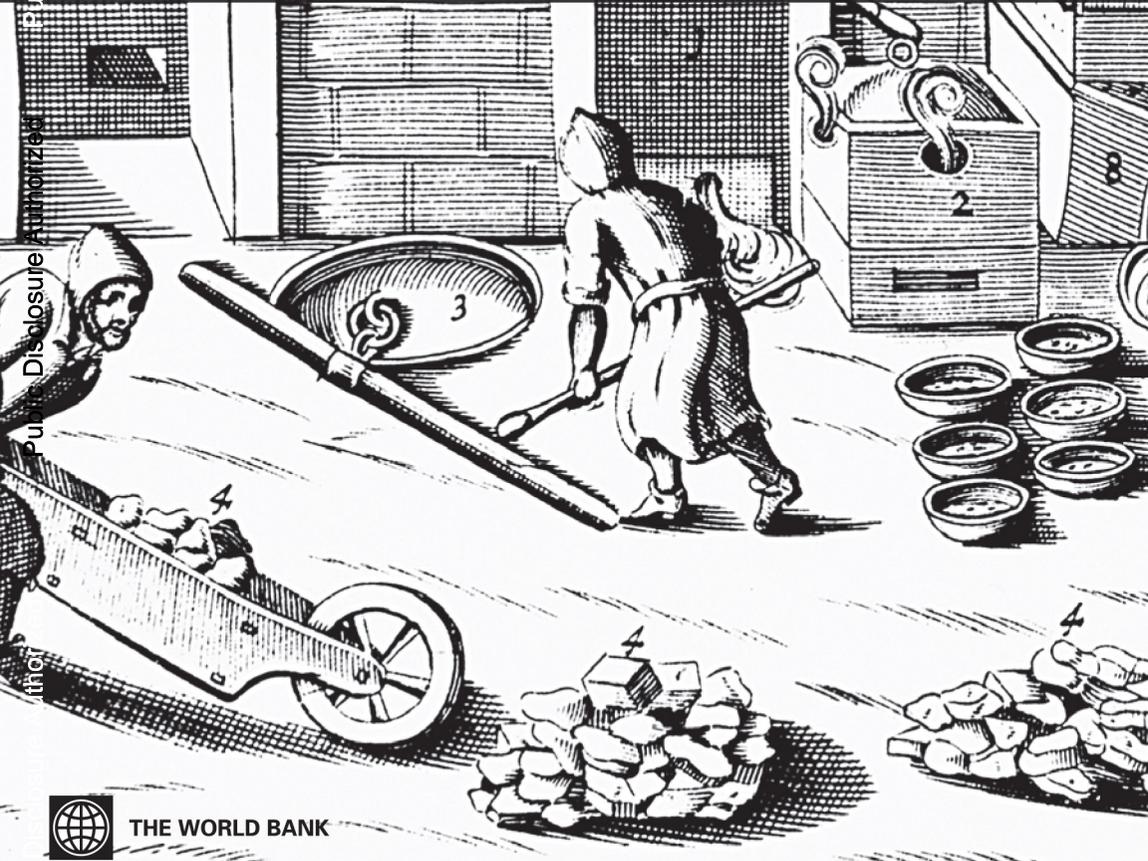


Naazneen H. Barma • Kai Kaiser  
Tuan Minh Le • Lorena Viñuela

# Rents to Riches?

**THE POLITICAL ECONOMY OF NATURAL  
RESOURCE-LED DEVELOPMENT**



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The Political Economy of Natural  
Resource–Led Development

**NAAZNEEN H. BARMA**  
**KAI KAISER**  
**TUAN MINH LE**  
AND  
**LORENA VIÑUELA**



**THE WORLD BANK**  
Washington, D.C.

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Washington DC 20433  
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1 2 3 4 14 13 12 11

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ISBN (paper): 978-0-8213-8480-0

ISBN (electronic): 978-0-8213-8716-0

DOI: 10.1596/978-0-8213-8480-0

### **Library of Congress Cataloging-in-Publication Data**

Rents to riches? : the political economy of natural resource led development / Naazneen Barma . . . [et al.].

p. cm.

Includes bibliographical references and index.

ISBN 978-0-8213-8480-0 — ISBN 978-0-8213-8716-0 (electronic)

1. Natural resources—Developing countries—Management. 2. Natural resources—Government policy—Developing countries. 3. Natural resources—Taxation—Developing countries. 4. Poverty—Developing countries. I. Barma, Naazneen.

HC85.R467 2011

333.7091724—dc23

2011032662

Cover illustration: Getty Images via Thinkstock/Photos.com

Cover design: Drew Fasick

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## Foreword

Natural resource endowments such as oil, gas, and minerals can serve as potent drivers of development. Global demand for scarce natural resources is mounting rapidly. Industry experts argue that we are in the midst of a “super cycle” of commodity prices, driven by demand from fast-growing emerging economies. Natural resource extraction is capital-intensive, with annual global investments approaching \$1 trillion, hence offering the potential for rapid infrastructure development and structural transformation in developing economies. Riches from the sector promise to be massive, with resource rents, that is, the difference between revenues and extraction cost, estimated at about \$4 trillion annually, or 7 percent of global GDP. More than 50 World Bank client countries—representing more than 1.5 billion people and such diverse settings as Afghanistan, Brazil, Equatorial Guinea, Ghana, and Mongolia—are currently characterized as “resource-dependent.” Nonrenewable natural resources are disproportionately important to poor and fragile countries, as typically they are their main endowment and revenue source.

But a “paradox of plenty” exists in resource-rich poor countries, where recent history has demonstrated that extractive endowments, if not well managed, can disappoint. Common problems include lopsided, poorly diversified economic structures; disruptions to local economies and communities; environmental hazards; weakened accountability of the state to society; and even the risk of violent conflict. Political upheavals like the recent ones in the Middle East and North Africa can render resource-producing and -consuming countries vulnerable to extreme commodity price volatility and supply uncertainty. As representatives of the World Bank Group and the broader community of development

policy practitioners, we know much about the challenges of effective natural resource–led development strategies and technical options for mitigating some of the worst economic outcomes. A consensus is emerging that policies will be effective in leveraging natural resource–led development only when they are compatible with the level of institutional quality and the political economy context of the country in question. Consequently, the key challenge is to identify national resource management strategies that promise to benefit a country’s present and future generations, including strategies for attracting the requisite investment and technology to develop the resource sector effectively in the long term.

This book provides a much-needed framework for approaching natural resource management more systematically, focusing attention on the governance and political economy dimensions of the quest to transform natural resource rents into sustainable development riches. The volume synthesizes theoretical perspectives and operational considerations by drawing on the distinguished and growing scholarship on natural resources and incorporating rich new empirical material from a series of country case studies commissioned for this work from Africa (Angola, Democratic Republic of Congo, Ghana, Niger, and Nigeria), East Asia and Pacific (Lao People’s Democratic Republic, Mongolia, and Timor-Leste), and Latin America and the Caribbean (Bolivia, Chile, Ecuador, Mexico, and Trinidad and Tobago). Thus, the volume develops incentive-compatible operational insights for stakeholders inside and outside of government in natural resource–endowed countries, as well as for their international development partners.

The book serves as an important tool for policy makers and development practitioners to promote natural resource–led development. It provides insights for improving sector governance by building on the notion that the entire natural resource “value chain” must be considered. Simply getting resources out of the ground does not translate into development. Natural resource rents must be collected by government institutions and channeled through the budgetary process so that they can be transformed into productive public assets and sustainable development. Proposed options across the various steps of the extractive industry value chain must be both technically sound and yet incentive-compatible, representing “good fit” rather than “best practice.” Equally, policy makers

must pay attention to the linkages across the value chain in understanding natural resource–led development as a dynamic process. These messages will resonate with developing-country policy makers seeking to craft their own path from “rents to riches.”

Successful natural resource–led development increasingly involves multiple stakeholders across society. Past analytical and practitioner engagement has focused too narrowly on the bargaining dynamics between developing-country governments and transnational extractive companies. But governments in developing countries are by no means monolithic; rather, different government actors across the value chain often have varying interests and expectations with regard to natural resource–led development. Many developing countries, in striving to capture sufficient benefits from the natural resource sector, have emphasized the role of state-owned resource companies. At the same time, a global consensus is growing that regards citizens as the ultimate owners of natural resource endowments.

Quite simply, governments have not always been the best stewards of these resources, increasing the clamor for better governance and social accountability for natural resource use. Major international companies are increasingly moving beyond narrow corporate social responsibility concerns to recognize their collective stake in promoting broad-based and sustained development in the extractive industry. Emerging international norms and standards play an equally significant role in sector governance. An important vehicle for collaborative engagement in the sector, the Extractive Industry Transparency Initiative alone has led to creation of more than 30 multi-stakeholder groups. International agencies such as the World Bank have an important role to play in convening stakeholders to consider concerted approaches in the sector.

Aid agencies face a number of challenges to engaging effectively in resource-rich settings. Countries with abundant resource rents are not necessarily seeking financial assistance. Instead, international donors are asked to support resource-dependent countries in a variety of ways: to assist with adjustments in the wake of poorly managed fiscal booms and busts, to aid in producing complementary institutional and physical infrastructure for natural resource extraction, and to provide technical assistance for improving the management of the natural resource sectors. This volume demonstrates that deploying detailed country-level

political economy analysis is essential in helping domestic reformers and development partners engage more smartly in channeling natural resources for development.

Otaviano Canuto

Vice President and Head of Network

Poverty Reduction and Economic Management Network

The World Bank

## Acknowledgments

We owe debts of gratitude to numerous individuals for their generous donations of conceptual support, time, and encouragement in helping us write this volume.

The empirical value-added of this book rests on the detailed work conducted for the underlying case studies of 13 countries in Africa, East Asia and Pacific, and Latin America and the Caribbean. We are grateful to the authors of those case studies: Catherine Anderson, Joseph Ayea, Jérôme Chevallier, Christopher Finch, Verena Fritz, Alex Gboyega, Kjetil Hansen, Murray Petrie, Douglas Porter, William Rex, G. P. Shukla, Ricardo Soares de Oliveira, Tina Søreide, Helga Treichel, Steven Webb, and Robert Yungu. Our thanks also to the various World Bank country management units for their ongoing advice and support as the country cases were developed.

We also appreciate the foundational intellectual contributions from Thad Dunning, Alan Gelb, Alexandra Gillies, Nimah Mazheri, Ricardo Soares de Oliveira, and Adnan Vatansever. Additional particular thanks are due to Maks Kobonbaev for his participation in and enthusiasm for this work from the very start. Max Jira, Madeleine Chungkong, and Nancy Chaarani Meza provided crucial and cheerful administrative support.

Numerous colleagues at the World Bank and International Monetary Fund generously attended working sessions as we developed the content of this volume. We are grateful to all of them, particularly Craig Andrews, Allison Berg, Gary McMahon, Michael Stanley, and Silvana Tordo of the Oil, Gas, and Mining Group; Edouard Al-Dahdah, Michael Jarvis, and Audrey Sacks of the World Bank Institute; Phil Keefer of the Development Research Group; Lev Freinkman, Verena Fritz, Raúl Junquera-Varela,

Francesca Recanatini, Emily Sinnott, and Zahid Hasnain of the Poverty Reduction and Economic Management network; and Philip Daniels and Charles McPherson of the International Monetary Fund. Asmeen Khan, William Kingsmill, and Steve Ndegwa have also been key collaborators along the way.

The program of analytical work culminating in this book was generously funded by the Bank Netherlands Partnership Program and the Governance Partnership Facility. For their assistance, we thank Ted Dreger, Becky Hife, Helena Nkole, Lilian Samson, and Piet Van Heesewijk. Supported by this funding, the original seeds of this volume sprouted at a workshop in September 2009, in Oslo, where we spent four invigorating days discussing the country case studies with many of the individuals listed here, along with development partners including, especially, the Norwegian Agency for Development Cooperation and the Christian Michelsen Institute.

We are especially grateful to our peer reviewers, Craig Andrews, William Ascher, Philip Daniels, Alan Gelb, Raúl Junquera-Varela, Phil Keefer, Charles McPherson, Michael Ross, and Michael Stanley. Many of them, along with other individuals listed here, served graciously as an unofficial advisory committee to us along the way, and the quality of this volume is far better for their inputs and insights. We thank our colleagues at the World Bank's Office of the Publisher, especially Stephen McGroarty, Theresa Cooke, and Aziz Gökdemir, for shepherding us through the publication process, and Valerie Ziobro for copyediting the manuscript. All remaining errors are ours alone.

The volume was prepared, and the overall program of analytical work conducted, under the guidance and encouragement of our past and present sector managers and directors: Jim Brumby, Vikram Nehru, Barbara Nunberg, Anand Rajaram, Randi Ryterman, Sudhir Shetty, Linda Van Gelder, and Debbie Wetzel. We extend to them our heartfelt thanks.

As we hope these acknowledgements have made clear, creating this volume has been a collective effort and we have not lacked in generous support. To all who are listed here, once again, our deep gratitude.

*Naazneen Barma, Kai Kaiser, Tuan Le, and Lorena Viñuela*  
November 2011

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## Abbreviations

ACID	Africa Country Infrastructure Diagnostic
AIOC	Azerbaijan International Operating Company
BCMM	Bureau du Cadastre Minier de Madagascar (Mining Cadastre Office of Madagascar)
BRIC	Brazil–Russia–India–China
CGAC	country-level governance and anticorruption program (World Bank)
CODELCO	Corporación Nacional del Cobre de Chile (National Copper Corporation of Chile)
CoST	Construction Transparency Initiative
COW	contract of work
CPIA	Country Performance and Institutional Assessment
CY	calendar year
DfID	Department for International Development (United Kingdom)
EI	extractive industry
EITI	Extractive Industries Transparency Initiative
FDI	foreign direct investment
FY	fiscal year
GDP	gross domestic product
GIS	geographic information systems
GNI	gross national income
HIPC	Heavily Indebted Poor Countries
IFC	International Finance Corporation
IMF	International Monetary Fund
IPD	Institutional Profiles Database

MRPAM	Mineral Resources and Petroleum Authority of Mongolia
MTEF	Medium-Term Expenditure Framework
MTU	mining tax unit
NGC	National Gas Company of Trinidad & Tobago Limited
NGO	nongovernmental organization
NMC	national mining company
NNOC	Nigerian National Oil Company
NNPC	Nigerian National Petroleum Corporation
NOC	national oil company
NRM	natural resource management
NT2	Nam Theun 2 hydropower project (Lao PDR)
OECD	Organisation for Economic Co-operation and Development
O&M	operations and maintenance
OPEC	Organization of the Petroleum Exporting Countries
PDS	public distribution system
PDVSA	Petróleos de Venezuela (national petroleum company of R. B. de Venezuela)
PEFA	Public Expenditure and Financial Accountability
PEM	public expenditure management
PEMEX	Petróleos Mexicanos (national petroleum company of Mexico)
Petronas	Petroliam Nasional Berhad (national oil and gas company of Malaysia)
PETROTRIN	Petroleum Company of Trinidad & Tobago Limited
PFM	public financial management
PI Model	Permanent Income Model
PIH	Permanent Income Hypothesis
PIM	public investment management
PPA	Public Policy Attributes database
PRI	Partido Revolucionario Institucional
PRONASOL	Programa Nacional de Solidaridad (Mexico)
PRSP	Poverty Reduction Strategy Paper
Rfi	resource-for-infrastructure
ROSC	Report on the Observance of Standards and Codes
RRT	resource rent tax

SNIP	Sistema Nacional de Inversion Pública (National System of Public Investment, Peru)
Sonangol	Sociedade Nacional de Combustíveis de Angola (national oil company of Angola)
SOPAMIN	Société du Patrimoine des Mines du Niger (national mining company of Niger)
StAR	Stolen Assets Recovery Initiative
SWF	sovereign wealth fund
VAT	value-added tax
VFM	value for money
WAEMU	West African Economic and Monetary Union
WEF	World Economic Forum
WGI	Worldwide Governance Indicators
YPFB	Yacimientos Petrolíferos Fiscales Bolivianos (national petroleum company of Bolivia)
ZOCA	zone of cooperation area



# Introduction: Beyond the Resource Curse

[The business of mining] is perhaps the most disadvantageous lottery in the world, or the one in which the gain of those who draw the prizes bears the least proportion to the loss of those who draw the blanks.

— Adam Smith, *The Wealth of Nations* (1776)

Subsoil natural resource endowments and their associated rents—if well harnessed and managed—can be a boon to developing countries. Yet, too often the extractive industries of oil, gas, and mining have instead been associated with the “resource curse.” Although the extent and inevitability of this curse continue to be debated, it remains that nations that are more dependent on natural resource wealth tend to grow more slowly than those that are resource-poor, and they often suffer from weak accountability and institutions, poor social capital, and increased likelihood of conflict.<sup>1</sup> In many developing countries, natural resources are the proverbial main game in town, and the extractive industries sector is both shaped by and in turn has an influence on political, economic, societal, and institutional dynamics writ large. Understanding the political economy surrounding resource rents is therefore crucial to achieving sustainable development built on resource riches.

From the public interest perspective, many resource-dependent developing countries pursue short-sighted, suboptimal policies for extracting resources and capturing rents, and they subsequently allocate those rents in ways that often privilege elite private consumption rather than public investments that enhance growth and collective social welfare. Scholars and practitioners alike have searched in vain for workable solutions to

the resource curse in developing countries. In documenting and explaining the policy failures associated with it, the social science literature presents a grim sketch of the syndrome and tends to be pessimistic about what can be done to mitigate it. Policy advisors and industry experts, on the other hand, have generally focused on assisting the extractive process in poorly governed environments in order to generate larger resource rent streams, while paying less attention to how the rents are captured and employed by governments.

### **Objectives of This Volume**

The goal of this volume is to develop a better understanding of the political economy dynamics resource-dependent governments are facing in order to assist them in achieving welfare-enhancing policy making and governance in the natural resource sectors. The authors seek to systematically understand the patterns through which resource-dependent governments interact with their societies and extractive industry developers in making decisions about natural resource extraction and the use of natural resource rents. This is accomplished, uniquely and for the first time, by bringing together broad insights from the scholarship on the political economy of natural resource management with practitioners' granular understanding of how the sector operates, through the lens of the natural resource value chain. The analysis identifies how political economy dynamics present obstacles to welfare-maximizing decisions at each of the discrete steps from resource extraction to rent allocation. With this focus on the details of the sector, the volume then points to feasible improvements in natural resource management, particularly for the weak institutional environments most vulnerable to the resource curse.

Greater recognition of the political economy dynamics prevalent in developing countries dependent on oil, gas, and mining will enable international development partners to better calibrate engagement and enhance the prospects of success in these settings.<sup>2</sup> Paying attention to and being able to identify the various incentives of relevant political actors can help inform dialogue aimed toward changing these incentives in ways that promise to be better aligned to promoting a resource-dependent country's development prospects. This volume identifies a series of incentive-compatible policies and capacity-building interventions to achieve

welfare-enhancing goals in three key areas of natural resource management: extraction, taxation, and investment of resource rents. For example, countries can attempt to establish more farsighted, fair, and credible contracts for resource extraction by disclosing the terms of contracts and building intertemporal flexibility into them. Revenues can be effectively mobilized if the fiscal regime of the extractive industries is better calibrated to administrative capacity. And public spending can be targeted to society's long-term benefit through careful prioritization of public investment management that first focuses on building the infrastructure necessary to attract future investment.

### **A Political Economy Approach**

Much has been learned about the economics and associated policy options of natural resource–led growth. The commodity boom and bust cycle of the 1970s triggered concerted attention to these issues in the international development community (see Gelb and Associates 1988 for a foundational statement).

Today, historically high commodity prices and the growing importance of resource extraction in many developing countries underlie a renewed surge of interest in policy issues around natural resource–led development, and a number of measured policy options for natural resource–led growth have been advanced.<sup>3</sup> Yet, for the most part, scholars and practitioners have fallen short of translating broad agreement on “good practice” policies into concrete steps to navigate and address the institutional and political obstacles that are associated with extracting and allocating resource rents for developmental purposes.

This volume emphasizes instead the notion of “good fit,” taking the position that welfare-promoting policies, institutions, and governance must be tailored, at least in part, to a country's specific context. Adopting an approach to institutional arrangements that emphasizes local variation and innovation as much as best international practice will be central to the ability of governments and development partners to achieve salutary developmental outcomes.<sup>4</sup> In this vein, the volume presents an analytical framework for assessing a country's political economy and institutional environment as it relates to natural resource management and, on that basis, it offers a substantial set of targeted prescriptions across the natural resource value chain that are technically sound *and* compatible with the identified underlying incentives.

In other words, the objective of this book is to help development practitioners unravel the political economy dynamics surrounding natural resource management in order to complement their technically grounded engagement. To this end, the analytical approach has been two-pronged. First, case studies were conducted on the political economy of the hydrocarbon and mineral value chains in 13 countries in the Africa, East Asia and Pacific, and Latin America and the Caribbean regions. Second, in light of this empirical material, the book highlights the current frontier of applied political economy analysis on resource dependence. This volume synthesizes the empirical and the theoretical with an emphasis on illuminating the implications for operational engagement in resource-dependent settings.

### **The Natural Resource Management Value Chain**

The World Bank mandate establishes poverty reduction as its primary objective in engaging with client countries. Long-term poverty reduction is achieved through growth, diversification, effective public spending and saving, and peace and stability. It is widely recognized that higher quality institutions help to achieve better and more far-sighted policies in pursuit of these objectives and help underpin their successful implementation.<sup>5</sup> A legitimate and equitable compact between the state and society, however it may be constituted, is an integral part of this trajectory. The hydrocarbon and minerals sectors are no exception: institutional quality is a crucial factor for resource-dependent countries to achieve sustainable, development-oriented policies and sector governance. Mitigating the resource curse is inherently a governance challenge: the credibility, quality, transparency, and accountability of policy-making processes, public institutions, the legal and regulatory climate, and sector governance are major determinants of how successfully countries can channel their resource wealth into sustainable development.

Natural resource management spans a great many specific and inter-related decisions on the part of government in interaction with resource developers (private and state-owned) and society. The World Bank has adopted a “value chain approach” to understanding natural resource management (NRM), with the primary objective of prescribing an integrated set of feasible policy interventions to transform natural resource potential into sustainable development outcomes. The value chain

(see figure 1.1), encompasses the institutional arrangements across five key dimensions of NRM: (1) sector organization and the award of contracts and licenses; (2) regulation and monitoring of operations; (3) collection of taxes and royalties; (4) revenue distribution and public investment management; and (5) implementation of sustainable development policies.<sup>6</sup>

**Figure 1.1. The Natural Resource Management Value Chain**



Source: Mayorga-Alba 2009.

The NRM value chain spans the key sequence of steps that a resource-dependent country must undertake in transforming its natural resource rents into developmental riches. When embedded in a political economy context, the value chain also offers the potential for a comprehensive assessment of the governance and political economy parameters that affect a resource-dependent country's ability to transform rents into riches. The framework is not strictly sequential; downstream decisions made on public investment management in any given time period will inevitably have an impact back on upstream decisions on extraction in the next time period. Understanding the dynamic feedback loops across the steps in the value chain in any given country is crucial to characterizing its domestic political economy and natural resource policy making and management.

The global study underlying this volume uses the NRM value chain as a diagnostic framework to analyze the political economy of rent extraction and allocation in a sample of resource-dependent developing countries. A standardized set of terms of reference was used to complete eight full country case studies in Africa (Angola, Democratic Republic of Congo, Ghana, Niger, and Nigeria) and East Asia and Pacific (Lao People's Democratic Republic [Lao PDR], Mongolia, and Timor-Leste),

along with a comparative synthesis of five smaller case studies in Latin America and the Caribbean (Bolivia, Chile, Ecuador, Mexico, and Trinidad and Tobago). The framework was designed to systematically assess and identify key political economy dynamics and institutional arrangements with regard to natural resource management in each country in which it was applied and to ensure the analytical leverage that comes with a consistent methodology (World Bank 2008a).<sup>7</sup>

The cases covered were not sampled through a rigorous research design for the purposes of making claims about causality or generalized conclusions about a broader universe of cases. They were largely initiated at the request of World Bank country teams grappling with these issues on the ground. Nevertheless, the range of cases in the global study includes countries with both oil and other mineral deposits that are at various stages in terms of both their natural resource extraction and their level of development. They thus illustrate how natural resources and political economies interact in producing outcomes with a view to articulating good-fit, sustainable interventions for resource-dependent developing countries.

### **Development Assistance and Targets for Intervention**

Their access to significant natural resource rents makes resource-dependent countries less likely to depend on aid than their non-resource-dependent peers. Some observers of international development argue that this is a positive thing.<sup>8</sup> Nonetheless, the traditional donor community, as well as emerging global players, will have pronounced interest in countries with proven and perceived resource endowments. In settings that start out with weak capacity and institutional endowments, these relationships can be asymmetric and not always in the long-term interest of the developing country. The World Bank Group's own direct engagement in the extractive industry (EI) sector has not been without controversy: the Bank announced in 2000 that it would conduct a review of its engagement in extractive industries, in large part as a response to environmental and human rights groups. The initial review group, led by a former Indonesian minister of the environment, suggested that the Bank distance itself from engagement in this sector; the final management response, however, argued that there was a continuing role for the Bank in supporting EI

“provided its involvement supports poverty reduction and sustainable development” (World Bank 2004a, iii).

Skeptics may argue that international actors will have limited leverage in shaping the behavior of policy makers in resource-dependent countries. This challenge, as always, is likely to be especially acute in settings characterized by poor quality governance. The World Bank’s experience with the Chad-Cameroon pipeline project serves as a cautionary tale. Beginning in 2000, the World Bank sought to tie the Chadian government to earmarking future oil spending to poverty reduction as part of a package to help the landlocked country develop its oil industry. Once the oil started flowing, however, the Chadian government reneged upon the agreement. More broadly, recent examples of significant debt relief (through the Heavily Indebted Poor Countries [HIPC] Debt Initiative) in such resource-dependent countries as the Republic of Congo and Nigeria raise the question of whether such measures do indeed start these countries off on a clean slate as promised, or merely set them up for another bout of resource-backed borrowing.

Nevertheless, there are crucial windows of opportunity for engagement by international development partners in resource-dependent settings. First, although the magnitude of resource rents generally far outweighs the potential financial flows from aid, absolute amounts of aid may increase in countries that have newly discovered natural resources as these countries attempt to get that sector off the ground. Second, resource-dependent countries have tended to seek support from the international community in times of adverse shocks, and development partners must be prepared to seize these opportunities for assistance and reform. Finally, domestic reformers often look to the international community to buttress their own positions; good ideas and technical support may find strong resonance under these conditions, rather than being perceived as supply-driven reform packages.

An oft-leveled critique regarding development assistance in resource-dependent countries is that leaving the resources in the ground is sometimes the best choice in poorly governed settings with weak institutional capacity. Using the NRM value chain as the analytical lens for this work assumes that the decision to extract has already been made—and the objective is to understand the political economy surrounding policy and governance in the sector in order to enhance associated developmental

interventions. Choosing not to extract certainly ought to be considered, but in many developing countries the tempting flow of resource rents for immediate spending and the promise, albeit elusive, of developmental benefits through public investment are difficult to handle with restraint. Rarely is the decision at all like that facing Saudi Arabia—whether to simply pump more oil or less. Extractive industries operate in even the most unstable and fraught environments, often with a significant risk premium (Haber, Maurer, and Razo 2003). In the Democratic Republic of Congo (DRC), for example, elites operating in a conflict environment cut short-term deals for resource extraction and used the rents to finance arms purchases. These are obviously not the conditions for transforming resource rents into sustained development riches. Yet there are significant lags in moving from discovery to extraction of resources, sometimes over one or even two decades. With this in mind, it is not unreasonable for most countries and their donors and production partners to embark down the path of extraction, with the hope that the conditions for welfare-enhancing use of rents will improve over time.

The authors' engagement with numerous country counterparts in government and otherwise has underscored the existence of a real appetite for innovative and, most importantly, tractable responses to observed weaknesses in the management of extractive resource wealth. In some cases, to be sure, elite capture of natural resource rents subverts the achievement of sustainable development outcomes. But even well-intentioned leaders often confront daunting challenges in implementing welfare-enhancing policies. While a leader today may be interested in saving resources for the future, for example, she may simply not trust her successors to later spend them well, given weak institutional checks and balances. Or, new reform-minded governments may find that vested interests and corrupt practices in the resource sector are too pervasive to be easily overcome with policy directives.

This book emphasizes actions that committed domestic agents, international development partners, and responsible stakeholders in the global extractive industries can take to enhance the prospects of a resource-dependent developing country by grounding interventions in a granular understanding of the common political economy dynamics surrounding natural resources. Dependence on natural resources

shapes state institutions and the decision-making framework and calculus facing political and economic elites, which affects the possibility of achieving the higher-order objectives that can aid in overcoming adverse outcomes, such as the need to deepen institutionalization, to bolster credibility, and to extend time horizons. Tailored operational recommendations are needed to achieve such goals, for example, measures to increase transparency in contract negotiations, enhance tax administration capacity, or improve the prioritization of public investment. And the targets of these specific forms of intervention are natural resource sector policies, institutions, and governance. Brief definitions of these concepts as used in this volume are as follows.

- **Policies** are decisions made by government officials on a specific course of action. A policy may be enacted in legislation or underpinning regulation; natural resource policies are often made explicit in a minerals law, for example. A policy may also be adopted through budget plans or pursued more informally through a government agency's day-to-day operations.
- **Institutions** are the "rules of the game" that structure political, economic, and social interactions.<sup>9</sup> Formal institutions include a country's constitutional framework and the checks and balances in place among different branches of government. With respect to natural resources, formal institutions could include legislation on the natural resource sectors or a fiscal equalization formula for transfers from resource-rich provinces to those that are resource-poor. Informal institutions encompass the unwritten rules structuring behavior; for example, there may be implicit social obligations being acted upon.
- **Governance** is the exercise of public authority with regard to society through the agencies of government—executive, legislature, judiciary—in the context of the institutional and policy framework in place. It is about the processes by which bargains between state and society are made (including policies and institutions) and how they are subsequently implemented and monitored (by organizations).
- **State capacity**, or the ability of the state to implement policy through its agencies, is an important aspect of governance. With particular relevance for governance of the natural resource sector, Karl defines state capacity as "the sum total of a state's material ability to control,

extract, and allocate resources as well as its symbolic or political ability to create, implement, and enforce collective decisions.” (Karl 1997, 45).

Weak institutions and low-capacity public sector agencies in resource-dependent developing countries mean that the ability of the state to make policy decisions to mitigate the resource curse will be equally weak.<sup>10</sup> Causality runs in both directions: a weak governance environment can lead to resource dependence, and high natural resource dependence can contribute to governance failures. Understanding how natural resource extraction interacts with institutions and governance to cumulate into broader political economy trajectories is crucial for elaborating potential developmental assistance. First, a country’s political economy setting must be understood in order to contextualize interventions and ensure that they are incentive-compatible so that perverse outcomes do not result instead. Furthermore, development partners may, in collaboration with reformist clients, adopt an even more transformative stance regarding institutions; again, success will hinge on a firm grasp of the political economy of natural resource dependence.

## **Transforming Rents into Riches**

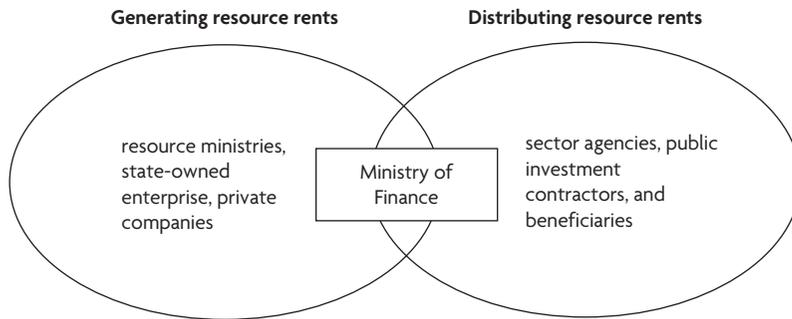
Natural resources yield “rents,” or extraordinary profits from their production, which are crucial to the political economy of resource-led development. Chapter 2 reviews the scholarship on the “rentier state” and how resource rents interact with institutions and political economy dynamics, then develops a core political economy framework for this volume that rests on understanding how rents flow through the system. Provided here is a brief overview of the analytical logic that animates this work.

### **The Analytical Framework**

Viewed through the disaggregated lens of the NRM value chain, two key issues emerge in characterizing how a government manages its natural resources: (1) How effectively does a government generate and capture rents from the extractive industries? (2) How does the government spend

resource wealth and to what extent is it invested in a sustainable, pro-development manner? In essence, outcomes across the NRM value chain can be reduced to two core rent arenas: *generating rents* through extraction and taxation and *distributing rents* through spending and investment (figure 1.2). Many different domestic and international stakeholders are involved in natural resource policy making and extraction, and the relationships among these actors are constantly shifting across the value chain.

**Figure 1.2. The Two Key “Rent Arenas” in the Natural Resource Value Chain**



Source: Authors' compilation, based on Webb (2010).

Political economy scholarship often relies on regime typologies to distinguish why certain types of country settings yield certain outcomes. In order to help country counterparts and development practitioners diagnose the political economy trajectory a resource-dependent country is embarked upon, this volume advances a simple typology that is structured around two crucial dimensions:

- The *credibility of intertemporal commitment*—or the degree to which policy stability and bargains over time can be enforced and deviations from such agreements are subject to sanction; and
- The overall *political inclusiveness* of the prevailing state-society compact—or the extent to which diverse social, economic, and political viewpoints are incorporated into decision-making, and a sense of either collectivist or clientelist welfare is privileged over purely elite interests.

Although these dimensions are interdependent to some extent, positioning them against each other yields a typology of four distinct country settings (table 1.1). Characterizations of each setting, as well as unbundled components underlying each dimension, can be found in chapter 2.

Development interventions to mitigate the resource curse are aimed at assisting reform in countries such that their policy making and institutional framework across the natural resource value chain approximate those found in countries squarely within the ideal bottom-right quadrant of programmatic pluralism. In other words, natural resource rents are most reliably transformed into sustainable development riches when a government can make credible intertemporal commitments to both extractive companies and its own citizens, and when the political regime is inclusive such that the government faces incentives to use resource rents to provide public goods that enhance the collective welfare.

This typology may be used to characterize a country at a specific time, but countries also evolve dynamically, sometimes transforming from one political economy setting to another. In order to be successful, development initiatives must find mechanisms to resonate with, and eventually transform, the underlying political and institutional dynamics of resource-dependence. An assessment of a country's political economy

**Table 1.1. Typology of Natural Resource–Dependent Settings**

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/ weaker enforcement	More credible/ stronger enforcement
<b>Less inclusive/ less collectively oriented</b>	<b>Patrimonial rule</b> Individualized political authority built on a hierarchy of cronyism; emphasis on private (elite) goods; exploitation of public resources for private gain	<b>Hegemonic government</b> Institutionalized one-party regime; either predatory or benevolent; emphasis on private (elite) goods with some particularist and public goods
<b>More inclusive/ more collectively oriented</b>	<b>Clientelist pluralism</b> Political competition based on extensive use of clientelism; provision of particularist goods; low horizontal accountability	<b>Programmatic pluralism</b> Electoral competition based on programs geared toward collective welfare enhancement; provision of public goods; horizontal and vertical democratic accountability

Source: Adapted from Barma and Viñuela (2010).

using this typology indicates the shape of the feasible political space within which good-fit interventions must be elaborated if they are to be tractable and sustainable. The unbundled components underlying the two dimensions of intertemporal credibility and political inclusiveness (see chapter 2) offer traction in terms of developing principles for intervention.

As development practitioners and country counterparts move toward articulating good-fit interventions that are compatible with underlying incentives, the typology suggests three paths for designing these initiatives:

- Interventions primarily aimed at *extending time horizons*, thereby enhancing intertemporal credibility; for example, emphasizing a simple, rule-based process for granting resource concessions that minimizes investor uncertainty and enhances predictability.
- Reforms that emphasize *mobilizing stakeholders* to cooperate on natural resource management, thereby broadening political inclusiveness; for example, easing information asymmetries by using model contract and fiscal regimes or at least disclosing contract terms in order to empower third-party audit and oversight.
- Interventions that *enclave institutions and capacity* in natural resource management so that some, albeit limited, functionality is possible even when the wider political economy dynamics are perverse.

Intelligently designed interventions along these lines can both strengthen salutary dynamics by tapping into incentives that push in the right direction and work with counterparts on transformative interventions that could alter the underlying political economy dynamics for the better.

The thematic chapters of this volume—chapter 3 on sector organization, chapter 4 on taxation, and chapter 5 on public investment—describe the political economy incentives and dynamics at each respective point of the value chain, comparing them against the four political economy settings sketched in the typology and showing how they contribute to typical natural resource management outcomes in low-income, resource-dependent countries. Each chapter then outlines specific potential good-fit interventions that make sense within those political opportunities and constraints, describing how different

mechanisms might be incentive-compatible and, ultimately, perhaps transformative.

### **Distinctive Characteristics of the Extractive Industries**

Practitioners in resource-dependent countries face many of the challenges of poor policy making, limited capacity, and weak institutions that are characteristic of developing countries in general. Yet, significant distinctive factors of resource-dependent settings tend to shape political economy context and condition the overall development process in specific ways: in particular, the finite nature of hydrocarbons and minerals; the super-normal profits yielded by extraction of these resources and the state's sovereign right to some portion of those rents; the fact that commodity prices are extremely volatile and, from the perspective of most developing countries, are set exogenously; and the long timeframe of the extraction or production cycle along with the uniqueness of ownership structures in the resource sectors. As discussed further in chapter 2, these distinctive qualities together make *resource rents* central to the political economy of resource-dependent countries and make the extractive industries particularly susceptible to short time horizons and the pursuit of private enrichment over public welfare.

Exhaustible, or nonrenewable, natural resources include energy sources such as oil, natural gas, coal, and uranium, and other minerals like gold, silver, copper, iron, and zinc. The amount of these resources in the ground is finite because they are formed by extended geological processes and cannot be easily replenished. Yet, what constitutes "ore" is not a given: it is a function of commodity price, technology, extraction costs, and government policy. An increase in commodity prices, improvements in exploration or processing technology, reduction in unit costs, or taxes on inputs can induce firms to lower the cutoff grades for ore, whereas lower prices would lead firms to raise the cutoff grades. Natural resources must be extracted in order to be assets; if the costs of extraction are so high that developers walk away, would-be ore is simply waste. Conversely, extraction entails the depletion of a country's assets; thus, resource rents are not, as they are sometimes mischaracterized, manna from heaven.

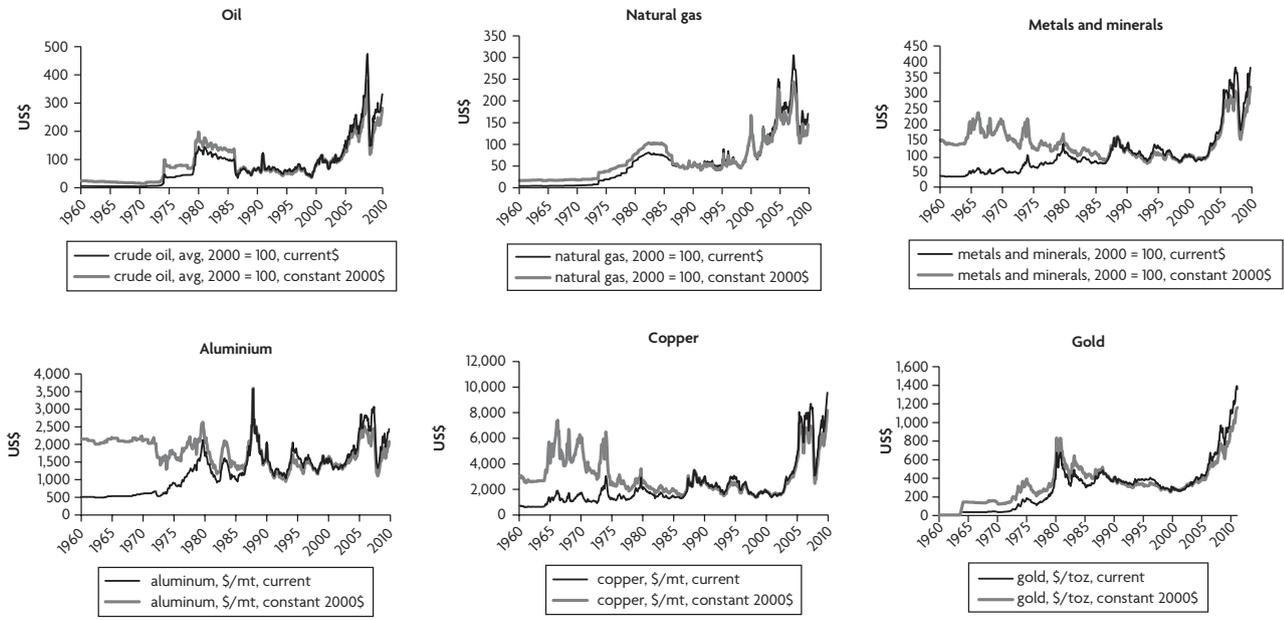
When they are extracted, oil, gas, and mineral resources often provide for super-normal profits; particularly for oil, the cost of extraction can be significantly lower than what the resource might fetch on the market at

any given point in time. In Saudi Arabia, for example, lifting costs are just over US\$2 to extract a barrel of oil valued at about US\$90 on the global market in 2011.<sup>11</sup> The extent of rents that can be captured from extraction depends on the country's geological conditions as well as on the business environment for investors. Complicating matters, extraction often occurs in remote areas, meaning in turn that the actual value of the extracted resources is less easily knowable, both to the public and to disparate government entities, than that for other economic activities.<sup>12</sup> This relative lack of transparency grants a great deal of power to the entity handling the resource extraction process, which can control the amount of rent reported and can hide the true amount of rent collected. Revenues from natural resources will first accrue to the state on behalf of its citizens, bringing sovereignty and property rights concerns to the fore. Because of the customary right of the state and society to some portion of resource rents, it is common for noneconomic rationales to be invoked when making decisions about resource exploitation and the use of rents. Resource nationalism is a growing phenomenon globally—pledges concerning natural resource rents are made by politicians of all stripes, from Bolivarian populists in Latin America to centrist political parties in Mongolia.

Revenue streams from extractive industries are greatly affected by mineral price cycles, which are characterized by volatility, uncertainty, and production changeability. The valuation of particular resources depends on international demand and varies a great deal across resource types.<sup>13</sup> Since producing countries for the most part must accept commodity prices set on the global market, they are vulnerable to exogenous price and production shocks, which can potentially trigger distributional issues between governments and resource extraction and production companies. And—as we have witnessed viscerally in recent years—resource revenues are highly volatile because resource prices can fluctuate dramatically. Volatility translates into large, pro-cyclical fluctuations in public spending, since few developing countries are able to smooth spending across price cycles. Figure 1.3 illustrates both the upward trend in global commodity prices over the past century and the heightened volatility over the past decade.

Revenue volatility resulting from commodity price fluctuations is in and of itself one of the major political economy challenges that resource-dependent governments face. Some observers have noted that there are

Figure 1.3. International Oil and Mineral Prices, 1960–2010 (current and constant 2000\$)



Source: Global Economic Monitor Commodity Prices (World Bank 2011a).

Note: mt = metric ton; toz = troy ounce.

two quite different political economy modes in these countries: one that occurs during boom years, where stakeholders are focused on rent-seeking and the main political economy challenges are establishing medium-term planning, mustering the discipline to place money in stabilization funds, and adhering to fiscal rules; and a second mode that occurs during bust years, where the political economy is dominated by competition among public programs and their constituencies to avoid cutbacks in spending.<sup>14</sup> Many resource-dependent developing countries are relatively new producers and, given the historically high commodity prices of the past decade, have only experienced the political economy of a boom period. Policy makers and citizens in more seasoned resource-producing countries know all too well how different the political economy landscape looks when prices collapse for a sustained period.

Another distinctive feature of the extractive sectors is that engagement requires careful intertemporal planning over the life cycle of a project by both the government and developers. From the state's perspective, moreover, sound management of the sector requires intertemporal planning in a broader, strategic sense of how the government wishes to see the national resource extraction portfolio evolve over time—an especially core challenge facing new producers, such as Lao PDR. In addition, ownership in the sector is often highly concentrated. Extracting mineral resources requires high frontloading of investments, which are irreversible and highly specific to the industry and to the particular extraction site. Extraction is also characterized by a high level of economic and technological complexity and associated economic and geological risks for investors and governments that cannot be fully foreseen while contracts are being negotiated. Significant exploration expenses are incurred long before a decision to extract minerals or produce oil can be made, and much longer before taxation of resource rents is possible. Moreover, since producers are price takers, they must take on significant risk in the context of volatile global commodity prices.<sup>15</sup>

An investor must determine not only how to combine the variable factors of production (such as labor, capital, and materials), but also the rate at which extraction should take place, that is, how quickly to run down the fixed stock of ore reserves. Quite simply, if more is extracted today, less is available tomorrow. The optimal rate of extraction will

generally be a function of the size of the resource reserves, the cost of extraction, market commodity prices, and the fiscal regime in place. Given all those factors, in other words, there exists a unique extraction profile that maximizes the net present value of the natural resource wealth, necessitating intertemporal decisions about the quantity to be extracted in each time period. The overall timeframe of exploitation plays an important role because the size of resource stock remaining in the ground changes as exploitation progresses. Increasing the rate of extraction in the present reduces the size of the ore body in the future, a cost associated with extraction known as the “user cost.” While a developer may not incur the user cost, and therefore ignores it, government and society bear this cost and can recapture part of it, along with natural resource rent streams, by imposing a tax on developers.

The countries examined in this study produce both hydrocarbons, that is, oil and gas, and also minerals, some of them producing both types. The two types of resource are different in important ways, notably as follows:<sup>16</sup>

1. Oil typically has higher rent share by gross value and it is easier to tax; relatedly, oil-rich countries tend to exhibit a higher fiscal dependence;
2. Oil production typically has a smaller physical footprint and is often wholly offshore, while mining is more likely to physically affect local communities;
3. Mining is typically associated with very high upfront investments, including those for related infrastructure, although specific extractive technology and impacts differ according to the nature of the mineral; and
4. It is more challenging to accurately measure the quantity and quality of mineral ore in comparison to petroleum.

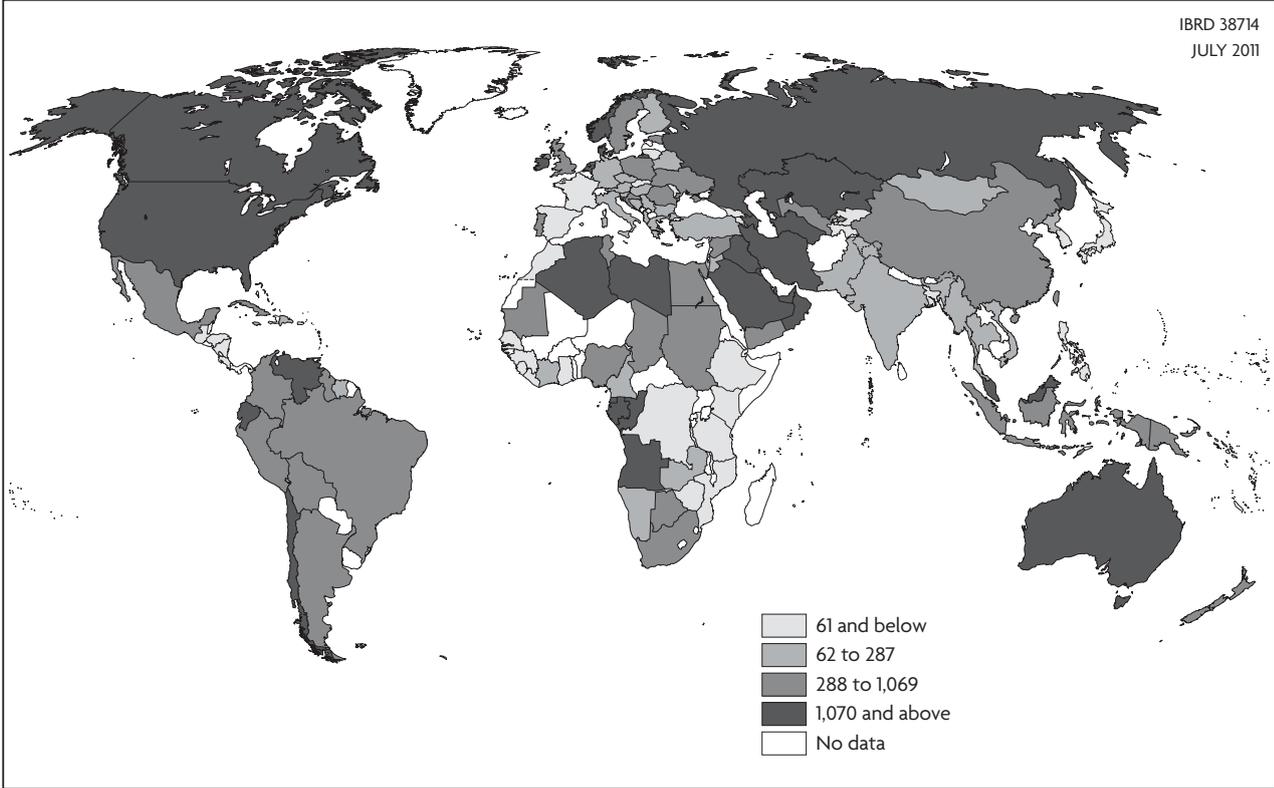
Such differences notwithstanding, the two extractive sectors share the distinctive characteristics noted above, albeit in differing degrees. Most important for the purposes of this study, the political economy associated with both sectors is shaped by how resource rents flow through the system (as discussed in chapter 2) and the challenges associated with intertemporal credibility and political inclusiveness, which means that stakeholders face similar incentives in both sectors.

### Resource Endowments, Dependence, and Rent Flows

The terms “resource-rich” and “resource-dependent” are frequently used loosely and interchangeably, to the detriment of cumulative understanding of the resource curse. This study’s interest is whether economically and technologically accessible subsoil resources can be translated into greater sustained prosperity for the present and future citizens of a country. The *resource endowments* of concern here refer to available deposits of oil, gas, and minerals below the ground, which are finite and can be exhausted. Endowment potential depends on a country’s geology and what is known about it, as well as on available technology. Brazil’s much touted, recent offshore oil finds are located in ultra-deep waters (5,000–7,000 meters) and underneath a 2,000-meter layer of salt; thus, extraction is likely to be both costly and demanding in technological terms. Drawing on World Bank data on the known value of subsoil assets in 2000, Collier (2010a) finds that per square kilometer resource endowments in the OECD are worth US\$114,000 versus US\$23,000 for Africa. Since OECD countries have been extracting minerals resources for a longer period, these figures suggest that Africa, as well as Asia and Latin America, could be characterized by significant under-discovery to date, and would thus hold the potential for significant future finds, especially as world demand for energy and minerals increasingly pushes exploration into frontier regions.<sup>17</sup> Growing resource endowments are endogenous in the sense that successful discovery and extraction begets more of the same.

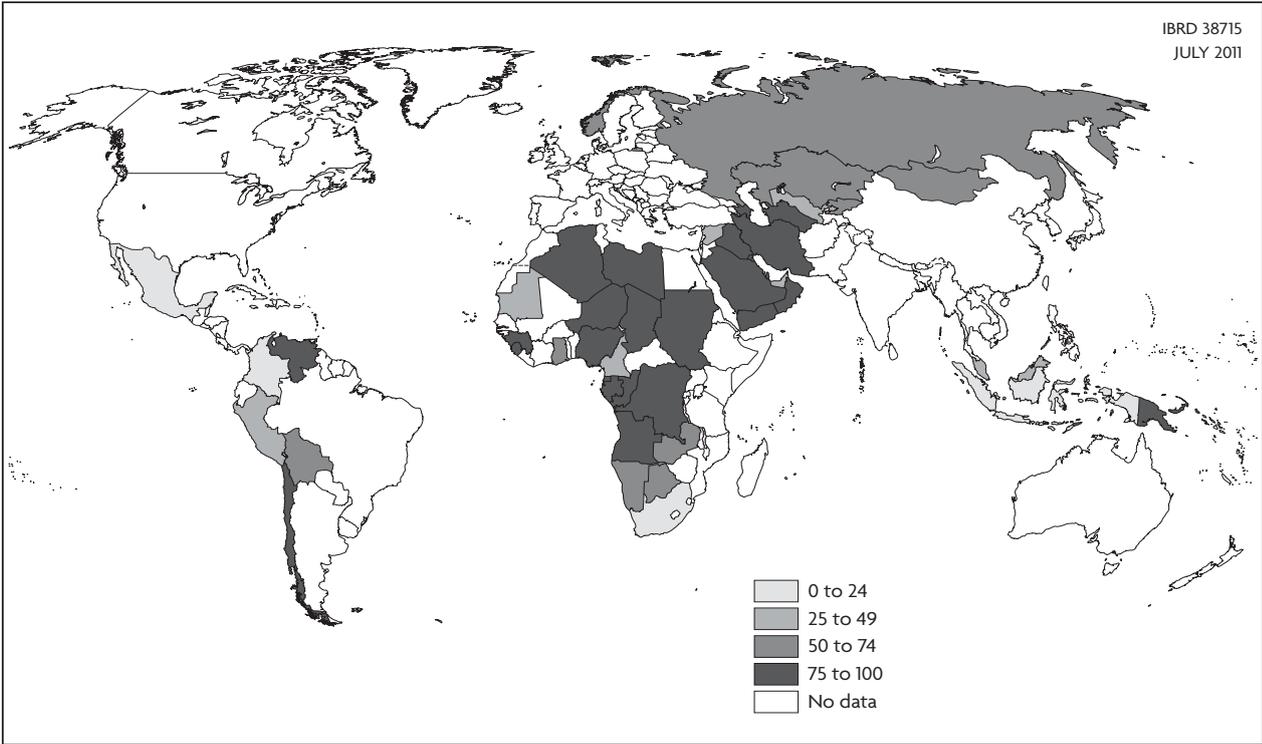
The concept of *resource dependence* captures the extent to which a country’s economy relies on resource rents. It is usually measured in proportion to gross domestic product (GDP), exports, or government revenues; hence, it is a function of absolute levels of resource extraction and rent capture in the context of other economic activity and sources of state revenue. The resource dependence observed in many developing countries is driven mainly by the fact that there are relatively few alternative forms of economic activity, as evidenced by a per capita gap in GDP, or a low level of other exports. The state’s fiscal reliance on revenues from the extractive industries also depends on the size of other revenue streams, including aid. Map 1.1 presents EI rent levels for 2008 by country; map 1.2 depicts the EI share of exports in oil- and mineral-dependent countries. The two figures together suggest that many leaders in gross resource production are also fiscally dependent, with some

Map 11. Extractive Industry Rents, 2008  
per capita, US\$



Source: World Bank 2011a.

**Map 1.2. Extractive Industries Exports, 2006–08**  
% of total exports



Source: Authors' data compilation, Article IV Consultations, 2006–08, IMF.

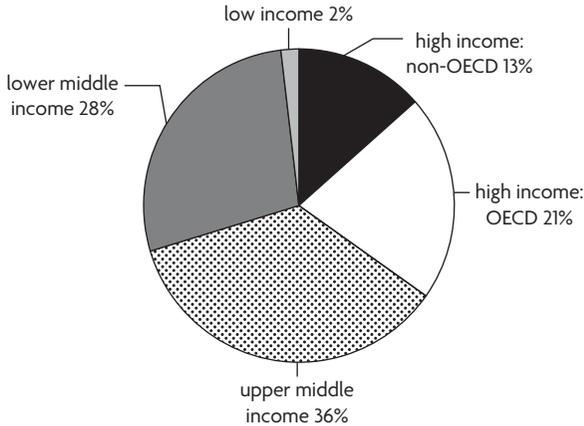
notable exceptions (Australia, Canada, China, and the United States); by contrast, many developing countries that are resource-dependent are not major producers in an absolute sense. Greater success in revenue taxation, perversely, may make countries more dependent, because the extent to which the state is able to capture rents from the sector depends on the design of the prevailing fiscal regime and administrative capacity for its implementation. The design of Ghana's and Zambia's fiscal regimes meant that they were able to capture only a small share of additional resource rents when international commodity prices recently increased.

Measures of resource dependence capture the overall magnitude of rents in the context of other economic activity, but these rents are then dissipated in various ways. They are shared between resource companies and governments in the first instance, and from then on are distributed in the form of side payments to powerful elites, as subsidies to a wider swath of society, and so on; they then finally enter the public coffers to be transformed into government saving, consumption, and investment for the public good.

The analysis in this volume emphasizes the centrality of the state's role in the management of natural resources and the associated political economy dynamics; hence, discussion will focus, in particular, on the share of resource revenues in the total revenues accruing to government. Recent data as summarized in the appendix to this volume indicate that about 50 countries are resource-dependent, with the share of resource revenues in total revenue intakes averaging over 25 percent during the period 2006–08.<sup>18</sup> A particular caveat here is that this statistic depends crucially on the share of resource rents that actually enter state coffers; in some cases, the figure can be misleadingly low as a result of either weak design and implementation of the fiscal regime or the extent to which resource rents are captured and diverted elsewhere. This volume describes the various factors across the natural resource management value chain that shape this observable measure of resource-dependence.

As global demand for natural resources grows—and in response to historically high commodity prices—the push for new discovery and intensified extraction has increasingly moved into frontier areas in the developing world. Figure 1.4 illustrates that, although the bulk of resource rents are currently generated in higher-income settings, more

**Figure 1.4. Extractive Industry Rents by Income Level, 2008 (% of total rents by country category)**

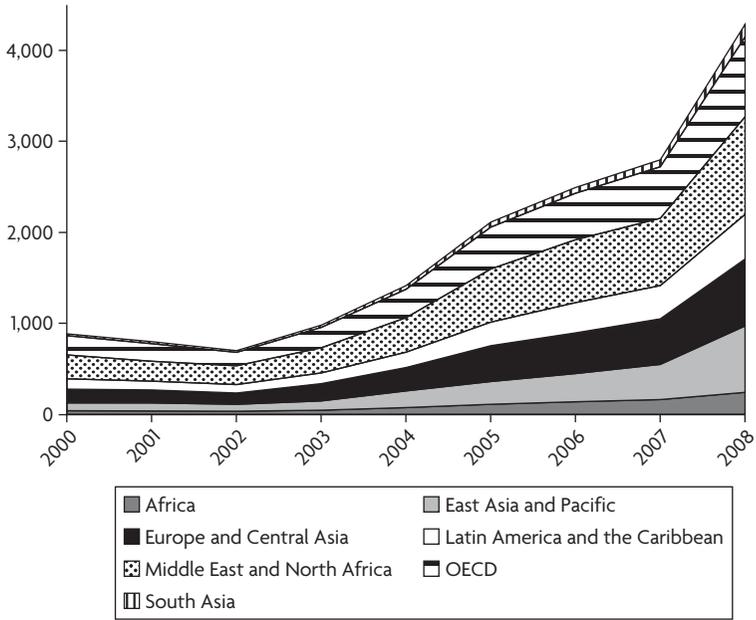


Source: Wealth of Nations Database, World Bank 2010.

than a quarter of global extractive industry rents accrue to low-income and lower-middle-income countries. A breakdown of rent flows by region (figure 1.5) shows clearly the increasing significance of the developing world's participation in the extractive industries. Although the Middle East has maintained its leading position in terms of rents derived from petroleum, its share of global rents has decreased since 2000. Conversely, East Asia and Pacific's share grew from 9 to 17 percent of total natural resource rents, with the greatest gains made in mining. In addition, between 2000 and 2008, Sub-Saharan Africa's natural resources rents increased sixfold, with oil rents representing over two-thirds of the total.

In short, rents from natural resources are becoming increasingly important in the developing world, and their impact on political economy and the prospects for sustainable development will take on at least proportionate significance.<sup>19</sup> These newly resource-dependent countries tend to suffer from poor governance and weak institutional capacity, which exposes them in turn to a heightened vulnerability to the resource curse. The core objective of this volume is to provide country counterparts and their development partners with a political economy lens that aids them in articulating tractable natural resource management and

Figure 1.5. Extractive Industry Rents by Region, 2000–08 (US\$ billions)



Source: Wealth of Nations Database, World Bank 2010.

governance interventions for transforming resource rents into sustainable development riches.

### Experiencing and Addressing the Resource Paradox

The Pacific Republic of Nauru vividly illustrates the “rags to riches and back again” story that can beset winners of the natural resource lottery (McDaniel and Gowdy 2000; Marks 2008; ADB 2007). Covering just 21 square kilometers, Nauru became independent in 1968. Phosphates were first extracted in 1907, but the country experienced a boom in extraction post-independence, during which it transitioned from being one of the world’s richest countries in per capita terms to falling back on hard times. A century of mining has stripped and devastated about 80 percent of the land mass, formerly known as Pleasant Island, leaving behind an uninhabitable moonscape. Although a share

of the financial returns was placed in the Nauru Phosphate Royalties Trust, the value of the trust is estimated to have shrunk by a factor of ten, from 1,300 million Australian dollars in 1991 to 138 million in 2002. A string of poor investments and financial swindles have been at the source of this impoverishment.

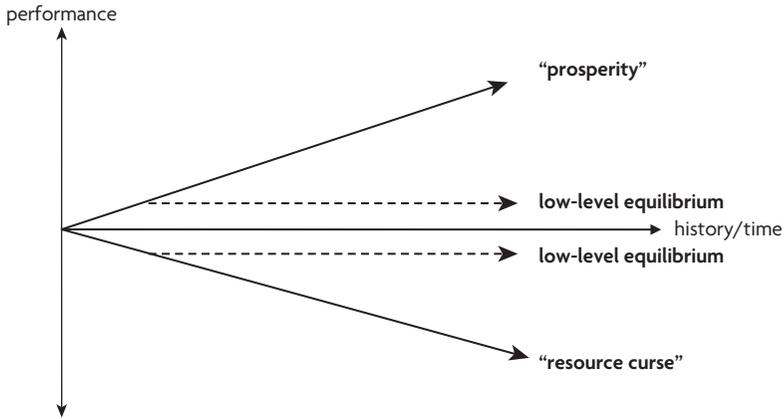
Client counterparts often ask whether their country is heading down the resource curse road, or what needs to be done to avoid the curse and ensure that rents translate into longer-term prosperity. While nuanced definitions and questions of causality are important, they are secondary for a practitioner audience. More immediately observable is a range of apparently suboptimal policies across the natural resource management value chain. Some policy makers may be focused upstream, noticing that a country is simply not attracting enough investments into exploration and exploitation of resources. Others will point to a country not receiving a fair share of rents or failing to deploy the proceeds well. Most observers will agree that stronger institutional endowments typically promote more farsighted, stable policies that promise to be in the collective best interest.

### **Resource-Dependent Trajectories**

All countries that currently extract significant natural resource rents or have the potential to do so can be characterized as being on one of several developmental trajectories (figure 1.6). The fortunate among them, such as Botswana and Chile, appear to have worked out a path to relative prosperity. Others, such as DRC or Niger, have suffered from decades of poor governance, conflict, and impoverishment and appear to be on the downward spiral that typifies the conventional understanding of the resource curse. Countries like Nigeria have extracted vast quantities of their natural resources but are trapped in a suboptimal equilibrium and have very little developmental impact to show for this natural resource depletion.

The trajectory a country is positioned on depends on the upstream (discovery, extraction, and rent mobilization) and downstream (financial savings, consumption, and investment) management of its natural resource endowments. In low-governance environments, the challenges of sound intertemporal policy making are manifold, even as the prospect of rents coming on stream puts additional pressure on institutions.

Figure 1.6. Natural Resource–Led Development Trajectories



Source: Authors.

In turn, specific natural resource management outcomes across the value chain depend on the precise micro-political economy dynamics in play at each step. And the trajectory is clearly influenced by where in the cycle of resource extraction (early, mature, depleted) a country is and its vulnerability to the international price cycle, because these factors interact with the country's political economy and its institutional endowments.

This project's case studies and the theoretical literature together suggest that a variety of narratives are relevant in explaining these trajectories and thinking about how to move countries onto the path to prosperity.<sup>20</sup> Providing this more historical and context-specific perspective to natural resource–led development is a significant advance from the abstract knowledge that institutional quality matters in determining the developmental outcomes associated with resource dependence. The typical country counterpart, however, wants more than simply an elucidation of the political economy dynamics that seem to put their country on one trajectory or another. The key real-time concern of counterparts and development practitioners will be whether proposed actions promise to nudge a country onto a better trajectory, and promise to enhance the sustainability of apparently good management and trends. The subsequent thematic chapters seek to identify

typical challenges that emerge across the value chain, their apparent causes from a political economy perspective, and how these challenges could be addressed.

### **Typical Paradoxes in Natural Resource Management**

A rich literature, as highlighted in chapter 2, identifies the various economic, political, and institutional mechanisms underlying and associated with the resource curse. The aim here is not to join in the debates central to this rigorous and sophisticated scholarship. Rather, we seek to demonstrate how the frontiers of this literature are relevant to stakeholders who hope to enhance the probability of greater overall and sustained prosperity from natural resource sectors in their respective countries by examining this scholarship through the lens of the empirical experiences of low-income, resource-dependent countries in managing their resource wealth. With this objective in mind, it is more useful in both analytical and practical terms to speak of a set of resource paradoxes rather than a resource curse.

A core concern of this volume is how resource rents interact with domestic political economy, in terms of both formal capture and distribution of rents through government as well as various leakages and informal uses of rent. Significant theoretical attention has been devoted to the overall rent-take by developing economies from their resources, often in the face of highly capacitated multinational firms. Equally, the ways in which a sitting regime uses resource rents to retain power with regard to its population and potential opponents, and the extent to which resource rents are diverted for private gain, often perverting the provision of public goods, remain central challenges for developing economies with a variety of institutional weaknesses.

From an operational perspective, the generation, taxation, and distribution of rent are conditioned by key choices made by governments about policies and institutions: What models of ownership are used in the sector and how are extraction rights allocated? How should tax policy be designed and what administrative instruments should be used to collect revenue? How should resource revenues be distributed to the citizenry and transformed into productive economic assets? Often, developmental advice regarding these issues is delivered on the basis of first principles designating the form and content of such policies and

institutions. The premise of this volume, building on the “good-enough governance” perspective that has gained currency in recent years, is that functionality of outcome is more important than policy or institutional form per se.<sup>21</sup> Indeed, the empirical evidence from the case studies indicates that a number of resource-dependent developing countries have achieved significant functionality with policy and institutional forms that do not necessarily match technical first principles.

In using the NRM value chain as a micro-political economy lens—and having particularly emphasized an understanding of how resource rents flow through the value chain from extraction to taxation to public investment—this book has identified a series of typical natural resource management paradoxes that beset resource-dependent developing countries. These paradoxes are listed in box 1.1 to provide an overview of the specific types of challenges the volume identifies and addresses. The thematic chapters delve into more detail on each of these paradoxes, but cumulatively they provide a picture of the formidable tribulations that low-income countries face as they attempt to transform resource rents into sustainable development riches.

### **Emerging Interventions for Addressing the Resource Paradox**

A political economy lens emphasizes the importance of context in determining good-fit interventions for any country. At the same time, however, a systematic approach to political economy illuminates clear patterns in terms of the way institutional frameworks shape and condition incentives and combine with stakeholder preferences to lead to fairly predictable outcomes. The case studies underpinning this work have served this dual purpose. They have grounded political economy analysis in finely grained, country-specific detail about NRM practices across the value chain in articulating operational implications in each case. At the same time, through the shared methodological prism of the value chain, they have led to more generalized emerging conclusions about the political economy of the resource paradox in developing countries as a group.

This volume focuses on the analysis and implications that carry across this group of countries. Chapters 3, 4, and 5 delve into the specifics of NRM practices, highlighting how institutions, incentives, and stakeholders combine and interact in resource extraction, taxation, and spending,

### **Box 1.1 Typical Paradoxes in Natural Resource Management**

#### ***Extracting Resource Wealth***

The paradoxes involved in devising models of ownership and allocation of extraction rights in the natural resource sector include the following:

- The predictability of policy and the regulatory framework surrounding the natural resource sector is essential to salutary developmental outcomes, yet it is common for governments to seek to retain discretion to change the rules of the game.
- Contract negotiations in the hydrocarbon and mineral sectors are characterized by asymmetric capacity and information between the parties, but the relative bargaining power between governments and investors shifts over the lifecycle of extractive industry projects.
- Resource rents have the potential to allow governments to expand the amount of public goods they provide without imposing additional taxes; but there is tension in decision making because private and public preferences regarding resource ownership must be balanced, and this tension is intensified because of the stakes involved.

#### ***Taxing Resource Wealth***

The paradoxes involved in designing tax policy and the administrative instruments used for natural resource revenue collection include the following:

- Despite having weak revenue administration governance and capacity, many low-income resource-rich countries resort, in practice, to overly complex, multirate fiscal regimes.
- Developing countries use generous tax incentives to compensate investors for high levels of risk and to attract resources to develop extractive industries; nevertheless, their inability to sustain such commitments over time further deteriorates their credibility and discourages investment in the sector.
- Mineral resources provide countries with considerable rents and relative administrative ease—since taxing these resources requires less effort than taxing other economic activities—but many resource-dependent countries neglect basic investments in revenue administration capacity that could increase public revenue and allow for more a progressive and flexible fiscal regime, precisely as a result of the incentives generated by the sector.

#### ***Investing Resource Wealth***

The paradoxes involved in deciding how natural resource revenues should be distributed to the citizenry and transformed into productive economic assets include the following:

- Resource rents offer the prospect of investing heavily in physical infrastructure that would generate high returns in capital-scarce countries, but such countries often fail to invest proactively in the processes and systems needed to yield the very best projects as a result of political incentives and the features of the sector.
- Investment in public infrastructure is one of the policy tools that resource-dependent countries can use as the basis for economic diversification and reduced cyclicality; nonetheless, public investment tends to be highly pro-cyclical, thus unsustainable. Failure to maintain projects generates repeated “build, neglect, rebuild” episodes.
- A benevolent national planner would ideally allocate resource rents to finance the highest-return public investment projects, regardless of their geographic location; but political economy dynamics often militate toward earmarking investments to the location of resource extraction or fragmenting them across various narrower political constituencies.

and presenting options for development interventions. Some of the emerging key principles carry across the value chain as follows:

- Separating decision-making authority across government bodies, that is, building in checks and balances in government's role, will enhance consistency and predictability at all stages of the generation and spending of rents.
- A simple, nondiscretionary legal and sector regulatory framework is crucial in ensuring that bargains (between the state and developers) and policy compacts (between the state and society) are adhered to and enforced.
- More transparency in sector regulations and management improve government credibility and mitigate the risks faced by both developers and the state.
- Targeted sectoral capacity-building that emphasizes coalition-building improves intergovernmental coordination and enhances predictability in policy making and implementation. Conversely, it may be necessary to enclave capacity-building efforts to enhance domestic technical skills; this can be complemented with contracted-in expertise to ensure functionality in key areas of natural resource management.

Each of the technical chapters also develops implications specific to the respective component of the value chain, some of which are highlighted in table 1.2. Both sets of implications, those that carry across the value chain and more targeted options for specific value chain steps, are presented in greater detail and with empirical examples in the technical chapters.

## **Roadmap of the Volume**

The resource curse is a phenomenon at once political and economic. The concentration of mineral wealth in countries with undiversified economies is associated with poor economic and political outcomes that feed each other and are simultaneously affected by the distinctive features of these resources, as mentioned above: super-normal profits, price volatility, and the long timeframe of the production cycle and uniqueness of ownership structures in the resource sectors. As government

**Table 1.2. Examples of Tractable Interventions Across the Value Chain**

Extraction	Taxation	Investment
<ul style="list-style-type: none"> <li>• Build intertemporal flexibility into contract terms</li> <li>• Activate third-party brokers (development partners, NGOs) to ease information asymmetry</li> <li>• Disclose terms of extractive contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Calibrate fiscal regime to administrative capacity</li> <li>• Use windfall taxes to protect against renegeing</li> <li>• Provide tax incentives to investors when geological prospects are uncertain</li> <li>• Develop stability clauses combined with taxation instruments that allow for price adjustments</li> </ul>	<ul style="list-style-type: none"> <li>• Build conscious demand for public investments</li> <li>• Prioritize PIM system components (“investing to invest”)</li> <li>• Explore alternative modalities for implementation (resource for infrastructure deals)</li> </ul>

Source: Authors.

Note: NGO = nongovernmental organization.

officials in resource-dependent settings attest, policy decisions and institutional frameworks for their implementation are more often than not fundamentally affected by the real or perceived presence of resource wealth. The operational challenge is how to design interventions that work within the parameters of the political space to achieve desired objectives.

International development partners have a technocratic mandate, as evidenced by the World Bank’s Articles of Agreement; but this does not preclude the necessity of understanding political context in order to enhance development effectiveness. International development agencies must provide both feasible and creative support to counterparts in resource-dependent countries as they attempt to navigate the trials associated with turning resource rents into riches. Agencies like the World Bank can be important advocates of good practice by bringing to bear international experience. At the same time, it will be important to be conscious of the incentives and constraints faced by counterparts, ensuring good fit as well. What might seem like excellent measures from a normative perspective may have little upside and potentially significant downside effects for local counterparts, embedded as they are in specific political economy dynamics. A key analytical challenge is assessing the extent to which specific country context provides the basis for enabling resource-dependent countries to address the weakest links in their natural resource management value chain, and for setting them on a more promising developmental trajectory.

Deploying a systematic political economy framework helps to inform the prioritizing and sequencing of measures desirable in resource-dependent settings, emphasizing prescriptions that are both technically sound and compatible with incentives.

This chapter underscores the value of country-level lessons on natural resource management from around the world. Good practice exemplars, such as Botswana, Trinidad and Tobago, and Chile, can provide significant inspiration and act as guiding lights for counterparts in developing countries, and their historical context and experiences significantly shape their future. Policy makers in Nigeria and Mexico, at the same time, have learned their own important lessons in the repeated game of dealing with exogenous shocks in the form of global commodity price volatility. The experience, good or bad, of regional neighbors and other resource-dependent peers is particularly pertinent for engaged stakeholders, and it is often more relevant than hectoring on normative models of technical best practice. This volume hence seeks to build heavily on the empirical lessons emerging from the case studies conducted under the associated global study.

The volume provides a comprehensive treatment of issues in natural resource-led development by presenting key policy issues spanning the NRM value chain. Overall, and most important, the intention is to illustrate the value of complementing strong technical analysis with a more systematic perspective of political economy and institutional dynamics. To that end, the next chapter sets out an analytical framework for positioning countries within an operationally relevant political economy typology, and the following three thematic chapters marry an exposition of the key policy and technical choices across the value chain with a sense of the underlying political economy dynamics at each step. A brief roadmap of the volume is as follows.

Chapter 2 presents an overarching framework designed to help conceptualize key issues of political economy and institutional development in natural resource-dependent developing countries. It is designed to help practitioners and stakeholders draw on seminal scholarship and international experience in situating their own context of engagement. The chapter surveys the most relevant literature on the natural resource paradox, emphasizing that the quality of governance and institutions is a crucial factor for resource-dependent countries in

achieving sustainable, development-oriented policies and sector governance. Resource-dependent countries are on a particular set of development trajectories, and the aim here is to develop an analytical framework that enables practitioners to assess the nature of opportunities and vulnerabilities in natural resource sector policies, institutions, and governance. In this spirit, a typology of political economy settings in resource-dependent developing countries is developed, highlighting the related evidence emerging from the cross-country study. On that basis, a series of emerging principles or higher order objectives to structure interventions has been identified, depending on a country's trajectory. Assessing a resource-dependent country through this political economy analytical lens enables the articulation of good-fit targets, that is, reform goals that are welfare-enhancing in an incentive-compatible way.

Three thematic chapters then build a more granular understanding of the political economy dynamics of specific technical interventions at various steps of the natural resource value chain. Chapter 3 develops a framework for understanding the challenges facing resource-dependent countries in organizing the natural resource sector, examining in particular the relationship between the state and the extractive industries in terms of ownership and contracts. Different forms of sector organization represent mechanisms to resolve the competing political, economic, and social priorities of both governments and investors and enable them to manage the risks and uncertainties they face in the extractive industries. These choices with regard to sector organization, in turn, affect the performance of the mineral and petroleum sectors. The chapter focuses on four key dimensions of sector organization and their implications for sector governance: sector regulation, models of ownership, licensing and contracting processes, and the capacity of government agencies in regulating and monitoring the extractive industries.

Chapter 4 addresses taxing natural resources and implementing fiscal regimes in the sector, providing an analytical framework for assessing the efficiency and effectiveness of alternative fiscal regimes applicable to extractive industries. The broad criteria for evaluation of such fiscal regimes include the assignment of revenues (and associated economic risks) to the state, corruption risks, and potential tax-induced deviations from optimal exploration and production profiles, given

underlying political economy and institutional constraints. The chapter provides a conceptual guide for analyzing the gaps between best-practice theoretical models and the functioning of politically feasible fiscal policies, thereby identifying the nature and scope of good-enough tax policies in resource-dependent countries.

Chapter 5 turns to the issue of investing proceeds from natural resources into productive physical assets, both on aggregate and in those localities most directly associated with resource extraction. It contextualizes investment over three sets of policy choices: aggregate levels of spending, temporal and spatial allocation of resources, and the modalities used to produce infrastructure. Depending on the preferences of policy makers regarding the quantity and quality of public investment spending and on the administrative capacity of selected principals, governments exert various degrees of effort and approaches to enhancing the productive public capital stock versus redistributing rents for private interests. Drawing on a selected number of illustrative problems in public investment in these settings (inflated quantities, high volatility, low capability to invest efficiently, and contested subnational claims associated with resource extraction), the chapter identifies incentive-compatible measures across different political economy settings. The main challenges in institutionally weak settings are to lengthen politicians' and policy makers' time horizons and enhance their ability to credibly coordinate and effectively initiate spending efforts with longer-term benefits.

A concluding chapter articulates the key crosscutting principles for intervention that carry across the NRM value chain, reviewing emerging lessons and their consequences for strengthening interventions in the natural resource sector. In light of this analysis, the chapter then elaborates a number of commonly advanced prescriptions or mechanisms for addressing the resource curse and notes their strengths as well as potential limitations. Finally, the evolving landscape of development partner engagement is discussed, and the importance is noted of crowding-in emerging stakeholders at the global and local levels in building truly collaborative and strategic programs of reform.

Better political economy diagnostics alone will not solve the pronounced policy challenges in resource-dependent countries. The core concern of this volume, namely institutional development for enhanced

natural resource management, is a long-term endeavor. But for committed domestic reformers and their development partners, the authors hope that this book will provide a practical resource for engaging more smartly by elaborating better-fit interventions, thereby helping countries to navigate the prospective road from resource rents to sustainable development riches.

## Notes

1. Sachs and Warner (1995; 2001) are credited with a seminal empirical statement of the resource curse that demonstrates this paradoxical relationship between resource dependence (measured by the raw material export share of gross domestic product) and growth. Subsequent cross-sectional empirical research indicates that the quality of existing institutions is perhaps the key factor that mediates a resource-rich country's economic outcomes; see, among others, Mehlum, Moene, and Torvik (2006); Sala-i-Martin and Subramanian (2003); Dunning (2008b); Vatanserver and Gillies (2009). The last two papers were prepared as background for this volume.
2. The resource curse typically refers to the hydrocarbon (oil and gas) and mineral sectors. This study does not cover renewable resources such as fish and forestry, although these sectors are also inherently extractive and generate significant rents, and their political economy may have significant parallels with that of oil, gas, and mining.
3. See Brahmabhatt and Canuto (2010) for a recent summary of major issues. Collier, van der Ploeg, and Venables (2009) and Frankel (2010) survey recent work in this area, positioning findings in the context of how the literature on the resource curse has evolved over time. "Good practice" approaches to better harnessing extractive resources for development include Ascher (1999); Humphreys, Sachs, and Stiglitz (2007); Collier (2009; 2010a). In addition, the *Natural Resource Charter* (2010) sets out 12 good practice precepts for resource-dependent settings; a number of the good practice benchmarks can be mapped to the value chain framework adopted in this volume.
4. Rodrik (2003; 2007) has advocated this perspective eloquently.
5. See World Bank GAC Implementation Strategy (World Bank 2007); *World Development Report 1997: The State in a Changing World* (1997); and *World Development Report 2011: Conflict, Security and Development* (World Bank 2011b).
6. Mayorga-Alba (2009) provides a thorough description of the technical components embedded in the extractive industry (EI) value chain. Choosing this lens necessarily circumscribes the analysis to some extent; for example, there are other upstream issues in the extractive industries not covered in this value chain, such as the financing of resource infrastructure development, which is

particularly significant when national oil and mining companies are involved; there is also the management of foreign assistance inputs to the sector. We are grateful to William Ascher for noting the importance of these issues.

7. The methodology applied was a structured, focused diagnosis, often used in case-comparative research design in the social sciences (George and Bennett 2005).
8. Aid and resource revenues can both be considered “sovereign rents” (Knack 2008). Aid may come with a greater degree of external accountability for performance (for example, through the Millennium Development Goals). Many have highlighted, however, that traditional aid flows to governments have been associated with disappointing developmental impacts (for example, Easterly 2006).
9. This definition follows the new institutional economics. A seminal statement can be found in North (1990).
10. Perverse incentives are often the result of the enormous wealth generated by the extractive industries, which can in turn be used to avoid and discourage transparent oversight and investments in institutional capacity. See Karl (1997); Eifert and Gelb (2002); Woolcock, Pritchett, and Isham (2001); Jensen and Wantchekon (2004).
11. Reservoir characteristics (such as pressure) and the physical characteristics of crude oil are important factors that affect the cost of its production. Because these characteristics vary substantially across different geographic locations, the cost of producing oil also varies substantially. “Lifting costs” refer to the cost of bringing a barrel of oil to the surface, which ranges from under US\$4 in Central and South America, to US\$8–10 in the United States and Canada. Substantial variations are also associated with “finding costs,” ranging in 2005–07 from under US\$5 in the Middle East to ten times that much in the United States. While technological advances have made it possible to bring oil to the surface from more remote reservoirs at ever-increasing depths, such as in the deepwater Gulf of Mexico, total finding and lifting costs have increased sharply in recent years. Much of this increase is attributable to the rapid expansion of the world economy and the corresponding hunger for oil, and these increases could reverse direction due to the recent economic slowdown (U.S. Energy Information Administration, <http://www.eia.doe.gov>).
12. The authors thank William Ascher for this observation.
13. For example, gas prices tend to be more dispersed at any given time, yet more stable over time due to a smaller spot market and the prevalence of varying long-term supply agreements often linked to pipeline deals.
14. We are indebted to Michael Ross for these important insights on volatility. Karl (1997) illustrates the differences between the boom and bust political economies in the case of Venezuela.
15. Often this risk is hedged through the developer’s global portfolio, making more attractive, at least for the bigger and more successful developers, investment

prospects in certain countries or sites that might otherwise appear prohibitively risky.

16. Here are noted only a handful of meta-level differences in the structures of the two industries. The World Bank's Oil, Gas, and Mining Group is currently conducting a series of research studies that emphasize and detail similarities and differences between the two industries at a much more granular and technical level.
17. This is assuming random distribution of natural resources across the globe, although geological probability would suggest that, in reality, certain regions and countries are simply better endowed in particular or overall extractable subsoil assets. Knowledge of these assets is continually being updated; the World Bank is in the process of updating its 2000 baseline data on overall asset endowments (World Bank 2006a).
18. This follows the International Monetary Fund's method of measuring resource dependence, taking the average share of resource revenues in total revenues over the most recent three-year period. The IMF defines a country as resource-dependent if this measure is greater than 25 percent.
19. Ross (forthcoming 2012) also notes the shift of the petroleum frontier to developing countries, observing that booming oil prices over the past decade have led oil companies to find the risks of working in poor and badly governed settings increasingly counter-balanced by the enormous potential benefits of new discovery.
20. The notion of developmental trajectories that can be examined through analytic narratives has been advanced succinctly in Rodrik (2003). We are also indebted to Alan Gelb for his emphasis of this point over the course of this work.
21. The concept of "good-enough governance" is an attempt to move away from "first best" reform dictums for low-income countries. It refers to contextually grounded and feasible governance arrangements that achieve a de minimus degree of quality sufficient to enable a country to fulfill its developmental goals. For the original articulation of this concept and a full definition, see Grindle (2004; 2007). See also Rodrik (2007) on the significance and value of focusing on institutional function over form, and World Bank (2007), which moves toward operationalizing this perspective.



# The Political Economy of the Natural Resource Paradox

Why study the political economy of natural resource–led development? It has become a truism to state that development or reform programs sometimes falter because they are politically infeasible. Over the past two decades the development community has recognized that understanding the political economy aspects of policy interventions can mean the difference between a successful intervention compatible with political incentives and a “first-best” technical fix that falls flat (Keefer 2006; Fritz, Kaiser, and Levy 2009; and Center for the Future State 2010, among others). Leading political economy scholars have concluded that it is futile to try to change economic institutions without considering the underlying political forces through which they emerged and are sustained (Acemoglu and Robinson 2010). Recent reviews of the World Bank’s development effectiveness across a number of sectors and country contexts have concluded that more attention to the political economy of reform is needed (World Bank 2005; 2006b; 2008c).

## **How Natural Resources and Political Economy Interact**

Resource wealth introduces a specific set of dynamics into a country’s political economy both because economic stakes are so high and, depending on global commodity prices, because massive amounts of rents can become quickly available. Karl (1997) has argued that the fact that resource–dependent countries derive their revenues from the same source leads to certain elements of “sameness” in terms of institutions as

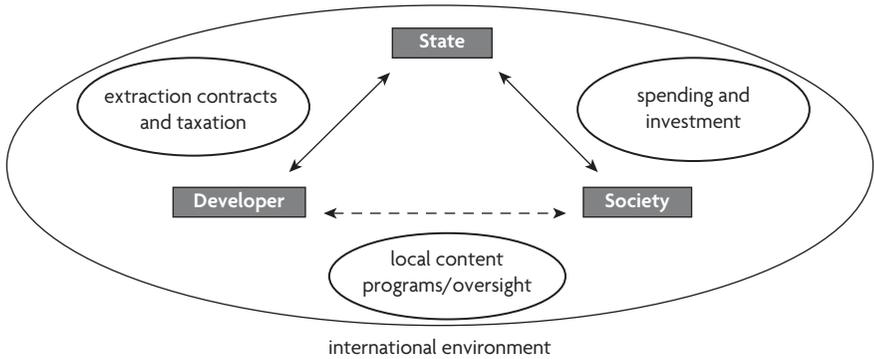
well as elite behavior, because how a state extracts, collects, and utilizes or distributes revenues define its nature. Other characteristics of the sector accentuate the impact of resource rents and themselves undermine longer-term, developmentally oriented cooperation among political elites (see Karl 1997, 46–49; Dunning 2008b). The timeframe from resource discovery to production or extraction can be long—typically multiple years for oil, on average more than 20 years for mining—and an obsolescing bargain problem is inherent to the life cycle of extractive industries projects (which will be discussed further in chapter 3). Resource-dependent countries are highly vulnerable to exogenously determined commodity price volatility as well as to production shocks that can occur for commercial and domestic political reasons. This vulnerability intensifies the payoffs from rent-seeking practices when commodity prices are high. Furthermore, oil, gas, and mining resources are nonrenewable and exhaustible, which limits the extent to which elites view decision making in the sector as an iterated game with cumulative consequences over time. Finally, extractive industries tend to be capital-intensive, hence often reliant on foreign investment, and tend to operate as enclaves with minimal linkages to other domestic economic sectors.

### **The State–Society–Developer Triangle**

Embedded in the political economy dynamics that emerge from its structural characteristics, the natural resource sector encompasses a particular set of relationships among the state, society, and natural resource developers. Most importantly, for the purposes of this volume, the balance and relevance of these relationships transforms across the value chain (figure 2.1).

None of these groups is monolithic; on the contrary, each group comprises a variety of actors and, in many cases, the specific roles of these agents are central to understanding political economy dynamics and they vary across country contexts. In some countries, for example, the ministry of finance will be the central state agent; in others, it will be made peripheral by other more powerful actors under the state umbrella, such as a national oil company. The relative power of specific actors in a particular country will, moreover, inevitably evolve over time, as commodity prices bounce up and down and as a country moves further along its resource extraction cycle. As opportunities for intervention

Figure 2.1. The State–Society–Developer Triangle



Source: Authors.

emerge within these temporal and exogenous shifts, the elaboration of incentive-compatible interventions requires a more granular understanding of the specific actors involved. Here the state-society-developer triangle is illustrated for heuristic purposes. Later chapters focusing on different parts of the natural resource value chain delve into the roles of individual actors.

Upstream in natural resource management, the key relationship is between the state and resource developers. The state plays an outsized role in the extractive industries compared with other sectors because of the convention, at least in most developing countries, that the state owns subsoil mineral resources on behalf of its citizens and is entitled to a share of the wealth generated from their extraction.<sup>1</sup> In some resource-dependent countries, the state is also involved in extraction of hydrocarbons and minerals through national oil or mining companies (discussed in greater depth in chapter 3). Even when extraction is carried out by private investors or developers, however, it is invariably the state that grants rights to investors and developers to explore and extract natural resources. Thus developers must negotiate extraction rights and fiscal terms with the state (discussed, along with the political economy dynamics put into play, in chapters 3 and 4).

Societal groups sometimes also play a role upstream in the value chain, depending on the overall accountability relationship between state and society. In some countries, for example, populations affected by mining

have a right to view (and sometimes also to object to) specific contract terms; even in countries with limited forms of state-society accountability, civil society groups play a role in monitoring resource extraction operations. A “short route to accountability” is often activated between developers and society over the life cycle of a project on externality-related issues such as compensation for resettlement or livelihoods related to environmental impact.<sup>2</sup> In this respect, a relatively new institutional innovation in the mining sector, labeled the “social license to operate,” is a mutual agreement of consent to operating principles and accountability measures between affected societal groups and a mining company.

At the midpoint of the natural resource value chain, the relationship between the state and resource developers changes to one where, instead of a resource developer acting (at least in part) as an extractive agent for the state, the state takes on the role of collecting tax revenues from developers (discussed in detail in chapter 4). In addition, although these dynamics are covered only in a cursory fashion in this volume, the state plays important monitoring and inspection roles at the midpoint of the value chain.

Finally, moving downstream into public investment management, the state-society relationship again comes into play, with the state as the agent charged with making sustainable, developmentally oriented savings, consumption, and investment decisions on behalf of society (discussed in detail in chapter 5).

Figure 2.1 centers on the interaction of key actors in the context of a particular resource-dependent country, but these interactions must be set in a global context. Extractive industries typically compete at the international level, but are also subject to mandatory or voluntary standards. For example, internationally listed companies may need to adhere to particular reporting or home country legislation (for example, in the area of tax and anticorruption). International nongovernmental organizations (NGOs), ranging from the Publish What You Pay initiative to contract transparency movements, have aligned in important ways with domestic civil society groups. Resource-producing governments may be engaged in significant strategic multinational interactions, such as those through the Organization of the Petroleum Exporting Countries (OPEC). Therefore, external factors will play an important part in shaping the country-level interplay among firms, states, and citizens; in addition, international

dynamics can play either a supporting or an aggravating role in shaping a resource-dependent country's prospective development trajectory. Nevertheless, a critical starting point must be the nature of domestic politics.

### **Institutions and the Resource Curse**

Contemporary political economy research suggests that whether a country falls prey to the resource curse depends on a number of structural and economic factors. The cumulative body of large- $N$  analyses of resource-dependent developing countries indicates that the quality of existing institutions is perhaps the key factor that mediates a resource-dependent country's economic outcomes (Mehlum, Moene, and Torvik 2006; Sala-i-Martin and Subramanian 2003; Vatansever and Gillies 2009; Frankel 2010). There is a long-standing debate in the literature on the causal direction underpinning this relationship. For the operationally oriented purposes of this volume, however, the authors take the pragmatic position that ascertaining the direction of causality is less important than recognizing the centrality of institutional quality to the development outcomes of resource-dependent countries.

In other words, this study is premised on the notion that natural resource wealth and the political economy of a country are mutually constitutive. Resource wealth can have significant effects on economic, institutional, and political performance, stability, and quality; and a country's political economic context shapes how natural resources are managed by the state. As Karl states in her seminal book, *The Paradox of Plenty*:

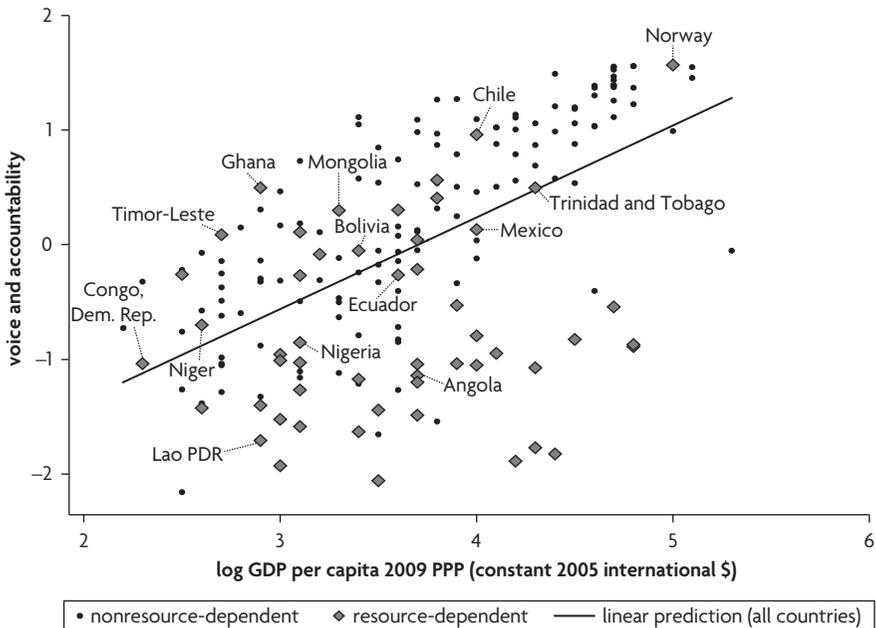
[T]he fate of oil-exporting countries must be understood in a context in which economies shape institutions and, in turn, are shaped by them. Specific modes of economic development, adapted in a concrete institutional setting, gradually transform political and social institutions in a manner that subsequently encourages or discourages productive outcomes. Because the causal arrow between economic development and institutional change constantly runs in both directions, the accumulated outcomes give form to divergent long-run trajectories. (Karl 1997, 6)

This mutual constitution of natural resource wealth and policy economy means that resource-dependent countries embark upon particular developmental trajectories. Appropriate developmental interventions in any given country in turn will depend on its trajectory. Hence, this

chapter builds a typology of political economy settings in resource-dependent countries.

The quality of a country’s institutions is central in the resource paradox. Institutional quality tends to vary along with levels of economic development.<sup>3</sup> A simple empirical fact often ascribed as a major dimension of the resource curse is that resource-dependent countries are endowed with poorer institutional quality than they should have, given their income levels. Holding gross domestic product (GDP) constant, resource-dependent countries perform less well in governance indicators (figure 2.2)—demonstrating the institutional dimension of the resource curse.

**Figure 2.2. Institutional Quality vs. Income in Oil and Mineral Producers**



Source: Authors’ compilation; Worldwide Governance Indicators dataset “Voice and Accountability” indicator, World Bank (2009).

Note: Only the cases studied for this volume are labeled on the chart. Resource-dependent countries are marked with a diamond, and tend to fall below the best-fit line, thereby showing that resource-dependent countries tend to have worse institutional quality than would be predicted by their income levels. Voice and accountability is an index with the range -2.5 to +2.5.

Another way of putting this is that nonresource income levels are correlated with institutional quality across all countries, which, in turn, means that the additional growth and income related to resource dependence are not matched by the increase in institutional quality that comes with non-resource-related growth. Herb (2005), for example, shows that when a measure of development that excludes the effect of oil on the economy is used in place of GDP per capita in statistical analysis of the causes of democratization, oil-rich countries fit the same pattern as other countries. He thus confirms that dependence on resource rents fails to deliver the expected democratic benefits associated with development. Box 2.1 outlines the rich scholarship on the political dimensions of the resource curse, focusing on how natural resource wealth is thought to co-vary with authoritarianism and conflict.<sup>4</sup>

There is a consensus in the political economy literature that natural resources interact with governance and state institutions in two interrelated ways. First, extraction of natural resources might induce deterioration in governance. One line of logic is that dependence on natural resource wealth limits other forms of government revenue generation such as tax collection. This in turn can lead to a decline in administrative and institutional capacity building, particularly as the core tax-accountability linkage between state and society is weakened—Karl (1997) articulates this as the core logic of the “petro state,” and Moore (2004) further explains the link between fiscal sources and accountability. Additionally, resource wealth might adversely affect governance quality by provoking more intense political or bureaucratic battles between powerful interest groups for control over natural resource rents and the state institutions responsible for collecting and distributing them.<sup>5</sup>

Second, even if resource dependence does not worsen governance, the quality of institutions and governance will most likely condition the quality of the economic and natural resource management policies adopted as well as their implementation across the value chain.<sup>6</sup> From this viewpoint, institutional quality and the government’s ability to make policy effectively, minimizing discretion and rent-seeking, affect outcomes in the natural resource sector much as they affect other development outcomes. In addition, because natural resources generate revenue windfalls, governments may be tempted to make policy and public spending decisions with adverse long-term consequences.

## Box 2.1 Political Dimensions of the Resource Curse

### *Natural Resources and Authoritarianism*

A voluminous and nuanced strand of the political science literature on the resource curse has focused on the impact of natural resource (usually oil) wealth on the potential for democratic outcomes, for the most part arguing that resource wealth raises the likelihood that a country will be authoritarian. This line of inquiry is generally advanced on the basis of the rentier state logic, which posits that since a state can rely on resource rents, its need for alternative forms of taxation is reduced and, subsequently, the accountability relationship with society is weakened.

Ross (2001) presented one of the first major cross-national, large-*N* studies of the relationship between natural resource dependence and democracy, finding economic dependence on oil and mineral rents to be correlated with authoritarian government; Wantchekon (2002) and Jensen and Wantchekon (2004) have found similarly. Providing support for the logic that nonrepresentative regimes are more likely to be able to maintain control when they have the resources to pay off opposition and support repressive technologies, Smith (2004) and Ulfelder (2007) have found that authoritarian regimes generally last longer in countries with oil wealth.

Yet the evidence on the relationship between resource wealth and authoritarianism is more mixed, as demonstrated by case study work and more recent scholarship deploying cutting-edge statistical and formal modeling tools. The case of República Bolivariana de Venezuela in the 1960s and 1970s suggests that oil rents initially seemed to help the country transition into and consolidate what was, at least on the face of it, a democracy (Karl 1997). Dunning (2008a) finds that oil wealth generally increases the likelihood of authoritarianism, but identifies the mechanism through which resource rents can have an indirect democratic effect by reducing the need to redistribute nonresource rents and thus potentially making democracy less costly for elites. Haber and Menaldo (2011), emphasizing the importance of a longitudinal perspective in controlling for endogeneity and bias, find no evidence of an authoritarian resource curse.

### *Natural Resources and Conflict*

Another important strand of the political economy literature on natural resources has been concerned with the impact of resource wealth on conflict (Ross 2004; 2006). Valuable resources and the rents they generate have been found to enable the perpetuation of conflict, because political elites can use resource rents to finance arms and war. Fearon and Laitin (2003), Collier and Hoeffler (2004), Snyder and Bhavnani (2005), and Humphreys (2005) have found that economic dependence on petroleum and mineral wealth is correlated with civil war and chronic conflict. The “lootability” of resources is often central to the argument. Where resources are spread geographically and are relatively easy to extract, such as alluvial diamonds, different groups can use them to perpetuate civil conflict indefinitely—witness Angola, the eastern Congo, and Sierra Leone, for example. On the other hand, Cotet and Tsui (2009) find no significant correlation between resource rents and civil war. They argue that oil-rich autocracies have generally managed to avoid civil strife by buying off would-be challengers, attributing conflict in oil-rich Africa to weak central governmental authority.

Brunnschweiler and Bulte (2009) more recently have argued that the conventional measure of resource dependence (resource exports as a share of GNP) is actually endogenous with respect to conflict; the positive correlation between resource dependence and conflict occurs because conflict drives down other economic activity and makes countries dependent on the resource sectors by default. Using a proxy measure for resource abundance, they find that the statistical relationship between natural resources and conflict actually reverses, making clear the importance of finding the right measures for analysis.

Source: Authors.

## The “Rentier State”

Natural resources yield extraordinary “rents,” or returns from investment in their extraction. Attempting to articulate principles for intervention, as well as specific recommendations, involves understanding the centrality of rents to the natural resource sector and its developmental outcomes. Rents, in short, are a political currency. Natural resources generate significant windfall revenues for the state, which in turn are a valuable prize for those who control and have access to political power. They can play an outsized role in the political economy of developing countries because the political deals struck—between governments and developers on the one hand, and between the state and society on the other—can be contingent on rents being extracted and distributed in specific ways. In other words, rents are often crucial to sustaining specific political economy bargains. As a result, interventions that may make perfect technical sense will often be politically infeasible since they affect these rent flows and the delicate political deals they underpin.

This chapter develops a political economy framework that rests on understanding how natural resource rents flow through the system. A system for mapping the flow of rents and their recipients is crucial for determining vested interests and, therefore, the roots of what may manifest as low-level developmental equilibria. Understanding the political economy of natural resource dependence in this manner in turn informs the analyst about the specific political equilibria in place, therefore illuminating which specific interventions toward achieving first-order objectives might be possible in the context at hand. In order to situate this analytical framework, the state of the art of scholarship on the rentier state is outlined here. Discussions of the rentier state often invoke Beblawi and Luciani’s (1987) characterization of the phenomenon, whereby rents accrue to the government directly with only a few actors in society engaged in the generation of rent, while the majority are involved in distributing or using it.<sup>7</sup>

Contemporary scholarship on the resource paradox emphasizes how different political economic systems deal with resource rents, focusing on the nature and role of state institutions and how the dynamics of state capture and principal-agent incentives influence the management of natural resource rents (Auty 1993; Karl 1997; Ross 1999; Dunning

2008a). The very nature of resources like hydrocarbons and hard rock minerals implies that the main political-economic impacts come through the effect that resource rents have on the revenue collection and expenditure patterns of the state (Dunning 2008b). Natural resource booms turn countries into rentier states that live off unearned income; the state is resourced through rents rather than taxes and requires correspondingly little organizational effort from the state apparatus (Karl 1997; Moore 2004). Rents thus can obviate the extent to which the state must engage in costly revenue-generating activity in nonresource sectors and, quite simply, they can reduce the fiscal need for nonresource taxation (Dunning 2008a, 45). Substantial comparative and temporal empirical evidence indicates that resource revenues displace other forms of taxation or revenue (Dunning 2008a, 46–52; Karl 1997, 61–63; Knack 2008). Ross (forthcoming in 2012) argues that the resource curse in oil and gas states can be traced directly to the properties of petroleum revenues in terms of their scale, source, stability and secrecy; that is, oil yields government revenues that are unusually large, do not come from taxation, are extremely volatile, and can easily be concealed from public scrutiny.

With extraordinary rents accruing to the state, public office or access to those in public office becomes the most valuable commodity in a resource-dependent country's political economy.<sup>8</sup> Resource rents induce patronage behavior, or the seeking of political influence for economic gain (Karl 1997, 56). Rents also generate an incumbency advantage. However, at the same time, politics can be quite unstable: the fact that the prize associated with political control is so large can mean that there is a constant battle over the state. Despite the primacy of the state, all power does not rest with government officials and institutions. Rather, the ruling elite comprises individuals and groups both within and outside government who together assert a monopolistic control of wealth. In particular, a "class of rent-seeking pseudo-entrepreneurs" enjoys an umbilical relationship with the state (Dauderstädt and Schildberg 2006, 21). These business elites are intertwined in the state capture of resource rents and prove to be entrenched obstacles in the face of transformative measures. Together with this rent-seeking dynamic between political and economic elites, the intrusion of the state in the economy—as a result of its control over natural

resource sector activities—blurs the distinction between public and private (Vatansever and Gillies 2009, 15).

Keeping in mind the definition of fiscal reliance on natural resource rents, note that in resource-dependent countries, a lack of other revenues concentrates rent-seeking on the resource sector. A preview of some of the arguments advanced in the thematic chapters below highlights the centrality of rents to the political economy dynamics associated with the natural resource sector. A government's dependence on resource rents tends to weaken its bargaining power with developers (chapter 3). The extraction and collection of natural resource rents is often extremely centralized (chapter 4); as a result, the state is an enormous prize because, in thinly institutionalized environments, the victor can claim all the spoils. Building in mechanisms to ensure that rents are shared broadly—for example, distributing rents through public goods rather than hoarding rents through private goods—is crucial to breaking into this dynamic (chapter 5). Furthermore, the extractive industries provide a number of different channels to distribute rents at each step of the value chain: through licensing and contracts, as a result of the specifics of the fiscal regime, and through both budgetary and off-budgetary allocations. Each of these successive rent distribution opportunities—where the state collects rents and then allocates them in ways that strengthen the position of those in power—is discussed in further detail in this volume. Together these distributive patterns constitute what Ross (2001) has labeled the “rentier effect.”

By limiting the need for other forms of government revenue generation, such as tax collection, natural resources can lead to the attenuation of state administrative and institutional capacity building.<sup>9</sup> Hence, a core set of the political effects of the resource curse derives from what Moore (2004) has dubbed the “fiscal sociology” paradigm.<sup>10</sup> This paradigm was illustrated sharply by Bates (2008) in his examination of state failure in Africa: if political elites calculate that their own best interests are served by collecting tax revenues and protecting producers with the rule of law to maximize the tax base, they will establish bureaucratic infrastructure to enable them to do so; if not, they will be prone to turning the state apparatus into a predatory instrument that extracts rent from society and dispenses that rent through patronage networks. Supporting hypotheses advanced in the contemporary political economy literature suggests

that the political and institutional dimensions of the resource curse are made more likely when: (1) natural resources constitute the “only game in town,” (2) the distribution of resource rents aligns with existing political-economic cleavages, (3) political power is concentrated in the executive, and (4) policy commitment is made more difficult by price volatility or political instability (Dunning 2008b, 2).

The bulk of the political economy literature thus identifies institutional quality and the development outcomes of resource-dependent countries as intertwined. Resource dependence actually shapes the institutions of the state and the framework for decision making in predictable patterns. In turn, those political and institutional constellations have predictable effects on economic outcomes. As Karl (1997) points out, the very nature and capacity of the state in resource-dependent countries is skewed by the imperatives of resource extraction.

Building on this general logic of the rentier state and its effects, this chapter defines the flow of rent through the natural resource value chain—that is, the nature of resource rent extraction, management, and distribution—as the primary lens through which political economic outcomes associated with natural resource management can best be categorized for operational purposes. It then identifies an explanatory logic that rests on cutting-edge political economy scholarship along with the series of key political economy dynamics that have emerged from the empirical work commissioned under the study.

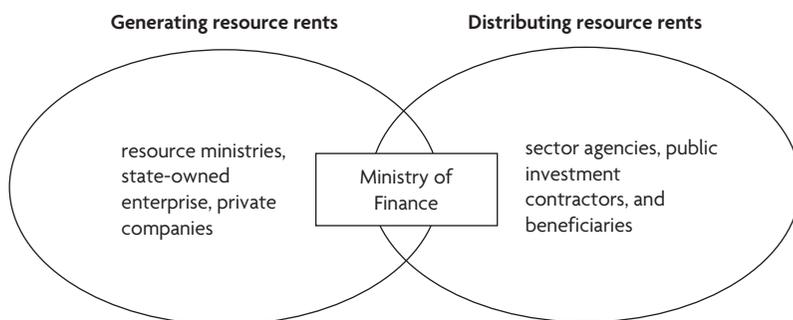
## **Two Key Rent Arenas: Rent Generation and Distribution**

The global research underpinning this study was premised on the view that disaggregating a country’s natural resource management policies and practices through the lens of the natural resource management (NRM) value chain offers a systematic, more finely grained, and operationally relevant apprehension of the political economy of natural resource-dependence than has to-date been available. Putting together the value chain and the rentier state logic sketched above raises two key questions that characterize a government’s management of the natural resource sector and the channeling of those resources into sustainable development policies. The questions are as follows:<sup>11</sup>

- **How effectively does a government generate and capture rents from the extractive industries?** The extent to which a government can effectively generate and capture rents from the natural resource sectors depends on both the enabling framework of hydrocarbon production or mineral extraction and the design of the fiscal regime and administrative capacity to implement it. This set of concerns is further elaborated in chapters 3 (extracting resource wealth) and 4 (taxing resource wealth).
- **How does the government spend resource wealth and to what extent is it invested in a sustainable, pro-development manner?** Once a government has collected resource revenues, a number of different options for saving, consumption, and investment are available to it. In turn, each of these mechanisms is subject to varying degrees of rent leakage away from a development orientation. This set of concerns is elaborated in chapter 5 (spending resource wealth).

In essence, outcomes across the natural resource value chain can be reduced to two rent arenas: (1) extracting and taxing resource wealth, or *generating rents*, and (2) spending and investing resource wealth, or *distributing rents* (figure 2.3). As mentioned earlier with regard to the state-society-developer triangle, the state is involved in the generating rents arena with resource developers and in the distributing rents arena with citizens or society. A number of state actors are involved in these two

**Figure 2.3. The Two Key “Rent Arenas” in the Natural Resource Value Chain**



Source: Authors' compilation, based on Webb (2010).

arenas, but it is worth noting that the ministry of finance, a key World Bank interlocutor, sits at the intersection of these two dimensions. Although its strength and centrality varies across country contexts, the ministry of finance (or other central fiscal agency) usually serves as the state agent that is the arbiter of public resources. It is responsible for collecting public revenues as well as prioritizing their use and distribution; in the best-case scenario, it undertakes these functions with a medium- to long-term focus on channeling the nation's wealth into productive and sustainable development that enhances the collective welfare.

The case studies conducted for the global study illuminate this nuanced understanding of patterns of resource wealth generation, capture or taxation, and distribution at the country level. Table 2.1 provides an assessment of how the case study countries appear to have performed across these three core dimensions in managing resource rents. Investment in the extractive industries is used as a proxy for the potential of rent generation; stability in the receipts generated by the fiscal regime is used as a key indicator of the quality of the institutional framework for rent capture; and the degree to which public spending is oriented toward particularistic (private) or public goods provides the key indicator of the quality of rent distribution through public spending.

Highlighting the cases of a few countries helps make the logic of this analysis clear. In the Democratic Republic of Congo, for example, a recent World Bank mining report calculates that only 15 percent of the estimated revenue from the sector is collected; the rest is siphoned away through rent-seeking. In Angola, a high degree of resource wealth is captured, but has historically been channeled off-budget through the national oil company, Sonangol. In Lao PDR, opacity around contracts enables potentially significant elite capture of corporate payoffs, but administrative corruption in revenue collection and procurement are limited and the formal public financial management system appears to handle resource rents well. Mexico's government is highly fiscally dependent on oil revenues, although this sector is far less important in the more diversified economy overall, and upstream control by PEMEX, the state-owned oil company, has meant that exploration and new capacity has not come on stream to the extent desirable. There are some indications that Ghana could improve its existing fiscal take from the mining

Table 2.1. Generating, Capturing, and Distributing Rents

	Generating Wealth (Investment in Exploration and Production)	Capturing Rents (Fiscal Regime)	Distribution of Rents (Public Versus Private Goods Provision)
<b>Angola</b>	Increasing investment	Stable	Predominantly particularistic
<b>Congo, Dem. Rep.</b>	Underinvestment	Unstable	Predominantly particularistic
<b>Ghana</b>	Increasing investment	Stable	Predominantly particularistic, but some public goods
<b>Niger</b>	Increasing investment	Unstable (but extensive use of stability clauses)	Predominantly particularistic
<b>Nigeria</b>	Increasing investment	Stable	Predominantly particularistic, persistent patronage
<b>Lao PDR</b>	Increasing investment	Unstable	Predominantly public goods, but persistent patronage
<b>Mongolia</b>	Increasing investment	Unstable	Predominantly particularistic, but some public goods
<b>Timor-Leste</b>	Increasing investment	Stable	Predominantly particularistic, but some public goods
<b>Bolivia</b>	Underinvestment	Unstable	Predominantly particularistic, but some public goods
<b>Chile</b>	Underinvestment (public) Increasing (private)	Stable (but increased take during last boom)	Predominantly public goods, but percentage earmarked for defense spending
<b>Ecuador</b>	Underinvestment	Unstable	Predominantly particularistic, but some public goods
<b>Mexico</b>	Underinvestment	Stable (high take)	Predominantly public goods, but persistent patronage
<b>Trinidad &amp; Tobago</b>	Effective (public)	Stable	Predominantly public goods, but persistent patronage

Source: Authors' assessment of case studies.

sector, although it has managed to attract investment in the sector. Nigeria's infamous bunkering has historically raised significant concerns about upstream management, in addition to the quality of its downstream expenditures. In Timor-Leste, the upstream institutional architecture surrounding the Petroleum Fund and the on-budget channeling of all resource revenues are exemplary, but significant leakages and targeted rent distribution occur through the public procurement process and cash transfers.

## Political Economy Settings in Resource-Dependent Countries

What explains how a country performs in the two rent arenas of extracting natural resource rents and allocating those rents toward sustainable development across society? To help answer this question, a simple political economy typology for characterizing resource-dependent countries in an operationally relevant schema is presented. The focus is on mapping the orientation of a country's governing regime and overall political economy context in terms of how natural resource rents are managed. The typology hinges on two dimensions:

- The **credibility of intertemporal commitment**, or the degree to which extractive bargains and policy stability (that is, government commitments to natural resource companies and to citizens) can be enforced over time and the degree to which deviations from such agreements are subject to sanction; and
- The overall **political inclusiveness** of the prevailing state-society compact, or the extent to which diverse social, economic, and political viewpoints are incorporated into decision-making, and a sense of collectivist welfare is privileged over purely elite interests such that government is inclined to turn resource rents into public goods.

These dimensions are interdependent to some extent, but each can be distinctly unbundled into a number of key analytical components. A country's positioning on each of these dimensions thus can be gauged along the further criteria proposed below (see figures 2.4 and 2.5).

Political economy scholarship offers a number of regime typologies to distinguish why certain country settings yield particular outcomes. To explain a country's performance on resource rent generation and allocation, table 2.2 indicates a typology of natural resource-dependent settings and key dimensions of credibility and inclusiveness insofar as these dimensions affect the management of resource rents. This volume is concerned with ensuring the relevance of the typology to resource-dependent developing countries and how they generate and allocate

Table 2.2. Typology of Natural Resource–Dependent Settings

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/ weaker enforcement	More credible/ stronger enforcement
<b>Less inclusive/ less collectively oriented</b>	<b>Patrimonial rule</b> Individualized political authority built on a hierarchy of cronyism; emphasis on private (elite) goods; exploitation of public resources for private gain	<b>Hegemonic government</b> Institutionalized one-party regime; either predatory or benevolent; emphasis on private (elite) goods with some particularist and public goods
<b>More inclusive/ more collectively oriented</b>	<b>Clientelist pluralism</b> Political competition based on extensive use of clientelism; provision of particularist goods; low horizontal accountability	<b>Programmatic pluralism</b> Electoral competition based on programs geared toward collective welfare enhancement; provision of public goods; horizontal and vertical democratic accountability

Source: Adapted from Barma and Viñuela (2010).

Note: Phil Keefer provided insights into refining the typology. The typology particularly builds on the theoretical work of Eifert, Gelb, and Tallroth (2002); Evans (1989; 1995); Kohli (2004); Lal and Myint (1996); and Olson (1993).

rents, although it may be adaptable to thinking through other issues of sustainable development in poor countries more broadly. The typology elaborates four settings:

- **Patrimonial rule:** political economic settings characterized by individualized political authority, usually resting on a hierarchy of cronyism, where the exercise of power faces few constraints. These can be settings of persistent instability and a high degree of political contestation with frequent turnover among conflicting groups; or they can be characterized by dictators who avoid establishing organizational arrangements that constrain their actions (such as an institutionalized ruling party). These “roving bandits” are typically unlikely to make credible intertemporal commitments or protect property rights because they are unconstrained.<sup>12</sup> In settings of patrimonial rule, extractive capacity is low, constant theft from society means economic production is low, time horizons are short, and the exploitation of public resources for private gain is common.<sup>13</sup>

- **Hegemonic government:** an uncontested, institutionalized political force or one-party regime, or “stationary bandit,” that successfully monopolizes “theft” through regular taxation and in turn provides peaceful order and some degree of public goods for society.<sup>14</sup> The degree to which the regime needs to pay off other social groups (usually with a mix of particularistic and developmental goods) can vary, and it relates to the predictability of succession and the potential of revolt. For example, in Angola, the ruling elite is able to enrich itself with relative inattention to broader societal demands; whereas, in Suharto-era Indonesia, a certain degree of broad-based growth and development was necessary to underwrite the regime’s grip on power. Thus, hegemonic governments can appear either predatory or relatively benevolent. Time horizons are lengthened due to regime stability; combined with greater institutionalization, this enables credible intertemporal commitment.
- **Clientelist pluralism:** political-economic settings where some degree of political competition takes place (mainly through electoral contests), usually on the basis of extensive patron-client networks.<sup>15</sup> The need to reward supporters results in some public goods provision; but the reliance on clientelist distribution of particularist goods to mobilize support undermines vertical and horizontal accountability and has self-enforcing characteristics that lead to the under-provision of public goods that enhance collective welfare. Time horizons are short because politics are relatively unpredictable and the degree of institutionalization (and hence constraint on power) is low.
- **Programmatic pluralism:** electoral competition on the basis of programs that are geared toward collective welfare enhancement, with an emphasis on societywide public goods provision.<sup>16</sup> A higher degree of institutionalization brings with it built-in democratic mechanisms of horizontal and vertical accountability, facilitates the articulation and protection of property rights, and enables credible intertemporal commitment.

In summary, a country’s positioning along the two key dimensions captured in the typology—the credibility of intertemporal commitment

and degree of political inclusiveness—determines the manner in which stakeholder incentives and the institutional landscape interact with the structural characteristics of natural resources, and hence how a country actually experiences the resource paradox. In noninclusive settings where the credibility of intertemporal commitment is low, rent generation will be weak, because the state will find it difficult to make beneficial extractive bargains with resource developers, and rent allocation will be biased toward consumption by political-economic elites and away from saving and investment for society. Factors that make intertemporal commitments more credible—by lengthening time horizons and strengthening institutionalization and the enforcement of property rights—will tend to improve a country's performance in terms of rent generation by enabling governments to strike better deals, at a lower risk premium, with developers. Factors that increase political inclusiveness—incorporating more political, social, and economic groups into decision making—will make the state more accountable to society and orient rent allocation toward collective welfare through the provision of public goods and investment for sustainable development.

The structural characteristics of resource-dependence—especially the very rapid availability of large windfall rents, the concentration of ownership and decision making in the sector, and the often unrivalled access to rents for those with political and economic power—tend to push resource-dependent developing countries into the upper-left quadrant of this typology, a setting of patrimonial rule, or to entrench regimes in hegemonic government (that is, the upper-right quadrant). This is suggested by the cumulative scholarship on the political economy dynamics associated with natural resource wealth. A secular “modernization” theory, on the other hand, places countries in the bottom-right quadrant of programmatic pluralism as they develop economically (Rostow 1960; Lipset 1968; Przeworski et al. 2000).

The typology may be used to characterize a country at a point in time; but, perhaps more importantly, countries also evolve dynamically, sometimes shifting from one quadrant to another. The limited access order logic would lead to positing, for example, that in most developing countries, political elites control and divide economic rents themselves, moving to open access orders characterized by economic competition and electoral pluralism only after they pass through several key

“doorstep conditions” (North et al. 2007). As Olson (1993) articulated, the transition from roving to stationary bandit, or from patrimonial rule to hegemonic government, is a common one, which has welfare-enhancing implications. Countries with patrimonial rule also sometimes move directly to clientelist pluralism, with larger portions of the population gaining access to spoils. Hegemonic governments may transition to situations of clientelist pluralism as one particular party’s grip on power falters. Finally, most programmatic pluralist settings, or electoral democracies, have emerged from more clientelist pluralist settings. It would be unusual for a country to transition directly from patrimonial rule or hegemonic government to mature, programmatic democracy without an interlude characterized by clientelist competition. Of course, these transitions might occur equally in the opposite direction.

Development partners cannot affect regime type in any meaningful sense.<sup>17</sup> Nevertheless, well-designed interventions can work within, and have the potential to transform, some of the stakeholder incentives and institutional constraints leading to poor outcomes. Development interventions to mitigate the resource curse are aimed at assisting reform in countries such that their policy making and institutional frameworks across the natural resource value chain approximate those found in countries squarely within the ideal quadrant of programmatic pluralism. In other words, natural resource rents are most reliably transformed into sustainable development riches when a government can make credible intertemporal commitments to both extractive companies and its citizens, and when the political regime is inclusive such that the government faces the incentives to use resource rents to provide public goods that enhance collective welfare.

From a political economy perspective, if they are to be successful, development initiatives must find mechanisms to work within the constraints of the underlying political and institutional dynamics associated with resource dependence, resonate with them, and eventually transform them. Thus, the typology is now unbundled to articulate a core set of factors prevalent in resource-dependent countries that affect the ability to make intertemporal commitments and the degree of political inclusiveness. In each of the countries in the study, the observed outcomes are linked to peculiarities of the political

economic system, which any attempt at mitigation must take squarely into account. Hence, the key operational utility of this typology in any given country would be to identify those components of intertemporal credibility and political inclusiveness along which performance appears to be particularly weak, and, where possible, to seek to elaborate interventions that tilt these toward improvement. Improvements along each of these individual components are no guarantee for better natural resource management. Rather, interventions designed with these political economy dynamics in mind will be more feasible and incentive-compatible, and hence stand a greater chance of transforming resource rents into developmental riches. Chapters 3, 4, and 5 present examples of such interventions at specific points of the natural resource management value chain.

### **Credibility of Intertemporal Commitment**

The types of transaction that political actors are able to engage in depend on the possibilities and constraints embedded in the institutional environment.<sup>18</sup> In essence, the credibility of intertemporal cooperation will be low if the incentive to break a deal is high, that is, if the payoffs of deviating from agreements are substantial, or the sanctions or punishment for deviation are low or unenforceable, or both. In other words, the capacity to enforce political and policy agreements is crucial for political actors to be able to engage in intertemporal transactions and to cooperate and create stable policies more generally. Policy outcomes are determined by the political institutions in place, such as regime type, political system, form of government, electoral system, and the degree of independence of the judiciary. These institutional factors determine which actors participate and in which arenas they interact, and they define the formality and transparency of decision making; together, these factors determine the credibility of intertemporal commitments in the context of the system (figure 2.4). Later chapters will illustrate potential targeted interventions aimed at shifting the key observed elements of credibility from the left (weaker and less enforced) to the right (stronger and more enforced) side of the figure.

Natural resource rents, because of their sheer magnitude, can make it tempting to deviate from wealth-sharing agreements, either between state and developer or elites and society. Resource rents provide the

Figure 2.4. Credibility of Intertemporal Commitment



Source: Authors.

incumbent government with resources to reward supporters and head off opponents, weakening the sanctions for renegeing on commitments and potentially altering the distribution of power and the outcomes from future competition. Rents also raise the stakes of controlling office, since the state is the main collector and distributor of rents; hence, they can trigger intense elite battles over succession and the control of the state (Soares de Oliveira 2007).

In many developing countries, political parties tend to be institutionally weak; they compete using patronage networks rather than on the basis of programs (Bratton and Van de Walle 1994; Jensen and Wantchekon 2004). Resource rents allow parties to distribute subsidies to large portions of the population to secure popular legitimacy (Anderson 1987; Crystal 1995; Karl 1997). In addition, many resource-dependent countries have fractionalized societies, making it difficult for the state to penetrate into society to effectively project authority and implement policy (Herbst 2000; Kohli 2004). All in all, political exchanges take place in more informal, more uncertain, and less transparent arenas, complicating the enforcement of agreements, increasing decision makers' discount rates, and making them more risk averse. It is important to note that sometimes this opacity and instability can actually benefit resource developers, if they are able to secure a better deal from governments to compensate for the risk. When the Angolan

rebel leader Jonas Savimbi was killed in 2002, marking an end to the country's prolonged civil war, the shares of companies holding diamond extraction concessions in the country actually fell on international stock markets (Guidolin and La Ferrara 2007).

How well countries prioritize objectives and how consistently they pursue policies are shaped by formal and informal institutions and the distribution of political power. To produce the stable and coherent policies necessary to harness the potential of natural resources, the multiple actors that intervene in the policy-making process need to be able to strike agreements and enforce them over time (Haggard and McCubbins 2001; Stein et al. 2008). Institutions can contribute to solving collective action problems and increasing the predictability and stability of political exchanges by providing the incentives for intertemporal coordination (or time consistency) between members of a governing party or coalition and between competing political parties or groups that alternate in office through time (Weaver and Rockman 1993; Persson and Tabellini 2000; Tsebelis 2002), a logic that applies to both democratic and nondemocratic regimes (Buono de Mesquita et al. 2002). The capacity of a political system for credible commitment hinges largely on the existence of enforcement technologies that bind political actors to their agreements, such as independent and capable judiciaries, a strong bureaucracy, and constitutional and other institutional constraints on the executive (Stein et al. 2008). Ascher (2009) inventories potential technologies for building the credibility of intertemporal commitment regarding the challenges of development.

Inclusive political competition, embedded in an institutional framework that provides incentives for intertemporal cooperation, produces policies that are sustainable through time and across changes in government. In collaborative environments, policy changes tend to be incremental and achieved through compromise. Actors that interact repeatedly in institutionalized arenas tend to have longer time horizons for policy making and invest resources in creating policy capabilities, such as tax administration capacity (Stein et al. 2008). Cooperation is easier when there is an impartial referee and enforcer of political agreements (Dixit 1996); however, even in the absence of a third party, institutions can provide incentives to agents to self-enforce equilibria. For example, political losers in any given time period can be encouraged to

cooperate or stand by the terms of an intertemporal policy bargain when they can foresee that they may be political winners and stand to benefit from a stable policy environment in the next time period. A virtuous circle results in that such self-enforcing bargains promote commitment and encourage reluctant investors or legislators alike to take the risks and bear the costs necessary to achieve joint gains (North and Weingast 1989).

### Political Inclusiveness of the Prevailing State-Society Compact

A state-society compact can be defined as society's ceding of sovereignty to the state in exchange for public goods, such as the rule of law and public service delivery.<sup>19</sup> The strength and inclusiveness of the state-society compact is a fundamental and necessary feature of development. Several factors underlie the degree of political inclusiveness as reflected in a country's compact between state and society (figure 2.5).

Institutions affect the mix of public and private goods in public policies and the degree of separation between public and private domains. Different features of the political system define which actors take part in the policy-making process and how they are selected. One key feature affecting the degree of political inclusiveness underlying the state-society compact is where the sources of authority and political power lie in society (Kohli 2004). In some countries, political authority is

**Figure 2.5. Political Inclusiveness of the Prevailing State-Society Compact**

less inclusive / equitable		more inclusive / equitable
concentrated	← sources of authority and political power	→ dispersed
predatory	← developmental orientation of state	→ benevolent
private	← orientation of goods provision	→ public
limited	← constraints on executive	→ effective
weak	← rule of law	→ strong
blurred	← distinction between public and private spheres	→ clear
arbitrary	← legitimization of authority	→ regularized

Source: Authors.

highly concentrated, that is, the size of the “winning coalition” is small (Bueno de Mesquita et al. 2002), and few additional groups need to be bought off for their acquiescence to the regime (North et al. 2007). The smaller the coalition that leaders need to secure their position in power, the more likely they are to provide private goods to a small coalition instead of public goods to a broader population (Bueno de Mesquita 2001; Bates 2008).

On the other hand, the more inclusive the political system, the greater the emphasis of leaders on public policy. As discussed in the last section, more institutionalized and enforceable intertemporal agreements will induce parties to reduce their dispensation of patronage, because this becomes comparably less cost-effective (Jones Luong and Weinthal 2001). As Keefer and Vlaicu (2007) underscore, however, the nature of democracy and political party organization will matter a great deal as to whether governments provide private or public goods. Clientelist democracies may target private goods fairly broadly but, unlike programmatic democracies, they show a low propensity for providing public goods. In Mexico, for example, the PRI (Partido Revolucionario Institucional) regime strategically distributed rents across localities in the country to secure the electorate that would keep them in office, but largely through the manipulation of rent distribution rather than the systematic provision of public goods (Diaz-Cayeros, Magaloni, and Weingast 2003).

A concentration of power in the executive leads to the co-optation of potential checks and balances or other sources of accountability—including executive, legislative, and judiciary agencies and civil society—and rents tend to weaken agencies of restraint (Eifert and Gelb 2002). The ability of a legislature or parliament to impose effective constraints on the executive will depend on the constitutional powers of the legislature and the legislative prerogatives of the executive, such as decree and veto powers. The nature of the party system and the electoral incentives of legislators influence their degree of independence, and legislative leverage is reduced by other presidential prerogatives, such as the power to appoint the cabinet and other government officials unilaterally.

An independent judiciary is another important enforcer of agreements (Iaryczower, Spiller, and Tommasi 2002; Chavez, Ferejohn, and

Weingast 2003); and the strength of the rule of law is crucial. Moreover, professional bureaucracies can limit the scope of opportunistic policies and enhance trust in commitments, because policy agreements are put in practice over time (Huber and McCarty 2001); they also increase the strength of the government in relation to other actors, such as private developers. Even if not co-opted, these accountability institutions can be undercapacitated (purposefully, by withholding financial resources) and marginalized from decision-making processes. As Chaudhry (1997) describes, oil-rich countries in the Middle East explicitly designed programs to depoliticize the population, deliberately destroying independent civil institutions while investing in those designed to facilitate the aims of the state.

If the natural resource sector is subject to a high degree of state ownership, for example, through national oil companies, the boundaries between the state bureaucracy and management of these enterprises is often blurred. Bureaucrats from various ministries become involved in daily management roles and vice versa; consequently, the opportunities for political manipulation of policy decisions in favor of particularistic interests can be high. By contrast, incentives under private ownership are such that resource developers aim to maximize profit and the state aims to successfully regulate and maximize tax take. Yet privatization is no simple panacea to the resource curse. Private companies can be as secretive and unaccountable as state-owned enterprises and might not significantly alter taxation practices (Ross forthcoming 2012; Jones Luong and Weinthal 2006).

In both competitive and single-party systems, highly institutionalized parties with strong organizations are likely to promote greater policy consistency (Mainwaring and Scully 1995). They contribute to the routinization and depersonalization of interparty and intraparty competition and prolong time horizons because commitments by current party leaders are more likely to be respected in the future. The more that parties and internal factions compete on the basis of policy options or programs, the more likely it is that the system will produce public goods (Haggard and McCubbins 2001). More generally, the political system will be relatively more inclusive if political elites tend to gain their legitimacy through such regularized channels, rather than on the basis of more arbitrary ascriptions.

### **What's Your Setting?**

The goal of the typology of natural resource-dependent settings offered here, along with the dimensions underlying the two major axes of intertemporal credibility and political inclusiveness, is to enable a snapshot assessment of a country's political economy in relation to its natural resource-dependence. The concepts embedded in this framework are inherently difficult to measure quantitatively. Most important, the two main parameters, intertemporal credibility and political inclusiveness, are continuous rather than binary. Moreover, they are interrelated to some extent and endogenous to or mutually constitutive with the fact of resource-dependence. And each of the underlying dimensions is a complicated enough concept that reasonable scholars and practitioners may disagree on definitions, salience, and, certainly, precise measurement.

With these caveats stated, however, this typology offers a useful tool for characterizing the political economic landscape of a resource-dependent country and understanding its performance in terms of rent generation and allocation. Different analysts certainly may come to different conclusions on any one specific dimension underlying intertemporal credibility or political inclusiveness. Some of the dimensions can be measured with available quantitative indices; taking a position on others will require more detailed qualitative understanding of a country's politics. But a comprehensive and informed judgment using these concepts to sort through and organize available political economy data and reports is more likely than not to enable analysts to agree on whether a country is broadly tilting toward weaker or stronger intertemporal credibility and a more or less inclusive political and policy-making system, thereby allowing agreement on the political economy setting that best characterizes its current situation. Again, these are snapshots in time. It is equally important to try to capture a sense of the dynamic trajectory that a country is embarked upon; that is, determining whether intertemporal deals are being increasingly enforced or the political compact seems to be changing from more to less inclusive.

Policy choices, including those concerning natural resource management that can aid in transforming rents into sustainable development riches, are conditioned on the prevailing institutional context. In other words, a country's success in making and implementing welfare-enhancing policy for the many, rather than capturing rents for the few,

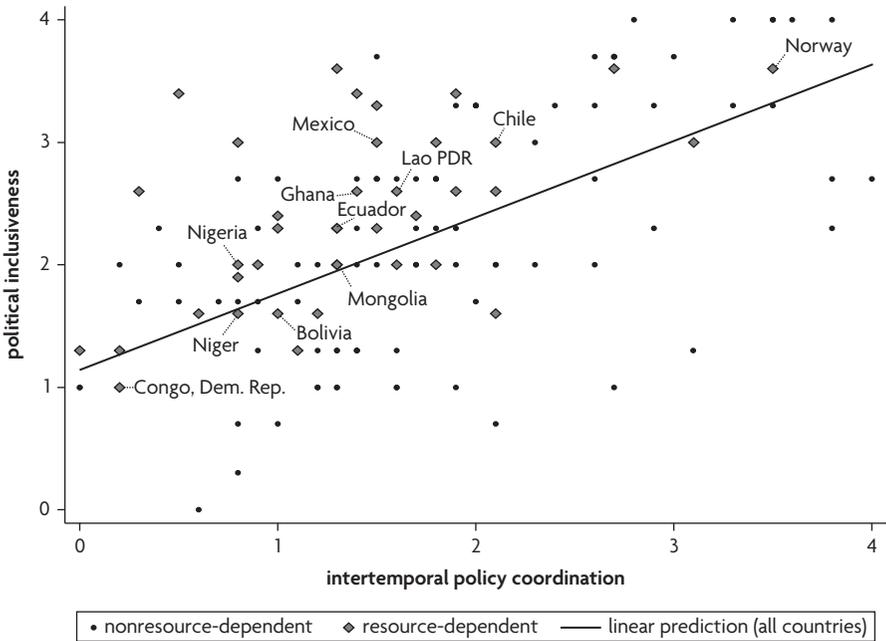
is related to its institutional characteristics. To illustrate this broad point—and to demonstrate that different data sources are available to help position countries within this typology and its underlying dimensions—highlighted here are a few crucial institutional features, using three databases that capture institutional characteristics: the Institutional Profiles Database (IPD) collected by the French Development Agency,<sup>20</sup> the Public Policy Attributes (PPA) database put together by the Inter-American Development Bank,<sup>21</sup> and the Worldwide Governance Indicators (WGI) assembled by the World Bank.<sup>22</sup> These are in no way the only such data sources, or even the most accurate; the goal here is to show how an analyst might use any data source selected. It is a given that the more data sources that are examined and triangulated, the more robust and reliable any quantitative assessment will be. Cross-tabulations of core indicators from the three datasets show a relatively high degree of (statistically significant) correlation across their measures for the dimensions of intertemporal credibility and political inclusiveness and the institutional characteristics underlying them; thus the data can be deployed with relatively more confidence than relying on one dataset alone. The high level of correlation also makes it possible to pick and choose across datasets those indicators most likely to faithfully measure the concepts being depicted.

Certain scores embedded in these datasets may seem surprising to an observer with rich contextual knowledge of a specific country or counterintuitive to an analyst who favors still other cross-national datasets. Nevertheless, the three datasets mentioned here offer recent cross-country comparative data on many of the crucial institutional features proposed here as central to understanding the political economy of natural resource-led development. Hence, caveats notwithstanding, a few indicators are used to illustrate how analysts and practitioners might characterize the institutional environment in their country of interest. It should be noted that a more qualitative assessment is always useful in combination with quantitative indicators, especially if particular discrepancies across datasets remain or the quantitative characterization appears to be strikingly inaccurate. This volume emphasizes such a qualitative approach, relying heavily on the rich empirical detail embedded in the cases in this study for comparative analysis and supplementing that case material with cross-national datasets where possible.

Highlighted below are data positioning countries along the core typological dimensions of intertemporal credibility and political inclusiveness, and demonstrating how these dimensions are correlated with sustainable development outcomes.

**Intertemporal credibility and political inclusiveness.** The political economy typology is premised on two core dimensions: the intertemporal credibility of policy bargains, in turn largely hinging on the existence of formal or informal mechanisms to enforce agreements over time; and political inclusiveness, which refers to the degree to which diverse social, economic, and political views are incorporated in policy making, and an emphasis is placed on public goods provision. Figure 2.6 plots these two

Figure 2.6. Intertemporal Credibility and Political Inclusiveness



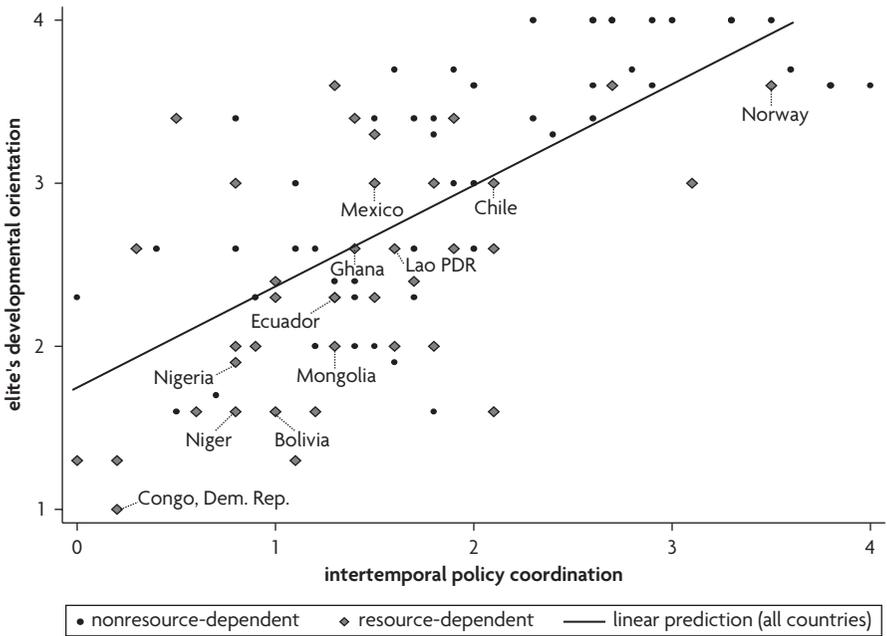
Source: Authors' compilation; Institutional Profile Database (2009) for "political inclusiveness" and Public Policy Attributes Database (2008) for "intertemporal policy coordination."

Note: Only the cases studied for this volume are labeled on the chart. Resource-dependent countries are marked with a diamond.

key axes, using the PPA measure of policy coordination and the IPD measure of political inclusiveness as the two indicators the authors judge as best representing the underlying concepts. Referring to the earlier political economy typology, in the top-right quadrant of the scatterplot are countries that fall under the category of programmatic pluralism, namely those countries with inclusive political systems that have developed institutionalized mechanisms to ensure intertemporal policies around the governance of natural resources. Countries where contracts and regulations are sustained over time but where policy making is less inclusive, or there is a one-party system or a hegemonic government, can be found in the bottom-right quadrant. In the top-left quadrant are countries characterized by clientelistic pluralism, where political systems are relatively inclusive yet challenges are still faced in ensuring time consistency across different governments and mobilizing support on the basis of programmatic rather than particularistic incentives. Countries that fall under the patrimonial rule type are in the bottom-left quadrant, with weak intertemporal credibility and low political inclusiveness.

**Sustainable development outcomes.** Embedded in the typology is the insight, supported by the literature and the case studies, that the ability of a government to engage in credible commitments is an essential ingredient for better, longer-term management of natural resources. Credibility is manifested through a government's track record, hence it can often be depicted as either a virtuous circle or a vicious cycle. Yet intertemporal contracts and bargains can also be sustained by institutional mechanisms, such as the legal and regulatory framework and checks and balances on the exercise of executive power. Especially in the context of extraction and taxation of natural resources, the ability to engage in credible commitments can serve as an important factor in attracting investments to the extractive sector, given prevailing geological endowments, which will be elaborated upon at the beginning of chapter 3. Figure 2.7 depicts the relationship between intertemporal credibility and the developmental orientation of the country's ruling elite. The latter is essentially correlated with income levels and serves as a useful proxy for the degree to which a country achieves salutary developmental outcomes.

Figure 2.7. Intertemporal Credibility and Developmental Orientation



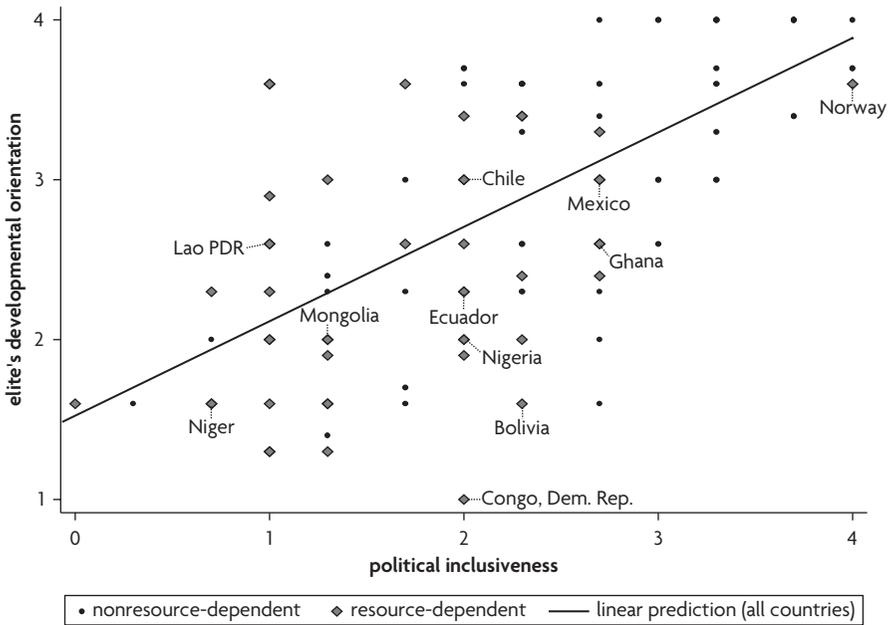
Source: Authors' compilation, Institutional Profile Database (2009) for "elite's developmental orientation" and Public Policy Attributes Database (2008) for "intertemporal policy coordination."

Note: Only the cases studied for this volume are labeled on the chart. Resource-dependent countries are marked with a diamond.

Equally, the typology posits that countries that are more politically inclusive are likely to enjoy better natural resource management and developmental outcomes. Countries where a greater proportion of society has a voice in policy making and where decisions are made on the basis of public goods provision to the many rather than private spoils to the few are more likely to benefit from welfare-enhancing policies that share developmental riches across social, political, and economic groups in a sustainable fashion. Figure 2.8 illustrates the relationship between political inclusiveness and the developmental orientation of the country's ruling elite.

Together figures 2.7 and 2.8 show that the two key components of the political economy typology are indeed correlated with development outcomes: countries where intertemporal coordination is more credible and

Figure 2.8. Political Inclusiveness and Developmental Orientation



Source: Authors' compilation, Institutional Profile Database (2009).

Note: Only the cases studied for this volume are labeled on the chart. Resource-dependent countries are marked with a diamond.

the political system is more inclusive are more likely to be able to transform natural resource rents into sustainable development riches. Measures representing the underlying components of the two main political economy dimensions can also be examined using the three datasets. For brevity of this volume examples of these figures are not included, but the component measures align well with the two major dimensions. For example, government respect for contracts and security of property rights (both from the Institutional Profile Database) correlate highly with intertemporal policy coordination and policy stability (from the Public Policy Attributes Database).

This preliminary sketch of institutional characteristics across resource-dependent countries illustrates the degree of variation across our sample, highlighting the importance of understanding each individual country's context in order to develop good-fit interventions on

the basis of positive analysis. Also clear is the fact that any given country exhibits unique constellations of such institutional characteristics; that is, all institutional features, whether good or bad, do not necessarily go together. On the contrary, even the worst-performing country is likely to exhibit some dimensions of relatively better performance, offering hints as to what types of intervention may be practical there. Turning to the specifics of natural resource management, the empirical case study work for this volume does indeed demonstrate that, at any given time, countries manifest notable variation in the apparent management and functionality of different links across the value chain; for example, poor downstream management may coexist with good upstream management. From an operational perspective then, some countries may be more amenable to upstream reforms in sector organization and ownership, while it may be more constructive to emphasize downstream spending and investment questions in other countries. As a final note, any cross-sectional snapshot of a country's institutional environment must also be paired with a dynamic view of resource-dependent countries as embarked upon an evolving trajectory. Building a holistic and dynamic understanding of the distinctive context of any country is crucial to prioritizing and sequencing reforms in the natural resource sectors.

### **So What? Designing Feasible Interventions**

The operational utility of the typology presented in this chapter lies in the extent to which it can help practitioners, both domestic reformers and technical experts working with development partners, to design politically feasible interventions toward enhancing natural resource management. One useful way to conceptualize the macro picture provided by an assessment of the dimensions underlying intertemporal credibility and political inclusiveness is that it sketches the shape of the feasible political space within which good-fit interventions must be elaborated if they are to prove tractable or sustainable. A crucial part of articulating targeted reforms in this manner is to recognize explicitly the incentives facing the various stakeholders and constituencies involved at different points of the value chain. Ideally, a more systematic emphasis on political economy and institutional analysis should also aid

development partners in building coherent reform strategies across the value chain that are specific to context.

Analytically, the typology presented is useful for a broad positioning of a country's political-economic context. From an operational perspective, the dimensions underlying the two main axes of intertemporal credibility and political inclusiveness themselves offer traction in terms of developing principles for intervention. The goal is not, and cannot be, to change a country's political economy setting per se; countries are where they are on the basis of long historical trajectories and deeply rooted sociopolitical forces. Rather, the objective is to target interventions to be compatible with underlying incentives and dynamics and possibly alter them for the better. In other words, "[An] institutional approach opens the promise that if we can understand the determinants of political equilibria, then we can design interventions that will make poor societies prosperous." (Acemoglu and Robinson 2010, 161).

In this spirit of an analytically positive and operationally prescriptive logic, the authors propose that the framework adds value to the similar typologies noted and built upon. This chapter has articulated the dimensions underlying the two axes of intertemporal credibility and political inclusiveness showing that strengthening performance on each dimension is associated with more salutary developmental outcomes. With this more finely grained appreciation of the underlying political and institutional characteristics affecting natural resource management outcomes, development practitioners and country counterparts can move toward articulating good-fit interventions that are compatible with underlying incentives.

Building from the typology, three basic types of incentive-compatible intervention are possible across the value chain as follows:

- Interventions primarily aimed at *extending time horizons*, thereby enhancing intertemporal credibility; for example, emphasizing a simple, rule-based process for granting resource concessions that minimizes investor uncertainty and enhances predictability.
- Reforms that emphasize *mobilizing stakeholders* to cooperate on natural resource management, thereby broadening political inclusiveness; for example, easing information asymmetries by using model contract and fiscal regimes, or at least disclosing contract terms in order to empower third-party audit and oversight.

- Interventions that *enclave institutions and capacity* in natural resource management so that some functionality, albeit limited, is possible even when the wider political economy dynamics are perverse.

Such intelligently designed interventions can support institutional dimensions in which countries are relatively strong, strengthening salutary dynamics by tapping into incentives that push in the right direction. Furthermore, where opportunities present themselves to tip dimensions to a better trajectory, development partners can work with counterparts on bundling transformative interventions that could alter underlying dynamics.

Each of the following thematic chapters—chapter 3 on sector organization, chapter 4 on taxation, and chapter 5 on public investment—explains the political economy incentives and dynamics that are particularly relevant at each respective point of the value chain, positioning them against the four political economy settings sketched in the typology and showing how they contribute to typical natural resource management outcomes in low-income, resource-dependent countries. Specific potential good-fit interventions are presented that make sense within those political opportunities and constraints, with descriptions of how different mechanisms might be incentive-compatible and perhaps ultimately transformative. In other words, the interventions specified in these more technically oriented chapters are practical and institutional technologies for addressing, in different ways based on context, the fundamental political economy challenges facing resource-dependent developing countries.

## Notes

1. Even in countries with traditions of private subsoil ownership, natural resources are still a source of revenues for the state; perhaps most importantly, though, that revenue flow requires neither an expansive tax apparatus nor an intrusive role for the state in the economy or in relation to society (see Dunning 2008b).
2. The concept of the “short route to accountability” was developed in the context of service delivery to society. Whereas the traditional, long route goes through clients as citizens influencing policy-makers who then influence service providers, the short route sees clients exerting direct influence over their service providers (World Bank 2004b).

3. Beginning with modernization theorists such as Rostow (1960) and Lipset (1959), a long and distinguished tradition in political science and political economy has been concerned with the relationship between economic development and political and administrative institutions. Przeworski et al. (2000) have provided a seminal statement: Above a certain income threshold, countries are likely to be democratic. Here, it should be recognized that that institutional quality is, at least to some extent, endogenous to income levels.
4. A caveat is worthwhile in presenting these findings: Most of the studies mentioned are cross-national statistical studies, and the mixed results come from the fact that the statistical models are, of course, sensitive to which variables are included or omitted. We adopted a qualitative approach for this study in the belief that context matters. This type of case study work also offers a complementary methodology through which to draw causal inferences about how resource dependence and authoritarianism or conflict are intertwined.
5. This is known as the “voracity effect,” modeled by Tornell and Lane (1999).
6. Robinson, Torvik, and Verdier (2006) have modeled a country with weak institutional controls where a resource boom creates incentives for politicians who want to stay in power to spend resource windfalls on public programs and employment.
7. Mahdavy (1970) is usually attributed with the first articulation of the phenomenon of the rentier state and the notion that governments’ access to windfall rents frees them of the need for taxation and thereby dampens accountability.
8. Adnan Vatansever and Alexandra Gillies (2009) informed this document by articulating this important point.
9. Karl (1997) and Dunning (2008a) provide empirical details on how natural resource countries have lower rates of nonresource taxation, both in a comparative sense and over time within specific cases.
10. Moore (2004) provides a discussion of rentier states and their conformity to the propositions of fiscal sociology.
11. Steven Webb initially articulated these two rent arenas in his paper synthesizing five Latin American cases, which was commissioned for this study (Webb 2010).
12. Olson (1993) develops the concepts of roving and stationary bandits in articulating a theory of economic development under dictatorship and democracy. One of the key characteristics that distinguishes a political economy setting under a stationary bandit (or institutionalized regime) from that under roving bandits (leaders who are unconstrained by organizational arrangements) is that the time horizons are longer in the former. The intertemporal dimension of the typology presented here hinges on this elegant insight. Clague et al. (1996) provide valuable observations on this concept.
13. Evans (1989) identified developing countries with such outcomes as predatory apparatuses. Lal and Myint (1996) characterize such settings as predatory and factional. Eifert, Gelb, and Tallroth (2002) label this outcome a predatory

- autocracy. Kohli's (2004) spectrum of developing countries characterizes such settings as neopatrimonial.
14. This political-economic setting corresponds, to varying degrees, to Lal and Myint's (1996) predatory and autonomous, and paternalistic or modernizing autocracies in the Eifert, Gelb, and Tallroth (2002) scheme.
  15. Corresponding to Lal and Myint's (1996) factional and benevolent states, Kohli's (2004) fragmented-multiclass states, and factional democracies in the Eifert, Gelb, and Tallroth (2002) typology.
  16. Evans (1989) identified such outcomes as developmental; Lal and Myint (1996) characterize such settings as autonomous and benevolent; Eifert, Gelb, and Tallroth (2002) label this outcome a mature democracy; and Kohli (2004) characterizes such settings as cohesive-capitalist.
  17. The World Bank is explicitly prevented from doing so by its Articles of Agreement.
  18. This discussion draws heavily from Barma and Viñuela (2010).
  19. This discussion draws heavily from Barma and Viñuela (2010).
  20. Developed under the auspices of the French Development Cooperation agency, based on informed and comparable respondents, the Institutional Profiles Database (IPD) provides a rich assessment of specific political-economy and institutional dynamics. Refer to Crombrughe et al. (2009); database is found at <http://www.cepii.fr/anglaisgraph/bdd/institutions.htm>.
  21. The Public Policy Attributes (PPA) dataset of the Inter-American Development Bank, originally constructed to draw links between political institutions and policy outcomes, presents a range of indicators for five core attributes of public policy and four core attributes of political institutions. Data are now available for 152 countries spanning all regions of the world, at [http://www.iadb.org/res/pub\\_desc.cfm?pub\\_id=DBA-008](http://www.iadb.org/res/pub_desc.cfm?pub_id=DBA-008). See also Berkman et al. (2008).
  22. The Worldwide Governance Indicators (WGI) dataset maintained by the World Bank provides cross-country measures over time of six dimensions of governance. Each indicator is aggregated from a series of underlying indices; the data should be treated with caution, as the composition of each indicator varies from one year to the next, but the measures provide a reasonable cross-country comparative snapshot across dimensions of governance, as well as a fair sense of evolution in a country's governance environment over time. Data are available at <http://info.worldbank.org/governance/wgi/index.asp>. See also Kaufmann, Kraay, and Mastruzzi (2009). Note: the World Bank's Country Performance and Institutional Assessment (CPIA) scores countries on 16 indicators, a number of which are more specific than the WGI data; yet CPIA indicators are publicly available only for International Development Association countries.



## **Extracting Resource Wealth: The Political Economy of Sector Organization**

The organization of the natural resource sector at the upstream part of the value chain—specifically the legal and regulatory framework, the government’s establishment of its role in key dimensions of resource ownership and in distribution of extraction and production rights, and government agencies’ capability to oversee and regulate the sector—has reverberating consequences for how resource rents can be transformed into developmental riches. Different forms of sector organization represent mechanisms to resolve the competing political, economic, and social priorities of both governments and investors and enable them to manage the risks and uncertainties in the extractive industries. This chapter provides a political economy framework for understanding the challenges facing resource-dependent countries in organizing the extractive industries sector.

Competition over rents, no matter from where they derive, is a central fact of any political economic system. In resource-dependent developing countries, the magnitude of rents can be enormous, making the extractive industries sector itself a key locus of political contestation. Moreover, once any particular group of elites has access to a share of the resource rents, distribution of those rents will be subject to multiple objectives. A dynamic centrally related to the upstream part of the natural resource value chain is associated with time horizons. On one hand,

governments are keen to maximize short-term rents, for example, in the form of signing bonuses and contracts that front-load revenue streams. These rents can be distributed in near-time periods, particularly to secure political stability and support and sometimes to increase the provision of private goods to elites and their clients in patronage networks. On the other hand, it is also in the interest of governments to maximize long-term rents, usually in the form of revenues from taxation and royalties, because these resources can be used to invest in public infrastructure and service delivery, which in turn can enhance societal welfare and increase government legitimacy and support as it delivers on the state-society compact. The effects of time horizons on public expectations and the political economic system are thus central to choices or outcomes in terms of sector organization.

In addition to these temporal concerns, governments also must calibrate the optimal mix between two often competing goals: (1) efficiency, hence maximal wealth creation and (2) flexibility, or the ability to maintain discretion in how resource rents are created and distributed. With these basic trade-offs in mind, this chapter explains how certain types of upstream arrangements regarding state ownership of natural resources and different contract or license allocation mechanisms can be incentive-compatible and sustainable; the chapter further offers potential “good enough” governance innovations that can enhance welfare while still considering political and social objectives.

It is worth noting that the extractive processes for hydrocarbons are different from those for metals and minerals. Yet many of the underlying political economy dynamics are present across both sectors, or, at least, vary in degree rather than in kind. This chapter, as well as the volume as a whole, proceeds generally by discussing the similarities, but explicitly makes distinctions when necessary. From an analytical perspective, furthermore, many of the political economy dynamics pertaining to the upstream part of the value chain (sector organization, ownership, license allocation, and so on) are inherently interrelated with those at the mid-stream (taxing and collecting resource rents). A brief introduction links these dimensions, then the chapter examines how governments, investors, and social groups interact in the process of extracting hydrocarbon and mineral resources. Chapter 4 focuses on alternative tax policies and fiscal regimes for the capturing of resource rents.

## A Stylized Look at Rent-Capture Regimes

As discussed in chapter 2, governments of countries richly endowed in natural resources face two major sets of policy challenges, or, as termed here, need to make decisions in two “rent arenas” (figure 2.3), in transforming oil, gas, and mining resources into economic and social development. Upstream decisions center on the organization of natural resource extraction and the generation of resource rents through taxation. Subsequently, downstream management concerns the state’s allocation of natural resource rents across consumption, investment, and financial savings.

Presented here is a stylized framework for the upstream dimension of how a resource-dependent government can generate and capture rents from the extractive industries, the challenges falling in three key sets of policy questions:

- **Model of ownership:** How does a country choose to structure the ownership of natural resources? Does a national oil or mineral company exist? Does the state choose to take an equity share in hydrocarbon or mineral production, and how does it structure that share? What are the ownership rights of subnational levels of government and affected communities?
- **Contract models:** What contracting models does a country select on the spectrum between criteria-based licensing (increasing transparency and efficiency) and direct negotiation (increasing government discretion and flexibility)? How do governments use contractual arrangements to cope with price volatility?
- **Fiscal regime:** What is the optimal combination of taxes and royalties that over time maximizes the rent stream that a country can generate from its natural resources while ensuring administrative capacity to implement the selected fiscal regime? How can a fiscal regime mitigate a country’s vulnerability to price volatility?

A country’s “rent-capture regime” is the cumulative result of such choices, incorporating decisions regarding exploration, extraction, and taxation. Exploration and, especially, extraction typically involve significant outlays of investment under highly risky, uncertain conditions. Negotiated agreements on contract terms and fiscal regimes between resource-endowed countries and investors are also subject to an

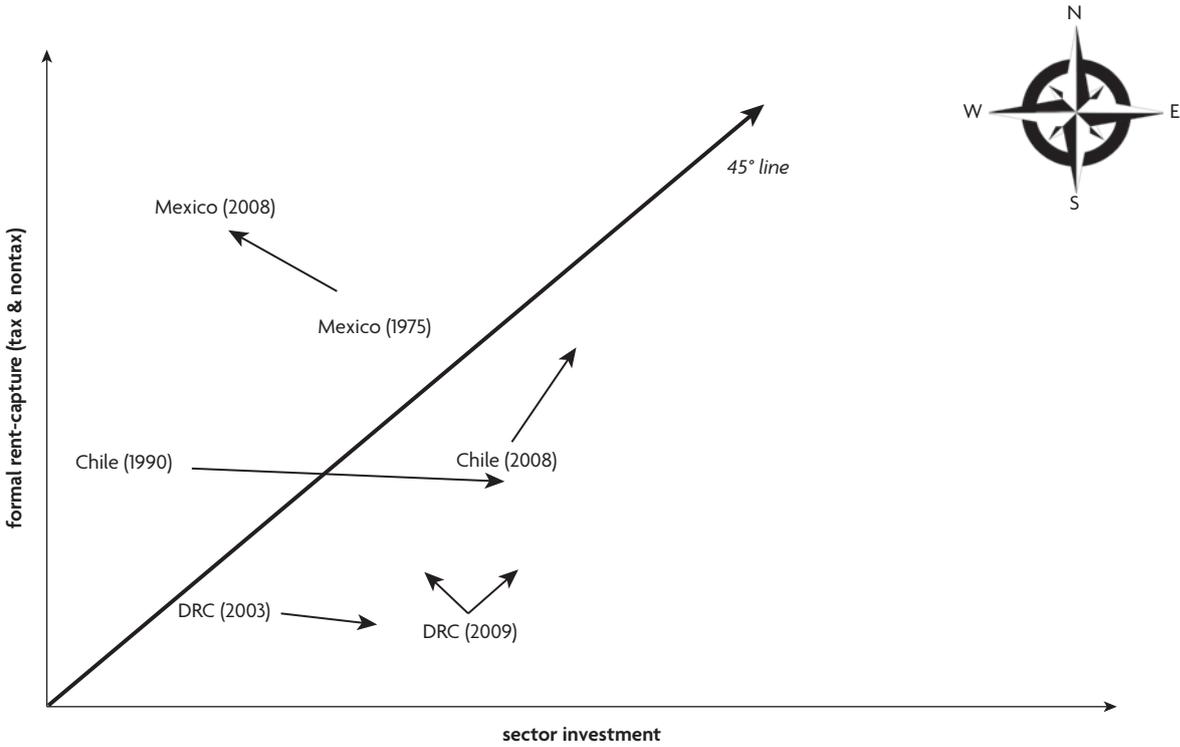
obsolescing bargain (described in further detail below), whereby the relative risks faced by government and investor change over the life cycle of the project.

Given that oil, gas, and mining projects have life spans from a few years to decades, a key challenge is to make credible bargains that optimally align the time horizons of investors and country counterparts. At any given time, a country will want to ensure a balance of sufficient investment in exploration and extraction to ensure future rent streams, while maximizing formal rent taxation in the present period. The stylized model is shown in figure 3.1. To sustain and increase rent streams, the host government will need to mobilize financing for investment through private or public operators (x-axis). The government will concurrently seek to maximize the overall rent stream from the sector (y-axis). For now, assume that this is a formal rent stream, accruing to the treasury, rather than a private rent stream to particular members of the elite coalition, although instances can be found in which revenues are kept off-budget to make side payments to ensure specific political economy bargains or to draw on for illicit purposes, that is, outright corruption.<sup>1</sup>

In essence, in order to optimally secure rent streams from the natural resource sector, countries will want to move outward on the 45-degree line shown in the figure. To move in this general direction, a country may have to tack back and forth, as in sailing, and may even have to deviate significantly from the 45-degree line. Contracting and taxation policy and administration are the key instruments the country will use, and which “sail” to use at any given point will depend on possible trajectories to the desired destination. Proper sequencing is crucial because time lags across the phases of exploration, securing investment for extraction, and resource rents coming on stream can be from 3 to 10 years for oil and up to 20 years for mining. Trying to capture the rent stream too early, for example, through expropriation, will dampen future investment by making a country likely to move northwest and then south in the framework.

A description of the historical trajectories of upstream management in Chile, Democratic Republic of Congo (DRC), and Mexico will illustrate the framework. (Annex 3.1 provides a snapshot of current practice in the countries studied for this volume.) DRC in 2003 had very weak institutions and a high risk premium in international markets, but it moved east on the investment axis by attracting a number of

Figure 3.1. Stylized Framework of a Rent-Capture Regime



Source: Chevallier and Kaiser 2010; Diaz-Cayeros 2009; Navia 2009.  
 Note: DRC = Democratic Republic of Congo.

blue-chip investments (for example, Freeport and First Quantum). The 2007–09 contract review process arguably complicated this move, with concerns about potential expropriation of these two high-profile deals as they were coming to production. At the same time, in 2009, DRC was able to conclude a major resources-for-infrastructure deal with China. It is unclear in which direction DRC will now head and whether such bundled resources-for-infrastructure deals with China are somehow more immune to a high-risk profile than are Western traditional investments. A key challenge is that DRC's formal capture of rents from the sector is very low, owing both to the risk premium that investors demand from the country and to weaknesses in the country's revenue administration.

Over the past two decades, Chile has been successful in attracting more investment in extractive industries (moving east in the framework), and to some extent increasing formal rent capture (moving north). This has largely been a result of a bifurcated approach to upstream management. The state-owned operation CODELCO continues to generate most rents, but with low investment in exploration. On the other hand, private investors generated most of the expansion in investment and hence in extractive capacity over the time period, but at low levels of rent taxation. This “discount” may have been necessary to attract investment, given the uncertain institutional environment during the Pinochet era. Now, however, given institutional development and the apparent strengthening of the rule of law in recent elections, Chile enjoys a better reputation and can begin trading up to more rents in the future stream of contracts.

Finally, Mexico is extracting significant rents from existing state-owned PEMEX operations, but has not been able to attract other oil investment. Comparing extraction on the south coast of Texas and Louisiana with the Gulf of Campeche offers a stark contrast. From the perspective of further developing the sector and enhancing future rent streams, Mexico should now want to see more investment (that is, move east), in order to then be able to generate more rents (moving north). But what are the policy options that could enable it to do so, and would the underlying political economy dynamics support such a move?

At any stage, country authorities will want (1) to maximize present rents and (2) to attract and sustain investments in both exploration and

extraction that promise the generation of future rents. Policy advice in terms of the rent-capture regime consists of a range of extraction and taxation options. This chapter now focuses on the first part of that equation: how the extractive industries are organized, in terms of sector regulation, models of ownership, licensing and contracting processes, and the capacity of government agencies to regulate and monitor the extractive industries. The political economy dynamics surrounding the exploration and extraction stages tend to be parallel. Here, the focus is mainly on extraction; while exploration is crucial, it concerns potential rather than actual rents. Chapter 4 takes up the matter of taxing resource wealth.

### **Paradoxes of Sector Organization in Resource-Dependent Settings**

The way a resource-dependent country's government interacts with would-be resource investors, along with the mechanisms through which it exercises control over the natural resource sector, is crucial in determining the rents and sustainable development benefits that will accrue to its citizens. In a concrete sense, questions of sector organization set the tone for natural resource management. In turn, the quintessential paradoxes of natural-resource-dependence emerge upstream in the sectoral value chain. These problems are common in form to public policies in general, which, for successful implementation require decision makers willing to work with long time horizons and operating in institutionalized arenas for the effective enforcement of political and policy agreements (as discussed in chapter 2). But these challenges are increased by the singular features of the hydrocarbon and mineral sectors that erode intertemporal cooperation and decrease political inclusiveness. The three key paradoxes related to sector organization that frame this chapter concern the predictability of natural resource management policies, the relative bargaining power between government and investor at different points of the project lifecycle, and the tension between private and public interests.

The predictability of policy and the regulatory framework related to the natural resource sector is essential to salutary developmental outcomes, yet it is common for governments to seek to retain discretion to change the rules of the game. All else being equal, lower predictability

undermines confidence and increases the risk investors face, no matter what rules are set out; in turn, this means that investors will demand more favorable terms if they are to take on this higher risk. A vicious cycle may develop, as a government (particularly a new government) may seek to unravel the terms of a previous agreement if the perception is that the investor received terms unfavorable to the country. The risks of policy instability and contract renegotiation will also result in underinvestment in future extractive projects (Bohn and Deacon 2000). As will be described further below, the predictability or stability of policy is contingent upon the political economy setting and how it interacts with the distinctive characteristics of the sector—in particular price volatility and high economic and technological risk, which undermine domestic policy commitments. Predictability does not preclude change, but implies that adjustments should be made incrementally without affecting the stability of the overall framework.

Contract negotiations in the hydrocarbon and mineral sectors are characterized by asymmetric capacity and information between the parties, but the relative bargaining power between governments and investors shifts over the life cycle of extractive industry projects. As a result of these asymmetries, commitment problems are inherent in the upstream part of the natural resource value chain. In addition, over a project lifecycle, government and investors take on different forms of risk and uncertainty at different stages. Institutional design is crucial to resolving this specific challenge of the obsolescing bargain; in short, investors need to be assured that their contractual arrangements are stable. In order to develop interventions or self-reinforcing institutional designs for the sector, it is essential to understand the time horizons facing key decision makers and what shapes these time horizons.

Resource rents have the potential to allow governments to expand the public goods they provide without imposing additional taxes; but there is tension in decision making because private and public preference regarding resource ownership must be balanced, and this tension is intensified because of the stakes involved. The tendency of upstream decisions to be made by a small cadre of elites often undermines the extent to which these decisions are welfare-enhancing for the country as a whole. The more resource-dependent the country, the more likely even very technical decisions are to rise to the top of the power ladder and

become highly politicized. In many political economy settings, natural resource rents are used to underpin delicate political bargains. Sometimes these rents take the form of formal side payments to groups with the potential to perpetrate violence (North et al. 2007); for example, in Chile, the military receives a fixed share (currently 10 percent) of rents from the national mining company. In other cases, political elites siphon off resource rents as personal payments, limiting the rent stream channeled on-budget for sustainable development outcomes.

### **Key Technical Issues in Sector Organization**

Different forms of sector organization serve as mechanisms to resolve the competing priorities of governments and investors and enable them to manage the risks and uncertainties of the extractive industries. In this chapter, the focus is on four key dimensions of sector organization and their implications for sector governance: (1) the legal and regulatory framework, (2) models of ownership in the extractive industries (with an emphasis on national oil and mining companies), (3) the allocation of rights for exploration and production (oil and gas) or extraction (minerals), and (4) the capacity of government agencies tasked with regulating and monitoring the sector.

### **Legal and Regulatory Framework**

Decisions on sector organization are made within the context of a country's constitution and the legal and regulatory framework in place for the extractive industry in question. Who owns and has rights over subsoil natural resources is commonly defined at the constitutional level, while all other aspects of extractive activities are left for petroleum and mining laws to delineate. These sector laws define, for example, whether the state has a monopoly on the extractive industries or competitive principles are in place, and who is responsible for allocating licenses and monitoring operations, along with the procedures in place. These rules and the incentives they create have important implications for the behavior of policy makers, bureaucrats, and investors at all stages of natural resource management. An enforceable, transparent, and comprehensive regulatory framework for natural resource sectors provides a stable and predictable policy environment. Policy reversals or constant changes to laws

and regulations tend to undermine the credibility of the regulatory framework, no matter whether the specific set of rules devised is most beneficial to investors, government, or society. Yet the legal and contractual frameworks for extractive industries must be flexible enough to adapt to the exogenous price and production shocks that cyclically affect these sectors (Tordo 2007).

Mongolia's experience with its evolving legal framework illustrates "how sensitive mineral sector investors are about tenure security and how easily and quickly positive developments can be reversed if the fundamental pillars in mining policy and granting principles are modified" (Ortega Girones, Pugachevsky, and Walser 2009, 63–64). As part of its political and economic transition from socialism, Mongolia enacted a new minerals law in 1997 that was considered extremely attractive to investors and thought to embed many good governance hallmarks in the minerals sector, including especially a commitment to the first-come, first-served principle for granting mineral rights. In 2006, however, the minerals law was amended, changing the security of rights tenure and creating new risks for license-holders. The 2006 amendments also designated a category of "strategic deposits" in which the government had the right to take a 50 percent equity share in extraction; this marked the beginning of a prolonged and energetic public debate about what constituted the government's and, by extension, citizens' fair share in the country's mineral wealth. Commercial activity in the sector was directly affected by these changes to the legal framework. The enactment of the 1997 law marked a clear increase in sector investment and activity. The 2006 amendment, in turn, has had a negative impact on the sector—bringing a marked decline in license activity. Mongolia witnessed the consequences of this period of investor uncertainty on the predictability of mineral sector policy—with activity on the world-class Oyu Tolgoi copper deposit halted as a result of the debate on equity share, the country was not positioned to take full fiscal advantage of the most recent boom in copper prices. Similarly, since the mid-2000s Bolivia and Ecuador have repeatedly introduced changes in their laws governing hydrocarbons, triggering renegotiation of contracts and the withdrawal of several investors (Cuevas 2009; Toranzo Roca 2009).

The formal rules established by the legal and regulatory framework also interact with informal social norms and traditional codes of

conduct, hence it is important to mention customary or indigenous rights to subsoil assets.<sup>2</sup> This issue is necessarily setting-specific, but many countries (including Australia, Canada, the United States, and many Latin American nations) must deal with the claims of indigenous peoples to “own” mineral or hydrocarbon resources and their consequent demands to have a greater (if not dominant) voice in project development and mineral extraction negotiations. A parallel issue is the equivalent claim of subnational governments and groups to ownership of natural resource reserves, which has great import in the political economy of Nigeria and Iraq, for example. A related debate is whether or not a local or affected community, however defined, should have a veto or at least a stronger voice in project development. Global practice in this realm varies a great deal. Serious constitutional issues emerge when, as in most countries, the resources are owned by all the nation’s people. Increasingly, local communities, whether indigenous or subnational, have been exerting claims to resources and the derivative benefits streams, often at loggerheads with central government authorities and sometimes having a major effect on macropolitical discourse and outcomes in resource-dependent countries. Such issues can constitute a key risk for would-be investors and national governments and can discourage the development of natural resource sectors.

Turning back to formal institutional frameworks, the quality and consistency of the legal, regulatory, and fiscal frameworks in a country have a major influence on natural resource management across the value chain. Niger’s mining sector legislation is subject to major inconsistencies because both its Mining Code of 1993 and its more recent Mining Law of 2008 are currently in effect. Moreover, this legislation presents key discrepancies with the 2003 Mining Code of the West African Economic and Monetary Union (WAEMU), of which Niger is a member (Yungu, Chevallier, and Viñuela 2010). As a further example, Ghana’s Mining Code conflicts with Ghanain customary law on land tenure, creating disputes over access to land, the allocation of responsibilities and benefits, and compensation to displaced or affected communities (Ayee et al. 2011).

In other cases, gaps in legislation or complementary regulations create problems throughout exploration and production. The more gaps there are in the regulation, the more complex contracts must become,

since they must cover issues well beyond the details of a specific operation. Such situations give the government enormous discretion in the allocation of extraction rights, but can also enable companies to negotiate overly advantageous terms for themselves. Ghana's mining code is widely considered investor-friendly, but it does not provide guidance on social and environmental issues, and these omissions have led to problems at the local level and growing tensions with local communities (Ayee et al. 2011). In some cases, special laws have even been passed to satisfy specific investors: Niger passed its 2008 Mining Law mainly to enable the development of the Imourarem mine, giving special incentives to large investors (Yungu, Chevallier, and Viñuela 2010).

Finally, enforcement of the legal and regulatory regime can be unpredictable, or worse, nonexistent. In many of the country studies for this volume, provisions penalizing companies for violating terms of the regulation and contracts were found to be seldom enforced. In Ghana, companies' uncertainty regarding environmental and community health and safety issues has led to contracts having to be treated on a case-by-case basis and has created considerable regulatory capture risks. Moreover, in spite of extensive evidence of health and safety problems, environmental damage, child labor, and other infringements, few companies, across this study's cases, have been fined or have had their licenses revoked as a consequence. Even in countries where regulatory reform appeared to have achieved salutary outcomes, good-practice institutional design is always vulnerable to renewed political interference (see box 3.1).

### **Models of Natural Resource Ownership**

Ownership of natural resources and extraction or production rights can be shared between governments and investors in different ways, each type of arrangement having implications for the relative ability of governments and investors to structure sector institutions and governance (Jones Luong and Weinthal 2006). The countries examined for this study exhibit different levels of participation of state-owned and private firms in the exploration and production of minerals. Ownership models in the extractive industries are determined by the attractiveness and stability of regulatory and fiscal regimes, past decisions on structuring the sector, and the instruments used to allocate rights and licenses.

### Box 3.1 Mining Code Reform and Political Interference in Madagascar

With Madagascar being rich in precious gemstones, rising prices and improvements in exploration in the early 2000s initiated a major mining boom. A new mining code adopted in 1999 also laid the foundation for sector governance, creating the Mining Cadastre Office (BCMM) as an arm's length agency under the Ministry of Mines to prevent political interference. Most significantly, perhaps, the BCMM replaced a discretionary system of mining permit management with a transparent, first-come, first-served principle. The code was completed in 2002 with the adoption of a special legal framework for large-scale mining investments, providing a privileged tax regime for projects above a specific investment threshold, along with a 40-year guarantee of the fiscal regime in place at the time of the extraction permit. The move toward greater transparency in mining rights management was associated with a surge of demand for exploration permits.

Evidence suggests that until 2005, the mining rights allocation process scrupulously followed existing regulations. But since 2006, repeated political interference in mining rights management, sometimes in open violation of existing regulations, has called into question the transparent, first-come, first-served governance of mining rights, as shown in the following examples:

- Eighty-six mining squares in a gold-rich area were given to an entity under the control of the military by presidential order, violating transparency.
- The permit allocation process was de facto frozen from January to December 2007, putting a hold on new exploration in a period of high international investor interest.
- A transparent permit auction for iron ore deposits in the Soalala region in 2008 was diverted into a discretionary process, screening out most interested bidders by requiring high upfront payments. Only three bidders stayed in, and negotiations between government and interested parties have been opaque.
- The transition government doubled the mining administration fee in 2010, disregarding the provisions of the mining code.
- Research permits for large surface areas have been allocated nontransparently to single companies, disrespecting legal ceilings on holder concentration. There is a formal ceiling on the number of permits a single company can hold, but there are examples of this rule being circumvented by registering a single company under different names.

Following the 2009 political crisis, the permit management process appears to have reverted further back to discretionary management. The BCMM appears to have de facto lost its permit allocation function since now these decisions are made directly by the Ministry of Mines. Allegedly, approximately 1,200 older applications and another 2,500 new applications currently remain on standby. According to insiders, in at least one case, a large number of mining permits might have been allocated to a foreign company in disregard of procedures, following political interference and supposedly involving high bribe payments.

*Source:* Adapted from World Bank 2010.

With few exceptions, developing countries in which state-owned enterprises are the major operators in the natural resource sector tend to face the problem of insufficient reinvestment to sustain exploration activities, as well as a lack of technical capacity. In Mexico, no major oil discovery has been recorded since the early 1980s. Despite being the

fourth-largest oil producer in the world and one of the most highly vertically integrated, PEMEX has neither the capital nor the technical expertise needed to exploit gas and deep-water offshore oil fields (Webb 2010). Similarly, Chile's CODELCO has problems raising revenues for new projects and exploring new areas (Navia 2009). Bolivia's YPF, though established in 1937, only started operating fields previously run by private companies in 2000. Since then, it has not conducted any exploration or maintenance activities, and private investment in exploration has fallen to a quarter of the initial level (Toranzo Roca 2009).

High costs, overemployment, above-market pay, and low productivity are also commonly observed when state ownership levels are high, as many of the state-owned enterprises in the countries studied for this volume illustrate. The practice of establishing state-owned enterprises creates powerful organizations, subsidiary companies, and unions, which can and do use their resources and mobilization capacity to acquire political capital and prevent major reforms. Moreover, high state participation can crowd out private investments in the sector, reducing the overall level of investment as well as the level of competition.

Some countries have mitigated the problems of state ownership by entering into joint ventures with private partners and opening new areas for competitive exploration. Trinidad and Tobago's national oil company PETROTRIN relies heavily on foreign corporations to raise the capital and expertise needed to extract offshore resources, mainly through joint ventures. The Trinidadian government offers incentives for private investments and uses its own capital to signal the genuineness of its commitments (Webb 2010). In contrast, the Chilean government, unable to inject capital into CODELCO, allowed private investments in the sector with generous tax incentives. While the best areas with known reserves continue to belong to the state-owned company, the stable policy environment that has characterized the country since the 1990s has attracted important investments; currently, two-thirds of copper exports are made by private companies (Navia 2009).

In addition to economic efficiency and competitiveness concerns, high turnover in senior management, politicization of appointments, and political interference in management decisions introduce additional considerations in the governance of state-owned companies. These features are emblematic of public officials' practice of using national oil or

mining companies to reward clients with jobs and contracts, common practice in Bolivia, Ecuador, and Mexico (Toranzo Roca 2009; Cuevas 2009; Diaz-Cayeros 2009, respectively). Some of the most severe examples of political interference and conflict of interest are found in DRC and Niger. In DRC, investors with interests in the sector are frequently appointed as senior managers at Gécamines, the country's mining company (Chevallier and Kaiser 2010). The company's board is directly appointed by the president, who balances the representation of different elite groups, and is subject to little or no oversight by the parliament. A panel of experts established by the United Nations identified such practices as interlinked with asset-stripping of the company through partnership agreements, control of procurement and accounting, theft, and use of the corporate facade for other illegal activities. Similarly, Niger's office of the president directly selects the board members of the country's national mining company, SOPAMIN, and conflicts of interest are rife (Chevallier and Kaiser 2010). In addition, legislators and other high-ranking public officials are often traders in the sector or on the payroll of mining companies.

Moreover, in cases in which the executive has the discretionary power to remove the management, the credibility of state-owned companies to enter in long-term contracts and joint ventures with private partners is compromised. In Chile, for example, the mining law allows CODELCO to enter into contracts with private investors, but managers lack autonomous decision-making power because they can be removed at the president's discretion (Webb 2010). Consequently, the company faces problems raising capital and expanding production areas.

National oil companies (NOCs) gained prevalence in developing countries with petroleum resources in the 1970s, as governments sought to increase their control over the petroleum sector and its rents through direct participation. NOCs are common to almost all major oil-producing developing countries and, because of their prevalence and centrality to the management of hydrocarbon resources, they are worth examining in more detail. Five of the six petroleum producers in the sample studied here have NOCs (see appendix), and the sixth, Timor-Leste, is currently planning to establish its own (Anderson, Barma, and Porter 2010). In general, NOCs are expected to perform well commercially while also carrying out a number of noncommercial activities such as policy making,

regulatory, and sometimes even public investment roles. The World Bank's Oil, Gas, and Mining Division recently completed a major comparative study of about three dozen national oil companies around the world (Tordo, Tracy, and Arfaa 2010), which emphasized that, unlike private oil companies, NOCs are driven by considerations beyond shareholder return. These motives include rent capture for the state (including through better domestic exploration and extraction), as well as achieving national developmental priorities, building local capacity, and enhancing domestic industry involvement in the processing of petroleum products. If a NOC exists, it frequently plays a major role in managing both the petroleum sector itself and subsequent development outcomes; that is, NOCs are commonly expected to operate both upstream in exploration and production and downstream in petroleum refining and marketing (McPherson 2003). More than 100 NOCs worldwide are estimated to control around 80 percent of known oil reserves and account for about three-quarters of global production (McPherson 2003). Given their prevalence and their handling of a huge volume of public revenues, governance of these companies has important consequences for the overall quality of petroleum sector management.<sup>3</sup>

When a country chooses to structure its natural resources sectors using a national company, it can implement certain principles of governance to enhance sector management.<sup>4</sup> For example, the "Norwegian model" of petroleum sector governance may be appropriate for other countries. Norway administers its petroleum sector using three distinct agencies: a national oil company, Statoil, that engages in commercial oil and gas operations; a government ministry that sets policy; and a regulatory body that provides oversight and technical expertise. Benefits from this separation of functions include more focus on commercial competitiveness by the NOC combined with better performance through independent regulation; reduction of potential conflicts of interest and prevention of state capture (and the tendency of NOCs to become a "state within a state"); and the fostering of innovation and checks and balances against poor decisions (Thurber, Hults, and Heller 2010).

Among countries with NOCs, Algeria, Brazil, Colombia, Nigeria, and Peru (among others) have attempted to empower an autonomous agency within government with responsibilities for policy and regulation (Stanford University 2010). Nigeria tried but failed to separate

sector management functions, and how this failure unfolded is particularly instructive from a political economy perspective (Gboyega et al. 2010; Thurber, Hults, and Heller 2010). The organization of the Nigerian oil sector in the early 1970s looked remarkably like the Norwegian model: the original NOC, the Nigerian National Oil Company (NNOC), was created in 1971; the Ministry of Mines and Power made policy; and the Department of Petroleum Resources managed regulatory affairs. But this separation of functions rapidly deteriorated under a powerful permanent secretary at the ministry who could subdue both his NNOC and regulatory counterparts. In response to extremely poor outcomes in the sector in the 1970s, the government decided to consolidate the country's limited human and institutional resources in the Nigerian National Petroleum Corporation (NNPC), combining the regulatory and commercial functions. Formal regulatory independence was reestablished in the 1980s, removed in 1998, then instituted again in 1999. Yet the Department of Petroleum Resources, even when formally empowered, has been unable to effectively oversee the oil sector. As Thurber, Hults, and Heller (2010, 13) found: "The principal reason is that Nigeria's political system is built around a patronage network fueled by oil revenue, and those in power have been disinclined to support the development of a truly autonomous regulator that could constrain their ability to distribute spoils to kin and associates." These same patronage dynamics can be seen in many other cases, undermining attempts to assert regulatory oversight and policy independence and thereby contributing to poor sector performance.

The benefits of the separation of functions notwithstanding, it may be that in resource-dependent developing countries—particularly those with low levels of human capacity and technical knowledge of the petroleum industry—consolidating the commercial, policy, and regulatory functions in one body may yield better outcomes (for example, Sonangol in Angola, Petronas in Malaysia, and PDVSA in República de Bolivariana Venezuela). Sonangol has facilitated the building of a very productive petroleum sector as one entity that operates as commercial operator, sector manager, and regulator (Hansen and Soares de Oliveira 2009; Thurber, Hults, and Heller 2010). This success is in part explained by Angola's historical lack of political competition and its consistent investment in domestic capacity. In the face of civil war, members of the

ruling Angolan elite formed a tightly knit, homogeneous leadership that was able to assert a united vision for the country's development, which in turn was implemented by close allies at Sonangol.

Ten of the 13 cases in the study sample have national oil or mining companies. The extent to which they observe principles of good corporate governance or achieve important outcomes like reinvestment in the sector varies a great deal, as illustrated in table 3.1.

In many developing countries, NOCs have become the focal point for a broad range of national economic and industrial development initiatives that go well beyond a focus on the petroleum sector. Such activities are more usually and appropriately carried out by governments, but "NOCs have been enlisted to perform them because of the cash they control, and because of their perceived capacity, a perception that . . . is probably true in relative terms." (McPherson 2003, 6). Elites have resorted to numerous mechanisms to assert political control over NOCs, decreasing transparency and diluting accountability in the process. Moreover, these poor forms of sector governance within NOCs have in turn fed back into and facilitated an erosion in the quality of national governance.

### **Allocation of Exploration and Production and Extraction Rights**

Countries allocate exploration and production (petroleum) or extraction (minerals) rights for the extractive industries in a variety of ways.<sup>5</sup> In allocating these rights, governments try to optimize results by balancing efficiency maximization, and hence wealth creation, against flexibility, or the ability to retain discretion in how resource rents are created and distributed. Most countries choose a system that operates somewhere in between, by either (1) direct negotiation between the state and interested producers through solicited or unsolicited channels, sometimes called "open door" systems, or (2) criteria-based licensing via open bidding rounds in petroleum or the first-come, first-served principle in mining, where the criteria for license awards can vary but are made public.<sup>6</sup> The former maximizes government discretion and flexibility, while the latter—depending on the design and clarity of parameters—enhances transparency and efficiency. An auction model for criteria-based licensing has a number of influential proponents among development partners and natural resource sector experts.

Table 3.1. National Oil and Mining Company Characteristics in the Study Sample

Country	Oil/Mineral Revenues as % of Total Public Revenues <sup>a</sup>	NOC/ NMC	Government Take	Corporate Governance	Reinvestment	Commercialization	Quasi-fiscal Activities
Angola	83.6	Sonangol	84.5	Medium	High	High	Yes
Bolivia	26	YPFB	—	Low	Low	Low	Yes
Congo, Dem. Rep.	2.4	Gécamines	—	Low	Low	Low	Yes
Chile	22.73	CODELCO	36.6	Medium	Medium	Medium	No
Ecuador	49	Petroecuador	52	Low	Low	Low	Yes
Ghana	13	GNPC	54.4	Low	Low	Low	Yes
Mexico	35.59	PEMEX	31	Medium	Low	Medium	No
Niger	42	SOPAMIN	—	Low	Low	Low	Yes
Nigeria	83.69	NNPC	85	Low	Low	Low	Yes
Trinidad and Tobago	57.77	Petrotrin, NGC	68.2	High	High	High	No

Source: Authors' compilation from IMF Article IV Consultations; Tordo, Johnston, and Johnston 2009; Otto and Andrews 2006; and case studies.

Note: — = not available.

- a. This can be a misleading statistic to gauge a country's resource-dependence, because it relies on the government's ability to collect revenues from the sector. DRC, for example, is far more resource-rich and resource-dependent than the 2.4 percent figure suggests; the low number is a direct result of high rent leakage and the government's excessively weak capacity to assess and collect mineral revenues.

The rationale is that by fostering competition, auctions force firms to reveal the true value of the natural resource for which they are bidding; the increased transparency that results can in turn prevent the corruption that often accompanies noncompetitive allocation of contracts (Collier 2008; 2010a).

The countries studied under this project show significant variation across the following contracting and licensing dimensions: transparency in procedures for awarding exploration licenses and production contracts; degree of competition in the allocation of permits; and the procedures used to prequalify bidders or applicants. A lack of transparency in procedures for allocating contracts, including secrecy and revolving-door policies, is a major problem for the development of the sector that has consequences for all other links of the value chain and hence the government's ability to transform resource rents into developmental riches. In DRC and Lao PDR, for example, exploration and extraction rights are commonly allocated on a discretionary basis without a bidding procedure instead of by employing a first-come, first-served system that operates on more competitive principles. Adding to this problem, the majority of deals are secret (Ayee et al. 2011; Chevallier and Kaiser 2010; Barma, Fritz, and Rex 2010). In many countries, award rules give competitive advantages, or even access to confidential information, to preferred companies. In Nigeria, for example, certain companies are sometimes given the "right of first refusal" for oil blocks, which allows them to put in the winning bid after the bidding round is officially closed (Gboyega et al. 2010). Other awards have been allocated directly, with the government invoking extraordinary circumstances to avoid holding competitive procedures. Another problem observed in countries that use bidding or auctions is a lack of adequate prequalification rules or stringent requirements for companies making an offer. In Nigeria and Niger, the absence of minimal prescreening of bidders has created enormous opportunities for speculation as companies with neither the credentials nor the capacity to explore were given blocks that they then sold later at a higher price (Yungu, Chevallier, and Viñuela 2010; Gboyega et al. 2010).

In some cases, contracts are awarded as the result of bilateral negotiations among heads of state or as a result of the direct intervention of political economic elites from other countries. Unsurprisingly, these projects then receive special treatment, with feasibility and environmental

evaluations either fast-tracked or ignored. In other cases, the repayment of investments is guaranteed by the awarding government. The resource-rich host country usually receives bilateral aid from the investor country or infrastructure to complement the projects in an exchange termed a “bundled resource-for-infrastructure deal.” Chinese government-backed investors are increasingly prevalent partners in such deals across Africa, East Asia, and Latin America. One potential positive result of such deals between sovereign or sovereign-backed entities is that they may help to resolve credibility issues and improve the enforcement of intertemporal cooperation and commitments. Note that, from a full value chain perspective, such bundled deals, particularly on the African continent, represent an “institutional technology” for resolving the broader inability of governments—in the face of the challenges around intertemporal cooperation and political inclusion—to transform resource rents into infrastructure. (This subject is discussed further in chapter 5.)

Policy failures in the contract negotiation and award stage will be closely related to weak transparency and accountability in the political system and the public sector writ large, but often the consequences are more acute in the mineral sector than in oil and gas. Even after initial resource discovery has occurred, the quality and quantity of mineral assets in abutting cadastral areas are more uncertain than those of hydrocarbon stores in adjoining blocks. Moreover, the structure of the global mining industry is subject to greater information asymmetries, since it is common for junior companies to take on exploration and then resell the rights for extraction to majors once a discovery has been made. This practice generates a rent stream from the majors to the minors that can be substantial and rarely benefits the host country.

### **Technical Capacity of Sector Agencies**

In countries with weak governance and institutional quality, sector ministries and agencies seldom have adequate capacity to properly regulate and monitor exploration and production. Ambiguous or ill-defined legislative mandates and other organizational weakness often reflect and magnify the perverse incentives embedded within the broader political economy context. A variety of problems are commonly observed with institutional quality in public agencies tasked with natural resource

management. Institutional redundancy, or overlapping institutional mandates, and weak coordination among public agencies and officials constitute a major obstacle to the effective management and regulation of the natural resource sectors. Ghana, for example, has more than half a dozen institutions with jurisdiction over land ownership, while Niger has two environmental agencies. DRC is an example of little coordination even among members of the same agencies. In Lao PDR, the lead or coordinating agency for the minerals sector is the Ministry of Planning and Investment, instead of the Ministry of Energy and Mines, but it is the latter in which technical capacity and monitoring responsibilities are vested (Barma, Fritz, and Rex 2010). In each of these settings, unclear and overlapping institutional mandates often mean, paradoxically, that no one agency is responsible for and can be held accountable for natural resource management.

Political interference throughout the natural resource management value chain is pervasive in resource-dependent developing countries. Even in countries where an independent regulatory agency is clearly empowered on paper, its functions are often hampered by political interference. Key positions in sector agencies, including regulatory bodies, are filled with political appointees with little sector background, in countries including DRC, Ghana, Mongolia, Niger, Nigeria, and Timor-Leste. Sector ministries and agencies often lack independent and adequate budgets, worsening the impact of political involvement (Ayee et al. 2011; Chevallier and Kaiser 2010). Often, the government agencies in charge of the contracting and licensing processes are staffed by political appointees, and contract negotiations are conducted as much through informal channels as via the designated processes. In Mongolia, for example, the head of the Mineral Resources and Petroleum Authority of Mongolia (MRPAM) has been replaced more than five times in the past decade, and there is a high level of discretion in the license allocation process, resulting in weaker credibility and transparency in the license allocation system. In Ghana, similarly, the government controls the selection of members to special commissions in the minerals sector, appointing individuals on the basis of political loyalty rather than merit and integrity. Such problems are by no means exclusive to the natural resource sectors in developing countries but, as discussed in chapter 2, can have particularly deleterious effects because of the massive stream of rents involved.

Sector agencies face severe problems in attracting, training, and retaining specialized personnel. In addition, they often are not provided with sufficient resources to conduct onsite monitoring of exploration or extraction sites. DRC's Directorate of Mines has 30 staff with no logistical support, laboratories, or vehicles (Chevallier and Kaiser 2010). Niger's Ministry of Mining and Energy has 23 engineers supervising mining projects and 30 oil exploration sites; it even relies on private extractive companies to provide government engineers with training and sometimes transportation to the sites (Yungu, Chevallier, and Viñuela 2010). In Lao PDR, government officials monitoring major mining projects are provided room and board and sometimes even salary supplements by the private companies, raising concerns about conflicts of interest (Barma, Fritz, and Rex 2010). In the other countries in the study, the administrative quality of regulatory agencies is equally weak due to low human capacity and the lack of salary competitiveness. As is the case with national oil companies or other state-owned enterprises involved in resource extraction, sector agencies experience high turnover in senior management, further weakening institutional capacity.

These problems of political interference and weak technical capacity are compounded by a lack of effective oversight from either the legislature or civil society organizations. Even in countries like DRC where there has been successful dissemination of information about the corrupt practices of government officials and mining sector investors, civil society groups continue to face obstacles to being able to have meaningful input into or oversight of contract negotiations. Together these factors make the sector agencies unable to resist political and external pressures, they increase transaction costs for operators, and they multiply the opportunities for administrative corruption and state capture. In short, each of these problems represents a leakage of resource rents into inefficiencies or private pockets, rather than being channeled into developmental riches.

## **Political Economy Settings and Dynamics**

In making decisions about sector organization—the structure and content of the legal and regulatory framework, models of ownership, and how licenses are allocated and sector agencies organized and staffed—political

elites respond to distinctive patterns of underlying political economy incentives and dynamics. These upstream dynamics are presented here using the typology of the four political economy settings presented in chapter 2, along the axes of intertemporal cooperation and political inclusiveness (table 3.2). In this context, the paradoxes characterized in this chapter—regarding policy predictability, intertemporal commitment problems, and private versus public calculus—manifest themselves in different ways across the four types of political economy settings. Also discussed here are political economy factors particularly relevant to the upstream part of the value chain, including narratives of sovereignty and ownership of natural resource assets, and particular forms of risk and uncertainty in the extractive industries sector.

Political economy settings of patrimonial rule are characterized by few restraints on the exercise of power and weak enforcement of intertemporal commitments. Predictability of policy making and implementation will be extremely low in these countries, with investors experiencing a

**Table 3.2. Political Economy Contexts and Upstream Dynamics**

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/ less collectively oriented</b>	<p><b>Patrimonial rule:</b> Individualized political authority; crony hierarchy; few restraints on power</p> <ul style="list-style-type: none"> <li>• Extremely low predictability; high risk to contractual stability</li> <li>• Extreme time inconsistency—obsolescing bargain acute</li> <li>• High private rent-seeking, more arbitrary</li> </ul>	<p><b>Hegemonic government:</b> Institutionalized one-party regime; either predatory or benevolent</p> <ul style="list-style-type: none"> <li>• Moderate predictability; lower risk to contractual stability</li> <li>• More time consistency—obsolescing bargain managed</li> <li>• High private rent-seeking, more institutionalized</li> </ul>
<b>More inclusive/ more collectively oriented</b>	<p><b>Clientelist pluralism:</b> Political competition based on extensive use of clientelism/patronage</p> <ul style="list-style-type: none"> <li>• Low predictability; some risk to contractual stability</li> <li>• High time inconsistency—obsolescing bargain acute</li> <li>• Less private rent-seeking (some political side payments)</li> </ul>	<p><b>Programmatic pluralism:</b> Electoral competition based on programs; horizontal and vertical accountability</p> <ul style="list-style-type: none"> <li>• Higher predictability; little risk to contractual stability</li> <li>• More time consistency—obsolescing bargain managed</li> <li>• Little private rent-seeking; emphasis on rent-sharing</li> </ul>

Source: Authors.

high risk that contracts will be unstable, and consequently demanding better contractual terms in order to operate in such environments. Because of truncated time horizons and low political inclusiveness, elites have the incentive to enrich themselves as much as possible in the short term. In other words, because elites cannot know how far into the future they will be in power and therefore able to continue to secure private benefits, they engage in a high degree of rent-seeking in the present. These are settings of extremely low institutionalization, where risk premiums for operating extractive industries are very high and reforms of extractive industries governance are extremely challenging.

Decision makers facing shorter time horizons highly discount future payments and prefer rewards in the current time period. These time horizons are in turn influenced by structural factors such as the nature of the regime or electoral system and expectations about future conditions such as projections of resource wealth (contingent on both production volumes and commodity prices) or the likelihood of maintaining power. When political elites face short time horizons, they are less likely to put in place transparent upstream processes and regulatory architecture, as evidenced in DRC and Niger, for example. Political incumbents with such time limitations, such as those worried about being replaced at the polls, may display strong preferences for signing bonuses and other upfront payments, in lieu of agreements that would increase government take in the future (Dunning 2008b).

In settings of both patrimonial rule and clientelist pluralism (that is, the left side of the table), commitment problems are intense and, as a result, time inconsistency is acute. The credibility of government's commitment in turn affects the quality of any deals that can be struck from the government's perspective. If a commitment is more credible, investors see that the bargains reached have longer time horizons and thus can offer the government better terms. If the credibility of the government's commitment is poor, on the other hand, this results in a lower quality equilibrium with relatively less attractive terms. Moreover, this is a dynamic process that shifts over time, with actions in the current time period affecting expectations and outcomes in the next time period and later. A vicious cycle often develops in settings where intertemporal bargains are only weakly enforced, as a government (particularly a new government) may seek to unravel what it views as

the unfair terms of a previous agreement, leading to the further undermining of commitments over time.

The particular commitment problem common in the natural resources sector in such settings has been defined as the “obsolescing bargain” between government and (particularly multinational) investors (Vernon 1971). At the start of a project’s life cycle, investors typically exercise substantial leverage in extracting favorable terms from the host government: on one hand, they face substantial geological risks and, on the other hand, they possess the required capital and technical skills to initiate exploration and extraction. Once production or extraction has actually begun, however, the bargaining power shifts to the government side, raising the political and financial risks to investors even as geological risks decline. At this point, investors have considerable sunk costs and governments have significantly increased leverage to renegotiate the terms of contracts. The ability and desire of governments to violate or subvert production agreements depend on other factors—global commodity prices, the timing of election cycles, popular sentiment on rights to a “resource dividend,” and so on—but the fact remains that over time the government has increased leverage to change the terms of the deal. Outright expropriation of extractive industry operations through nationalization is the extreme embodiment of this phenomenon; however, in many other cases, more subtle shifts to contract terms can occur.

The obsolescing bargain problem is worst in settings of patrimonial rule and can be almost as acute in countries characterized by clientelist pluralism. In the latter, commitment problems in general can be intensified by the pressures of nascent political competition, particularly emergent narratives of sovereignty over natural resource wealth. In Mongolia, for example, the commodity price boom interacted with the electoral cycle in such a way that the two most recent elections were held in an atmosphere of heightened awareness of the mining sector, with party platforms and subsequent government policy interconnected with the political economy of that sector. As a result of this activated demand to secure the national interest, the government sought to adapt the minerals law and attain a higher state equity share in the world-class Oyu Tolgoi copper mine. Investors in the mine resisted finalizing the deal on extraction terms with the government until public and political

clamor for a “fair share” for Mongolia had quieted down during the most recent global financial crisis (Finch 2009). Similar narratives have also been used at the subnational level, with impacts on intergovernmental relations; as the cases of Ghana, Niger, and Nigeria illustrate, high commodity prices have ignited demand from local governments in resource-dependent subnational regions to increase their share of the revenues derived from extractive industries.

On the right side of table 3.2, by contrast, there is a much lower degree of time inconsistency in countries with hegemonic government or programmatic pluralism. Investors in Lao PDR, for example, where the government is perceived as relatively nontransparent, have been able to make relatively longer-term deals with the state on the basis of their confidence in the regime’s stability and developmental orientation (Barma, Fritz, and Rex 2010). In Angola, the track record between the national oil company, Sonangol, and the government has proven their ability to make and enforce credible deals with investors (Hansen and Soares de Oliveira 2009), which illustrates that a virtuous circle of government credibility can develop. In such hegemonic governments, however, the benefits of secure contracts and greater investment in the extractive industries are often captured by a relatively small elite, often anecdotally, through conflicts of interest in the contracting system or backroom deals and kickbacks on contracts. It is important to note that the flow of resource wealth itself has consequences for the distribution of political and economic power in a country. Newly empowered actors (for example, domestic investors, often building on success in other sectors, such as construction companies in Lao PDR entering the mining sector) may find it in their best interests to demand changes to the institutional arrangements in place (Dunning 2008b), which, in cooperation with hegemonic governments, can concentrate wealth and benefits even further in the hands of the few.

In contrast, in programmatic democracies, investors can rely more on the firm checks and balances offered by vertical and horizontal systems of accountability—including checks on executive power by the legislature, bureaucracy, and judiciary, and the population’s oversight of government through elections and civil society—to enforce intertemporal commitments that are, in addition, relatively more welfare-enhancing for society at large. These institutionalized mechanisms of enforcement,

of both time consistency and political inclusiveness with public goods provision, also mean that the predictability of policy, and hence contractual stability, is much higher in programmatic democracies.

## **Policy Implications and Potential Interventions**

The premise of this volume is that using a positive analytical framework to understand how political dynamics shape certain outcomes, as outlined in the examples above, enables us to prescribe incentive-compatible, or “good enough,” interventions to enhance sector governance. As emphasized in chapter 2, some reform measures may be targeted at enhancing the performance of sector organizations, given the political and institutional constraints at hand. In addition, more ambitious programs sometimes aim to transform underlying incentives and move countries to a higher-level equilibrium. Presented here is an initial set of such good-fit interventions, focusing on the three paradoxes of predictability, time consistency, and private versus public calculus, showing how they play out differently in the four political economy settings. Table 3.3 outlines possible good-fit innovations for each environment.

Proposed are potential incentive-compatible reforms for various dimensions of sector organization, including emphasizing legal and regulatory clarity, building intertemporal flexibility into contract terms, easing information asymmetries in contract negotiations, disclosing the terms of extractive contracts, building sector capacity in various ways, and minimizing discretion in the license award process.

### **Legal and Regulatory Clarity**

Achieving consistency and predictability of political and policy decisions with regard to natural resources may be more sustainable and welfare-enhancing in the long run than emphasizing the most welfare-enhancing solution at any given moment. In this respect, a clear, simple, and nondiscretionary legal and regulatory framework is a crucial factor for attracting foreign investment.<sup>7</sup> Such a framework is particularly important in settings of patrimonial rule and clientelist pluralism. In these settings, weak enforcement is a major constraint, hence the simpler the legal and regulatory framework and, especially, the more clear-cut its assignment of responsibility and accountability to specific sectoral agencies, the more outcomes can be improved.

Table 3.3. “Good Fit” Upstream Innovation for Resource-Dependent Countries

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/less collectively oriented</b>	<p><b>Patrimonial rule:</b> Individualized political authority; crony hierarchy; few restraints on power</p> <ul style="list-style-type: none"> <li>• Simple, nondiscretionary legal and regulatory framework</li> <li>• Checks and balances in decision-making about license allocation; minimize discretion</li> <li>• Empower nonexecutive stakeholders (legislature, civil society) with oversight powers</li> <li>• Ease information asymmetries through geological surveys, model production-sharing contracts, etc.</li> </ul>	<p><b>Hegemonic government:</b> Institutionalized one-party regime; either predatory or benevolent</p> <ul style="list-style-type: none"> <li>• Sector agency capacity-building (enclaving capacity in key agencies)</li> <li>• Automation of objective steps in license allocation, minimizing discretion</li> <li>• Empower nonexecutive stakeholders (legislature, civil society) with oversight powers</li> <li>• Emphasize checks on executive power to reign in rent-seeking</li> </ul>
<b>More inclusive/more collectively oriented</b>	<p><b>Clientelist pluralism:</b> Political competition based on extensive use of clientelism/patronage</p> <ul style="list-style-type: none"> <li>• Simple, nondiscretionary legal and regulatory framework</li> <li>• Sector agency capacity-building (building incentives and coalitions for administrative reform and investments in capacity)</li> <li>• Checks and balances in decision making about license allocation</li> <li>• Mitigate risks associated with obsolescing bargain through intertemporal flexibility on contract terms</li> <li>• Ease information asymmetries through contract disclosure</li> </ul>	<p><b>Programmatic pluralism:</b> Electoral competition based on programs; horizontal and vertical accountability</p> <ul style="list-style-type: none"> <li>• Automation of objective steps in license allocation</li> <li>• Separation of functions across organs of government, relying on horizontal checks and balances</li> <li>• Full contract disclosure to enable monitoring by nonexecutive organs of government and civil society</li> </ul>

Source: Authors.

### Intertemporal Flexibility

How can the risks associated with the obsolescing bargain be mitigated? To relieve some of the pressures of short time horizons, and the instability they engender over time, it may be possible to build some degree of intertemporal flexibility into the terms of deals or contracts. In other words, contracts could contain clauses that permit governments and investors to agree to change the terms of the deal, for example, based on shocks in commodity prices. This issue is discussed further in chapter 4, since it is often the terms of the fiscal regime that would have to be renegotiated. Similarly, international development organizations have attempted to

intervene to mitigate political risk in some countries, but the results have been mixed. In its Chad-Cameroon pipeline project, the World Bank attempted to tie the Chad government to earmarking a specific portion of revenues to poverty reduction as part of an aid package to help the landlocked country develop its oil industry; however, in a sharp example of the obsolescing bargain, the government reneged on the deal once the oil started flowing. In Lao PDR, on the other hand, the World Bank has led a group of donors in supporting the Nam Theun II (NT2) hydropower project. Development partners have successfully assisted the government in developing what are known as the NT2 Revenue Management Arrangements to channel a portion of revenues to priority sectors, including health and education; the partners have further provided risk insurance to the consortium of private donors to guard against, among other forms of risk, sovereign default.<sup>8</sup>

### **Easing Information Asymmetries**

Development partners can play a role as third-party brokers in extractive industry contract negotiations to help to ease information asymmetries, or mismatches in the information available to different parties about issues like geological prospects, legal arrangements, and market conditions. Such efforts can enhance time consistency, improve predictability, and reduce the risks that investors face, thereby assisting client countries in securing better resource extraction deals for themselves. Several dimensions of contract negotiation and license allocation are amenable to greater transparency and more information-sharing. For example, donors might support geological surveys as an entry point, helping to make more geological information available to all parties about potential mineral reserves; this occurred in the World Bank–DfID (UK Department for International Development) Promines project in DRC.

Often, investors have more private information about petroleum and mineral reserves, so governments can benefit a great deal from more information before entering contract negotiations; for example, Brazil's investment in greater information on hydrocarbon reserves enabled the country to secure better extraction deals. At the same time, safeguard mechanisms should be put in place to ensure that the information is used adequately from the perspective of the collective good. The easing of information asymmetries is important in all types of political economy settings, but

could be of particular value in settings of patrimonial rule and clientelist pluralism as a mechanism to both enhance predictability and reduce time inconsistency, as well as to help diminish the impunity with which political and economic elites are able to pocket natural resource rents.

### **Disclosing Contract Terms**

Development partners can also persuade governments to disclose the terms of extractive contracts. This is an issue in which international nongovernmental organizations such as Oxfam International, Revenue Watch, and the Extractive Industries Transparency Initiative play an important role (Rosenblum and Maples 2009). Contract disclosure achieves a number of interrelated goals. First, it enables all government agencies to know and play their respective roles in monitoring and inspection in the natural resource sectors. Poor monitoring can result from government agencies tasked with the responsibility not even being privy to the contract terms they are supposed to be overseeing, as is the case in Lao PDR (Barma, Fritz, and Rex 2010). Second, contract disclosure is a first and necessary step in enabling civil society and non-executive organs of government to exercise oversight in the extractive industries as well. Third, it reduces information asymmetries between governments and investors, which helps bolster credibility and predictability over time and usually improves the deals that governments can make. One mechanism to achieve contract disclosure is to use model production-sharing contracts such that the bulk of terms are essentially standardized, as Timor-Leste did with encouragement from its development partners (Anderson, Barma, and Porter 2010).

### **Sector Capacity-Building**

Sector capacity-building is a more conventional, yet still important, intervention for improving outcomes in upstream natural resource management. Such reforms may achieve better outcomes if they are more targeted to context rather than being delivered as a supply-driven form of technical assistance. In situations of clientelist pluralism, for instance, capacity-building initiatives that emphasize coalition-building and coherence across the public sector could improve predictability in the extractive industries and might possibly mitigate some of the risks associated with time inconsistency while actually creating incentives for

actors to use this capacity. In contrast, in a hegemonic government, more targeted or enclaved forms of capacity-building could help to reduce the incidence of rent-seeking in contract negotiations by empowering public officials with the technical knowledge and skills necessary to implement a nondiscretionary licensing process. Further, capacity-building initiatives in weakly institutionalized environments—those of patrimonial rule as well as some hegemonic governments and some settings of clientelist pluralism—should emphasize as concrete reforms as possible. For example, development partners could assist domestic reformers in carving out niches in an organizational portfolio in which these reformers and their allies could begin to develop greater autonomy (Thurber, Hults, and Heller 2010, 24). Even in these weak governance environments, development partners may find they have some leverage and support for such targeted capacity-building by emphasizing the salutary effects it would have on the government's technical reputation and the potential consequent uptick in investment in the natural resource sector.

Further extending this logic, countries with very weak human and institutional capacity might not benefit from establishing a separation of sector functions as in the Norwegian model of distinct agencies playing separate sector functions (Thurber, Hults and Heller 2010).<sup>9</sup> In designing a good-fit organizational structure for a national oil company, consolidating domestic petroleum sector capacity, as was done with Angola's Sonangol, may be more fruitful, may help avoid capture of regulatory and policy functions (such as occurred in Nigeria, as discussed above), and may even be a step on the path to achieving a meaningful separation of functions. Regardless of whether functions are consolidated, an emphasis must be placed on capacity-building in the domestic extractive industries sector. Joint ventures between NOCs and international companies are common in oil-rich developing countries, and can be an important vehicle for transferring technical, commercial, and managerial skills and capacity to the NOC.

### **Minimizing Discretion**

In countries where political inclusiveness is low, that is, settings of patrimonial rule or hegemonic government, two types of intervention could help reduce rent-seeking and the accrual of natural resource rents to private pockets rather than for public gain. Development partners could

advocate minimizing discretion in the award of contracts and licenses through automating as much as possible the objective steps in the contract- or license-granting process. For example, simply recording whether the necessary supporting fees and materials are received with a minerals license application helps to ensure that proper procedures are being followed. In the petroleum sector, the analog would be using criteria-based rather than open door systems for allocating exploration and production rights. In both cases, government priorities can be emphasized by using explicit bidding or qualification parameters, while unnecessary discretion is removed. Adoption, public disclosure, and implementation of detailed regulations that encompass all phases of the granting of petroleum and mineral rights would support the minimization of discretion. To be sure, these are often politically difficult reform measures, since entrenched interests will fight to keep the status quo. The challenge, and at least part of the solution, lies in understanding the stakeholder landscape well enough to identify workable coalitions for such reform steps.

Furthermore, separating decision-making authority over the allocation of resource rights would help to limit rent-seeking and improve transparency and information-sharing (Dunning 2008b). For example, interventions could emphasize clear lines of institutional accountability in licensing decisions in the minerals sector and build in separate checks and balances, which could be accomplished through an inter-ministerial committee to vet allocation decisions and emphasize oversight in settings where an entirely independent license-allocation agency is unrealistic. Empowering nonexecutive stakeholders, such as a legislature or civil society groups, would provide even more extensive checks and balances and further bolster oversight. In the most difficult reform cases of weak political institutionalization and few limits on the exercise of power by elite-centered patronage networks, empowering other stakeholders within society through an emphasis on transparency—for example, audit of the NOC, clear bidding parameters for rights allocation—is an essential building block to greater accountability and better governance.

## **Conclusion**

This chapter has laid out some of the core policy and capacity decisions governments must make in extracting natural resources, particularly as

they strike deals with private investors in order to do so. When considering the legal and regulatory framework, the principles of simplicity, clarity, and predictability are at a premium across all political economy contexts. When it comes to questions of how ownership is structured and the process of contract and license allocation, on the other hand, there is no “best practice” model that all countries should follow. Finally, sector capacity-building is an important objective and conventional mechanism of intervention everywhere, but what was illustrated here is how it could be targeted more carefully to the specific environment.

The quintessential political economy challenges of natural resource management—predictability and stability of policy, enforcement of intertemporal commitments, and the private versus public calculus in deal-making—are apparent in the upstream part of the value chain. By the same token, many of the basic principles of intervention apply in sector organization: minimizing discretion to remove rent-seeking opportunities, easing information asymmetries and enhancing transparency, targeting capacity-building, and activating enforcement through checks and balances. More specific measures, emphasizing which might be most conducive in different political economy settings, have been outlined here. Similarly, the next chapter explores how “good-fit” tax policy and fiscal regimes can be developed based on country context.

Finally, it is important to emphasize that the value chain framework is not strictly sequential—in other words, downstream decisions made on public investment management in any given time period will inevitably have an impact back on upstream decisions on extraction in the next time period. For example, if a government decides that it needs to secure greater public support by providing cash transfers to the population or by expanding the public investment program to invest heavily in infrastructure, then pressures will build upstream to unlock greater rents by securing better deals on extraction; such a dynamic appears to be building in Timor-Leste with more rent-seeking in contract negotiations (Anderson, Barma, and Porter 2010). The impact of downstream issues on upstream management notwithstanding, policy decisions and practices upstream do set the tone for the potential of natural resources to aid in development.

### Annex 3.1. Basic Upstream Characteristics of Country Cases

Country	GDP per Capita, PPP <sup>a</sup> 2008 (US\$)	Hydrocarbon Revenues in % of Total Public Revenues (2007–09)	Mineral Revenues in % of Total Public Revenues (2007–09)	NOC/NMC	Petroleum Fiscal System	Mining Fiscal System	Government Take Petroleum (%)	Government Take Mining (%)
Angola	5,452.06	83.60	—	Sonangol	Production sharing, royalty		84.5	
Bolivia	3,954.37	26.00	—	YPFB	Tax/royalty	Tax/royalty		43.1
Chile	13,369.62	—	22.73	CODELCO		Tax/royalty		36.6
Congo, Dem. Rep.	297.11	—	2.40	Gécamines		Tax/royalty		
Ecuador	7,402.49	49.00	—	Petroecuador	Production sharing, royalty		52	
Ghana	1,342.16	—	13.00	GNPC	Tax/royalty	Tax/royalty		54.4
Lao PDR	1,985.70	n.a.	17.00			Revenue terms of specific concessions and licenses		
Mexico	13,406.74	35.59	—	PEMEX	Tax/royalty	Tax/royalty	31	49.9
Mongolia	3,296.52	n.a.	28.85		Production sharing state participation 25%	Tax/royalty	54	55
Niger	632.22	—	42.00	SOPAMIN	Tax/ad valorem royalty	Tax/royalty		
Nigeria	1,924.30	83.69	—	NNPC	Tax/royalty		85	
Timor-Leste	40.30	98.16	n.a.		Tax/royalty		72	
Trinidad and Tobago	22,874.53	57.77	n.a.	Petrotrin, NGC	Production sharing, royalty		68.2	

Source: World Bank Indicators 2011; Tordo, Johnston, and Johnston 2009; Otto and Andrews. 2006.

Note: a. PPP = purchasing power parity in US\$.

## Notes

1. Chile, for example, provides a formal share of revenues (currently 10 percent) to the military from copper. In many settings, these arrangements are less formal.
2. Craig Andrews provided valuable insights that make up this discussion. Ross (2007) discusses issues related to the geographic distribution of resources.
3. National mining companies are less common, in both developed and developing countries. Mineral extraction is technically more complex than petroleum production, and, with a variety of products and operations depending on the particular site, it requires more specific expertise. National mining companies, when they do exist, tend to be essentially vehicles for taking on state equity share, rather than being involved in operations in any meaningful way. In contrast, NOCs are often heavily involved in production.
4. For example, the *Natural Resource Charter* (2010) states that nationally owned resource companies should be competitive and commercial operations, which should avoid conducting regulatory functions or other activities. (precept 6, p. 12).
5. As mentioned at the chapter beginning, the focus here is mostly on extraction rather than exploration.
6. See Tordo, Johnston, and Johnston (2009) on technical issues regarding the allocation of exploration and production rights in the petroleum sector and Ortega Girones, Pugachevsky, and Walser (2009) on technical issues regarding mineral rights cadastres. This chapter expands on and adapts these frameworks in order to incorporate broader political economy concerns.
7. A number of policy papers produced by the Oil, Gas, and Mining Division of the World Bank outline the criteria for a such a legal and regulatory framework; see, for example, Mayorga-Alba (2009).
8. The NT2 project concerns hydropower, not the extractive industries of oil, gas, or mining. As noted in the introduction to this volume, however, many similar political economy dynamics apply in other natural resource sectors like hydro-power, and the NT2 experience provides an example of a good fit and innovative intervention.
9. The Norwegian separation of functions model is usually discussed in relation to national oil companies and the petroleum sector, but the logic also applies more broadly to the extractive industries.

## Taxing Resource Wealth: The Political Economy of Fiscal Regimes

A tax regime that is progressive and based on profits is commonly considered best practice for natural resource–endowed countries. These regimes promise to capture the bulk of resource rents from the sector, while ensuring the required investment associated with capital-intensive extractive industries. But developing countries often find this model challenging and even impossible to enforce. Instead, underlying political economy drivers and the resulting institutionally weak and fragmented revenue administration often lead to an excessive reliance on regressive fiscal regimes. At the same time, in many developing countries, tax legislation leaves ample room for ad hoc negotiations that ignore formal rules and create major risks for regulatory capture and revenue leakage.

Because of the high uncertainty and unpredictability of future resource wealth and market prices, as well as the accompanying political pressures, fiscal regimes are prone to instability and frequent change. Governments find it difficult to achieve stable taxation policies because the distinctive features of the natural resource extraction are compounded with the problems that weak institutions have in enforcing commitments over time. Developing countries with time consistency problems cannot simply copy the best models applied elsewhere; instead, they need to design country-specific “good enough” or “good fit” fiscal

regimes that are simple, transparent, and politically feasible given a state's objectives and tolerable risk level.

This chapter assesses the policy choices available to countries endowed with natural resources, focusing on fiscal regime design and implementation. Although a number of recent contributions already provide excellent policy guidance on natural-resource taxation and general tax administration reforms (see Daniels, Keen, and McPherson 2010; Otto and Andrews 2006; McLaren 2003; Gillis 1989), these studies build on a significant tradition of public finance that separates technical, economic, and institutional aspects of taxation and explains departures from best practice models as being a result of a lack of political will. The objective of this chapter is to fill the gap in the literature on how politics affect fiscal regimes by examining how particular choices in resource revenue policy and administration result from prevailing political economy features and institutional capacity endowments. The chapter provides guidance on how different starting points might shape the prioritizing and sequencing of certain policy choices in this area to enhance both overall rent-capture by the state and successful and sustained extractive industry investment in the sector.

Incorporating lessons on the underlying political economy and institutional constraints in low-income, resource-dependent countries, this chapter evaluates alternative fiscal regimes by examining their political economy and governance vulnerabilities and makes recommendations for designing good-enough alternative fiscal regimes. Given the political constraints in decision making regarding fiscal regimes, the framework points to measures that might mitigate the risks of unstable fiscal regimes.<sup>1</sup>

The first section presents a set of recurrent but seemingly paradoxical design and implementation choices in decisions on natural resource fiscal regimes. Existing fiscal regimes in developing countries are typically too complex to implement correctly, subject to instability, and affected by pervasive weaknesses in revenue administration capacity. The following section discusses the way natural resource taxation is designed and implemented, including the impact of such factors as diversity of resource type, intertemporal extraction considerations, price volatility and uncertainty, and optimization rules. Alternative fiscal instruments are then examined from a technical perspective, considering efficiency, administration and compliance costs, variability of revenue flows, and

corruption risks, while recognizing that various tax instruments tend to induce different types of distortions in investors' exploration and production decisions. This chapter then covers the institutional and political determinants of fiscal regime design as they relate to a government's discount rate, risk perceptions, and institutional and policy rigidities. The following section introduces a framework to identify feasible policy measures that contribute to durable commitments regarding fiscal regimes and tax administration capacity building. A concluding section summarizes policy recommendations for different political economy contexts.

### **Natural Resource Fiscal Regime Paradoxes**

Of the numerous fiscal instruments available for extractive industries, each has its own benefits and disadvantages along economic, administrative, and revenue enhancing dimensions. Tax regimes reflect various competing objectives, particularly simplicity, economic efficiency, and neutrality, along with adequacy and low variability of revenue intake. The inherently complex process of policy design becomes even more challenging in the extractive sector because of its distinctive technical and economic characteristics and the institutional and political incentives that are associated with it. A tax regime's design is determined by a number of political economic factors, including features of the extractive resource endowment, the mechanisms and institutions available for enforcing commitments over time, revenue administration capacity and governance, distribution of power, policy rigidities, and the extent of tax competition. Three areas of recurrent concern regarding nonrenewable-resource taxation will be outlined—namely fiscal regime design, time consistency, and revenue administration capacity—and the wider issue of how resource revenue-dependence affects state-society accountability will be considered.

### **Complex and Contradictory Fiscal Regime Design**

Countries that are resource-rich but have weak governance and low capacity often find it overly challenging to administer a fiscal regime centered on progressive, direct income taxes. Governments often decide to frontload revenues using production-based royalty as the major fiscal

instrument. This is a rational strategy in that although royalty is economically inefficient, it is simple to administer and has low revenue variability. Preference for steadier revenues, short-term horizons that hinder the development of administrative capacity, and risk avoidance explain the fact that royalties or other regressive instruments are the most commonly used taxes on mineral extraction.

But, paradoxically, developing countries often have more complex regimes than do higher-capacity countries. Many low-income, resource-dependent countries with poor governance and capacity in their revenue administration in practice resort to an overly complex multirate royalty regime imitative of the income/profit-based taxes or resource rent taxes on nonrenewable resource production. For example, in Ghana, until recently the nominal royalty rate structure was between 3 and 6 percent of the total revenues of minerals, applicable to all types of mining lease holders, large or small. However, the effective rate of royalty is based on the profitability of mining operations, which implies that the royalty can be determined only after both revenues and costs are calculated (Ghana Minerals and Mining Act 2006, section 25). Some countries apply a fiscal regime that is both complex and consisting of sharply contradictory elements, for example, combining high taxation rates and generous tax incentives. Nigeria's fiscal regime for the oil sector is a case in point. The royalty rates vary depending on the location (onshore or offshore) of production, on water depth of oil extraction, and on quantity extracted; however, the royalty is not linked to international oil prices. On the one hand, the regime applies rates considerably higher than the international average (20 percent royalty on onshore fields, and profits tax of 85 percent); on the other hand, it offers multiple compensating tax incentives. International experience shows that such regimes often lead to low compliance and high administration costs. A simple technical review of individual tax instruments in isolation from in-depth understanding of the country-specific political economic context would fail to explain the motives for such complex and contradictory tax policy design in these countries.

### **Perpetuating Time Inconsistency**

Fiscal regimes for nonrenewable resources in many developing countries often seem erratic and focused on short-term goals. For investors, the extractive sector is risky: it is capital-intensive and long term, and with a

high degree of uncertainty and unpredictability in both demand and production. For host governments, exploration and extraction risks, as well as commodity price volatility, make the revenue flow highly variable and cyclical. Both investors and the government would benefit from stable fiscal policies. Nevertheless, the absence of intertemporal cooperation among political forces, high discount rates for government officials, substantial payoff for deviating from agreements, and the fact that political exchanges take place in largely informal, uncertain, and nontransparent arenas—as commonly observed in resource-rich developing countries—contribute to ubiquitous time consistency problems.

Time inconsistency arises when policy makers are unable to commit in advance to a specific decision-making rule or a steady fiscal policy, which results in less desirable policy outcomes (Kydland and Prescott 1977; Persson and Tabellini 2000). The paradox is that time inconsistency is often exogenous to investors, but endogenous to domestic political economy. Repeated negotiations and fiscal regime changes elevate discount rates perceived by both firms and governments and result in less investment, inefficient short-term policy design, and poor performance. The inability of governments to commit, even if willing, to stable policies increases investors' perceptions of risk that the government will renege on contracts and increase taxation after investments are completed. Thus, it discourages new development and introduces distortions in the production profiles of existing projects. The fact that extractive industries require long timeframes for planning, and consequently involve irreversible and specific investments, incomplete contracts, asymmetric information, and price volatility, intensifies the commitment issues (Olsen and Osmundsen 2001; Boadway and Keen 2010).

Past tax increases are associated with a lack of credible commitments by the government. Investors will expect the host country to behave opportunistically after investments are sunk. In that case, in order to attract new investments, governments must signal that they are willing to compensate investors for the additional risk (and even lock in their ability to change the regime, for example, by introducing stability clauses). However, when investments are completed, and especially if prices surge at the same time, governments face difficulties in enforcing these commitments—because of voracity, rent-seeking, or

increased social demands—and tend to increase taxation. Some resource-dependent countries like Zambia were under tremendous pressure from civil society organizations and communities to review their contracts with firms while prices boomed. In Tanzania, as the mining sector became more prominent in the economy, electoral politics drove the change of the mining code. President Jakaya Kikwete promised to review the mining sector immediately when he took power in 2005. He initiated a review process in 2006 and, despite lengthy delays in drafting and negotiating the new mining code, the new Mining Act 2010 was passed by the parliament in April 2010. Prominent in the new act is the sharp increase in the royalty rate and base; in particular, the rate is to be applied on the gross value of minerals instead of the net value. This change is detrimental to the government's credibility in the long run and is likely to further deteriorate its negotiating position, forcing it to make greater concessions in the next round of negotiations, which in turn will become more and more difficult to sustain politically.

In response to fiscal regime changes that increase government's take, and the ensuing uncertainty, companies generally reevaluate future investments and adopt a more short-term production approach, increasing the rate of extraction at the expense of the long-term productivity of reservoirs. The result is that in the long run there will be deadweight welfare losses and the reduction of future tax revenues by an amount greater than the short-term gains. Thus, the repeated interaction between government and investors in these situations if commitment problems are not resolved leads to a suboptimal equilibrium of underinvestment and an unstable taxation regime that follows the price cycle.

Australia's recent efforts to increase revenue mobilization from its mining sector suggest that these types of negotiations are also present in more developed economies and are not exclusive to low-income countries. As government pronouncements indicate, the Australian government clearly faced pressures for capturing a greater share of rents for the country as oil and mineral prices reached unprecedented levels. Yet, Australia as well as Chile and Norway have successfully revisited tax regimes while at the same time safeguarding the long-term sustainability of the industry and without causing significant damage to investor

confidence, precisely because of their strong reputation for good governance and transparency (Hogan and Boldsworth 2010). Importantly, these countries have revised tax rates, but maintained their tax policy largely unchanged and respected the industry's overall economic position (Osmundsen 2010). In contrast, when developing countries with weak governance and low intertemporal credibility revise their tax regimes, they face serious reputational risk and tend to make their investment environments much less attractive.

### **Low Incentive to Invest in Revenue Administration Reforms**

Despite the fact that natural resources provide an abundant rent stream for governments to invest in improving their administrative capabilities, many low-income, resource-dependent countries exhibit notably low capacity and poor governance in revenue administration. The typical problems in revenue administration are inadequate organizational structuring, low human resource capacity, perverse incentive systems for revenue collection and taxpayer service, cumbersome processes, and lack of information technologies and logistical support. In addition, resource revenue collection spreads across multiple institutions, which generally do not have the incentives to cooperate or are not legally bound to do so. Because revenue administrations often have insufficient capacity, multinational corporations in the extractive industries typically self-assess their tax liabilities, which are, for the most part, not subjected to audit and instead simply accepted by government.

Prevailing institutional and political incentives, however, discourage investment in revenue administration capacity. First, reforms in this area are both resource-intensive and long term. They are also highly political, and success is impossible without sustained and broad-based support. Second, incumbents with short time horizons, therefore with high discount rates, have little incentive to change the status quo. Experience in administrative reforms, such as the establishment of semiautonomous revenue authorities in a number of African countries, indicates that their success is limited and difficult to sustain (Fjeldstad and Rakner 2003). Third, fragmentation in administration of revenues from the mineral sector, including the use of state-owned corporations as regulatory and revenue-collecting institutions, without institutional incentives or enforcement mechanisms for coordination,

inhibits successful tax administration reforms. Fourth, the lack of transparency in upstream contracting and signing of development agreements constitutes a major constraint to effective revenue administration.

### **Revenue Mobilization and Accountability**

Taxation is an important aspect of citizenship and governance. Individuals who do not pay taxes are less likely to demand transparency and quality in government spending and hold the government accountable. Governments that do not derive a substantive part of their resources from their citizens are less likely to pay attention to citizen demands and preferences (Karl 1997; Moore 2004). They will have a higher tendency to distribute particularistic goods to reward core supporters and client networks instead of producing public goods that enhance collective welfare (Bueno de Mesquita et al. 2004).

Low taxation of the nonresource economy has been cited as one of the sources of poor accountability in resource-dependent countries. Karl (1997), Ross (2001), and Moore (2004), among others, have pointed to the fact that lower taxes reduce demands for democracy and vertical accountability. Also, reliance on rents tends to weaken agencies of restraint such as legislative, judicial, anticorruption, and ombudsmen institutions (Eifert, Gelb, and Tallroth 2002), which are frequently marginalized in decision making concerning the sector (Ross 2008). Furthermore, in low-governance, resource-dependent countries, transfers and subsidies are often used to depoliticize groups, erode social capital, and neutralize demands for accountability (Beblawi and Luciani 1987; Soares de Oliveira 2007; Ross 2008).

In many low-governance countries tax collection could be significantly improved. However, the concentration of ownership and the high profitability of extractive activities provide a combination of surplus and relative administrative ease, which in turn reduces pressures for accountability (Chelliah 2006). To the extent that a government derives large mineral rents or controls resource production directly, it may be able to avoid the politically sensitive task of taxing its population (Dunning 2008a) and may be able to make transfers to large segments of the population to secure the legitimacy of the regime (Anderson 1987; Crystal 1995). These political incentives reduce the urgency of

either diversifying the tax base (Ross 2001) or making long-term investments in institutional capacity of tax administration, hence non-resource revenue mobilization tends to be lower than its potential. Additionally, a weak tax administration can easily be manipulated by the incumbent administration or captured by private interests.

### **Key Technical Issues in Natural Resource Revenue Policy and Administration**

A wide-ranging theoretical and empirical policy literature succinctly reviewed here provides guidance on fiscal regimes for the extractive sector. This section focuses on revenue policy and administration in the extractive sector. The quality of revenue administration is a key factor in how successful a fiscal regime will be in the long run in leveraging natural resource rents for development. Over the short term, administrative capacity puts critical constraints on policy choices. Countries can relieve these constraints by investing in better administrative capacity, but they first need to identify incentive-compatible policies to promote such reforms.

### **Technical, Economic, and Administrative Characteristics of Natural Resource Sectors**

The distinctive features and challenges of natural resource extraction affect the design of fiscal regimes for the sector. These characteristics also make it difficult for governments to achieve credible commitments on tax policy. Fiscal regimes affect the cost-benefit calculus developers face as they make decisions on the profitability of extracting a nonrenewable resource: high royalties or input taxes tend to turn natural resources into waste because indirect taxes and fees cut into the bottom line of extractive operations, and hence firms may simply walk away from mines with low-grading resources. The inherent high volatility and uncertainty of extractive industries sharply increase risks for investors and make revenue flows unpredictable for host governments. Prices, generally determined in the world market, are highly cyclical. Uncertainty in both production and prices translates into potentially high variability of profitability for firms and revenue intake for governments.

Extractives industries require long-term planning on the part of both government and companies. Extracting nonrenewable resources requires high frontloading of investments that are irreversible and highly specific to the industry. Extraction is characterized by high economic and technological complexity and associated economic and geological risks for investors and governments that cannot be fully foreseen during the time contracts are being negotiated (Osmundsen 2010). Significant exploration expenditures and risks precede startup; exploration expenses occur long before taxable income is available or even a decision to mine or extract oil is made.

The intertemporal dimension of extraction is the central issue concerning both the efficient extraction path as well as the amount to be extracted in each time period. The time profile is important because an increase in the current extraction rate reduces the size of resource stock remaining in the ore body or petroleum reservoir in the future. Thus, there is a cost, referred to as the user cost, associated with extraction. Producers follow the “optimization principle” by maximizing the current value of projects in which the marginal revenue is the difference between the market price and the marginal cost of extraction. The investor may not assume the user cost, and thus can ignore it. However, government and society must face this cost, and they can force investors to assume it by imposing a tax on extractives and thereby capturing part of the resource rent.

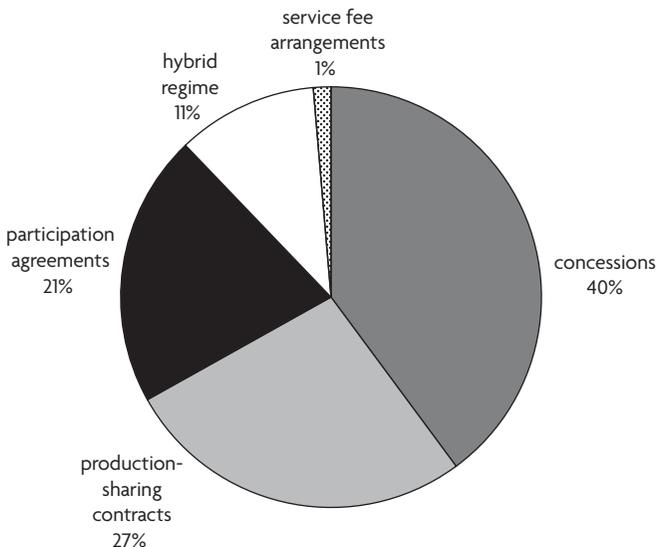
Asymmetric information on geological reserves and production costs is another significant problem in the sector because petroleum and mining companies have incentives for strategic reporting and a much greater organizational capacity than that of developing countries’ tax administrations. The high degree of vertical integration of these industries and the concentration of capital and knowledge in a relatively small number of companies creates a great capacity imbalance. In addition, ownership in extractive industries tends to be concentrated in a small number of companies that have strong selective incentives to organize and articulate demands (Woolcock, Pritchett, and Isham 2001).

### **Fiscal Instruments for Extractive Industries**

This section examines the key instruments for mineral revenue mobilization: how they operate; their performance in economic, equity, and

potential revenue terms; and their cost of administration. Each alternative is presented from the perspectives of both government and investors, and the respective advantages and disadvantages for each are examined. Governments mix instruments in order to balance the trade-offs between efficiency and effectiveness in revenue raising or between revenue adequacy and variability. They also can resort to fiscal and nonfiscal instruments to collect natural resource rents. The most commonly used fiscal systems are taxes and royalties in mineral-rich countries (Otto and Andrews 2006) and concessions and production-sharing contracts in oil producers (van Meurs 2008). Nonfiscal alternatives include auctioning of exploration and extraction rights, production-sharing, and equity participation. Figure 4.1 summarizes the modality of oil sector fiscal regimes worldwide. Production-sharing contracts and concessions are the prevalent instruments used to mobilize revenues from the oil sector. (Annexes 4.1–4.3 present details on the oil and mineral fiscal regimes in the countries studied for this volume.)

**Figure 4.1. Types of World Petroleum Fiscal Systems**



Source: van Meurs 2008.

Auctioning exploration and extraction rights allows governments to obtain upfront payments. Investors can bid cash payments, work programs, royalties, and shares of profit (Sunnevag 2002). Cash payments or bonuses may be very substantial in some cases. In countries with reliable geological information and fully competitive settings, this instrument has a neutral impact on extraction choices and is the most efficient way to capture the expected rent (Brosio 2006; Tordo 2007). Nonetheless, confident estimates of the resource value and an adequate number of bidders are difficult to secure in countries with low state capacity and weak governance. In the absence of adequate information, bidding can trigger renegotiations or expropriation, especially when resources turn out to be substantially higher or lower than the expected amount (Garnaut and Ross 1975; 1983). While auctions may potentially help reveal the true value of natural resources and maximize government revenue in low-income economies (Collier 2010b), in practice, and as a result of the same uncertainty, bidders are often more cautious in their offers, while governments focus on bonus bids to the detriment of future charges (Cramton 2007; Boadway and Keen 2010).

State equity in projects, whether as a share of the investment cost or as a give-away as predetermined in contracts, allows governments to obtain part of the return to capital from the projects. When the government pays a share of the investment cost, it is entitled to receive returns to capital and the equivalent of the resource rent. When the government receives the equity without charge, its revenues include part of the investor's return to capital and the tax on the resource rent (Brosio 2006). However, state participation can reduce the risks of expropriation and improve the government's access to information and control over extraction operations (Osmundsen 1998). The disadvantages of this alternative are not only that the government bears greater economic risks, but also that it faces a conflict of interest, because it is a shareholder and the regulator at the same time.

Production-sharing contracts often involve payment of a proportional share of physical output or the value of production. The share can be fixed or progressive, gross or net of costs. In each case, as table 4.1 illustrates, production-sharing agreements are equivalent to different tax and nontax instruments. These arrangements are generally revised as production progresses over time (Blake and Roberts 2006).

**Table 4.1. Equivalence of Tax Instruments with Nontax Instruments**

<b>Production-sharing</b>	<b>Tax Instruments</b>	<b>Government Equity</b>	<b>Auctioning</b>
Share of physical output	Specific royalty/ unit royalty		
Share of value of production	Ad valorem royalty		
Share of value of production after deduction of a proportion of operating and investment costs	Income/profit tax	Equity at a cost	
Share of value of production after deduction of a proportion of operating and investment costs with a growing share for the government	Progressive income/profit tax		
Resource rent tax/cash flow tax		Free or at a cost equity	Cash payment bids

Source: Brosio 2006.

Given the volatile conditions that characterize the sector, in principle, petroleum and mineral tax systems should be flexible, neutral, and stable (Tordo 2007). Fiscal regimes should provide governments with an adequate share of increasing profits, not introduce distortions in the profile of investments; they also should be efficient and provide a predictable framework for investors. The fiscal instruments most commonly used for extractive industries include specific and ad valorem royalties, corporate income tax, presumptive income tax, resource rent tax (RRT), and property tax, as well as other taxes such as value-added tax (VAT) and import and export duties (Boadway and Flatters 1982; Nellor 1987; Otto 2001; Sunley, Baunsgaard, and Simard 2003). The incentives created by the various tax and royalty instruments and their effects on the extraction profile of a resource body are presented in table 4.2.

The “per-unit royalty,” or “specific royalty,” may be assessed either on the extraction of the ore or on its final mineral content. That is, it may be imposed as a specific royalty on a particular mine or well or may be in the form of an export tax on the commodity produced. The advantage of this type of tax is its administrative simplicity. It does not discriminate between economic rents across nonrenewable resources and provides a steady source of revenue to the government irrespective of the financial performance of the projects. It is an attractive instrument

Table 4.2. Economic Impacts of Alternative Tax Regimes

Type of tax	Extraction profile	Grade selection profile	Cutoff grade	Cost of administration	Revenue variability
<b>Per-unit royalty on output (nominal)</b>	Present to future	Present to future	Increases	Low	Low
<b>Ad valorem royalty</b>	Function of discounted price Path	None	Increases	Intermediate	Intermediate
<b>Variable royalty</b>	Function of rate of growth of prices and tax rates	Function of rate of growth of prices and tax rates	Increases	Intermediate	Intermediate
<b>Profits tax</b>	None	None	Unchanged	High	High
<b>Profits tax with cost depletion</b>	Future to present	Future to present	Decreases	High	High
<b>Profits tax with percentage depletion</b>	Function of discounted price path	None	Decreases	High	High
<b>Property tax</b>	Future to present	Future to present	Increases	Intermediate	Low

Source: Shukla and Le 1999.

for the government because the revenues begin to flow the moment the extraction of the resource begins. If the unit tax remains constant in nominal terms, however, and there is inflation in the economy, the present value of the tax per unit will be lower in the future.

A per-unit royalty has a number of effects. First, it changes the extraction profile, which is accompanied by a deadweight loss because the extraction profile becomes suboptimal and therefore the total wealth from the mine or field goes down. Second, the low-grade part of the resource is left in the ground because extraction costs have gone up, an efficiency loss called “high grading.” A per-unit tax on the ore or reservoir affects the quantity and grade of ore extracted in different time periods. In order to lower the burden of tax, companies shift the extraction of high-grade ores from present to future or vice versa, depending on whether the discounted prices fall or rise over time. Generally, firms determine the cutoff grades on the basis of multiple factors, including

commodity prices, extraction and processing technology, and royalties, which leads directly to increased marginal cost of extraction. From the investor's perspective, the specific royalty acts like an added cost of extraction irrespective of the profit level, thus the investor would increase the cutoff grades so that the low-grade mines or reserves would not be utilized. High grading thus causes additional reduction in the value of the resource and adds to the inefficiency burden of the tax.

The "ad valorem output tax" or royalty is a fixed proportion of the price of the mineral produced (or the value of the resource) and has an effect similar to the per-unit output tax or severance tax on the extraction profile in that it increases the cutoff grades. The tax has the same administrative advantage as a per-unit tax on the output, except for the determination of the "arms-length" price of the output: if information on market pricing is available, the rate should be adjusted for the difference in quality of the resource and the transportation and other costs.

The effects of ad valorem royalties are also similar to those of the per-unit tax; that is, they will weight the extraction profile from present to future, or the other way around, depending on whether the discounted prices fall or rise over time (Rowse 1997). This tax will act as an added cost on the extraction of the resource and there will also be high grading. Moreover, investors do not like royalties for several reasons. The royalty payment is not linked to profits and its payment is due even if the operations are incurring losses. This may force investors to leave the marginal quality resource in the ground, exacerbating the practice of high grading. In addition, the royalty payment cannot be claimed as tax credit in the home country. Yet governments prefer royalties because they provide a steady source of revenue and are relatively simple to administer.

Generally, the natural resource sector is subject to the same corporate income taxes as any other industry. Sometimes, however, especially in the oil sector, governments impose a higher tax on natural resource profits than the normal corporate income tax rate. In this way, the government attempts to capture the bulk of the resource rent. The income tax is levied on profits and as such creates no distortions in the extraction profile or high grading related to taxes on output. However, the administration of corporate income tax is complicated. In addition to price of output and cost of inputs, various deductions allowed under

the income tax law must be computed to estimate the taxable income, including the costs of exploration and development. Determining exploration costs is a complex process, in particular when exploration continues during extraction operations. In this case, the accounting procedure used to compute these costs becomes significant because the overall viability of the project can be affected by whether immediate expensing of all capital expenditure is allowed, or an accelerated depreciation is permitted, or different assets are treated differently. Generally, the exploration and development costs are not deducted from revenues all at once but are depreciated, commonly about five years for exploration and 10 years for development costs. Investors prefer income taxes because, unlike other taxes, they can be credited back in home countries. On the other hand, with this type of tax, government revenues become uncertain and there is no guarantee that the government will collect any revenues from a given project.

Investors tend to have an advantage over the host government because companies have better accounting expertise and can reduce the amount of taxes they pay, while most developing countries have very little capacity to oversee the tax (Boadway and Flatters 1982). The resource-owning country faces several issues in applying an income tax, including the uncertainty of collecting it (Land 1995; Baunsgard 2001; Davis, Ossowski, and Fedelino 2003; Deacon and Mueller 2004). First is the problem of “transfer pricing,” which frequently happens when the resource extracting firm is a subsidiary of a foreign multinational company.<sup>2</sup> To prevent transfer pricing, the host government must have legal and administrative mechanisms in place to scrutinize and adjust the expenses and deductions claimed by the firm. Second, “debt-equity ratio” becomes significant in determining the tax base, as interest payments are deductible and excessive debt would seriously erode the tax base. The investor may often borrow funds from the foreign parent company at a high interest rate in order to increase the debt-equity ratio. To protect the tax base, the government may set a limit on debt financing in order to restrict interest deductibility. The third issue is the treatment of taxes paid in the host or producing country, which is important for the investor. Normally, tax credits are available for income taxes paid in the producing countries provided there are tax treaties between the host country where the firm is operating and the home country where the parent company

is registered. If no such arrangement is in place, the investor may become subject to double taxation.

Furthermore, the provision of “ring fencing” of projects for purposes of income taxation is a constraint for the investor. Ring fencing is a government’s effort to limit the extent to which income, deductions, and losses across projects can be combined by the same taxpayer. In the absence of this provision, a firm that undertakes a series of projects will be able to deduct exploration and development expenditures from each new project against the income of extraction of a resource that is already in operation and making profits. Without a ring-fencing arrangement, the government would fail to collect taxes. A too-restrictive arrangement, on the other hand, would discourage further investment. Therefore, a properly designed ring fencing regime becomes crucial for the host government (McLure 1994).

“Royalty plus income tax” is simply a combination of the output tax and profits tax. Royalty is calculated on the basis of the rate applied to a quantity of ore or output, and the taxable income for the profit tax is estimated by netting out the operating cost and royalty payment from total revenues. The government can choose to keep a relatively low rate of royalty in conjunction with the normal corporate income tax. It ensures that some revenues begin to flow to the government from the very outset without causing excessive inefficiency or burden on the investor. The royalty would have an impact on the extraction profile and cutoff grades as outlined earlier and will cause both high grading and deadweight loss (Boadway and Flatters 1982).

“Windfall taxation” is a common fiscal instrument applied to extractive industries. Variable rates may be employed in the case of all the taxes in the first three categories, namely, per-unit royalty, ad valorem royalty, and profits tax. The motivation for governments to introduce windfall taxation instruments is to either maintain a certain level of tax revenues or share in the “windfall” gains. These variable taxes may be structured in a variety of ways according to output prices, current profits, rates of return, or any other economic variable. Thus, different rates of royalty are applicable in different price ranges of mineral, oil, and gas, or levels of profits accruing to the investor. This type of royalty will lead to high grading and reallocation of the extraction profile, resulting in welfare losses. Variable rate income taxes will encourage the firm to reallocate

the extraction from periods of high marginal tax rates to periods with lower marginal rates. Two forms of variable taxes are most common (Otto and Andrews 2006). First is the variable royalty in which the rate of tax changes with price, which evolved during the commodity boom of the 1970s. As the price of a commodity rises, the government captures more revenue. Second, on the income tax side, an additional profits tax or resource rent tax is used where a dual income tax rate is applied, increasing the overall government's take.

Capturing resource rent tax from the sector has been a favorite recommendation to increase governments' revenue mobilization in the natural resource literature.<sup>3</sup> Resource rent tax is an "additional profits tax," the goal of which is that government taxes windfall gains at a higher rate than the normal rate of return (Daniels, Keen, and McPherson 2010). The resource rent tax is imposed only when the accrued cash flow from the activity is positive. The negative cash flow in the early years of the project is accumulated using an interest rate that equals the investor's cost of capital. This tax would yield any revenues only in the later years of the resource extraction. A resource rent tax does not introduce any economic distortions since it is simply a variation on the normal corporate income tax, which is also neutral with respect to production profile.

Theoretically, the resource rent tax is attractive because it does not give the government any incentive to change the tax regime when the sector makes high profits. The investor is paying this additional tax only on return that is over and above the opportunity costs of the investor. The tax would then reduce the uncertainty for the investor and ensure the stability of the contractual arrangements between the two parties. Of course, the rate of this additional profits tax and the threshold when it will become operative should be defined in advance to avoid any gaming behavior on the part of the investor or the government. However, it is not appealing to host governments, particularly to those with inherently high discount rates, because governments will not receive revenues until the project turns a profit, and it requires long-term investments in the institutional capacity of revenue administration agencies for its effective implementation. Thus, it is usually used in combination with a royalty and a normal corporate income tax, which frontload parts of the revenues.

In practice, the resource rent tax tends to be a weak revenue instrument in developing countries, yet it has been introduced in many reforms because it is considered a best-practice element. One problem relates to the proper design of the tax, mainly the choice of discount rate or the rate of resource rent tax. It could also be simply a problem of the tax department's administrative capacity. Most of the time, resource-rich countries struggle to collect a decent amount of corporate income tax because of its administrative complexity, so trying to collect this additional profits tax would add to the difficulty. Often, profits tax becomes a point of consideration for keeping a comparatively low income tax and royalty rate as a result of tax competition among resource-dependent developing countries. In light of this situation, a combination of income tax and ad valorem royalty may be a better alternative for the government from the revenue perspective.

The use of property tax is not very common, although some local governments use it to enhance their revenue base (Otto 2001). It is difficult to calculate the tax base, and the tax may have undesirable economic impacts on resource extraction, such as discouraging landholding and potentially leading to faster extraction, because it constitutes a fixed cost. In practice, two types of property tax bases may be employed. The first is a tax based on the net present value of the resource body, in which the property tax is levied on the present value of the mine or field. The estimation of cost is an important factor in this approach and complicates the calculation of the tax base. Also, the base would change from year to year as the extraction proceeds. The second type of property tax is based on the revenue from the resource body, in which case a percentage of the revenue generated by the mine or field would constitute the base for property tax. This type is simpler to estimate because the cost aspect does not need to be considered. Since the tax is applied to the amount of resource body remaining in the ground, there will be a tendency on the part of investors to accelerate the extraction of the resource so that the tax base gets depleted and the tax burden is reduced. The extraction profile becomes suboptimal and results in a welfare loss.

The sale of minerals, oil, and gas should be subject to the normal consumption taxes, specifically a value-added tax (VAT). A problem with this tax is that because most natural resource products are exported, it raises the question of whether the country should follow a normal

consumption-based VAT regime, which incorporates a destination principle that rates exports at zero tax, and hence would fail to collect revenue on a large portion of the resource base. In this case, exports are not taxed and investors are entitled to a refund of the VAT paid on the inputs. Thus the host country would need to have the administrative capacity to issue timely refunds; if refunds are delayed, they lock up the investor's capital, which can cripple the industry. In contrast, export duties constitute an effective instrument that can capture rent from hard-to-tax sectors such as agriculture. These, however, have been gradually phased out, and mineral, oil and gas sectors are generally not subject to exports tax.

Other fiscal instruments that governments can use include license fees and signature, discovery, and production bonuses. The natural resource sector is subject to different types of license fees, such as prospecting license, retention license, and special mining license, although these licenses may not be a major source of revenue. In many governments, the energy and mining ministry retains these fees along with the royalty payment, while the tax revenues accrue to the tax administration and the finance ministry. These license fees are meant to provide an incentive to the investor to conduct exploration on a specified area within the licensed time period. Similarly, governments in many countries require payment of signature and discovery bonuses before the development of an oil or gas deposit, as well as a production bonus before starting extraction or when production reaches a certain level.

There are several tax incentives applicable to mining, oil, and gas that are meant to encourage additional investments that otherwise might not be made. Most resource-dependent developing countries provide tax incentives in order to attract capital investment for extraction of natural resources. Although there is no clear evidence that providing tax incentives has an impact on the overall level of investment, such incentives constitute a signal that governments are willing to forgo revenues in order to attract new projects and provide material compensation for the higher risk. Some countries offer outright fiscal tax holidays for limited periods or a reduced rate of corporate income tax for the life of the extraction of the resource body, but these instruments prove to be ineffective and have become less common. Such tax breaks may be reserved only for encouraging investments in special sectors of the economy or in particular regions of the country. Some countries allow for tax credit

available from one project to be applied to tax liabilities from another project. Another type of tax incentive is to provide extractive companies with a depreciation allowance at a higher rate than that permissible under the normal rules of depreciation, reducing tax liability during early years and improving project viability. Accelerated depreciation also encourages firms to invest in capital assets with longer life, since they can claim higher depreciation allowance and have a higher level of tax savings. Immediate expensing provides the largest tax savings, therefore encouraging higher investment, because it deducts the full amount of the depreciation in the first year of production. The government does not collect any tax revenues under this regime. Immediate expensing is generally offered on exploration and development costs. Sometimes, more liberal “loss carryforward” rules are applied, including a loss carryforward provision for an unlimited period of time. Besides, most countries either exempt imported machinery, equipment, and materials used in the extraction of natural resources from import duty and VAT, or give a duty drawback or impose a lower tariff rate. Finally, some countries also permit a “depletion allowance” on natural resources to compensate firms for the loss of the resource caused by extraction. However, such an allowance will erode the tax base, in which case the cutoff grade will be lowered and recoverable reserves will increase.<sup>4</sup> Its impact on the extraction profile and cutoff grade is therefore just the opposite of specific royalty and ad valorem royalty.

In sum, the various tax alternatives not only create different incentives for extraction and grade selection, which may result in deadweight loss, but they also affect the variability or uncertainty of government revenues (see table 4.2) and the level of risks or opportunities for corruption.

### **Impacts of Alternative Tax Regimes on Government Revenues**

The uncertainty of the revenue stream to the government imposes a cost on the economy because it contributes to an unstable and unpredictable fiscal policy, making such taxes less desirable than those with less variability of government revenues. From this point of view, the output-related taxes are preferable to income-based taxes.

A per-unit royalty or ad valorem royalty on output is dependent only on the quantity and price of the output, thus creating the least variable or uncertain revenue stream. Moving to a variable royalty

clearly increases the extent of variability or uncertainty. Income tax revenues depend not only on the quantity of resource extracted and the price of output, but also on the prices of inputs and cost overruns, thus the revenue stream from income taxes has higher variability. The variability of a combination of income tax and royalty, then, lies between that of variable royalty and income tax, and is moderate compared with a pure income tax. When additional tax on profits or resource rent taxes are employed, the result is more than one tax rate, making the revenue stream more variable or uncertain. The property tax is a function of revenue from the extraction of the resource and its variability is similar to that of ad valorem royalty.

### **Administrative and Compliance Costs of Alternative Tax Regimes**

The different taxes imposed on a resource body differ not only in their impact on the extraction profile, the variability of the revenue streams, and the value of the mine or field, but also in the cost of administering them. These administration costs have two components. First is the cost of collection, or administrative cost, representing the public sector cost incurred by the government's revenue department in administering existing tax laws. It includes wages and salaries, accommodation and transportation, investigation of tax evasion/tax avoidance and enforcement, and maintenance of a legal system for adjudication of disputes. The other administration component is the cost borne by the taxpayer or the private sector in meeting the legal requirements of the tax system. This cost includes the expense of keeping records, accounts, and other necessary data, research related to acquiring the knowledge of legal obligations and penalties, payments to professional advisors for tax advice, and other incidental costs. The administrative and compliance costs together constitute the costs of taxation.

Tax and nontax instruments need to be evaluated not only to consider the different trade-offs between efficiency and effectiveness in raising revenue and between economic efficiency and revenue adequacy and variability. It is also important to consider their suitability to the existing state capacity and the specific political economy context of developing countries, which will be discussed in more detail later in this chapter.

### **Corruption Risks**

Fiscal corruption<sup>5</sup> is a major concern for all countries. Indeed, a number of studies indicate that systemic tax evasion and corruption in tax administration results in only a fraction of taxes that would be due being collected by the government (Alm, Bahl, and Murray 1991; Cobham 2005). For resource-dependent countries, fiscal corruption can be a particularly damaging phenomenon. Not only do these countries rely heavily on taxes from extractive industries to finance budgetary needs and development projects, but also the likelihood of fiscal corruption is higher given that significant rents can be dissipated by companies from bribing tax officials or underreporting their income from the sale of resources (Kolstad and Wiig 2009).

Fiscal corruption occurs because of problems between principals and agents. The government (the principal) has imperfect information about whether the tax bureaucrats and collectors they hire (the agents) are honest or dishonest. Furthermore, the government is unable to monitor the behavior of tax bureaucrats, collectors, and taxpayers. Consequently, rampant tax evasion and collusive activities between collectors and payers can emerge, where bribes are paid in exchange for underreporting taxable income (Flatters and MacLeod 1995). In addition to these principal-agent problems, other factors lead to fiscal corruption such as an overly complex tax policy or tax administration regulations. In this respect, bribery may be used as a quick solution to overcome a difficult and onerous system of paying taxes. Additionally, fiscal corruption may result if the government is unable or unwilling to impose strict penalties on tax collectors for corrupt behavior or to sanction companies that pay bribes or underreport their income (Tanzi 1998; Imam and Jacobs 2007).

Corruption reduces the government's ability to collect revenue, prevents the government from fulfilling public spending obligations, increases income inequality, and encourages corruption in other areas. It also has broader societal effects, specifically, in damaging the level of trust in the government and undermining its legitimacy (Fjeldstad and Tungodden 2001). These risks are higher in resource-dependent countries that are reliant on tax revenues derived from extractive industries because of the sizable rents at stake.

While preventing fiscal corruption is always a challenge, making the tax system simpler and more transparent reduces the risks of corruption and increases taxpayer compliance. A clear and simple system prevents tax collectors from taking it upon themselves to interpret tax laws and regulations; it also prevents companies from taking undue advantage of loopholes or exemptions. Standardization of tax procedures can also prevent companies from using bribes as a means of avoiding a lengthy and complicated process to determine tax liability.

Among fiscal instruments, per-unit royalties are least susceptible to fiscal corruption because they require a relatively low level of administrative capacity and are usually straightforward in how they are calculated from a company's total production. This recommendation is consistent with studies that show that corruption affects direct taxes more than indirect taxes (Ghura 2002; Tanzi and Davoodi 2002). Indeed, profit-based taxes (royalty or otherwise) invite more room for corruption and therefore require more monitoring by the government. However, the government must balance its concern for revenue generation with its need to prevent fiscal corruption. Where royalties and indirect taxes are deemed inefficient and do not maximize revenue over the long term, other means of combating fiscal corruption should be explored.

### **Centrality of Tax Administration**

The central problem in low-capacity, low-governance, resource-rich countries is that tax administration is the crucial constraint on revenue collection, no matter what fiscal regime design is instituted. In real terms, "tax administration is tax policy" (Casanegra de Jantscher and Silvani 1990) because tax administration has ultimate discretion over interpretation of tax laws and determination of tax liability. The manner in which tax policy is applied in turn tends to create further delays and distortions that will affect investment and production decisions. Tax administration is also an area most vulnerable to corruption.

Most low-income countries have a need for improvement in their tax administration capacity, which in turn can yield substantial increases in public revenues from natural resources and from the nonresource economy. Yet these investments must be sustained at odds with short-term time horizons and the prevailing political and economic incentives. Most

resource-dependent countries have an overall low to moderate state effectiveness at collecting taxes or other forms of government revenue, falling much behind countries of similar GDP (Karl 1997; Knack 2008). The number of tax administration agents per thousand inhabitants is lower on average in these countries, but the cost as a percentage of the revenues collected is also lower on average (Rozner 2009). These figures are symptomatic of the relative ease of collection efforts that resource rents offer, but in the long run it reduces the need for other taxes and lowers domestic tax effort.

The present quality of implementation and enforcement of fiscal regimes is the result of past investments in building institutional and technical capacity of tax administration and the level of professionalism of the civil service. Because of the technical and economic complexity of extractive industries, an effective tax administration requires capable, independent bureaucracies with specialized personnel. The main challenge of capacity-building efforts lies in attracting and retaining qualified professionals. Salaries are generally low and noncompetitive, resulting in considerably high turnover, especially in highly technical areas. Many experienced agents are routinely hired by the same companies that they monitor, which gives companies additional advantages in maneuvering around the tax system.

Taxing extractive industries typically involves multiple actors, including sector ministries, mineral commissions, customs, and tax collection agencies. In settings where interagency coordination and alignment of incentives are poor, revenue collection is consequently lower. Institutional duplication and fragmentation increase the cost of controlling and scrutinizing adherence to rules by tax agents for the legislature and finance ministry. The country's form of government and the formal and informal distribution of governmental functions will determine how fragmented the implementation of taxation will be. In addition, there may be bureaucratic and organizational incentives and agendas that increase the transaction costs associated with natural resource taxation policy. Lack of coordination between different agencies and between levels of government often reflects the noncooperative nature of the political system (Haggard and McCubbins 2001).

In many cases where the lack of capacity has compromised the effectiveness of revenue collection, governments resort to state-owned

enterprises, which are generally better capacitated than tax agencies, to mobilize taxes from extractive activities, for example, as in state-owned oil and gas companies YPFB in Bolivia and Petroecuador in Ecuador. However, this dual role often compromises the performance of such entities by distracting them from their core functions (McPherson 2003; Marcel and Mitchell 2006), while diverting the limited resources available for tax administration to SOEs and away from revenue collection agencies. Similarly, governments generally use large extractive companies as collection agents for vendors and employees. As large employers and buyers of various services and supplies, mining and petroleum companies withhold personal and profit taxes from their employees and providers (Price Waterhouse Coopers 2010). This contributes to the formalization of the sector, but without proper monitoring of the resources that companies owe to government, it can lead to revenue dissipation.

In situations of extreme weakness in revenue administration, governments also resort to bundled deals that completely bypass tax collection and public expenditure management. While reducing the transaction costs for the government, these contracts create additional risks because mining and oil companies engage in operations that are not typically covered by mining or hydrocarbon laws, for example, in the development of major infrastructure facilities (roads, railways, power generation), as well as processing plants and local community development. In some cases, the concessionaires are also the suppliers of goods and services for projects.

The countries studied for this volume show variation in the geographical coverage and capacity of government, but there is less variation in the effectiveness of revenue administration agencies, which are typically low capacity. With the caveat that failures in tax collection derived from low government capacity are not independent of the prevailing political and institutional incentives, the most common problems observed in these cases are described as follows.

Countries' low capacity in capturing revenues from the extraction of natural resources is usually the result of their inability to determine the amount of rents generated by private producers, and, in particular, to accurately assess their production costs. Such failure is particularly stark in countries such as DRC, where it is estimated that the government collects less than 20 percent of the mining royalties to which it is entitled (World Bank 2008b). Lack of real-time information on prices and the

inability to accurately assess grades severely limits tax collectors' ability to correctly determine the revenues and fees that apply to an operation, especially in the mining sector. In many cases, such as DRC, Ghana, Niger, and Lao PDR, the government has almost no independent capacity to assess quantity or grades of extracted resources or their market prices, and it must rely almost exclusively on the information provided by extractive companies (Ayee et al. 2011; Barma, Fritz, and Rex 2010; Chevallier and Kaiser 2010; Yungu, Chevallier, and Viñuela 2010).

In most countries, tax agencies are significantly under-staffed and under-resourced. For example, in Timor-Leste the Petroleum Tax Division—which handles all receipts from royalties and profit taxes on oil, license application fees, income from sales, income tax, and supplemental petroleum tax, together accounting for 98 percent of the regular budget—has only two permanent staff and five temporary employees. This unit relies heavily on international seconded staff (public servants on loan) from Australia, Brazil, New Zealand, and Norway and it also outsources all audit services. Efforts by bilateral donors to build capacity in this unit have been continuously undermined by the low salaries offered to Timorese employees and high personnel turnover (Anderson, Barma, and Porter 2010). In addition, the unit has to work within an extremely complex regulatory framework that encompasses four different legal regimes and an increasing flow of resources, but has no in-house legal advisor. Nigeria's Federal Inland Revenue Service has a total of 130 auditors, but only 20 have attended some form of oil and gas training. The Vientiane capital tax office, the largest tax office in Lao PDR, has just 8 percent of its staff assigned to and capable of auditing; in comparison, most modern tax administrations typically assign about 30 percent of their staff to tax auditing. In Zambia, the mining tax unit (MTU) was established in 2008 as part of the large taxpayers unit, but its capacity is overstretched because it must audit the entire mining sector, including small mines. Currently the MTU has six auditors dedicated to nine large mines and numerous small mines. Critical issues include the absence of specialized sector audit training (for example, to handle transfer pricing), inefficient tax-type auditing focus, and lack of an integrated rules manual for sector auditing.

In countries where fiscal administration is divided between government and state-owned corporate entities, tax agencies often have far

fewer resources than state-owned enterprises. In Angola, for example, oil revenue collection is carried out by Sonangol, the Ministry of Petroleum, and the Ministry of Finance through the Tax Directorate. In contrast with the first two, the Tax Directorate faces great human resource deficiencies; the Ministry of Finance does not have enough accountants, managers, and, more generally, financially literate personnel (Hansen and Soares de Oliveira 2009). Because of these deficiencies, the government must rely on international audit companies to carry out most of its work and it has little capacity to direct assignments.

Similarly, the confidentiality of contracts and signing bonuses complicates tax collection. In Ghana, licenses are commonly allocated through an administrative process and contracts are not publicly disclosed (Ayee et al. 2011). Such a system provides opportunities to hide benefits and evade taxes in cases where tax collectors may have difficulty in assessing tax obligations. Opaque contracts are also prevalent in Niger, with similar consequences to Ghana for the administration of taxes and other revenue dissipation (Yungu, Chevallier, and Viñuela 2010).

Problems of coordination between various collection agencies that derive from institutional and bureaucratic incentives also create opportunities for rent dissipation. Coordination is essential to account for all rents generated in a given sector and prevent strategic reporting by the companies, as illustrated by the problems of interagency communication in the case of Ghana (Ayee et al. 2011). Coordination across levels of government entails particular difficulties in resource-dependent settings. For example, DRC not only has a complex taxation system with more than 40 different fees, but also has different agencies at the different jurisdictions collecting them. As a result, tax mobilization is low and mired with corruption risks (Chevallier and Kaiser 2010). Another tax administration problem is that weak control of borders and partial territorial coverage of tax collection agencies allows for significant smuggling of resources out of the country without any payment to the government. This problem is particularly acute in DRC and Nigeria, where highly organized illegal groups “export” a sizable part of the production (Chevallier and Kaiser 2010; Gboyega et al. 2010). Moreover, the smuggling of oil and minerals in these countries finances separatist groups and fuels violence in the producing regions.

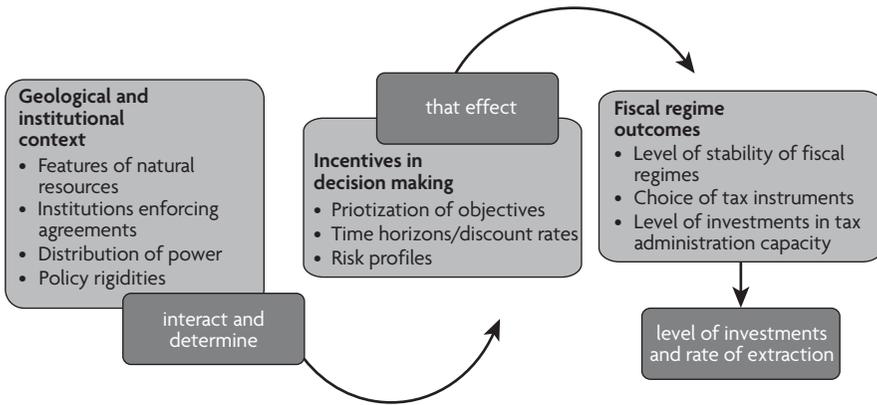
Additionally, the cases in the study provide several examples of open conflict of interest that create obstacles for efficient tax mobilization, such as legislators serving on boards of extractive companies, public officials and employees that own shares in projects, public officials and legislators that trade minerals or own refineries abroad, and high-ranking public officials on the payrolls of these enterprises. The majority of these problems emerge from the broader institutional deficiencies in extractive industry governance, and in tax collection in particular, and the lack of incentives to improve overall performance. These conflicts of interest also have an adverse effect on the implementation of the Extractive Industries Transparency Initiative (EITI) because they hinder the disclosure of receipts from the sector; and they are reflected in a lack of political commitment, inadequate funding, delays in companies and collection agencies releasing information, and the inability of citizens to access information and mobilize for greater accountability.

### **Political Economy Settings and Dynamics**

As stated by Bates (1989), “taxation inherently implies politics.” Governments face competing objectives in selecting fiscal instruments. On the one hand, governments seek to reduce revenue variability and the political costs associated with fiscal volatility; on the other hand, they want to maximize the share of the resource rents over time and be able to internalize social and environmental costs associated with these activities. While pursuing these sometimes rival objectives, governments in developing countries with scarce domestic capital also need to create incentives that attract foreign investment to develop the sector. Different tax regimes favor some goals over others, as explained in the previous section.

Figure 4.2 provides a stylized overview of the determinants of fiscal regimes and the way they are sequenced. The geological and institutional characteristics of a given country—including the type and quality of the resource endowment, the level of institutionalization of agreements and their enforcement, the distribution of power, and the legacies of previous policies—interact and condition a government’s overarching policy priorities, risk profile, and time horizons. In turn, these three characteristics affect the choice of fiscal and nonfiscal instruments, how stable

Figure 4.2. Determinants of Fiscal Regimes



Source: Authors.

these regimes are, and how much governments are willing to invest in tax administration. An important caveat is that institutional factors are likely to be endogenous to the country setting, meaning that the level of institutional capacity is a legacy of the country's historical trajectory and cannot be treated as an entirely separate causal factor.

The political economy typology introduced in chapter 2 categorizes government types as patrimonial rule, hegemonic government, clientelist pluralism, and programmatic pluralism (see table 2.2). Table 4.3 presents the incentives that affect fiscal regime choices and outcomes associated with each of them. These settings are characterized by their tendency and ability to enforce intertemporal commitments and by the extent to which the political system is broadly inclusive. Given the specificities of resource taxation set out earlier in this chapter, intertemporal aspects of the political economy context are likely to significantly shape the choice and potentially the performance of fiscal regimes. Settings with high discount rates are likely to see greater instability in the fiscal regime, which in turn will affect the potential risk perceived by extractive industries.<sup>6</sup> This section will examine the impact of these political economy contexts on resource taxation, time-horizons, and government risk profile.

Natural resource management institutions are embedded in a country's broader political and economic context. Many of the vulnerabilities and policy failures of the revenue mobilization link of the value chain

Table 4.3. Political Economy Contexts and Fiscal Regimes

Political Inclusiveness	Credibility of Intertemporal Commitments	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/ less collectively oriented</b>	<p><b>Patrimonial rule:</b> Individualized political authority; crony hierarchy; few restraints on power.</p> <ul style="list-style-type: none"> <li>– High discount rate</li> <li>– Risk averse</li> <li>– Narrow distribution of rents</li> </ul> <ul style="list-style-type: none"> <li>• Extremely short time horizons create pressures to revise fiscal regimes, frontload revenues, disincentivize investments in institutional capacity, and reduce risk-sharing to the detriment of long-term fiscal stream.</li> <li>• Limited inclusiveness reduces the space for collective action and demands for good governance.</li> </ul>	<p><b>Hegemonic government:</b> Institutionalized one-party regime; either predatory or benevolent.</p> <ul style="list-style-type: none"> <li>– Low discount rate</li> <li>– Risk taking</li> <li>– Narrow distribution of rents</li> </ul> <ul style="list-style-type: none"> <li>• Longer time horizons create a relatively more stable fiscal environment. It is in the best interest of the ruling elite to maximize income over time and therefore share the risk in the development of extractive industries.</li> <li>• Limited inclusiveness leads to a narrower distribution of rents, which are used to secure supporters and discourage opponents.</li> </ul>
<b>More inclusive/ more collectively oriented</b>	<p><b>Clientelist pluralism:</b> Political competition based on extensive use of clientelism/patronage</p> <ul style="list-style-type: none"> <li>– High discount rate</li> <li>– Risk averse</li> <li>– Broader distribution of rents</li> </ul> <ul style="list-style-type: none"> <li>• Short time horizons due to low institutionalization and electoral cycles create pressures to revise fiscal terms and frontload revenues, creating suboptimal outcomes in investment and production.</li> <li>• Revenues are more broadly distributed, but patronage and earmarking remain significant.</li> </ul>	<p><b>Programmatic pluralism:</b> Electoral competition based on programs; horizontal and vertical accountability</p> <ul style="list-style-type: none"> <li>– Low discount rate</li> <li>– Risk taking</li> <li>– Broader distribution of rents</li> </ul> <ul style="list-style-type: none"> <li>• Longer time horizons create a stable fiscal environment leading to long-term investments and contracts.</li> <li>• Nonetheless, broader political inclusiveness creates a greater space for collective action for good governance and mitigating informational asymmetries.</li> </ul>

Source: Authors.

arise from internal and external resistance to reform and a lack of institutional technologies to secure cooperation between political forces to sustain tax policy across different governments. Status quo tax policy distributes resources to political economy winners in the sector. In turn, these beneficiaries actively mobilize to sustain the policy status quo with positive reinforcement and to put in place roadblocks against reforms.

As the study sample cases reveal, countries in which domestic political forces cannot sustain agreements over time tend to mobilize fewer

resources from the sector and are associated with more informal (and frontloaded) rent extraction. Price and production changes aggravate cooperation problems by generating strong incentives to change fiscal terms as social expectations and the political costs of taxing other sectors or individuals rise during boom times. At the same time, contract negotiations, regulation of the sector, and tax administration are highly politicized and conflict of interests abound, while formal regulations are often ignored.

### **Intertemporal Cooperation**

In environments where cooperation is possible across time or electoral cycles, policy changes tend to be incremental and are completed through compromise. Actors that interact repeatedly in institutionalized arenas have longer time horizons and invest resources in creating policy capabilities, such as tax administration capacity (Stein et al. 2008). More inclusive and competitive systems also make greater use of voluntary tax compliance, since government legitimacy is higher (Levi 1988; de Juan, Lasheras, and Mayo 1994; Alm 1996; Pommerehne and Weck-Hannemann 1996; Feld and Frey 2002). In these cases, the tax base is broader, administration cost is lower, and, consequently, total revenues are higher (Kenny and Winter 2006; Winer and Hettich 2006).

Professional bureaucracies can limit the scope of opportunistic policies and enhance trust in commitments by ensuring the implementation of policy agreements over time (Huber and McCarty 2001). They reduce the incentives to change fiscal regimes by efficiently maximizing revenues within the framework of existing regimes. A capable tax administration also improves the position of the government with regard to other actors. Lastly, countries with politically competitive systems, where institutional technologies are available to enforce intertemporal agreements, provide the most stable fiscal environment for the development of extractive activities and the greatest level of efficiency in public spending. Fiscal and electoral rules in countries like Chile and Trinidad and Tobago are stable and provide incentives for political groups to enter into agreements and sustain them across political cycles and changes in government.

Political systems in which there is fair electoral competition, but where political forces do not engage in long-term agreements, are generally associated with the extensive use of clientelism to mobilize support.

Patronage links are strong and embedded in political parties, regional networks, and business conglomerates. Parties are weakly institutionalized and rely on personalistic strategies rather than competing on the basis of programs. Electoral rules are often the object of choice and manipulation, as shown in the cases of Bolivia, Ecuador, and Mongolia. Legislative coalitions are generally short-lived and incur significant costs that create pressures to expand fiscal spending. In countries with such weak coalitions, sudden changes in revenues can have significant political costs. As time horizons are relatively short, discount rates are high and incentives to invest in institutional capacity are low, while formal regulation is often ignored. Politicians in such cases frequently use populist promises and sovereignty narratives to increase taxation or nationalize companies during boom times. In other cases, parties face credibility problems in committing to politically costly reforms, as was the case with the Mexican government and the national oil company PEMEX. The problems of time inconsistency are common in these settings.

DRC and Niger offer examples of countries with noninclusive political systems in which intertemporal cooperation is weak. In these patrimonial settings, policy makers have short time horizons and systemic instability is prevalent as power continues to be highly contested. As a result, decisions in the sector lead to frontloading of revenues through signing bonuses and bundled deals as well as the renegotiation of contracts. In such contexts, price shocks generate additional instability. For example, Niger has had four coups and five constitutions since independence in 1960, closely following the uranium boom and bust cycle. Because of fragmentation in the party system, power holders need to balance coalitions from different regional and ethnic groupings while securing the support of the military. Adding to this fragile situation are recurring conflicts between the central government and armed rebel groups over natural resources in the province of Agadez. Sharp price and production changes have reshaped the distribution of power and destabilized coalitions, and may continue to do so (Yungu, Chevallier, and Viñuela 2010). In DRC, the ruling coalition derives its support from the eastern provinces in a context of regional and ethnic fragmentation and frequent interference from neighboring countries; and the smuggling of mineral resources has fueled inter-regional conflict.

Noninclusive political systems in which one political force is hegemonic and where established mechanisms determine succession in power and enforce intertemporal agreements, as in Angola and Lao PDR, are better placed to provide a stable fiscal environment for investors, choose tax instruments that maximize revenues over time, and attract foreign capital to explore new areas. Nonetheless, the concentration of power in the executive often implies that rents are diverted downstream or extracted through informal channels. A portion of the rents is distributed to key groups that support the ruling government, such as Luanda's urban classes and the military in Angola or party cadres in Lao PDR.

### **Government Discount Rate**

Actors with long time horizons will be more likely to engage in farsighted agreements than actors that are trying to maximize short-term political benefits to the detriment of policy effectiveness. Time horizons affect discount rates. The government's discount rate refers to the degree to which it cares about the future. Governments are said to have high rates of discount when the risk of being removed from office is high. The implication for the level of taxation is that governments that are guided by short-term considerations will raise taxation of the sector in the short-term using the available mechanisms and invest less in building taxation capacity in the long run.

Democratic and authoritarian regimes (Levi 1988; Olson 1993) with sufficiently short time horizons will plunder society by attempting to extract the maximum in taxes, break contracts, and engage in confiscatory policies because they do not bear the long-run economic consequences of such choices. They will also have incentives to increase debt and use inflationary policies (Cukierman, Edwards, and Tabellini 1992). The more likely it is to be replaced by a party or faction that has very different priorities, the less the incumbent government's incentive to create taxation capacity and the greater its incentive to acquire debt as a way of tying the hands of the next administration (Sachs and Roubini 1989; Grilli 1990). Governments with high discount rates not only seek to take a higher share of resource rents, but also are likely to prefer instruments that frontload revenues, such as royalties. In turn, these instruments affect the production time profile of mines and fields. In summary,

short-term horizons are associated with faster rates of resource extraction and frontloading of taxes (Robinson, Torvik, and Verdier 2006) and underinvestment in the long run.

### **Government Perceptions of Risk**

Governments willing to take greater risks use neutral taxation instruments and nonfiscal alternatives, such as equity participation and production-sharing, in order to mobilize revenues. Conversely, risk-averse governments tend to resort to instruments like royalties that reduce revenue variability and frontload taxes. Different resource profiles—shaped by the type of resource, the quality and accessibility of the endowments, the history of the sector, and the availability of accurate geological information—in combination with the international market, price conditions, and technology determine the economic risks associated with the exploration and extraction of natural resources (Nellor and McKee Sunley 2003).

On the other hand, numerous political risks are associated with high dependence on rents from natural resources. First, there is a potential for loss of support from the communities affected by the social and environmental negative externalities associated with the extraction of minerals. In some cases, these tensions can coincide with other grievances and lead to civil conflicts. In most cases, the production of natural resources kindles demands for vertical distribution of the rents with the producing regions (Kaiser and Viñuela 2010). Second, if governments derive their support from the use of patronage networks and the distribution of resources to key groups, the revenue volatility associated with changes in prices and quantity of production can affect their ability to distribute those benefits and may destabilize the regime. As well, low tax rates during boom periods can create perceptions among citizens and international observers that companies are the only ones benefiting from the high prices and may create pressures to adjust the rates (Osmundsen 2010).

### **Institutional and Policy Rigidity**

The durability of policies depends on the simultaneous creation of institutional mechanisms that lock in these reforms. Policies promote

their own survival if they introduce simultaneous institutional and organizational changes that discourage future efforts to overturn them (Patashnik 2008) and that provide self-enforcing incentives (North and Weingast 1989). Tax administration reforms and institutional changes may dislodge the bureaucratic or regulatory structures that produced the same outcomes that the reform attempted to change. Policy changes may alter transaction costs and shift the control over a given policy to a different governmental venue in which pro-reform coalitions enjoy privileged access. Policy stability can be achieved by delegating its implementation to an independent technical agency. While delegation has its problems, there are instances in which the cost of those problems is smaller than the cost of partisan or factional policymaking. An independent tax administration provides assurance that the government will uphold its end of the bargain and encourage reluctant investors and policy makers alike to take the risks and bear the costs necessary to achieve mutual gains.

Nevertheless, tax administration reforms face several challenges that include feedback effects, path dependencies, and institutional rigidities. Policies produce feedback effects on politics. They distribute resources and create incentives that affect choices that then shape those same policies in return (Pierson 2005). Organizations and groups that emerge as a response to a policy and that receive substantial benefits from fiscal arrangements are likely to use those resources to resist change and are often well placed to block reforms. In addition, reform choices are made within the context of existing institutions and organizations that can create path dependencies and inertia. Past decisions on ownership, organization of the sector, and tax administration constrain in significant ways policy options in the present (Jones Luong and Weinthal 2001).

### **Policy Implications: Building Credibility in Tax Collection**

While the theoretical economic impact of individual tax types is sufficiently clear, no optimal one-size-fits-all fiscal regime appears to exist. Throughout the world, tax policy is not based on technical modeling alone—rather, it is a function of a mixture of politics, economics, and

institutional technologies. As Bird (2008, 2) succinctly states, fiscal regimes are shaped “not only by ideas and vested interests but also by changing economic conditions, administrative constraints and technological possibilities, and especially, the political institutions within which these factors are at play.” Different types of regimes and institutional configurations can be recommended depending on the country’s specific context. Practices in taxation of natural resources vary widely, even in developed countries. In low-income, developing countries, tax competition to attract foreign direct investment (FDI), “herd” behavior in copying tax regimes from other countries in the region, and advice by international experts or donors are all factors that contribute to the way fiscal regimes are set.

As a result, paradoxically, developing countries often have more complex regimes than countries with higher capacity. In recent years, developed countries have strived to simplify their tax systems (Otto and Andrews 2006; van Meurs 2008), whereas low-capacity, weak-governance countries do just the opposite—or at least refuse to follow the trend. They tend to introduce relatively complex regimes, particularly if their royalty base is designed for one of the hard-to-tax resources such as metals. In those cases, the design defeats the very objective of relying on royalty as the simple, efficient revenue-raising instrument at the expense of economic efficiency. The fact is that these developing countries are still struggling to define a fiscal regime that fits their core objectives and adapts to existing administrative capacity and institutional arrangements, as well as the political landscape determining the efficacy of sector regulation and revenue collection.

The political and institutional features that influence tax policy also interact with specific characteristics of the extractive sector and the volatile price environment, creating a time consistency problem between long-term investments and short-term political commitments. In the absence of a third-party referee, low- and middle-income countries that lack formal or informal institutional mechanisms to enforce intertemporal commitments among domestic stakeholders face the greatest challenge in building credibility as reasonable tax collectors. The policy swings that result from price volatility, electoral and political cycles, and the absence of executive constraints increase

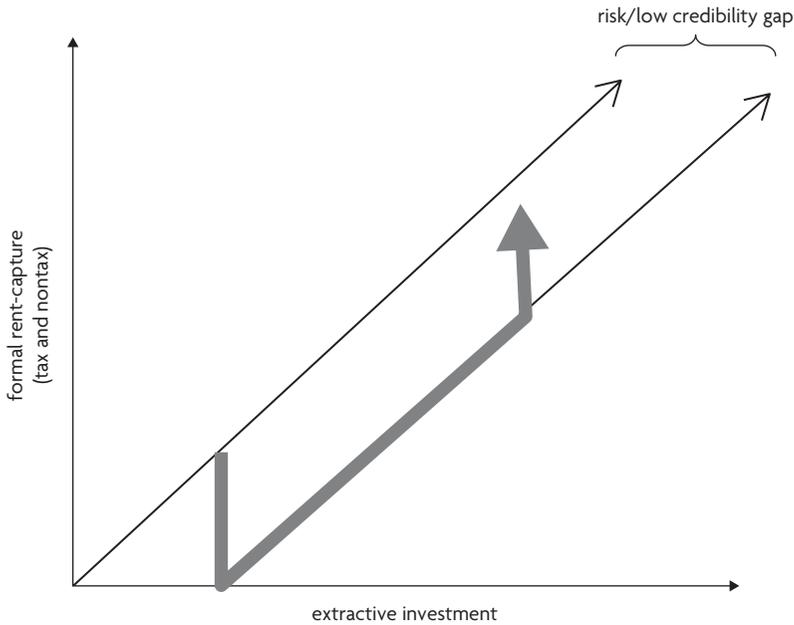
the perceived risks for investors. Tax policy instability (or low credibility) means that governments need to offer lower takes and compensate for the higher risk to attract investment. Such commitments tend to be inherently difficult to enforce after prices increase and investments are sunk.

Consequently, recommendations for tax policy must consider the use of fiscal and nonfiscal instruments, along with determining the level of taxation of the industry. Governments should initially tailor rates to economic, geological, and technological conditions, and then gradually change to a neutral and stable tax system (Osmundsen 2010). However, it is worth noting that meddling with fiscal regimes too abruptly and too frequently would be detrimental to the credibility of governments and that investment would decrease as a result. Studies of FDI and the politics of taxation indicate that when revenue intakes are too low and tax administration capacity is rudimentary, it is possible to achieve a “quick win” without dampening investment incentives by simplifying the tax regime. Once credibility has been established, the government could incrementally increase its take and adjust the instruments to make them neutral or progressive.

Figure 4.3 charts a path to achieving credible fiscal reform. The policy and administration interventions along the 45-degree line would allow governments to obtain a fair share of the rent and at the same time create a favorable environment for investment. A hypothetical ideal path begins with a low equilibrium (low government revenue intake and low investment), where a government may start adjusting the level of revenue intake by relying on revenue-neutral policy measures or gradual enhancement of collection enforcement. As the government learns more about taxing resource rent, it introduces more neutral or progressive elements in the country’s fiscal regime, creating the path (bolded line) parallel to the 45-degree line. The distance between the fiscal path and the 45-degree line represents the “credibility gap”; once it is “filled,” the government may safely uptick its revenue intake without sacrificing the robust level of investment through deepening tax policy and administration reform.

In the absence of third-party institutions that penalize governments for changing tax rules, countries can only improve their reputation as reasonable tax collectors by accepting a reasonable tax burden and

Figure 4.3. The Path to Building Credibility in Fiscal Reform



Source: Authors.

short-term losses of tax revenues while engaging in long-term reforms. Ultimately, the main constraint on rulers' pursuit of wealth for themselves is the threat of declining revenue caused by capital flight or reduction of economic effort. However, there are political and electoral costs associated with tying the government's hand that leaders will weigh. Box 4.1 shows that countries that have been successful at adjusting their rates while prices are high succeeded because of how they did it, including letting investors know that these actions would prevent further adjustments or changes in the model of ownership or nationalization.

### **"Good Fit" Fiscal Regimes**

The recommendations presented in this section are based on the country's ability to sustain commitments in tax policy over time, which affects its overall credibility, as well as the degree of inclusiveness of its political

### Box 4.1 Responses to the Mineral Price Boom

During the last mineral price boom (2004–08), Chile, Mongolia, Peru, and Zambia increased their level of taxation. However, their responses and level of success varied. Chile introduced a profit-related royalty in 2005, after many years of imposing only a flat income tax. Unable to increase investment in state-owned CODELCO, the Chilean government started allocating unexplored areas to private investors, offering them below-average tax rates. With the government having built credibility as a restrained tax collector, private companies did not resist the measure.

Peru sought to avoid modifying its mining legislation by creating a “voluntary contribution” scheme related to prices in 2006. Companies adhered to the scheme as a preventive measure against more aggressive tax reforms.

Mongolia’s Parliament passed a law that created a windfall tax in 2006, but its stability clauses effectively restrict its application to only one mine. However, this tax is likely to negatively affect future investments.

In a similar manner, Zambia introduced a windfall tax in 2008, which was quickly withdrawn. After two decades of low investment in the copper industry, the Copperbelt was privatized in the mid-1990s. At that time, buyers used their leverage to obtain low tax rates and a broad stabilization clause. As copper prices quadrupled from 2003 to 2008, the Zambian government came under domestic and international pressure to raise tax rates. In 2008, it increased tax rates, annulled stabilization agreements, and introduced a windfall tax. Nonetheless, soon after passing the reform, the government reversed the measure, responding to the pressure of international investors.

*Sources:* Navia 2009; Finch 2009.

system, that is, how many groups or political parties have a say in the decision-making process. In addition, the degree of certainty about geological prospects is considered (Mazaheri 2010). Table 4.4 displays the recommended fiscal and nonfiscal instruments for natural resource-dependent countries along these three dimensions, with the assumption that high administrative capacity is likely to be the exception rather than the norm, even in advanced countries.

For each of the four political economy settings, there are fiscal instruments that can contribute to minimizing corruption risks and maximizing revenue, given the existing tax administration capabilities and incentives to invest in strengthening capacity and the degree of geological maturity, while improving the fairness of the country’s share and building in mechanisms that allow both investors and government to regularly revise agreements in light of major shifts in the market environment. In doing so, these proposed policies provide minimally acceptable government performance without significantly hindering economic and political development (Grindle 2007).

Table 4.4. “Good Fit” Fiscal and Nonfiscal Instruments for Resource-Dependent Countries

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/less collectively oriented</b>	<p><b>Patrimonial rule</b> <i>With certain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Contract out audit capacity</li> <li>• Production-based royalties combined with windfall royalties</li> <li>• Use of stability clauses with built-in regular revisions</li> </ul> <p><i>With uncertain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Contract out audit capacity</li> <li>• Production-based royalties combined with windfall royalties</li> <li>• Use of stability clauses with built-in regular revisions</li> </ul>	<p><b>Hegemonic government</b> <i>With certain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Enclave tax administration capacity</li> <li>• Production-based royalties combined with windfall royalties or sliding scale royalties, production-sharing</li> </ul> <p><i>With uncertain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Enclave tax administration capacity</li> <li>• Production-based royalties combined with windfall royalties or sliding scale royalties</li> <li>• Use of stability clauses with built-in regular revisions</li> <li>• Targeted tax incentives</li> </ul>
<b>More inclusive/more collectively oriented</b>	<p><b>Clientelist pluralism</b> <i>With certain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Contracting out in the short term and gradually building audit capacity through broader coalitions</li> <li>• Progressive income tax or profit-based tax, price-based windfalls, sliding-scale royalties</li> <li>• Use of stability clauses with built-in regular revisions</li> </ul> <p><i>With uncertain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Contracting out in the short term and gradually building audit capacity through broader coalitions</li> <li>• Production-based royalties combined with windfall royalties, production-sharing, equity-sharing</li> <li>• Use of stability clauses with built-in regular revisions</li> </ul>	<p><b>Programmatic pluralism</b> <i>With certain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Auctions, progressive income tax or profit-based tax</li> </ul> <p><i>With uncertain geological prospects:</i></p> <ul style="list-style-type: none"> <li>• Auctions, progressive income tax or profit-based tax</li> <li>• Use of stability clauses with built-in regular revisions</li> <li>• Targeted tax incentives</li> </ul>

Source: Authors' compilation, adapted from Mazaheri 2010.

Variation along each of the dimensions of credibility of commitments and political inclusiveness yields different recommendations for resource-dependent countries. The government's ability to credibly commit to policies and contracts over time is of special concern to companies and investors. When governments have the reputation of breaking commitments and reversing policies, companies will need governments to signal commitment. Stability clauses—which can take a variety of forms, including fixed tax rates over a specific time period or adoption of a rule-based guarantee of the fiscal terms under signed development agreements—are the most commonly used instrument to assure companies that their investments are secure and that contracts will be honored. Transparent stability clauses, especially when subject to third-party arbitration, tend to be most credible to investors.

Similarly, governments may need to provide extra reassurances to investors when geographical prospects are uncertain. For countries with newly discovered natural resources that have not yet proven their reserves, or whose resources are in hard-to-reach regions surrounded by poor infrastructure, investors assume greater financial risk and thus expect to be better rewarded. Governments can provide a range of targeted tax incentives that help compensate for this risk, such as accelerated depreciation in combination with prolonged loss carried forward for allowance and reinvestment tax credits.

On the other hand, when geological prospects are more certain, a government may resort to auctions as a way to allocate resources and generate revenues (Cramton 2007). However, this is typically recommended only when the government has some degree of credibility, because auctions need to be conducted in a transparent and accountable atmosphere where clear, formal rules are effectively honored and where corruption is far from being endemic. In order to maximize their take, governments need to invest in gathering sufficient geological data to draw blocks and mining areas and set the terms of the auction. Although using auctions when geological prospects are unknown can be a way for poor countries to obtain revenue up front and to reveal the true value of reservoirs and basins, there is always a risk of collusion among private operators and the risk that investors will capture a higher share of the actual value of the resources over time. Nonetheless, there is also a risk

that a resource project will not be profitable over time; therefore, royalties or production-sharing arrangements can be used alongside auctions to help governments gain a certain amount of revenue while sharing part of the extraction and production risks. It should be noted, however, that this is very much dependent on the country-specific context and the relative bargaining power between government and investors, and that economic efficiency dictates that risk should be borne by the party that is best suited to assume it.

Production-sharing or equity-sharing arrangements should be considered when the government has low administrative capacity but possesses some degree of credibility. The government's credibility is important in this regard because production-sharing and equity-sharing arrangements necessitate stable contracts and predictable policy making from the government over time. The benefits of these arrangements are numerous, most significantly that the government retains ownership of the actual resources being extracted.

### **Linking Transparency to Credibility, Reputation, and Signaling**

Increasing the transparency that surrounds policy making and revenue flows can also contribute to building credible commitments and solving the time consistency problem in tax policy. For governments whose power is not formally limited and for whom the use of third-party enforcers is not feasible, increasing transparency can correspondingly increase the perception of government credibility. In general, transparency allows agents to better understand whether deviations from expectations are the result of opportunism or stochastic shocks, a central concern in models of accountability (Alt 2002). Policy makers that support reform can create new institutions to signal commitment or to lock in policies against future incumbents. Politicians can be persuaded to undertake reforms that signal commitment if they believe that investors will react positively, as institutional change can take place when actors with power perceive that their interests can be better achieved through alternative sets of rules (Geddes 1994).

A government can improve its credibility by creating institutions that give various interests a say in policy making and increase the constraints on its power. Institutions that introduce checks and

balances and mechanisms to enforce agreements between domestic actors can create those constraints. Constraints on rulers increase investors' confidence that the policy environment will not change radically once they have made specific and irreversible investments. Longer investments tend to increase investors' attention to political stability. In addition, political constraints are expected to reduce rent-seeking and the diversion of resources from growth promoting investments in infrastructure and human capital (Heinsz 2000). Furthermore, democratic institutions can indirectly reduce the compliance costs and the costs of enforcement associated with taxation, which would increase revenues (Levi 1988). Building a reputation of abiding by contracts has positive externalities for other sectors and can attract FDI into nonmineral sectors.

If institutions benefit both the government by increasing revenues, and investors by increasing productivity or welfare, then the bargain is self-enforcing and thus credible (North and Weingast 1989; Acemoglu and Robinson 2001; Escriba Folch 2003). In addition, governments can use contractual devices, such as stability agreements, to reduce investors' perceptions of risk; over two-thirds of developing countries offer this kind of incentive (Baunsgard 2001; Boadway and Keen 2010; Daniels, Keen, and McPherson 2010). Nonetheless, their effectiveness may be reduced when prices surge beyond the normal range of variability and when a third-party arbitrator is effectively nonexistent.

### **Investing in Tax Administration**

Tax farming, or privatization of revenue collection, would raise both revenue collection levels and credibility, and concomitantly would increase transparency in the tax system. However, few countries apply this technique. While the concept is sensible for a country like Timor-Leste, recently independent and now engaged in state-building, donors may be cautious in using it across countries without weighing its costs and benefits. The recent experience of Mozambique, where agents of the consulting firm Crown Agents were delegated to collect customs duties, caused concern about the sustainability and cost of such an arrangement—both financially and in terms of opportunity costs for

building domestic capacity and fundamental domestic revenue administration reforms. In Mozambique, while revenues collected were increased, the contract proved to be very expensive for the government and the transfer of skills was limited (Fjeldstad and Rakner 2003).

Tax administration reforms are centrally important for appropriately implementing tax policy and signaling the government commitment that in turn enhances credibility. A number of countries, particularly in Africa and Latin America, have embarked on fundamental organizational restructuring by creating semiautonomous revenue agencies. The reforms aim to improve transparency, integrity, and efficiency. International experience indicates that the success of such innovative institutional formation and tax administration reforms in general depends primarily on political will.<sup>7</sup> Nevertheless, political will is either lacking or nonsustainable in resource-dependent countries because of the long-term nature of the investment required.

Thus, facilitating cooperation and creating incentives for policy makers to enter into long-term, credible commitments over fiscal policy are the central challenge of improving tax administration capacity. Development partners can provide domestic actors with information and resources to help them resolve their present problems of collective action and intertemporal enforcement. Donor interventions must rely on the premise that, in order to achieve significant changes in tax administration policy, broad pro-reform coalitions of government officials, civil society, and private investors must emerge in order to overcome the powerful vested interests of the groups that benefit from the status quo. Tax administration improvements have the potential to create positive spillovers in addition to increasing revenue collection by creating the basis for broadening the tax base that in turn triggers beneficial strengthening of accountability links.

### **Political Risk Mitigation**

Among numerous examples of third-party enforcement mechanisms are adherence to international arbitration agreements, bilateral investment treaties with independent dispute-resolution mechanisms, and multilateral agency enforcement. Empirical evidence in the area of natural resource extraction suggests that international third-party

enforcers have been moderately effective in limiting government discretion in making changes to fiscal terms, and yet they have been largely ineffective at deterring renegotiation when resource prices dramatically increase (Manzano and Monaldi 2008). Indeed, the ideal third-party enforcers should be domestic rather than international institutions.

Nonetheless, there is a role for development partners in helping countries attract investment and mitigate risk (Mazaheri 2010). By offering countries political risk insurance for investments in mining and oil projects, alongside dispute resolution services, instruments like the World Bank's Multilateral Investment Guarantee Agency, which offers political risk insurance, have helped countries like Ghana, where the concerns of investors in the Jubilee oil and gas field were successfully alleviated. Such instruments allow countries to attract investment without forgoing rents and thus narrow the financing gap.

## **Conclusion**

Defining and implementing a good fit fiscal regime for the mineral sector are critical to ensuring that governments obtain a fair share of revenue and create an environment conducive to investment. But establishing such a regime is difficult because of a number of technical, economic, and political factors. The interaction of these factors leads to the set of issues observed in resource-dependent, low-income, and weak-governance countries: suboptimal, complex, and contradictory conceptual frameworks for the design of fiscal regimes; low incentives to invest in revenue administration reforms; and perpetuation of time inconsistency and problems of commitment. In the maze of such problems, it is important to understand that there is no one-size-fits-all approach to defining a good fit fiscal regime.

Progressive, profit-based taxes, in theory, are the first best fiscal instruments, helping achieve higher revenues, efficiency, and flexibility. But wide variations in underlying political economy drivers, weak revenue administration capacity and governance, and institutional fragmentation in sector regulation and revenue collection mean that the fiscal regime must be tailored to each country's circumstances. Therefore, broad guidelines are needed to establish good-enough fiscal regimes

based on three dimensions: extent of certainty of geological prospects, administrative capacity, and government credibility.

Fiscal regime reforms in resource-dependent countries must be examined in the broader context of tax administration performance. In essence, the institutional and organizational dimensions of fiscal policy directly affect the level of government take and the effectiveness of the fiscal incentives that governments use to attract investment and generate revenues. Small improvements in performance can yield substantial increases in revenue flow, creating positive feedback and helping actors interested in channeling those resources through formal avenues, such as the revenue authority, to mobilize support for broader reforms.

Moreover, a more efficient and effective revenue administration would play a central role in improving the enforcement of tax policy over time and would enable the adoption of more progressive and flexible tax policy elements such as windfall royalties, which could mitigate the risks of renegeing stability clauses. Nonetheless, it needs to rely on a broad political consensus with regard to sustaining investment in capacity and introducing institutional and legal provisions that advance coordination with other collecting agents.

Transparency, credibility, and commitment and how they are sequenced play a key role for successful design and implementation of low-transaction-cost, good-enough fiscal regimes for the extractive sector. Solving the problems of collective action requires reducing information asymmetries and introducing institutional technologies that lengthen time horizons and improve cooperation. External support to improve collective action among domestic actors and stakeholders for good governance constitutes a promising avenue for action that should be at the core of development partners' engagement in resource-dependent countries.

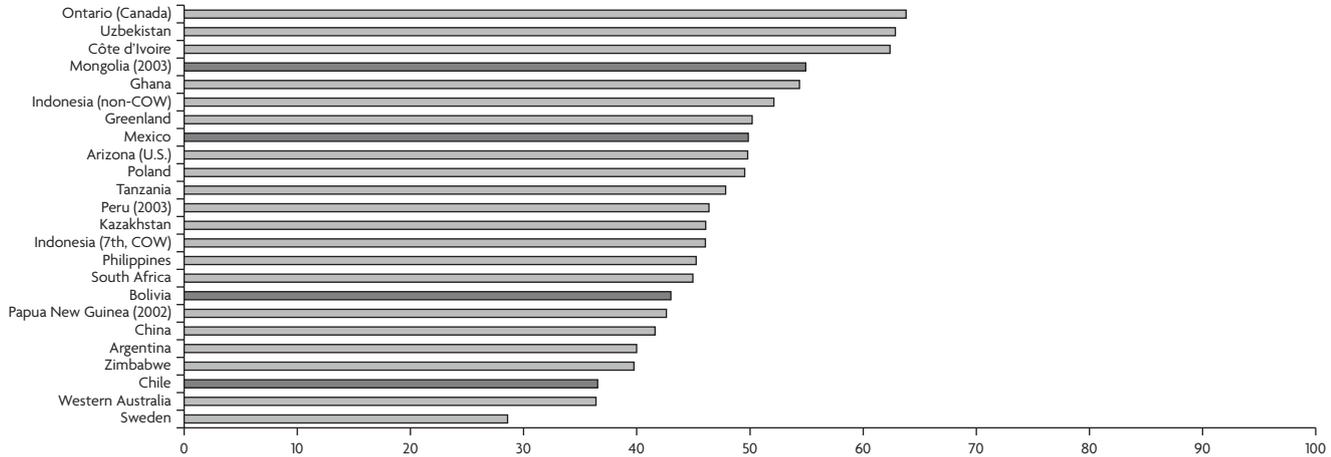
## Annex 4.1. Royalty Practices in Selected Countries

	Bolivia	Chile	Ghana	Niger	Mongolia
<b>Format</b>	National law	None	National law and renegotiated agreement acts	Mining code law	National law
<b>Royalty type (nonindustrial minerals)</b>	Ad valorem, sliding scale based on ratio	Ad valorem	Ad valorem (sales revenue)		Ad valorem
<b>Royalty rate</b>	1.0–6.0% based on sales price position relative to reference price bands	0.5–5.0%	3.0–12.0%	5.5–12.0%	2.5%, except placer gold at 7.5%
<b>Variation: Minerals</b>	Yes	Yes	No Same royalty system for all minerals	Yes	No, except gold
<b>Variation in Mine Size</b>	No	No	No	Yes	No
<b>Deferment/Reduction</b>	If sold for domestic use, royalty is 60% of the normal royalty	No	Yes	Yes	No

Source: Otto and Andrews 2006.

## Annex 4.2. Mining Effective Tax Rate

% of revenues



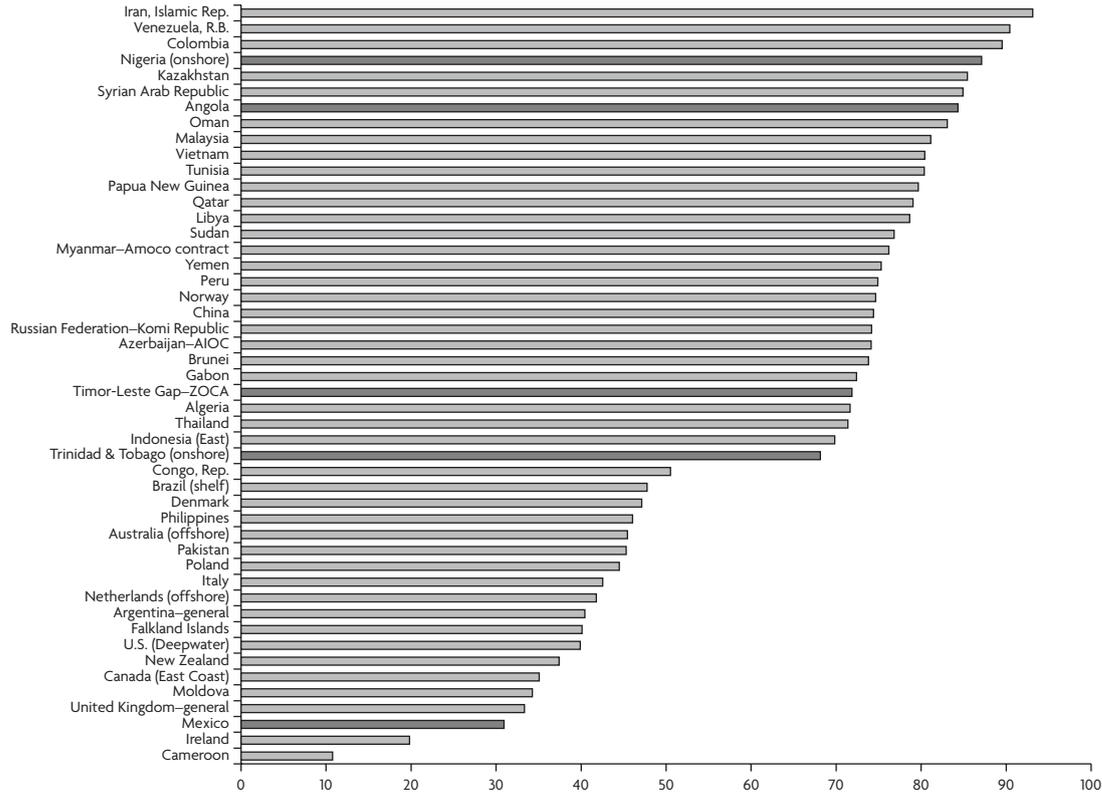
Source: Otto and Andrews 2006.

Note: Cases studied for this volume are indicated with a darker bar. The effective tax rate is the proportion of the present value of the income generated by some hypothetical project that is taken in tax, or "tax take" (Otto and Andrews 2006).

COW = contract of work.

### Annex 4.3. Petroleum Total Government Take

% of revenues



Source: Tordo, Johnston, and Johnston 2009.

Note: Cases studied for this volume are indicated with a darker bar. The government take is the host government’s share of pre-taxed revenue streams associated with a particular project expressed as a percentage (see Tordo, Johnston, and Johnson 2009, chapter 6). AIOC = Azerbaijan International Operating Company; ZOCA = zone of cooperation area.

## Notes

1. The discussion focuses on taxation and the fiscal regimes of extractive industries, but does not cover fiscal regimes for small-scale and artisanal mining or renewable resources such as forestry.
2. Transfer pricing may be initiated by: (1) buying materials or leasing capital goods and equipment from the parent company at above-market price, (2) borrowing from a parent company at excessive interest rates, and (3) charging excessive management or consultancy fees and overhead costs.
3. For a general understanding of this tax and an example of the computations involved, see Garnaut and Ross (1975).
4. The two types of depletion allowance are cost, in which a fixed nominal allowance per ton of ore extracted is given, and percentage, in which a fixed percentage of current revenue is allowed to be deducted as a compensation for resource exhaustion. Both act as a subsidy and increase the per-unit revenue received by the investor.
5. This section draws on Mazaheri (2010).
6. Instability can also reduce rent-capture by the state in the short term and can enhance the profitability of the extractive industry investor (Guidolin and La Ferrara 2007).
7. See, for example, Bird (2008); Das-Gupta and Mookherjee (1998); Kidd and Crandall (2006); Lledo, Schneider, and Moore (2004); Osmundsen (1998); Thirsk (1997).



## Investing Resource Wealth: The Political Economy of Public Infrastructure Provision

Resource-dependent countries face the fundamental challenge of how to reinvest part of the large rents they receive from extractive industries into productive assets that replace the depleted nonrenewable natural capital, while at the same time smoothing spending across price cycles and minimizing the negative effects of resource revenues on other sectors. To diversify their economies and become less dependent on natural resources, capital-scarce developing countries must leverage those investments to alleviate infrastructure constraints on other sectors of the economy and attract investments towards broader job creation and economic development.

Translating natural resource rents into public infrastructure presents fiscal management challenges on both macro and micro levels that affect the quantity and quality of these resource flows and how they contribute to the long-term objective of public asset creation and preservation. On the macro side, revenue volatility and the pressures created by large export revenues on the exchange rate are associated with three major problems for macroeconomic and fiscal stability. First, public investment is a discretionary form of spending, thus it is typically more sensitive to cuts than recurrent expenditures such as public sector wages and transfer programs, to which cuts would generate concentrated opposition. Second, revenue and expenditure volatility affect the predictability and sustainability of capital spending implementation. Volatile capital

budgets can create problems of credibility in negotiating public works contracts, especially given the longer lead times and implementation associated with the infrastructure project portfolio. Third, large public investment flows into the nonresource economy, especially with regard to the construction sector, can overwhelm prevailing construction capacity and temporarily inflate overall price levels of key tradable and non-tradable inputs.

On the micro side, the particular challenges associated with creating and maintaining public infrastructure assets require attention to the institutional modalities and capabilities by which the overall project portfolio is implemented. Past efforts to build public investment management (PIM) systems and improve their functioning, that is, “investments to invest,” upgrade the modalities that can be used to create physical assets and thereby enhance a country’s PIM efficiency, or capacity to absorb larger budgets and to scale up investments. In addition to standard project execution through the government budget, a variety of public-private-partnership modalities are pertinent to resource-dependent settings, including drawing in the more readily available implementation capacity of domestic and international providers of capital works. Yet public-private partnerships also require a sound regulatory framework and assurances of “value for resources” in contracts with private sector agents.

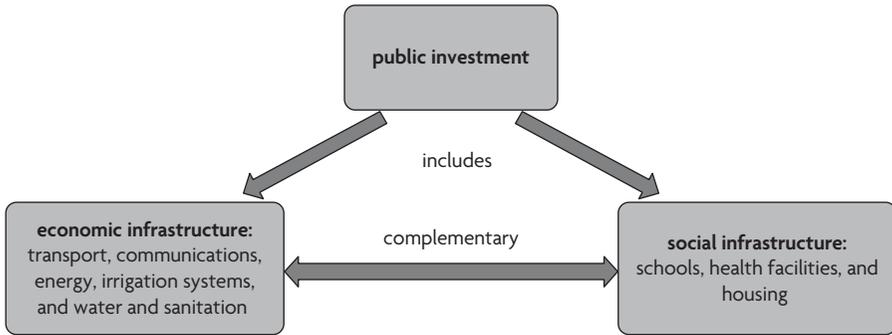
Public investment management is subject to particular political economy challenges. The creation of assets involves deferring benefits, because the return for a public asset is likely to be realized several years in the future rather than in the present budget or electoral cycle. The benefits from public infrastructure are broad and nonrival, making it difficult for politicians to take credit and reducing the incentives for preservation of those assets over time. Moreover, creating and maintaining infrastructure is complex and incurs high transaction costs compared with other forms of public resource allocation. Building viable infrastructure requires effective management of planning, prioritization, and project contracting from implementation through completion as well as operation. At any given time, numerous different public sector agencies will be considering, resourcing, implementing, completing, and using a portfolio of hundreds, if not thousands, of projects. These project cycles often take years to complete, and the long-term value of physical infrastructure is

highly contingent on recurrent spending on maintenance. Efforts at asset creation and preservation, even by committed policy principals, can be subject to various vulnerabilities.

The challenges of managing a coherent and sustainable public investment portfolio are compounded by the specific problems observed in resource-dependent developing countries, which typically confront a plethora of needs and political pressures generated by the weakness of other economic sectors. Especially in boom periods and at the early stages of resource production, rents become highly visible and social expectations rise. Large rents provide public officials with the opportunity to increase their political capital by delivering infrastructure projects and resources to their constituents and coalition members. This results in strong incentives to concentrate decisions about rent allocation at the highest levels of government and to bypass the regular budget cycle and procedural rules. The emphasis is usually put on the creation of new infrastructure to the detriment of maintenance investments and the rehabilitation of existing assets. Because of the uneven geographic distribution of natural resources, earmarking large shares of royalties to producing regions introduces additional challenges and distortions in the allocation of fiscal resources across jurisdictions. Subnational governments are not as well-positioned to smooth spending and manage investments and do not generally have incentives to coordinate with other regions and levels of governments in their investment decisions. Such earmarking arrangements are often the result of political bargains and historical legacies of the ownership of and rights to natural resources that are very difficult to change. Finally, in settings with low institutionalization, in which elites face difficulties striking and sustaining political bargains, public officials highly discount the future and have little incentive to defer present consumption in favor of saving or investment, or to build the capacity of their PIM systems. In turn, the resulting weak planning and implementation capacity of public agencies feeds back into the incentives to bypass government systems and increase opportunities for rent-seeking behavior.

Public investment can refer broadly to allocations to both economic and social infrastructure (figure 5.1). Resource-dependent countries may also include investments that are directly associated with the resource sector itself. The ultimate effects of investments depend on the quality of

Figure 5.1. Scope of Public Investment



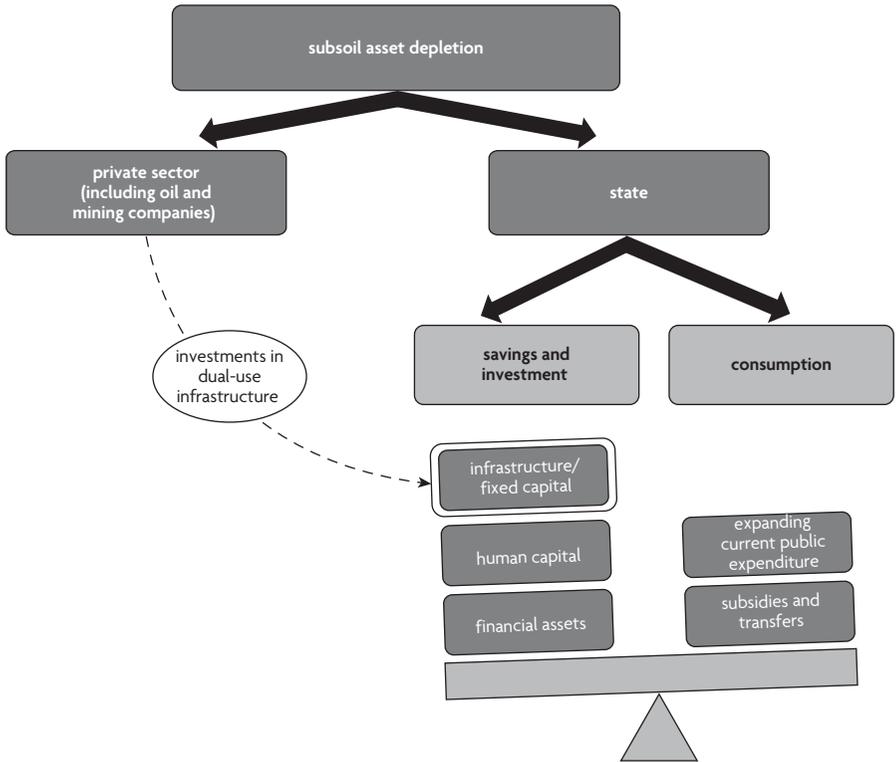
Source: Authors.

the projects selected, the efficiency (or value for money) with which they are implemented, and how they are operated and sustained. But public investment should also be understood in terms of its function as political currency. The investment budget itself is often a preferred channel for strategic distribution of rents or patronage targeted to a range of salient constituencies.

The concept of investment (or development) expenditure includes, in addition to fixed assets, other spending items that generate benefits over more than a year.<sup>1</sup> The boundary between investment and noninvestment expenditures is not as clear-cut as the distinction between the budget categories of capital and current expenditures and is more difficult to operationalize. This chapter considers investment expenditures specifically as investment in productive physical assets.<sup>2</sup> This definition includes their sustained operation, which may or may not be associated with civil works. Alternatively, “saving” will be used to denote the build-up of financial assets (whether in a country’s central bank, special accounts, or other mechanisms such as a sovereign wealth fund).

The policy choices made by natural resource–endowed countries with respect to public investment are nested in a wide array of issues concerning the overall process of public financial management and budgeting. Fundamentally, downstream management concerns the deployment of rents across the polity and economy over time. A crucial dimension that resource-endowed countries must manage is the temporal dimension of these rent flows. Countries must weigh decisions on intertemporal

Figure 5.2. Stylized Government Choices for Spending Resource Rents



Source: Authors.

consumption versus saving, while considering politically charged, present-day demands as well. Given that subsoil assets are being depleted in this process and that rent values are uncertain owing to price volatility, sustainability is an overarching criterion for assessing the success of resource-dependent countries in this aspect of the extractive industry value chain. Resource-dependent countries often also allocate rents to subsidies and transfers; one option for resource-dependent settings may be handing out rents to citizens and potentially taxing them back (see box 5.1).

Figure 5.2 depicts the overall set of decisions a resource-dependent country must make when allocating resources derived from the extraction of subsoil assets. Strategic choices for resource-endowed governments

### Box 5.1 Transfer Programs in Resource-Dependent Countries

Increasingly, the direct distribution of rents to citizens has been seen as an attractive spending option for resource-rich settings. Direct distribution to citizens has been advocated in the case of Nigeria (Sala-i-Martin and Subramanian 2003) and Iraq (Birdsall and Subramanian 2004). Arguably, money would be better spent (or saved) in the hands of households. In addition, this type of direct spending mechanism also promises to strengthen the state-society compact; Devarajan et al. (2010) suggest that such a distribution can in turn be partially taxed back, strengthening the accountability linkages between state and society and buffering revenue volatility in comparison to direct taxation.

The Alaska Permanent Fund, created in 1976 as an amendment to the Alaskan constitution, is the most frequently cited example of direct distribution of resource revenues to citizens. The size of the annual dividend has increased so that today about US\$1 billion is distributed annually (based on assets of US\$26.5 billion in 2000) to 600,000 citizens—directly accounting for about 6 percent of total household income in 2000 (Goldsmith 2002). One reason for the creation of the fund was the sense that politicians in Alaska squandered resource revenues in the late 1960s.

To date, there has been limited uptake of such schemes in developing countries. One exception is the Motherland Gift Fund in Mongolia, which pays dividends from the country's mining revenues to its citizens (Finch 2009). In practice, however, many resource-dependent countries use resource rents to finance large transfer programs, even if they are not explicitly linked to resource wealth. Iraq's public distribution system directly provides packages of food to all citizens, although there have recently been efforts to improve targeting. Mexico has instituted a number of conditional cash transfer programs (for example, the National Solidarity Program, PRONASOL), which have been funded in part from natural resource rents. In many Middle Eastern countries, subsidized housing and employment, likewise funded by resource revenues, have been integral parts of the prevailing political compact (Eifert and Gelb 2002). In short, governments endowed with natural resource rents have provided wealth transfers to citizens in a variety of different ways.

Major transfer programs raise a number of macro-fiscal as well as microeconomic issues. To avoid large volatility and potential pro-cyclical effects, transfer programs should be stabilized with respect to actual rent revenues. Akin to fiscal transfers to subnational governments, transfers to citizens should have some degree of predictability. Institutional arrangements should be such that central governments cannot simply alter transfer entitlements on an ad hoc basis, at the same time maintaining requisite flexibility for effective macro-fiscal management. Depending on the magnitude of transfer programs, policy makers should also be concerned with the likely spending behavior of citizens on the basis of these transfers and the possible effects on prices. Will they tend to consume these transfers directly, fueling possible Dutch disease effects? Will households tend to use them to finance private investments or just to accumulate financial, land, or housing assets?

Finally, effective distribution of direct transfers requires mechanisms to guarantee beneficiary identification and payment mechanisms. Technological advances, which make biometric identification of cash transfer beneficiaries cost-effective, offer promising entry points for states interested in implementing these arrangements (Gelb and Decker 2011). For example, biometric identification through mobile devices is part of the design of the new social security payment system in Timor-Leste.

*Source:* Authors.

center on how much to consume or spend now (for example, on recurrent salaries or subsidies) versus how much to save or invest. A fundamental question concerning the use of natural resource rents is whether the government is tilting the balance to saving and investment, or is mainly using rents in the form of current consumption.<sup>3</sup>

A key policy question is how ambitious resource-dependent governments should be in ramping up specific types of investments at any particular time. Given resource price and depletion prospects, a key annual, medium-term choice for resource-dependent countries is whether to follow expansionary or prudent resource management. The Permanent Income (PI) Model emphasizes that expenditures should be calibrated on the basis of expected revenues over time, hence recommending that governments should accumulate financial assets that will generate a more predictable and sustained future income stream. Liquid financial assets (including sovereign wealth funds) serve both as a vehicle of stabilization and as a means of saving in the face of volatile resource prices and production. This relatively conservative approach has often been advocated by international financial agencies including the International Monetary Fund and the World Bank. If an economy's absorptive capacity is weak, excessive domestic spending may create inflationary pressures, driving up costs and crowding out other domestic industries. Nevertheless, other models contend that capital-scarce developing economies could create potentially very high economic and social returns by rapidly ramping up investments in both hard and soft domestic infrastructure (Collier, van der Ploeg, and Venables 2009).

This chapter examines public investment in the context of downstream public expenditure management. The focus is on critical issues of policy design and implementation for public investment, leaving out a number of other downstream matters beyond the scope of this volume, such as policies to smooth public spending and increase economic diversification. The next section describes three paradoxes in effective public investment management that are specific to resource-dependent settings. Following that is a synthesis of good practice technical guidance on budget allocations and the actual project cycle. How the prevailing political economy context affects policy choices on the quantity and quality of public investment then follows. The next

section identifies the implications for prioritizing and sequencing potential remedies for better public investment management, given the regime's objective function and its administrative capacity, followed by concluding recommendations.

## **Paradoxes of Public Investment**

The promise of a country's natural resources being used to build modern infrastructure is one of the facets of extractive-led development that is most likely to capture the imagination of politicians and populations. Especially in capital-scarce developing economies, domestic capital creation promises high economic and social returns compared with other resource allocation options.<sup>4</sup> From a normative point of view, moreover, it is difficult to contest the desirability of more effective public investment. However, the case studies for this volume highlight that, in practice, resource-dependent countries confront a number of challenges that often make translating this desire into practice more tenuous. One such challenge is coping with inevitable fiscal shocks, particularly when stabilization mechanisms across commodity cycles are weak.

Resource-dependent countries frequently make manifestly suboptimal policy choices with respect to public investment. Closer inspection reveals that project selection and implementation are often poorly aligned to developmental objectives. In most cases, when adverse fiscal shocks occur, the public investment portfolio is adjusted in an ad hoc fashion. Even if assets are created, they may not be sustained because of inadequate use and maintenance. Administrative capacity for public investment tends to be weak compared with other areas of public financial management. A pervasive question is whether resource rents should be earmarked to the location of extraction and what type of efficiency trade-offs this may pose.

These patterns can be summarized in three paradoxes that affect how natural resource revenues are distributed to the citizenry through public investment for physical asset creation and preservation, as follows:

- Resource rents offer the prospect of investing heavily in physical infrastructure that would generate high returns in capital-scarce countries, but such countries often fail to invest proactively in the

processes and systems needed to yield the very best projects as a result of political incentives and the features of the sector.

- Investment in public infrastructure is one of the policy tools that resource-dependent countries can use as the basis for economic diversification and reduced cyclicalities; nonetheless, public investment tends to be highly pro-cyclical, thus unsustainable. Failure to maintain projects generates repeated “build, neglect, rebuild” episodes.
- A benevolent national planner would ideally allocate resource rents to finance the highest-return public investment projects, regardless of their geographic location; but political economy dynamics often militate toward earmarking investments to the location of resource extraction or fragmenting them across various narrower political constituencies.

### **Key Technical Issues in Investing Resource Rents in Infrastructure Assets**

Public infrastructure asset creation and preservation involves a series of macro-fiscal as well as micro- or project-level choices and challenges. Classical public expenditure management (PEM) focuses on three levels of policy choices: (1) macro-fiscal management, (2) allocation choices (for example, investment versus consumption spending, sectoral prioritization), and (3) operational efficiency. Much of the public expenditure literature focuses on aggregate-level spending choices (for example, see Ossowski et al. 2008; Villafuerte and Lopez-Murphy 2010), including revenue management institutions. Capital formation will hinge on the portfolio of existing and new projects. At the micro level, the decisions and actions regarding how each project is managed and maintained will affect the existing and prospective value of a country’s public capital stock.

The enabling environment of the two overarching levels of aggregate macro-fiscal and allocation choices will fundamentally condition what happens at the level of sectoral or territorial project portfolio segments.<sup>5</sup> Predictable capital resource allocations for ministries, agencies, subnational governments, or communities can set strategic plans by which to steer the prioritization, completion, and maintenance of infrastructure assets. But since investment spending is typically one of the most highly

discretionary expenditure items during annual budget preparation and execution, these resource allocations will also be the most vulnerable to the high fiscal volatility associated with resource-dependence. Consequently, asset creation and preservation will be particularly exposed to the volatility of resource-related revenues unless the investment budget is adequately insulated or the revenues smoothed. Given the prevalence of contracting and physical works in capital spending, delays in execution will also make it more challenging to effectively calibrate allocation disbursements with execution. Delays in mega-projects, which are either complex or large relative to a country's budget, can have significant effects on overall budget credibility.

Countries with short-term or ad hoc financial management modes are likely to accentuate potential fiscal boom-and-bust cycles associated with resource dependence, with particularly adverse effects on saving. A typical risk for resource-dependent countries is failing to accumulate assets when rent flows are buoyant, then subsequently failing to maintain assets when rent streams are adversely affected by price and production patterns.<sup>6</sup> At the extreme, projects may grind to a halt as governments resort to cash rationing in bust cycles to favor more immediate needs in other sectors. Delays in project execution may also compel governments to reallocate these resources to other purposes in the context of the annual budget execution cycle, which in turn may ratchet up other claims on resource revenues in the future and further crowd out investment spending envelopes.

The term “absorptive capacity” is frequently used to capture the macroeconomic, public financial management, and broader governance challenges of scaling up public investment in resource-dependent settings. It is important to unbundle the concept of absorptive capacity in order to understand its effects on asset creation and preservation. The prevailing market structure and the extent to which various inputs to public investment are tradable determine the cost of projects and the degree to which public expenditures will create inflationary pressures.<sup>7</sup>

The term “investing to invest” has emerged to describe the variety of capacity-building measures—including strengthening aspects of public financial management ranging from budgeting to procurement or contract management—by which resource-dependent governments can

improve their ability to enhance their capital stock (Collier 2010a). A key message of this chapter is that for these settings, the barriers to greater asset creation and preservation are not resource constraints per se, but rather the institutional mechanisms and capabilities by which public investment is prioritized, sequenced, and implemented.

A public investment management regime comprises the choices made in regard to the three levels of questions shown in table 5.1.<sup>8</sup> The question of “where to spend” encapsulates the key downstream choices for using natural resource rents: (1) spending on consumption, including direct transfers, (2) spending on investment, that is, improving the domestic public capital stock, and (3) accumulating financial savings, including the use of sovereign wealth funds (state-owned funds that invest a country’s financial assets). The policy literature on public financial management (PFM) provides a range of recommendations on optimal choices and processes for effectively managing public resources, including in resource-rich settings (Dabán and Héris 2010). Countries have a range of spending choices within the particular spectrums of consumption and investment expenditures. The presence of significant natural resource rents can raise the fiscal space of public investment in resource-dependent settings by a number of GDP percentage points compared with the baseline relative to nonresource taxation. Consequently, in capital-scarce, resource-endowed economies (which are in turn likely to be associated with low levels of income and institutional quality), public investment may play a prominent role in

**Table 5.1. Key Policy Choices for Resource-Dependent Countries**

Policy areas	Policy planning questions	Policy alternatives
Macro-fiscal management	1. How much to spend and save (and where to save)	Fiscal stabilization and saving mechanisms and strategies.
Resource allocation	2. Where to spend	Investment versus consumption. Sectoral and spatial allocation of capital spending.
Operational efficiency	3. How to spend effectively and efficiently	Choice of modalities and institutional processes for project design, selection, implementation, and operations and maintenance.

Source: Authors.

enhancing nonresource growth prospects (Collier, van der Ploeg, and Venables 2009).

The quantity and quality of the public physical assets a country produces is determined by the intersection of a set of aggregate top-down budget allocation processes and bottom-up project selection, implementation, and completion incentives and capabilities. The budget allocation process typically engages executive, legislative, sectoral, and subnational actors. Given the multi-dimensionality of the process, the approach of this chapter is to focus on some key observed aspects of the trade-off between the quantity and quality of public investment across resource-dependent countries.

Concerns about the optimality of public investment are not restricted to resource-dependent settings.<sup>9</sup> But the fact that capital spending is being financed by the drawdown of a nonrenewable resource raises special concerns. The example of Nauru, a country that exhausted its significant phosphate resources in about four decades, demonstrates that societies need to worry about what happens when the resource runs out and no longer generates direct economic benefits. Moreover, the volatility of resource rents over time has especially pronounced effects on how investments are implemented in practice. Resource rents would appear to be a particular blessing because they provide resources to invest without having to tax current economic activity.<sup>10</sup> Yet, using rents rather than recurrent taxation runs the risk of reducing downward accountability (as discussed in chapter 2), leading authorities to pay more limited attention to private sector feedback.

This section provides technical guidance regarding the three levels of public expenditure management shown in table 5.1, namely, what or how much to spend, where to spend, and how to spend. While each of the three levels is analyzed in sequence, there may be interdependencies and overlaps; for example, how much to spend may be informed by decisions about where to spend. Similarly, rather than borrow, governments could finance infrastructure by resorting to public-private partnerships backed by future returns from the depletion of resource endowments.

### **How Much to Spend**

Table 5.2 synthesizes key policy issues, guidance, and typical recommendations for improving aggregate downstream fiscal management in

**Table 5.2. Policy Recommendations: How Much to Spend and Where to Save**

Common problems	Technical policy guidance	Policy tools/entry points
Spending too much too soon, imprudent fiscal policy, and propensity to greater indebtedness	Follow sustainable levels of consumption on the basis of long-term price and production patterns	<ul style="list-style-type: none"> <li>• Coherent, participatory national development strategy</li> <li>• Natural resource accounting/estimation of genuine savings</li> <li>• Permanent Income Model</li> <li>• Fiscal transparency measures</li> </ul>
Pronounced revenue volatility and pro-cyclical fiscal policy (following boom and bust price cycles)	Develop counter-cyclical fiscal policy (smooth spending across price cycles)	<ul style="list-style-type: none"> <li>• Fiscal rules and stabilization mechanisms (including sovereign wealth funds)</li> <li>• Assessment of fiscal space</li> </ul>
Excessive real-exchange rate appreciation (Dutch disease)	Save in foreign financial capital assets	<ul style="list-style-type: none"> <li>• Sterilization of revenues</li> <li>• Close monitoring of fiscal, monetary, and exchange rate indicators</li> </ul>

Source: Authors.

natural resource–dependent settings. A central question for resource-dependent countries is how expansionary fiscal policy should be during commodity booms. The responses of many developing oil economies to the oil-shock in the 1970s shows that many governments erred on the side of optimism, wasteful spending, and macroeconomic policy at odds with diversified economic growth (Gelb and Associates 1988). At the extreme, countries like Nigeria borrowed against anticipated future oil revenues and invested those resources poorly at home; as a result Nigeria was saddled with large financial debts and limited productive assets in return. Advanced countries are not exempt from the economic problems associated with commodity booms. The experience of the Netherlands in the 1970s inspired coining of the term “Dutch disease,” whereby appreciation of a country’s real exchange rate due to a sharp rise in commodity exports interacts with a booming resource sector and expansive fiscal policies to adversely affect the competitiveness of other sectors and inflate the domestic cost of nontradable goods and services. The key message from the technical literature for policy makers in resource-dependent settings is to delink expenditures from annual

resource revenues and to adopt a longer-term and typically more restrained annual spending profile (Brahmbhatt and Canuto 2010; Brahmbhatt, Canuto, and Vostroknutova 2010).

Determining how much to spend should ideally be couched in terms of a broader developmental vision, and it requires strategies for stabilizing revenues, countering Dutch disease, and meeting the goals of asset accumulation and expenditure smoothing.

**Development Strategy and Vision.** For any country to benefit from its resource endowments, it must start by articulating an overarching development strategy and determining options for financing it. Beyond quantitative targets, countries may have visions of modernization more ambitious than the basic poverty-reduction and welfare-enhancement objectives articulated in the Millennium Development Goals. The leadership of Timor-Leste, for example, envisions the country becoming an oil-services-based hub. Leaders in oil nations like Kazakhstan aspire to rapid modernization and regional respect. For Angola, hosting the 2010 Africa Cup in soccer represented a major milestone in its postconflict transition and spurred major infrastructural investment in sports arenas and ancillary infrastructure. Major infrastructure projects are frequently a key element of this broader vision.

**Stabilizing Revenues and Saving.** Stabilization and saving are often referred to in tandem, but in principle refer to two different objectives. Stabilization is in effect a form of self-insurance that allows for a transfer of resources between price booms and busts (De Ferranti et al. 2002). Commodity price uncertainty remains a major facet of how stabilization and saving mechanisms are implemented in practice. Historically, the prices of commodities like oil have followed a “random walk” (Gelb and Grassman 2010). While mounting prices are often seen as harbingers of a new “super cycle” that will raise the long-term price level of a particular resource, the reality is that resource prices have a high degree of volatility and uncertainty, while production levels and annual budget cycles for most countries are usually unresponsive to price. Financial saving refers to the build-up of (typically international) assets with the objective of securing a financial return.

The Permanent Income Hypothesis (PIH) links stabilization and saving by emphasizing the achievement of stable fiscal results by building up financial assets through a sovereign wealth fund (SWF) or similar mechanism that allows targeted expenditure patterns to be maintained through commodity boom and bust cycles.<sup>11</sup> Besides precautionary motives for stabilization, the basic PIH model highlights critical aspects of the intertemporal and intergenerational dimension of extractive industries. On one hand, saving mechanisms can store wealth for future generations. On the other hand, the saving rate net of natural resource capital depletion also provides a framework to assess the sustainability of the long-term expenditure path (World Bank 2006a; 2011a) and provides an anchor for the development of a vision. The “Hartwick rule” emphasizes the translation of depletion proceeds into fixed capital formation (Hartwick 1977; Hamilton and Ley 2010). Recently, in contrast to the PIH, other models have emphasized the potential benefits of generating economic growth returns by investing in a country’s domestic capital stock (Collier, van der Ploeg, and Venables 2009) or of repaying debt. The prospects of this model depend critically on a country’s absorptive capacity and the potential for public investment to generate growth in the nonresource economy.

At the implementation level, a key question is whether special fiscal institutions like SWFs actually make a quantifiable difference in fiscal policy. Evidence about the actual effects of SWFs on fiscal policy is mixed (Gould 2009; Crain and Devlin 2002; Ossowski et al. 2008; Bagattini 2011). Therefore, an important question regarding stabilization or saving funds is whether they achieve the medium-term objectives set for them across major resource revenue cycles, and what potential anchors are likely to contribute to their success in a given political setting. For example, Nigeria’s Excess Crude Account accumulated in excess of US\$20 billion in 2007, but fell to less than a tenth of that in 2010. In 2011, the account was due to be replaced by three separate funds: Future Generations Fund, Nigerian Infrastructure Fund, and Stabilization Fund. The establishment of these new funds raised the question of whether special purpose or earmarked funds are potentially more durable from a political economy point of view than are general purpose saving or stabilization funds, because stronger constituencies or arguments exist to maintain them.

Policy guidance on special saving accounts, or SWFs, has focused mainly on the features and rules that better allow countries to smooth spending across boom and bust cycles. Less attention has been paid to how the design of these funds should address other goals, such as enhancing transparency and accountability in the management of resource rents. One example where fiscal transparency requirements have adequately been incorporated in a fund's design is the Development Fund for Iraq. Since the fall of the Saddam Hussein regime, most of the country's oil revenues have been paid into New York-based banks. While withdrawals are regulated through the budget process, the fund has independent audit procedures, providing greater transparency and stronger core internal audit capabilities.

**Countering Dutch Disease Effects.** Deciding how much to spend at any given time must take into account the risk of overheating the economy as a result of excessive domestic spending of rents, incurring a bout of Dutch disease, wherein a rapidly appreciating exchange rate caused by increasing commodity exports adversely affects nonresource sectors. Although Dutch disease can usually be countered by sterilization of revenues, it should be noted that different types of public spending may have different effects on the domestic economy. A country's absorptive capacity, hence the extent to which it may be vulnerable to overheating as a result of expenditure, depends on a number of factors, including productive opportunities at the margin, the ability of the public sector to adequately manage additional investments, and the economywide effects of scaling up spending in public capital investment. In some cases, the sequence of projects might be critical in alleviating infrastructure needs (for example, constructing new ports and highways), thereby allowing for greater public investment later on. For example, in 2007–09, Angola's port infrastructure was not up to the task of supporting the country's burgeoning import demand for materials to reconstruct the infrastructure that was severely damaged during the country's prolonged civil war. With ships waiting for weeks to disembark, prices of cement and other tradables were subject to further rapid inflation. An early investment in improving ports would have allowed the country to more rapidly and economically scale up infrastructure projects as part of the reconstruction efforts. Similarly, the use of foreign contractors would have limited

Dutch disease concerns by reducing the pressure on domestic labor and capital that other modalities of public investment create.

**Expenditure Smoothing and Asset Accumulation.** An increasing number of resource-dependent countries have sought to implement stabilization and saving strategies (Ossowski et al. 2008). While fiscal policy tended to be more prudent in the 2005–08 commodity boom than in the 1970s, stabilization and saving policies in practice have had various degrees of success. Although one option has been special fiscal institutions (Dabán and Héris 2010), the literature notes that their adoption has often been symptomatic of the deeper challenges in many developing economies when attempting to insulate the budget from revenue volatility and maintaining stable fiscal policy (Heuty and Aristi 2009).

Many resource-dependent countries continue to be overly optimistic about future resource prices. This optimism often generates a cycle of over-expansive fiscal policy, with costly adjustment implications. When prices, and consequently revenues, go bust, countries must resort to a variety of adjustment strategies, ranging from borrowing, to curtailed capital expenditures, even to rapid accumulation of arrears, as observed in 2008 across the developing world. Periodic revenue increases may continually increase spending liabilities as a result of a voracity effect (Tornell and Lane 1999).

Politicians with short time horizons apparently have not adequately internalized these risks, even in terms of their own prospects. Especially in new resource producers, policy learning across resource cycles has been insufficient to demonstrate the need to consider risks and to mitigate the political costs of differing consumption. In settings in which time horizons are narrow and institutions enforcing political agreements and facilitating cooperation are absent or weak, incumbent policy makers will choose to frontload spending, even if their preference is to smooth spending over time, because they cannot trust the next government to maintain the saving mechanisms that they have introduced (Alesina and Tabellini 1988; Dixit, Grossman, and Faruk 2000; Humphreys and Sandbu 2007). As a result, overspending arises when commitments with other political groups are not credible.

In addition, given various spending pressures and the inherent uncertainty of commodity prices, accumulating and investing the financial

assets derived from extractive industries entails asymmetrical political risks. The responsible officials will receive little credit for saving resources if prices do not fall during their administration (Eifert, Gelb, and Tallroth 2002). Conversely, if prices fall and there are enough resources to cover the losses, these officials can potentially benefit from enormous political gains. Particular attention must therefore be paid to the institutional mechanisms that modulate aggregate spending, in particular investment spending, in terms of the effects on political incentives.

Particularly for low-income and low-capacity settings, both the technical and political feasibility of developing and communicating an adequate macro-fiscal strategy remain a central challenge. Simple fiscal rules to determine annual resource rent transfers to the budget (for example, a particular reference oil price) may be one strategy. However, even a well-designed permanent income model is subject to uncertainty about proven reserves, projected returns on financial assets, and resource price developments. The perception that further resources are yet to be discovered heightens political perceptions of a larger fiscal space. Timor-Leste employs a Norwegian-style financial fund to ensure intergenerational saving. Yet the underlying financial assumptions of its petroleum fund have not been subject to broader political scrutiny, even when withdrawals from the fund have been accelerated.

In the same way, when prices rise significantly above some reference price, or new finds are made, countries may be likely to loosen the initial fiscal envelopes and ratchet up expenditure allocations. But models that incorporate notions of future growth prospects need some empirical measure or judgment about the absorptive capacity of the public investment system. As public spending expands, many developing countries have had problems actually executing their full development budget, which has led to the reallocation of this “surplus” to more recurrent types of spending.

There is no single model for optimizing various performance dimensions, such as fiscal sustainability, adaptability in the face of shocks, efficiency, and equity. Political agreements affect both the formal and informal dimensions of budget processes and broader public investment outcomes (Hallerberg, Scartascini, and Stein 2009). For example, after several price cycles Nigeria’s Excess Crude Account mechanism has been able to stabilize annual revenue flows to the budget, due to policy

adjustments that include arriving at a credible coordination policy with state governments. Similarly, Botswana and Chile have been able to introduce budgetary restraints that allow them to weather oscillations in the budget as a result of more structured executive-legislative interactions and the development of their political party systems.

### **Where to Spend**

Spending priorities in the allocation of public resources and actual spending depend on the annual budget process and how the budget is executed. Decisions to be made within the aggregate fiscal envelope include (1) how much to allocate to current versus capital expenditures, to operations and maintenance, and to various priorities, sectors, and ministries; (2) how to allot resources across government levels, either through central allocations or transfers to subnational governments; as well as (3) how to allot resources across space, notably as it is associated with locations of extraction. Table 5.3 summarizes what are generally considered best-practice recommendations on the allocation of investment. Determining where to spend requires the strategic prioritization of spending and a strategy for spatial allocation of fiscal resources.

### **Strategic Prioritization through Medium-Term Expenditure Frameworks.**

Strategic public investment priorities for sectors of greatest developmental need are an important starting point for implementing a national development plan or vision, especially in capital-scarce economies. Spending priorities ideally should be aligned to a multiyear estimation of resources and costs of existing policies. This is usually carried out under a Medium-Term Expenditure Framework (MTEF), a tool for linking policy, planning, and budgeting (most often over a three-year term). A country uses this multiyear approach to improve its macroeconomic balance, allow for more efficient allocation of resources between and across sectors, and improve the predictability and credibility of funding of expenditures (World Bank 1998).<sup>12</sup>

Decision making will follow both formal and informal rules (Alesina and Tabellini 1988; Alt 2002; Dixit, Grossman, and Faruk 2000). The structure of the political system will dictate how many actors and stages are to be involved in the budget and planning process and in which arenas decisions are to be made (Hallerberg, Scartascini, and Stein 2009).

**Table 5.3. Policy Recommendations: Where to Allocate Investment Spending**

Commonly observed problems	Technical policy guidance	Policy tools/entry points
Prevalence of consumption and subsidies over investment	Extend planning horizons	<ul style="list-style-type: none"> <li>Mechanisms and institutions that follow medium- and long-term planning frameworks (e.g., Medium-Term Expenditure Framework)</li> </ul>
Poor prioritization, weak expenditure analysis, and poor policy design	Prioritize sectors and regions based on the returns to public investment projects/public expenditures	<ul style="list-style-type: none"> <li>Strengthening of sectoral expenditure analysis and planning</li> <li>Performance measurement framework benchmarking</li> </ul>
Low credibility of intergovernmental transfers and horizontal imbalances	Allocate responsibilities for tax collection and revenue smoothing to the central government and share expenditure responsibilities transparently	<ul style="list-style-type: none"> <li>Transparent design of intergovernmental fiscal relations tied to stabilization instruments</li> </ul>
Unsustainable and inefficient allocation of resources by subnational units	Internalize subsidies in the intergovernmental fiscal transfers	<ul style="list-style-type: none"> <li>Earmark savings deposits and withdrawal of wealth fund to subnational units</li> <li>Deduct subsidy from vertical transfers</li> </ul>
Fragmentation of public investment programs and capital expenditures	Incentivize cooperation in capital investments that have regional spillovers across levels of government and across subnational units	<ul style="list-style-type: none"> <li>Matching grants and performance-based transfers for regional programs</li> </ul>
Rent-seeking and corruption	Conduct cost sector analysis transparently	<ul style="list-style-type: none"> <li>E-procurement and demand-side mobilization</li> </ul>

Source: Authors.

Institutions—such as electoral rules (Cox 1997; Haggard and McCubbins 2001) and the configuration of political party systems and coalitions (especially the spatial distribution of votes and party support and social cleavages represented)—are additional considerations that fundamentally shape the distribution of resources.

On the executive side, strong and capable central finance agencies, such as finance ministries and planning ministries, are critical in setting the aggregate annual and medium-term expenditure ceilings and the overall budget for different line agencies. Legislative bodies are likely to pay particular attention to sectoral capital budget envelopes as

part of the annual budget process, especially in systems with single-district plurality systems; for example, in Mongolia legislators have actively participated in the selection of individual projects. Typically, line agencies and subnational entities will be asked to prioritize actual projects, which are then reconciled with the respective spending envelopes. Individual ministries' ability to actually manage expenditures might also influence budgetary allocations. Donors also play a significant role in prioritizing the projects they support or in building up the capacity of particular ministries. In Timor-Leste, donors' engagement in the education system meant that public investment management capacity in the education ministry was significantly higher than in other ministries.

Given that capital spending is typically one of the most discretionary forms of public spending (for example, relative to government salaries), it may also be particularly vulnerable to periodic fiscal adjustments. Adjustments may come from pressures to meet other forms of consumption spending (including transfers), as well as in response to the challenges frequently seen in executing investment budgets. The credibility of the investment budget will be dependent on both commitment control mechanisms and the ability to implement investment spending. Significant cost overruns also skew actual investment spending by particular agencies, distorting both initial provisions and subsequent allocation priorities to complete these projects.

**Spatial Allocation of Fiscal Resources.** Natural resource extraction, particularly oil, tends to be geographically concentrated, often located in remote and poor regions far removed from the relative economic vibrancy of a national capital and other commercial centers.<sup>13</sup> The assignment of resource rents to producing regions presents a number of political and economic challenges, in such areas as ownership rights, as well as the extent to which resource rents are assigned to and reinvested in the areas that produce them. While ownership of natural resources is usually vested in the central state, some federal countries, such as Argentina, Australia, Canada, India, and the United States, assign various degrees of ownership to subnational entities.

The public finance literature warns against significant derivation-based resource revenue sharing in developing countries for a number of

reasons (Kaiser and Viñuela 2010). First, derivation-based assignments can cause significant interregional inequalities and deprive the central government of considerable fiscal resources. Second, subnational governments tend to be less well placed both to mobilize revenues from the sector and to manage the macro-fiscal risks associated with the high volatility of natural resource rents, in part, because they often have a less diversified revenue base. Third, large earmarking of resource revenues to subnational governments reduces the ability of the central government to steer national public financial management. Finally, subnational governments, for a number of reasons, may be poorly placed to ensure the quality of public spending. National governments may prefer to compensate regions of resource extraction through vertical (for example, national or deconcentrated) spending channels. Yet, subnational actors may find such approaches unsatisfactory and push for more institutionalized mechanisms for benefit sharing.

Importantly, benefit-sharing arrangements vary according to whether transfers are assigned to subnational governments primarily on the basis of financing service delivery responsibilities, to compensate for the negative externalities of extractive industries, or in response to heritage claims that underscore the need to compensate regions for their depleted natural capital (Bahl and Tumennasan 2004). National conceptions of resource ownership tend to focus on the financing of subnational service delivery needs, and they earmark expenditure assignments to specific sectors like education and health. Also, there may be compelling grounds to compensate regions for additional social and environmental costs or negative externalities generated by mining and petroleum operations, such as cleaning polluted sites and providing additional social services (McLure 1983). Compensating for the externalities of extractive activities, however, requires having some measure of what these costs are and, if resource revenues are earmarked for these purposes, ensuring that related financing is adequate and predictable. In this case, specific care must be taken to ensure that significant changes in prices do not adversely affect these transfers, and that the revenue and additional cost profiles (for example, as related to the life cycle of a mine or field) are aligned. Lastly, ownership and heritage arguments make the case for translating resource rents into physical or financial assets in the location of extraction either through national or subnational governments.

The introduction of a center-subnational, benefit-sharing arrangement may be driven by the need to mitigate regional conflict threats. By increasing development at the local level (Bakke and Wibbels 2006), reducing discretion and ambiguity of natural resource rents (Herbst 2001; Bird and Ebel 2006), and providing citizens with opportunities to shape policies (Brancati 2009), revenue-sharing mechanisms have the potential to solidify national unity and diffuse separatist sentiments. Resource extraction companies will also see the delivery of tangible local benefits as a critical element of their local license to operate. In addition, decentralization can enhance local autonomy and provide a setting in which minorities can enjoy self-rule at the regional level (Jeong 2002). Alternative regional arenas favor intra-group competition, which in turn reduces power struggles at the national level (Horowitz 2002). But subnational governments may become important actors in the so-called voracity effect (Tornell and Lane 1999), where demands on resource rents are increasingly ratcheted up across political stakeholders over the annual budget process, and thereby contribute to unsustainable fiscal policies.

### **How to Spend**

While the previous two sections covered aggregate spending and allocation choices, this section now examines public investment at the micro level. A weak public investment management system is one of the most critical constraints to effective capital formation in developing countries. As previously argued, dependence on natural resource rents poses special challenges to public investment management, summarized in table 5.4. First, the volume of public investment made possible by natural resource rents may overwhelm existing capabilities both to generate and to maintain and operate projects. Revenue volatility has the tendency to periodically disrupt the financing of the public investment portfolio across the board and for specific agencies. This disruption in turn undermines annual budget credibility and distorts behavioral incentives across the bureaucracy. The prominence of investment through quasi-fiscal channels, such as national oil or mining companies, is a feature specific to resource-dependent settings. Resource-for-infrastructure (RFI) deals are also increasingly emerging as an important public investment modality in resource-rich settings.

**Table 5.4. Policy Recommendations: How to Invest**

Commonly observed problems	Technical policy guidance	Policy tools/entry points
Weak public investment (appraisal, selection, and implementation)	Invest or contract in capacity to institute a standard process of project appraisal, selection, and implementation	Strengthening all linkages of project PIM value chain, including project appraisal, selection, and implementation
Inefficient quasi-fiscal activities	Reducing quasi-fiscal activities and channeling projects through the PIM system	Prioritized transparency initiatives
Poor integration of capital, recurrent, and donor funding	Integration of current/development budgets; use of country systems	Assistance with budget integration and performance-oriented budgeting
Bundled extraction and public investment projects	Disaggregated and transparent analysis of VFM compared with public investment	Assistance with analyzing and negotiating bundled projects; third-party monitoring of bundled contracts

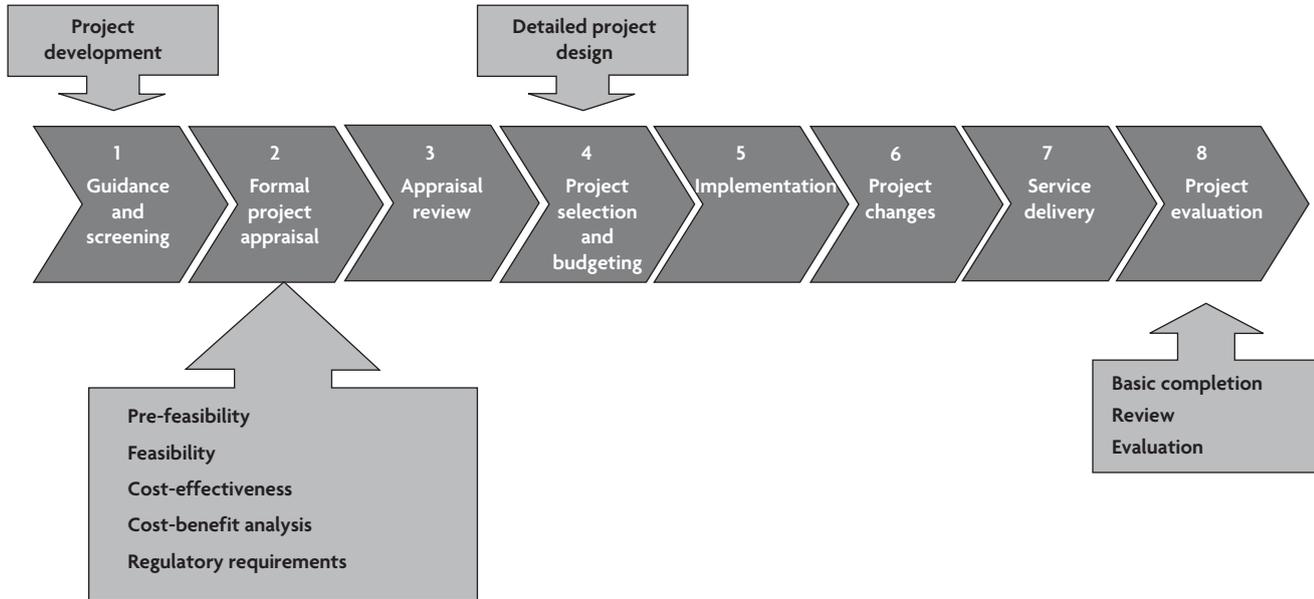
Source: Authors.

Note: VFM = value for money.

Determining how to spend requires attention to the minimum requirements of public investment management systems, a consideration of nontraditional execution modalities, and a balanced approach to the trade-offs between quantity and quality of public investment.

**Investing to Invest: Minimum Requirements of Management Systems.** The public investment management diagnostics framework by Rajaram et al. (2010) sets out eight minimum stages to ensure that a public investment project emerges as a productive and sustainable public asset (see figure 5.3). A technical assessment of the prevailing functionality of the PIM system across different sectors and modalities is an important starting point for identifying the weakest links for asset creation and preservation and for putting priorities on the table. The framework echoes many of the themes brought forth by the natural resource management value chain approach discussed in chapter 1. First, there are likely to be technical issues and challenges in each of the links (for example, effective procurement), and, in turn, the performance of each link will be conditioned by political economy factors at the policy and bureaucratic levels. Second, a variety of institutional options may enhance functionality

Figure 5.3. A Public Investment Management Diagnostic Framework



Source: Rajaram et al. 2010.

along particular links; for example, governments may choose to contract out project evaluation skills while strengthening in-house capacity over time. Third, significant interdependence is likely to exist between different parts of the framework: a poorly prepared project is likely to pose problems during implementation and even the best-prepared and best-implemented project that suffers lack of maintenance will rapidly depreciate. In the standard government execution of projects, diverse actors and agencies are likely to be involved, highlighting the need to carefully consider the range of institutional bottlenecks and potential remedies that will enhance the likelihood of success for individual projects; but, most importantly, the overall portfolio must add up to more than the sum of its parts, especially for network infrastructure.

Selecting good projects through effective economic appraisal is an important starting point for creating assets. While a benevolent social planner in a unitary state would prioritize projects with the highest national returns, varying social preferences and types of capital spending are likely to add complexity to managing a country's public investment portfolio across agencies or levels of government. Especially as the scale and complexity of public investment increase, these processes may grow increasingly strained. The institutional setting also matters a great deal for both the projects that are selected and the types of checks and balances countries have imposed in this regard. As the case of Angola illustrates, a rapid scaling up of investment can overwhelm existing systems. Adverse fiscal shocks can further disrupt the overall public investment management portfolio. Ensuing project implementation delays and arrears can in turn impose significant costs and erode quality (Kaiser and Gazel 2010). Governments wishing to rapidly scale up investment may see little point in making requisite investing to invest efforts, especially as these reforms are perceived by incumbent officials to be complex or subject to delayed payoffs. Thus, there may be incentives to engage in quick fixes, including special implementation bodies that bypass core bureaucratic capability.

Sectoral specialization, combined with associated roles and responsibilities, means that project portfolios are typically segmented across line agencies and across expenditure envelopes. One key dimension of heterogeneous preferences could be across spatial or territorial lines.<sup>14</sup> While central finance agencies may seek to set minimum standards across all

projects, the task of monitoring and enforcing these standards can be demanding in the context of more limited capacities. Another important dimension for project prioritization and resourcing may center on achieving an effective balance between investments intended to support the extractive industry versus broader public infrastructure. This may be especially pertinent for mining, where extraction may be associated with a large infrastructure footprint.

Chapter 3 focused on managing upstream bargains between the state and resource investors. An important challenge for creating credible and effective contracts is mirrored downstream in the implementation of capital spending. While less pronounced, some of the dynamics are still prevalent. A public works contractor bidding for a large infrastructure project is likely to factor in a significant premium for the risk that it will be subject to arrears or nonpayment if the government does not manage its finances well and for the risk that it might face time-inconsistent behavior from the government and frequent contract renegotiation.

**Nontraditional Execution Modalities.** The Extractive Industries Transparency Initiative (EITI) has emphasized extractive revenues reaching the treasury, and traditional on-budget PIM has focused on executing those resources through the budget. However, increasingly in many low-income, resource-dependent countries a significant share of public infrastructure formation is conducted through alternative channels, including parastatals, notably national oil companies (NOCs) and national mining companies (NMCs), and public-private partnerships such as resource-for-infrastructure (RfI) deals.<sup>15</sup> NOCs and NMCs have received growing attention as vehicles through which developing host countries can capture a greater share of extractive industry benefits (including learning and monitoring effects). However, there is significant variance across countries in the mission statements, transparency, and corporate governance of these parastatals, as well as the nature of the relationship between government and the companies. As part of more diverse national missions, parastatals may be asked to leverage their finance and capacity to generate public infrastructure.<sup>16</sup>

Resource-linked public-private partnerships, and RfI deals in particular, raise a number of concerns about contract design and above all

implementation, including value of resources, local content, public good value and sustainability of investments or assets, and risks of obsolescing bargains. RfI contracts are typically structured around some mix of monetary payment (for example, signing bonuses or access to some subsequent revenue flow) and an infrastructure asset (typically provided against some concessional or nonconcessional credit line). China has become an important global player in such RfI deals; in this model, the infrastructure asset is provided by Chinese companies, selected by the Chinese government with no objection by host governments (see box 5.2). The design of the deal determines the mix of risk and reward for governments and investors over the life of the project, as well as the extent to which the main foreign contracting agency and implementing partner are required to deliver a certain quality of infrastructure asset. As with any extractives contract, these agreements may also be associated with a range of obsolescing bargain challenges (Hogan and Sturzenegger 2010), raising questions of how best to structure these contracts from the perspectives of governments, companies, and the public interest.<sup>17</sup>

The fact that RfI deals are implemented parallel to country PFM/PIM systems brings both advantages and risks. “Turnkey” delivery of infrastructure may be faster and more efficient than delivery in weak institutional settings, and contractors may feel more confident of getting paid against resource access. Yet, such deals raise numerous concerns. Managing monetary and physical resources through parallel systems may make them more opaque and susceptible to private appropriation. Bypassing country systems may lead to a further neglect of domestic capacity-building and a failure to draw in domestic labor and linkages with other sectors. Extractive operators have the most direct interest in maintaining infrastructure while production is ongoing, but limited interest in doing so beyond this point.

**Quantity versus Quality of Public Investment.** Resource-dependent countries manifest a significant degree of heterogeneity in both the quantity and quality of their investment in physical assets. Regarding the set of cases analyzed for this volume, as table 5.5 shows, investment levels have tended to vary significantly, both in nominal terms and as a share of overall GDP. Whereas scaling up of public investment levels is driven by reconstruction efforts in post-conflict settings, such as Angola, DRC,

### Box 5.2 Chinese “Resource for Infrastructure” Deals

In recent years, China has been playing a growing role in financing infrastructure in developing countries using resource-for-infrastructure deals, particularly in sub-Saharan Africa. More than 35 African states have signed contracts on infrastructure financing with China, chiefly in power generation and roads. The projects are mainly financed by the China Export-Import Bank on terms that are marginally concessional, and the financing is tied to use of Chinese construction firms. There is no conditionality with respect to domestic policies.

In the various cases in which infrastructure finance is packaged with natural resource development, the money is never directly transferred to the government; instead a Chinese construction firm is awarded the infrastructure contract, and at the same time a Chinese petroleum or mining company is awarded rights to begin production. The China Ex-Im Bank finances the infrastructure construction and repayment is in the form of oil or minerals produced directly by the Chinese extractive company. This approach, which has been used in the past by Western oil companies, is mainly used now for countries that cannot provide adequate financial guarantees to back their loan commitments.

A number of issues arise with respect to these contracts:

- In principle, the government needs to compare the costs and benefits of such a deal with an unbundled (standard) public investment contract and a separate resource extraction contract—in the same way that a public-private partnership contract typically requires use of a public sector comparator. It seems possible that in some countries with weak PIM systems, such projects might introduce a welcome element of competition for standard public investment.
- There is a lack of competition from other providers of such bundled contracts, reducing assurance of the competitiveness of the deals.
- The financial terms of the deals can be difficult to estimate, because they depend in part on the implicit price for the oil (or other natural resource).
- It is not clear the extent to which the government is able to ensure that the infrastructure is built to prespecified standards and that environmental and other standards are met.
- There are issues about the capacity of the host governments to adequately analyze, price, negotiate, and implement such complex projects.

Sources: Foster et al. 2008; Doemeland et al. 2010.

and Timor-Leste, during the recent commodity price boom public investment allocations have been considerably higher precisely in the resource-dependent countries that face greater challenges smoothing revenue volatility. Similarly, Villafuerte and Lopez-Murphy (2010) find that public investment grew on average by 9 percentage points of GDP for 31 oil producers during the 2003–08 oil-price boom and that fiscal adjustment has been particularly pronounced in lower-middle and low-income countries.

Table 5.5. Selected Country Indicators of Public Capital Spending

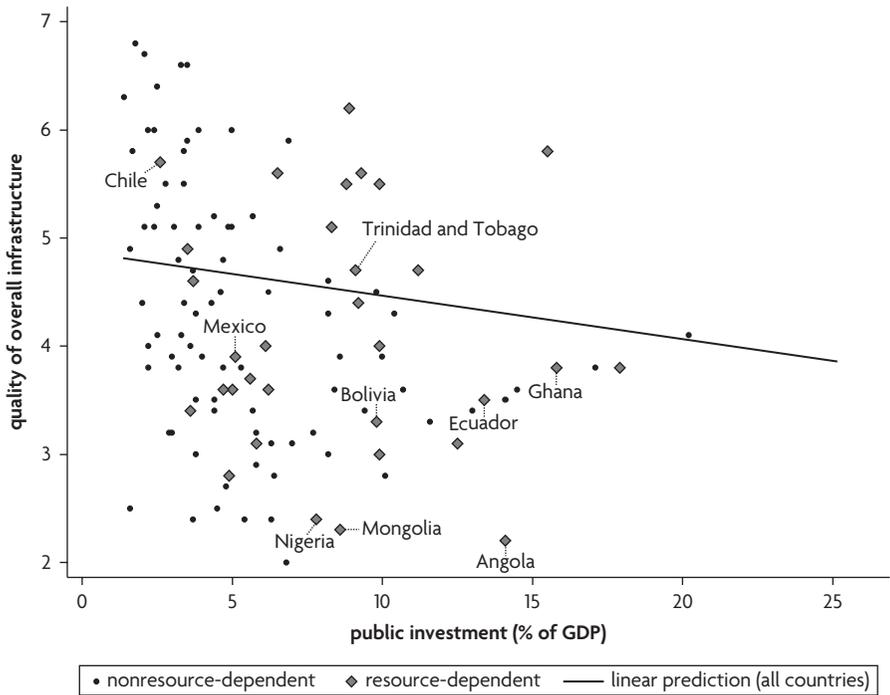
Region/country	Per capita GNI (US\$) 2008	Public capital spending as percentage of GDP (%)				
		2006	2007	2008	2009	2010
<b>Africa</b>						
Angola	3,340	8.9	12.1	14	13.1	12.5
DRC	150	—	2.4	3.7	9.3	—
Ghana	630	12.4	14.4	15.7	12.6	12
Niger	330	10.6	11.6	10.3	10.3	10.7
Nigeria <sup>a</sup>	1,170	3.0	3.7	3.7	4.2	4.7
<b>East Asia and Pacific</b>						
Lao PDR <sup>b</sup>	760	6	6	4.8	4.5	4.9
Mongolia <sup>c</sup>	1,670	—	—	11.7	8.7	7.7
Timor-Leste	2,460	8.9	12.1	14	13.1	—
<b>Latin America and the Caribbean</b>						
Bolivia	1,460	10.2	11.8	11.9	9.8	10.8
Chile <sup>d</sup>	9,370	11.8	2.1	2.3	3.3	2.7
Ecuador	3,690	4.7	6.9	13.0	11.0	—
Mexico	9,990	3.2	3.6	4.4	5.1	5
Trinidad and Tobago	16,590	3.9	5.8	6.6	4.9	—

Source: International Monetary Fund Article IV Reports, GNI (USD Atlas Method) from World Bank Development Indicators 2010.

Note: a. Nigeria excludes state and local government; b. Lao PDR and Trinidad and Tobago reflect non-CY FY; c. Mongolia includes net lending; d. Chile excludes net capital transfers (incl. CODELCO); e. Mexico includes PEMEX capital transfers. — = not available.

The link between infrastructure spending and outcomes is difficult to measure. Figure 5.4, for example, illustrates a simple correlation between recent annual investment levels relative to GDP and a proxy of infrastructure outcomes, drawing on broad rankings by the World Economic Forum (WEF). This simple cross-country analysis reveals a negative relationship between the volume of investment resources and the quality of the public infrastructure. These findings could mean that countries with lower infrastructure quality are spending more to make up for this gap, or that their quality of infrastructure spending is poor.<sup>18</sup> A number of the resource-dependent countries in this scatterplot stand out for their relatively high levels of investment by this measure, potentially afforded to them by the additional fiscal space afforded by resource

Figure 5.4. Public Investment and Infrastructure Quality



Source: World Economic Forum 2010; International Monetary Fund/World Economic Outlook 2011.

Note: Quality of Overall Infrastructure is an index with the range 1 (extremely underdeveloped) to 7 (extensive and efficient by international standards) (World Economic Forum 2010). Only cases studied for this volume are labeled on the chart; resource-dependent countries are indicated by a diamond.

rents. Especially in the public sector, investment flows are often not a good proxy for incremental stock additions in actual assets (Pritchett 2000). Given the complexities of public investment management and the construction sector, careful attention must be paid to diagnosing the nature of investment leakage or waste. Corruption may also take very different forms, reflecting either a simple markup or a more corrosive failure to adhere to minimum construction standards.

The comparative literature on investment levels in weak governance settings also highlights various dimensions of the trade-off between quantity and actual quality of spending. Tanzi and Davoodi (1997) find that higher levels of public investment and lower operations and maintenance (O&M) (as a share of GDP) are associated with higher

corruption, controlling for income levels.<sup>19</sup> Keefer and Knack (2007) find that higher public investment is associated with more limited checks and balances. Delavallade (2006) suggests that the social sectors may offer less opportunity for embezzlement, hence higher country corruption appears to skew spending away from social expenditures (health, education, and social protection) and toward other public services, fuel, and energy. De la Croix and Delavallade (2009) show that more predatory rent-seeking governments tend to invest more in housing and physical capital than in health and education.

### **Political Economy Settings and Dynamics**

Political economy dynamics fundamentally condition how resource rents are used across time and the efficiency of the resulting capital spending.<sup>20</sup> Few public officials in resource-dependent countries will contest the benefits of economic stabilization and long-term investment in infrastructure and diversification.<sup>21</sup> However, their institutional incentives may be imperfectly aligned to those objectives, since they are subject to countervailing pressures that result from the high visibility and concentration of rents, short time horizons, electoral and coalitional incentives, the need to compensate producing regions, the mix of private and public goods that a government uses to reward supporters, and the volatility of revenues.

Chapter 2 highlighted two key political economy dimensions—intertemporal credibility and inclusiveness—that underlie the political economy dynamics in resource-dependent countries and affect the likelihood those polities will be able to transform resource rents into public goods or physical asset creation. Intertemporal credibility refers to the ability of politicians, bureaucrats, and other societal actors to commit collectively to achieving a particular outcome over time. Inclusiveness refers to the extent to which a broader set of societal interests are considered in decisions. The intersection of these two dimensions yields four political economy settings, which are presented in table 5.6 in terms of the range of symptomatic outcomes hampering public investment in sustained asset creation and preservation.

Ideally, countries would fall under the programmatic pluralism category, where intertemporal credibility and political inclusiveness are fairly

Table 5.6. Political Economy Contexts and Downstream Dynamics

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/ less collectively oriented</b>	<p><b>Patrimonial rule:</b> Individualized political authority; crony hierarchy; few restraints on power</p> <ul style="list-style-type: none"> <li>• Concentration of decisions about investment allocation at the highest levels of government</li> <li>• High vulnerability to revenue volatility translates to extremely low predictability of resource allocations to public investment and intergovernmental transfers</li> <li>• High degree of private rent-seeking, narrow targeting of infrastructure and discretionary allocation of public investment following short-term coalitional incentives</li> <li>• Time inconsistency in public works contracting</li> <li>• Use of off-budget channels and weakening of the of PIM systems</li> <li>• Focus on asset creation and neglect asset preservation</li> </ul>	<p><b>Hegemonic government:</b> Institutionalized one-party regime; either predatory or benevolent</p> <ul style="list-style-type: none"> <li>• Concentration of decisions about investment allocation at the highest levels of government</li> <li>• Moderate predictability in channeling of investments to asset creation and preservation</li> <li>• Provision of narrow infrastructure for extractive industry development and for urban areas in longer-term interest, but less attention to broad-based public investment</li> <li>• Private rent-seeking (through both investment allocation and procurement), but more contained and institutionalized</li> <li>• Use of off-budget channels but some attention to strengthening of PIM systems</li> <li>• More incentives for asset maintenance</li> </ul>
<b>More inclusive/ more collectively oriented</b>	<p><b>Clientelist pluralism:</b> Political competition based on extensive use of clientelism/patronage</p> <ul style="list-style-type: none"> <li>• Incentives to concentrate investment allocation decisions in the executive and through constituency funds</li> <li>• Vulnerability to revenue volatility and resulting low predictability of capital budget allocations and intergovernmental transfers</li> <li>• Time inconsistency in public works contracting</li> <li>• Broader targeting of infrastructure projects</li> <li>• Private rent-seeking, as well as allocation distortions introduced by coalitional, electoral incentives, and earmarking of funds</li> <li>• Focus on short-term asset creation and neglect asset preservation, with electoral cycle influencing the timing, location, and type of investments</li> <li>• Fragmentation of investment portfolio across levels of government and regions</li> </ul>	<p><b>Programmatic pluralism:</b> Electoral competition based on programs; horizontal and vertical accountability</p> <ul style="list-style-type: none"> <li>• Smoothing of spending and higher predictability of public investment budgets</li> <li>• Institutional mechanisms to encourage longer-term public investments with deferred benefit stream and coordination across levels of government</li> <li>• Investments prioritized and allocated with a view to public (over private) good; strong enforcement mechanisms on procurement and transparency</li> <li>• Investment in and use of PIM systems and institutional learning</li> <li>• Attention to asset preservation and sustainability</li> </ul>

well institutionalized and political competition is based on the provision of public goods. In recent years, Chile and Botswana have transitioned into this quadrant. In such settings, public investment management institutions have been strengthened by long-term investments in capacity and skills and by the consensus among policy makers regarding resource management policy and diversification strategies. A large part of the population and political actors understand and support the policies tied to resource extraction, in particular the need for the government to follow through on its policies.

The short time horizons of a fragile or unstable autocratic regime are likely to provide few incentives for significant public investments or to maintain existing assets. These patrimonial regimes may seek only to support investment to the extent that it assists extraction. While DRC and Niger have vast infrastructure needs, the governments themselves have not been able to mobilize resources effectively for investment and they remain largely dependent on development aid. Robinson and Torvik (2005) note the tragic case of Mobutu's Zaire (now Democratic Republic of Congo), where despite resource wealth, only 6,000 miles of functional roads were left in 1980 from the 90,000 miles existing at independence from Belgium in 1960. DRC's investment budget has become highly contested among the president, prime minister, ministers, and governors, nominally members of the same coalition. Rather than coming to a consensus on targeting key infrastructure gaps, the provincial governments of the producing regions used the resources from new contracts to buy farm equipment like tractors, which they then doled out across the country, with limited prospects of public use. While infrastructure remains a central tenet of the DRC president's political platform, even he would find it difficult to implement a significant project through the debilitated government systems.

Especially when the electorate and elites are fragmented and the policy coordination across political forces is weak, democracy and electoral accountability will not necessarily lead to the provision of more public goods, including the benefit of efficient public investment. Because of poor coordination and low credibility of commitments between political factions, politicians have short-term horizons, which means that they do not consider the full cycle of public investment projects in making spending decisions. In essence, politicians in clientelist democracies are not

credible in their promises to provide public goods to voters (Keefer and Vlaicu 2007); a politician may promise a bridge, but voters simply do not believe that he or she will be able to deliver it. Therefore politicians more narrowly target private goods, notably patronage or infrastructure projects directed to particular constituencies, frequently including their own ethnic group or clan, to gain support (Keefer and Vlaicu 2007).

In these clientelist settings, it is particularly important to consider the overarching incentives embedded in electoral and party systems, along with other drivers of client politics (Keefer and Khemani 2009). For example, in Nigeria, despite concerted reform efforts under recent administrations, periodic reports of grand-scale and widespread petty corruption in infrastructure continue to raise concerns about the quality of public investment at both the federal and subnational levels. While the government of Nigeria has poured significant amounts of resources into the oil-rich but restive Niger delta region, it has not been able to create a lasting public infrastructure footprint in the region.

The low intertemporal credibility and coordination failures in patrimonial and clientelist pluralist settings mean that government-wide “investing to invest” reforms tend to falter in the implementation link of the PIM value chain. For large-scale infrastructure projects, low intertemporal credibility is also likely to significantly affect the risk premiums for contractors, as they fear obsolescing bargains. Rent-seeking is likely to be fragmented, which drives up costs, especially when contractors feel they cannot reach credible bargains against deliverables regardless of markups. These factors are likely to impinge on the quality of projects. Large-scale investment needs will not be met unless there is better coordination among decision makers.

Hegemonic governments often present a more varied set of political economy dynamics. Since time horizons are longer owing to greater regime stability and intertemporal policy coordination, particular forms of investment, including those sustaining the extractives sector, may be consistent with the political economic equilibrium of these regimes. If the legitimacy of these regimes is linked to a narrative of modernization and development rather than repression and patronage, the drive for asset creation may be even stronger, as well as the desire to invest in country systems to enhance these objectives (Sarr and Wick 2010). The autocratic nature of these regimes, however, may result in an excessive

top-down focus on the hardware of development, engendering limited community ownership in the preservation of assets. In addition, since political inclusiveness remains low in these settings, public investment is vulnerable to being used as a conduit for channeling rents to elites, and rent-seeking through procurement systems is likely to present a challenge. But, depending on the size of the elite coalition (Bueno de Mesquita 2001), there is still a need to create a mix of public and private goods. As an example of a hegemonic regime, Angola's ruling elite has emphasized a major national infrastructure push, but may not have paid enough attention to broad-based poverty reduction, instead directing public investment to meet the demands of influential urban elites. Even as Angolan officials recognize that they could broadly benefit from more public infrastructure, their political incentives seem to align better with bringing narrow private benefits to their own constituencies.

### **Policy Implications and Potential Interventions**

While political economy analysis can explain why countries have sub-optimal outcomes in public capital formation, development practitioners will be most interested in drawing operational policy implications regarding public investment management. The operational contribution of political economy analysis lies in acknowledging the effect of political incentives on public investment outcomes and determining what incentive-compatible interventions might improve the goal of public asset creation. Key measures will be needed to concurrently strengthen intertemporal credibility and political inclusiveness in order to enable asset creation and preservation.

Three basic types of incentive-compatible interventions might achieve the objective of effective public asset creation, preservation, and operation (as outlined in table 5.7). Some types of intervention are aimed primarily at extending time horizons and policy coordination, thereby enhancing intertemporal credibility. These might include leveraging external anchors or partnerships, including those with the World Bank. A second type of reform emphasizes mobilizing stakeholders and enabling collective demand-side action in public investment policy and management, thereby broadening political inclusiveness. A third form of intervention is slightly different: it enclaves institutions and capacity in natural

Table 5.7. “Good Fit” Downstream Interventions for Resource-Dependent Countries

Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/weaker enforcement	More credible/stronger enforcement
<b>Less inclusive/less collectively oriented</b>	<p><b>Patrimonial rule:</b> Individualized political authority; crony hierarchy; few restraints on power</p> <ul style="list-style-type: none"> <li>• Strengthen country systems while contracting out key services in the short term</li> <li>• Emphasize incremental asset creation through less complex, shorter term projects and maintenance</li> <li>• Ease information asymmetries through simple project design</li> <li>• Earmark capital budget ratios for preservation and for creation, emphasizing predictability of resource flows</li> <li>• Leverage extractive investor concerns around longer term license to operate for dual-use infrastructure, and leverage collective interests in resource corridors</li> </ul>	<p><b>Hegemonic government:</b> institutionalized one-party regime; either predatory or benevolent</p> <ul style="list-style-type: none"> <li>• Strengthen country systems, while contracting out key services in the short term</li> <li>• Broaden inclusiveness of investment through subnational transfers</li> <li>• Emphasize checks on executive power to rein in rent-seeking</li> <li>• Consider Rfl arrangements and parastatals for short-term larger infrastructure, with mechanisms for external transparency and emphasis on value for resources</li> </ul>
<b>More inclusive/more collectively oriented</b>	<p><b>Clientelist pluralism:</b> Political competition based on extensive use of clientelism/patronage</p> <ul style="list-style-type: none"> <li>• Strengthen country systems</li> <li>• Institute earmarking rules for preservation and for creation</li> <li>• Emphasize checks on executive power to reduce rent-seeking and strengthen the capacity of oversight bodies to monitor the capital budget</li> <li>• Use matching grants to incentivize coordination across levels of government and regions and to reduce excessive fragmentation of public investment</li> <li>• Improve design and costing of projects financed through constituency funds</li> <li>• Stimulate demand-side mobilization and ease information asymmetries through simple project design</li> </ul>	<p><b>Programmatic pluralism:</b> Electoral competition based on programs; horizontal and vertical accountability</p> <ul style="list-style-type: none"> <li>• Rely on core country systems, ongoing investing to invest</li> <li>• Use matching grants to incentivize coordination across levels of government and regions and to reduce excessive fragmentation of public investment</li> </ul>

Source: Authors.

resource management so that some functionality, albeit limited, is possible, even when the wider political economy dynamics are perverse. The need and scope for each of these types of strategies, whether by committed authorities, extractive companies, the broader private sector, civil society, communities, or development partners, will depend on the prevailing political economy context.

The principles for incentive-compatible improvements to public investment management in resource-dependent developing countries include extending time horizons and achieving collective action, promoting demand-side inclusiveness, earmarking resources and enclaving capacity, prioritizing PIM system components, and using alternative implementation modalities.

### **Extending Time Horizons and Achieving Collective Action**

Ascher (2009) highlights a number of strategies that seek to lengthen the time horizons of policy makers, including lessening the perceived short-term losses of key stakeholders who will tend to focus discussions on shortsighted actions, carefully structuring multistakeholder processes (including the use of commissions), and emphasizing the selection and incentive processes for leadership. Such principles may prove helpful in identifying incentive-compatible remedies to enhance asset creation and preservation. While they may fall short of full-fledged systematic reforms in PFM and PIM systems, at the margin they promise to enhance the context-specific quantity and quality of public investment flows.

One example is the passage of Mongolia's Fiscal Stability Law in mid-2010. The relatively strong role of legislators in Mongolia has been associated with a fragmentation of the public investment program into small projects, as each member has an incentive to channel resources back to his or her own geographic constituency (Hasnain 2011). Collectively, members realized that this type of individual maximization would lead to volatility in public investment budgets. Thus, legislators passed the Fiscal Stability Law, which restricted their funding for smaller investment projects and recognized the need for large infrastructure, including developing new extractive industries in the southern Gobi Desert. Yet, the law involved some compromises. While a technically desirable option would have been to monopolize resource allocation in a single

agency, the political realities in Mongolia led to more diffuse control of the resource allocation process. Rather than try to reduce the level of constituency flows, the reform placed the emphasis on improving local projects by setting up basic minimum standards and gatekeeping functions and incentivizing greater coordination. In order to remain politically feasible, such a system must demonstrate that it supports the completion of better projects, for which legislators can in turn take credit.

### **Promoting Demand-Side Inclusiveness**

The demand for public investment may be concentrated or dispersed across various actors in the system (including selected members of the executive, legislative, and subnational levels). Therefore, special attention must be paid to those actors in the state likely to make an effort to promote investment with a view to the public good and sufficiently long time horizons. Where pressure groups may be particularly well organized (for example, transport or business associations), the private sector may exert concerted pressure to improve infrastructure. But many resource-dependent economies with weak nonresource sectors may find it especially hard to break out of a low-level equilibrium where demand, hence supply, is weak.

An emphasis on improving PIM processes can appear abstract to political constituencies. A more constructive entry point may be to focus initially on particular aspects of PIM functionality or programmatic, sectoral, or geographically salient outcomes. In Brazil, for example, the legislature has increasingly exerted pressure on the executive to complete projects as evidence of unfinished projects has increased. Similarly, campaign slogans in Peru's resource-rich regions have emphasized the importance of efforts to improve project completion rates.

While simply finishing projects does not promise good projects, such entry points as improving the project implementation link may provide initial political momentum for further reforms. Extractive industries will often be a strong source of demand for the creation and initial maintenance of infrastructure, given its direct links to generating rents and profits. Prospective resource corridors may present significant opportunities for more inclusive, dual-use infrastructure. Tractable steps in this regard would be to "crowd in" demand from potential users as part of evolving spatial plans, which in turn would set the basis for longer-term

constituencies for maintenance. In the service delivery sector, public expenditure tracking surveys have gained some traction in illuminating gaps in frontline service delivery financing flows. Capital expenditure tracking surveys could be used to monitor financing flows to actual contracts and physical works, starting with greater transparency at the project site.<sup>22</sup>

In patrimonial and clientelist settings, the inability to adequately resolve intertemporal bargains affects large-scale infrastructure projects. Consequently, one option may be simply to emphasize smaller projects with shorter time horizons, including those depending on decentralized and community-level implementation. Countries with very weak human and institutional capacity may not benefit from establishing full-fledged country systems for large-scale investment. In attempting to find a good-fit arrangement, less complex investments may be achieved by devolving block grants to communities and subnational governments, even if this action risks a large share of these resources being used for consumption. Such transfers should be complemented with incentives that help promote coordination across jurisdictions when projects have spillovers and thereby prevent excessive fragmentation of the investment portfolio.

The EITI has demonstrated the potential of a multistakeholder initiative anchored in an international mechanism that helps mobilize domestic actors for greater transparency in natural resource management. Along similar lines, the Construction Transparency Initiative (CoST 2010) has now been piloted in eight countries.<sup>23</sup> Drawing in government, contractors, and civil society, the initiative has demonstrated that, while the PIM process is complex and characterized by organizational diversity, it enables greatly enhanced transparency and provides tractable benchmarks and greater disclosure of financial and procurement information. Growing international attention to expenditure quality may also motivate policy makers in resource-dependent countries to anchor demand and credibility for reforms in these types of initiatives, at least for particular segments of the investment portfolio. Such initiatives may be incentive-compatible in hegemonic settings to the extent to which they do not threaten major institutionalized rent-seeking, or in patrimonial and clientelist settings, where fragmented governing coalitions see them as an opportunity to lock in reform opportunities. Nevertheless, in order for external accountability to be effective, greater

transparency of resource allocation and project outcomes must be accompanied by support for improving the capacity of civil society and oversight institutions to act collectively and demand that public resources are invested in assets that generate greater public benefits.

### **Earmarking Resources and Enclaving Capacity**

Another set of options designed to remedy both intertemporal credibility issues and inclusiveness gaps may be to rely on parallel or nontraditional mechanisms for resource earmarking or enclaving of public investment implementation. Especially in large-scale contracts, construction companies may demand significant risk premiums to contract with credibility-weak governments. These premiums may be associated with a high cost of doing business (for example, the need for informal payments) but also the fact that companies may not get paid in a timely fashion for work completed. Angola, for example, was able to leverage significant credit lines from Brazil and China to draw in international construction capacity. However, inadequate revenue management by the Angolan government during the 2008–09 commodity price bust put it significantly in arrears in the face of fiscal sustainability and cash management concerns. One option to enhance intertemporal credibility may be to capitalize projects through multilateral development banks or escrow accounts with third-party procurement agents to ensure that showcase projects are implemented, while contractor premiums are reduced through risk mitigation and insurance.

Rfl deals have emerged as a modality of infrastructure investment for both host governments and extractive companies, as previously discussed (box 5.2). For host governments, they allow subsoil asset value to be directly earmarked to infrastructure, while also buying in capacity to deliver infrastructure. For implementing contractors, Rfl suggests that these contracts are backed by the resources (rather than the unpredictable annual budget) and the interests of the extractive company in maintaining the bargain to extract resources. For companies, moreover, the tangible and visible infrastructure contributions may be an important part of the local license to operate. The time horizons of the extractive deal will typically exceed those of frontloaded infrastructure provision. In extreme cases of limited intertemporal credibility, however, companies under Rfl will not be immune to obsolescing bargains. Claims that

these deals did not yield enough value for resources may also be used against the companies for political reasons. Therefore, it may be in the best interest of companies to draw in third-party honest brokers and ongoing monitors to provide greater transparency to these aspects of the contract. The contracts should also be structured flexibly enough to respond to significant changes, for example, in input costs or midterm design changes that host governments may request. Development partners can play a role as third-party brokers to help to ease the information asymmetries in RfI in the extractive industries. By doing so, they can enhance time consistency, improve predictability, and reduce the risks investors face, thereby helping client countries get better resource extraction deals for themselves.

### **Prioritizing PIM System Components**

Significant effort has been devoted in the past decade to strengthening core public financial management systems in developing countries.<sup>24</sup> International development partners have also devoted increasing effort to strengthening public investment management systems in resource-dependent settings.<sup>25</sup> In light of the high rates of public investment spending in many resource-dependent settings, few technical advisors would contest the desirability of pursuing concerted reforms to PIM systems as part of the investing-to-invest agenda. A more systematic technical analysis of key binding constraints to better projects or lower leakages needs to be complemented with a political economy perspective to identify the links of the PIM system that may be subject to significant rent-seeking and hence particularly difficult to reform in a comprehensive manner.

The recognition that a full-fledged strengthening of certain “must have” features of the PIM system may be politically infeasible does not preclude a number of possible engagement options. The first such option is a two-track approach that progresses incrementally to a single system. Initially, a subset of priority projects could be subject to higher scrutiny, while others are allowed greater discretion. Such an approach could focus, for example, on a particular ministry or sector where incentives for outcomes seem to be particularly well aligned. A second approach might be to simply try to implement priority projects through special mechanisms, which would have significant risks, since there are no

guarantees that such special arrangements will be sustained over time or that these projects will be mainstreamed back into the public sector upon completion.

Technical strengthening can also be aligned with inherently political decision-making processes to yield better investment quality. Chile has been an early leader in establishing more systematic, centralized gate-keeping and technical appraisal for its investment projects. Politicians can select between alternative infrastructure investments, but these have to be previously evaluated and incorporated in a bank of prescreened and uniformly costed projects. Similarly, Peru has managed to extend its national screening system (SNIP, the National Public Investment System) to sub-national governments, including those benefiting from a significant influx of mining royalties. An alternative for contexts in which individual legislators seek to add specific projects into the budget bypassing the public investment system, as in Mongolia (Fritz and Finch 2008), is to allow politicians to choose from a bank of prescreened projects (as is done in Chile). Over time, this system may change the incentives for representatives to accommodate to these standards and make efforts to include well-designed projects in the pool of projects they can include in the budget. The cases of Mongolia and Peru highlight the importance of balancing political with technocratic concerns, especially when decision-making tradition is not as highly centralized in the executive.

Even if leaders want to increase the output of public investment through better projects, it is not clear that they would be in a position to do so credibly. The returns from the investing-to-invest agenda may simply be too uncertain, diffuse, and time-inconsistent. A critical operational challenge for many resource-dependent countries is how to progressively bridge these inconsistencies over time. A central part of this strategy is to emphasize the prospects for successful demonstration cases (that is, to find if more good projects begin to drive out bad projects) and to emphasize learning by doing, rather than supply-driven capacity building support. In this case, capacity must itself be viewed as both endogenous and exogenous: leaders choose to build up capacity if it is in their interest in the medium to long term, but their policy choices will also be conditioned by the existing capacity in the short term.

The case of Timor-Leste illustrates that weaknesses in PIM capacity can reinforce the tendency for politicians to explore alternative public

investment modalities. Electricity provision, particularly in politically sensitive urban centers such as Dili, is a clear policy concern for the government, and the government attempted to address the electricity shortage by purchasing a used Chinese power plant. Poor design planning and weak management skills delayed the implementation of the project and, as a result, a third of the country's investment budget in 2009 stood to be unexecuted. The government arranged for the excess investment budget to be allocated to a wide range of small works programs to be distributed via an association of private construction businesses, instead of through regular public procurement systems (Anderson, Barma, and Porter 2010). Preliminary evidence thus suggests that the lack of a bank of prescreened projects and adequate implementation modalities meant that the government was constrained in its scope for investment instruments.

### **Alternative Implementation Modalities**

A central feature of DRC President Joseph Kabila's 2006 electoral platform and his ruling coalition has been the *Cinq Chantiers*, five priority areas for public work (housing, water, electricity, health, and education) over the next five years. However, constraints in capacity and coordination within the government have hampered its ability to deliver on this program. With the 2011 elections approaching, the government has relied on a major resource-for-infrastructure deal as a way to credibly deliver on some infrastructure promises while providing targeted transfers to enhance its reelection prospects.<sup>26</sup> DRC's attempts to scale-up public investment show that in coalition or fragmented governments, obstacles to removing vested interests in the PIM system can be especially daunting. In this case, even if the executive had wanted to deliver high-profile national infrastructure in advance of the 2011 elections through the standard PFM-treasury system, it would have been extremely difficult. DRC's fragmented revenue agencies are able to capture only a fraction of revenues with existing production. Even if revenues could be brought to the treasury, the domestic PIM system today is so dysfunctional that it is unlikely to deliver any tangible outcomes in a short period of time (Chevallier and Kaiser 2010).

Therefore the DRC government resorted to an alternative modality. The country's 2009 RfI deal was subject to significant scrutiny, largely as a result of the country's ongoing HIPC (Heavily Indebted Poor

Country) debt-relief initiative (Doemeland et al. 2010). It was modified in scale to address international concerns about DRC's future debt exposures and the contingent liabilities inherent in the agreement.<sup>27</sup> However, a key concern of development partners is that such a degree of external scrutiny is unlikely to be present in future negotiations. Whether these types of agreements are ultimately aligned to some sustained level of productive and sustained investment will also depend on the investor. In settings like DRC where elite motivations for longer-term public good provision are weak, longer term investors like China should be concerned both about obsolescing bargains and having a positive development impact on the communities where they operate. Therefore, reform efforts would ideally concentrate on aligning these interests to developmental objectives.

The case of the DRC illustrates a stark choice between traditional public sector investment spending modalities and resource-for-infrastructure deals. However, even in the context of the traditional PIM value chain, governments can make a series of important changes at the margin. These will be guided by achieving functionality, but also conditioned significantly by time horizons and rent-seeking concerns, since most of the Rfl contracts also involve considerably large cash bonuses at signing.

## **Conclusion**

This chapter has identified the technical, political economy, and institutional capacity challenges to enhancing productive public investment in resource-dependent developing countries. By examining the quantity and quality dimensions of public investment, this analysis has elucidated the trade-offs that must be made in order to provide productive physical assets, focusing on the project portfolio and its implementation. The chapter has also identified the political economy factors that influence the incentives to invest in improving public investment management systems. Key dimensions in attaining more productive and efficient investment projects in resource-dependent settings lie in both the political incentives and the time horizons to realize these projects, and also in improving the capacity to do so through careful attention to PIM system components. A countervailing factor clearly lies in the investment budget's attractiveness as a rent-distribution mechanism and its vulnerability

to corruption. Therefore domestic reformers and development partners must navigate the most promising paths to gain traction toward better projects in view of the prevailing political economy dynamics.

This chapter also noted the need for more attention to public investment outside mainstream channels, including investment through state-owned enterprises and public-private partnerships. For resource-dependent settings, especially those with weak administrative capacity, these modalities can serve as commitment devices to deliver infrastructure. A key challenge lies in proactively aligning incentives and capabilities for citizens, governments, and the investors themselves to generate value for resources. RfI deals may be particularly attractive to investors in institutionally weak settings—the challenge is to encourage developers to see their engagement in these countries as a repeated game, where their reputation and future profitability are affected by the initial quality and sustainability of the infrastructure that was provided.

The “investing to invest” agenda promises high returns for resource-dependent countries—yet the case studies for this volume suggest that these prospective returns must also be tempered by a reality check. Reforms of public investment systems are complex and have tended to require strong champions supported by broad coalitions to achieve significant and sustained improvement.

Greater predictability with regard to financing public investment can clearly be a critical ingredient for better public investment management. Consequently, measures that delink annual revenues from spending are a necessary ingredient for medium-term predictability in infrastructure envelopes. Although there has been a trend in international practice to counteract the traditional bifurcation of recurrent and capital spending, resource-dependent countries face the particular challenge of keeping a focus on net asset creation—hence, some particular focus on capital spending may be merited in these settings.

This chapter has laid out some of the core policy and capacity decisions governments face in investing the proceeds of natural resource extraction. It is important to unbundle the concepts of absorptive capacity and public investment management, thus affording a better contextual understanding of the varying but often interdependent drivers of investment quality and quantity. In moving down the extractives-led development value chain, it is critical to examine the spending or

investment of wealth in terms of the tangible outcomes of asset creation and preservation, rather than investment flows as such. While investment flows and good process are clearly important ingredients, positive increases in the economic and socially productive public capital stock are the results that matter, combined with the value for resources. In this regard, the chapter has also underscored the critical intertemporal dynamics of mobilizing collective action for better investment.

Investing to invest, or capacity-building efforts to improve public investment management, pertains most to core country systems, but this chapter has also demonstrated that resource-dependent countries can resort to different modalities or technologies when seeking to scale-up public investment. Increasingly, in many cases, asset creation bypasses government treasuries, either due to direct links with extractives infrastructure or through RfI deals. The caveats notwithstanding, RfI can serve as a commitment device in earmarking resource proceeds to infrastructure, as well as contracting execution capacity, especially for new and fragile state producers. At the same time, so that governments eventually develop credible alternatives, particular care must be taken to ensure that the development of core country systems is not neglected, especially with the prospect of a more diversified resource base and prospective evolution of the political system. Enhancing asset creation through RfI will also require adequate mechanisms for sustained asset preservation and maintenance. Domestic and external pressure may serve as one lever to better align incentives for actual asset creation with the social license to operate.

A better public capital stock is one of the most promising avenues for transforming resource rents into sustainable development riches. Gains in this domain prove less ephemeral than pure consumption or even large accumulations of liquid financial assets. The right balance between capital creation and preservation will be contextual, and it will also depend on the existing and prospective capital stock in place—a country with few roads has less maintenance to carry out. Ideally, the bulk of the conversion of rents to public capital would occur through the treasury. EITI has centered on making sure the revenues due a government from extractives companies do indeed reach the treasury. After this EITI stage, however, effective budgeting and execution in public expenditure

management are critical to achieving the conversion of rents into physical infrastructure in the most optimal intertemporal and distributional fashion. The case studies for this volume suggest that banking on full-fledged PFM/PIM reforms is often unrealistic, given the prevailing time horizons policy makers face. This underscores the need to identify, prioritize, and sequence actions that promise to be most tractable and feasible given the prevailing political economy context.

## Notes

1. In the IMF's Government Finance Statistics (GFS) cash framework, capital expenditures include payments for the acquisition of fixed capital assets, which are goods with a normal life of more than a year and with more than a minimal significant value. Acquisition of fixed capital assets incorporates own-account capital formation, that is, construction by government itself of fixed assets, and also includes major renovations, reconstructions, or enlargements of existing fixed assets (as opposed to the costs of maintenance and repair of fixed assets, which are defined as current expenditures). In the GFS accrual framework, capital outlays are transactions in nonfinancial assets, and the focus here is on fixed assets (produced assets used repeatedly in production processes that provide services for longer than one year).
2. Broader definitions of investment also focus on the creation of human capital. While the focus here is on physical infrastructure, given its particular technical, incentive, and institutional challenges, "soft" capital formation in such areas as education and health will depend on the building of schools and clinics. But it ultimately depends on how teachers, doctors, and nurses are actually deployed to increase the skill base and health of a population. The World Bank's *Wealth of Nations* "green accounting" framework (World Bank 2011a), for example, explicitly accounts for education spending in its genuine savings estimates. The definition used here includes human development only to the extent of including associated facilities such as schools and clinics, as well as the infrastructure to allow beneficiaries to access these facilities. The notion of soft capital could also be broadened to a host of other types of "intangible" capital, including the quality of government administration.
3. The channels by which public spending can affect present and future citizens' welfare are diverse and complex and beyond the scope of this analysis. Using a dollar of oil proceeds to push an individual above the poverty line will have significant social returns. But flooding the domestic market with imported food may kill the local agricultural sector and with it any existent diversification. A well-targeted transfer may ensure that the child of a poor family is able to complete her schooling, generating human capital. Transferring rents from the state

to households may allow the state to tax-back nonresource revenues, allowing for a variety of more efficient household and firm-level investments, while also allowing the state to tax-back a more reliable and growing revenue base (see Devarajan, Le, and Raballand 2010).

4. A domestic physical capital stock not only may yield higher economic, especially social, returns than financial savings, particularly if this is complementary to “soft” human development capital formation, but also may be a more secure asset than the buildup of large liquid assets in settings with weak intertemporal credibility. A bridge once built promises to yield sustained benefits, while politicians may quickly draw down a savings fund during a weaker price cycle or political campaign.
5. Resource-dependent settings will frequently be characterized by a relatively narrow nonresource tax base. Consequently, revenue base diversification should be an important strategic objective for these settings. Increasing emphasis has also been placed on the accountability dimensions of state-society tax linkages, in the spirit of taxation engendering demands for societal representation. An assessment indicator for public infrastructure spending is how it serves as a potential input to sustaining and increasing the state’s future revenue base. Given that this link is typically weak in resource-dependent countries, it fails to act as a disciplining device on revenue mobilization and allocation to public capital spending.
6. Significant macroeconomic policy guidance exists concerning savings and stabilization for resource-dependent settings (Brahmbhatt and Canuto 2010), as well as mechanisms for resource revenue stabilization and savings (Ossowski et al. 2008; Dabán and Héris 2010; Villafuerte and Lopez-Murphy 2010). However, the success rate of many of these arrangements has been especially low in institutionally weak settings. Consequently, greater attention must be given to finding ways to anchor their actual implementation more effectively with regard to the prevailing political economy context. One tangible anchor may actually be fixed asset creation. Fiscal stabilization rules may target some baseline price (for example, longer-run price moving average) to set annual resource revenues for budget assumptions. If price (and production) exceeds these values, it builds up stabilization funds. This was essentially the logic of the pact by which Nigeria’s federal and state governments pooled revenues until recently in the Excess Crude Account. Longer-term savings objectives, frequently linked to asset appreciation and other strategic objectives (such as other resource access), may also drive countries to establish SWFs. A central question for fiscal policy making is where resource-related fiscal rules target overall spending and savings aggregates or whether they seek to earmark some level of resource rents for capital expenditures.
7. A stark illustration of problems associated with absorptive capacity was seen in Luanda, Angola’s main port, as vital shipments lingered for months at sea owing to capacity bottlenecks, stalling reconstruction and leading to spiraling

construction prices. Since capital spending envelopes are normally more discretionary than other forms of public spending, such as wages, entitlements, and debt servicing, they tend to be prone to high degrees of volatility and lack of annual predictability. Limited execution of capital spending envelopes may be a result of top-down fiscal constraints or cash management or bottom-up problems of failing to implement projects on time.

8. These three questions serve as the analytical basis for the World Bank's Public Expenditure Review framework (Pradhan 1996).
9. Across developed and developing country settings there has been a resurgent interest in public investment. Public investment levels in Europe and the United States have trended downward somewhat in recent years to the 2 to 3 percent of GDP range (Mehrotra and Väilä 2006). The recent financial crisis has also seen renewed attention to leveraging public investments in the context of fiscal stimulus measures. The experience of Latin America in the 1990s raised concerns about potential public underinvestment in the face of debt-induced budgetary constraints. Decreased public investment flows have been associated with significant infrastructural deficits (Calderón and Servén 2004). At the same time, there are also concerns that public investment may crowd out private investment in the face of weak institutional quality (Cavallo and Daude 2008). In OECD countries, but also in developing countries, multimillion-dollar, megasized projects have also become an increasingly prominent, and frequently problematic, aspect of public investment initiatives (Flyvbjerg, Bruzelius, and Rothengatter 2003).
10. The available pool of rents will depend on the quantity of extraction, the price, and the nature of the fiscal or rent-capture regime. One typically observed measure is receipts to the treasury. Sarr and Wick (2010) use a measure based on the quantity of resources extracted and the difference between the resource price and the extraction cost.
11. Other options could include hedging revenues against price changes, as Mexico has done recently. Politically, these mechanisms may be difficult to implement for policy makers, as the political costs and benefits may be misaligned (Eifert and Gelb 2002). Finance ministers may typically get few plaudits for having gotten hedging right, but are usually chastised for wasting potential gains through hedging.
12. Budget credibility is defined as actual spending relative to planned expenditures.
13. As the *World Development Report 2009* (World Bank 2008d) highlights, policy makers would be ill-advised to try to equalize economic activity, for example, through targeted investments to lagging regions. Rather, they should focus on providing some basic standard of service delivery across the country. In resource-rich settings, this raises a particular set of questions as to how public investment from nonrenewable resources should best be targeted from a growth perspective.

14. Heritage and ownership arguments about subsoil assets typically mean that the extractive industry's local license to operate (and potentially the government's overall political legitimacy) will hinge on ensuring that rents and investment flow back to the citizens of the extracting localities. Doing so will require effective coordination of fiscal and public investment policy across national and subnational levels, as well as careful attention to the absorptive capacity and governance quality at the national, subnational, and community levels. A national benevolent planner would ideally allocate resource-rent-financed public investment projects to the highest return projects, regardless of their geographic location. For example, Collier (2010a) suggests that it might be more efficient for Nigeria to allocate investment funds to Lagos rather than divert them to other parts of the country with fewer growth prospects. However, there are a number of economic and political reasons for earmarking investments to the location of resource-extraction. Subnational governments frequently demand a share of rents to compensate for the drawdown of their subsoil heritage. Political pressures, including violent confrontation, to allocate resources for investment and associated decision prerogatives to regions with resource extraction can be significant. Subnational entities also demand to be compensated for additional costs emerging from resource extraction (for example, pressures on existing infrastructure, the environment, and social services). Finally, subnational actors associated with resource extraction sites will argue that higher levels of government tend to neglect the interests of resident populations, and hence demand greater control over associated rent flows. Cases like DRC, Ghana, Niger, and Nigeria illustrate the pressures and contestation for subnational benefit sharing, which has in turn posed further challenges to coherent public investment spending.
15. Growing recourse to this modality is associated with Chinese engagement with Sub-Saharan Africa and Latin America (Foster et al. 2008), and early successful examples have also seen RfI deals referred to as the "Angola model." Interestingly, Japan appears to have used a similar model in the 1970s and 1980s with respect to Chinese coal and oil resources (Brautigam 2010).
16. The significant politicization of República Bolivariana de Venezuela's national oil company PDVSA has compromised its core mission of maintaining upstream functionality owing to various downstream social mission expectations (Corrales and Penfold 2001).
17. The DRC's recent US\$3 billion-plus deal with Chinese interests that centered on access to copper deposits was notionally on budget but otherwise it completely bypassed standard government systems, including those for procurement. Angola was able to quickly draw in significant Chinese as well as Brazilian construction capacity for postconflict reconstruction against oil production. A Nigerian deal with a Korean contractor was abrogated, but the courts subsequently ruled against the government.
18. Note that the data refer to relative levels, and not absolute flows, of investment, and they also do not control for cross-country differences in public investment

cost levels. In practice, a 5 percent public investment rate for DRC versus Chile will imply significant higher absolute spending levels in the latter, and of course will be vastly different in terms of the starting capital stock.

19. Using data for 1980–95.
20. In a similar vein, Benitez, Estache, and Søreide (2010) highlight how private political agendas frequently can skew outcomes in infrastructure provision and regulation, in a way that seems underappreciated in the mainstream policy advisory community, which advocates greater efforts to tailor politically viable solutions to sector, time, and location.
21. There is a long-standing literature and wide evidence on the link between public investment growth and poverty reduction. Recently, Haque and Kneller (2008) provide an empirical study suggesting that corruption in a country heightens public investment level but lowers its impact on growth. Anderson, de Renzio, and Levy (2006) survey the impact of public investment in poverty reduction. Easterly, Irwin, and Servén (2008) highlight the longer-term growth risks of curtailing public investment in the face of fiscal adjustment.
22. Increasingly, online systems linked to geographic information systems (GIS) and procurement systems, coupled with access to information laws, provide additional technical opportunities for greater transparency.
23. The countries are Ethiopia, Guatemala, Malawi, Philippines, Tanzania, the United Kingdom, Vietnam, and Zambia.
24. The Public Expenditure and Financial Accountability (PEFA) initiative ([www.pefa.org](http://www.pefa.org)) has generated an estimated 200 in-depth country performance assessments, of which an increasing number are repeat assessments. A large number of these have also covered resource-dependent settings.
25. Notable examples include the Republic of Congo, Equatorial Guinea, Mongolia, Timor-Leste, and Vietnam.
26. A wide-ranging literature exists on electoral budget cycles in both democratic and mixed autocratic regimes. Depending on the context, public investment may be increased in advance of the elections to distribute greater private goods or to signal that the government is interested in the longer-run welfare of the country. The extent to which this translates into productive investment will depend on the credibility of incumbents to see the projects through after the election, as well as whether winning opposition groups will also complete or abandon the projects of the previous government.
27. The agreement holds DRC's government liable if a minimum return is not achieved on the project.

## Conclusion: Collaborative Engagement to Address the Resource Paradox

*Bonanza*: source of wealth, profit, or good fortune; origin (Spanish): fair weather, prosperity; from Latin, *bonus* = good.  
—*Oxford English Dictionary*

Middle-income and developing countries have been awash in resource discoveries in recent years. The prospect of oil in Cambodia appears to offer the country a renewed stream of resource rents in the wake of significant forest depletion in the past decade. Ghana seeks to become an oil exporter in addition to being a world-class mining country. Brazil is poised to become a major international oil exporter on the basis of finds in its pre-salt region. Uganda and potentially Democratic Republic of Congo (DRC) are likely to benefit from oil and gas finds in the Lake Albert region. Iraq's rebounding oil production promises to move it up the global producer league. And reports of vast mining potential in Afghanistan have raised the inevitable question of whether a prospective resource bonanza in such a fragile setting could ultimately be the source of its salvation.

The notion of a "bonanza" evokes the promise of prosperity associated with natural resource finds and, as resource discovery and extraction push into frontier areas of the globe, the prospect of turning resource rents into riches holds great hope for a growing number of low-income countries. Yet, for every nation that has successfully created sustainable development riches out of resource wealth, there abound scores of tragic tales of illusory or squandered wealth. The stark political reality is

that resource rents in developing economies are most often generated and distributed in the context of highly imbalanced and noninclusive power structures that privilege short-term private enrichment over longer-term collective welfare enhancement.

This volume has analyzed these political economy dynamics surrounding the natural resource paradox with a view to enhancing the design and implementation of development interventions in this sector. This concluding chapter sets out the key cross-cutting principles for intervention that carry across the natural resource management value chain, reviewing emerging lessons and how they can strengthen interventions in the natural resource sector. The chapter also looks at the strengths and potential limitations of the most common prescriptions or mechanisms for addressing the resource curse. Finally, the evolving landscape of development partner engagement is discussed, noting the importance of crowding in emerging stakeholders at the global and local levels in building truly collaborative and strategic programs of reform to promote the transformation of natural resource rents into sustainable development riches.

### **Principles of Intervention for Addressing the Resource Paradox**

The ambition of this book has been to construct a robust and comprehensive technical understanding of key aspects of resource-led development set against a clear-eyed perspective on the political economy dynamics that shape outcomes in practice. The political economy lens emphasizes the importance of context in determining good fit interventions for any given country. At the same time, however, a systematic approach to political economy illuminates clear patterns in terms of how institutional frameworks shape and condition incentives and combine with stakeholder preferences to lead to fairly predictable outcomes. The case studies underpinning this work have served this dual purpose: They have grounded political economy analysis in finely grained, country-specific detail about natural resource management practices across the value chain and articulated operational implications in each case. At the same time, the shared methodological prism of the value chain has led to generalized conclusions about the political economy of the resource paradox in developing countries as a group.

### **Goodness of Fit and Incentive Compatibility**

The typology developed in this volume illustrates how a country's positioning along two key political-economic dimensions—the credibility of intertemporal commitment and the degree of political inclusiveness—determines how stakeholder incentives and the institutional landscape interact with the structural characteristics of natural resources, hence, how a country actually experiences the resource paradox. In noninclusive settings, where the credibility of intertemporal commitment is low, rent generation will be weak because the state will find it difficult to make beneficial extractive bargains with resource developers, and rent allocation will be biased toward consumption by political economic elites and away from saving and investment for society. Factors that make intertemporal commitments more credible—by lengthening time horizons and strengthening institutionalization and the enforcement of property rights—will tend to improve a country's performance in terms of rent generation by enabling governments to strike better deals, at a lower risk premium, with domestic and international developers and to set the conditions for new discovery. Factors that increase political inclusiveness, incorporating more political, social, and economic groups into decision making, will make the state more accountable to society and orient rent allocation toward collective welfare through the provision of public goods and investment for sustainable development. In other words, natural resource rents are most reliably transformed into sustainable development riches when a government can make credible intertemporal commitments to both extractive companies and its citizens and when the political regime is inclusive such that the government's incentives are to use resource rents to provide public goods that enhance the collective welfare.

Using a political economy framework for understanding outcomes in natural resource management points to two interrelated principles for enhancing the developmental orientation of the sector:

- (1) Adopt a *good fit approach* to natural resource management by tailoring interventions to context.
- (2) Emphasize the *incentive compatibility* of interventions such that they support and nudge stakeholders into making developmentally oriented decisions at each step of the value chain.

Orthodox approaches to natural resource management that seek to impose best-practice arrangements in the sector often miss the distinct policy priorities and reform opportunities in particular countries. A good fit approach is inherently contingent on context and hinges on the view that building functional institutional capability matters more than achieving specific institutional forms to do so.<sup>1</sup> And it rests on a clear understanding of stakeholder motivations in designing incentive-compatible interventions. In other words, a good fit approach narrows the gap between expectation and reality with regard to interventions, aiming to deliver improved outcomes through incentive-compatible entry points and institutional designs.

### **Lengthening Time Horizons and Mobilizing Stakeholders**

From a political economy perspective, in order to be successful, development initiatives must find mechanisms to work within the constraints of, resonate with, and eventually transform, the underlying political and institutional dynamics associated with resource dependence. Resource-dependent developing countries are likely to be embedded in patrimonial, hegemonic, or clientelist political economy contexts, and they face core challenges with regard to intertemporal credibility and political inclusiveness (see table 2.2). In patrimonial settings, both credibility and inclusiveness are limited. This means that extractives investors will require high-risk premiums and will operate at dampened levels and that resource-related benefits are likely to accrue in a skewed manner in the host country. Hegemonic governments may be better situated to strike bargains with extractive operators, but, given the lack of inclusiveness of the regime, they may still face heightened risk and may demand contractual assurances and advantages to compensate. Short time horizons in clientelist settings, resulting from low institutionalization and unpredictable electoral cycles, create pressures to revise fiscal terms and frontload revenues and reduce incentives to build institutional capacity. Broader political inclusiveness, on the other hand, provides greater space in these countries for supporting collective action for good governance and easing informational asymmetries.

Building from the political economy typology, introduced in chapter 2 and discussed in technical chapters 3–5, three basic types

of incentive-compatible intervention are possible across the value chain as follows:

- Interventions primarily aimed at *extending time horizons*, thereby enhancing intertemporal credibility, for example, emphasizing a simple, rule-based process for granting resource concessions that minimizes investor uncertainty and enhances predictability.
- Reforms that emphasize *mobilizing stakeholders* to cooperate on natural resource management, thereby broadening political inclusiveness; for example, easing information asymmetries by using model contract and fiscal regimes, or at least disclosing contract terms in order to empower third-party audit and oversight.
- Interventions that *enclave institutions and capacity* in natural resource management so that some, albeit limited, functionality is possible, even when the wider political economy dynamics are perverse.

Intelligently designed interventions along these lines can both strengthen salutary dynamics by tapping into incentives that push in the right direction as well as work with counterparts on transformative interventions that could alter the underlying political economy dynamics for the better.

The technical chapters highlight how institutions, incentives, and stakeholders interact in resource extraction, taxation, and spending, and move from analysis to action in presenting options for development interventions. Table 6.1 summarizes some of the key actionable principles for resource-dependent developing countries in these technical areas, mapped against the political economy settings of patrimonial rule, hegemonic government, and clientelistic pluralism—namely those characterized by significant weakness in terms of intertemporal credibility or political inclusiveness.<sup>2</sup> These good-fit interventions are layered against political economy contexts such that they ameliorate the adverse effects of weak intertemporal credibility and low political inclusiveness. In most cases, the interventions are elaborated as actions that resource-dependent governments could take, any of which could be bolstered and enhanced by support from donors and partnerships with extractives investors and other stakeholders, including civil society groups.

Table 6.1. “Good Fit” Arrangements for the Extractives Sector

Political Economy Setting in Typology	Extraction	Taxation	Investment
<p><b>Patrimonial rule</b> (limited credibility/limited inclusiveness)</p> <ol style="list-style-type: none"> <li>1. Enhance intertemporal credibility by lengthening time horizons and reducing the potential that contracts or fiscal regimes will be revised.</li> <li>2. Support incentives to invest in institutional capacity across the value chain; facilitate the articulation of collective action and demands for good governance.</li> <li>3. Limit rent-seeking behavior by minimizing points of discretion in decision-making processes.</li> </ol>	<ul style="list-style-type: none"> <li>• Enclave capacity-building initiatives in key agencies, emphasizing the strengthening of core technical skills in contracting. Such skills may be contracted-in or built into partnership with extractive investors.</li> <li>• Create simple, nondiscretionary legal and regulatory framework.</li> <li>• Ensure checks and balances in decision making over license allocation, minimizing discretion.</li> <li>• Ease information asymmetries through geological surveys, model contracts, and so on.</li> </ul>	<ul style="list-style-type: none"> <li>• Contract out audit capacity.</li> <li>• Combine production-based royalties and windfall royalties.</li> <li>• Design stability clauses with built-in regular revisions.</li> <li>• Use third-party monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Enclave public investment capacity through resource-for-infrastructure deals, but promote transparency to enhance value for money as a “license to operate.”</li> <li>• Stress predictability over volume for key public investment creation envelopes/agencies.</li> <li>• Earmark investment resources on balance to public asset preservation over creation, for example, by capitalizing road funds.</li> <li>• Leverage narrow and organized constituencies (extractive industries, local communities) for asset creation and preservation .</li> <li>• Tilt extractive industry infrastructure toward dual use and inclusivity, as feasible.</li> </ul>

<p><b>Hegemonic government</b> (greater credibility/limited inclusiveness)</p> <ol style="list-style-type: none"> <li>1. Take advantage of longer time horizons and the relatively more conducive environment for contracts and investment.</li> <li>2. Facilitate greater inclusiveness in decision making and broader benefit sharing by supporting nascent civil society groups and empowering nonexecutive stakeholders with oversight functions.</li> </ol>	<ul style="list-style-type: none"> <li>• Enclave capacity in key agencies.</li> <li>• Automate license allocation, minimizing discretion.</li> <li>• Empower nonexecutive stakeholders, including legislature and civil society groups, with oversight powers.</li> <li>• Emphasize checks on executive power to rein in rent-seeking. Horizontal checks can be built in by ensuring interagency collaboration; vertical checks can be instituted, for example, through independent audit agencies and the legal system.</li> </ul>	<ul style="list-style-type: none"> <li>• Enclave tax administration capacity.</li> <li>• Combine production-based royalties with income tax and windfall royalties or sliding-scale royalties; use production sharing.</li> <li>• Use stability clauses with built-in regular revisions.</li> </ul>	<ul style="list-style-type: none"> <li>• Proactively encourage extractive industry infrastructure to be of dual use, notably through government's strategic planning of resource corridors.</li> <li>• Support technocratic investors to enhance quality of investment spending and aligning it with regime priorities for key types of infrastructure.</li> <li>• Motivate greater inclusiveness of investment by recourse to state legitimacy and crowding in demand side, including through international benchmarking.</li> </ul>
<p><b>Clientelistic pluralism</b> (limited credibility/greater inclusiveness)</p> <ol style="list-style-type: none"> <li>1. Enhance intertemporal credibility and policy stability by lengthening time horizons through contractual bargains.</li> <li>2. Build stability through sectoral institutional technologies, emphasizing the importance of nondiscretionary processes.</li> <li>3. Enhance broader inclusiveness by easing information asymmetries and creating greater space for collective action for good governance.</li> </ol>	<ul style="list-style-type: none"> <li>• Gradually expand capacity by building coalitions for reform and investments in capacity.</li> <li>• Create simple, nondiscretionary legal and regulatory framework.</li> <li>• Ensure checks and balances in decision making over license allocation.</li> <li>• Create intertemporal flexibility on the terms of the deal, including built-in regular revisions.</li> <li>• Ease information asymmetries through contract disclosure.</li> </ul>	<ul style="list-style-type: none"> <li>• Contract out auditing in the short term and gradually build audit capacity through broader coalitions.</li> <li>• Combine production-based royalties with income tax and windfall royalties and sliding-scale royalties.</li> <li>• Use stability clauses with built-in regular revisions.</li> <li>• Ease information asymmetries and mobilize constituencies for transparency in revenue collection.</li> </ul>	<ul style="list-style-type: none"> <li>• Crowd in demand side for asset preservation and selected asset creation.</li> <li>• Enhance transparency with regard to asset creation and preservation; crowd in associated constituencies, anchored at a salient subnational constituency level.</li> <li>• Invest in most critical and visible links.</li> <li>• Illuminate key nodes of public investment management (for example, procurement) by emphasizing collective checks and balances.</li> </ul>

Source: Authors.

## **Strengths and Limitations of Common Prescriptions**

This volume maps a practitioner's path to natural resource management anchored in both technical understanding and contextual political reality. Such an approach is not without its challenges. Development practitioners are often, understandably, frustrated with political economy analysis that simply identifies the constraints and dynamics leading to suboptimal outcomes without generating practicable options for action out of the analysis. Political dynamics may sometimes seem simply insurmountable in the quest for achieving the better natural resource governance to which citizens, reformers, and international development partners aspire. Yet simply reverting to notions of best practice in designing interventions should be avoided. What should be sought, above all, is the diversity of institutional forms and technical solutions that can achieve the principles of sound natural resource governance.

With increasing frequency over the past decade, practitioner-analysts have proposed mechanisms for promoting better resource management, particularly in settings of institutional weakness.<sup>3</sup> This chapter will briefly categorize and summarize the core prescriptions thus emerging and note both their strengths and their potential limitations in light of the previous chapters and the global study that underpins this volume. The intention here—moving away from the sometimes normative thrust associated with prescriptions to avoid the resource curse—is to pay special attention to how proposed mechanisms interact with prevailing political economy and institutional endowments. In particular, interventions should be geared toward lengthening time horizons to strengthen intertemporal credibility and toward mobilizing stakeholders to deepen political inclusiveness.

Core prescriptions on natural resource management cluster under the broad principles of enhancing transparency, using international norms and standards, bringing in the demand side, using the potential benefits of direct transfers, and recognizing leadership.

### **Transparency**

Recommendations have emerged within the international development community that transparency should be a precondition to addressing the apparent poor management of natural resources (Ascher 1999). The

“Publish What You Pay” movement is one notable example of an attempt to bring greater transparency to what extractive industries actually pay governments. The International Monetary Fund’s Resource Revenue Transparency has further provided guidance on good practice (IMF 2007). The Extractive Industries Transparency Initiative (EITI) provides an institutionalized mechanism for reconciling and validating information concerning the payments made by firms operating in the extractive industries and the payments governments report as received. Additional efforts, including those led by Revenue Watch and Oxfam International, have stressed the need for internationally listed companies to itemize their payments to countries and have focused on generating greater transparency regarding contracts (Rosenblum and Maples 2009).

Providing greater transparency and revealing bad policies and practices associated with the natural resource sector is certainly an important starting point; but special attention is required to determine when such initiatives promise to have the greatest traction and how they align with domestic actor incentives. Transparency can be a crucial tool in mobilizing stakeholders by empowering them with information; but shedding a bright light on one dimension of the value chain (revenue management) may be only a starting point when seen from a more systematic value chain perspective. Azerbaijan was the first country to validate its EITI status in 2009, but its EITI-compliant status does not imply that it faces no governance challenges regarding how its rents are used downstream. Reconciling formal payments in the context of EITI, in other words, will say little about whether countries are receiving a fair share of rents or effectively translating those rents into sustainable development outcomes.

### **International Norms and Standards**

The centerpiece of EITI has been its focus on revenue transparency, but its most salient aspect is its institutional design. The EITI process is built on a multi-stakeholder platform that brings together governments, extractive companies, and civil society. While fundamentally domestic, this process has important international dimensions. Countries must first agree to become EITI candidates and subsequently subject themselves to validation every five years.<sup>4</sup> Candidate status requires some basic standards of participation, specifically including civil society, as

monitored by an international secretariat. Validation is EITI's quality assurance mechanism: it does not repeat the disclosure and reconciliation work underlying the production of EITI reports, but instead evaluates EITI implementation in consultation with domestic stakeholders and identifies further opportunities, as well as ensuring that the EITI global standard is upheld.

Supra-national processes may also support resource extraction in settings with weak property rights, in particular, by lengthening time horizons and thereby strengthening confidence in contracts. For example, extraction contracts may include international arbitration clauses. These were recently invoked by a Canadian company, First Quantum, backed by the International Finance Corporation (IFC), in a major copper contract in Democratic Republic of Congo (DRC). How binding and effective such international standards are in practice—and thus how able to change the dynamics of intertemporal commitment within a country—remains an open question. The key is likely to be the extent to which developing country elites can be convinced that binding themselves to external enforcement mechanisms is in their longer-term interest. In the context of regimes with extremely weak property rights, domestic elites may feel that binding themselves to international norms could increase the longer-term “rent pool” (Frankel 2010). Angola, for example, has not signed up for EITI, but reputational factors such as sovereign credit ratings do appear to figure in the regime's decision-making calculus for the petroleum sector.

Increasingly, international standards are being applied to actors outside sovereign governments as well, holding other stakeholders responsible for their actions in the natural resource sector. A number of OECD (Organisation for Economic Co-operation and Development) governments have attempted to legislate mandatory payment reporting for listed resource extraction companies, thereby holding the firms operating in the extractive industries more accountable. Advocacy groups within OECD countries have also tried to use their home country laws to ensure that listed companies act responsibly with respect to the environmental and social issues related to resource extraction. Finally, there is an increasing push to hold particular leaders liable for rent extraction into their own pockets. The Stolen Assets Recovery (StAR) Initiative, a joint undertaking of the United Nations and the World Bank Group, seeks to uncover instances of theft of public assets and recover those assets from

the perpetrators. The extractive industries, because of the massive wind-fall rents they can generate, tend to be susceptible to such forms of theft; hence, an initiative such as StAR can have a major impact on the political economy of natural resources.

### **Bringing in the Demand Side**

A significant part of the advocacy agenda in developing countries has focused on strengthening the role of civil society and NGOs in holding governments to account. Civil society groups are often critical in enforcing accountability, but other stakeholders are also important, particularly those beyond the resource sector. For example, nonextractive private sector interests can be important advocates for better governance and economic policies, such as in Chile, where other export sectors have been crucial in lobbying for better macroeconomic policy. Subnational governments, if their relationship with the central government is structured so that their interests can be clearly articulated, may also serve as advocates for enhancing transparency within the oil or mineral sectors. This point will be discussed further below.

### **Direct Transfers**

The attractiveness of direct distribution to citizens has been advocated in the case of Nigeria (Sala-i-Martin and Subramanian 2003) and Iraq (Birdsall and Subramanian 2004). To date, however, there has been limited uptake of such schemes in developing countries, with the exception of the Motherland Gift Fund in Mongolia, which pays dividends from the country's mining revenues to its citizens. Proponents of direct transfer schemes recognize that credible direct distribution to citizens requires more than simply distributing cash; it requires mechanisms to guarantee beneficiary identification and payment procedures.<sup>5</sup> Devarajan, Le, and Raballand (2010) suggest that direct distribution can in turn be partially taxed back, buffering revenue volatility in comparison to direct taxation and mobilizing domestic stakeholders by strengthening the accountability linkages between state and society.

### **Recognizing Leadership**

Individuals can clearly be crucial agents for better managing natural resources and breaking up suboptimal practices, whether they are well-intentioned and farsighted leaders at the very top of government or

embedded in bureaucracy or civil society. Yet even the most well-intentioned leaders cannot (and ideally should not) determine by individual fiat how resources are best used. International development partners can seek to support visionary and effective leadership for better natural resource management.<sup>6</sup> But leaders typically prioritize parts of the value chain in their strategic reform efforts. Interventions that enhance a shared and comprehensive understanding of the steps needed to bring about better developmental impact from extractive industries, by emphasizing collective action and coalitions, could serve as a critical ingredient in gaining greater traction. Global standards, including EITI and such emerging initiatives as the Natural Resource Charter, provide the opportunity to frame in-country debates and to provide committed leaders and champions with policy wedges and political leverage to promote better natural resource management.

### **Improving Engagement: Collaboration and Mobilization**

Natural resources hold tremendous promise for low-income countries attempting to spark sustainable growth and development. As noted at the beginning of this volume, all countries that currently or in the future stand to extract significant natural resource rents can be characterized as being on one of several developmental trajectories: the fortunate few headed toward prosperity, an unlucky group enmeshed in welfare-reducing resource curse dynamics, and perhaps the bulk experiencing some form of low-level equilibrium trap (see figure 1.6 in chapter 1). As the frontiers of resource discovery and extraction spread farther across the globe, more developing countries will face the political economy dynamics outlined in this book. They will require, more than ever, clear-eyed, constructive, and feasible assistance from their development partners, including traditional donors and NGOs, emerging development players, and specific public and private interests in the natural resource sector.

The international development community has a compelling and critical role to play in helping client countries to better translate natural resource wealth into salutary development outcomes. In addition to the country-level political economic dynamics upon which we have focused here, the broader global context surrounding the extraction and use of

natural resources matters a great deal. International demand for natural resources will continue to grow significantly over the coming generation as the world's population approaches 9 billion and developing economies grow more prosperous. New global players active in the extractive industries, in terms of both production and consumption, necessarily interact with the political dynamics unfolding within countries. By the same token, evolving global concerns about climate change, energy security, and environmental stability affect the discourse around natural resources, bringing mounting pressures to reduce the world's dependence on fossil fuels. But the World Energy Council (2007) estimates that energy demand will double by 2050, with fossil fuels continuing to play the dominant role, and the World Economic Forum sees demand for minerals skyrocketing over the coming decade. An increasingly diverse set of natural resource consumers, particularly the middle-income BRICs (Brazil–the Russian Federation–India–China) and other emerging economies, have already begun emphasizing access to raw materials. These trends combine into an expanding push for resource discovery and extraction in low-income countries across the world. In turn, nascent producers become exposed to the economic vulnerability induced by global commodity prices, and the political economy dynamics that often accompany the drive for resource-led development. And the rents and investment flows associated with this sector, in many cases, continue to simply dwarf international aid and the weight of development prescriptions.

Consequently, traditional and emerging development partners (Rowlands 2008) must find common cause in seeking to leverage developing country resources for shared prosperity. Engaging in smarter, more collaborative ways with the growing number of developing country producers will be a key aid effectiveness challenge in the coming decade—and more systematic attention to political economy realities will be a key ingredient in enhancing the prospects of success.

This section briefly lays out the contours of constructive engagement, including improving conventional assistance, building better information systems, incorporating emerging players and new engagement paradigms, using international standards, breaking down silos and prioritizing engagement, and crowding-in stakeholders through cross-cutting collaboration.

### **Improving Conventional Assistance**

The traditional development community (including international financial institutions, regional multilateral development banks, bilateral aid agencies, and international non-governmental organizations) has already initiated a significant number of efforts to improve technical assistance for resource-dependent client countries. In terms of the principles of engagement, first and foremost, a significant and crucial shift has occurred toward the notion of “good enough” reforms that emphasize incentive compatibility and the recognition that a diversity of institutional forms can and do satisfy key institutional functions. The implementation of these good fit recommendations, moreover, is acknowledged to be contingent on a country’s positioning along its developmental trajectory. Examples of these principles at work at different steps in the natural resource management (NRM) value chain have been presented throughout this volume, for example, Angola’s successful consolidation of human capacity and institutional function in Sonangol.

Furthermore, traditional development partners have moved away from the conventional “supply side” approach to reforms by broadening coalitions and agents of reform toward the “demand side,” including civil society groups, local and community-level watchdogs, and so on. The World Bank’s country-level governance and anticorruption program (CGAC) aiding natural resource-led development in Mongolia is an important example of this more expansive strategy for donor support. The World Bank works with core groups in Mongolian civil society through capacity-building programs and sharing tools such as open budgeting, enabling them to hold government and developers accountable in the process of natural resource extraction.

### **Better Information Systems**

International development partners can be important creators of and conduits for the information that resource-dependent developing countries need to improve their own outcomes. The World Bank’s Wealth of Nations initiative, for example, provides estimates of the various sources of wealth for nearly 120 countries and analyzes the implications for economic policy and development. Such a comparative compendium enables developing countries to assess their own prospects and chart

policy against the experiences of other nations. Similarly, the IMF's "Report on the Observance of Standards and Codes" (ROSC) summarizes the extent to which countries observe certain internationally recognized standards and codes in such crucial areas as accounting, auditing, corporate governance, and fiscal transparency. Again, such an effort enables client countries to benchmark their own policies and performance against those of others. The Natural Resource Charter proposes that resource-dependent countries might benefit from following certain blueprints for more effective fiscal policy and public financial management related to natural resources. Similarly, international nongovernmental agencies like Revenue Watch and Oxfam have developed model resource sector contracts.

### **Emerging Players and New Engagement Paradigms**

A major development in the international landscape around natural resource extraction is the emergence of new investors, both state-owned and private, from middle-income countries such as China and the other BRICs. In the search for a medium- to long-term supply of the natural resources necessary for their energy, industrial, and other development needs, these emerging players have introduced new paradigms of resource discovery and extraction to quench their demand. The oft-cited example of a new paradigm for resource sector development is the Chinese model of offering resource-backed infrastructure loans, or "bundled deals," through which Chinese companies construct roads, railways, irrigation systems, and even schools and health clinics in exchange for a supply of natural resources (Brautigam 2010).<sup>7</sup> This type of model has the benefit of short-circuiting potential problems of intertemporal credibility in a government's own pledge to its citizens to use the proceeds of natural resource extraction for collective welfare-oriented public investment. On the other hand, it should be cautioned that domestic stakeholders—including legislatures, civil society groups, the media, and so on—are often left out of the negotiation process and potentially marginalized from attempting to ensure financial oversight if revenue flows are taken off-budget. Nevertheless, low-income, resource-dependent countries can surely benefit from the recent experiences and instincts of these emerging development players.

### **International Standards**

As the natural resource sector continues to grow in importance, various international standards for conduct have emerged. Some of these standards hold resource-dependent countries to strict account; for example, the behavior of sovereign governments is now constrained by the importance of retaining strong credit ratings for financing from international investors. Other standards are more voluntary in terms of compliance; for example, EITI, as discussed earlier, and the Santiago Principles, a set of voluntary guidelines for operation of sovereign wealth funds. Another standard is more implicit but still significant, that is, a growing recognition on the part of international extractive industry operators that demonstrating the developmental benefits of their projects is crucial to their social license to operate and long-term profitability.

### **Breaking Down Silos and Prioritizing Engagement**

The analysis in this volume has highlighted the interdependencies across various segments of the natural resource value chain. Governments and industry have been subject to increasing scrutiny concerning the developmental impacts of the extractive industries, and both domestic and international reform champions have recognized the need to take a comprehensive view concerning the promotion of natural resource-led development. Successful reform also requires strategic prioritization of efforts in those areas where the greatest vulnerabilities exist, yet where there is also the promise of traction given the prevailing political economic context. EITI is the most prominent example of an initiative that has targeted a specific stage in the potential transformation of rents. At the level of country programs, both within and across engaged public or private sector agents, there will be a growing need to gain knowledge of and learn from various initiatives across the value chain. This will require changing the mind-sets that tend to see natural resource-led development in issue-based or sectoral silos, as well as building programs of engagement with more concerted collaboration that cuts across the links of the value chain.

### **Crowding-in Stakeholders**

The political economy framework in this book articulates a set of comprehensive and context-specific perspectives for natural resource-led

development. A political economy lens is not a substitute for good technical engagement, but rather a necessary aid to constructively informing more effective engagement across these wide-ranging country settings. And, to be truly successful, this engagement must be predicated on lengthening the time-horizons and leveraging the interests and motivations of key stakeholders. Thus, in addition to the country-level possibilities discussed here, champions of natural resource-led development must seek opportunities at the global and regional levels to crowd in stakeholders. Table 6.2 identifies three key sets of actors and the possible leverage afforded by their typical motivations, as described in this chapter. In some cases, incentives align in favor of certain strategies; in other cases, interests will be at loggerheads and the challenge will lie in coaxing

**Table 6.2. Stakeholders in Extractives-Led Development**

Sector/motivation	Actor	Leverage
<b>Extractive industry developers:</b> <i>seeking (sustainable) profits/resource rents</i>	International blue chips	Reputational concerns, international regulations
	Emerging internationals	Reputational concerns, level access
	National mining and oil companies	Domestic political economy, international aspirations
	Domestic producers	Continued access to contracts
<b>Host governments:</b> <i>seeking investment, rents, development</i>	Energy, oil, and mining ministries	Technical reputation, bureaucratic power
	Executive	International reputation and linkages with country groupings (e.g., G-8, G-20)
	Central finance agencies	Technical reputation, bureaucratic power
	Subnational governments	(Predictable) access to rent streams, infrastructure development
	Sector ministries	Sectoral outcomes
<b>Civil society:</b> <i>“a many-splendored thing”</i>	Legislatures	Political party interests and capacity
	Non-EI private tradable sector	Competitiveness and linkages with extractive industry
	NGOs	Transparency, accountability
	Local communities	Voice, government responsiveness, accountability

Source: Authors.

Note: EI = extractive industry.

various actors into more productive relationships to further natural resource-led development.<sup>8</sup>

The past decade has seen a significant shift in the global norms concerning extractive industries, which have increasingly manifested themselves in a series of voluntary and mandatory initiatives. Supra-national constituencies and bodies below the global level are increasingly recognizing the risks associated with allowing the resource curse to fester in their neighborhoods, as well as the foregone opportunities for leveraging beneficial spillover effects from resource-led development. Regional bodies (African Union, Association of Southeast Asian Nations, and Organization of American States, among others) are one possible platform for dialogue, while regional multilateral development banks (African Development Bank, Asian Development Bank, and Inter-American Development Bank) can provide valuable support mechanisms.

### **A Normative Compass**

Resource wealth *should* translate into collective and sustainable development. But, from the perspective of the public interest, many resource-dependent developing countries pursue short-sighted and suboptimal policies in relation to both the extraction and capture of resource rents and the spending and savings from their resource endowments. In attempting to break out of this cycle, reformers in such countries, along with their local and global development partners, carry a normative compass pointed toward collective welfare enhancement along with mental maps on what constitutes good technical guidance for that purpose. The experience of countries that have attempted natural resource-led development provides a warning, however, that development practitioners cannot turn a blind eye to the fundamentally political nature of this process.

This volume has illustrated the political economy dynamics that shape the incentives of the actors involved in the extractive industries and that underlie the typically poor outcomes across the natural resource management value chain. Yet, identifying these dynamics is not intended to imply the inevitability of the resource curse. On the contrary, adopting a political economy lens enables policy makers, along with their constituents and the donor community, to recognize and act on the

potential for pro-developmental action in the natural resource sector. Recast in this manner, the concept of the resource paradox challenges development partners to provide incentive-compatible technical guidance for clients pursuing natural resource-led development.

Ultimately, the surest trajectory of natural resource-led development is to engage as many global, national, and community-level stakeholders as possible in defining the public interest and in holding decision makers accountable for achieving that goal. This volume's political economy framework demonstrates that where intertemporal credibility is weak and political inclusiveness low, political economic elites are able to siphon resource rents away from developmentally oriented outcomes. The implications for engagement are clear: lengthening time horizons enhances the ability of governments to increase potential rent generation, and improving political inclusiveness supports the orientation of rent distribution toward the collective good. The logic of the framework, along with the case material presented throughout this book, thus demonstrates the potential for mediating the resource paradox through intelligent and resilient institutional design. Successful development interventions must work within the constraints of, resonate with, and eventually shape, the underlying political and institutional dynamics associated with resource-dependence. Bearing that in mind, diverse stakeholders oriented by the normative compass of collective welfare enhancement can successfully transform resource rents into sustainable development riches.

## Notes

1. Rodrik (2007) advances this perspective more generally regarding economic development.
2. Programmatic pluralist settings face less constraining political economy dynamics.
3. See, for example, Humphreys, Sachs, and Stiglitz (2007) who conclude with a number of recommendations; and *The Natural Resource Charter* (2010).
4. To date, 11 countries have achieved full validation and thereby EITI-compliant status. Another 24 countries are candidates, but their validation processes have lagged and the bulk of candidate countries have been granted extensions.
5. For example, technological advances that make biometric identification increasingly cost-effective offer potential entry points for states interested in making such arrangements work (see Gelb and Decker 2011).

6. The Mo Ibrahim Foundation, for example, has developed a prize for achievements in African leadership of US\$5 million, payable over 10 years. The prize rewards leaders who set an example by voluntarily relinquishing power.

7. Brautigam (2010) notes that China was itself the beneficiary of such a strategy earlier in its developmental trajectory, when Japan financed a major set of infrastructure projects in China in exchange for shipments of Chinese oil and coal in the early 1980s.

8. For example, McFerson (2010) highlights a number of key international initiatives (including EITI) and assesses their potential impact, notably for Africa. She underscores that success will ultimately depend on domestic constituencies and notes a somewhat hopeful shift based on recent AfroBarometer (<http://www.afrobarometer.org/>) opinion surveys.

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## **Appendix: Resource-Dependent Countries—Basic Economic and Institutional Characteristics of Extractive Industry (EI)**

Country	Population (millions, 2009)	Area (1,000 sq km)	GDP per capita (US\$, 2010)	EI Rents per capita (US\$, 2008)	EI Share of Total Exports (%; 2007–09)	EI Revenue Share of Total Public Revenues (%; 2007–09)	Oil and Gas Share of Total Exports (%; 2007–09)	Oil and Gas Revenue Share of Total Public Revenues (%; 2007–09)	Mining Share of Total Exports (%; 2007–09)	Mining Revenue Share of Total Public Revenues (%; 2007–09)	CPIA Public Sector and Institutions Average <sup>a</sup>	National Oil/ Mining Company	Extractive Industry Transparency Initiative	Stabilization Fund
Algeria	34.4	2,382	4,460	2,112	98.5	68.6	98.5	68.6	..	..	n.a.	Yes	No	No
Angola	18	1,247	3,960	3,138	95.6	83.6	95.6	83.6	—	—	2.4	No	No	No
Azerbaijan	8.7	87	5,180	3,661	94.7	53.4	94.7	53.4	..	..	3.1	Yes	Compl.	No
Bahrain	0.8	1	25,420	11,408	79.8	85.5	79.8	85.5	..	..	n.a.	No	No	No
Bolivia	9.7	1,099	1,790	607	63.5	70.0	44.4	26.0	19.1	44.0	3.3	Yes	No	No
Botswana	1.9	582	6,890	362	64.2	13.9	..	..	64.2	13.9	n.a.	No	No	No
Brunei Darussalam	0.4	6	31,180	23,436	97.2	60.0	97.2	60.0	..	..	n.a.	No	No	No
Cameroon	18.9	475	1,160	153	33.3	38.2	33.3	38.2	..	..	2.9	Yes	Yes	No
Chad	11.1	1,284	600	392	84.3	57.1	84.3	57.1	..	..	2.2	Yes	No	No
Chile	16.8	757	9,940	2,151	55.7	22.7	..	..	55.7	22.7	n.a.	Yes	No	Yes
Colombia	44.5	1,142	5,510	695	23.9	—	23.9	—	—	—	n.a.	Yes	No	Yes
Congo, Dem. Rep.	64.2	2,345	180	14	94.6	—	25.0	..	69.6	..	2.2	Yes	Yes	No
Congo, Rep.	3.6	342	2,310	2,261	87.7	86.0	87.7	86.0	..	..	2.6	Yes	Yes	No
Ecuador	13.5	284	4,510	1,268	..	49.0	..	49.0	..	..	n.a.	Yes	No	Yes
Equatorial Guinea	0.7	28	14,680	17,386	98.9	93.5	98.9	93.5	..	..	n.a.	Yes	Yes	No
Gabon	1.5	268	7,760	4,727	77.3	65.7	77.3	65.7	..	..	n.a.	No	Yes	No
Ghana	23.4	239	1,240	61	65.4	—	—	—	65.4	..	3.7	Yes	Compl.	No
Guinea	9.8	246	380	29	89.9	24.5	89.9	24.5	..	..	2.6	No	Yes	No
Indonesia	228.3	1,905	2,580	364	22.7	29.3	22.7	29.3	..	..	n.a.	Yes	No	No

Iran, Islamic Rep.	72	1,745	4,530	2,351	75.8	69.2	75.8	69.2	..	..	n.a.	Yes	No	Yes
Iraq	31.2	438	2,320	2,468	97.5	81.0	97.5	81.0	..	..	n.a.	Yes	No	No
Kazakhstan	15.7	2,725	7,440	3,871	54.3	44.6	54.3	44.6	..	..	n.a.	Yes	Yes	No
Kuwait	2.7	18	43,920	35,227	94.4	72.1	94.4	72.1	..	..	n.a.	Yes	No	Yes
Kyrgyz Republic	5.3	200	880	14	59.0	—	..	..	59.0	....	3	No	Yes	No
Lao PDR	6.2	237	1,000	—	50.4	—	..	..	50.4	..	3.1	No	No	No
Libya	6.3	1,760	12,020	9,232	97.5	89.7	97.5	89.7	..	..	n.a.	No	No	No
Malaysia	27	330	7,900	1,593	47.0	13.0	47.0	13.0	..	..	n.a.	Yes	No	No
Mauritania	3.2	1,031	1,060	451	34.7	11.0	..	11.0	34.7	..	3	No	Yes	No
Mexico	106.4	1,964	9,330	1,068	15.8	35.6	15.8	35.6	..	..	n.a.	Yes		Yes
Mongolia	2.6	1,567	1,890	178	58.6	28.9	..	..	58.6	28.9	3.4	No	Compl.	No
Namibia	2.1	824	4,650	136	58.8	6.3	..	..	58.8	6.3	n.a.	No	No	No
Niger	14.7	1,267	360	—	91.5	42.0	..	..	91.5	42.0	3.2	Yes	Yes	No
Nigeria	151.3	924	1,180	492	97.5	83.7	97.5	83.7	—	—	2.9	Yes	Yes	Yes
Norway	4.8	324	85,380	19,904	49.8	39.1	49.8	39.1	..	..	n.a.	Yes	Yes	Yes
Oman	2.8	310	17,890	11,122	81.0	86.3	81.0	86.3	..	..	n.a.	No	No	Yes
Papua New Guinea	6.5	463	1,300	431	80.6	34.3	..	..	80.6	34.3	2.9	No	No	Yes
Peru	28.8	1,285	4,710	532	32.9	25.0	..	..	32.9	25.0	n.a.	Yes	Yes	No
Qatar	1.3	11		43,485	88.9	64.5	88.9	64.5	..	..	n.a.	Yes	No	No
Russian Federation	141.8	17,098	9,910	3,826	65.8	32.8	65.8	32.8	—	—	n.a.	Yes	Yes	Yes
São Tomè and Príncipe			1,200	—	—	—	—	—	..	..	3.1	No	No	No
Saudi Arabia	24.7	2,150	17,200	13,445	89.7	89.3	89.7	89.3	..	..	n.a.	Yes	No	No
Sierra Leone	5.6	72	340	3	90.3	—	..	..	90.3	..	3	No	Yes	No

(continued next page)

Country	Population (millions, 2009)	Area (1,000 sq km)	GDP per capita (US\$, 2010)	EI Rents per capita (US\$, 2008)	EI Share of Total Exports (% 2007–09)	EI Revenue Share of Total Public Revenues (% 2007–09)	Oil and Gas Share of Total Exports (% 2007–09)	Oil and Gas Revenue Share of Total Public Revenues (% 2007–09)	Mining Share of Total Exports (% 2007–09)	Mining Revenue Share of Total Public Revenues (% 2007–09)	CPIA Public Sector and Institutions Average <sup>a</sup>	National Oil/Mining Company	Extractive Industry Transparency Initiative	Stabilization Fund
South Africa	48.7	1,219	6,100	679	6.0	2.0	..	..	6.0	2.0	n.a.	Yes	No	No
Sudan	41.4	2,506	1,270	371	90.2	55.7	90.2	55.7	..	..	2.2	Yes	No	No
Syrian Arab Republic	21.2	185	2,640	660	39.7	29.6	39.7	29.6	..	..	n.a.	Yes	No	No
Timor-Leste	1.1	15	2,220	—	97.3	98.2	97.3	98.2	..	..	2.7	No	Yes	Yes
Trinidad and Tobago	1.3	5	15,380	11,484	87.0	57.8	87.0	57.8	..	..	n.a.	Yes	No	No
Turkmenistan	5	488	3,700	5,556	77.3	—	77.3	—	..	..	n.a.	No	No	No
United Arab Emirates	4.5	84	—	21,717	43.3	70.2	43.3	70.2	..	..	n.a.	Yes	No	Yes
Uzbekistan	27.3	447	1,280	824	36.9	17.2	22.7	—	14.3	17.2	2.8	Yes	No	No
Venezuela, R.B.	27.9	912	11,590	3,471	81.2	46.3	81.2	46.3	..	..	n.a.	Yes	No	Yes
Vietnam	86.2	329	1,100	187	17.5	31.0	17.5	31.0	..	..	3.6	Yes	No	No
Yemen, Rep.	23.1	528	1,060	375	98.9	68.1	98.9	68.1	..	..	2.9	No	Yes	No
Zambia	12.6	753	1,070	222	66.7	—	..	—	66.7	—	3.1	No	Yes	No
<b>Total</b>	<b>1473.02</b>	<b>Average</b>	<b>7,952.9</b>	<b>5,392.0</b>	<b>69.4</b>	<b>50.6</b>	<b>70.1</b>	<b>58.0</b>	<b>54.0</b>	<b>23.6</b>	<b>2.9</b>			

Source: Authors' compilation; population, area GDP (World Bank Indicators 2010); EI rents per capita (Wealth of Nations Initiative Database 2010); EI share of total exports, EI revenue share of total public revenues, oil and gas share of total exports, oil and gas revenue share of total public revenues, mining share of total exports, mining revenue share of total public revenues (IMF Article IV Consultations 2007–09); CPIA public sector and institutions average (World Bank CPIA Database 2010); Extractive Industry Transparency Initiative (EITI website); National Oil/Mining Company, and Stabilization Fund (case studies).

Note: a. CPIA = Country Policy and Institutional Assessment, Public Sector Management and Institutions (Indicators 12-16: Property Rights and Rule-based Government Quality of Budget and Financial Management; Efficiency of Revenue Mobilization; Quality of Public Administration; Transparency; Accountability; and Corruption in the Public Sector)

.. = negligible; — = not available.

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**R**ENTS TO RICHES? FOCUSES ON THE POLITICAL ECONOMY OF THE DETAILED decisions that governments make at each step of the natural resource management (NRM) value chain. Many resource-dependent developing countries pursue seemingly shortsighted and suboptimal policies when extracting, taxing, and investing resource rents. The book contextualizes these micro-level outcomes with an emphasis on two central political economy dimensions: the degree to which governments can make credible intertemporal commitments to both resource developers and citizens, and the degree to which governments are inclusive and inclined to turn resource rents into public goods.

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—**MICHAEL L. ROSS**, Professor of Political Science, University of California, Los Angeles

For many poor and fragile countries, reserves of oil, gas, and minerals may seem to promise unlimited economic development. *Rents to Riches?* is an important, timely, cautionary guide to the governments of those countries as well as international policy makers, beginning with its reminder that governments manage natural resources in trust for citizens, who are the actual owners. No less vital is the authors' emphasis on transparency as an essential ingredient of good governance at every stage of the value chain. There are fresh, valuable lessons in every chapter.

—**KARIN LISSAKERS**, Director, The Revenue Watch Institute, New York



THE WORLD BANK

ISBN: 978-0-8213-8480-0



9 780821 384800

SKU: 18480