difficult for all but the most savvy and politically connected irrigation engineer to rise beyond the rank of section chief. However, two aspects of this evolution should be borne in mind: (1) the resources at the section chief's disposal (human, financial, and critically, water resources) may not dwindle to the same extent that his decision-making autonomy is curtailed; and (2) the policy maker—invariably a political appointee—is increasingly beholden to the technocrat to generate impact while avoiding negative outcomes.

One salient feature of urban water supply sets this sub-sector apart. The exposure of urban services provision, including *inter alia* water supply and sewerage, to public and media scrutiny has led to the politicization of its administration at least a full generation before irrigation, hydropower and related water services. In addition, the public health emphasis (water supply and sanitation as the principal strategies to reduce infant mortality and the burden of gastro-intestinal disease) of social services investment during the latter half of the 20th century, globally but also in Mexico, translated rather predictably into the Millennium Development Goals on access to water supply and sanitation, etc. The global investment and resulting scrutiny such lofty targets have conferred on local or state WATSAN-type programmes have increasingly removed their administration from the technocrats' ambit.

There is also a core-periphery dimension to urban versus agricultural water management and the degree of scrutiny to which each is subject. Urban areas, and by extension urban services provision, are the centre of political power and electioneering

as well as revenue mobilization and expenditure. By comparison, the agricultural hinterland has served urban interests primarily for the provision of cheap food, raw material for urban and peri-urban industry, surplus capital for both the state and agribusiness, and, until recently in Mexico, a secure political base for the dominant political party. With few exceptions, GDP growth has resulted in the depopulation of rural areas, or at least a widening demographic imbalance between city and countryside. Where food production is predicated on major irrigation development, i.e. where agricultural water management retains significant resource investment, the combination of de-emphasized rural hinterland with continued injection of financial resources has created an institutional vacuum readily filled by large landowners and their allied interests. The institutional landscape is made more complex by the systematic evisceration of *ejidos* (roughly, agrarian reform smallholder communities), although the very presence of rural poverty remains a compelling argument for rural programmes.

In this context, there are increasingly vocal calls for a societal dialogue process around water resources management with an IWRM backdrop. Local interests (farmers' organizations, citizens' groups, and non-governmental organizations of all types and ideological affiliations) are mobilizing around access to water, access to water resources decision making and water quality impacts. These civil society organizations are increasingly vocal and globalized, i.e. networked with access to knowledge and advocacy (Ruiz-Marrero, 2005), and see in IWRM a chink in the armour of centralized decision making. What effective impact this has had on public policy and programmes remains a crucial question to be researched.

In official circles in Mexico, 'social (or public) participation' has moved from being something external to any but the most localized water management decision making, to being a process that was recognized but studiously avoided, to today's full-on calls for public debate (many of which are acrimonious, fewer harmonious). The net result of IWRM's chequered history has been acknowledgement by technocrats and decision makers that broader societal goals, participation and dialogue are now features of the landscape. However, despite this agnosticism on the part of technocrats, studies continue to highlight ongoing lack of official consideration for the deeply social, political and cultural nature of the hydrological systems they control (Whiteford & Bernal, 1996; Wilder & Romero Lankao, 2006)

Integrated Water Resources Management: A Brief Repast

Biswas (2004) discusses and energizes the polemic around the concept of IWRM, concluding that despite great promise and fanfare enlisted by IWRM proponents, it remains principally an article of faith. One of the central tenets of IWRM is that the immersion of water management in larger public administration processes will be necessary for improved social welfare, economic development and environmental sustainability. This appears to emerge unscathed from the critiques of IWRM by Dourojeanni (2003); Mollard & Vargas (2004); Biswas *et al.* (2005); Tortajada, 2005; and Tortajada *et al.*, 2005). Historically, as a process, water management has been decoupled from broader societal goals; however, its role in contributing to these goals is conceptually unassailable. Or, to clarify this statement, by institutionalizing and personalizing change agents, water management agencies and decision makers have had limited effectiveness in contributing to social, economic and environmental goals.

Tortajada (2005), here with reference to Mexico, captures IWRM's conceptual underpinning:

Despite its importance, the construction of hydraulic and related agricultural infrastructure projects alone will not suffice. What is required is a water sector with a management vision that integrates natural and human resources such that resulting projects have lasting, beneficial impacts. (p. 7, translation by authors)

IWRM remains a conceptually attractive proposition. The introduction alluded to the global paradigm designers as the primary proponents of integrated approaches. At the policy level, organizations such as the American Water Resources Association (AWRA) continue to promote IWRM. As recently as February 2005, the AWRA posited four water policy challenges, the first and fourth are particularly notable for the present discussion: (1) promoting more integrated approaches; (2) reconciling the current ad-hoc [US] national water policy; (3) developing collaborative partnerships; and (4) providing information for sound decision making. The call for action and conclusions of the 2nd Water Policy Dialogue underscored the integration message (AWRA, 2005).

However, history is replete with well-intentioned designs relegated to the scrap heap when confronted with insurmountable hurdles, or worse, those that continued to be propped up despite realization of their failures or shortfalls (Scott, 1998). Biswas *et al.* (2005, p. 254) identify IWRM's implementation and institutional impasses as follows:

...operationally it has not been possible to identify a water management process that can be planned and implemented in such a way that it becomes inherently integrated however this may be defined, right from its initial planning stage and then to implementation and operational phases...

In the real world, integrated water resources management, even in a limited sense, becomes difficult to achieve because of extensive turf wars, bureaucratic infighting, and legal regimes (like national constitutions) even within the management process of a single resource like water, let alone in any combined institution covering two or more ministries which have been historic rivals. In addition, the merger of such institutions produces an enormous organization that is neither easy to manage nor control.

Are these simple bottlenecks that, with the appropriate measure of coordination and institutional discipline, can be overcome? Or, to the contrary, are they fatal structural flaws in IWRM's broad sweep? To examine this question IWRM implementation issues will be considered, particularly decentralization in the context of Mexico's river basin regionalization, and then the opinions of the authors will be offered in the conclusions.

Integrated River Basin Management: IWRM's Better Half

IWRM in the Latin American context has been viewed as a coordination, consensus-building and conflict management measure (CEPAL, 1999; CONAGUA, 2001). It is recognized that for effective coordination of functions, decentralization of water management is both inevitable and desirable. Dourojeanni (2003) characterizes administrative systems for water management as those with: (a) a large number of institutions under limited central coordination; (b) a high degree of institutional

decentralization of functions; and/or (c) the absolute or complete centralization of authority with limited or non-existent delegation of responsibilities. In relation to the Mexican experience, it is necessary to add the 'and/or' in the last set of observations, based on the perception of the simultaneous (and contradictory) existence of water management decentralization with centralized resource allocation.

This contradiction and the need for separation of water management and allocation functions were identified in the CEPAL (1999) report:

Although the concrete dynamics of reforms vary between countries, they all point towards the possibility of creating future systems that apply the concept of IWRM at the river basin level—with a clear distinction between the responsibilities for water management, on the one hand, and its use, on the other . . . The cornerstone of such restructuring is the separation of public service provision from supervision and regulation . . . and water allocation from management. (p. 7; translation by the authors)

The tension between decentralized management, on the one hand, and centralized resource allocation on the other, is hardly surprising when situated in historical and geographical contexts. Mexico's irrigation boom, largely initiated in 1926 with the promulgation of the National Irrigation Law (*Ley sobre Irrigación con Aguas Federales*), marked the beginning of a radical expansion of state authority into the countryside (Aboites, 1998). Here, the Yaqui Valley, in the north-western state of Sonora, is emblematic. The Río Yaqui irrigation district presently comprises some 220 000 ha, mostly in wheat, and incorporates the labour of 20 000 producers, from Yaqui indigenous production societies (*sociedades*), collective *ejidos*, and small private-holders (*pequeños propietarios*), to large-scale agribusiness conglomerates (Wilder & Romero Lankao, 2006, p. 1987). As a result, the history of damming and diverting the Río Yaqui is fraught with ethnic tension and social strife. However, it is also the political landscape in which the contemporary push to re-territorialize access to water resources plays out.

The struggle over land and water in the Yaqui Valley, as elsewhere in Mexico, largely revolved around attempts to harness natural resources and human labour for extra-local ends. From the early 1600s to the mid-1700s, the Jesuits' programme of agricultural development, including the introduction of wheat and livestock into Yaqui indigenous communities, created surpluses for the burgeoning California mission system. After Mexican independence (1821), large estates (*haciendas*) produced staple crops and raised cattle using indigenous labour and Río Yaqui water, while viewing themselves as a force for (European) civilization in the region (Spicer, 1980). However, the most radical transformation of land and water in the valley before the 20th century was set in motion during the second term of President Porfirio Díaz (1884–1911), when the Los Angeles (US)-based Richardson Construction Company was granted concessions to most of the valley's productive resources. Despite its contractual obligation to provide water to Yaqui indigenous communities, Richardson gave preferential treatment to its own colonists, and to those deemed most able to produce a marketable surplus. Thus, in 1912, the Yaquis complained of a 30% reduction in their harvests for lack of irrigation water (Aguilar Camín, 1977, pp. 57–58). Such asymmetry would continue to characterize the distribution of the valley's water resources.

The Mexican Revolution (1910–ca.1920) set in motion events that would lead to the federal government's cancellation of the Richardson concession in 1926. However, at least

three basic patterns, laid down during the Richardson era, would remain in place to shape the course of subsequent agricultural development (and recent moves to decentralize management and allocation). First, the Richardson experiment (and others like it in Mexico) had produced a deep conceptual rescaling of irrigation control. Now, officials could think in terms of altering entire river basins. Indeed, according to Aboites (1998, p. 73), this was the practical beginning of the hydrographic basin-cum-management unit, at least in the Mexican context. Second, notwithstanding the revolutionary rhetoric and practice of agrarian reform, private capital would continue to play a dominant role in river basin resource politics, a situation that over time grew increasingly acrimonious (Hewitt de Alcántara, 1978; Sanderson, 1981; McGuire, 1986). As the scale of irrigation projects grew to encompass entire basins, so too did the scale and scope of social conflict (Aboites, 1998). Finally, the enormity of irrigation projects and the resultant social conflicts both revolved around and produced the need for unprecedented state intervention in the Mexican countryside, particularly after the Revolution. In short, water became a tool for rural social control, both to quell unrest and more importantly as a means of extracting surplus (Aguilar Camín, 1977; Hewitt de Alcántara, 1978; Sanderson, 1981), as well as a vehicle for rapid bureaucratic expansion (Greenberg, 1970). Its management and allocation (together with land) would also produce significant political challenges to state legitimacy, evidenced by current attempts to decentralize.

Water management in the post-Revolutionary period (1920–ca.1990) thus became increasingly federalized. However, as state intervention in the sector expanded, official resource politics produced a paradoxical effect in the Yaqui Valley. In a quite general sense, power relations became bifurcated, with the so-called social sector—*ejidos*, collectives and indigenous communities—deeply dependent upon state programmes and incorporated into official PRI political networks. Meanwhile, large landowners continued to enjoy relative autonomy *vis-à-vis* the state (Hewitt de Alcántara, 1978; Sanderson, 1981). Conflict between the two social classes¹ inevitably derived from a central paradox of Mexican history since at least the mid-19th century: how to reconcile protection of private property rights and continued private accumulation on the one hand, with agrarian reform for landless peasants and cooperative production on the other. “This challenge and the state’s responses [to it],” writes Steven Sanderson, “are the keys to the developmental problems of the post revolutionary order” (1981, p. 54). Such a developmental dilemma serves as a social class dimension and counterpoint to the federal-regional tension that plays itself out in the political arena; both have directly influenced the tenor of Mexico’s water reforms since 1989.

The 1934 Agrarian Code (*Código Agrario*), promulgated during the populist Cárdenas administration (1934–40), granted the federal government sweeping powers to define the ‘public interest’ to which water could be harnessed. According to Aboites, such authority, derived from the Revolution, gave government the ability “to intervene far more belligerently in the organization of groups involved in water use” (1998, p. 142, translation by the authors). By virtue of such legislation, between the 1930s and 1970s, the *ejido* sector and the Yaqui indigenous community were subject to direct federal control over, *inter alia*, two of the most critical components of agricultural production: water and credit (Hewitt de Alcántara, 1978; Sanderson, 1981). On the other hand, private landowners, while enjoying the benefits of federally subsidized irrigation infrastructure and guaranteed market prices, developed private credit unions and input cooperatives, and often chafed at state intervention in production (Hewitt de Alcántara, 1978).

The federal irrigation system, as it evolved in the Yaqui Valley, therefore encouraged this Janus-faced social structure, first by creating the conditions for dependency in the social sector, then withdrawing its economic and regulatory support. Over time, large landowners became highly capitalized, but by the 1970s smallholders, cooperatives and the Yaqui indigenous community were suffering from the combined effects of “capital shortage, water monopolies, underemployment, and . . . economies of scale” (Sanderson, 1981, p. 160). Indebted and facing private-sector control of irrigation waters, many *ejido* farmers and Yaquis were left with little choice but to rent out their land with water rights. They held accountable for unfulfilled revolutionary promises, federal bureaucracies such as the Ministry of Agriculture and Water Resources (*Secretaría de Agricultura y Recursos Hidráulicos*, SARH, previously known as SRH, which had dealt just with water but was now combined with, and assumed responsibility for, agriculture as well). Meanwhile, large landowners, with their land and water monopolies, doggedly resisted any official moves to address inequities in resource control (Sanderson, 1981; McGuire, 1986).

The Yaqui Valley case illustrates the inherently political nature of re-drawing the boundaries of water use, particularly as such re-territorialization fails to account for, or, in fact, may represent an official retreat from, historical inequities. To be fair, according to Wilder & Romero Lankao (2006), since the 1992 water reforms and decentralization, producers have noted some democratic gains in the water-management process. However, *Ejido* farmers continue to complain that they lack the financial and political muscle to check the influence of large landowners over the decision-making process. Given the historical links between official party clientelism and resource control in Mexico, the effects of the tension between local demands to decentralize decision making and official foot-dragging become more legible. The PRI's loss of official party status since 2000 has, in effect, significantly weakened the longstanding links—firmly in place since at least the Cárdenas administration—between political patronage and natural resources, particularly in the so-called ‘social sector’. This is partly why Wilder & Romero Lankao have found that decentralization and privatization have allowed the state to “transfer the financial and politically charged burden of water management to non-state institutions” (2006, p. 1978). However, given the history of federal irrigation district management—the enormity and power of its bureaucracies—it is possible to understand why decentralization in water resource allocation has lagged behind that of management. Allocation, or control over the resource itself, remains a critical source of state authority in a context of declining federal power in the management realm.

In short, the conditions giving rise to contemporary efforts to decentralize water management and to the concept of river basin management were marked by extreme political and social tension at the management level, tensions that had begun to spill over into the realm of water resource control. This can be seen in the 1989 creation of the National Water Commission (*Comisión Nacional del Agua*, CONAGUA) and the formal signing of the path-breaking Lerma-Chapala Basin agreement that subsequently led to the establishment of the river basin council (*consejo de cuenca*; see Wester *et al.*, 2005). Mexico now embarked on the path of Integrated River Basin Management (IRBM). This must be contextualized with a number of additional processes that both preceded and followed the 1989 milestones.

Following from the Salinas, Zedillo and Fox years, ‘integration’ in Mexico's water sector has to a large extent entailed coordination of investment including planning, necessitated by serious and growing budget shortfalls for the water sector, which has

increasingly been viewed as a 'hungry mouth to feed' as other more financially remunerative sectors (petroleum, manufacturing, services) have taken fiscal centre stage. Water resources management (with the proviso that planning has been implemented as an investment issue) has been neglected. River basin commissions for the Papaloapan, Grijalva, Tepalcatepec and Balsas rivers were established in the late 1940s on regional development lines, i.e. their writ covered not just water resources development, but roads, social services, etc. However, the commissions remained dependent on the federal water authority (Tortajada, 2002).

From the 1970s, a significant water management decentralization process occurred with the transfer of potable water and sewerage management to municipal governments. This was unique in Mexico's three-tier (federal-state-municipal) government structure, given that the states were largely bypassed. Water use fees that fell short of formal water rights were to be paid by municipalities to the federal government, but local water boards had such small budgets that paying direct costs for staff salaries, equipment, etc. proved difficult, a situation that continues to plague municipal water management in Mexico.

In 1992, Mexico adopted the Law of the Nation's Waters (*Ley de Aguas Nacionales*, LAN), which together with its regulations, contained specific provisions for the role of CONAGUA, the structure and functioning of river basin councils, public participation in water management, etc. Although this was a significant milestone in the modernization drive, the LAN was revised in 2003 as the underpinning for Mexico's water management regionalization initiative, which is the subject of the next section of this paper.

In 1992 there was a rapid transfer of large irrigation districts (3.2 million ha in total) from CONAGUA management to users, a process that on paper was largely complete by 1994. Given that the most critical volumes of water remained in the irrigation sector, this process was of great significance and was keenly observed from within and outside Mexico. Water users were organized at the secondary canal level and in some cases federated at the primary canal level; however, with very few exceptions, they were not permitted to formally (legally) organize at the water resource level, i.e. the reservoir or basin level. This left operation and maintenance up to the users, while the essential water allocation functions remained intact in CONAGUA's hands (Rap *et al.*, 2003). Small surface water irrigation systems and some collective groundwater systems called irrigation units (*unidades de riego*) continued under user management but posed few issues for allocation at the water resource level (see Palerm & Martínez, 2000; Silva-Ochoa, 2000; Scott & Silva-Ochoa, 2001).

It was also during the 1990s that Mexico's groundwater boom took place with rapid development and pumping of aquifers for combined agricultural, urban and industrial demand. Mexico is the largest user of groundwater in Latin America, with well over 100 000 large capacity pumps for agriculture alone. As the excesses of the boom became widely apparent, the dual competing models of groundwater technical committees (*comités técnicos de aguas subterráneas*, COTAS) and water technical councils (*consejos técnicos de agua*, also COTAS) were developed and promoted by CONAGUA and the renegade Guanajuato state water commission, respectively. Neither model has seriously taken off as a sustainable, user-driven water resources management initiative. Yet, to the credit of the seriousness of Mexican IRBM efforts, COTAS play a nascent role in the basin councils. A parallel development, invariably overlooked by water sector analysts, was the adoption of the Rural Energy Law (*Ley de Energía para el Campo*), which fixes energy

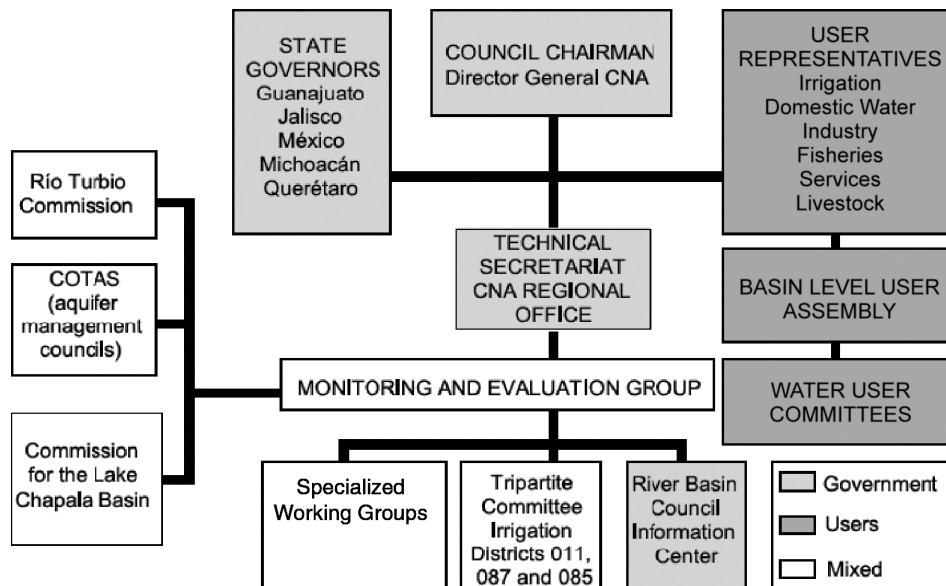


Figure 1. Structure of the Lerma-Chapala river basin

pricing for the agricultural sector and has an impact on groundwater pumping (Scott *et al.*, 2004; Scott & Shah, 2004).

It is evident that agriculture is largely in the adversarial role or position in Mexico with other (sectoral) water uses gaining ascendancy. In their most public and press presentations, urban water demands are increasingly couched as environmental imperatives, e.g. Save Lake Chapala (that is also the principal source of water supply to the city of Guadalajara). In some notable cases, stored water already allocated to farmers was released to meet urban demands (Scott *et al.*, 2001).

Since its creation in 1989, the Lerma-Chapala basin council matured significantly, formally incorporating water users from multiple sectors (Figure 1). CONAGUA has pursued similar models for basins around the country, with the initial focus on the Valle de México and the Río Bravo (Figure 2). The focus remains on river basin councils as the principal administrative vehicle to implement IWRM in Mexico (Tortajada, 2005). This is accompanied by a broader effort to decentralize CONAGUA functions through regionalization along basin lines (see below). However, commenting on the drive toward IRBM, Tortajada (2002) states:

On the basis of their performances so far [2002], the existing basin councils cannot be considered to be viable units for water management at the regional levels. At best, they could be considered to be advisory institutions that are subordinate to the interests of CONAGUA. Fundamental changes will be necessary if they are to become successful institutions for regional water management. (p. 8)

Issues associated with the role and authority of CONAGUA with respect to water users' representatives in Mexico's IRBM process have been raised by Vargas (1999) and Mollard & Vargas (2004).

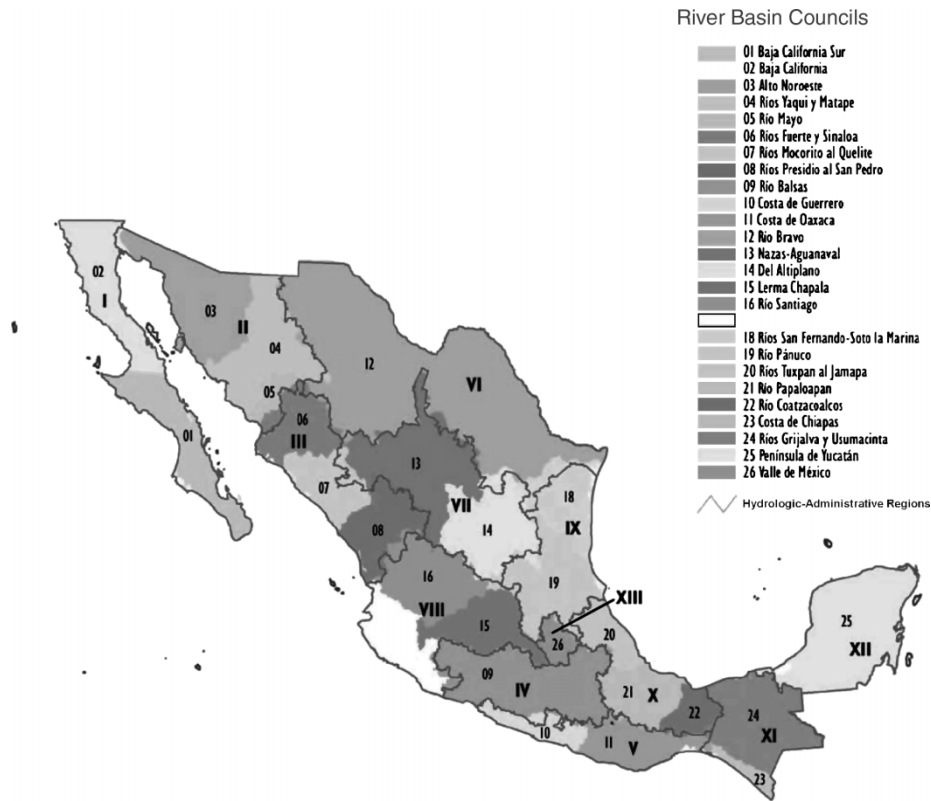


Figure 2. River basin councils

Water Management Regionalization

There does appear to be recognition in the CONAGUA for the need to devolve allocation authority over water, although this is not formally accepted. Hence the pivotal role of the CONAGUA regional office as head of the basin technical secretariat in Figure 1. How these regional offices are delineated, the multiple separate basins they encompass, and the relationship with CONAGUA federal authorities will be further explored here.

The federal-state relationship with revenue generation overwhelmingly in federal hands has hampered regional development in Mexico. Successive Mexican governments have pursued sectoral policies defined at the federal level with a weak, inarticulate or entirely absent regional focus (Tortajada, 2005). A feature of the pre-National Action Party (*Partido de Acción Nacional*, PAN) political landscape when ultimate authority was vested in the Institutional Revolution Party (*Partido de la Revolución Institucional*, PRI), this started to change through a combination of political and privatization initiatives of the PAN, and was articulated in equity and poverty-eradication terms during the 2006 abortive presidential campaign of López Obrador of the Democratic Revolution Party (*Partido de la Revolución Democrática*, PRD). The current PAN administration has yet to reconcile its underlying privatization drive with palliatives to redress social inequity. Nevertheless,

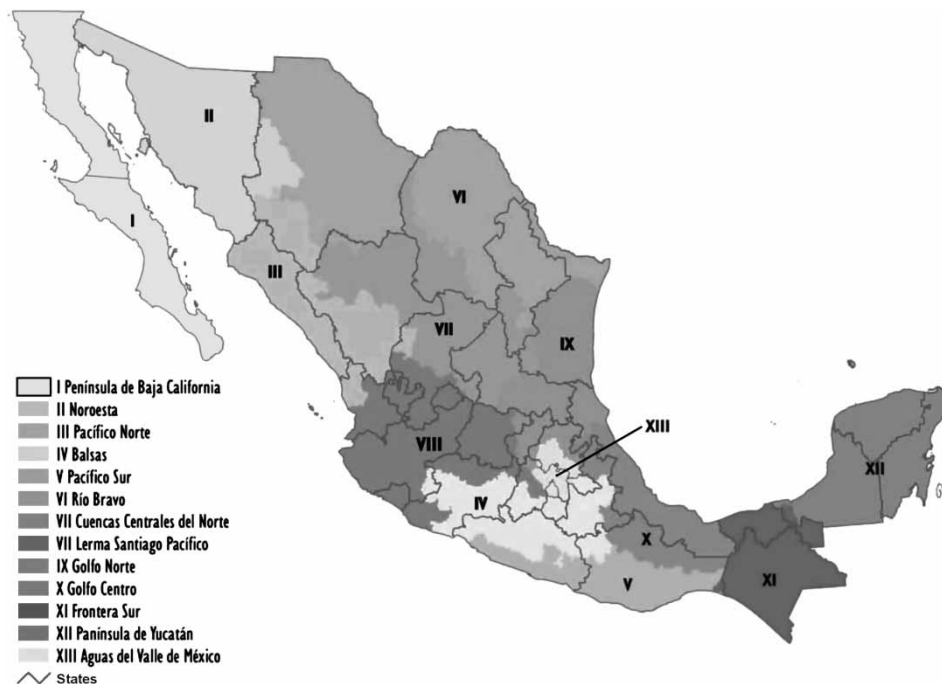


Figure 3. Hydrologic-administrative regions

political institutions still serve as an impediment to effective decentralization (Díaz-Cayeros *et al.*, 2002).

An important test-case for CONAGUA came with the 29 April 2004 passage of reforms to the Law of the Nation's Waters, which stipulated that the 13 decentralized CONAGUA regions (Figure 3) would become basin organizations, or more specifically, serve as the technical arm of more broad-based basin councils that incorporate civil society interests including the private sector, citizens' groups, etc. CONAGUA was given 18 months from April 2004 to publish revised regulations and establish the new basin organizations in the 13 regions. The regional delineation itself followed essentially the same lines as used by the National Water Plan Commission in 1975. These in turn closely followed an earlier 1971 hydrographic regionalization by Oscar Benassini, then SRH Director General of Studies (Melville, 2004). The 18 month period stipulated in the reform for the institutional evolution of CONAGUA regional offices as basin organizations passed without CONAGUA publishing the law's modified regulations or reorganizing its internal structure, both essential to establish river basin organizations. CONAGUA is at a critical impasse, with some officials now seeking to revise the water law yet again.

Conclusions

There are two separate and incongruous water management systems in place in Mexico. One, the official system, is derived from decades of centralized water and financial resource allocation that is firmly rooted in Mexico City. The second, a nascent form of decentralized autonomy within official institutions coupled with growing civil society

demands and increasing public participation, is at loggerheads with the first. While the expeditious view is that the second will succeed from the first in an orderly process, there are clear indications that interests within official institutions, notably CONAGUA, oppose these developments.

If CONAGUA continues to retain control over resource allocation, what are we to make of the real workings of the basin councils? Are they simply a nominal approach to water resource democratization? Do they serve to create the spectre of public participation? Or, are there instances in which they have some real effect on decisions, notwithstanding their status as advisory/consensus-building forums? How might they become more of a force for change? Alternately, are they the last vestiges of entrenched regional interests, traceable—although indirectly—to the golden years of state-led development? These are critical questions for future investigation and analysis.

Certain trends are evident in political processes currently at play in Mexico. Decentralization has entailed a notch-down of arbitration and decision making from the federal to state level, where governors are carving out increasingly important power bases, just as Vicente Fox did when using the Guanajuato governorship as a springboard for his successful 2000 presidential bid. Yet IRBM with its hydrologic delineation that cuts across administrative boundaries appears to be the federal gambit to neutralize the states' growing interest and power around water resources.

Federal authority (CONAGUA) would do better to extricate itself from water resources management decision making, more effectively pursued at the local level, and facilitate river basin or 'regional' water resource allocation through data, analysis and decision-support. The allocation of scarce water (and resulting water quality deterioration) would be based on consensually agreed principles that are legally defensible based on the LAN reforms. Such a process would raise CONAGUA's technical advantage while giving voice to public opinion and a role to stakeholder involvement. However, in order to move beyond their consensus-building role, the basin councils require enhanced administrative authority currently vested in CONAGUA. This is the crossroads in the IRBM roadmap where Mexico currently stands.

Note

1. Irrigation conflicts and alliances in Southern Sonora's wheat and cotton belt also fell along the fault-lines of ethnicity, strongman leadership, official party politics, family, gender and community.

References

- Aboites, A. L. (1998) *El Agua de la Nación: Una Historia Política de México (1888–1946)* (Mexico: CIESAS).
- Aguilar-Camín, H. (1977) *La Frontera Nómada: Sonora y la Revolución Mexicana* (Mexico: Siglo XXI).
- AWRA (American Water Resources Association) (2005) Second National Water Resources Policy Dialogue, AWRA, Tucson, 14–15 February 2005.
- Biswas, A. K. (2004) Integrated Water Resources Management: a reassessment, *Water International*, 29(2), pp. 248–256.
- Biswas, A. K., Varis, O. & Tortajada, C. (Eds) (2005) *Integrated Water Resources Management in South and South-East Asia* (New Delhi: Oxford University Press).
- CEPAL (Comisión Económica para América Latina y el Caribe) (1999) *Tendencias Actuales de la Gestión del Agua en América Latina y el Caribe* (Santiago: CEPAL).
- CONAGUA (Comisión Nacional del Agua) (2001) *Programa Nacional Hidráulico 2001–2006* (Mexico City: CONAGUA).

The Dilemma of Water Management 'Regionalization' in Mexico 73

- Diaz-Cayeros, A., González, J. A. & Rojas, F. (2002) Mexico's decentralization at a cross-roads. Working Paper No. 153 (Stanford: Stanford University Center for Research on Economic Development and Policy Reform).
- Dourojeanni, A. (2003) Challenges for integrated water resources management, in: C. Tortajada, B. P. F. Braga, A. K. Biswas & L. E. García (Eds) *Water Policies and Institutions in Latin America*, pp. 13–31 (New Delhi: Oxford University Press).
- Greenberg, M. H. (1970) *Bureaucracy and Development: A Mexican Case Study* (Lexington, MA: Heath Lexington Books).
- Hewitt de Alcántara, C. (1978) *La Modernización de la Agricultura Mexicana, 1940–1970* (Mexico: Siglo Veintiuno Editores).
- McGuire, T. R. (1986) *Politics and Ethnicity on the Río Yaqui: Potam Revisited* (Tucson: University of Arizona Press).
- Melville, R. (2004) Memoria—Revista mensual de política y cultura. *Ingeniería Hidráulica en México*, 185, July.
- Mollard, E. & Vargas, S. (2004) The participative management of water through basins in Mexico: lack of experience or final failure? Paper presented at the Tenth Conference of the International Association for the Study of Common Property, Oaxaca, Mexico, 9–13 August.
- Palerm, V. J. & Martínez, S. T. (2000) *Antología sobre Pequeño Riego Vol. II Organizaciones Autogestivas* (Montecillo, Mexico: Editores Plaza y Valdes y Colegio de Postgraduados).
- Rap, E., Wester, P. & Pérez-Prado, L. N. (2003) The politics of creating commitment: irrigation reforms and the reconstitution of the hydraulic bureaucracy in Mexico, in: P. P. Mollinga & A. Bolding (Eds) *The Politics of Irrigation Reform*, pp. 57–95 (London: Ashgate Publishers).
- Ruiz-Marrero, C. (2005) First People's Workshop in Defence of Water: Water Privatization in Latin America, International Relations Center, Silver City, NM, 18 October 2005. Available at <http://americas.irc-online.org/am/2885>
- Sanderson, S. E. (1981) *Agrarian Populism and the Mexican State: The Struggle for Land in Sonora* (Berkeley: University of California Press).
- Scott, C. A. & Silva-Ochoa, P. (2001) Collective action for water harvesting irrigation in the Lerma-Chapala Basin, Mexico, *Water Policy*, 3, pp. 555–572.
- Scott, C. A., Silva-Ochoa, P., Florencio-Cruz, V. & Wester, P. (2001) Competition for water in the Lerma-Chapala basin, in: A. Hansen & M. van Afferden (Eds) *The Lerma-Chapala Watershed: Evaluation and Management*, pp. 291–323 (Dordrecht: Kluwer Academic/Plenum Publishers).
- Scott, C. A. & Shah, T. (2004) Groundwater overdraft reduction through agricultural energy policy: insights from India and Mexico, *International Journal of Water Resources Development*, 20(2), pp. 149–164.
- Scott, C. A., Shah, T., Buechler, S. J. & Silva-Ochoa, P. (2004) La fijación de precios y el suministro de energía para el manejo de la demanda de agua subterránea: enseñanzas de la agricultura Mexicana, in: C. Tortajada, V. Guerrero & R. Sandoval (Eds) *Hacia una gestión integral del agua en México: retos y alternativas*, pp. 201–228 (Mexico: Miguel Ángel Porrúa).
- Scott, J. C. (1998) *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press).
- Shah, T., Scott, C. A. & Buechler, S. (2004) A decade of water sector reforms in Mexico: lessons for India's new water policy, *Economic and Political Weekly*, XXXIX(4), pp. 361–370.
- Silva-Ochoa, P. (Ed.) (2000) *Unidades de Riego: La Otra Mitad del Sector Agrícola Bajo Riego en México IWMI*. Serie Latinoamericana No. 19 (Mexico City: International Water Management Institute).
- Spicer, E. H. (1980) *The Yaquis: A Cultural History* (Tucson: University of Arizona Press).
- Tortajada, C. (2002) *Institutions for Integrated River Basin Management in Latin America* (Mexico City: Third World Centre for Water Management).
- Tortajada, C. (2005) Institutions for Integrated Water Resources Management in Latin America: lessons for Asia, in: A. K. Biswas, O. Varis & C. Tortajada (Eds) *Integrated Water Resources Management in South and South-East Asia*, pp. 197–318 (New Delhi: Oxford University Press).
- Tortajada, C., Guerrero, V. & Sandoval, R. (Eds) (2005) *Hacia una gestión integral del agua en México: retos y alternativas, Manejo Integral* (México: Miguel Ángel Porrúa).
- Varady, R. G. & Meehan, K. (2006) A flood of institutions? Sustaining global water initiatives, *Water Resources Impact*, 8(6), pp. 19–22.
- Vargas, V. S. (1999) *Contradicciones Socio Políticas del Proyecto de Gestión Integral de los Recursos Hídricos por Cuenca Hidrológica: El Caso de la Cuenca del Río Laja* (Cuernavaca: Instituto Mexicano de Tecnología del Agua).

- Wester, P., Scott, C. A. & Burton, M. (2005) River basin closure and institutional change in Mexico's Lerma-Chapala Basin, in: M. Svendsen (Ed.) *Irrigation and River Basin Management: Options for Governance and Institutions*, pp. 125–144, Chapter 8 (Wallingford, UK: CABI Publishing).
- Whiteford, S. & Bernal, F. C. (1996) Water and the state: different views of La Transferencia, in: L. Randall (Ed.) *Reforming Mexico's Agrarian Reform*, pp. 223–234 (Armonk, NY: M.E. Sharpe).
- Wilder, M. & Romero Lankao, P. (2006) Paradoxes of decentralization: water reform and social implications in Mexico, *World Development*, 34(11), pp. 1977–1995.