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## Brent M. Haddad, Rivers of Gold: Designing Markets to Allocate Water in California

Adam B. Kehrli

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**Brent M. Haddad, Rivers of Gold: Designing Markets to Allocate Water in California**

the irrigated sector, be extended to include the rain fed sector, as well as the water used for trading foodstuffs. Finally, Chapter Three contrasts water use projections from several analysts and discusses the inherent difficulties in making such projections.

Chapter Four provides the meat of the book and analyzes the issues raised by the first three chapters. Specifically, Chapter Four addresses six issues: (1) the land-water nexus; (2) the maldistribution of water rights and the water use gap between the two sides; (3) the Israeli settlers' encroachment on Palestinian water resources; (4) Israel's control of water institutions and legal mechanisms; (5) out-of-basin water transfers; and (6) future management of common water resources. In order to illustrate these issues, the author compares water conditions in Israel and Israeli settlements with those of the Palestinians. Additionally, Chapter Four addresses the Israelis' and Palestinians' changing perception and ideology of water, and how this change affects the general conflict.

Chapter Five addresses how the conflict described in Chapters One through Four might be resolved equitably and cooperatively. The author argues the international law doctrine of "equitable apportionment" provides the best guide for resolving the water conflict. This doctrine weighs factors such as prior use, social and economic needs, and capability to obtain alternative resources to ensure fairness. International law also advocates joint management of shared resources. By applying these principles of international law, the author argues that Palestinians are entitled to a greater share of the water resources and should play a larger role in their management.

*Makayla A. Shannon*

**BRENT M. HADDAD, RIVERS OF GOLD: DESIGNING MARKETS TO  
ALLOCATE WATER IN CALIFORNIA;** Island Press, Washington, D.C.  
(2000); 196pp; \$60.00; ISBN 1-55963-712-9, softcover.

*Rivers of Gold* presents a plan for water allocation in the state of California using market-based theories. Specifically, the book focuses on the effort to reallocate developed portions of water from agricultural use to urban and environmental uses in California. Also, it generally examines the other arid western states. The author provides a framework on how to better accommodate the needs of markets and communities by using detailed case studies of water market transactions and the institutional design issues associated with them.

In the *Introduction*, Haddad presents the problem of Owens Valley circa 1913. Officials from Los Angeles convinced Owens Valley farmers to unwittingly sell their land and water rights to the city. Subsequently, the once prosperous valley floundered. Haddad demonstrates what can happen to an agricultural community when it surrenders water rights to a "thirsty, growing city." Although

California has since taken measures to prevent such an incredible event from happening again, current trends suggest that a further significant reallocation of water from agricultural to urban regions is likely to occur. Haddad suggests this new “era” of water reallocation would benefit from a market-based approach.

Chapter One, *The Water-Reallocation Challenge in California and the West*, provides an overview of the state’s water-supply challenge. It begins by surveying the state’s evolving circumstances of hydrology and demography, as well as the legal doctrines that define water rights in California. A full picture of the state’s water circumstances emerges when Haddad introduces the historical, political, social, economic, and ecological perspectives that come to bear on California’s water-supply challenges. Haddad compares these challenges to the conditions of four other western states: Arizona, New Mexico, Texas, and Colorado.

Chapter Two, *Why Markets are the Institution of Choice for Water Reallocation*, focuses on the theory of market mechanisms. By defining the terms market and institution, the chapter answers the question of what kind of market should be established. Further, it describes the forms markets take and why they take those forms. Ultimately, Haddad concludes the original theory of market-based water transfers in California, advocating a statewide market (the California Model Water Transfer Act), was “just too grand.” Rather, in order for a water market to succeed, Haddad suggests the feasibility of a market theory must take into consideration the different perspectives of the people affected by the market.

Chapter Three, *Political, Legal, and Cultural Challenges to Water Markets*, continues where Chapter Two left off. Specifically, it looks at three characteristics of markets as applied to water reallocation. Haddad asserts that if these factors are ignored, this oversight could spell disaster for institutional reform of the state’s water allocation problem. First, the chapter examines the political nature of water markets. Second, Haddad examines the importance of aligning market reforms with historical trends. Finally, the chapter looks at the power of markets to adapt quickly without conscious oversight. Haddad suggests that creating an efficient water market in California is nearly impossible without taking into consideration these three essential characteristics.

In Chapter Four, *Lessons from California’s Experience with Short-Term Water Markets*, Haddad explores California’s numerous water-market experiences in short-term regional trading. These experiences lay a foundation for the design of long-term market transfers. Long-term transfers historically have not been successful in the state. The chapter chronicles two specific examples of successful short-term transfers: the state-sponsored Drought Water Bank, and the water-trading activities of the Westlands Water District. The chapter concludes by analyzing the few similarities and many differences of long-term water markets.

Chapter Five, *Shotgun Wedding: The Imperial Irrigation District–Metropolitan Water District Water Conservation Agreement*, is the

first of three consecutive chapters examining long-term transfer market examples. This chapter surveys the water conservation agreement between the two water districts in the chapter's title. While it is the leading example of one of the few long-term trading success stories, the agreement was "exceedingly difficult to make happen." The agreement should not be used as a model because it was difficult to implement. However, Haddad suggests that valuable lessons can be learned from the agreement in creating successful long-term market institutions.

Chapter Six, *Timing was Everything: The Palo Verde Irrigation District–Metropolitan Water District "Two-Year Test Land Following,"* presents another water transfer that is dependent on the transfer's contract. However, the agreement in this chapter avoided many of the contracting risks associated with the agreement examined in Chapter Five. The success of the agreement suggests that following arrangements in California may be a feasible way to achieve long-term transfers. However, these agreements involve many of the same complexities that made the success of the water-transfer agreement outlined in Chapter Five difficult.

Chapter Seven, *Water Ranching: The Devil's Den Water District–Castaic Lake Water Agency Combined Land Purchase and Water Transfer,* outlines a more simplistic agreement between the two parties. The agreement here, rather than horizontal in nature, was vertical. The two parties joined together to form a single entity, and then transferred water internally. In this respect, the agreement was similar to the Owens Valley problem that began the book. However, Haddad reveals key differences here that distinguish the Devil's Den agreement from the "dark episode in California's water history." The author concludes, "future land purchase agreements should be judged on their own merits."

Chapter Eight, *Getting to a Market: Lessons and Design Recommendations,* offers the lessons of California's experience in water markets as considerations for future efforts. The chapter offers twelve original recommendations that "should guide future efforts to reallocate water from rural to urban areas." The chapter concludes by illustrating the importance of cooperation between rural and urban areas, and identifies where water marketing reallocation plans in the western states would work.

*Rivers of Gold* offers insightful and meaningful solutions to the present problem of water reallocation in California and the western United States. It chronicles many of the pitfalls that have encumbered California's attempt to create successful water markets, and explains how to make these markets work. The book contains many useful diagrams, charts, and illustrations. The book also includes a full subject index, and four appendices, each of which expands on topics covered in the book.