

# The Political Economy of Investing Resource Wealth: Transforming Rents into Productive Physical Infrastructure\*

*Kai Kaiser and Lorena Viñuela*

The scope for creating and preserving economically and socially productive physical assets through leveraging extractive industry development and associated rents in natural-resource-endowed but capital-stock-poor economies can be tremendous.<sup>i</sup> But 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 beginning 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 government 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 public investment management (PIM) systems. In turn, the resulting weak planning and implementation capacity of public agencies feed back into the incentives to bypass government systems and increase opportunities for rent-seeking behavior.

Effective investment hinges on the quantity and quality of resource allocation. Annual and medium-term public infrastructure investment actions will weigh intertemporal consumption versus savings decisions, as well as often politically charged present-day benefit incidence demands. Given that subsoil assets are being depleted in this process and that rental values are quite uncertain owing to commodity price volatility, sustainability represents

an overarching criterion when assessing the success of resource-rich countries in this aspect of the extractive industry value chain. Since governments play a pivotal role in regulating access to rents as well as capturing rents, their role is especially critical from the perspective of general and extraction-related infrastructure investment. Creating and maintaining “concrete” assets not only depends on allocation choices, but also is intensive in its transactional, technological, and hence investment capability requirements. Building the proverbial bridges requires effective management across the public investment value chain, from planning, prioritization, and contracting, through implementation, completion, and operation.

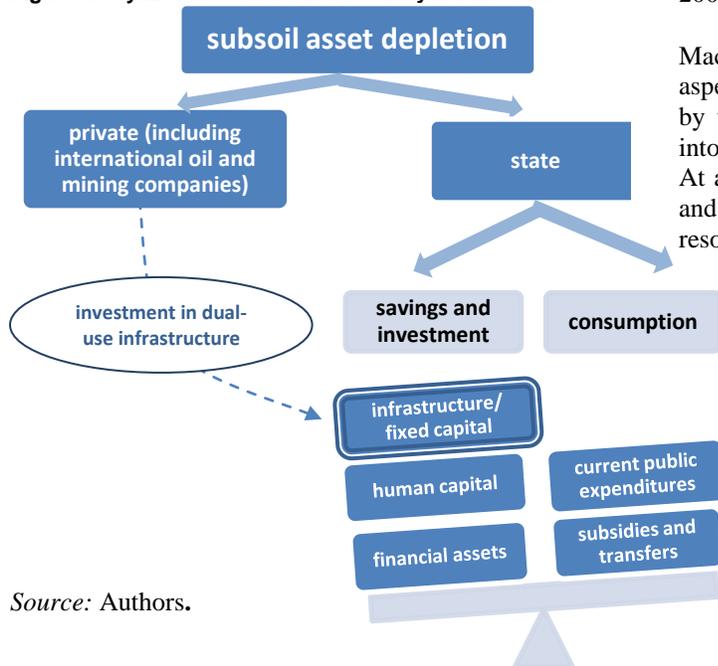
The degree to which a resource-dependent country is optimizing the quantity and quality of its public investment portfolio depends on the intersection of a set of aggregate “top-down” allocation processes and “bottom-up” project selection, implementation, and completion incentives and capabilities. These allocation processes typically may be centered on the budget and may also be integrally linked to upstream decisions more directly associated with extractive investments themselves. Figure 1 provides a stylized balance sheet for resource-rich settings. Strategic choices for resource-endowed governments will center on how much to consume or spend now (for example, for recurrent salaries or subsidies) versus how much to save or invest. However, it is important to examine a fundamental orienting question with regard to observed and

anticipated use of the proceeds of subsoil assets, which is whether it is tilting the balance to savings and investment or leading mainly to rent dissipation in the form of current consumption.<sup>ii</sup>

A key debate for policy guidance is how ambitious resource-rich governments should be in ramping up particular types of investments at any given point. Liquid financial assets (including sovereign wealth funds, SWFs) provide both a vehicle of stabilization and savings in the face of volatile resource prices and production.<sup>iii</sup> Given resource price and depletion prospects, a key annual and medium-term choice for resource-dependent settings is “expansionary” versus “prudent” resource management.<sup>iv</sup> Rapidly ramping up domestic spending may also create “Dutch disease” pressures, which risk driving up the real exchange rate/domestic price levels and crowding out other domestic industries that are reflected in concerns about absorptive capacity. More broadly, absorptive capacity is also used to describe the ability of developing countries to spend rents well through various channels, including risks of leakage and corruption. The Permanent Income (PI) model emphasizes that governments should accumulate financial assets that will generate a more predictable and sustained future income stream. Arguably this more conservative approach has in the past been emphasized by international financial agencies such as the International Monetary Fund. Other models argue that capital-scarce developing economies could have potentially very high economic and social returns by investing in domestic hard and soft infrastructure (Collier, van der Ploeg, and Venables 2009).

Macro versus micro, top-down versus bottom-up aspects of public investment can be best understood by taking a public investment portfolio perspective into public capital stock creation and preservation.<sup>v</sup> At any given time, various parts of the public sector and extractive industries will be considering, resourcing, implementing, completing, and using a portfolio of hundreds, if not thousands, of projects. Many will require years to complete and will potentially offer decades or more of returns. Therefore careful attention must be paid to the various institutional channels involved in public investment. The value of physical infrastructure will also be highly contingent on recurrent spending to maintain infrastructure. For example, deferred maintenance of road networks may rapidly lead to depreciation and even full-fledged obsolescence of capital—in

**Figure 1. Stylized Resource-Rich Country Balance Sheet**



Source: Authors.

short, wasted assets. “Investing to invest” consequently refers to all those measures, including strengthening various aspects of public financial management ranging from budgeting to procurement or contract management, which would help developing countries reap these potential returns. Beyond capturing a set of important technical issues, investing to invest will confront a series of quite fundamental political debates about how poor countries can best close their infrastructure gaps for rapid growth, development, and poverty reduction.

## Paradoxes of Public Investment

The promise of a country’s natural resources giving birth to modern infrastructure is one of the facets of extractive-led development most likely to capture the imagination of politicians and populations. Especially in capital-scarce developing economies, domestic capital creation promises to have very high economic and social returns compared to other options for resource allocation.<sup>vi</sup> In relation to managing both the quantity and quality of public investment for physical asset creation and preservation, five key paradoxes help frame the content of this note:

- Resource rents offer the prospect of investing heavily in physical infrastructure that in capital-scarce countries would generate high-return capital assets, but, as a result of the incentives generated by the interaction of politics and the sector-specific features, such countries often fail to invest proactively in the processes and systems that yield the very best projects.
- Investment in public infrastructure is one of the policy tools that resource-dependent countries can use to lay down the basis for economic diversification and to reduce cyclicity; nonetheless, public investment tends to be highly procyclical, thus, unsustainable. Failure to maintain projects generates repeated “build, neglect, rebuild” episodes.
- A benevolent national planner would ideally allocate resource-rent-financed public investment projects to the highest return projects, regardless of their geographic location; but political economy dynamics often push toward earmarking investments to the location of resource extraction or

fragmenting them across various narrower political constituencies.

## Key Issues for Investing Resource Rents in Infrastructure Assets

Public infrastructure asset creation and preservation involves a series of macro-fiscal as well as “micro” project-level choices and challenges. Classical public expenditure management (PEM) focuses on three levels: (1) macro-fiscal management, (2) allocation choices (for example, capital/investment versus consumption spending, sectoral prioritization), and (3) operational efficiency. Much of the public expenditure literature focuses on aggregate-level spending choices (see Ossowski et al. 2008; Villafuerte and Lopez-Murphy 2010), including revenue management institutions. But just as the public sector wage bill ultimately boils down to the sum of payments made to real or notional individuals, produced capital formation hinges on the sum of a portfolio of existing and new projects. At the “micro” level, the decisions and actions determining how each project is managed and maintained will impact the existing and prospective value of a country’s public capital stock.

The top-down “enabling” environment of the two overarching levels of aggregate macro-fiscal and allocations will fundamentally condition what happens at the level of sectoral or territorial project portfolio segments.<sup>vii</sup> Predictable capital resource envelopes for ministries, agencies, subnational governments, or communities can set strategic envelopes by which to steer the prioritization, completion, and maintenance of infrastructure assets. However, since investment spending is typically one of the most discretionary expenditure items during annual budget preparation and execution, these resource allocations will also be the most vulnerable to the vagaries of high fiscal volatility confronting resource-dependent settings. Consequently, asset creation and preservation will be particularly vulnerable to the volatility of resource-related revenues, unless the investment budget is adequately insulated in its predictability. 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 (either in their complexity or size relative to a country’s budget) can have significant impacts on overall budget credibility.

Countries with short-term or ad hoc financial management modes are likely to accentuate potential boom-and-bust cycles associated with resource dependence, notably in relation to public finances, with particularly adverse implications for savings. A typical risk for resource-dependent countries falling into the trap of failing to accumulate assets when rent flows are buoyant, then subsequently dissaving when rent streams are adversely impacted by price and production patterns, which creates a volatile fiscal environment.<sup>viii</sup> At an extreme, projects may grind to a halt as governments resort to cash rationing in bust cycles and with mounting, more immediate pressures on the rental pie from other factions. Delays in execution may also see governments reallocate these resources to other purposes in the context of the annual execution cycle. This in turn may ratchet up other resource claims in the future, further crowding out investment spending envelopes.

The term “absorptive capacity” is frequently used in resource-rich settings to capture the macroeconomic, public finance management, and broader governance challenges associated with scaling up public investment in resource-rich settings. From the perspective of ultimate asset creation and preservation, this paper argues that it is critical to unbundle this “black box.”<sup>ix</sup> Leaders in resource-rich settings typically profess the desire to invest more for the benefit of present and future generations. In practice, however, political and bureaucratic incentives, as well as prevailing public sector and construction sector capacities, constrain effective asset creation and preservation. The term “investing to invest” has emerged to describe the variety of measures by which resource-rich governments can improve their ability to enhance their capital stock (see Collier 2010). A key message for these settings is that the barriers to greater asset creation and preservation are not resource constraints per se, but the institutional mechanisms and capabilities by which they are translated. Governments also have a range of options by which to prioritize and sequence the ultimate objective of tangible and timely investing.

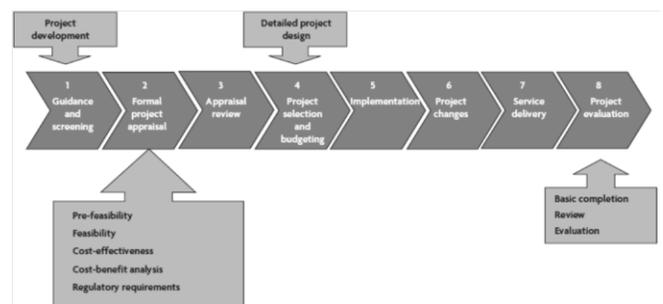
### A Public Investment Value Chain

The public investment management diagnostics framework by Rajaram et al. (2010) sets out eight minimum stages a public investment project should pass through to ensure that it emerges as a productive and sustainable public asset (see figure 2). A technical assessment of the prevailing functionality of the PIM system across different sectors and

modalities will be an important starting point for identifying the weakest links for asset creation and preservation and for putting priorities on the table.<sup>x</sup> In many respects, the framework highlights many of the themes brought forth by the overarching natural resource management value chain approach adopted by *Rents to Riches*.

First, technical issues and challenges in each of the links are likely (for example, effective procurement), but the performance of each link in turn will be conditioned by political economy factors at the polity-wide and bureaucratic levels. Second, a variety of institutional options may be open to enhance functionality along particular links. For example, governments may chose to contract out project evaluation skills while strengthening in-house capacity over time. Third, a significant interdependence is likely to occur between different upstream and downstream parts of the value chain. A poorly prepared project will pose problems during implementation. But even the best prepared and best implemented project that suffers lack of maintenance will rapidly depreciate. Even in standard government execution of projects, quite a number of diverse actors and agencies will likely be involved. Thus, it is necessary to carefully consider the range of institutional bottlenecks, as well as remedies, to enhance the likelihood that individual projects succeed, but most importantly that the overall portfolio adds up to more than the sum of its parts, especially for network infrastructure.

**Figure 2. A Public Investment Management (PIM) Diagnostic Framework**



Source: Rajaram et al. 2010.

Selecting good projects through effective economic appraisal is an important starting point for creating assets. While a benevolent optimal social planner in a unitary state prioritizes 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. 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 found across spatial or territorial lines (Kaiser and Viñuela 2010).<sup>xi</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 be achieving an effective balance between investments intended to support the extractive industry versus broader public infrastructure. This may be especially pertinent for mining, where continental extraction may be associated with a large infrastructure footprint.<sup>xii</sup>

One focus in *Rents to Riches* is on managing upstream bargains between the state and resource investors. An important challenge for creating credible and effective bargains is mirrored downstream in the implementation of capital spending. While some of the dynamics may be less pronounced (for example, uncertainty of future rents with resource price developments), they are arguably equally prevalent. A public works contractor bidding for a large infrastructure project will be forced to either mark up or frequently renegotiate the contract under conditions of weak intertemporal credibility. While a resource-rich government may borrow against future oil revenues, the contractor is likely to factor in a significant risk premium because it will be subject to arrears or nonpayment if the government does not manage its finances well.

The ultimate productivity of "hard" infrastructure for both economic and social sectors will critically depend on how well it is maintained and on the effectiveness of the associated "soft" service delivery and regulatory layers. Even the best kept roads are of little use if the associated services of public and private sector transport are not forthcoming in corresponding measure.<sup>xiii</sup> Schools and clinics are of little use if the teachers, doctors, and nurses do not show up or if they lack the tools to deliver frontline services effectively. Consequently, the regulatory and public resource allocations allowing for these critical layers of functionality must be carefully considered. Resource-rich countries may succeed in creating four-lane highways but neglect to foster the regulatory emergence of a competitive transport and communications sector.

### *Nontraditional Execution Modalities*

The Extractive Industries Transparency Initiative (EITI) has placed the emphasis on extractive revenues reaching the treasury, while traditional on-budget PIM focuses on executing those resources through the budget. Significant shares of public infrastructure formation have been conducted through alternative channels, including parastatals, notably national oil companies, and increasingly also national mining companies, and public-private partnerships such as resource-for-infrastructure (RfI) deals.<sup>xiv</sup> National oil and national mining companies have received growing attention as a way for developing host countries to capture a greater share of the benefits of the extractive industry (including learning and monitoring effects). However, these parastatals have significant differences in mission statements, transparency, and corporate governance, as well as in the nature of the relationship between government and the parastatals. As part of more diverse "national missions," parastatals may be asked to leverage their finance and capacity to generate public infrastructure.<sup>xv</sup> However, careful attention needs to be paid to the prevailing corporate governance incentives, as well as capacities, for parastatals as public investors. Resource-linked public-private partnerships and RfI deals, in particular, raise a number of issues about contract design and, above all, implementation, including value of resources, local context, public good value and sustainability of investments/assets, and the risks of "obsolescing bargains."

RfI contracts typically are structured around some mix of monetary payment (for example, signing bonuses, some subsequent revenue flow) and an infrastructure asset (usually provided against some concessional or nonconcessional credit line). The infrastructure asset is typically provided by Chinese companies selected by the Chinese government but with no objection by host governments. This structure will also determine the mix of risk and rewards for governments versus investors over the life of the project and future price developments, as well as the extent to which the main foreign contracting agency and implementing partner are pushed to deliver a certain quality of infrastructure asset. As with any extractives contracts, these agreements may also be associated with the range of obsolescing bargain challenges (Hogan and Sturzenegger 2010), raising questions of how to best structure these contracts from the perspective of governments and companies, but particularly citizens (the public interest).<sup>xvi</sup>

Infrastructure for resource extraction, dual-use infrastructure, or pure public good infrastructure reflect a sunk cost. The actual asset value of a piece of infrastructure is typically harder to monitor than that of a cash payment, especially with regard to the quality of an infrastructure good. The fact that RFI deals are implemented parallel to country PFM/PIM (public financial management/public investment management) systems arguably brings both advantages and risks. “Turnkey” delivery of infrastructure by foreigners may be faster and more efficient than delivery by the government in weak institutional settings, and contractors may feel more confident of getting paid against foreign finance lines. At the same time, these bundled deals may raise concerns. Running monetary and physical resources through parallel systems may make them more opaque and susceptible to private appropriation. Bypassing country systems may lead to further neglect of domestic capacity-building and fail to draw in domestic labor. Extractive operators will likely have the most direct interest in maintaining infrastructure during the depletion cycle, but limited interest in doing so beyond this point.

## Political Economy Settings and Dynamics

The public investment paradoxes presented here have highlighted the challenges political economy dynamics can present for effective public infrastructure asset creation and preservation. Closer attention to contextual political economy dynamics may also clarify the drivers of low capital spending efficiency and excessively rapid depreciation. The *Rents to Riches* framework identifies two key political economy dimensions—intertemporal credibility and inclusiveness—that will impact the ability and likelihood of polities to deliver public goods. Intertemporal credibility refers to the ability of politicians, bureaucrats, and other societal actors to collectively commit 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 regime typologies (see 2), which can be empirically benchmarked with available governance indicators. Given the longer time horizons, deferred benefits, and public goods character associated with public investment, as well as relative transactional complexity, the observed challenges are likely to be emblematic.

Ideally, countries would fall under the programmatic pluralism category, where intertemporal credibility and political inclusiveness are fairly 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, PIM institutions have been strengthened by long-term investments in capacity and skills and by 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 case studies in *Rents to Riches* across Africa, East Asia, and Latin America revealed a range of symptomatic outcomes hampering sustained asset creation and preservation. 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 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 remain largely dependent on development aid. Robinson and Torvik (2005) note the tragic case of Mobuto’s Zaire (now DRC), 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 in the same government. 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.

**Table 2. 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>• 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>• High time inconsistency in the contracting of public works</li> <li>• Broader targeting of infrastructure projects</li> <li>• Private rent-seeking, including some political side payments, as well as allocation distortions introduced by coalitional, electoral incentives and earmarking of funds</li> <li>• Focus on short-term asset creation and neglect of 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>

Source: Authors.

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, 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 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 will then 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 will 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.

## **Implications, Options, and Interventions**

While political economy analysis can explain why countries have suboptimal 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 3). 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 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.

**Table 3. ‘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></p> <p>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></p> <p>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 RfI 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></p> <p>Political competition based on extensive use of clientelism/patronage</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>Programmatic pluralism</b></p> <p>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.

***Extending time horizons and associated 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 tend to focus discussions on shortsighted actions, carefully structuring multi-stakeholder 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 a reform that improves collective action 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. Therefore 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 between the finance and planning ministries, reducing perceptions that key groups are excluded from 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, governors, and mayors). Therefore, special attention must be paid to those actors in the state who are 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 non-resource 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 and removed 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. Campaign slogans in Peru's resource-rich regions have emphasized the importance of efforts to improve the completion rate of projects on the public agenda.

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 reform. 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 track financing flows to actual contracts and physical works, starting with greater transparency at the project site.<sup>xvii</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 multi-stakeholder 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 seven countries.<sup>xviii</sup> Drawing in government, contractors, and civil society, the initiative has demonstrated that, while the PIM process is complex. A central part of this strategy is to emphasize the prospects for successful demonstration cases (that is, to determine whether 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. Because electricity provision, particularly in politically sensitive urban centers such as Dili, is a clear policy concern, 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. 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.

### ***Earmarking and enclaving***

A final set of options designed to remedy both issues of intertemporal credibility and inclusiveness gaps may be to rely on “parallel” examples for resource earmarking or enclaving of implementation outside standard “post-EITI country systems.”<sup>xix</sup> Especially for large-scale contracts, construction companies may demand significant risk premiums to contract with resource-rich but 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 during the 2008–09 adverse commodity price shock put the country 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.

RfI deals have emerged as a modality of infrastructure investment for both host governments and extractive companies. 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, RfI suggests that their contracts are backed by the resources (rather than the vagaries of

the annual budget) and the interests of the extractive company in maintaining the bargain to extract resources. The time horizons of the extractive deal will typically exceed those of the “front-loaded” infrastructure provision. For companies, the tangible and visible infrastructure contributions may therefore be an important part of the license to operate. In extreme cases of limited intertemporal credibility, however, companies under RfI will not be immune to obsolescing bargains. Claims that these deals did not yield enough value for resources may also be used against them politically. 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 host that 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. Several pieces of the upstream of the natural resource management value chain are amenable to greater transparency and more information sharing. Development partners can also push 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 EITI play an important role for upstream concerns (Rosenblum and Maples 2009), but they must increasingly be focused on assessing tangible asset creation.

## **Conclusions**

This note 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 note 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 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 note also has highlighted 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 the *Rents to Riches* volume suggest that these prospective returns must also be tempered by a reality check. Reforms of public investment systems are complex and tend 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 note 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 note 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 mostly to core country systems, but this note 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 resources rents into sustainable development riches. Gains in this domain prove less ephemeral than pure consumption and 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; for example, 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 policymakers 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.

## References

- Ascher, William. 2009. *Bringing in the Future: Strategies for Farsightedness and Sustainability in Developing Countries*. Chicago and London: University of Chicago Press.
- Barma, Naazneen, Kai Kaiser, Tuan Minh Le, and Lorena Viñuela. 2012. *Rents to Riches? Political Economy of Natural Resource-led Development*. Washington, DC: World Bank.
- Brahmbhatt, Milan, and Otaviano Canuto. 2010. "Natural Resources and Development Strategy after the Crisis." PREM Note (Poverty Reduction and Economic Management—Economic Policy). World Bank, Washington, DC.
- Bueno de Mesquita, Bruce. 2001. "Minimum Winning Coalitions in Politics." *International Encyclopedia of Behavioral and Social Sciences*, v. 3.1.1. Oxford: Elsevier Science.
- Bulte, Erwin, Christopher M. Meissner, Mare Sarr, and Tim Swanson. 2008. From Commodity Boom to Financial and Political Crisis. VOX: <http://www.voxeu.org/index.php?q=node/1712>
- Collier, Paul. 2010. *The Plundered Plant: Why We Must—and How We Can—Manage Nature for Global Prosperity*. Washington, DC: Oxford University Press.
- Collier, Paul, Frederick van der Ploeg, and Anthony J. Venables. 2009. "Managing Resource Revenues in Developing Countries." OxCarre Research Paper 2009-14. University of Oxford, Oxford, UK.
- Corrales, Javier, and Michael Penfold. 2001. *Dragon in the Tropics: Hugo Chavez and the Political Economy of Revolution in Venezuela*. Washington, DC: Brookings Institution.
- CoST (Construction Transparency Initiative). 2010. "Report of the CoST International Advisory Group." CoST International Advisory Group, Washington, DC.
- Dabán, Teresa, and Jean Luc Hélias. 2010. "A Public Financial Management Framework for Resource-Producing Countries." IMF Working Paper 10/72. International Monetary Fund. Washington DC.
- Delavallade, Clara. 2006. "Corruption and Distribution of Public Spending in Developing Countries." *Journal of Economics and Finance* 30 (2): 222–39.
- Devarajan, Shantayanan, Tuan Minh Le, and Gaël Raballand. 2010. "Increasing Public Expenditure Efficiency in Oil-rich Economies: A Proposal." Policy Research Working Paper WPS 5287. World Bank, Washington, DC.
- Foster, Vivien, and Cecilia Briceño-Garmendia, eds. 2010. *Africa's Infrastructure: A Time for Transformation*. Washington, DC: World Bank.
- Foster, Vivien, William Butterfield, Chuan Chen, and Nataliya Pushak. 2008. *Building Bridges: China's Growing Role as Infrastructure Financier for Africa*. Trends and Policy Options (PPIAF). Washington, DC: World Bank.
- Gelb, Alan, and Sina Grassman. 2010. "How Should Oil Exporters Spend Their Rents?" Working Paper 221 (August). Center for Global Development, Washington, DC.
- Hamilton, Kirk, and Eduardo Ley. 2010. "Measuring National Income and Growth in Resource-Rich, Income-Poor Countries." PREMise Note 28. World Bank, Washington, DC.
- Hartwick, John M. 1977. "Intergeneration Equity and the Investing of Rents for Exhaustible Resources." *American Economic Review* 67 (5): 972–74.
- Hasnain, Zahid. 2011. "Incentive Compatible Reforms: The Political Economy of Public Investments in Mongolia." Unpublished manuscript. World Bank, Washington, DC.
- Hogan, William, and Federico Sturzenegger. 2010. *The Natural Resources Trap: Private Investment without Public Commitment*. Cambridge, MA: Massachusetts Institute of Technology.
- Independent Evaluation Group. 2009. "The World Bank Group Support for the Chad-Cameroon Petroleum Development and Pipeline Construction: Program Performance Assessment Report." Independent Evaluation Group, Washington, DC. <http://siteresources.worldbank.org/INTOED/Resources/ChadCamReport.pdf>.
- Kaiser, Kai, and Lorena Viñuela. 2010. "Intergovernmental Fiscal Management in Natural-Resource Rich Settings: A Guide for Policy Practitioners." Unpublished manuscript. World Bank, Washington, DC.
- Keefer, Philip, and Stuti Khemani. 2009. "When Do Legislators Pass on 'Pork'? The Determinants of Legislator Utilization of a Constituency Development Funding in India." Policy Research Working Paper No. 4929. Washington, DC: World Bank.
- Keefer, Philip, and Stephen Knack. 2007. "Boondoggles, Rent-Seeking, and Political Checks and Balances: Public Investment under Unaccountable Governments." *Review of Economics and Statistics* 89 (3): 566–71.
- Keefer, Philip, and Razvan Vlaicu. 2007. "Democracy, Credibility and Clientelism." *Journal of Law, Economics, and Organization* 24 (2): 371–406.
- Ossowski, Rolando, Mauricio Villafuerte, Paulo A. Medas, and Theo Thomas. 2008. *Managing the Oil Revenue Boom: The Role of Fiscal Institutions*. Washington, DC: International Monetary Fund.
- Pritchett, Lant. 2000. "The Tyranny of Concepts: CUDIE (Cumulated, Depreciated, Investment Effort) Is Not Capital." *Journal of Economic Growth* 5 (4): 361–84.
- Rajaram, Anand, Tuan Minh Le, James A. Brumby, and Nataliya Biletska. 2010. "Framework for Reviewing Public

Investment Efficiency.” World Bank Policy Working Paper 5397. World Bank, Washington, DC.

- Rosenblum, Peter, and Susan Maples. 2009. “Contracts Confidential: Ending Secret Deals in the Extractive Industries.” Revenue Watch Institute, New York.
- Sarr, Mare, and Katharina Wick. 2010. “Resources, Conflict and Development Choices: Public Good Provision in Resource-Rich Economies.” *Economics of Governance* 11 (2): 183–205.
- Tanzi, Vito, and Hamid Davoodi. 1997. “Corruption, Public Investment, and Growth.” IMF Working Paper 97/139. International Monetary Fund, Washington, DC.
- Villafuerte, Mauricio, and Pablo Lopez–Murphy. 2010. “Fiscal Policy in Oil Producing Countries During the Recent Oil Price Cycle.” IMF Working Paper 10/28. International Monetary Fund, Washington, DC.
- World Bank. 2009. “Azerbaijan Country Economic Memorandum: A New Silk Road—Export-led Diversification.” Report 44365-AZ. World Bank, Washington, DC.
- . 2011. *The Changing Wealth of Nations: Measuring Sustainable Development for the New Millennium*. Environment and Development Series. Washington, DC: World Bank.

## About the Authors

Kai Kaiser is Senior Economist of the East Asia Poverty Reduction and Economic Management Unit at the World Bank.

Lorena Viñuela is a Consultant at the Public Sector Governance Anchor at the World Bank.

## Notes

This note was written by Kai Kaiser, Senior Economist, World Bank, and Lorena Viñuela, Consultant, World Bank. It is the fourth in a series of four notes on the natural resource paradox based on Naazneen H. Barma, Kai Kaiser, Tuan Minh Le, and Lorena Viñuela, *Rents to Riches? The Political Economy of Natural Resource-Led Development* (Washington DC: World Bank, 2012). This note summarizes key messages from chapter 5 of the volume, which provides additional country-specific examples to support the analysis.

<sup>i</sup> Potential investment flows can represent several points of gross domestic product (GDP), especially when compared with the nonextractive economy. Recent investment levels in Angola accounted for over a third of its GDP. The dictum that resource rent proceeds should be invested is encapsulated by the so-called Hartwick (1977) rule. Hamilton and Ley (2010) suggest that the bulk of resource-rich developing economies perform quite poorly on this measure.

<sup>ii</sup> The channels by which public spending can affect present and future citizens’ welfare are diverse and complex and cannot be covered adequately given the scope of the analysis. Using a dollar of oil proceeds to push a person 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 could ensure that children of a poor family are able to complete their schooling, generating human capital. Transferring rents from the state to households may enable 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).

<sup>iii</sup> The accumulation of financial assets for resource revenue stabilization and savings presents a host of technical, as well as governance and political economy, issues. Accumulation of liquid assets in weak institutional settings with short time horizons may increase the risk of raiding these assets as they increase. Leaders may act with the idea that if they don’t spend (or take) assets now, their successor will. Financial assets may also be subject to significant mismanagement. The recent global financial crisis highlighted the importance of distinguishing between risky but potentially high returns versus “safer” assets.

<sup>iv</sup> Commodity prices have historically been subject to a high degree of price volatility and effectively “random walk” trends, which accentuate the risk of overspending on the basis of overly optimistic assumptions about future price developments (Gelb and Grassman 2010). A random walk simply means that no good model exists for whether prices for key resources will go up or down in the future. While there is frequent mention of commodity “supercycles,” the 2008–09 drop in commodity prices highlighted the various other factors that could affect actual prices for a country’s resources received in next year’s budget.

<sup>v</sup> 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 building 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 *The Changing Wealth of Nations* (2011) “green accounting” framework, 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, and 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. The example of fDRC, for example, suggests that actually having government buildings across the national territory may be an important aspect of investing in the state itself and a sense of national unity.

<sup>vi</sup> Arguably, a domestic physical capital stock may not only yield higher economic and especially social returns than financial savings, especially if this is complementary to “soft” human development capital formation, but may also 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.

<sup>vii</sup> 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. A disciplining device 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.

<sup>viii</sup> 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 (Dabán and Héris 2010; Ossowski et al. 2008; Villafuerte and Lopez-Murphy 2010). The success rate of many of these arrangements has been especially low in institutionally weak settings. Consequently, greater attention needs to be given to finding ways to anchor their actual implementation more effectively within the prevailing political economy context. One very 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, stabilization funds will be built up. Longer term saving 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 whether resource-related fiscal rules should target overall spending and savings aggregates, or instead seek to earmark some level of resource rents for capital expenditures.

<sup>ix</sup> 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. A stark illustration of this was seen in Luanda, Angola's capital and 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.

<sup>x</sup> The World Bank has prepared a PEFA-style framework (Public Financial Management [PFM] Performance Measurement Framework) to assist in this benchmarking for capital spending.

<sup>xi</sup> Heritage and ownership arguments with regard to subsoil assets will typically mean that the extractive industry's local license to operate (and potentially the government's overall political legitimacy) hinges 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.

<sup>xii</sup> Ancillary infrastructure costs in principle would be accounted for in the cost of extraction, hence they would reduce the rental take. However, if governments pay for extractive industry, they are reducing the cost of extraction. Collective infrastructure across a number of extractives may reduce the overall cost of extraction and enhance the rent take, as, for example, various mines use the same trunk lines.

<sup>xiii</sup> While Azerbaijan has made significant strides in physical investment, arguably it has not taken enough measures to provide business environment reforms to promote a more dynamic and diversified private sector (World Bank 2009).

<sup>xiv</sup> 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).

<sup>xv</sup> The significant politicization of Venezuela's national oil company PDVSA has arguably compromised its core mission of maintaining upstream functionality owing to various downstream social mission expectations (Corrales and Penfold 2001).

<sup>xvi</sup> The Democratic Republic of Congo's (DRC) recent US\$ 3 billion-plus deal with the Chinese centered on access to copper deposits was notionally on budget, but otherwise 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 with the courts subsequently ruling against the government.

<sup>xvii</sup> 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.