

## Book Review

### **Irrigation-induced Salinity: A Growing Problem for Development and the Environment**

Dina L. Umali

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This book consists of an abstract, a summary, five chapters and one appendix in 78 pages including figures, charts and tables. It contains important statistics related to irrigated agriculture and irrigation-induced salinity in different countries. Chapter 1 contains an introduction about the role of irrigation in attaining development objectives of food security, poverty alleviation and an improvement in the quality of life, especially in developing countries. It shows by statistics how these objectives are counteracted by salinity problems and raises several questions which seek answers in the next chapters.

Chapter 2 describes the nature and impact of irrigation-induced salinity. It covers the salt accumulation processes in irrigated areas, effect of salts on plants, economic impact of salinity and finally the off-site external costs due to disposal of saline drainage water in rivers and lakes. This chapter contains an interesting boxed item giving a historical perspective on irrigation-induced salinity which can be traced back 6000 years.

Chapter 3 presents the global magnitude of irrigation-induced salinity through a survey of affected areas in selected countries. It identifies the course of problems in different irrigation project areas in several countries. The experience of the World Bank is reviewed based on the performance of 21 medium- and large-scale projects that were approved between 1961 and 1978 and completed in 1970-86.

Chapter 4 examines the factors contributing to irrigation-induced salinity. It shows that, although the problem is a technical one, the factors contributing to its existence are a complex web of technical, economic, political and social elements. The technical factors which are discussed in this chapter include poor on-farm water use efficiency; poor construction, operation and maintenance of irrigation canals; and inadequacy or lack of drainage infrastructure. The technical problems are shown to be the product of several other factors such as poor project planning and implementation, scarce financial resources of governments to undertake corrective measures, the short-term outlook and inadequate priority assigned to agricultural sustainability and environmental protection by policy makers and the inability of donor agencies to ensure adherence to project plans.

Chapter 5 explores the future directions in salinity abatement. It shows that technologies exist to ameliorate or eliminate the problem and delays in taking action will only escalate the economic, social and environmental damage and the cost of repairing such damage. In light of externalities associated with corrective

measures, the book suggests that governments have to commit to a policy of sound water management and to the fostering of an economic environment promoting efficient resource use. Another suggested action front is agricultural strategies which promote the adoption of improved production methods, particularly efficient water-use practices among farmers. Greater effort has to be directed to examining the environmental impact of projects that involve water resources use and development to ensure that only economically and environmentally sound projects are undertaken. Finally, the book calls for greater research efforts to develop less capital-intensive technologies that are affordable to farmers.

This book provides wide coverage of the topic including the technical, economic, political and social dimensions. It describes the process by which irrigation-inducing salinity develops and the extent of the problem in various countries. It examines all direct and indirect factors that spur the onset of salinity, drawing on the experiences in World Bank projects. It explores the role that farmers, governments and donor agencies can play in dealing with the problem of irrigation-induced salinity.

The book is particularly important for professionals and scholars interested in the planning and evaluation of irrigation projects. It should be of great help to those working for governments or donor agencies, as well as independent consultants.

*Safwat Abdel-Dayem*  
*Director*  
*Drainage Research Institute*  
*PO Box 13621/5*  
*Delta Barrages (El-Kanater)*  
*Cairo, Egypt*