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Book reviews

Siren Song: Chilean Water Law as a Model for International Reform, by Carl J. Bauer. Published by Resources for the Future, Washington, DC, USA, 2004, pp. X + 172, ISBN 1-891853-79-1 (hdbk), US\$33.90.

Over the past two decades, the establishment of tradable property rights in water and development of markets in these rights has attracted considerable attention in the international water policy arena. Chile was the world's first country with a comprehensive water law that established a system of tradable water rights. What are the macroeconomic conditions and political processes that make the formulation and implementation of water policy possible? How should the evolving social reality engage with the dominant decision-making process? The process of policy development and implementation in existing institutional settings is clearly a political concern. However, these processes are not well understood (Shi 2004). Endeavoring to understand these dimensions of water law and policy has been a dynamic social process, and understanding this complex process might provide an opportunity to bridge the gap between policy rhetoric and on ground practice rather than maintain the status quo.

After *Against the Current* (Bauer 1998), *Siren Song* is Bauer's second book about water law and policy in Chile. This time, the author tracks water rights issues in Chile over a long period (from the mid-1990s to early 2004) and takes a more comparative and international perspective. This book presents an up-to-date overview of Chile's experience with water resources management and highlights the significance of the Chilean model for international debates about water policy. As the book's title indicates, 'the Chilean model has been like a song of the sirens to would-be [water policy] reformers in other countries, so alluring in its free-market purity that many have been deaf to the risks below the surface' (p. viii). The book also emphasises a more qualitative and interdisciplinary approach to law and economics than was provided in Bauer (1998).

Boldly introduced in 1981, the Chilean model has become the world's leading example of a free-market approach to water law, water rights and water resources management. Internationally, the predominant view is that the Chilean model of water management has been a success. This book challenges that description and presents a more balanced view of the Chilean model. As the author said, 'I want to tell the story of contemporary Chilean water policy both from the inside, for outsiders, and from the outside, for insiders' (p. viii). In doing so, the text reflects the author's depth of experience with water law and policy in Chile.

The book is divided into five chapters. In Chapter 1, the international context of the Chilean case is framed by reviewing recent international debates about the global water crisis and the growing need for major reforms of

water law and policy. In Chapter 2, the author discusses the characteristics and background of Chile's 1981 Water Code. The review focuses on the legislative history and political background from the 1960s to 1973, which is crucial to understanding the more recent issues examined in the next two chapters. In Chapter 3 the author looks at the evolving political and policy debate in Chile about how or whether to reform the Water Code, after the country's return to democracy in 1990. The broader message is 'the overriding importance of the national political and institutional context for meaningful changes in water policy and management' (p. 4). In Chapter 4, the author reviews the progress in research and analysis about the empirical results of Chilean water markets since 1990, describes recent and emerging water policy issues, and points to directions for future research. Finally, the conclusions about Chile's experience with free-market water law and lessons for current international water policy debates are presented in Chapter 5.

This book has much to recommend it and is suitable for a wide range of audiences. Those unfamiliar with water law and policy in Chile will find it to be a key resource. Even those familiar with the Chilean model will likely benefit from the updated descriptions and detailed discussions of Chile's water management issues that are not available in the previous literature. The author does a commendable job of presenting a comprehensive picture of the Chilean model, whereas at the same time emphasising often-overlooked institutional settings that shape the development of water market and policy. Also admirable is the discussion of the historical development of water law and policy in Chile.

Amid the many positive aspects of this book, two stand out as principal strengths. The first is its emphasis of institutional arrangements and sociopolitical context that come before water markets developed in Chile. Internationally, there is a simplified description of the Chilean model by many economists and experts in the World Bank, the Inter-American Development Bank, and related institutions. The general tendency has been to emphasise the model's advantages and play down the importance of its flaws. 'The problem is that their arguments rest on assumptions that are rarely met in practice, and this makes it dangerous to treat the arguments as policy recommendations' (p. 15). It is often argued that when the research process considers policy issues, detached analysis may result in irrelevant analysis and/or policy inaction (Tacconi 1998). It is therefore important to keep in mind although water problems faced by countries and regions seem similar in many ways, they are shaped by different political, economic, geographic, and historical circumstances. In fact, 'both the strengths and weaknesses [of the Chilean model] are built into the current legal and institutional framework in Chile, in ways that have made them effectively impossible to separate' (p. 2). And the 'institutional arrangements shape the way in which markets determine value and allocate resources' (p. 49). Such distinction is of particular significance when one seeks to provide policy recommendations to solve real-world problems.

A second principal strength of this book is its advocate of an interdisciplinary approach on law and economics in the design of policy reforms. The book

claims as the larger goal is 'to try to understand the world and the human conditions as fully as possible, we must keep in mind that individual disciplines are only means to that ends' (p. viii). The book uses water as vehicle to highlight the shortcomings of traditional academic disciplines in addressing complex issues such as water management. The current global water crisis is intertwined by water scarcity and water conflict. Economic principles can be powerful tools to deal with the former, but legal and political institutions are the key to resolving the latter. An interdisciplinary approach enables 'broad' analyses of water management that draw more on history and other social sciences and focus more attention on institutional issues. In this regard, an interdisciplinary perspective provides both a richer understanding of the real world and a more grounded approach to public policy. The book accomplishes this goal.

However, this book has two limitations. The first limitation is the author aims to place the Chilean experience in a broader international context, but does not provide an extensive literature review about water law and policy in many parts of the world (particularly the USA, Spain and several other Latin American countries, in which the author has research and work experience). Moreover, relative to the substantial published work on water markets in other countries, the literature reviewed in the book is sparse and references to more recent work are scarce.

A second limitation is the tendency of the author to totally focus on qualitative descriptions of water law and policy in Chile. Although the author pointed out that 'much of the discussion about Chilean water markets has been long on theoretical or ideological argument and short on reliable information' (p. 75), the book would have benefited from incorporating quantitative analysis or case studies to help readers to better understand the inner workings or policy implications of the Chilean experience.

The strengths of this book, however, far outweigh its weaknesses. The book represents a significant addition to the environmental and resource policy-making literature. It fills an obvious gap in the literature addressing the benefits and limits of water markets and will likely be of substantial use to readers interested in water law, economics and policy reform.

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Common Waters, Diverging Streams: Linking Institutions and Water Management in Arizona, California, and Colorado, by William Blomquist, Edella Sclager and Tanya Heikkila. Published by Resources for the Future, Washington, DC, USA, 2004, pp. x + 205, ISBN 1-891853-86-4 (pbk), US\$30.95.

In this volume, Blomquist, Sclager and Heikkila provide a review of institutional frameworks that are best suited for developing a conjunctive management process in the USA. Conjunctive management is a process of actively managing surface and groundwater resources as one entity. This is achieved by harvesting surplus surface water and storing it in underground reservoirs and then augmenting supplies in periods of low water supply. The authors argue that conjunctive management is a fundamental necessity in increasing water supply in the long term.

The book is divided into three parts: (i) the introduction involves an outline of the issues associated with conjunctive management; (ii) the second details the current institutional arrangements and water resource policy in California, Arizona and Colorado; and (iii) in the conclusion the authors suggest various institutional framework changes and list policy recommendations to improve water management.

The authors argue that conjunctive management addresses the four factors of water management: (i) water scarcity, (ii) water variability, (iii) population growth, and (iv) environment. Preservation of water in underground reservoirs provides many benefits: (i) low capital costs versus dams, (ii) minimal evaporation and contamination issues, (iii) long-term storage options, and (iv) the ability to blend fresh surface water with saline water to make it useable.

In Australia, 92 per cent of city run-off and 86 per cent effluent water is wasted (Dillon 2002). As all capital and many major cities and towns in Australia are currently operating on water restrictions, any suggestions to utilise these neglected resources is highly topical. Already conjunctive management has been adopted in Australia: (i) the recharging of the caves system at Yanchep that supply Perth with water, and (ii) the Aquifer Storage and Recovery program operating in South Australia being prime examples. Therefore any book containing practical issues to consider when undertaking conjunctive management should be well received.

The authors have performed an exhaustive review of the policies and organisations involved in regulating water management and have spent significant time detailing the shortcomings in property rights for surface and groundwater in the three US states. Their in-depth look at the existing, sometimes conflicting, policy legislation highlights how it has shaped both private and public institutions in the water management region. These chapters are the strength of the book.

There are a number of areas where the book could have been improved. Easily digestible forms of communication should have been utilised to convey complex issues (the book contains eight tables and only five figures). As the

material is based on Arizona, California, and Colorado in the USA, this impedes readers not familiar with these localities.

Unfortunately, the authors have been primarily concerned with water supply and institutions for management and have not provided detailed information about conjunctive management. Issues of water quality and economic efficiency have not been covered in detail. Although there are discussions about potable water, there are many hydrological and social implications of storing potable and recycled water underground that are not fully addressed, especially in regards to consumer confidence. Practical information ensuring the conjunctive water storage is below a confining layer under the groundwater table is not mentioned. If the geographical and hydrological conditions below the surface are not right, the best institutional systems do not matter (Dillon 2002).

A few misleading comments have slipped through with the discussion. For example, the authors argue that '... surface water slips away to the ocean or some other sink from which it cannot be recovered later for consumptive use if needed' (p. 23).

The recent discussion of desalinisation plants in Sydney, let alone their widespread use in the Middle East, negate this comment implying that the sea is only a sink. Although desalinisation might not be as economically efficient as storing water underground, property rights are a lot easier to assign and the free rider problem of poorly defined access rights to ground water in a conjunctive management framework are negated (i.e., this might occur if group A recharges the groundwater and group B access that water in another catchment or state without compensating group A). The issues of poorly defined property rights are always compounded with any cross-state or border resource. Unfortunately, the authors' coverage about the development of policies and procedures associated with managing these spill-over problems have fallen short.

Conjunctive management does provide some good alternatives for certain regions where the geographical requirements are met. However, it should be only one tool in an integrated package to maximise the resources we have to help with water security and environmental issues. The failure to link a precautionary principle approach to the whole process of using surplus water where there may be additional environmental or other consequences could generate long-term problems.

Conjunctive management is more an urban water security tool as the ability to divert storm and recycled waste water into underground storages would help improve water security. One question would be where this water could be subsequently used. Application to gardens, parks and sporting grounds is likely to be uncontroversial, whereas concerns about potable water standards and legislative requirements prevent contamination and protect health standards that would make it difficult to use conjunctive management to as a component in domestic supplies.

The book is light on practical steps to implementing a conjunctive management process. However, the authors' research into institutional frameworks

really cannot be faulted. The strengths of the volume are the authors' reviews of institutional water frameworks in some western parts of the USA that will limit its saleability outside that country.

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