

Contents

Part I Context and Objectives

- 1 Introduction: A Critical Appraisal of Major Water Engineering Projects and the Need for Interdisciplinary Approaches.....** 3
Reinhard F. Hüttl, Oliver Bens, Christine Bismuth,
Sebastian Hoehstetter, Hans-Georg Frede,
and Hans-Joachim Kümpel
- 2 Water Ethics – Orientation for Water Conflicts as Part of Inter- and Transdisciplinary Deliberation** 11
Armin Grunwald

Part II Major Water Engineering Projects – Challenges, Problems, Opportunities

- 3 Major Water Engineering Projects: Definitions, Framework Conditions, Systemic Effects.....** 33
Sebastian Hoehstetter, Christine Bismuth,
and Hans-Georg Frede
- 4 A Global View on Future Major Water Engineering Projects.....** 47
Klement Tockner, Emily S. Bernhardt, Anna Koska,
and Christiane Zarfl
- 5 Neglected Values of Major Water Engineering Projects: Ecosystem Services, Social Impacts, and Economic Valuation.....** 65
Bernd Hansjürgens, Nils Droste, and Klement Tockner
- 6 Water Governance: A Systemic Approach** 79
Petra Dobner and Hans-Georg Frede

7	Research in Two Case Studies: Irrigation and Land Use in the Fergana Valley and Water Management in the Lower Jordan Valley	89
	Christine Bismuth, Sebastian Hoechstetter, and Oliver Bens	
Part III The Fergana Valley – Uzbekistan’s Hydro-Agricultural System Between Inertia and Change		
8	Between Multiple Transformations and Systemic Path Dependencies	101
	Timothy Moss and Petra Dobner	
9	From Upscaling to Rescaling: Transforming the Fergana Basin from Tsarist Irrigation to Water Management for an Independent Uzbekistan	113
	Hermann Kreutzmann	
10	Irrigation Infrastructure in Fergana Today: Ecological Implications – Economic Necessities	129
	Shavkat Kenjabaev and Hans-Georg Frede	
11	Where Water Meets Agriculture: The Ambivalent Role of Water Users Associations	149
	Timothy Moss and Ahmad Hamidov	
12	Theory, the Market and the State: Agricultural Reforms in Post Socialist Uzbekistan Between Economic Incentives and Institutional Obstacles	169
	Bernd Hansjürgens	
Part IV The Lower Jordan Valley – The Red Sea-Dead Sea Conveyance Project and Its Complex History		
13	Water Resources, Cooperation and Power Asymmetries in the Water Management of the Lower Jordan Valley: The Situation Today and the Path that Has Led There	189
	Christine Bismuth	
14	Reclaiming the Dead Sea: Alternatives for Action	205
	Abdallah I. Husein Malkawi and Yacov Tsur	
15	Jordan’s Shadow State and Water Management: Prospects for Water Security Will Depend on Politics and Regional Cooperation	227
	Valerie Yorke	

16 Technologies, Incentives and Cost Recovery: Is There an Israeli Role Model?	253
Christine Bismuth, Bernd Hansjürgens, and Ira Yaari	
Part V Outlook and Options for Action	
17 Lessons Learnt, Open Research Questions and Recommendations	279
Christine Bismuth, Bernd Hansjürgens, Timothy Moss, Sebastian Hoehstetter, Klement Tockner, Valerie Yorke, Hermann Kreuzmann, Petra Dobner, Shavkat Kenjabaev, Reinhard F. Hüttl, Oliver Bens, Rolf Emmermann, Hans-Georg Frede, Gerhard Glatzel, Hermann H. Hahn, Bernd Hillemeier, Hans-Joachim Kümpel, Axel Meyer, Helmar Schubert, Herbert Sukopp, and Ugur Yaramanci	
Index	293