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## BOOK REVIEW

**Garrido, A. and Llamas, M.R. (Eds). 2009.** Water policy in Spain. New York, US: Routledge. 234 pages. ISBN 978-0-415-55411-4, US\$99,95.

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For the last decades, centuries and even longer periods of time, water has influenced the economic and social development of Spain, and subsequently produced a substantial amount of scholarly work which has not always been available in English for international readers. This monograph, which offers a comprehensive review of the history and recent developments of Spanish water policy, contributes to fill this gap in a timely, coherent, and scientifically sound manner. However, I will argue that, as valuable and useful as the book is, it also falls short of becoming a truly comprehensive reference on water in Spain because of the weight of certain biased opinions and because it also misses several important issues and debates that need to be urgently addressed about Spain, and to which the book only makes a few references in passing.

The book is divided in five parts, including introductory and concluding sections both written by the editors. One is to applaud the efforts made by Garrido and Llamas in assembling and ordering the different chapters, written by 35 specialists. These authors represent an interesting blend of scientific backgrounds (from both the natural and the social sciences) that somehow break with the traditional dominance of civil engineering in water-related issues in Spain. Scientific plurality is coupled with the formal or informal ties of many authors with the so-called "New Water Culture". This is a social and scientific movement that became highly influential in Spanish water policy after the victory of the Socialist Party in the national elections of 2004 and the demise of the proposal to transfer water from the Ebro river to Barcelona and to eastern and south-eastern Spain. Opposition to this transfer helped to create a solid alternative to Spanish water policy traditionally oriented towards the building of large hydraulic projects such as dams and inter-basin transfers. This book can be seen then as a sort of declaration of the new course taken by water policy in Spain, which has benefited enormously from the European Water Framework Directive (WFD) of 2000. Given the coincidence between the main principles of the WFD (good ecological status of water, full cost recovery, and public participation among other issues) and those of the New Water Culture, it is hardly surprising that the WFD informs and is used as a justification of many of the arguments developed in the book. Another interesting characteristic of *Water Policy in Spain* is the emphasis on groundwater as the "forgotten" resource in Spanish water affairs. This emphasis is to be expected given that not only is one of the editors perhaps the most prominent Spanish specialist on this resource but also enforces the idea, running deeply in much of the book, that water is no longer simply that flow stored in reservoirs or circulating in irrigation or transfer canals. Rather, water has many different sides that have been willingly or unwillingly hidden in the technical, social and political decisions made during the last century at least.

Under the title of *The Natural Resource Base, the Environment and the Economy* the first part of the book includes five chapters that begin with a rather standard but useful description of physical and hydrological characteristics of Spanish waters. This is followed by a chapter on the state of water ecosystems that insists not only on the ecological relevance of these natural areas but also on the

processes leading to their deterioration. Here the authors reach the dismaying conclusion that "restoring aquatic ecosystems is not a top water policy priority" (p. 27). This issue is examined further in the fourth chapter where processes degrading freshwater resources and ecosystems are systematically examined and the usual suspects (agriculture, tourism, urban expansion) revealed and criticised. In this chapter we find another common thread of the book, namely the consideration of regional administrations as problematic for coherent river basin management.

The next two chapters stand, in my opinion, among the best in the book. Maestu and Gómez offer a sound and orderly account of the economic value of water for different uses. Particularly important is the discussion on agriculture since many times (and certainly in other chapters of the book) agriculture is blamed because it diverts 80% of the water available to provide barely 2.5% of the Spanish GNP and 4.5% of the labour force. Here the authors introduce two caveats which must be acknowledged: first, agro-industry from agricultural activities is key for the development and indeed survival of many rural areas, and second, the skyrocketing productivity obtained in some agricultural products which may go as high as €43/m<sup>3</sup> of water for the case of flowers or certain greenhouse vegetables. In sum, agriculture is a strategic sector and the efficiency of its water consumption cannot be measured in standard economic criteria alone. However, the discussion of household consumption forgets to mention differential consumption patterns according to the predominant urban model (compact or diffuse) but, in contrast with the chapter by Cabrera et al. (see below), the authors praise the enormous progress made in enhancing the technical performance of urban water distribution networks. Chapter 6 deals with one of the most fashionable themes in water research these days. Virtual water data (such as the very interesting table on p. 56 of Spanish imports and exports of this resource) are used again to prove the inefficiency of much of irrigated agriculture and, more importantly in my opinion, to recognise the environmental values of rain-fed agriculture (or "green water") and the agro-ecosystems and landscapes that it creates.

Part III bears the title of *Constraints and Social Perceptions*. The chapter on drought and climate risk is especially attractive as it focuses on droughts and introduces the expected impacts of climate change on Spain's water resources. It also takes a non-partisan view of the drought and admits the myriad factors intervening in this hazard. There is also a good discussion of drought management plans (table 2, p. 69) and of climate change. A need to adapt water management to droughts and climate change is called for, although little is said regarding alternative water resources able to offset the worst effects of droughts.

Chapter 8 on water supply in urban areas appears to be plagued by old data and time and again repeats clichés that need substitutions. My main concern is with the insistence on the inefficiency of the urban distribution networks. Here I think the authors miss the point of the real and tangible gains observed in the last decades in many Spanish cities, and certainly in the more important capitals through, for instance, the use of Geographical Information Systems to detect network water losses or of electronic meters to avoid fraud, as done by the Barcelona Water Company, for example. Likewise, the arguments on pricing and environmental awareness do not stand a close evaluation in the light of recent facts. To talk about the "poor users environmental education" (p. 83) seems unfair in cases such as the drought of 2008 of Barcelona (not cited by the authors, by the way) when residents reduced consumption to 110 liters per person per day, one of the lowest values of the developed world. It is also a pity that the authors leave out from their chapter the many efforts made by a mounting number of Spanish cities in developing water conservation measures. For example, in the province of Barcelona, municipal ordinances to save water are already working in more than 50 municipalities that include over a million people.

The last chapter of part III deals with water discourses in a way that captures very well the essence of this book. Leandro Del Moral links water policy with specific historical discourses, beginning with the hydraulic paradigm or the sublimation of all water policy to dams, inter-basin transfers and the like. At the end of the 20th century the hydraulic paradigm appears to be under siege from all fronts, and a "culture of the reflexive society" (p. 89), comprehensive, open-ended and much more attentive to the

myriad of values surrounding water emerges to take a hegemonic stance. Here Del Moral notes how seemingly disparate interests become strange bedfellows in the Water Framework Directive in which one can find environmentalists and economists (part of the new policy-making community according to Del Moral) working together to curtail the excesses of the hydraulic paradigm. Even markets are reluctantly admitted by some if they may open a possible way out of the hydraulic nightmare.

Part IV on *Water Law, Institutions and Politics* occupies well over half the book with ten chapters, some of them also being among the longest in the volume. This section is an amalgam of texts not always easy to read, devoted to law and law reform, water markets, transboundary issues, and public participation among other matters. Ariño and Sastre examine legislation from 1879 to 2004 mostly to take issue with the presence of water markets in Spain, which they see too flawed by regulations to be useful. These authors also review urban concessions under the misleading title of *Water supply to the general public*, including a useful review of all different property and property regimes. In accordance with the current hegemonic discourse on these matters, they advocate public-private partnerships as the best alternative for the supply of urban water. Antonio Embid, one of the best Spanish scholars on water law, reviews legislation on this resource which he sees now largely dependent on the Spanish Constitution (declaring water as public property) and the European Union (that has legislated extensively on water). There is also an interesting reference to desalinisation and its property regime which sadly is not taken further in the book. Embid links recent developments in Spanish water law to new concerns for the environment, the use of economic instruments to increase efficiency, and to new technologies.

Institutional analysis is the subject of the chapter by Varela and Hernández Mora: law, policy and administration, and autonomous communities are all mentioned but the greatest emphasis is placed on river basin authorities and irrigation communities. The norms, rules, and regulations peculiar to these two powerful water lobbies in Spain are the subject of special scrutiny. Institutions, however, need to adapt to new realities such as the WFD and to the more open institutional regime that the WFD defends. Hence, public participation in river basin planning and management must embrace many interests other than those of the traditional users, and the authors praise the example of Catalonia where representativeness includes traditionally marginalised groups (see table 2, p. 126). For Varela and Hernández Mora, as well as for several other authors, the real institutional challenge is how to progress from water as a resource to water as a natural asset.

The chapter by Garrido and Calatrava on water pricing and markets is particularly informative. These authors consider "stunning" the heterogeneity of water prices in Spain. The largest disparity is found between some agricultural users and the rest. Out of the very convoluted pricing system for irrigated agriculture emerges a general model whose most important characteristic is that, with some exceptions (irrigators benefiting from the Tagus-Segura inter-basin transfer), farmers pay very little for the water they use (in the range of €0.02/m<sup>3</sup>, p. 136). Farmers using groundwater, however, pay substantially more, almost near full cost (about €0.22/m<sup>3</sup>). A very interesting and potentially controversial issue is the destiny of water saved by agricultural modernisation projects (95% of all investment in irrigation in Spain since 1995). Garrido and Calatrava argue that although farmers' contributions are not enough to fund those projects, agricultural modernisation initiatives are generally received with praise and go uncontested. Unfortunately, the topic of agricultural modernisation is not taken further. Urban water prices show even larger disparities but the authors note that in recent years these prices have been growing above inflation in most cities and block rates are becoming commoner. On this scenario, the strict application of the cost recovery principle of the WFD will have very uneven impacts and will hit some farmers harder (see table on p. 140). They also review water markets to note the differences between groundwater (where exchanges of rights are common) and surface water (where informal markets are very common), especially in areas of high value added agriculture. More formal water markets such as those encouraged by the Water Law reform of 1999 have very limited scope unless they encounter drought conditions.

Chapters 14 and 15 deal specifically with groundwater, the classic neglected resource in Spanish water policy. Chapter 14 is authored, among others, by Ramón Llamas and Emilio Custodio, without any doubt the most well-known and respected groundwater Spanish scholars. The chapter, by far the longest in the book, engages in a comprehensive excursion into the physical, economic and environmental dimensions of groundwater in Spain. The whole objective is to show how groundwater in this country has been the Cinderella of water planning and management. Thus groundwater has been ignored or despised as a resource by those responsible for water policy and management, mainly civil engineers who may have known surface water very well but who for the most part were utterly ignorant of the realities of underground resources. The neglect of groundwater is however something more than simple corporative quarrels between civil engineers and geologists. It probably goes back to the separation of both resources in terms of property rights sanctioned by the Water Law of 1879, one public and therefore open to large-scale planning and policy, and the other private and therefore sheltered from public debate. Despite some occasional problematic and unsubstantiated statements such as writing that the Segarra-Garrigues irrigation project in Catalonia will have as much impact on the Ebro delta as the cancelled Ebro water transfer (p. 160), this is an informative and well-argued chapter about the "forgotten" resource. In the following chapter, Lopez-Gunn takes the groundwater issue further and claims that groundwater is an invisible resource not only in physical but also in institutional and governance terms (p. 165). Lopez-Gunn uses rational and historical approaches to institutions to explain the minor role played by groundwater in Spanish water policy, and authors one of the better theoretically informed chapters of the book. She clearly points at issues of trust and (lacking) social capital to explain the malaise of groundwater management in Spain, and concludes by arguing that perhaps the most difficult challenge is to build trust between groundwater users and water authorities.

After a chapter reviewing the application of the WFD in Spain, the issue of participation is examined by Ana Barreira who first summarily describes the history of public participation in water in Spain and frames participation under European regulations most notable in the WFD and its article 14 (p. 189). Participation however is plagued by the classic stakeholder structure of water in Spain by which only participants making material and "productive" uses of the resource are allowed to have a voice and decide. Barreira rightly notes how the provisions of the WFD may clash with traditional vested interests in water in Spain. Hence, conditions for public participation exist indeed but not all stakeholders are allowed to participate, at least under conditions of equality (see also the chapter by Varela and Hernández Mora).

Spain and Portugal share all the most important rivers of the Iberian Peninsula, with the exception of the Ebro, and a chapter on transboundary water resource management is therefore important in the context of the book. According to the authors, the history of collaboration (and mis-collaboration) with Portugal successfully culminated with the Albufeira Convention of 1998 (see table on p. 201). Always suspicious of large-scale water projects in Spain, Portugal had been very critical with the National Water Plan of 1993 which envisaged massive transfers from the rivers flowing into the Atlantic to the Mediterranean. The Albufeira Convention and the WFD changed this state of affairs, as probably did the implicit approval given by Spain to the construction of the Alqueva dam in the Algarve region and holding the largest artificial lake in Europe. Strangely enough, this impressive hydraulic project and its impacts on the Guadiana estuary are not acknowledged by the authors. The final chapter by Pedro Arrojo criticises the National Plan of 2001 and its most emblematic project, which was the Ebro transfer towards Barcelona, and eastern and south-eastern Spain. Arrojo offers evidence of the poor economic viability of the Ebro transfer when compared with other alternatives such as desalination.

The concluding chapter written by the two editors summarises in a systematic and excellent manner the topics analysed in the book. Here the authors mention one topic that should have received more attention in the book and deserved at least a specific chapter: the complicating puzzle of water policy in Spain against the new regional realities of the Spanish state in which each *Comunidad Autónoma* wants to hold exclusive powers over rivers in its territory. This has led to some hotly contested arguments and

serious political strife between regions that will not be solved alone with more "science" as the authors, somehow naively, appear to suggest on p. 222. In fact, this final summary portrays a rather grim picture insisting on the very low productivity of most agricultural water uses, the threats posed by droughts and climate change, the insufficient quantity and quality of urban water, the poor status of aquatic ecosystems, and the insufficient openness of public participation.

Overall, and despite the criticisms made, I enjoyed reading the book and I think that it will represent a welcome and updated contribution to the issue of water in Spain. Most chapters are comprehensive and well argued, and statements are generally grounded in sound data. I also liked the important presence of women scholars in a world traditionally dominated by men. Still, I also think an important opportunity has been lost to grapple with some issues that may go beyond the WFD but that are nonetheless of critical relevance. I will simply select four of these: 1) the articulation of water policy with the quasi-federal nature of the Spanish state; 2) the emergence of alternative resources (desalination but also treated wastewater and, at smaller scales, grey water and rainwater); 3) the final destination of water "saved" in the modernisation of irrigated agriculture (to cities?, to fluvial ecosystems?, to more irrigation?), and 4) the need for integrated planning of surface water and groundwater resources. It is rather astonishing that in a book where groundwater occupies such a relevant position, the conjunctive management of surface water and groundwater resources does not receive more attention. Furthermore, chapters devoted to manufacturing and, especially, hydroelectric production would have given an even better picture of water policy in Spain. Of course, these issues probably merit another whole book and I hope the editors will consider this in the future, given the excellent job they have done in this one. If they decide so, I also hope they will incorporate more voices to the debate, including those that have been criticised here. Otherwise, the book may be considered just another partisan contribution that does little to contribute to achieving a just, democratic and sustainable water policy for Spain.