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Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

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## *Global Projects*

As the world's population continues to grow, there is an ever-increasing need for huge investment in basic infrastructure: water and sewage, energy production and distribution, transportation, and telecommunication. At the same time, infrastructure systems in developed countries are deteriorating and in need of renewal. Today, many of the engineering and economic problems surrounding infrastructure construction projects have been solved, but the threat of social misalignments and political conflicts renders the development and management of such projects more challenging than ever before. This book presents a new theoretical framework that allows us to analyze the institutional and social movement processes, both negative and positive, that surround global infrastructure projects as they confront cross-national and cross-sectoral (e.g., private–public partnerships) institutional differences. The value of this framework is illustrated through a series of studies on a wide range of infrastructure projects, including roads, railroads, ports, airports, water supply, and energy pipelines.

W. RICHARD SCOTT is Professor Emeritus in the Department of Sociology with courtesy appointments in the Schools of Business, Education and Medicine at Stanford University. He is also a senior researcher in the Collaboratory for Research on Global Projects (CRGP) at Stanford.

RAYMOND E. LEVITT is Professor of Civil and Environmental Engineering and Director of the Collaboratory for Research on Global Projects (CRGP) at Stanford University.

RYAN J. ORR teaches project finance and infrastructure investment in the Graduate School of Business and the School of Engineering at Stanford University, where he is also Executive Director at the Collaboratory for Research on Global Projects (CRGP).

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# Global Projects

Institutional and Political Challenges

EDITORS

W. RICHARD SCOTT, RAYMOND E. LEVITT  
AND RYAN J. ORR



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Frontmatter

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*In memory of Richard Burt*

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Frontmatter

[More information](#)

## Contents

<i>List of figures</i>	<i>page</i> ix
<i>List of tables</i>	x
<i>List of contributors</i>	xii
<i>Preface</i>	xv
<i>Raymond E. Levitt and Ryan J. Orr</i>	
Introduction: studying global projects	1
<i>W. Richard Scott</i>	
<b>Part I Foundational themes</b>	<b>13</b>
1 Global projects: distinguishing features, drivers, and challenges	15
<i>Ryan J. Orr, W. Richard Scott, Raymond E. Levitt, Karlos Arto, and Jaakko Kujala</i>	
2 The institutional environment of global projects	52
<i>W. Richard Scott</i>	
3 Social movements and the growth in opposition to global projects	86
<i>Doug McAdam</i>	
<b>Part II Institutional differences and global projects: empirical studies</b>	<b>111</b>
4 Rules versus results: sources and resolution of institutional conflicts on Indian metro railway projects	113
<i>Ashwin Mahalingam, Raymond E. Levitt, and W. Richard Scott</i>	

Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)

viii		<i>Contents</i>
5	Institutional exceptions on global projects: a process model <i>Ryan J. Orr and W. Richard Scott</i>	135
6	Local embeddedness of firms and strategies for dealing with uncertainty in global projects <i>Ryan J. Orr and Raymond E. Levitt</i>	183
7	Who needs to know what? Institutional knowledge and global projects <i>Amy N. Javernick-Will and W. Richard Scott</i>	247
	<b>Part III Political conflicts and global projects</b>	<b>277</b>
8	“Site fights”: explaining opposition to pipeline projects in the developing world <i>Doug McAdam, Hilary Schaffer Boudet, Jennifer Davis, Ryan J. Orr, W. Richard Scott, and Raymond E. Levitt</i>	279
9	To talk or to fight? Effects of strategic, cultural, and institutional factors on renegotiation approaches in public–private concessions <i>Henry Chan and Raymond E. Levitt</i>	310
	<b>Part IV Governance strategies and structures</b>	<b>351</b>
10	Network-based strategies and competencies for political and social risk management in global projects <i>Witold J. Henisz</i>	353
11	Organizations enabling public–private partnerships: an organization field approach <i>Stephan F. Jooste and W. Richard Scott</i>	377
	<i>References</i>	403
	<i>Index</i>	449

Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)*Figures*

1.1	Landscape of organizational scholarship	<i>page</i> 20
1.2	Coordination and institutional costs in global projects	38
1.3	Four quadrants of the global projects research agenda	39
5.1	A generic narrative model	173
6.1	Strategies to succeed in foreign environments	239
7.1	Important types of institutional knowledge	258
8.1	Causal recipes for political conflict	301
8.2	Causal recipes for legal conflict	303
9.1	Positioning of current research with respect to the existing literature	313
9.2	Conceptual model of analysis	315
9.3	Relational-legal contracting performance continuum	316
9.4(a)	Sufficient condition (factors X and Y are sufficient to cause the outcomes)	340
9.4(b)	Necessary condition (factor Y is necessary to cause the outcome)	340
10.1	Chevron's integrated approach to stakeholder consultation	371
10.2	Chevron's incorporation of stakeholder feedback into project design	373
11.1	Graphic representation of South African PPP enabling field	393
11.2	Graphic representation of British Columbian (Canada) PPP enabling field	395
11.3	Graphic representation of Korean PPP enabling field	398

Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)*Tables*

2.1	Three pillars of institutions	<i>page 54</i>
3.1	Growth and issue focus of transnational social movement organizations	105
5.1	Summary of informants, organizations, and projects sampled	147
5.2	Condensed vignette summaries	150
5.3	Ignorance, deviant action, and outcomes	154
5.4	Sensemaking, local knowledge search, and outcomes	156
5.5	Response, response action, and outcomes	158
6.1	Firm descriptions	191
6.2	Project descriptions	193
6.3	Project engagement characteristics, by firm type	194
6.4	Overall local relational embeddedness	197
6.5	Relative local embeddedness	198
6.6	Examples of emergent uncertainty	206
6.7	Indicators of local embeddedness and strategy–structure fit	219
6.8	Strategies to increase supply of local knowledge	222
6.9	Strategies to decrease the need for local knowledge	229
6.10	Strategies to reduce the impact of a local knowledge deficit	234
6.11	Summary of shortcomings of extant theory and the contribution of this article	243
7.1	Case study information	254
7.2	Relative frequency of important institutional knowledge mentioned by informants for international projects	257
7.3	Relative frequency of important knowledge type mentioned by informants for international projects according to company type	271



Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)

<i>List of tables</i>	xi
8.1 List of cases	290
8.2 Causal conditions	295
8.3 Outcome conditions	298
9.1 Rule of law index by subfactors	323
9.2 Coding scheme for the relational–legalistic renegotiation approach continuum	334
9.3 Coding scheme for future business index (FBI)	335
9.4 Coding scheme for current investment activity (CIA)	336
9.5 Coding summary	338
9.6 Consistency analysis for necessity	341
9.7 Cases with low strategic scores	347

Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)

---

## *Contributors*

KARLOS ARTTO Professor of Project Business, School of Science and Technology, Aalto University, Finland

HILARY SHAFFER BOUDET Post-doctoral Scholar, Stanford Prevention Research Center, School of Medicine, Stanford University

HENRY CHAN Ph.D. in Civil and Environmental Engineering and Consultant at the Transaction Advice Group of Arup in San Francisco, CA

JENNIFER DAVIS Assistant Professor, Department of Civil and Environmental Engineering, and Higgins-Magid Fellow, Woods Institute for the Environment, Stanford University

WITOLD J. HENISZ Deloitte & Touche Associate Professor of Management in Honor of Russell E. Palmer, Former Managing Partner, The Wharton School, University of Pennsylvania

AMY JAVERNICK-WILL Assistant Professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder

STEPHAN F. JOOSTE Ph.D. candidate, Department of Civil and Environmental Engineering will become a consultant at The Aurecon Group in South Africa

JAAKKO KUJALA Professor of Project and Quality Management, Department of Industrial Engineering and Management, University of Oulu, Finland

Cambridge University Press

978-0-521-18190-7 - Global Projects: Institutional and Political Challenges

Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)

---

*List of contributors*

xiii

RAYMOND E. LEVITT Professor, Department of Civil and Environmental Engineering and Director of the Collaboratory for Research on Global Projects, Stanford University

ASHWIN MAHALINGAM Assistant Professor of Building Technology and Construction Management, Department of Civil Engineering, Indian Institute of Technology (IITM), Madras, India

DOUG MCADAM Professor of Sociology and Director of the Program on Urban Studies, Stanford University

RYAN J. ORR Instructor in Civil and Environmental Engineering in the Graduate School of Business, and Executive Director of the Collaboratory for Research on Global Projects, Stanford University

W. RICHARD SCOTT Professor of Sociology Emeritus and Senior Research Scientist, Collaboratory for Research on Global Projects, Stanford University

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Frontmatter

[More information](#)

## *Preface*

This book presents the results of research conducted by scholars in or associated with the Collaboratory for Research on Global Projects (CRGP) at Stanford University from the founding of CRGP in 2002 up to the present time. In this preface we describe the goals, origins, membership, and activities of CRGP that have resulted in this body of scholarship.

In developing countries, improving the quality and quantity of civil infrastructure – water supply, wastewater treatment, roads, railroads, ports, airports, power, and telecommunications – is one of the primary means to improve human health, reduce transaction costs for society, and thereby raise living standards. Large investments in social infrastructure – schools, hospitals, civic buildings, etc. – present another pressing set of needs. In many developed countries civil and social infrastructure built in the last century has served those countries well initially, but has subsequently failed to keep up with population growth and has been systematically under-maintained, so it needs substantial expansion and refurbishment at a time when governments worldwide are severely fiscally strained. Various estimates place global demand for infrastructure in developing and developed countries over the next decade at anywhere from \$10–\$20 trillion. In addition to being underdeveloped and under-maintained, civil and social infrastructure worldwide is currently being developed in ways that generate substantial greenhouse gas emissions from energy intensive materials like cement and steel, contributing greatly to pollution of land, water, and atmosphere. Moreover, development of these projects often results in harsh and inequitable social outcomes for population groups who are subject to their environmental impacts or who are forcibly displaced from their homes, oftentimes without adequate provision for compensation and resettlement. Clearly, better ways need to be found for financing, governing, constructing, and sustaining infrastructure projects over their lifecycles worldwide.

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Frontmatter

[More information](#)

CRGP was founded to conduct fundamental and applied research, education, and outreach to enhance the economic, environmental, and social sustainability of projects that provide sorely needed civil and social infrastructure worldwide. To advance this goal, CRGP was established as a cross-disciplinary center at Stanford, cutting across many interested departments and schools in collaboration with reflective practitioners from a group of industry partners. This Stanford Center was designed from the outset to collaborate with complementary teams of scholars from universities in other regions worldwide and their government and industry partners – hence the name “Collaboratory.” Since its founding, CRGP has successfully brought together teams of faculty and students from engineering, project management, political science, sociology, economics, law, finance, and history at Stanford and partner institutions to work on various aspects of the financing, governance, and sustainability of infrastructure projects around the world.

Organizational and institutional theory has provided a unifying perspective to bridge between the contributions of CRGP scholars in this effort. Key CRGP institutional scholars at Stanford in this effort to date have included: Steven Barley, organizational ethnography; Gordon Chung, institutional history; Jennifer Davis, public health and water project governance; Avner Greif, institutional economics; Thomas Heller (co-Nobel Laureate, Peace), institutional law; Raymond Levitt (CRGP Academic Director), project organization and governance; Doug McAdam, political sociology; Roger Noll, economics of privatization; Douglass North (Nobel Laureate, Economics), institutional economics; Ryan Orr (CRGP Executive Director), project finance and infrastructure investment; and W. Richard Scott (CRGP Senior Research Scientist), organizational and institutional sociology.

All of the authors of chapters in this volume have had, and most still have, strong and direct connections with CRGP as faculty members, doctoral students, or visiting scholars. Several of the papers were written or co-written by a number of doctoral students associated with CRGP. These (then) student collaborators include Henry Chan, Stephan Jooste, Ashwin Mahalingam, Ryan J. Orr, Hilary Schaffer Boudet, and Amy Javernick Will. Witold Henisz, a member of the management faculty at the Wharton School, University of Pennsylvania, spent a sabbatical year at Stanford serving as Visiting Professor of Civil and Environmental Engineering during 2008–2009. His work

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Frontmatter

[More information](#)

has focused on the impact of political hazards on international investment strategies and the design of project governance structures. Thus, all contributors are current faculty members, current or past Ph.D. students and postdoctoral fellows, current or past visiting scholars at CRGP, or members of Collaboratory partner institutions.

CRGP's first significant international research Collaboratory partner was a group of academics from Finland: Karlos Artto of Helsinki University of Technology (now part of Aalto University) and Jaakko Kujala of University of Oulu, project-based business; Kalle Kähkönen of the Finnish National Research Institute, project risk analysis; and Risto Tainio of Helsinki School of Economics, organization studies. This Finnish consortium was sponsored by the TEKES National Research Agency plus a group of Finnish companies including Kone Elevators, Nokia Networks (now Siemens-Nokia Networks), Jaakko Pöyry Corp., and Foster Wheeler.

Other international scholars with strong links to the Collaboratory have included: Giel Becker and Manfred Köster of University of Pretoria in South Africa, global project governance; Christian Brockmann of University of Bremen in Germany, global project management; Nuno Gil of Manchester University Business School, private-public partnerships for infrastructure delivery; Rahinah Ibrahim from University Putra Malaysia, project knowledge management; Ashwin Mahalingam from IIT Madras, infrastructure privatization; and Jennifer Whyte of University of Reading, UK, IT for global project collaboration.

CRGP was launched in 2002 with start-up funding from the Deans of the School of Engineering and the School of Humanities and Sciences. A significant seed grant from Stanford's Freeman Spogli Institute for International Studies made possible CRGP's first major research project on sources of conflict in global infrastructure project delivery. Aside from this initial funding, CRGP's research has been funded by a combination of Stanford internal research grants, outside research grants, and annual affiliate program membership contributions from companies involved in global infrastructure development, finance, and investment. Sponsor companies have included: Akin Gump Strauss Hauer & Feld LLP; American Infrastructure MLP Fund; Alberta Investment Management Corporation; Baker McKenzie LLP; Bechtel Corporation; Coudert Brothers; Det Norske Veritas of Norway; EMP Global Infrastructure Fund of Bahrain; Finnish Global

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Frontmatter

[More information](#)

Project Strategy Initiative; HRJ Capital; Japan Marine Science, Inc.; KPMG; Meketa Investment Group, Inc.; Meridiam Infrastructure; Nossaman LLP; Parsons Infrastructure & Technology Group, Inc.; Qatar Economic Zones; Queensland Investment Corp.; and Zurich North America. CRGP researchers are deeply appreciative of the support we have received from all of these enterprises that has allowed us to conduct this program of fundamental cross-disciplinary research on the determinants of successful global project outcomes.

Over the years, we have learned that the most important factor for ensuring effective collaboration with industry is to identify a “reflective practitioner” within each of our sponsor companies. We thank David Altshuler, Abu Chowdhury, Julie Kim, Ross Israel, Gregory Kever, Dennis Lorenzin, Lars Erik Mangset, Barry Metzger, Shailesh Pathak, Todd Rowland, and Grant Stevens for their many extraordinary contributions to our program.

During its early days, CRGP was exceptionally fortunate to attract as a visiting scholar Mr. Richard Burt who was just stepping down as General Counsel of Bechtel Corp. and had previously played the same role for ABB, a Swiss-German global engineering and construction consortium. Rick Burt engaged enthusiastically in our interdisciplinary research program, advising both faculty and students, and providing us with the benefit of his years of practical experience and incisive intellect. Rick had a special interest in exploring the potential for large pension funds to provide pools of capital to fund regionally and sectorally diversified portfolios of infrastructure projects in ways that are mutually attractive to both sides. He argued that the relatively low risk, long term, inflation-adjusted returns from infrastructure projects could be structured in ways that would meet both the pension obligations and fiduciary requirements of pension funds, while simultaneously buttressing the legitimacy of private investment of workers’ pensions in these critically needed public works projects. Rick’s vision is currently being advanced through a series of CRGP roundtables that have brought together managers of some of the world’s largest pension funds with forward-looking sponsors and developers of infrastructure to explore ways in which this marriage of interests and needs can be facilitated.

Sadly, Rick was denied the chance to see his vision realized by an unexpected heart attack in the prime of his life. We, therefore, gratefully dedicate this book to the memory of our late friend and deeply

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Edited by W. Richard Scott, Raymond E. Levitt and Ryan J. Orr

Frontmatter

[More information](#)

---

*Preface*

xix

admired colleague, Rick Burt, for his pivotal contributions to CRGP's nascent research program, his warm friendship, and tireless support.

It is our hope that this book will provide useful points of departure in this area, and will inspire scholars from multiple academic disciplines worldwide to join with CRGP in the pursuit of knowledge and tools to advance the development of more sustainable global infrastructure development projects and global projects of all kinds in our increasingly interconnected and fragile world economy and polity.

Raymond Levitt, Director  
Ryan J. Orr, Executive Director  
Collaboratory for Research on Global Projects  
Stanford University  
Stanford, California