Public-Private Partnership Projects in Infrastructure

Investment in infrastructure is critical to economic growth, quality of life, poverty reduction, access to education and health care, and achieving many of the goals of a robust economy. But infrastructure is difficult for the public sector to get right. Public-private partnerships (PPPs) can help; they can provide more efficient procurement, focus on consumer satisfaction and life cycle maintenance, and provide new sources of investment, in particular through limited recourse debt. However, PPPs present challenges of their own. This book provides a practical guide to PPPs for policy makers and strategists, showing how governments can enable and encourage PPPs, providing a step-by-step analysis of the development of PPP projects, and explaining how PPP financing works, what PPP contractual structures look like, and how PPP risk allocation works in practice. It includes specific discussion of each infrastructure sector, with a focus on the strategic and policy issues essential for successful development of infrastructure through PPPs.

JEFFREY DELMON is a senior infrastructure specialist at the World Bank in Washington, D.C. He is the author or coauthor of six other titles on key aspects of infrastructure finance, including the context of international development. Prior to joining the Bank, Dr. Delmon worked for private firms advising investors, lenders, and governments across the globe on PPPs and project finance for sectors such as power, transport, water, and telecoms. He holds a J.D. degree and an MA in international studies from the University of Denver, a DEA from the University of Paris II, and a Ph.D. from King’s College, University of London.
Public-Private Partnership Projects in Infrastructure: An Essential Guide for Policy Makers

Jeffrey Delmon

© in this web service Cambridge University Press  www.cambridge.org
## Contents

*List of Figures*  page ix  

*Acknowledgments*  xi  

1 **Introduction**  

1.1 Fundamentals of PPP  7  

1.2 PPP Investment Climate  26  

2 **Project Selection and Preparation**  41  

2.1 Identifying Strategic Projects for PPP  44  

2.2 Project Preparation  50  

3 **Financing PPP and the Fundamentals of Project Finance**  62  

3.1 Sources of Financing  66  

3.2 Project Finance  70
## Contents

3.3  What the Government Can Do to Improve the Financial Climate 80

### 4 Allocation of Risk  95

4.1  Political Risk  98

4.2  Legal and Regulatory Risk 100

4.3  Completion Risk 101

4.4  Performance Risk 104

4.5  Operation Risk 105

4.6  Financing Risk 107

4.7  Currency Risk 109

4.8  Offtake Risk 110

4.9  Environmental and Social Risks 112

4.10  Risk Allocation and Mitigation 114

### 5 The Contractual Structure 116

5.1  Concession Agreement 118

5.2  Offtake Purchase Agreement 123

5.3  Input Supply Agreement 127

5.4  Construction Contract 130

5.5  Operation and Maintenance (O&M) Agreement 135

5.6  Lending Agreements 139

5.7  Hedging Arrangements 142
5.8 Intercreditor Arrangements 144
5.9 Insurance Arrangements 145
5.10 Guarantee and Credit Enhancement Arrangements 148
5.11 Sponsor Support 150
5.12 Shareholding Arrangements 151
5.13 Other Key Contractual Issues 152

6 Project Implementation 156
6.1 Operation Manual 159
6.2 Management Team 160
6.3 Regulatory 161
6.4 Refinancing 162
6.5 Renegotiations 164
6.6 Expiry, Termination, and Handover 166

7 Specific Characteristics of PPP in Different Sectors 168
7.1 Transportation 169
7.2 Telecommunications and Fiber Optic Backbone 173
7.3 Power Generation 176
7.4 Retail Distribution of Water and Sanitation Services 182
Contents

8 Financial and Economic Crises 189
  8.1 The Impact of crises 193
  8.2 What Can Be Done? 198

Aggregate Key Messages for Policy Makers 209
Glossary 219
Selected Readings 235
Index 239
List of Figures

1.1 PPP structures  page 8
1.2 Parties to a PPP project 18
1.3 The context of a conducive PPP investment climate 29
1.4 PPP investment climate 31
1.5 Key government activities in PPP 35
2.1 The development process for PPP 43
3.1 Sources of financing for PPP 64
3.2 Key characteristics of project finance 73
3.3 Mechanisms to encourage PPP 82
4.1 Efficient risk allocation 97
5.1 Typical BOT structure 119
5.2 Financial flows in different project periods 136
6.1 Management functions 159
Acknowledgments

I would like to thank my colleagues from the World Bank, who helped review certain parts of this book, in particular peer reviewers Mark Moseley, Joel Kolker, and Will Dachs (now with the South African PPP Unit); as well as Vickram Cuttaree, Yuriy Myroshnychenko, Paul Noumba Um, and Victoria Rigby Delmon; Amit Burman for his editorial skills; and Chalida Chararnsuk for helping make it beautiful. I would also like to thank the Public-Private Infrastructure Advisory Facility\(^1\) (PPIAF) for their kind support in disseminating this work in French and Russian to those who might benefit from it most.

\(^1\) PPIAF is a multidonor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private-sector involvement (for more details, visit www.ppiaf.org).
Acknowledgments

And, most importantly, my thanks to Vicky, Alex, and Natasha.

The findings, interpretations, and conclusions expressed herein are those of the author and should not be attributed in any manner to the World Bank or the PPIAF, their affiliated organizations, or the members of their Board of Executive Directors or the countries they represent. This text does not constitute legal advice and does not substitute for obtaining competent legal counsel (readers are advised to seek the same) when addressing any of the issues discussed in this text.