



NATURAL RESOURCE REVENUE SHARING



SEPTEMBER 2016

 Natural Resource Governance Institute

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LIST OF ACRONYMS AND ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
DRC	Democratic Republic of the Congo
EITI	Extractive Industries Transparency Initiative
GDP	Gross Domestic Product
HIPC	Heavily-Indebted Poor Countries
IDH	Impuesto Directo a los Hidrocarburos; Direct Tax on Hydrocarbons (Bolivia)
KRG	Kurdistan Regional Government (Iraq)
LDF	Local Development Fund (Mongolia)
LGC	Local Government Code (Philippines)
MDA	Mineral Development Act (Malaysia)
PSA	Production Sharing Agreements
NRGI	Natural Resource Governance Institute
RDF	Regional Development Fund (Kyrgyzstan)
SOE	State-Owned Enterprise
UAE	United Arab Emirates
UN	United Nations
UNDP	United Nations Development Programme
VAT	Value Added Tax

ACKNOWLEDGEMENTS

This report is a joint initiative of the Natural Resource Governance Institute (NRGI) and the United Nations Development Programme (UNDP). Within UNDP, it is the result of collaboration of different bodies, including the UNDP Extractive Industries for Sustainable Development team, Bangkok Regional Hub and the Oslo Governance Centre. We are grateful for the financial support of the governments of Sweden, through the Swedish Environmental Protection Agency (EPA) and Swedish International Development Cooperation Agency (Sida) project “Environmental Governance for Sustainable Natural Resource Management”, and Norway in the development of this product.

The authors are grateful to the main case study researchers, María Lasa Aresti (NRGI), Ke Chen (NYU), Harpreet Dhillon (NYU), Inna Gelfgar (NYU), Nazgul Kulova (NRGI), Paul Shortell (NRGI) and Luna Yang (NYU). We also wish to thank David Glasgow at the New York University (NYU) School of Law for coordinating the student research.

Many inside NRGI and UNDP provided inputs, comments, guidance and support at various stages of this publication. We wish to thank Lee Bailey (NRGI), James Chacko (UNDP), Gillian Chalmers (UNDP), Patrick Duong (UNDP), Dauda Garuba (NRGI), Degol Hailu (UNDP), Patrick Heller (NRGI), Sean Kane (UN), Nadine Abou Khaled (NRGI), Eric Li (NRGI), Dorjdari Namkhajantsan (NRGI), Fernando Patzy (NRGI), Matteo Pellegrini (NRGI), Mohammed Rafeeq (NRGI), Endre Stiansen (UNDP), Claudia Leyva Viale (NRGI) and Yuan Zheng (UNDP).

The authors are deeply thankful to the external reviewers who examined the body of the report and the case studies, Andrés Mejía Acosta (King’s College London), Gustavo Ávila (Grupo Propuesta Ciudadana), Gaye Christofferson (Johns Hopkins University), Bev Dahlby (University of Calgary), Cécica Hernández (Fundación Jubileo), Ahmed Mousa Jiyad (consultant), Philippe Le Billon (University of British Columbia), Armando Mendoza (Oxfam), Sri Murniati (IDEAS), Ganchimeg Perenlei (World Bank), Chil Soriano (consultant), Vanessa Ushie (Oxfam), Raúl Velásquez (Fundación Jubileo) and Tricia Yeoh (IDEAS).

FOREWORD

Increasingly, countries are creating special regimes for allocating non-renewable natural resource revenues to subnational governments. Government motivations for establishing these systems vary from country to country. In some, revenue sharing systems have been used as a way to address local claims over resource ownership or demands for more benefits from resource extraction. In others, they are viewed as compensation for environmental degradation and other negative effects of extraction. In still others, the distribution of resource revenues has been employed to help defuse violent resource-related conflicts.

The proliferation of these subnational systems in recent years—and their considerable impacts on the quality of public spending by resource-rich subnational governments—calls for an in-depth examination of their design and implementation. This is especially the case given that many of the dozens of country cases presented in this report feature situations where natural resource revenue sharing led to wasteful public spending, exacerbation of regional inequalities, or even escalation of violence.

Yet, to date, there has only been sporadic research on this topic, often focused on a specific country or region. This Natural Resource

Governance Institute (NRGI) and United Nations Development Programme (UNDP) policy paper represents a comprehensive global survey of natural resource revenue sharing regimes. One of our aims is to summarize these global experiences and make them accessible to policymakers, academics and public finance, resource governance and conflict experts.

Further, this paper provides policymakers with key recommendations to guide the establishment of technically and economically sound natural resource revenue sharing systems (or to reform existing ones), while recognizing that revenue sharing systems are the result of political processes. It is our hope that the case studies, lessons and principles contained in this report will help steer policymakers and negotiators through complex decision making processes, and contribute to the establishment of revenue sharing regimes that help achieve sustainable development and national accord.



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EXECUTIVE SUMMARY

In nearly every country, subnational governments receive public funds through a combination of direct tax collection and transfers from the national government. In most, non-renewable natural resource revenues are apportioned no differently than other revenues. However, in more than 30 countries—most of them resource-rich—distribution of non-renewable natural resource revenues is governed by a set of rules that are distinct from those governing distribution of general revenues.

In a majority of these countries, revenues from the oil, gas and mineral sectors are collected by the national government and transferred back to their area of origin or adjacent areas. Angola, Bolivia, Brazil, Cameroon, Canada (some regions), Chad, China, Colombia, the Democratic Republic of the Congo (DRC), Ecuador, Ethiopia, Ghana, Guinea, India, Indonesia, Iraq, Italy, Kyrgyzstan, Madagascar, Malaysia, Mexico, Mongolia, Niger, Nigeria, Papua New Guinea, Peru, the Philippines, South Sudan, Uganda, the United States (some regions) and Venezuela each have enacted a ‘derivation-based’ intergovernmental transfer system for all or part of their mineral, oil or gas revenues.

Some resource-rich subnational governments are extremely dependent on these transfers. In Nigeria and Peru, for instance, more than 80 percent of the budgets of some subnational governments depend on resource revenue transfers from the central government.

A few countries also transfer some of their natural resource revenues to subnational governments using an ‘indicator-based’ formula. In these countries, the national government distributes natural resource revenues to subnational authorities based on a set of objective indicators—such as population, revenue generation, poverty level or geographic characteristics (e.g. remoteness)—irrespective of where the natural resources are extracted. Ecuador, Mongolia, Mexico and Uganda are examples of countries which use indicator-based resource revenue sharing formulas.

In another set of countries—including Argentina, Australia, Canada, China, India, the United Arab Emirates and the United States—subnational governments collect substantial revenues directly from oil, gas or mining companies. Direct tax collection from the natural resource sector can constitute a significant proportion of local budgets. For example, from 2012 to 2014 more than



RESOURCE REVENUE SHARING CAN RAISE STANDARDS OF LIVING AND REDUCE POVERTY IN PRODUCING REGIONS. IT CAN ALSO CONTRIBUTE TO LASTING PEACE IN REGIONS SUFFERING FROM RESOURCE-RELATED VIOLENCE.

25 percent of all fiscal revenues collected in Alberta, Canada came from direct petroleum taxation. In the United States, severance taxes from the oil sector in 2014 constituted 72 percent of total fiscal revenues in Alaska, 54 percent in North Dakota, and 39 percent in Wyoming.

These resource revenue sharing systems can raise standards of living and reduce poverty in resource-rich regions, provide additional financing for governments in poor or underserved regions, and compensate affected areas for the social and environmental impacts of exploitation and depletion of natural resources. For example, after years of recession following the collapse of the fisheries, economic prosperity was restored to Newfoundland, Canada in the mid-2000s as a result of an accord that guaranteed the province a large share of the revenues generated from offshore oil. The US state of California levies a volume-based fee on oil and natural gas; this fee is remitted to the Department of Conservation as an environmental compensation payment.

Resource revenue sharing can also help address local groups' special claims on natural resources and contribute to lasting peace in regions suffering from resource-related violence. For example, local 'rights' to a share of resource revenues have been codified in constitutions or legislation in Argentina, Colombia, Malaysia and South Sudan. In Indonesia, special resource revenue sharing agreements with the regions of Aceh and West Papua helped end years of violent conflict.

At the same time, revenue sharing systems can generate perverse incentives for subnational governments trying to transform natural resource wealth into well-being. Since non-renewable natural resource revenues are notoriously volatile—responding sharply and unpredictably to fluctuations in commodity prices—and exhaustible, large transfers or collection of taxes linked to natural resource extraction can exacerbate boom-bust cycles in mineral producing regions, with disastrous consequences for economic growth and

development. Studies carried out in Brazil, Colombia and Peru indicated that neither economic growth, nor housing, education or health outcomes improved following the collection of large oil or mineral revenue windfalls by subnational governments. In Brazil, access to piped water, trash collection and connection to sewage networks actually deteriorated as more oil revenues flowed into municipal coffers. Corruption and mismanagement within subnational governments as well as local Dutch disease—which refers to absorption of revenue windfalls through higher prices rather than more projects and services—have been suggested as explanations of these counterintuitive results.

Poorly designed revenue sharing regimes can also exacerbate regional inequalities. For instance, the revenue sharing regime in Brazil disproportionately benefits oil-rich Rio de Janeiro, the nation's third wealthiest state in terms of gross domestic product (GDP) per capita.

What is more, poor design of a revenue sharing regime has exacerbated, rather than mitigated, violent conflict in some countries. In Peru, for example, the resource revenue sharing system contributed to violent protests. In an effort to secure additional fiscal transfers from the central government, some local leaders in mining regions aggressively attempted to gain control over municipalities where mines were located.

These difficult experiences call for a better understanding of natural resource revenue sharing practices and policies so we can determine which are most likely to succeed. This comprehensive review of international experiences by the Natural Resource Governance Institute (NRGI) and the United Nations Development Programme (UNDP) draws out a number of trends in legal regimes and revenue sharing formulas, and explores which systems have been most effective. Based on this review, we provide **10 recommendations** for designing and implementing efficient, fair and stable resource revenue sharing systems.

10 RECOMMENDATIONS FOR EFFICIENT, FAIR AND STABLE RESOURCE REVENUE SHARING

1 INSIST ON CLEAR OBJECTIVES.

Resource revenue sharing systems are often established without agreement on *why* they are being created. As a result, their design often fails to meet any specific objective, be it compensation for extractive activities, sharing benefits with producing regions, or prevention or mitigation of conflicts. It is also difficult to build consensus on a formula when the objectives have not been clarified. A regime need not have a single objective, but the objectives ought to be made clear in policy or legislation.

3 KEEP EXPENDITURE RESPONSIBILITIES IN MIND.

In general, decentralization of fiscal revenues should be largely aligned with the costs of public service delivery given subnational expenditure assignments. Alignment prevents unsustainable public sector wage increases, local inflation and wasteful infrastructure spending when revenues greatly exceed the cost of local expenditure responsibilities. It also helps avoid under-provision of essential public services when revenues are inadequate for meeting local spending requirements. This is equally true of decentralization of revenues derived from natural resources.

2 ALIGN THE REVENUE SHARING SYSTEM WITH ITS OBJECTIVES.

One reason that resource revenue sharing systems often do not meet their objectives is that the rules governing distribution of resource revenues do not reflect those objectives. This can be addressed by aligning tax collection assignments or the intergovernmental transfer formula with the goals of the system. For instance, a system intended to benefit affected subnational jurisdictions must target those jurisdictions by properly defining them. Similarly, if the objective is to reduce poverty, introducing an explicit poverty indicator into the formula would help achieve that goal.

4 CHOOSE APPROPRIATE REVENUE STREAMS AND FISCAL TOOLS.

A government earns revenues from extractive industries through a variety of fiscal tools, including royalties, corporate income taxes and property taxes. In assigning or transferring natural resource revenues to subnational authorities, governments should consider how easy it is to calculate, collect and verify particular revenue streams. Royalties, for instance, are generally simpler to calculate, collect and verify than corporate income taxes. In addition, political considerations must also play a role in determining which revenue streams to share and choosing between intergovernmental transfers or direct tax collection of resource revenues by subnational authorities. For instance, if national level oversight of the extractive sector is weak or extractive sector data is not published by the national government, subnational governments may not trust the national government to transfer the amount they are entitled to and might seek to collect resource taxes themselves.

5 SMOOTH FISCAL EXPENDITURES AND MAKE SPENDING PREDICTABLE.

Large and unpredictable transfers of natural resource revenues can destabilize a local economy. Cycles of boom and bust also harm economic growth, as governments are likely to spend on ostentatious projects during booms and not plan appropriately for downturns. It is therefore incumbent upon central governments to either provide a predictable and smooth source of financing to local governments, or provide them with the tools to cope with resource revenue volatility. This can mean smoothing intergovernmental transfers to local governments or allowing them to address resource revenue volatility autonomously through debt management or saving a portion of their revenues in a sovereign wealth fund.

6 MAKE ANY REVENUE TRANSFER FORMULA SIMPLE AND ENFORCEABLE.

Any revenue transfer formula must be simple enough for local government authorities or civil society groups to verify compliance, even if they lack the tools to carry out sophisticated economic calculations. The ability to verify subnational entitlements and actual sums transferred builds trust between different levels of government and between governments and their citizens. Simplicity also helps prevent corruption since transfers are more easily verified under a simple system. In practice, this means setting a maximum of two objectives for any resource revenue transfer regime and including just a few variables in any resource revenue sharing formula.

7 BUILD A DEGREE OF FLEXIBILITY INTO THE SYSTEM.

Once decisions on resource revenue sharing have been agreed, it may be difficult to change them. However, political circumstances and economic conditions change and, in turn, it should also be possible to make small adjustments to any revenue sharing formula. Therefore, some countries have built-in provisions to regularly reconsider resource revenue sharing arrangements.

8 ACHIEVE NATIONAL CONSENSUS ON THE FORMULA.

Building consensus on a revenue sharing formula is extremely important for the stability of the formula and for meeting the regime's objectives, especially in politically contested and ethnically diverse environments. If key stakeholders disagree on the formula and it is implemented nonetheless, the regime might be viewed as illegitimate and not addressing local concerns, leading to even greater conflict.

9 CODIFY THE FORMULA IN LAW.

Any revenue sharing formula should be codified in legislation or regulations. Codification improves predictability and forces authorities to discuss the objectives of any revenue sharing formula. It also encourages public debate on the advantages and disadvantages of certain proposals.

10 MAKE REVENUE SHARING TRANSPARENT AND FORMALIZE INDEPENDENT OVERSIGHT.

Subnational governments can only know whether they are receiving their legal share of resource revenues if they can verify the value of revenues collected from mines and petroleum fields in their jurisdictions. Where these conditions do not exist, the resulting confusion undermines national government efforts to use resource revenue sharing to promote trust between levels of government or, in some cases, secure a lasting peace. Project-by-project and stream-by-stream data on revenues must be made publicly available. Independent audits covering revenue transfers and subnational tax collection should be carried out annually and the results made public.



1. INTRODUCTION

While oil, gas and mineral extraction can bring countries significant benefits—mainly by transforming the revenues they generate into social services and infrastructure—local communities in the vicinity of extraction sites are likely to suffer considerable disruption from these activities. Such disruptions can range from displacement and loss of livelihood, to environmental damage wrought by mines or oil and gas fields, rising costs of living associated with increased economic activity and an influx of outside labour. What is more, given that oil, gas and mining activities generally take place in rural areas, resource-rich regions are often relatively poor to start with. These disruptions can therefore exacerbate rural poverty.

Many resource-rich regions also suffer from violent conflict. At least 21 civil wars over the last 50 years have been financed in large part by oil, gas or mineral revenues.^{1,2} Furthermore, smaller, more localized conflicts are common around mine sites, especially in low- and middle-income countries.^{3,4} People have been displaced and lives lost in many of these cases, including the Niger Delta in Nigeria, Kachin State in Myanmar, Mindanao in the Philippines, and Katanga in the DRC.

In response to these challenges, many countries share revenues from non-renewable resource extraction between national and subnational authorities in ways that are distinct from how they share fiscal revenues collected from other sectors. Natural resource revenue sharing can be seen as a way to directly benefit or compensate people in areas impacted by extraction while helping to mitigate conflict.⁵ While by no means a solution to violent conflict in itself—poorly designed regimes can actually exacerbate conflict—in many countries resource revenue sharing has helped address local claims for greater benefits from extraction, raised standards of living and reduced poverty in resource-rich regions, provided additional financing for governments in poor or underserved regions, or contributed to lasting peace in conflict-ridden countries.⁶

For example, after years of recession following the collapse of the fisheries, economic prosperity was restored to Newfoundland, Canada in the mid-2000s. This was in large part a result of an accord that guaranteed the province a large share of the revenues generated from offshore oil. In the United Arab Emirates, intergovernmental transfers between oil-producing emirates such as Abu Dhabi and Dubai—which collect the majority of resource revenues—and the central government and non-producing emirates have granted all UAE citizens a comfortable living from the nation's natural resource wealth. In Nigeria, the 1999 Constitution, which assigned producing states 13 percent of the petroleum revenues derived from them, and the 2002 Supreme Court case, which reinforced their entitlements, have contributed to greater peace and security in the Niger Delta.

Resource revenue sharing has gained considerable attention over the last two decades as revenue sharing formulas have been modified and new subnational financing mechanisms have been created. Globally, there is a trend toward greater revenue sharing as part of increased fiscal decentralization and in response to demands from resource-rich regions for a share of the benefits from extraction. Recent constitutional debates in Iraq, Libya, Myanmar and Yemen have focused in part on resource revenue sharing as a means to respond to local demands for increased benefits from oil or mineral production. In other countries, such as Nigeria, resource revenue sharing arrangements are being renegotiated in response to local dissatisfaction with existing benefits. In still others, such as Uganda, resource revenue sharing is just being introduced in an effort to serve affected communities and prevent conflict before it begins. On the other hand, some countries, such as Colombia and the Russian Federation, have modified their revenue sharing formulas over the last decade in order to recentralize resource revenues.

However, the unique characteristics of oil, gas and minerals pose a number of challenges for local governments dependent on resource revenue sharing to finance government expenditures. Non-renewable resources are finite and revenues generated from them are notoriously volatile, responding sharply and unpredictably to fluctuations in commodity prices. They are also exhaustible. These characteristics imply that any large intergovernmental transfer linked to natural resource revenues or dependence on tax collection from the sector could exacerbate the boom-bust cycle in a producing region, with disastrous consequences for growth and development.

Perhaps of even greater concern, in some countries poor design of a revenue sharing regime has intensified violent conflict. In Iraq, for example, the lack of a revenue sharing formula—beyond the minimum one-dollar fee per locally-produced barrel of oil, termed 'petrodollars'—has meant that groups can claim a larger share of revenue if they control oil fields. This has led to tensions between the Kurdistan



AT LEAST 21 CIVIL WARS OVER THE LAST 50 YEARS HAVE BEEN FINANCED IN LARGE PART BY OIL, GAS AND MINERAL REVENUES.

Regional Government (KRG) and the Iraqi central government, and may have contributed to KRG capturing the oil-rich Kirkuk Governorate in 2014. In Peru, the resource revenue sharing system contributed to violent protests, as local leaders attempted to gain jurisdiction over mine sites in order to extract additional transfers from the central government.

Furthermore, poorly designed revenue sharing regimes can expand regional inequalities and indirectly harm service provision in poorer, non-resource rich regions. In the United States, for instance, resource-rich and historically wealthy states such as Alaska, California and Wyoming collect and retain a large percentage of royalties and taxes from mineral and petroleum production. This leaves less revenue for lower-income resource-poor states to provide social services and infrastructure than would be the case if resource revenues were more evenly distributed. In theory, this uneven distribution may indirectly harm education, public health, and public safety provision as these sectors are under subnational jurisdiction in the United States. Similarly, the revenue sharing regime in Brazil disproportionately benefits oil-rich Rio de Janeiro state, the nation's third wealthiest in terms of gross domestic product (GDP) per capita.

These experiences call for a better understanding of national resource revenue sharing practices and what policies are more or less likely to improve the quality of public spending, compensate regions negatively affected by extractive activities, reduce regional inequalities, address local claims in resource-rich regions, and help mitigate conflict.

This report explores what resource revenue sharing is, how resource revenue sharing is practiced, and what lessons can be learned from these experiences. It also outlines major considerations for policymakers establishing

or reforming revenue sharing regimes. As a guide for developing a resource revenues sharing regime, the report's intended audience is policymakers either considering or reforming revenue sharing systems, principally in fiscally decentralized or decentralizing countries. The contents may also be useful for researchers focusing on natural resource governance, peace-building and fiscal decentralization.

The report is organized as follows: Section 2 defines natural resource revenue sharing and places the topic within broader contexts of decentralization and benefit sharing with residents in affected areas. Section 3 describes the rationales for distributing natural resource revenues differently than non-resource revenues. Section 4 surveys global experiences, highlighting principles of resource revenue sharing—derivation- and indicator-based distribution as well as vertical and horizontal distribution—and the tools used to apply these principles, namely direct tax collection by subnational governments and intergovernmental transfers. This section also discusses the legality of these systems as well as 'clawback provisions' in resource-rich jurisdictions. Section 5 highlights major considerations for designing a resource revenue sharing system, including how to determine the vertical and horizontal distribution formula, which resources and revenue streams to share, how certain revenue management challenges can be addressed, and how to ensure transparency and oversight of the system. Section 6 reviews the elements needed to negotiate a resource revenue sharing formula and build consensus. Finally, Section 7 provides ten recommendations for policymakers.

Our analysis is based on a number of country case studies undertaken by NRGi and UNDP, the Resource Governance Index, a desk study of existing literature, and our experiences providing technical assistance and trainings on this issue in a number of countries.



2. DEFINITIONS AND APPROACH

There is no straightforward definition of natural resource revenue sharing, which is usually treated as a subset of natural resource revenue management or fiscal decentralization, terms which shall be explained later. For the purposes of this paper we define natural resource revenue sharing as: *an arrangement through which government revenue from extractive activities is shared with subnational authorities.*

An ‘authority’ is defined as an entity legally entitled to receive or spend government revenues. Usually, authorities are subnational governments such as state governments, regional governments, municipalities or district councils. In some countries, such as Ghana or the Philippines, resource revenues are also shared with kingdoms or indigenous groups since these authorities are recognized by the national government as having governmental or quasi-governmental responsibilities. Following this definition, this paper does not cover fiscal mechanisms directly transferring revenues to individual citizens or organizations not formally or legally recognized by the national government, such as some armed groups.

There are two main channels through which revenues can be shared. First, subnational authorities can be granted rights to **collect and retain taxes**. In most unitary countries, property taxes and surface fees are often the main resource-related taxes collected directly by local governments. The more significant sources of revenue—profits taxes such as corporate income taxes, royalties, withholding taxes, value added taxes (VAT) and in-kind production—are generally collected by national governments. That said, in some fiscally decentralized states such as Australia, Canada,

India and the United Arab Emirates, some of the larger sources of revenue are collected directly by subnational authorities.

In a few countries, such as Indonesia, local governments are granted the right to purchase equity shares in extractive companies operating in their territory. Returns on equity are different from taxation in that, in most cases, equity must be purchased and may therefore not generate a net profit. Furthermore, unlike taxes, equity comes with a downside risk; the local government may lose money if production comes to a halt or commodity prices fall. However, for the purposes of this paper we categorize returns on equity as tax revenue.

With regard to the second channel, resource revenues collected by the national government can be separated from other types of fiscal revenues—for instance, general taxes such as personal income taxes or taxes from the manufacturing sector—and shared with subnational authorities through special resource-based **intergovernmental transfer systems**. Almost every country has an intergovernmental transfer system to finance subnational governments. However, fewer have natural resource-specific intergovernmental transfers that treat natural resource revenues different



FIGURE 1. Key Elements of Fiscal Decentralization and Natural Resource Revenue Sharing

FISCAL DECENTRALIZATION	NATURAL RESOURCE REVENUE SHARING
EXPENDITURE ASSIGNMENT	
What are the fiscal responsibilities of subnational governments?	What restrictions exist on how resource revenues can be spent?
REVENUE COLLECTION	
Which taxes or other revenue streams can subnational governments collect themselves?	Which taxes or other revenue streams from the oil, gas and mineral sectors can subnational governments collect themselves?
INTERGOVERNMENTAL TRANSFERS	
Which revenue streams or what share of revenues are allocated from the national government to subnational governments?	Which revenue streams or what share of natural resource revenues are allocated to subnational governments?

from other revenues. Examples from more than 30 countries, including Bolivia, Canada (some regions), DRC, Indonesia, Iraq, Mexico, Mongolia and Nigeria, will be discussed later in the paper.

Natural resource revenue sharing arrangements cannot be viewed in isolation from the underlying fiscal decentralization arrangements. Political decentralization refers to the transfer of some decision-making powers to locally elected officials. Administrative decentralization refers to the transfer of some responsibilities to officials responsible for administering a given region within a country, whether hired by or accountable to a national or local government, such as responsibility over monitoring compliance with environmental regulations. However, fiscal decentralization refers to transfer of expenditure responsibilities, revenue raising powers (e.g. taxation), and the transfer of money from national to subnational authorities, usually to enable subnational governments to meet their responsibilities. Resource revenue sharing can be thought of as a subset of fiscal decentralization which is specific to natural resource revenues (Figure 1).

Fiscal decentralization does not imply that political decision-making is placed in the hands of locally representative bodies or that officials physically located in the community have discretion to distribute funds as they choose. It also does not imply local ownership or control of natural resources, an issue that, while important in many peace-building contexts, is beyond the scope of this paper. It only implies that money is placed in the hands of those authorities responsible for a specific geographic area.⁷ Therefore, resource revenue sharing simply denotes the placement of oil, gas and mineral revenues into the hands of authorities responsible for administering a given area. Those authorities could be accountable to locally elected politicians, as in the cases of Indonesia or Peru. However, they could be accountable to semi-autonomous local governments which in turn are accountable to the central government, as in the case of Myanmar, or they could be directly accountable to the central government, as in the case of Kazakhstan.

Natural resource revenue sharing should also be viewed as one type of natural resource benefit sharing with subnational or affected communities. See Box 1 for the other types of benefit sharing.

BOX 1: BENEFIT SHARING IN THE EXTRACTIVE INDUSTRIES

There are many ways that local residents can benefit from the presence of extractive activities beyond direct taxation or intergovernmental transfers to subnational governments. Essentially, there are five other types of 'benefit sharing'.

First, national governments can prioritize natural resource producing regions when delivering social services and infrastructure.

Second, companies can make mandatory in-kind payments in the form of infrastructure or health services. For example, in Kyrgyzstan, Liberia, Nigeria, Sierra Leone and Yemen, national mining laws require extractive projects to spend a certain percentage of their revenue on local development.¹ In Kyrgyzstan, companies are required to submit the amount they commit toward social development of the district where they operate when applying for a mining licence. Each district then negotiates its 'social package' with the company, the amount and the type of social contribution needed directly, either in-kind or in cash. In the Liberian case, company payments to local projects are tax deductible, which means companies can reduce the amount of tax they have to pay governments. This represents a shift of benefits from tax collection to company expenditure on local

projects. In other cases, extractive projects can be required to provide additional infrastructure such as communication technologies, power stations, water systems, roads, rails and ports, or share access to this infrastructure with local citizens and businesses. In Mozambique, Vale is required to share its railroad from the Moatize coal mine to the Nacala port with freight and passenger cars.

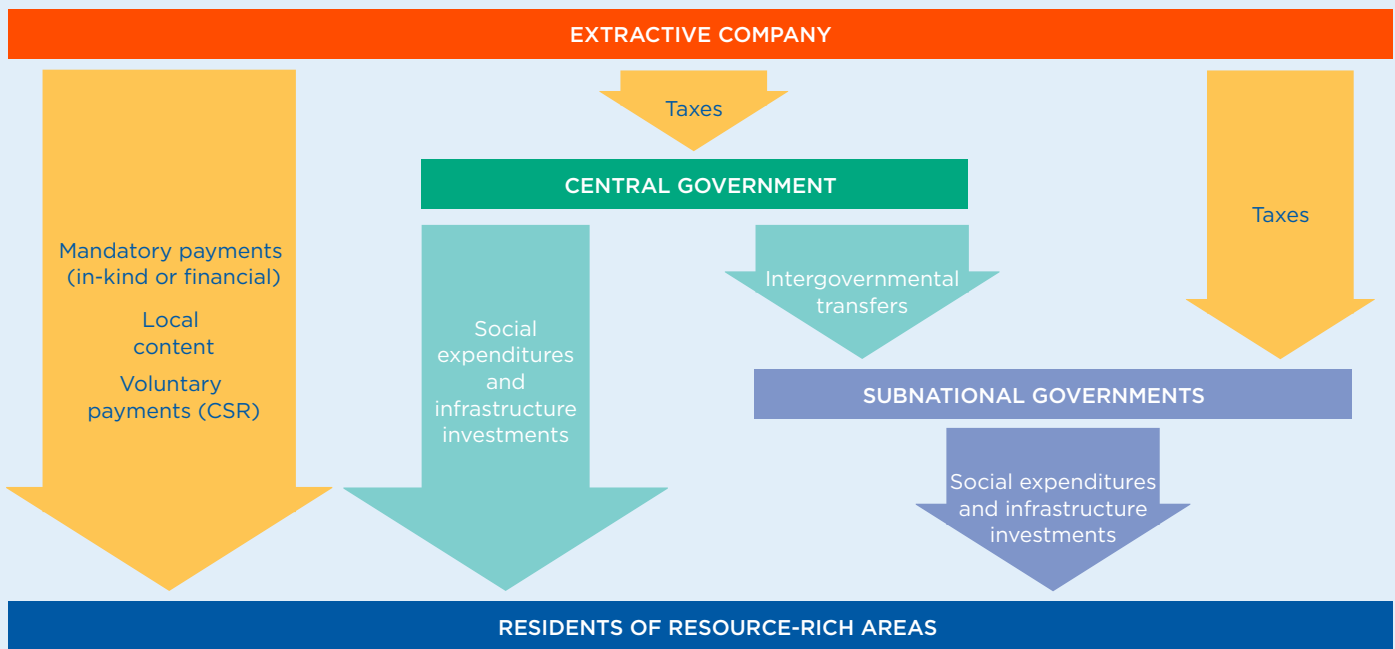
Third, companies can make voluntary payments to communities in the form of infrastructure, services or cash, usually as part of their Corporate Social Responsibility (CSR) package. For example, the Yanacocha Mine in Peru controlled by Newmont Mining—which has a history of environmental contamination and conflict—makes voluntary payments to affected communities near the mine site through its community relations department and to all districts in the Cajamarca region through La Asociación Los Andes de Cajamarca (ALAC), a corporate foundation. Financed projects have included water and sanitation systems in affected communities, school supplies and new technologies and feeding systems for small dairy farmers. These projects are often not sustained once the mine or oil field closes,

except in cases where long-term capacity is built and communities are involved in designing the programmes.²

Fourth, for certain commodities such as gas or coal, instead of collecting revenue from extraction, local citizens can directly benefit from access to the commodity itself. In the Omnogovi region in Mongolia, a few coal mines offer free or subsidized coal to local residents over peak winter months.

Fifth, the presence of extractive companies can generate non-fiscal benefits such as employment, local business development through local content procurement policies, technology transfer from foreign to local companies, and skills development opportunities. In some countries, large-scale extractive companies have negotiated arrangements to allow artisanal and small-scale (ASM) miners from the local community to mine in delineated areas of their concessions or support 'buying schemes' to purchase minerals from artisanal miners, often at a higher price than what would be offered by middle men operating in the ASM sector. None of these other forms of benefit sharing will be covered in this paper.

FIGURE B1: Types of Resource Benefits Flowing to Local Residents



1. Elizabeth Wall and Remi Pelon, *Sharing Mining Benefits in Developing Countries: The Experience with Foundations, Trusts and Funds*, Extractive Industries Development Series #21 (World Bank, 2011).
2. Melissa Whellams, *The Role of CSR in Development: A Case Study Involving the Mining Industry in South America*, Graduate Thesis (Saint Mary's University, Halifax, Canada, 2011).



3. WHY SHARE NATURAL RESOURCE REVENUES?

Governments establish resource revenue sharing arrangements to address several, sometimes competing, objectives. These are different from the objectives that can justify more general subnational tax assignments or general intergovernmental transfer programmes covering all fiscal revenues, such as improving public service delivery at the local level, fiscal risk-sharing, or the equalization of opportunities across a country.

Four typical objectives, often unstated, which appear to drive the establishment of natural resource revenue sharing arrangements are: (i) recognizing local claims on natural resources; (ii) compensating for the negative impacts of extraction; (iii) promoting economic development in resource-rich regions; and (iv) mitigating or preventing violent conflict.

Recognizing local claims on natural resources. The claims of affected communities over natural resources or the benefits accruing from natural resource extraction often originate from a sense of ownership over these resources, especially if the same ethnic group occupied the land before the contemporary state was established. Such claims sometimes exist regardless of whether a country's legislation legally recognizes community ownership of subsoil resources or the land above it. In the event of discovery of a major natural resource deposit, these claims often take on greater importance in response to the potential financial or economic benefits accruing to that group.

Establishment of natural resource sharing arrangements can signal the recognition of such claims. Furthermore, where claims of local ownership are particularly strong, resource revenue sharing arrangements can be used to compensate residents in producing regions for the depletion of 'their' assets. In several countries, local 'rights' to a share of resource revenues have been codified in constitutions or legislation (e.g. Argentina, Colombia, Malaysia). Where these claims have been neglected, companies or governments have sometimes been violently targeted by local populations. For example, in 1988 landholders surrounding the Panguna copper mine in Bougainville, Papua New Guinea demanded, among other things, the transfer of Bougainville Copper Ltd to local control. Following a breakdown in negotiations and subsequent violence between the landholders and the government, production was suspended.⁸

Compensating for the negative impacts of extraction. Oil, gas and mining activities can cause damage to the environment or public health, for instance as a result of gas flaring or acid mine drainage. Indeed, pollution

from extraction can contaminate not just the immediate vicinity of the mine site or oil field, but also rivers downstream from a site and the entire watershed over hundreds of square kilometres. New production can also lead to the loss of livelihoods, especially for farmers and others who are displaced or relocated in favour of extractive activities. Furthermore, the presence of oil or mining companies in a region may raise housing rents and costs of everyday non-tradeable services such as taxis and restaurants. Finally, extractive industries may attract migrants to the region, causing added congestion in public utilities (e.g. clogging transportation networks such as roads and railroads or putting strain on water delivery systems). For example, mining in the Antofagasta region in Chile has attracted a large inflow of workers from other regions resulting in negative effects on income and employment for the region.⁹

Local governments can use resource revenue sharing as compensation or to fund efforts to mitigate the social and environmental losses associated with extraction, not just at the production site but across all affected areas. Ecuador, for instance, levies US\$1 per barrel of oil produced in the Amazon region, the implicit assumption being that environmental damage is directly linked to the barrels of oil that a company produces.¹⁰ The American state of California levies a fixed rate on each barrel of oil or 10,000 cubic feet of natural gas produced which is remitted to the Department of Conservation's Division of Oil, Gas and Geothermal Resources. This rate is established each June based on the Department's needs.¹¹

Promoting economic development in resource-rich regions. Resource revenue sharing has been used to encourage economic development in producing regions, particularly where they are poorer than other parts of the country. For instance, Kazakhstan transfers a disproportionate share of resource revenues to Atyrau and Mangistau, two of the poorest and most resource-rich *oblasts*.¹² In Indonesia, resource revenue transfers from the central government provide mineral and oil-rich regencies—which are often in poorer, rural areas—with the additional resources they need to finance healthcare, education and local

infrastructure. Short-term economic performance has been shown to improve significantly in resource-rich Indonesian regencies once resource revenues begin to flow.¹³

In other countries, resource revenues are used as an additional opportunity to support poor regions with greater development needs, regardless of whether they are rich in natural resources. For example, Mongolia allocates 5 percent of mining royalties and 30 percent of petroleum royalties according to a formula which includes remoteness and economic development indicators. Bolivia transfers one percent of the national gross value of petroleum sales to Beni and Pando, as they were originally the two poorest departments in the country.

On the other hand, there is evidence that resource revenue sharing may have no impact or even a negative impact on regional economic performance in some contexts. Studies carried out in Brazil, Colombia and Peru have shown that housing, education and health outcomes, as well as economic growth, did not improve following the collection of large oil or mineral revenue windfalls by subnational governments. Diversion of funds away from local budgets, corruption within subnational governments, and local Dutch disease—the absorption of revenue windfalls through higher prices rather than more projects and services—have been suggested as explanations for these counterintuitive results.¹⁴

Mitigating or preventing violent conflict.

Since oil, gas and mineral exploitation areas tend to be geographically concentrated, a single violent conflict can cause harm to local residents and bring production to a halt, jeopardizing revenues for the entire country. Local leaders or residents can therefore extract concessions in the form of resource revenues in exchange for peace and security around the field or mine. Furthermore, resource revenues can fuel conflict, as in the case of Myanmar where the military and some of the ‘armed ethnic groups’ are financed by either jade mine concessions or informal taxation of jade on its route to the Chinese border.¹⁵

Resource revenue sharing can help build peace by encouraging dialogue between national authorities and local leaders, and generating a ‘peace dividend’ for local populations.¹⁶ Thus national governments will sometimes transfer a share of resource revenues to local governments in resource-rich regions to preserve or create harmony between the central government and the regions, as has been the case in Bolivia, southern Iraq, Kazakhstan, Mongolia, Nigeria and Papua New Guinea. In Indonesia, for instance, grievances stemming from resettlement of villages and perceived lack of wealth sharing from oil and gas production in the impoverished region of Aceh fuelled a pre-existing conflict for self-determination.¹⁷ Following between 10,000 and 30,000 deaths over the 30 years of conflict, and years of peace negotiations, a Memorandum of Understanding (MoU) to end the violence was signed in 2005. The MoU stipulated, among other things, that the Aceh province would receive 70 percent of the revenues from oil and gas production for eight years. Aceh is to receive up to 50 percent of these revenues thereafter.^{18, 19}

On the other hand, resource revenue sharing does not always prevent conflict and may exacerbate it. Poorly designed revenue sharing systems can incentivize groups to seize control of extractive sites to access a higher share of revenues. These revenues can then be used to finance violent actions. For example, between 2005 and 2008, the increase in global mineral prices and the consequent increase in fiscal transfers to mining regions incentivized local leaders in Peru to instigate violent protests in order to extract additional transfers from the central government and gain jurisdiction over mine sites.²⁰ Similarly, in Iraq a lack of clarity or consensus over the country’s revenue sharing system led to tensions between the Kurdistan Regional Government (KRG) and the Iraqi central government, and may have contributed to the KRG’s capturing the oil-rich Kirkuk Governorate in 2014. See Box 2 for more on the links between natural resource revenues and conflict.

BOX 2: CONFLICT AND THE EXTRACTIVE INDUSTRIES

In their 2004 publication *Greed and Grievance in Civil War*, Paul Collier and Anke Hoeffler discussed the correlation between natural resource wealth and civil war, showing that primary commodity exports substantially increase the risk of conflict. They explained this finding by claiming that natural resource endowments generated more opportunities for extortion, making rebellion feasible or even attractive.¹

While the Collier-Hoeffler paper contributed to the debate on the links between natural resources and conflict, other researchers have attempted to nuance their arguments. Philippe Le Billon, for example, categorizes national extractive industry-related conflicts into three broad types: resource curse conflicts, resource conflicts, and conflict resources. Resource curse conflicts occur when non-renewable natural resources undermine the governance system and make governments vulnerable to economic and political crises, leading indirectly to conflict. Resource conflicts are characterized by local leaders' seeking control over natural resources for personal gain, generating violent conflict over these resources. Where there are conflict resources, the opportunity for conflict is enhanced as belligerents use natural resources to finance pre-existing wars. These types of conflicts are escalated and prolonged by the presence of natural resources.²

Drawing on research by Philippe Le Billon and Michael Ross, as well as our own research, we identify at least 21 resource-fuelled conflicts resulting in more than 1,000 deaths since World War II. These include Algeria (oil), Angola/Cabinda (oil and diamonds), Cambodia (gems), Congo-Brazzaville (oil),

Colombia (oil), DRC (diamonds, gold), Equatorial Guinea (oil), India/Assam-Chhattisgarh-Jharkand (oil, coal), Indonesia/Aceh-Timor-Leste-West Papua (oil, copper, gold), Iraq (oil), Liberia (diamonds), Libya (oil), Morocco/Western Sahara (phosphates), Myanmar (jade, tin, other minerals), Nigeria/Biafra (oil), Papua New Guinea/Bougainville (copper), Philippines/Mindanao (gold, copper), Russia/Chechnya (oil), Sierra Leone (diamonds), Sudan/South Sudan (oil) and Yemen (oil).^{3,4}

The different types of conflicts identified by Le Billon are not mutually exclusive. However, resolutions or conflict mitigation measures need to reflect the character of the conflict. The solution to a 'resource curse' conflict requires governance reforms and capacity building, stronger regulation of the sector and renegotiation of 'odious' contracts. In contrast, the solution to a 'resource conflict' should focus on resolving resource ownership debates (potentially using tools such as revenue sharing as concrete expressions of ownership), peacekeeping missions to preempt human rights abuses and conflict escalation, and promoting inclusive forms of control and access to the resources. Finally, the solution to a 'conflict resource' conflict requires that the opportunity for profiteering from the resources should be limited through investigations, sanctions, long-term certification schemes or military action.⁵

More recently, research has been carried out into the causes of community-level conflicts with companies. According to a study by Rachel Davis and Daniel Franks, pollution and access to or competition over environmental

resources were identified as the most proximate issues which can trigger conflict, followed by the absence of consent by community stakeholders and health and safety issues. The most common underlying issues were the distribution of project benefits, changes to local customs or culture, and the quality of ongoing consultation and communication processes.⁶

Regardless of the causes of resource-based conflicts, in practice they manifest themselves in terms of demands for a degree of local resource ownership, more local resource management, greater distribution of benefits, or addressing specific grievances, in particular those related to human rights abuses or environmental damage. In any given context, one or several of these four issues may be present.⁷

Despite global attention to the relationship between natural resources and conflict, most peace agreements do not address natural resources in a meaningful way. Of the more than 800 peace agreements signed since 1945, fewer than 15 percent address terms related to 'natural resources'. In most of the 10 accords that do address the management of natural resources implementation has been weak at best. In fact, among peace agreements that address natural resource management, only the El Salvador, Papua New Guinea-Bougainville and Indonesia-Aceh agreements were fully implemented, and the Bougainville agreement does not go into much detail on natural resources.⁸

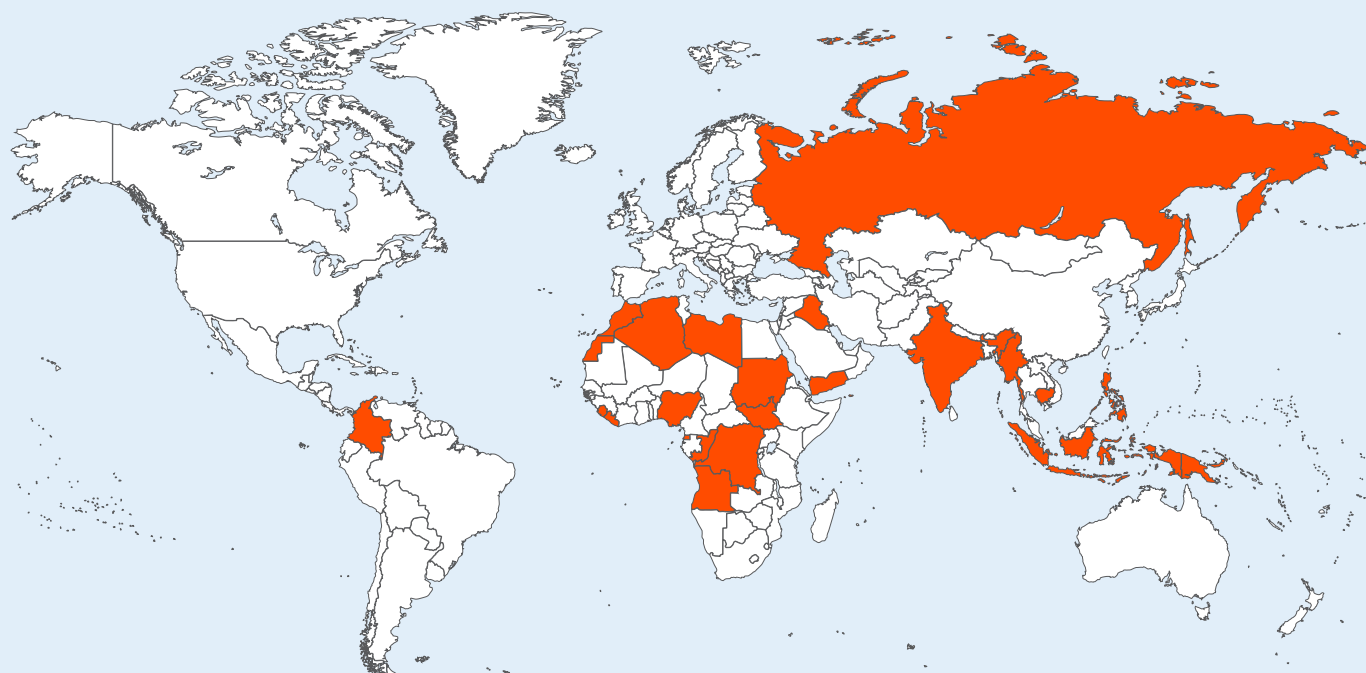
While resource revenue wealth sharing has encouraged rebel groups or secessionist movements in Brazil, Canada, DRC, Indonesia, Iraq (Kurdistan), Nigeria, Papua

New Guinea, the Philippines and Sudan to engage in technocratic discussions over fiscal transfers rather than resort exclusively to violence, it has been generally unsuccessful at ensuring post-conflict peace. In some cases, this has been due to a lack of

stakeholder consensus around local resource management and 'fair' distribution of benefits, along with the previously mentioned failure to implement peace agreements. Earlier episodes in Nepal, Nigeria, Sierra Leone and Sudan testify to these failures.^{9, 10}

However, there are also cases where natural resources were misdiagnosed as a root cause of conflict. In these cases, resource revenue sharing may not have been a suitable policy choice to achieve peace.¹¹

FIGURE B2. Resource-Fuelled Conflicts with More Than 1,000 Deaths Since WWII



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4. GLOBAL EXPERIENCES WITH RESOURCE REVENUE SHARING

We can group countries into three categories according to their resource revenue sharing systems: (1) countries that **treat natural resource revenues in the same way as non-resource revenues** for distribution purposes; (2) countries that treat natural resource revenues differently from non-resource revenues and distribute them based on **derivation**; and (3) countries that treat natural resource revenues differently from non-resource revenues and distribute them based on **indicators**.²¹

In the first group are countries like Algeria, Chile, Myanmar and Norway that pool all fiscal revenues centrally and distribute them to subnational governments as part of a general intergovernmental transfer system. In other words, the intergovernmental transfer system does not treat natural resource revenues differently from non-resource revenues and subnational authorities do not generally collect significant resource-specific taxes. This group, which represents most of the world's countries, is illustrated as Group 1 in Figure 3.

The second group consists of countries which separate out some natural resource revenues and make allocations from this pool to producing regions using a **derivation**-based system, whereby a portion of natural resource revenues is transferred back to its area of origin (from where the natural resource is located or derived). Systems where subnational jurisdictions collect substantial resource-specific taxes directly—such as those in Argentina, Canada, India, the United Arab Emirates and the United States—are considered to be largely derivation-based since resource taxes go back to subnational governments in whose territories these natural resources are produced.

The majority of natural resource-specific intergovernmental transfer systems, especially in emerging economies, are derivation-based. Angola, Bolivia, Brazil, Cameroon, Canada (some regions), Chad, China, Colombia, the DRC, Ecuador, Ethiopia, Ghana, Guinea, India, Indonesia, Iraq, Italy, Kyrgyzstan, Madagascar, Mexico, Mongolia, Niger, Nigeria, Papua New Guinea, Peru, the Philippines, South Sudan, Uganda, the United States (some regions) and Venezuela each have a derivation-based intergovernmental transfer system for all or part of their mineral, oil or gas revenues. Malaysia has a similar system whereby a fixed 5 percent royalty is supposed to be transferred to producing states according to an agreement with Petronas, the national oil company. This group is illustrated as Group 2 in Figure 3.

The third group consists of countries that have created a unique intergovernmental transfer system for some natural resource revenues and allocate them based on a set of **indicators**, irrespective of where the natural resources are extracted. Indicator-based systems use a variety of criteria to determine subnational allocation of resource revenues. These can include population, revenue generation, poverty level

FIGURE 2. Countries with Natural Resource Revenue Sharing (Confirmed Cases)

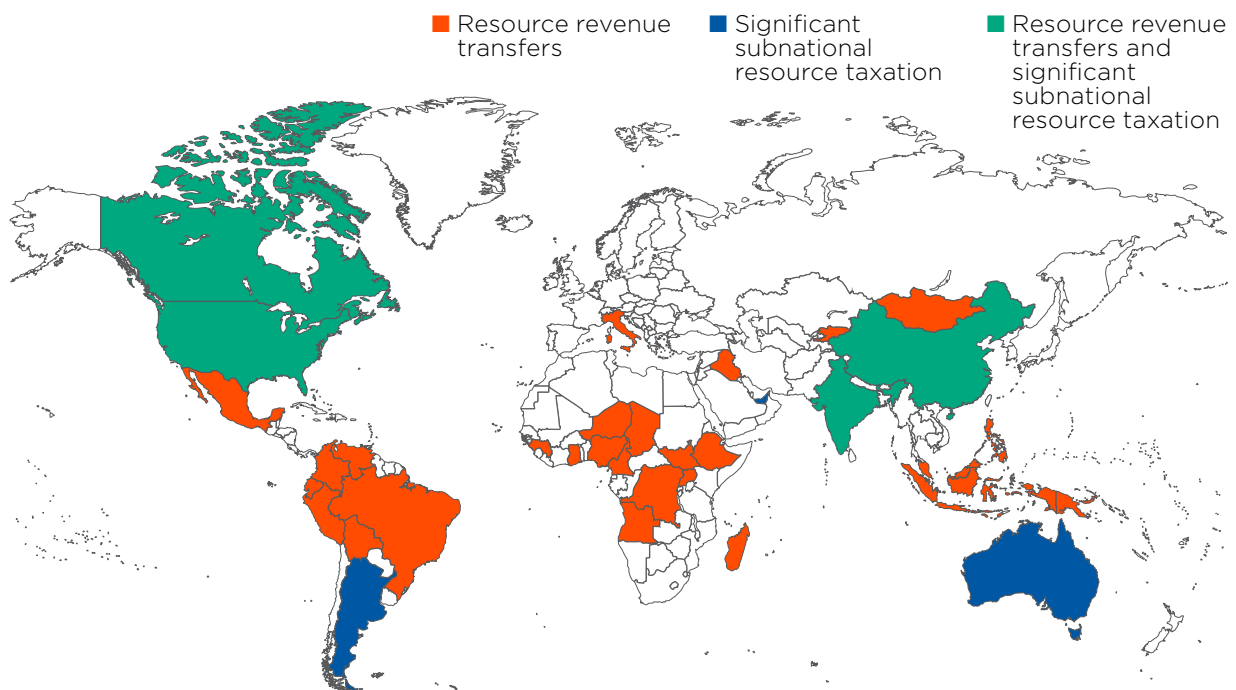
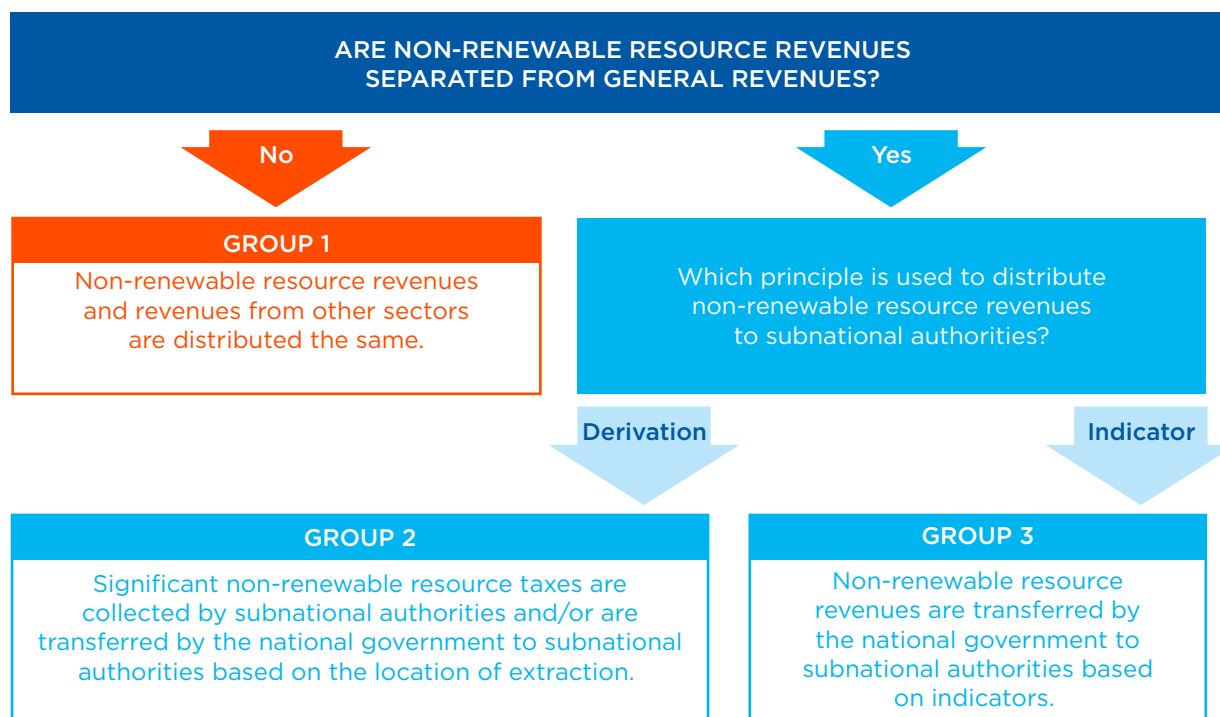


FIGURE 3. Natural Resource Revenue Sharing Policy Options Decision Tree



or geographic characteristics (e.g., remoteness), as in Ecuador, Mongolia, Mexico and Uganda. Indicator-based horizontal distribution treats producing and non-producing regions the same. This group is illustrated as Group 3 in Figure 3.

Each and every resource revenue sharing system results in a distinctive vertical distribution—the share of revenues allocated between different levels of government—and horizontal distribution—the share of revenues allocated to different jurisdictions within a given level of government.

Vertical distribution. International experiences with vertical distribution of resource revenues vary on a spectrum from highly centralized to highly decentralized. In practice, the degree of vertical distribution is determined by the tax collection assignments provided in law (which level of government is permitted to collect which taxes) and the size of transfers the national government makes to subnational authorities. At one extreme, many national governments collect the vast majority of resource revenues and

manage subnational authorities directly, such as in Afghanistan, Algeria, Myanmar and Saudi Arabia. In these countries, there is a minimal degree of resource revenue sharing; subnational governments generally only collect some minor land taxes and fees.

There are also cases of highly centralized systems with a small degree of resource revenue sharing. In most of these cases they usually involve relatively small amounts of money. In Ghana, for instance, most resource revenues are retained by the central government. However, subnational governments (not including traditional authorities) collect mineral surface fees—which are usually relatively small—and are entitled to fiscal transfers from the central government totalling 4.95 percent of mining royalties extracted in their jurisdictions.

In fiscally decentralized unitary states such as Bolivia, Indonesia, Peru and the Philippines, most resource revenues are collected by the national government, but there are significant transfers of resource revenues to subnational

governments. In the Philippines, for example, 40 percent of all mining revenues collected by the national government are supposed to be transferred to subnational entities.

In most federal states, such as Argentina, Australia, Canada, India and the United States, taxation is shared between the national and subnational governments and there is some degree of revenue transfer between regions. By and large, general taxes such as corporate income taxes and withholding taxes are paid to the national government while mineral-specific taxes such as royalties are paid to the state or provincial government, though details vary.

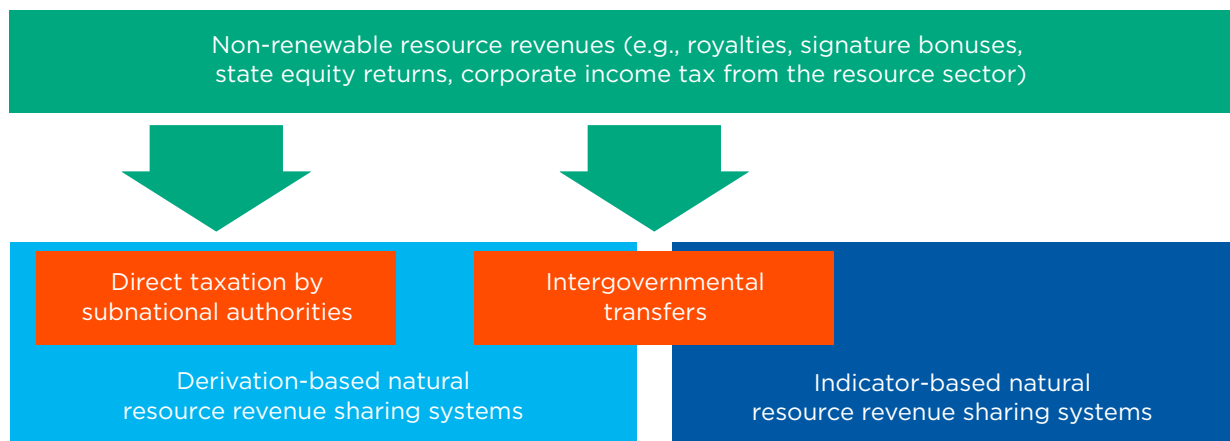
While federal states are more likely to decentralize resource revenues than unitary states, there are some exceptions. Iraq, for instance, is officially a federal state. Yet, in practice resource revenue management is fairly centralized with the national government collecting nearly all resource revenues and redistributing them to subnational authorities. Similarly, the Russian Federation has full control over natural resource revenues except in the case of three production sharing agreements (PSAs) which require companies to make direct transfers to the *oblasts* of Sakhalin and Nenets. Until 2002, 60 percent of the oil revenues collected by the national government were transferred directly to subnational authorities where production was taking place. Since then, revenues have slowly been centralized. Today,

only property taxes and 60 percent of rental fees are collected by the *oblasts*; all other fiscal transfers are made at the discretion of the federal government.²² In Brazil, another federal state, all major sources of revenue from the mineral sector are collected by the central government and redistributed based on a formula. In contrast, in China, a unitary state, mineral royalties are generally collected by the provinces even though royalty rates may be set by the central government.

The United Arab Emirates is perhaps the only country which is completely decentralized with respect to resource revenue collection. Each emirate collects petroleum taxes and royalties directly from companies and shares a portion of these revenues with the central government.

Horizontal distribution. Distribution of resource revenues between governments at the same level is determined by tax collection assignments, legal formulas which specify how the national government transfers resource revenues between authorities, and the presence of extractive activities in a given region. As Figure 4 illustrates, tax collection by subnational governments is by definition derivation-based because oil, gas and mining companies pay the subnational governments in whose territories the natural resources are produced. Intergovernmental transfers, on the other hand, can be derivation-based or indicator-based.

FIGURE 4. Methods of Non-Renewable Natural Resource Revenue Sharing



NATURAL RESOURCE TAX COLLECTION BY SUBNATIONAL AUTHORITY

Resource tax collection assignments differ greatly from country to country. Experiences vary with respect to how countries assign the power to set and/or collect various taxes from natural resource extracting companies to national or subnational governments. It is important to note that the right to collect taxes does not necessarily imply the right to set tax rates. Table 1 summarizes mineral tax collection by level of government in selected countries (all levels of subnational government are grouped together for simplicity's sake). Table 2 summarizes petroleum tax collection by level of government in selected countries.

Direct tax collection from extractive companies can constitute a significant proportion of local budgets. For example, from 2012 to 2014, more than 25 percent of all fiscal revenues collected in Alberta, Canada came from direct petroleum taxation. In the United States, severance taxes from the oil sector—usually calculated in a similar way to royalties—constituted 72.4 percent of the total fiscal revenues in Alaska in 2014, 53.8 percent in North Dakota, and 39 percent in Wyoming.²³

DERIVATION-BASED INTERGOVERNMENTAL TRANSFERS OF NATURAL RESOURCE REVENUES

In more than 30 countries, natural resource revenues are collected by national governments, and 'producing regions' receive a share of the revenues generated in their jurisdictions. Derivation-based allocations can be based on production volume or value of production from a given territory. Table 3 provides several examples of *de jure* derivation-based intergovernmental transfer formulas.

Many resource-rich subnational governments are dependent on these transfers. In 2014, oil, gas and mining revenue transfers constituted 27 percent of fiscal revenues in the oil-rich Indonesian regency of Bojonegoro. Revenue projections in this regency suggest that once oil production peaks in 2017, more than 50 percent of fiscal revenues will come from extractive-related transfers. In Nigeria and Peru, more than

80 percent of some subnational governments' budgets depend on resource revenue transfers from central governments.

In these countries, it is not uncommon for adjacent or non-producing regions to also receive a share of natural resource revenues. This is because these regions are sometimes negatively affected by nearby extraction, for instance, by way of greater truck traffic, migrant labour or environmental contamination. Regions adjacent to producing regions are also sometimes allocated a portion of resource revenues to minimize any resentment that their neighbours are benefiting disproportionately. For instance, in Indonesia non-producing regencies in the producing province share 6.2 percent of onshore oil revenues. In Brazil and Colombia non-producing regions also receive a share of oil and gas revenues based not on physical location but on transportation routes; oil and gas royalties are allocated not only to producing municipalities but also municipalities through which oil and gas is transported.²⁴

INDICATOR-BASED INTERGOVERNMENTAL TRANSFERS OF NATURAL RESOURCE REVENUES

Fewer countries have indicator-based natural resource revenue sharing systems. Under these systems, natural resource revenues are allocated to subnational governments on the basis of measurable indicators such as population, poverty rates or regional output (e.g. gross regional product), irrespective of where the natural resources are extracted. Bolivia, Ecuador, Mexico, Mongolia and Uganda each use indicator-based formulas or percentages to allocate some natural resource revenues to subnational governments.

Indicator-based systems can, in theory, be effective at targeting resource revenues to those who need them most (e.g. those in poorer regions, regions with less access to education, regions suffering from environmental damage, or regions with less revenue generating capacity). They can also help reduce regional inequalities and may be better at doing so than derivation-based formulas.

For example, Mexico allocates its petroleum revenue according to a formula which consists of population and revenue generation, as well as a third variable, weighted less than the others, which benefits states with low populations and high revenue generation.^{25, 26} Ecuador collects a dollar per barrel produced in the Amazon region in the *Fondo de Ecodesarrollo* and distributes this amount between Amazonian municipalities, provincial councils and parish councils. Horizontal distribution is determined by indicators. For instance, of the 58 percent of *Fondo de Ecodesarrollo* revenues designated for Amazonian municipalities, 40 percent is divided equally among all municipalities and 60 percent is distributed according to population.²⁷ Bolivia also transfers one percent of the national gross value of petroleum sales to Beni and Pando, as they were the two poorest departments in the country when the system was established.

MIXED SYSTEMS

In practice, many countries have mixed systems where intergovernmental transfers are based on both indicators and place of origin. Nigeria, for instance, allocates no less than 13 percent of oil revenues to states according to each state's level of production. The remaining 87 percent of oil revenues is then pooled with other fiscal revenues. Of this new general pool, about 47 percent is allocated to states and municipalities according to a formula which includes population, social development and revenue generation effort indicators. The remaining 53 percent is allocated to the central government. The system of oil revenue sharing is therefore a mixture of a general intergovernmental transfer system, which is indicator-based, and a derivation-based system.

Uganda's 2015 Public Finance Management Act includes a provision that six percent of petroleum royalties will be "shared among the local governments located within the petroleum exploration and production areas". Half of this amount will be allocated between local governments based on the level of production or area affected, defined by where production takes place or where oil is uploaded onto any transport platform. The remaining half will be apportioned on the basis of "population size,

geographic area and terrain". An additional one percent royalty will be allocated to a "gazetted cultural or traditional institution". The system, therefore, has both derivation-based and indicator-based elements.

Mongolia also has a mixed system. Five percent of mining royalties and 30 percent of petroleum royalties are allocated according to a number of indicators. However, an additional 30 percent of mining royalties go directly to *aimags* (provinces) where mineral production is located and 50 percent of licence fees will go directly to the mining *aimags'* local development funds. The Mongolian system is therefore a mixture of a special indicator-based transfer system for natural resource revenues and a derivation-based system (see Box 3 for further details).

LEGAL VS. AD HOC SYSTEMS

Both the derivation-based and indicator-based systems described above are usually defined on the basis of a legal formula governing allocation of resource revenues. In rare instances, revenue allocation mechanisms are referenced in constitutions (e.g. Brazil, Canada, Iraq, Nigeria, South Sudan, United Arab Emirates, Venezuela). In even rarer cases, the actual formula is detailed in the constitution (e.g. Bolivia, Nigeria, South Sudan) (see Box 5 on revenue sharing in constitutions). However, in most cases, resource revenue sharing formulas are codified in legislation, regulation or executive decree.

That said, resource revenue allocations in some countries are made on an *ad hoc* basis, meaning they are not determined by a legally recognized formula. These allocations may be inconsistent year-to-year and are often the product of political whims or the relative power of different governments within a country at a specific moment in time.

Kazakhstan's disproportionately large per capita annual allocations to the oil-rich and conflict-affected regions of Atyrau and Mangistau are an example of an *ad hoc* revenue sharing system. There, the fiscal arrangement between the national and subnational authorities is a product of a political agreement which set a precedent,

TABLE 1. Mineral Tax Collection by Level of Government in Selected Countries

COUNTRY	GOVERNMENT STRUCTURE	CORPORATE INCOME TAX		ROYALTIES		PROPERTY/ LAND TAXES	
		N	S	N	S	N	S
Argentina	Federal	X			X		X
Australia	Federal	X		X ^a	X	X ^a	X
Brazil	Federal	X		X		X	
Canada	Federal	X	X	X ^a	X	X ^a	X
Chile	Unitary	X				X	
China	Unitary	X			X		X
Democratic Republic of the Congo (DRC)	Unitary	X		X			X
Ghana	Unitary	X		X			X
India	Federal	X			X		X
Indonesia	Regionalized unitary	X		X		X	X
Kazakhstan	Unitary	X		X			X
Kyrgyzstan	Unitary	X		X	X ^b		X
Malaysia	Federal	X	X		X		X
Mexico	Federal	X		X		X	
Mongolia	Unitary	X		X			X
Myanmar	Unitary	X		X		X	X
Peru	Unitary	X		X			X
Philippines	Regionalized unitary	X	X	X	X ^c		X
Russia	Federal	X	X	X			X
South Africa	Unitary	X		X			X
Tanzania	Regionalized unitary	X		X			X
United Arab Emirates	Federal		X		X		X
United Kingdom	Regionalized unitary	X					
United States	Federal	X	X	X ^a	X		X

Sources: National legislation; PriceWaterhouse Cooper country mining tax profiles (2015).

Notes: N = National government; S = Subnational government (state, provincial, regional or municipal)

a. Only applicable in federally-administered territories.

b. Local governments at the *aiyl aimak* level collect 'payments for development and maintenance of local infrastructure' which are essentially royalties.

c. Royalties only assessed and collected by indigenous groups and some local government units.

TABLE 2. Petroleum Tax Collection by Level of Government in Selected Countries

COUNTRY	GOVERNMENT STRUCTURE	CORPORATE INCOME TAX		ROYALTIES		PROPERTY/ LAND TAXES	
		N	S	N	S	N	S
Australia	Federal	X		X ^a	X		X
Azerbaijan	Unitary	X		X		X	
Bolivia	Unitary	X		X		X	
Brazil	Federal	X		X			X
Canada	Federal	X	X	X ^a	X		X
China	Unitary	X		X	X		X
Ghana	Unitary	X		X		X	
India	Federal	X		X ^b	X		X
Indonesia	Regionalized unitary	X		X		X ^c	
Kazakhstan	Unitary	X		X			X
Kyrgyz Republic	Unitary	X		X			X
Malaysia	Federal	X		X		X	
Mongolia	Unitary	X		X	X		X
Myanmar	Unitary	X		X			X
Nigeria	Federal	X		X			
Norway	Unitary	X		X			
Philippines	Regionalized unitary	X					
South Africa	Unitary	X		X			X
Tanzania	Regionalized unitary	X		X			X
Timor-Leste	Unitary	X		X			
Trinidad and Tobago	Unitary	X		X		X	
United Arab Emirates	Federal		X		X		X
United Kingdom	Regionalized unitary	X					
United States	Federal	X	X	X ^a	X		X

Sources: Deloitte Oil and Gas Taxation profiles (2013); Deloitte Taxation and Investment profiles (2015); EITI Reports (most recent); Fidinest AG (2005) Taxation in the United Arab Emirates; Kunze, Mitch and William E. Morgan (2005) "Taxation of Oil and Gas in the United States 1970-1997" in Natural Resources Journal, Vol. 45, Issue 1; national legislation; PriceWaterhouse Cooper tax summaries (2016).

Notes: N = National government; S = Subnational government (state, provincial, regional or municipal)

a. Only applicable in federally-administered territories.

b. Only offshore.

c. Though legally national jurisdiction, subnational governments sometimes collect land taxes.

TABLE 3. *De Jure* Derivation-based Intergovernmental Transfer Formulas in Selected Countries

COUNTRY	RESOURCE	REVENUE STREAM	CENTRAL GOVERNMENT	PRODUCING REGIONAL/ PROVINCIAL/ STATE GOVERNMENTS		MUNICIPAL/ DISTRICT GOVERNMENTS		PRIVATE (E.G. LAND-OWNERS; TRADITIONAL INSTITUTIONS)
				PRODUCING	NON-PRODUCING	PRODUCING	NON-PRODUCING	
Brazil	On-shore oil	Royalties	15%	20%	25%	10%	30% ^a	
	On and off-shore oil	Special participation (some fields)	42%	34%	9.5%	5%	9.5%	
Democratic Republic of the Congo (DRC)	Minerals	Royalties	60%	25%		15%		
Ghana	Minerals	Royalties	91%			4.95%		4.05%
Indonesia	Oil	All	84.5%	3.1%		6.2%	6.2%	
	Gas	All	69.5%	6.1%		12.2%	12.2%	
	Minerals	Royalties	20%	16%		32%	32%	
Philippines	Minerals	All	60%	8%		18% municipality; 14% barangay		
Uganda	Petroleum	Royalties	93%			6%		1%

Sources: National legislation or mining code; Augustina, Cut Dian et al. (2012) "Political economy of natural resource revenue sharing in Indonesia," Asia Research Centre Working Paper 55; Morgandi, Matteo (2008) "Extractive Industries Revenues Distribution at the Sub-National Level," Revenue Watch Institute; Viale Leyva, Claudia (2015) "Distribución de la renta de las industrias extractivas a los gobiernos subnacionales en América Latina: Análisis comparativo y de tendencias" Lima: INTE-PUCO.

Note: Some listed countries also have other types of intergovernmental transfer systems in addition to the derivation-based intergovernmental transfer system.

a. 25% allocated according to general intergovernmental transfer formula; 5% allocated to municipalities affected by oil or gas transport.

rather than a law. The United Arab Emirates, in contrast, is the sole example of an upward revenue sharing arrangement. However, in this case too fiscal transfers from the oil-producing emirates to the centre are made on an *ad hoc* basis.²⁸

Formula-based allocations are clearly superior to *ad hoc* allocations because they result in more stable and predictable financing, which fosters good subnational budget planning. However, legal formulas do not always ensure that local governments receive their entitlements. The DRC Mining Code, for instance, states that producing provinces should retain 40 percent of the royalties derived from minerals extracted from their territory. However, compliance with the rule is weak and a lack of information on fiscal transfers from either central or provincial government authorities prevents verification.

CLAWBACK PROVISIONS

In several places, such as Bolivia, Peru and the Canadian territories, ‘clawback provisions’ or the general intergovernmental transfer system equalize revenue flows between regions, cancelling out or moderating the effect of a derivation-based system.²⁹ In Peru, transfers from the *Canon Minero* and mineral royalties disproportionately benefit mineral-producing

regions. In an attempt to address this inequality, the central government tries to equalize payments by allocating higher general transfers to non-producing local and regional governments. Local governments of the regions of Amazonas, Huánuco, and San Martín, which receive few mineral revenue transfers, receive significantly greater intergovernmental transfers per capita from the non-resource based pool of funds. Similarly, the 10 regional governments whose intergovernmental transfers were above the national average receive relatively smaller royalty and *Canon Minero* payments.³⁰

In Canada, the Northwest Territories are allowed to retain the lesser of either 50 percent of mineral, oil, gas and water-related revenues, or five percent of an amount called the Gross Expenditure Base, calculated at between C\$70–100 million per year over the coming decade. Of this amount, 25 percent is passed onto some aboriginal governments. However, under the Territorial Financing Formula, the formula that determines the annual unconditional transfer from the Government of Canada to the Northwest Territories, for each dollar the territory raises itself in taxes, approximately 70 cents are removed from the federal transfer. In other words, even if resource taxes rose significantly, much of the revenue would be clawed back.³¹



BOX 3: RESOURCE REVENUE SHARING IN MONGOLIA

Mongolia is a unitary state with a limited degree of fiscal and political decentralization. For administrative purposes it is divided into 21 aimags (provinces) and 334 soums (districts).

Most government revenues from the mineral and oil sectors are centralized. While the central government collects all the major taxes from the extractive sector, including mineral royalties and corporate income taxes, local governments collect smaller taxes and fees such as immovable property taxes, land use fees, vehicle taxes, water use fees and royalties on common minerals (gravel and sand). Mineral licences are issued by the central government; however, aimags and soums are consulted during the licencing process.

Since 2013, some mining-related revenues have been distributed to local governments through Local Development Funds (LDFs). Currently, 10 percent of domestic value added tax (VAT) payments, 5 percent of mining royalties, 30 percent of petroleum royalties, and local government budget surpluses are distributed to local governments. These funds are pooled into the General Local Development Fund and then redistributed to LDFs controlled by aimags and the capital city according to a formula. The formula gives equal weight to the following indicators:

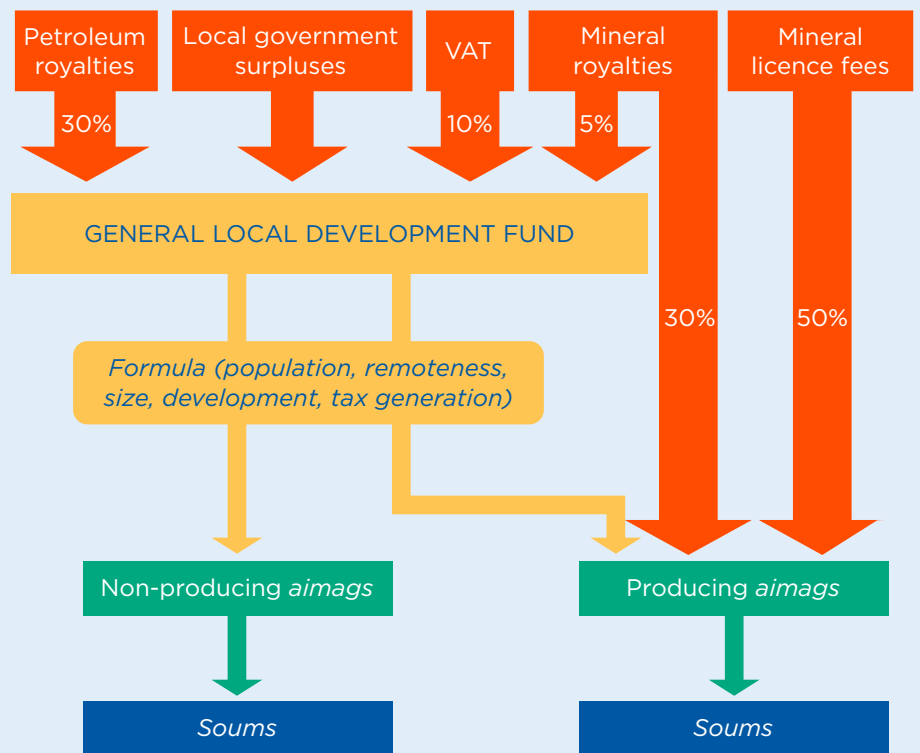
- 1) Local Development Index (LDI)¹
- 2) Population
- 3) Geographical characteristics—population density, remoteness and size
- 4) Tax generating capacity

Aimags and the capital city then redistribute at least 60 percent of the fund to the lower level soums

FIGURE B3.1: Map of Mongolia



FIGURE B3.2: Mongolia’s Resource Revenue Sharing System



BOX 3: RESOURCE REVENUE SHARING IN MONGOLIA, CONTINUED

or horoo (capital city subdivisions) on the basis of a similar formula but with fewer indicators.

Between 2013 and 2015, most of the funds were allocated on the basis of these indicators, although there was a derivation-related provision requiring that mineral-producing aimags and soums should receive 10 percent more per capita than non-mineral-producing aimags and soums.

Due to the recent decline in mining revenues, LDF revenues almost halved from 2014 to 2015. This decline was a significant source of complaint from mining regions. In response, parliament amended the budget law, allocating an additional 30 percent of mineral royalties (excluding royalties from 'strategic', or large mining projects) directly to mining aimags, of which one third is reallocated to mineral-producing soums. Moreover, 50 percent of licence fees will go directly to the mining aimag's local development fund, and 50 percent of that is sent to mineral-producing

TABLE B3. Share of Different Sources of Revenues in General Local Development Fund (Percentages)

REVENUE TYPES	2013	2014	2015
Mining royalties	11.8	11.0	14.9
Local VAT	75.3	69.7	75.9
Aimag surpluses	12.9	30.3	4.1
Petroleum royalties	—	—	5.05
Donor grants	—	—	—
Total	100.0	100.0	100.0
Total (in millions Mongolian tögrögs)	187.5	195.4	106.0

soums. These amendments came into effect at the beginning of 2016.² Mongolia's resource revenue sharing system therefore combines both indicator-based and derivation-based allocations.

Until 2015, natural resource revenues did not represent a large proportion of allocations to LDFs. In 2013, 11.8 percent of LDFs were

financed by mineral and petroleum royalties; in 2014, mineral and petroleum royalties represented 11 percent; and in 2015, mineral and petroleum royalties represented 19 percent (see table below). Given the substantial changes in 2016, it is likely that mineral revenues will represent a larger source of financing for LDFs in the future.

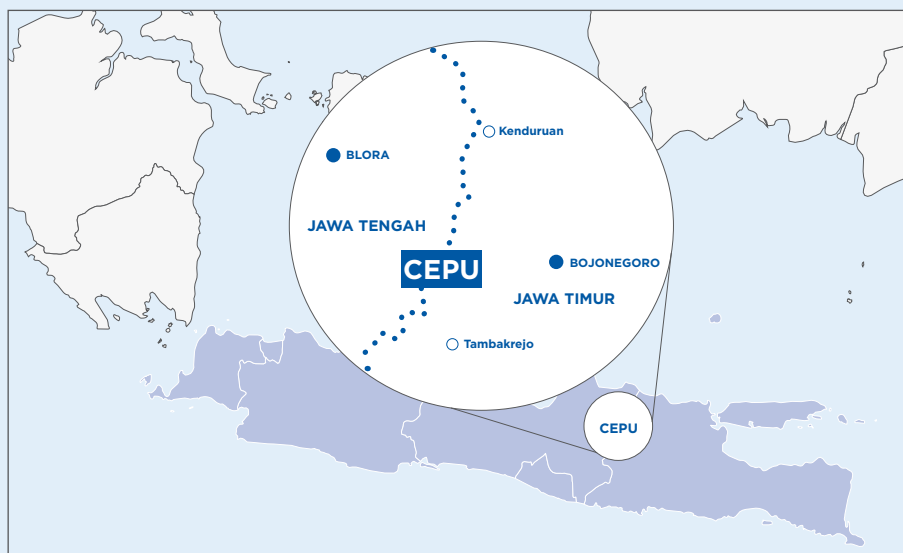
1. The LDI is a complex index comprised of 65 indicators in nine categories: (i) availability of infrastructure, (ii) access and quality of education, (iii) presence of arts and cultural institutions, (iv) access to health services, (v) the state of the environment, (vi) socio-economic status, (vii) financial indicators, (viii) development resources, and (ix) agriculture. However, the lack of data and the complexity of the LDI mean that, in practice, nearly half of the indicators are not used, and the LDI has not been updated since 2013. For second-tier allocations from *aimag* level to *soum* level, most of the data needed for the LDI is unavailable, so the LDI is usually omitted from the allocation criteria.

2. The Budget Law of Mongolia, 23 December 2011, as amended in 2012, 2014 and 2015.

BOX 4: OIL AND GAS REVENUE TRANSFER SYSTEM IN INDONESIA

Indonesia has three levels of administration in most of the country: national, provincial and regency.¹ The Indonesian government distributes 3.1 percent of total oil revenue to the producing province, 6.2 percent to the producing regency, and 6.2 percent is equally distributed to all other regencies in the producing province. Gas revenues are distributed as follows: 6.1 percent to the producing province, 12.2 percent to the producing regency, and 12.2 percent distributed equally to all other regencies in the producing province. The regions of Aceh, Papua and West Papua are subject to special arrangements with the central government whereby Aceh received 70 percent of oil and gas revenues from 2002–2011, and Papua and West Papua receive 70 percent from 2002–2027. After these periods, their shares will be reduced, and they will receive up to 50 percent each.² This system has resulted in massive oil and gas revenue windfalls for certain regions, such as a US\$1.2 billion windfall for Riau (pop. 6.4 million) and a US\$280 million windfall for North Kalimantan (pop. 628,000) in 2014.

FIGURE B4: Map of Blora and Bojonegoro



However, large inflows of revenues into oil- and gas-rich regions during boom years are generally followed by drastic falls in revenue during periods of price declines or once the resources become depleted. Since many local jurisdictions do not have the absorptive capacity to manage large windfall revenues, soaring government expenditures have often led to local inflation—especially for household rents, construction and local services—or profligate spending on government employee bonuses and vanity projects.

While the revenue sharing regime has been stable since 2004, another challenge has been that the formula does not permit resource revenue sharing with affected regencies if they are not producing and not in the producing province. As the map here shows, Blora and Bojonegoro sit above one of Indonesia’s most lucrative oil fields, the Cepu block. Yet, because the wells are mostly located in East Java’s Bojonegoro regency, and Blora is in Central Java province, Blora receives significantly fewer resource revenue transfers.

1. Cities and special regions such as Yogyakarta also tax and receive fiscal transfers, but are not relevant for this discussion. Lower level districts, villages and communities also exist as separate administrative levels. However, these do not collect taxes or receive significant revenues directly from the central government.

2. Cut Dian Agustina et al., *Political economy of natural resource revenue sharing in Indonesia*, Asia Research Centre Working Paper 55 (2012).

BOX 5: NATURAL RESOURCE REVENUE SHARING IN CONSTITUTIONS

Countries adopting a revenue sharing system may choose to do so through the constitution and/or through separate legislation. Several countries have referenced natural resource revenue sharing in their constitutions. Some simply mention the allocation of government revenues generally (e.g., Article 127 of the United Arab Emirates Constitution; Articles 202–204 of the Kenyan Constitution).

Fewer countries have included specific resource revenue sharing provisions (e.g., Article 112 of the Iraqi Constitution; Articles 162–168 of the Nigerian Constitution; Article 176(1) of the 2011 Transitional Constitution of the Republic of South Sudan). Revenue sharing issues are usually addressed in separate legislation, as is the case in Brazil and Indonesia.

Federal states which are major petroleum producers are particularly likely to have some

sort of revenue sharing mechanism. Below is a table describing state practice on resource revenue sharing in 14 resource-rich countries. Of these, 10 explicitly reference revenue sharing principles in the constitution, but only three of these constitutions (Bolivia, Nigeria and South Sudan) provide detailed rules, with the rest leaving most details to legislation.

TABLE B5. Constitutional Treatment of Resource Revenue Sharing in Selected Countries

COUNTRY	RESOURCE REVENUE SHARING MECHANISM?	RESOURCE REVENUE SHARING MECHANISM REFERENCED IN CONSTITUTION?	RESOURCE REVENUE SHARING FORMULA DETAILED IN CONSTITUTION?
Australia ^{1,2}	Yes	No (legislation)	—
Bolivia	Yes	Yes (Art. 368)	Yes
Brazil	Yes	Yes (Art. 20, para 1)	No (legislation)
Canada ^{1,2}	Yes	Yes (Arts. 92/36)	No (legislation)
China	Yes	No	—
Iraq	Yes	Yes (Art. 112)	No
Malaysia	Yes	Yes (Art. 110)	Partly (only tin)
Mexico	Yes	No (legislation)	—
Nigeria	Yes	Yes (Art. 162(2))	Yes
Philippines	Yes	Yes (Article 10(7))	No (legislation)
South Sudan	Yes	Yes (Art. 176(1))	Yes
UAE ^{1,2}	Yes	Yes (Art. 127)	No (legislation)
USA ¹	Yes	No (legislation)	—
Venezuela	Yes	Yes (Art. 156.16)	No (legislation)

1. Countries in which resource ownership is not exclusively at national level (shared or at subnational level).

2. No specific resource revenue transfers, but some sort of 'equalization payments' in which resource revenues are used in the calculation. In the case of Australia, grants are made from the federal level to the subnational level, while in Canada transfers are between provinces via the federal government, and in the UAE transfers are from subnational governments to the National Government. In Canada, there is a resource-specific intergovernmental transfer system for the three territories but not for the 10 provinces.



5. DESIGNING A RESOURCE REVENUE SHARING SYSTEM

As we have seen, resource revenue sharing practices vary widely. We have also seen that the design of resource revenue sharing systems can improve development outcomes, reduce regional inequalities, and help mitigate violent conflict.

However, resource revenue sharing can often compound the same problems it seeks to alleviate. The difference between outcomes depends on institutional design given the local context. In this section we will outline the major considerations for designing a stable regime which incentivizes good public investment and improves stability and security.

DETERMINING VERTICAL AND HORIZONTAL DISTRIBUTION OF RESOURCE REVENUES

VERTICAL DISTRIBUTION

As noted above, vertical distribution describes the share of revenues assigned to each level of government. Vertical distribution can be determined by direct tax collection or via the share of resource revenues collected by the national government which is then redistributed to subnational authorities. What factors should governments consider in determining vertical distribution?

In terms of direct tax collection, the main factor to consider is the administrative capacity of subnational governments to assess, collect and manage taxes. Some taxes are easier to assess and collect than others (see section 5(2) on which revenues to share). For instance, land taxes are simple to calculate, whereas calculation of royalties requires accurate information on mineral or oil quality, volumes of production and prices. Corporate income taxes are even more complicated to calculate since they are often subject to tax deductions and even tax avoidance measures. Subnational governments wishing to assess and collect these more complex taxes must, therefore, have the models, technical capacity and sufficient access to information to do so.

A secondary consideration is the trust that subnational governments have in the national government's ability and willingness to collect taxes and distribute them according to any intergovernmental transfer formula. If subnational governments do not believe that the national government will collect fair value on the natural resources in their territory, there may be a greater justification for direct taxation by subnational authorities.

Finally, vertical distribution should be a function of the size of different administrative units and their capacity to manage revenue volatility

and absorb large windfalls. For instance, the Indonesian regency of Bojonegoro—a subnational government with a population of more than one million and assigned with health and education responsibilities—is less likely to suffer from an inability to absorb an increase in fiscal revenues or cope with a revenue decline than an *aiyl aimak* in Kyrgyzstan, a subnational government with a smaller administration and governing a population of 3,000–10,000 people.

In terms of both direct subnational taxation and intergovernmental transfers, countries may do well to consider the relative costs of expenditures that national and subnational governments are expected to cover. For instance, subnational governments responsible for healthcare, education and large infrastructure projects are more likely to use the resource revenues they receive to boost economic opportunities than those who only have responsibilities over municipal infrastructure such as gardens. Where subnational governments receive large resource revenues but have few expenditure assignments, the result is usually to spend on unproductive projects such as fountains, monuments or stadiums. The degree of vertical distribution therefore ought to be a function of subnational expenditure assignments.

HORIZONTAL DISTRIBUTION

As noted, horizontal distribution describes the distribution of resource revenues among subnational jurisdictions at the same level of authority. What factors should countries consider in determining horizontal distribution?

Whereas there is no one-size-fits-all approach to horizontal distribution, any agreed formula ought to be derived from the objective(s) of the transfer system. For instance, if a derivation-based system is developed and the goal of the transfer system is to compensate regions for loss of livelihoods and environmental damage, then it would make sense to define 'affected areas' and transfer revenues to these areas. Similarly, if an indicator-based system is selected and the goal of the transfer system is also to compensate regions for loss of livelihoods and environmental damage, then appropriate indicators might be a measure of environmental damage in the affected

area or volume of mineral production as a proxy for environmental damage (see Table 4 for more examples of this principle). That said, political considerations must be part of the discussion, especially if peace-building is a goal. After all, resource revenue sharing can only achieve its objectives if there is negotiation and consensus on the formula.

PROS AND CONS OF DERIVATION-BASED SYSTEMS VS. INDICATOR-BASED SYSTEMS

Derivation-based systems are generally simpler to explain to citizens and key stakeholders, and are often easier to calculate and require less data than indicator-based transfer systems. This makes them particularly attractive in low-capacity environments. Also, the magnitude of fiscal revenues generated from resource

extraction can be very large and last for long periods of time. As a result, derivation-based resource revenue sharing can succeed in making producing regions much wealthier.

However, such systems suffer from at least four separate drawbacks.

First, derivation-based systems are generally pro-cyclical, meaning they exacerbate natural boom-bust cycles. Since fiscal revenues are tied to the prices of volatile commodities or to local oil, gas or mineral production, governments in resource-rich regions receive more revenues just as extractive activities are ramping up or prices are going up, and receive less money when production slows or prices decline, just as the region is shedding jobs. The resulting volatility generates incentives for over-spending on wasteful projects or increasing government

TABLE 4. Intergovernmental Transfer Formula Options Linked to Objectives

OBJECTIVE	DERIVATION OR PERCENTAGE OPTIONS	INDICATOR OPTIONS
Local development		<ul style="list-style-type: none"> ■ Population size ■ Poverty rate ■ Access to education ■ Access to health ■ Wage level
Reduce regional income inequalities	<ul style="list-style-type: none"> ■ Equal share to all regions 	<ul style="list-style-type: none"> ■ Inverse revenue generation capacity index (e.g. local GDP share of national GDP) ■ Poverty rate ■ Availability of infrastructure (roads, electrification, etc.)
Compensation to producing regions	<ul style="list-style-type: none"> ■ ___% to directly affected regions ■ ___% to indirectly affected regions ■ ___% to affected communities / citizens / landowners 	<ul style="list-style-type: none"> ■ Mineral, oil or gas production (value or volume) ■ Presence of subsoil oil or gas field ■ Environmental damage index (such as mined land area, inverse of rehabilitated land area, water use by mining, presence of waste storage facilities, affected river catchment area) ■ Presence of transportation routes ■ Measure of loss of livelihoods
Conflict prevention	<ul style="list-style-type: none"> ■ ___% to producing regions ■ ___% to non-producing or adjacent regions ■ ___% to special interest groups 	<ul style="list-style-type: none"> ■ Mineral, oil or gas production value ■ 'Fair' formula which represents a national consensus

wages unsustainably while neglecting social services during commodity boom periods, and either painful cuts or a ratcheting up of public debt during busts. Evidence from Brazil shows that large oil royalty windfalls to municipalities was associated with an increase in government housing and urban infrastructure spending, but significantly harmed the efficiency of social service provision. Access to piped water, rubbish collection and connection to sewage networks decreased as more oil revenues flowed into municipal coffers.³² Different mechanisms for dealing with such volatility are discussed in the next subsections.

Second, derivation-based fiscal transfers are neither linked to subnational needs for financing nor the expenditure responsibilities of subnational governments. In fact, the very nature of derivation-based revenue sharing may undermine key principles of sound financial management, such as the ‘finance follows function’ rule. Ideally, the assignment of revenue to subnational authorities should match their expenditure responsibilities.^{33, 34} However, a derivation-based revenue sharing system assigns resources on the basis of how much resource is produced in an area or the value of those resources, irrespective of any service delivery responsibilities or needs. This can lead to a situation where local governments without responsibilities over healthcare or education receive revenues that far exceed their absorptive capacity or needs. In these cases, revenues are likely to be wasted on vanity projects, such as new government buildings, or an unsustainable increase in local government salaries rather than spent on healthcare, education or productive infrastructure. These systems can also starve national governments of much-needed revenue for these same growth-generating expenditure items.

Third, derivation-based allocation can aggravate regional income inequalities and make spending less efficient in countries where resource-rich regions are relatively wealthy to begin with. In the United States, for instance, resource-rich and historically wealthy states such as Alaska, California and Wyoming collect and retain a large percentage of royalties and taxes from mineral and petroleum production. This leaves

less revenue for less wealthy and resource-poor states, such as Arkansas, Mississippi and South Carolina, to provide social services and infrastructure than would be the case if resource revenues were more evenly distributed. In theory, this uneven distribution may harm education, public health, and public safety outcomes, which are under subnational jurisdiction in the United States, as the marginal benefit of an extra dollar of public spending is larger in poorer states than richer states. Pooling natural resource revenues at the national level and redistributing them based on needs would likely generate better social outcomes. Similarly, the revenue sharing regime in Brazil disproportionately benefits Rio de Janeiro state, already the nation’s third wealthiest in terms of GDP per capita. The revenue sharing formula—which allocates 20 percent of royalties and 34 percent of ‘special participation’ earning to producing states—allocates a disproportionate share of resource revenues to this wealthy region as it is one of the country’s largest off-shore oil producers. Not only does this aggravate regional inequalities but it also leads to inefficient spending since the marginal welfare benefit of spending in a poorer region is generally greater than spending in a rich region. Still, this is an improvement on the previous formula; before the 2013 reforms, producing states were allocated 52.5 percent of royalties and 40 percent of ‘special participation’ earnings.³⁵

Fourth, derivation-based transfers often suffer from definitional challenges, leading to greater conflict between regions. In many countries, ‘producing regions’, ‘non-producing regions’ or ‘adjacent regions’ are each allocated a share of resource revenues. However, these terms are not always clearly defined. For instance, in the case of oil production it must be made clear whether ‘producing’ refers to the location of the wells or the subsoil field, and whether level of production is determined by volume or value of production. Also, there must be clear rules on allocation of revenues in case a mine or oil/gas field crosses jurisdictional boundaries. In Kyrgyzstan, for example, the resource revenue sharing formula states that 20 percent of a two percent ‘non-tax payment’ (essentially a royalty) is allocated to ‘producing’ villages. However, there is no provision for how these payments are distributed



when mines cross village boundaries, which is a common occurrence. This lack of specificity has already caused conflict between villages. One option to address this predicament would be to split revenues according to a given formula in cases where mines or fields cross jurisdictions. In the Philippines, if natural resources cross jurisdictional lines the shares of each jurisdiction are determined based on population (weighted at 70 percent) and land area (weighted at 30 percent).

Indicator-based formulas can be more effective than derivation-based systems at addressing poverty and compensating regions for the negative impacts of extraction, notwithstanding that poverty and environmental data can be difficult to collect and can be susceptible to political manipulation. Not only can they target less developed and more highly affected regions, they can also be used to equalize incomes across the country and stabilize budgets in cases where derivation-based systems lead to greater inequality and fiscal volatility at the subnational level. The Mexican and Mongolian systems have been quite effective in this regard.

Canada is an example of a country where a large proportion of resource revenues are directly collected by subnational governments but where the country has introduced an indicator-based formula to help address the downsides of a derivation-based system. In brief, Canadian provinces collect royalties and provincial corporate income tax, while the

Federal Government collects national corporate income tax. This has led to a situation where revenues in oil-rich provinces are much higher per capita than in non-oil-rich provinces. Canada's provincial 'equalization formula' helps rectify this situation by calculating the revenue generating capacity of each province on a per capita basis. If, according to the formula, a province has below-average ability to generate own-source revenues, then it is eligible for an equalization payment.³⁶ Only 50 percent of natural resource royalties are included in this formula, which means that resource-rich provinces such as Alberta, Newfoundland and Saskatchewan receive higher per capita revenues than the other provinces when commodity prices are high. (Transfers to Canada's Northern Territories—which are governed directly by the Federal Government or by semi-autonomous indigenous groups—are managed somewhat differently.) All provincial corporate income taxes from the extractive sector are included in the formula. In this way, Canada has managed to reduce inequalities in the fiscal capacities of provinces while still allowing resource-rich regions to retain most of the resource revenues generated within their boundaries.

South Africa employs a similar principle, except that instead of measuring revenue generating capacity using a complex multi-indicator formula (at one time, the Canadian formula consisted of 37 variables), it uses regional GDP as a proxy for fiscal capacity.³⁷

BOX 6: BOLIVIAN REVENUE SHARING FORMULA

Natural gas and oil revenues represent some of the largest sources of income for Bolivia's economy. In 2014, the oil and gas sector represented 8.7 percent of GDP and 55 percent of total exports. The sector has contributed to more than one third of the Treasury's income in recent years. Bolivia is also a major producer of silver.

Bolivia is divided into nine departments, 112 provinces and 339 municipalities. Departments and municipalities raise very little own-source revenue and most of their revenue consists of intergovernmental transfers to finance expenditures.

Departments are responsible for large infrastructure projects. Municipalities are responsible for infrastructure maintenance as well as many health, education, police, culture, sports, and tourism services, for instance.

Oil and gas revenues are transferred to subnational entities via two channels: a general intergovernmental transfer system and a derivation-based system. According to the general transfer system, municipalities are meant to receive 20 percent of general tax-based intergovernmental transfers to fulfil their mandates. This is called "fiscal cooperation". 'HIPC (heavily indebted poor countries) transfers' are an additional source of revenue for municipalities. They are allocated on the basis of poverty rates. Indigenous territories are also legally recognized and receive a small share of revenues.

The derivation-based system differs by revenue stream (e.g. royalties, profits tax). Royalties

constitute the main source of oil and gas income for the four producing departments (Santa Cruz, Tarija, Cochabamba and Chuquisaca). An 11 percent royalty is levied on all oil and gas production, distributed to departments by volume of production. Since Tarija's three fields contribute nearly 70 percent of Bolivia's national production of hydrocarbons, it has received 60 percent of total royalty payments since 2006. An additional compensation royalty of one percent is shared among the two poorest departments, Beni and Pando: two thirds to Beni and one third to Pando.

There is very little information available about the sharing of royalty revenue within each department. The only departments offering some information on this are Tarija and Santa Cruz. Tarija allocates 45 percent of its revenue from royalty payments to the province of Gran Chaco, and Santa Cruz allocates its royalty revenue according to the 50/40/10 formula: 50 percent for producing provinces, 40 percent for non-producing provinces, and 10 percent for indigenous villages.

The Direct Tax on Hydrocarbons (IDH; Impuesto Directo a los Hidrocarburos), a large profits tax introduced in 2005, is also distributed to departments by derivation. According to the law, each producing department is meant to receive four percent of the IDH and each non-producing department receives two percent. Within each department, departments retain one percent, municipalities are allocated 2.7 percent, and universities

0.3 percent. There is no specific percentage of either royalties or IDH which needs to be spent on any specific expenditure item or project.

In October 2007, President Evo Morales changed the internal distribution of IDH revenue within departments: the share accruing to municipal governments would increase from 34 percent to 67 percent, while transfers made to departments would diminish from 57 percent to 24 percent. This change was part of the country's fiscal decentralization process. Municipalities today receive more than one third of their revenue from the IDH. In 2012, 47 percent of total revenue received by municipalities came from the IDH, and the rest largely came from their participation in revenue received from the application of the general fiscal regime (fiscal co-participation), most of which does not necessarily come from the oil and gas sector.

Revenue from the IDH also allows the Government to finance a universal old-age pension scheme, *Renta Dignidad* (formerly known as Bonosol) as well as other conditional cash transfer programmes such as the *Bono Juancito Pinto*.¹ While the distribution of revenue from the IDH has been modified several times by President Evo Morales, the 11 percent royalty has been unaltered since its creation and it constitutes a critical source of income for Bolivia's four producing departments. Bolivia's 2009 Constitution turned this royalty into a legal right, making it even more difficult to change.

1. *Bono Juancito Pinto* is a cash transfer in Bolivia whose beneficiaries are children going to public schools. It was established in 2006 with the aim of reducing dropout rates. It is paid in two instalments: one at the beginning of the academic year and one at the end, each payment amounting to US\$14.5 per student.

While Canada’s system focuses on supplementing provincial budgets for those provinces which have difficulty raising revenue, some other countries’ indicator-based systems also use measures of expenditure needs such as population, poverty rates or a wage index. Australia’s equalization formula uses a combination of revenue capacity and expenditure needs indicators. Needs indicators used include population density and level of urbanization. An independent Commonwealth Grants Commission makes an assessment of how revenues should be distributed to the states and territories.³⁸

A principal advantage of an indicator-based system is that it tends to depoliticize the revenue sharing issue by shifting disagreements over the formula into technocratic hands. Instead of arguing over greater revenue shares, the debate becomes about appropriate indicators and data accuracy. That said, the Australian and Canadian systems have come under criticism for the same reason they are lauded: their complexity which makes them relatively non-transparent.³⁹ Indicator-based formulas also sometimes require enormous amounts of detailed regional-level data to be able to calculate revenue allocations effectively, data which is not available in most developing countries. Also, indicator-based systems do not meet some of the objectives of having resource revenue systems, such as recognizing local claims on the resource or compensating provinces for the environmental damage they suffer.

DETERMINING WHICH RESOURCES AND REVENUE STREAMS TO SHARE

While some countries choose to share all revenue streams between levels of government, others opt to share only certain streams. The most common natural resource revenue streams include:⁴⁰

- **Royalties:** Rents paid to the owner of natural resources for putting them at the disposal of a company for specified periods of time. The rents may take the form of periodic payments of fixed amounts, irrespective of the rate of extraction, or, more commonly, they may be a function of the quantity, volume or value of the resource extracted. Payments may also be made in exchange for the right to undertake test drilling or otherwise investigate the existence and location of subsoil assets. Such payments are also recorded as royalties even though no extraction may take place.
- **Signature bonuses:** Additional royalties consisting of one-off up-front payments.
- **Profit taxes:** Taxes assessed on actual or presumed corporate income or capital gains.
- **Property taxes:** Taxes payable on the use, ownership or transfer of wealth. The taxes may be levied at regular intervals, as a one-off, or upon a change in ownership. They are usually calculated on the basis of property value.
- **Goods and service taxes:** Taxes which become payable as a result of the production, sale, transfer, leasing or delivery of goods and rendering of services, or as a result of their use for own consumption. Examples include sales taxes, VAT and excise taxes (product-specific taxes based on value, weight, quantity or strength).
- **Taxes on use of goods:** Fees levied on the issuance of a licence or permit, such as a mineral licence or a pollution tax.
- **Border taxes:** Taxes which become payable when goods or income cross a national or customs border, or when transactions in services are exchanged between residents and non-residents. Examples include customs or import duties, taxes on exports and withholding taxes on repatriating profits to a company’s home country.
- **Dividends from government equity:** The distributed earnings allocated to government or public sector units, as the owners of equity, for placing funds at the disposal of corporations.

- **Production entitlements:** In-kind payments, usually in the form of crude oil, natural gas or unprocessed minerals.
- **Fines and penalties:** Compulsory payments imposed on units by courts of law or quasi-judicial bodies for violations of laws or administrative regulations.

Globally, royalties and property taxes are more likely to be shared than profits taxes, goods and service taxes or dividends from government equity. Also, mineral revenue sharing is more common than petroleum revenue sharing.

Ghana (mining), Papua New Guinea (oil and gas) and Uganda (oil) are examples of countries that only share royalties. China shares only a few revenue streams, most importantly a Mineral Resources Compensation Fee which was a royalty of 5 to 10 percent on oil and gas and a separate royalty on mineral resources, but which no longer applies to oil, gas or coal production. This fee is shared 50–50 between the central government and the producing province, except in autonomous regions where it is shared 40–60. China also shares corporate income tax from mining with provinces. Sixty percent of corporate income tax is allocated to the central government and 40 percent is allocated to the relevant provincial government. That said, such revenue sharing is not exclusive to mining; it applies to all non-oil, non-banking sectors.

Indonesia, Mexico and Nigeria, on the other hand, are examples of countries that share all revenue streams from oil, gas or minerals with local governments. In Indonesia, all oil and gas revenue streams are shared with local

governments. However, it treats mineral revenues differently, sharing only mineral royalties with local governments.

CONSIDERATIONS FOR INCLUDING CERTAIN REVENUE STREAMS

The reasons for sharing some, but not all, streams are both practical and political. First, from a practical perspective, not all revenue streams can be easily linked to a given project in a given state or region. For instance, companies with multiple operations in a given country may aggregate profits taxes over several projects. It would therefore be largely arbitrary to assess what share of corporate income tax is associated with a given mineral project or oil field. Royalties, on the other hand, are based on volume or value of production. As such, they can be easily linked to a mine or petroleum field in a specific location under derivation-based systems.

Second, royalties and signature bonuses are easier to calculate than, say, profits taxes; all one needs is production volume, quality of the product and market prices in order to estimate royalty revenues. Licence fees are even easier to calculate. Therefore, these streams lend themselves more naturally to collection or verification by subnational governments. Other revenue streams, especially profits taxes, require much more information to estimate, such as costs.⁴¹ Profits taxes or dividends from government equity may also not be collected in certain years due to cost recovery or tax incentives. Linking subnational payments to these difficult-to-estimate revenue streams may generate confusion in years when production is high but payments are low.



ROYALTIES ARE ONLY SLIGHTLY MORE DIFFICULT TO COLLECT THAN PROPERTY TAXES OR LICENCE FEES. THE PRINCIPAL CHALLENGE IS DETERMINING THE VALUE OF THE RESOURCE EXTRACTED.

Third, royalties are more predictable and less volatile than other resource revenue streams. Given the difficulties inherent in managing year-to-year revenue volatility—and the deleterious impact of volatility on the quality of public investment—it may be easier to manage royalty payments than other revenue streams.

While these three points may suggest that subnational governments would be well served to collect a share of royalties, property taxes and licence fees rather than profits taxes, dividends on government equity or production entitlements, any revenue sharing regime which covers only some streams might be considered only partial payment, since natural resource revenues consist of the sum of all streams paid by extractive sector operators.

Policymakers ought also to be aware that choosing which revenue streams to distribute has implications for the timing of revenue windfalls at both the national and subnational levels. Different revenue streams start flowing at different times in the extractive life-cycle. For example, corporate income taxes usually peak several years into production once costs have been recovered, royalties are collected as soon as production begins, and signature bonuses are generally collected before production even starts. Also, the magnitude of these different streams varies significantly. In general, royalties, profits taxes and goods and services taxes are much larger than, say, property taxes or licence fees.⁴²

CONSIDERATIONS FOR SUBNATIONAL TAX COLLECTION VERSUS INTERGOVERNMENTAL TRANSFERS OF CERTAIN REVENUE STREAMS

Although we have discussed considerations for including some but not all revenue streams in a revenue sharing formula, we have not remarked on the advantages and disadvantages of using different channels—tax assignments or intergovernmental transfers—to share these streams.⁴³

Due to the relative administrative capacities of national and subnational levels, in many low-income countries, tax collection by the national

government and redistribution to local authorities may be more efficient and lead to greater revenue collection than decentralized tax collection. That said, in many countries, including the DRC and the Philippines, local governments do not always receive the amounts they are entitled to according to their respective countries' intergovernmental transfer formulas. There may, therefore, be good reason to assign certain resource taxes to subnational governments.

Of the revenue streams, property taxes and licence fees are those most often assigned to local governments. These streams are relatively stable and predictable and there are fewer problems with tax avoidance. The only challenge is that property taxes are often based on land or property values which can be difficult to calculate, though no more difficult for local governments than national governments.

Royalties are only slightly more difficult to collect than property taxes or licence fees. The principal challenge is determining the value of the resource extracted. In many countries, governments do not accurately monitor production volumes or, in the case of mineral extraction, the quality of ore produced. Often companies self-report production figures. It is therefore difficult to assess whether the proper royalties are being collected. That said, local tax assignments may improve monitoring of production as they create an incentive to ensure that the right amount of royalties is being collected.

Profit taxes are the least likely to be collected by local governments due to the administrative complexities involved in calculating them accurately, including dealing with tax avoidance measures.⁴⁴

CONSIDERATIONS FOR INCLUDING ONSHORE OR OFFSHORE RESOURCES

Another consideration is whether a revenue sharing regime should include onshore or offshore oil, gas or even mining activities.⁴⁵ While offshore resources are usually under the exclusive jurisdiction of the central government,

in Australia, Brazil, Canada, Italy, Malaysia and the United States, some revenues generated from these resources are shared with the closest neighbouring subnational governments.⁴⁶

Specific circumstances in each of these six countries explain why some offshore resource revenues are shared. For example, despite a Supreme Court ruling in 1984 that offshore oil and its proceeds are under federal jurisdiction, the Canadian government negotiated an accord with the oil-rich province of Newfoundland in 1985 which splits the benefits of offshore resources evenly between both levels of government. This deal was the product of an election promise by a political party, the Progressive Conservatives, eager to win parliamentary seats in Newfoundland.

Apart from these experiences, offshore resource revenue sharing remains rare. Offshore production generates fewer direct negative impacts on adjacent populations, for instance, on the natural environment and on livelihoods, notwithstanding any disruptions to fisheries and the potential for oil spills. Offshore resources are also more difficult for local leaders to occupy. Offshore production is therefore less susceptible to conflict.

DETERMINING RESOURCE REVENUE RECIPIENTS

The nature of resource wealth makes it inherently difficult to define a group of people who hold a claim to a share of resource revenues. Yet governments need to determine the area or community which is entitled to a share. Is it only the people in the immediate vicinity of the resource that are entitled to benefit from the revenue from that resource? Or are people in the subnational jurisdiction in which extraction occurs also entitled? Or perhaps people from further afield? Furthermore, in some cases an oil well or mine in one jurisdiction may draw on reserves which are physically underneath several

subnational jurisdictions. This may require a complex array of agreements to share revenue between each jurisdiction based on uncertain geological knowledge of the resource.

The solution does not lie merely in defining property rights within the legal framework of the country. Constitutions stating that a resource is nationally owned is not sufficient to assuage demands for revenue sharing, particularly when significant discoveries are made. For example, in most countries, the state, on behalf of its citizens, legally owns the resources which implies that a share of resource revenues does not necessarily have to be allocated to producing regions.⁴⁷ Given the emotive nature of subsoil resource ownership, the issue of property rights can potentially detract from more concrete discussions on subnational responsibilities and which proportion of resource revenues ought to be shared with subnational authorities.

In addition to defining which authorities are entitled to benefits, the presence of resource wealth and the perception that this can benefit locals can create significant migration of additional people into the local area. For example, at the peak of the mining boom in the late 2000s, the population of Zaamar *soum* of Tuv *aimag* in Mongolia quadrupled from 5,000 residents to an estimated 20,000, which put additional demands on the local government to provide health and education services. This raises the question of whether revenues should benefit new entrants to a given area.

From a practical point of view, revenue sharing formulas must define the ultimate beneficiaries. The most natural recipients are subnational government authorities, be they state, provincial or regional bodies, municipalities or even smaller official jurisdictions. In some cases, only designated 'producing regions' receive shares, for example in the Philippines and Uganda. In others, unequal shares are divided between producing regions, regions adjacent to producing regions, and non-producing regions, as in Brazil and Indonesia.

The rationale behind allocating revenues to adjacent or non-producing regions is often to compensate these regions for the environmental

BOX 7: EXTRA-BUDGETARY FUNDS

Extra-budgetary funds are sometimes used by national or subnational governments as mechanisms for managing natural resource revenues. Since they are usually controlled by either national or subnational authorities, they are not recipients themselves, but are tools used by these governments.

It is important to distinguish between funds which are merely accounts and others which are institutions with staff and an organizational structure. Accounts are those into which revenue is paid and then distributed to other recipients according to a predesignated earmarking rule, but which are overseen and administered as part of the normal budget process, whether at the national or subnational level.

For example, Bolivia's Compensation Fund for Universities and Municipalities is an account which receives five percent of revenue from the Direct Tax on Hydrocarbons. This revenue is then redistributed to departments and municipalities according to population and to universities. In Colombia, 90 percent of natural resource royalties from the extractive industries go to four

funds: (i) a Territorial Pension Fund, (ii) a subnational Savings and Stabilization Fund, (iii) a Regional Development Fund, and (iv) a Regional Compensation Fund. All of these funds allocate money to subnational authorities. The remaining 10 percent of royalties are allocated directly to producing regions.¹ Essentially, these accounts are complimentary to the intergovernmental transfer system.

Funds which are institutions have fund managers who possess a degree of discretion over how revenues are spent. These funds (or trusts) have a variety of aims: to provide targeted and immediate benefits or compensation to local communities near extraction sites, to fund the costs of closure and rehabilitation, or to save money now for the benefit of local communities after project closure. These types of funds are generally 'off-budget', meaning that they are generally managed similarly to other state-owned companies.²

One example is the Raglan Trust in Quebec, Canada, which receives its funding from Falconbridge, the operator of the Raglan nickel mine. The company has agreed to transfer at least C\$9.5 million

over the first 15 years of the mine's lifespan, plus C\$275,000 per year from the start of production, plus 4.5 percent of net profits to the trust. Starting in the 16th year until closure, the fund will receive another C\$800,000 per year. From 2005–2013, C\$105.5 million was disbursed to the Raglan Trust to benefit a population of about 12,000.³ The Raglan Trust is controlled by the mayors of the two most affected communities, Salluit and Kangiqsujuaq, and four managers of the Inuit-operated Makivik Corporation. Larger payments are made to Salluit and Kangiqsujuaq with smaller payments made to the remaining residents of the broader Nunavik region. Following public consultations on how the money was to be spent, it was decided that Kangiqsujuaq would distribute 80 percent of their amount to residents in cash with the rest used to build a gymnasium, a three-star hotel and a sports facility, as the community already had adequate basic infrastructure. Salluit distributes 60 percent in cash and saves 40 percent in a long-term savings fund. The government of Nunavik distributes most of its share in cash to residents.^{4, 5}

1. OECD, *Colombia: Implementing Good Governance*, OECD Public Governance Reviews (OECD Publishing, 2013).

2. Natural Resource Governance Institute-Columbia Center on Sustainable Investment, "Natural Resource Fund Governance: The Essentials" in *Managing the public trust: How to make natural resource funds work for citizens*, Andrew Bauer, ed. (2014). http://www.resourcegovernance.org/sites/default/files/NRF_Complete_Report_EN.pdf

3. The Raglan Agreement, 25 January 1995. <http://www.sdsg.org/wp-content/uploads/2011/06/Raglan-Agreement-CDA.pdf>

4. Sarah Rogers, "Raglan to dole out royalties in coupons, not cash," *Nunatsiaq News*, 23 April 2010.

5. Sarah Rogers, "Makivik ditches coupon plan for Raglan money," *Nunatsiaq News*, 7 May 2010.

BOX 8: REVENUE SHARING RECIPIENTS IN THE PHILIPPINES

Subnational governments at the municipal and provincial levels play important roles in service delivery and local economic development. The smallest administrative units, which number in the tens of thousands, are known as *barangays*. Cities and municipalities are composed of multiple *barangays*. While most city and municipal governments fall under the jurisdiction of the Philippines' 81 provincial governments, 38 highly urbanized cities are administered independently.

The 1987 Constitution stipulates that "local governments shall be entitled to an equitable share in the proceeds [...] of the national wealth within their respective areas." To reflect this constitutional provision, the Local Government Code stipulates that subnational governments are entitled to 40 percent of gross mining taxes, royalties, and forestry and fishery charges from the preceding fiscal year. If resource extraction is undertaken by a government agency or state-controlled corporation, the share of extractive revenues allocated for local government units is determined by the central government as the greater of: (a) one percent sales

from the preceding calendar year; or (b) 40 percent of total collections from mining taxes, royalties, forestry and fishery charges, and fees levied in their jurisdiction.

The allocation of resource revenues between province, municipality, city and *barangay* governments varies depending on location. If natural resources are situated in an independent city, then the city government will receive 65 percent of revenues and the *barangay(s)* will receive 35 percent of revenues. In the case of resources situated in component cities or municipalities, the provincial government will receive 20 percent of revenues while the municipal government and *barangays* are apportioned 45 percent and 35 percent of revenues, respectively. If natural resources cross jurisdictional lines, the shares of each jurisdiction are determined based on population (weighted at 70 percent) and land area (weighted at 30 percent).

Where mining operations occur within the ancestral lands of indigenous peoples, the Philippine Mining Act obliges the operator to pay royalties equal to at least one percent of the value of the resource to indigenous groups.

FIGURE B8: Map of the Philippines



Under the Indigenous Peoples' Rights Act, any mining activities in ancestral lands can only be undertaken with the Free, Prior and Informed Consent (FPIC) of the local indigenous peoples, providing some indigenous groups with an opportunity to negotiate higher revenue shares. In practice, few groups collect their entitlements or negotiate higher shares.

damage or higher costs of living associated with extraction to a degree commensurate with the impact in these areas. Another reason may be to alleviate any resentment caused by large revenues flowing to neighbouring jurisdictions.

In some cases, it may be useful to allocate or assign revenues to higher-level administrative units rather than only affected towns or villages. If revenues are allocated to the smallest administrative units, such as towns or villages, nearby towns and villages which are likely to

be affected would not receive a supplemental revenue allocation. In contrast, if revenues are allocated to the highest subnational level administrative units, it is more likely that revenue assignment would include areas impacted by resource extraction.

However, these are not the only groups which receive revenue shares. Some countries, such as Ghana and Papua New Guinea, distribute a portion of revenue to private or communal/customary landowners. In Ghana, these

recipients are ‘stools’, traditional chiefs who are meant to hold sacred ‘stool lands’ in trust for their people. Approximately 80 percent of land is under customary ownership.⁴⁸ In the Philippines, if the mining site is covered by ancestral domain, a royalty payment must be made to the resident indigenous group.⁴⁹ This payment must not be less than one percent of the gross output, but may be negotiated as part of the Free, Prior and Informed Consent (FPIC) process for indigenous groups. Moreover, if a mining site is located on private property, a royalty payment must also be made to the landowner. The rate will depend on negotiations between the landowner and the mining contractor.⁵⁰ In the United States, about two thirds of landowners have the right to extract minerals under their land or to hire a company to do so, essentially sharing in the profits.

In most cases, governments share revenue with a subnational authority with no link to the amount of damage caused by extraction or additional services to be delivered. In fact, decisions on amounts to be shared with subnational jurisdictions are usually political, resulting from negotiations between interest groups. For example, the decision to allocate 50 percent of corporate income tax from mining to regional governments in Peru was based on a vague idea of fairness at the time of the national debate on revenue sharing.

Exacerbating the challenge of defining groups is that extraction and revenue sharing create incentives to establish new political groups to challenge this ownership definition.⁵¹ In Nigeria, the number of states since independence has increased from 12 in 1967 to 36 today, arguably as a result of the substantial increase in funds each new state authority can gain from the country’s revenue sharing formula.⁵²

There is also a significant number of revenue sharing arrangements in which a share of the revenue is distributed to quasi- or fully independent subnational institutions such as

regional development funds or trusts whose ultimate beneficiaries are affected communities. In Nigeria, the Niger Delta Development Commission is a federal commission controlled by state-level representatives (mainly from oil-producing states) with some representation from companies and the federal government. It receives 15 percent of intergovernmental transfers due to states from the federal government and three percent of operating oil companies’ annual budget directly from companies. It is then supposed to spend money on projects which support economic development in the Niger Delta.

Similarly, Kyrgyzstan introduced Regional Development Funds (RDFs) at the *oblast* (province) and *rayon* (sub-province) levels in 2014, specifically to finance local infrastructure and economic development programmes in mining regions. Their principal source of financing is shares of a two percent royalty (called a ‘payment for development and maintenance of local infrastructure’ in the Kyrgyz context) on mining which is allocated to each fund according to a formula (see case study in the Appendix). The funds are controlled by boards dominated by national and subnational government officials, but with some representation from subnational members of parliament and civil society groups. Proposed projects implemented at the *aiyl aimak* (municipal) and city level—which is the only level of government other than the national level which implements public projects—are submitted to the boards and approved on a discretionary basis.

In summary, the recipient ought to be a function of the objectives of the revenue sharing regime as well as the competencies of the recipient. For instance, if the goal of the revenue sharing regime is compensation for environmental damage, then the recipient should be the level of government which is responsible for mitigating environmental damage and specifically those regions which are most affected by such damage.

ADDRESSING REVENUE MANAGEMENT CHALLENGES ASSOCIATED WITH DERIVATION-BASED SYSTEMS


As mentioned previously, derivation-based allocations are particularly challenging to manage since natural resource revenues are finite and volatile. Moreover, they are often large enough to destabilize local economies.^{53, 54} These traits strain public financial management systems at the national level; natural resource revenue inflows are even more difficult for subnational governments to manage. Previous research shows three distinct challenges for local authorities.⁵⁵

First, the magnitude of resource revenues can be overwhelming for subnational governments. Where resource revenue inflows cause a sustained rapid increase in fiscal revenues, and these revenues are spent the same year they are collected, money can be wasted or, worse, the revenue inflow can cause permanent damage to the local economy.

The reason for this is that government administrations are constrained by available skilled labour, managerial systems and information technologies. Moreover, in most cases local economies are similarly constrained, meaning that even if the government wanted to outsource projects to the private sector, they would not be able to do so without bringing in workers from outside the area. This lack of ‘absorptive capacity’—the ability to transform financial resources into goods and services—leads to wasteful spending and rising costs of public projects.⁵⁶

If there is an adequate supply of capital (financing and equipment) and local labour to meet the demand generated by an inflow of resource revenues into the local economy, then local businesses will thrive and employment will increase. On the other hand, if local businesses cannot absorb these revenue inflows, for instance because there is not enough skilled labour, then the inflow of money into the local economy may cause a sudden influx of migrant workers or contractors, as well as super-profits for existing construction companies as they raise their prices, generating local inflation.

A large increase in public spending associated with a resource boom, therefore, causes prices to rise for non-tradeables (e.g. taxis, housing, restaurants) and a shift in labour from



FISCAL REVENUES FROM OIL, GAS AND MINING ARE VOLATILE BECAUSE OF THE DRAMATIC BOOMS AND BUSTS OF COMMODITY PRICES AND UNEXPECTED STOPPAGES IN PRODUCTION.

manufacturing and agriculture to the ‘boom sectors’, namely services and extractives. These so-called ‘Dutch disease’ effects can generate a persistent loss in local competitiveness. Dutch disease effects can be mitigated by ‘parking’ some revenues abroad in foreign assets for a time, until the economy develops the absorptive capacity to spend the money without generating inflation or waste.

Studies on resource-rich regions in Africa, Canada and Indonesia provide evidence of these effects. In Canada, resource-rich provinces experienced higher inflation during resource boom times than other provinces. In Indonesia, resource booms were found to cause a shift from traded manufacturing and agriculture to the service sector within a 15-km radius of extractive activity. A similar shift was found to take place in African mining communities. A study on China did not demonstrate any meaningful local Dutch disease effects with the exception of provincial-level inflation, presumably because, in the words of the authors, “most gains from the resource boom have been captured either by the [national or provincial] government or state-owned enterprises.”⁵⁷

Second, fiscal revenues from oil, gas and mining are volatile because of the dramatic booms and busts of commodity prices and unexpected stoppages in production.

Derivation-based systems exacerbate the problems associated with oscillations in government revenue. In fact, revenue volatility can have disastrous consequences for growth and economic development.

There are four reasons why spending volatility leads to lower economic growth and poorer development outcomes.

First, when spending increases too quickly, a bureaucracy might find it difficult to adjust, which can lead to poorly conceived, designed and executed projects. In these situations, there is a tendency for the government to spend on conspicuous infrastructure projects rather than social programmes or well-conceived productive infrastructure.

Second, when revenues decline unexpectedly, governments often respond by borrowing unsustainably or cutting expenditures, leading to half-finished roads, unmaintained buildings, or public sector layoffs.

Third, revenue volatility makes development planning much more difficult, as ministries and social programmes find it difficult to plan in advance.

Fourth, since the government is often the main source of large contracts in resource-rich regions, government spending volatility which matches the boom-bust cycles in the local private sector can exacerbate these cycles. This is called ‘pro-cyclical’ fiscal policy. As a result, businesses grow and proliferate when government expenditures are high, but often make similarly poor investment choices and do not always plan for the future. This makes them particularly vulnerable to government spending cuts, leading to bankruptcies in the wider economy when resource revenues decline.⁵⁸ For example, thanks to tax revenue from the local copper mine, the municipal government budget in the small district of Ite in southern Peru rose from less than US\$500,000 to more than US\$13 million annually in 2011. Since Peruvian law requires these subnational funds be used for investment projects, the municipality embarked on a race to build infrastructure. As reported, “in addition to the town’s perfectly maintained roadways, the infrastructure projects also included an ocean-side statue, a stadium, three schools, a football court, a playground, and a modern, mirror-sided municipal building abutting the district’s new main square.”⁵⁹

Similarly, the Colombian municipality of Puerto Gaitan saw its local budget balloon by a factor of 100 as a result of increased oil revenue transfers in the early 2010s. While some useful infrastructure was built, such as state-of-the-art schools, much of the ‘windfall’ revenue was wasted. For example, the town built an expensive amphitheatre and a concrete arch monument. Commodity prices have now collapsed and both Ite and Puerto Gaitan, along with other local governments around the world dependent on natural resource revenues, are suffering.



There are a variety of instruments to mitigate spending volatility such as delinking expenditures from revenues—paying down debt or saving in a fund when revenues are high and borrowing or drawing on savings when revenues are low—but subnational governments may be constrained by a lack of authority to borrow or save.⁶⁰ Even if subnational governments have the authority and capacity, several smoothing mechanisms may prove inefficient at the local level. For example, it may be very costly for local governments to borrow from capital markets to plug a deficit caused by plunging commodity prices as local governments will often have a significant risk premium, especially in emerging economies. In extreme cases, local government may be cut off from credit markets entirely.

Third, over the longer-term, oil, gas and minerals will eventually be depleted. Since these sources of revenue are finite, unless the government establishes alternative sources of tax revenues or revenues are saved in a fund over the long term, it will eventually have to cut spending or borrow unsustainably when these resources are exhausted. As a result, governments in oil-, gas- or mineral-rich regions may want to save some revenues and invest them in foreign assets for the future. There is also a moral case that

revenues from natural resources belong to future generations as much as present generations. Therefore, they should be saved to be spent by future generations (as long as the interest rate paid on public debt is not greater than the interest earned on these savings). Finally, precautionary savings are useful in case of environmental, social or economic crisis, such as drought or a financial crisis.⁶¹

All these factors make the task of spending revenues effectively at the local level rather difficult. So much so that studies conducted in Brazil and Colombia suggest that there is no relationship and in some cases even a negative relationship between resource revenue shared and spent at the local level and growth, education and health indicators, among others.⁶² ⁶³ At the same time, local governments can enact policies which address these issues. Here we will tackle budget stabilization, conditional transfers, and borrowing constraints.

BUDGET STABILIZATION

There are at least four possible ways to address the volatility challenge at the subnational level. First, national governments can allow subnational governments to save resource revenue windfalls for use when revenues decline



unexpectedly, for example in a type of sovereign wealth fund called a stabilization fund.⁶⁴ In this way they can smooth spending rather than succumb to boom-bust cycles. However, subnational governments may have trouble managing these savings; sovereign wealth funds are often used as channels for patronage and corruption. These funds must therefore be transparent and their assets managed independently of political influence in order to function effectively. Several Middle Eastern and North American states, provinces and territories have created such funds (e.g. Abu Dhabi, Alabama, Alberta, Northwest Territories, Wyoming) along with the oil-rich Indonesian regency of Bojonegoro.⁶⁵

Second, subnational governments can borrow when revenues decline and pay down that debt when there is a large resource revenue windfall. While this option circumvents the governance challenges associated with sovereign wealth funds, it comes with its own complexities. Most important is a tendency for subnational governments to over-borrow and eventually default, particularly where the national government provides an implicit guarantee on subnational debt. Chile, Colombia, Indonesia, Mexico and Russia all bailed out

local governments between 1982 and 2000. However, other national governments, like those in Bolivia, Nigeria and Peru, have either made policy decisions or have legal frameworks in place which have allowed subnational government defaults to occur.⁶⁶ Subnational debt crises in these countries have often led to a severe contraction of local services, cuts in wages and social conflict. For these reasons, many governments prevent subnational governments from borrowing.

Third, the central government can smooth transfers on behalf of subnational governments. For example, the government could establish a subnational transfer fund and make allocations not on an annual basis, but based on a multiyear moving average of resource revenues or on a more complex formula which includes resource revenues. Due to their greater administrative capacity, national governments in emerging economies are often better positioned to manage natural resource revenue volatility than local governments. In most cases, national governments can also borrow from financial markets more easily and can pool resources across regions. They also have the tax and production information to predict resource revenues on a project-by-project basis. Thus,

national governments can project future revenue transfers and can smooth revenue volatility on behalf of subnational governments. Canada employs such a system in its annual transfers to its three territories (Northwest Territories, Nunavut and Yukon). Most resource revenues are collected by the national government. Grants to the territories are then calculated using a Territorial Financing Formula which is the difference between expenditure needs and capacity to generate revenues. While royalties are excluded from this calculation, corporate income taxes are included, thereby smoothing the impact of resource revenue volatility on the local economy. While this model may be attractive in theory, it may be politically unfeasible in many circumstances. Subnational governments often seek control over their own resource revenue management and could be opposed to complex management by the central government.

Fourth, rather than a derivation-based formula, an indicator-based formula could be used, one that is designed to be ‘counter-cyclical’. For example, resource revenues can be distributed based on expenditure need, poverty or unemployment indicators.

Regardless of which strategy is chosen, accurate revenue projections and revenue smoothing generate the right incentives for local governments to invest well, as they are better able to plan in advance. Accurate projections also help build trust between national and subnational governments, contributing to conflict mitigation. Thus national governments ought to provide local governments with the tools to accurately calculate revenue projections, for instance by providing models, accurate data and training.

CONDITIONAL TRANSFERS AND EARMARKS

Certain countries earmark resource revenue transfers, requiring them to be spent on specific expenditure items. In Bolivia, Brazil, Colombia, Papua New Guinea and Peru, the law or the central government require earmarking resource revenue transfers to specific line items, thus limiting subnational government discretion in planning how such revenues might be spent. This is different from linking transfers to

local government performance and penalizing subnational governments if they do not deliver on required services, something which is part of the regular intergovernmental transfer system in many countries.

Earmarks can be by line item or agency in the budget or by sector. They are often meant to encourage a higher proportion of spending on both human and physical capital investments. In Indonesia, 0.5 percent of resource revenues must be allocated to education by the provinces and regencies. In Bolivia, 70 percent of transfers to regions and municipalities must be spent on health insurance and productive investments. The remaining 30 percent must be spent on pensions. In Papua New Guinea, communal landowners must save 30 percent of their resource revenue share for future generations, spend 30 percent on local health, education and social development programmes, and can retain the remainder in cash. In Colombia, by law local governments must invest 100 percent of royalties in high priority projects in the sectors of education, public health, sewage systems and water supply. Ecuador’s severance tax revenue transfer to subnational jurisdictions is earmarked for “environmental restoration, health, road works, building and equipping of schools and rural community facilities, and tourism projects, including the necessary costs to perform studies.”⁶⁸

In addition to influencing local spending decisions through earmarks and funds, national governments are also known to impose directives on the transferred revenue. In Indonesia and Mongolia, for example, unspent funds cannot be saved and must be returned to the national government, resulting in less revenue the following year. This incentivizes local government to prioritize rampant spending on ‘white elephant projects’.

Conditional grants can be helpful in guaranteeing financing for chronically underfunded expenditure items such as environmental protection or education. They can also be politically useful for demonstrating a government’s commitment to economic development and sharing the wealth generated by resource extraction. On the other hand, they can undermine budgetary autonomy and



RESOURCE-DEPENDENT REGIONS WOULD BE WELL-PLACED TO INVEST THEIR RESOURCE WEALTH IN FINANCIAL, HUMAN AND PHYSICAL CAPITAL.

flexibility without guaranteeing improved results. They may also be ineffective, as resource revenues are fungible and therefore interchangeable with non-resource revenues. Governments can simply shift revenues around to make it seem like resource revenues are being spent on a given expenditure item.⁶⁹ For instance, in Venezuela local authorities can invest in ‘registered projects’ which can range from conservation to maintenance, improvements, infrastructure, health and education.⁷⁰ Since the earmarks in Venezuela are broad, they offer almost no constraint on spending decisions.

Moreover, resource revenues are not an ideal source of earmarked funds since they are volatile and unpredictable. Earmarking resource revenues for a local education programme, for example, could force a government to cancel planned scholarships if commodity prices drop unexpectedly, harming students’ future prospects.

One alternative to earmarking might be performance-based grants, whereby transfers from the central government are only made if certain local targets are met, such as a school attendance target. However, this would undermine any derivation principle and subnational fiscal independence.

BORROWING AND OTHER LOCAL PUBLIC FINANCE CONSTRAINTS

The allocation of resource revenues to local governments can create perverse incentives for public finance. A new and guaranteed source of financing can open up access to credit markets for local governments, encouraging unsustainable borrowing just as revenues are rising. When revenues drop unexpectedly, say during a commodity price crash, this can lead to

a fiscal crisis. In Nigeria, for instance, oil-rich states such as Delta and Cross River are among the most indebted following the recent drop in oil prices. Some are now paying as much as 26 percent interest and are on the verge of default. The end result could be a national government bailout, which will cost Nigerian taxpayers billions of dollars, or massive and unexpected cuts in social spending and salaries in order to pay off the subnational debt.⁷¹

While some countries rely on market discipline to prevent over-borrowing at the subnational level, most adopt fiscal rules or, in more fiscally centralized states, some kind of administrative control. In China, for example, lower-level government entities are prohibited from borrowing. However, large off-budget debt has accumulated since the borrowing constraints were introduced, leaving the rule toothless. Indonesia prohibits external borrowing by subnational governments, but allows a three percent fiscal deficit financed by domestic borrowing.⁷²

While these rules may constrain borrowing, they do not necessarily improve public financial management systems or local capacity to spend resource revenues effectively. In fact, in many resource-rich jurisdictions, the biggest problem is that governments do not have the absorptive capacity to spend the money they receive. In Peru, local governments have not managed to spend their resource revenue. The Peruvian Ministry of Economy, through its integrated financial management system, reported that between 2004 and 2011, only 5.3 percent of natural resource transfers were spent.

In a way, low execution rates represent a success of the public financial management system. They imply that there are safeguards against mismanagement and corruption which

prevent the disbursement of funds quickly, without adequate due diligence in project planning and public procurement. However, low execution rates also highlight the need for saving windfall revenues in resource-rich jurisdictions, something which is not allowed in every country. They also highlight the need for building subnational administrative capacity or outsourcing government projects or programmes to external agencies or consultants.

SAVINGS AND ECONOMIC DIVERSIFICATION

Resource-dependent regions dependent on derivation-based revenues often experience the economic crash associated with the depletion of oil, gas and mineral assets more acutely than whole countries. To address this issue, resource-dependent governments would be well-placed to invest in capital to generate economic growth and alternative sources of government income. Capital accumulation can take three forms: financial, human and physical.

Resource-rich governments can save a proportion of their revenues from natural resources in sovereign wealth funds. Such funds accumulate resource revenues in the form of financial capital. The interest generated from fund investments can allow the government to

generate ‘permanent’ income which lasts beyond the lifespan of a petroleum field or mine. While several sovereign wealth funds have helped subnational governments withstand declines in mineral production—such as the Investment Corporation of Dubai and the Texas Permanent University Fund—most sovereign wealth funds globally are either ineffective or have become sources of corruption and patronage. As a result, these funds need to be carefully considered. If they are created, they must be governed by appropriate deposit, withdrawal and investment rules, and there must be adequate oversight provisions and a high degree of transparency.⁷³

Resource-rich governments can also invest in human and physical capital, such as skills, formal education and infrastructure. These sources of capital create an enabling environment for the manufacturing and service sectors to thrive, thus diversifying the economy beyond the resource sector. Economic diversification success stories are rare, particularly at the subnational level. However, Dubai in the United Arab Emirates and the Appalachian region of the United States provide examples. Since it began to produce oil in the late 1960s, Dubai has used its significant petroleum revenues to invest in infrastructure, security, real estate, healthcare, tourism and financial services. It has also provided incentives to attract foreign investment and multinational



companies, including an efficient bureaucracy with little red tape, low tax rates, and public financing for all major projects. It is somewhat unique in that its economic diversification strategy was built on an influx of foreign labour and skills. Dubai's citizens benefit from the positive spillovers of this growing economy as well as from rents accrued from land, property and statutory participation in businesses usually run by expatriates.⁷⁴

Appalachia, which straddles several US states (Pennsylvania, West Virginia, Kentucky, Tennessee and Alabama) is a traditional coal-producing region. More recently, shale oil and gas discoveries have begun to transform the area. In response to an over-reliance on revenues and jobs from the natural resource sector, several counties have begun to implement diversification strategies. Upshur County in West Virginia, for example, is now diversifying into agriculture, value-added forestry products and tourism. Along with several neighbouring counties, it has also created the Hardwood Alliance Zone, an organization focused on marketing and investing in the infrastructure needed to attract value-added hardwood companies to the region. Similarly, Knott County in Kentucky, a coal-producing area, has chosen to promote tourism and small-scale manufacturing since these

sectors can create jobs for low-skilled workers who have lost jobs in the coal mines over the last decades. The county has invested in the Kentucky School of Craft to retrain people in local crafts and a retail outlet to sell their goods. Local entrepreneurs have also opened an adventure tourism park.⁷⁵

Another strategy to develop human and physical capital is investment in industries and skills which supply the extractive sector but which have positive spillover effects into other sectors, so-called 'local content' promotion. Local content includes local employment requirements in the resource sector, technical trainings for local residents, and procurement from local suppliers by mine or oil field operators. These policies may help regions diversify by building skills and businesses, which can prosper once mineral or petroleum assets have been depleted.

The Sudbury region in Ontario, Canada provides an interesting example. During one of the earlier mining boom-bust periods, two nickel mining companies, Inco and Falconbridge, formed the core of a cluster of mining firms in the region. These mines used predominantly local labour. In the mid-1970s, when mines in the region were closing, highly-skilled employees



from this cluster went on to establish their own mining supply and services companies. Over time, an extensive network of mining suppliers developed, servicing not only the Canadian but also the global mining industry. In this case, the initial impetus for development of the mining supplier industry was the presence of mining and metal refining firms in the region and nearby regions. More recently, the role of local universities and government laboratories in training people and research and development has become important, guaranteeing some residents a future beyond employment in the local mines.⁷⁶

TRANSPARENCY AND OVERSIGHT OF RESOURCE REVENUE SHARING SYSTEMS

TRANSPARENCY

To enforce any revenue sharing system, the availability of relevant information is crucial. Yet, of our surveyed countries, only half disclose details of resource revenues collected or transferred to subnational authorities. Oil producing countries seem to be particularly unwilling to disclose information.

Resource revenue transparency aligns local expectations with government objectives, ensuring, for example, that people do not expect transformative benefits when local revenues are relatively small. Citizens can only feel confident about a government's actions if they are informed. Trust, in turn, can reduce the incidence of social and political conflict.

Transparency can also help legislators, formal oversight bodies, citizens and the media hold governments to account for the money they are receiving from extraction. Through public scrutiny, officials can be deterred from acting unethically and held accountable for abuses of power for private gain.

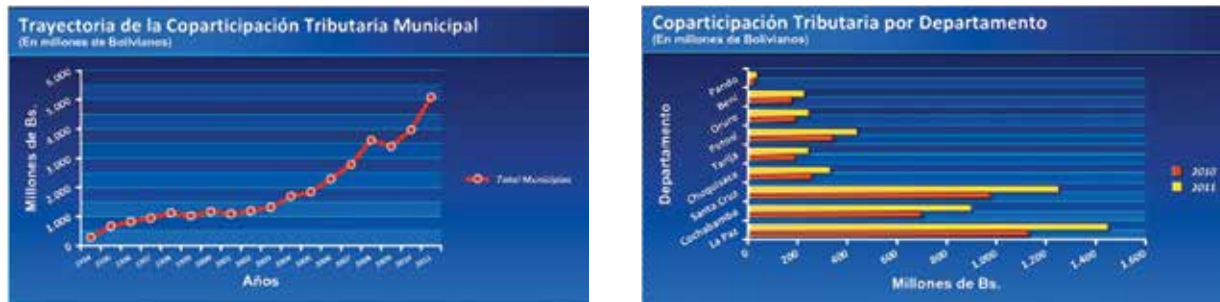
Last but not least, resource revenue transparency that has been disaggregated to the subnational level can help governments verify that they are receiving what they are entitled to by allowing them to calculate their tax assignments or intergovernmental transfers independently. This information can also make the jobs of ministries, parliaments and regulatory agencies easier by improving the quality of data a government gathers and maintains.

In general, derivation-based intergovernmental transfers require, at the very least, project-by-project and stream-by-stream payments information, in addition to the formula itself, to verify whether local authorities are receiving their entitlements. For instance, they might require information about the royalties, fees and bonuses paid for a specific mine or oil field. If subnational governments wish to verify that companies are in fact paying the required amount on the projects in their territory, or verify equity shares and corporate income taxes, they may also require data on costs, profits, price assumptions, production volume, quality of ore/oil, and even contracts. Governments collecting tax revenues directly may require much more detailed information as well to verify that they are collecting what is owed.

Indicator-based transfer formulas require a much higher degree of data transparency. What information ought to be made public is clearly dependent on the formula. However, in general the basis for making any assessment and the underlying calculations should be publicly disclosed. The Australian Commonwealth Grants Commission, for example, makes its assessment criteria available on its website along with detailed annual calculations per region.⁷⁷

Under the newly adopted standard, Extractive Industries Transparency Initiative (EITI) reports may include much of the required data. For example, Ghana's latest EITI report discloses the revenue sharing formula, discrepancies between the amount calculated and transferred by central government to subnational authorities, and the amounts received by subnational authorities. The report also discloses direct payments made by companies to subnational

FIGURE 5. Snapshots from Government of Bolivia Webpages



governments and amounts received by subnational governments. The new EITI rules, adopted in 2013, require countries to disclose the amount of resource revenues transferred to subnational governments, including the formula used and certain resource rents collected directly by subnational governments. New laws in several advanced economies—including Canada, EU and US—requiring extractive companies to disclose payments made to all levels of government, will also provide information essential for verifying the accuracy of resource revenue transfers. While EITI and mandatory disclosure rules may be helpful in promoting resource revenue transparency at the local level, the complexity inherent in resource contracts and tax regimes suggests that subnational governments may wish to consider hiring independent auditors to verify any fiscal entitlements.

Bolivia provides a good model of resource revenue transparency. The Ministry of Economy and Finance releases all data on transfers made to departments, municipalities and universities, as well as on cash transfers made to private beneficiaries (*Renta Dignidad* and *Bono Juancito Pinto*). The report sets out the beneficiaries for each transfer and the amount. Intergovernmental transfers made to departments, municipalities, and universities—including IDH transfers, but not royalties—are available on the Ministry of Economy and Finance webpage.⁷⁸ The Analysis Unit of Social and Economic Policy, an executive branch research unit, also offers disaggregated information on revenues transfer to and between

departments, provinces and municipalities, including royalties.⁷⁹ Additionally, a breakdown by revenue stream is available for each municipality. The information is presented in a clear and understandable way. Finally, the website of the Ministry of Hydrocarbons and Energy contains a Royalty Information System, which provides information about hydrocarbon production by department, field and company, as well as the value of the produced hydrocarbons and the amounts in dollars received by every departmental government. The data is available on a monthly basis.⁸⁰ See Figure 5 for snapshots from the Bolivian resource revenue transparency portals.

Revenue transparency at the subnational level has already proven effective in Peru where public disclosures have led to improved public spending. As a result of the availability of project level data, some regions managed to forecast what they are owed in resource revenue transfers and use the data to improve their strategic planning. Revenue transparency also encouraged producing and non-producing subnational governments to debate policy options for sharing revenue. Together, they formulated a proposal to create a more transparent, rules-based revenue transfer system which informed congressional debates on reforming revenue sharing laws.⁸¹

OVERSIGHT

The capacity of and incentives for subnational authorities to monitor their revenue sharing systems are often inadequate. This is particularly the case for authorities further down the government hierarchy, specifically municipalities

and indigenous groups which are entitled to a share of resource revenues. The distribution of revenues through a chain of beneficiaries—such as regional government paying municipal governments out of private accounts rather than through designated accounts—also seems to hinder monitoring. The same problem may be faced by local governments or private beneficiaries when regional branches of central revenue agencies are in charge of collecting taxes and distributing a share of these taxes to subnational authorities.⁸² As a result, subnational authorities often do not collect the resource revenues they are entitled to, as is the case for most indigenous groups in the Philippines, traditional authorities in Ghana, municipalities in Nigeria, and provinces in the DRC.

In response, special bodies—either administered by the central government or by multiple governments in a country—have been established in some countries to review or create a revenue sharing formula, monitor compliance or solve disputes between levels of government. In Canada the system is relatively informal. National and provincial ministers and officials meet regularly to monitor and review the fiscal equalization programme. They also conduct intensive reviews every five years. Similarly, in Indonesia, the Regional Autonomy Advisory Board—chaired by the Minister of Home Affairs, co-chaired by the Minister of Finance, and with regional and local representation—advises the president on all aspects of local government organization and finance. In Nigeria, the Revenue Mobilization, Allocation and Fiscal Commission—chaired by the Minister of Finance including finance

commissioners from each state—monitors distributions to the states and reviews the subnational allocation formula.⁸³

Other countries have established more formal independent agencies. Australia's independent Commonwealth Grants Commission calculates how the revenues raised from the Goods and Services Tax should be distributed to the states and territories to achieve horizontal fiscal equalization. It submits its recommendations to all finance ministers for review and implementation. In India, the Finance Commissions of India are constituted to make recommendations to the president every five years on subnational transfers and how to improve revenue generation at the local level. Under the Indian constitution, the report must be presented to both houses of parliament and the government must respond to each recommendation.⁸⁴

While the more data-driven formal independent agencies—including supreme audit institutions and independent external auditors—can help support government decision-making on intergovernmental transfers, they also require high levels of capacity and access to data which is often unavailable in low-income countries. They are no substitute for a forum where politicians or technocrats from the regions can discuss revenue sharing with national authorities. These forums are particularly useful for discussing any potential modifications of the intergovernmental transfer system. They are also key to resolving disputes, something which is necessary if resource revenue sharing is to help mitigate conflict between regions or between the central and subnational governments.





6. ACHIEVING CONSENSUS

Resource revenue sharing can help build peace, prevent conflict, and address local claims to a share of resource wealth. It has encouraged rebel groups or secessionist movements in Bolivia, Brazil, Canada, the DRC, Indonesia, Nigeria, Papua New Guinea and the Philippines to engage in technocratic discussions over the formula and fiscal transfers rather than resort exclusively to violence. However, even in these ostensibly successful examples we find continued disagreement over the distribution formula and conflict over whether subnational authorities are receiving their entitlements. In some cases, constant negotiation is a sign of healthy political discourse, as in the case of the regular meetings of Canada's first ministers. But in others it is a sign of political instability and continued discontent among subnational leaders.



In other countries, it is unclear whether revenue sharing has achieved its goals. A 1997 deal between the Russian Federation and the region of Chechnya incorporated a guaranteed share of tariffs from oil pipelines and other petroleum-related payments. However, violence resumed in 1999.⁸⁵ South Sudan is in civil war despite a constitutional provision that two percent of oil revenues shall be allocated to producing states. Worse still, resource revenue sharing arrangements or the lack of transparency of these systems can exacerbate conflict, creating tensions or generating violent conflict. In Iraq and Peru, violent conflicts increased, driven by efforts from local governments and communities to extract a greater share of the revenues.

In general, there are three reasons why a revenue sharing regime might not achieve its intended objectives. First, the revenue sharing agreement may be poorly designed or designed not to meet its objectives. For instance, it could be established with the objective of compensating affected regions and then ultimately not benefit those regions. Second, the revenue sharing formula could be enacted without consensus or buy-in from relevant stakeholders, especially influential politicians, subnational authorities, local leaders and community groups. Third,

the agreement could fail to be implemented, for instance due to lack of political will or transparency and oversight deficiencies. Since good revenue sharing regime design, transparency and oversight have already been discussed, we will explore consensus building and codification of consensus here.

One way of ensuring that any revenue sharing legislation is clear, stable over time, promotes spending efficiency and achieves its objectives is to obtain consensus among all key stakeholders. As a vital first step, it is important that the parties recognize that ownership of natural resources, regulation and control of natural resources, and sharing of natural resource revenues are separate issues. Therefore, achieving consensus only on who owns natural resources is not enough to determine who gets the proceeds from natural resources.⁸⁶

Nicholas Haysom and Sean Kane (2009) outline a few major considerations in negotiating a revenue sharing formula, including:⁸⁷

1. **Transforming a political debate into a technical discussion:** Discussions around natural resource wealth distribution are often emotionally charged and highly political.



Focusing on technical issues such as common objectives, formula indicators and stabilization mechanisms can help transform an emotional debate into a rational discussion on the merits of different policy options. It can also help manage expectations of what revenue sharing can accomplish. Bringing in technical experts can help stakeholders better understand the trade-offs between different policy options and draw them together around a common cause.

2. **Sharing knowledge:** In most negotiations, parties are generally unequally informed on how revenue sharing systems work. Equalizing the knowledge base will not only help smooth the negotiations but will also prevent a situation where one party feels tricked once the agreement has been signed.
3. **Identifying stakeholders:** The principal protagonists in a resource wealth conflict—usually the central government or local authorities—may wish to include representatives of all groups affected by a resource revenue regime, otherwise these groups may undermine any agreement. Key stakeholders may include parliamentary

leaders, representatives from armed groups, local community representatives, civil society and religious leaders. Oil, gas and mining companies, international bodies (e.g. African Union, ASEAN, UN, World Bank) and experts could also be invited as advisors or observers. These groups can be involved in any stage of a multi-stage process as long as their views are reflected in the final outcome.

Once a consensus has been reached, it is important to codify the agreement in normative documents, such as constitutions, laws or regulations. While the constitutional route signifies a credible commitment by the central government to sharing revenues, it may require a significant amount of time and consensus-building to reach a stable and sufficiently detailed compromise. Furthermore, constitutions are fairly inflexible, usually requiring either a referendum or super-majority in parliament if they are to be amended. As a result, revenue allocation objectives, principles or formulas (or at least the method of determining the formula) are usually introduced through legislation.⁸⁸



7. RECOMMENDATIONS

Debates in several countries on resource ownership, local rights and role of the state highlight the need for a framework to develop revenue sharing arrangements or reform existing ones. While this paper analyzes arrangements in several countries and draws out global policies and practices, decisions on revenue sharing are extremely context specific, limiting our ability to provide generic advice. That said, from this research and our experiences we enumerate *10 recommendations* for efficient, fair and stable resource revenue sharing.

These principles are extrapolated from case studies and grounded in the Natural Resource Charter which emphasizes investing resource revenues to achieve optimal and equitable outcomes for present and future generations.^{89, 90, 91, 92}

RECOMMENDATION 1: Insist on clear objectives. Resource revenue sharing systems are often established without agreement on why they are being created. As a result, their design often fails to meet any specific objective, be it compensation for extractive activities, sharing benefits with producing regions, or prevention or mitigation of conflicts. It is also difficult to build consensus on a formula when the objectives have not been clarified. A regime need not have a single objective, but the objectives ought to be made clear in policy or legislation.

RECOMMENDATION 2: Align the revenue sharing system with its objectives. One reason that resource revenue sharing systems often do not meet their objectives is that the rules governing distribution of resource revenues do not reflect those objectives. This can be addressed by aligning tax collection assignments or the intergovernmental transfer formula with the goals of the system. For instance, a system intended to benefit affected subnational jurisdictions must target those jurisdictions by properly defining them. Similarly, if the objective is to reduce poverty, introducing an explicit poverty indicator into the formula would help achieve that goal.

RECOMMENDATION 3: Keep expenditure responsibilities in mind. In general, decentralization of fiscal revenues should be largely aligned with the costs of public service delivery given subnational expenditure assignments. Alignment prevents unsustainable public sector wage increases, local inflation and wasteful infrastructure spending when revenues greatly exceed the cost of local expenditure responsibilities. It also helps avoid under-provision of essential public services when

revenues are inadequate for meeting local spending requirements. This is equally true of decentralization of revenues derived from natural resources.

RECOMMENDATION 4: Choose appropriate revenue streams and fiscal tools. A government earns revenues from extractive industries through a variety of fiscal tools, including royalties, corporate income taxes and property taxes. In assigning or transferring natural resource revenues to subnational authorities, governments should consider how easy it is to calculate, collect and verify particular revenue streams. Royalties, for instance, are generally simpler to calculate, collect and verify than corporate income taxes. In addition, political considerations must also play a role in determining which revenue streams to share and choosing between intergovernmental transfers or direct tax collection of resource revenues by subnational authorities. For instance, if national level oversight of the extractive sector is weak or extractive sector data is not published by the national government, subnational governments may not trust the national government to transfer the amount they are entitled to and might seek to collect resource taxes themselves.

RECOMMENDATION 5: Smooth fiscal expenditures and make spending predictable. Large and unpredictable transfers of natural resource revenues can destabilize a local economy. Cycles of boom and bust also harm economic growth, as governments are likely to spend on ostentatious projects during booms and not plan appropriately for downturns. It is therefore incumbent upon central governments to either provide a predictable and smooth source of financing to local governments, or provide them with the tools to cope with resource revenue volatility. This can mean smoothing intergovernmental transfers to local governments or allowing them to address resource revenue volatility autonomously through debt management or saving a portion of their revenues in a sovereign wealth fund.

RECOMMENDATION 6: Make any revenue transfer formula simple and enforceable.

Any revenue transfer formula must be simple enough for local government authorities or civil society groups to verify compliance, even if they lack the tools to carry out sophisticated economic calculations. The ability to verify subnational entitlements and actual sums transferred builds trust between different levels of government and between governments and their citizens. Simplicity also helps prevent corruption since transfers are more easily verified under a simple system. In practice, this means setting a maximum of two objectives for any resource revenue transfer regime and including just a few variables in any resource revenue sharing formula.

RECOMMENDATION 7: Build a degree of flexibility into the system. Once decisions on resource revenue sharing have been agreed, it may be difficult to change them. However, political circumstances and economic conditions change and, in turn, it should also be possible to make small adjustments to any revenue sharing formula. Therefore, some countries have built-in provisions to regularly reconsider resource revenue sharing arrangements.

RECOMMENDATION 8: Achieve national consensus on the formula. Building consensus on a revenue sharing formula is extremely important for the stability of the formula and for meeting the regime's objectives, especially

in politically contested and ethnically diverse environments. If key stakeholders disagree on the formula and it is implemented nonetheless, the regime might be viewed as illegitimate and not addressing local concerns, leading to even greater conflict.

RECOMMENDATION 9: Codify the formula in law. Any revenue sharing formula should be codified in legislation or regulations. Codification improves predictability and forces authorities to discuss the objectives of any revenue sharing formula. It also encourages public debate on the advantages and disadvantages of certain proposals.

RECOMMENDATION 10: Make revenue sharing transparent and formalize independent oversight. Subnational governments can only know whether they are receiving their legal share of resource revenues if they can verify the value of revenues collected from mines and petroleum fields in their jurisdictions. Where these conditions do not exist, the resulting confusion undermines national government efforts to use resource revenue sharing to promote trust between levels of government or, in some cases, secure a lasting peace. Project-by-project and stream-by-stream data on revenues must be made publicly available. Independent audits covering revenue transfers and subnational tax collection should be carried out annually and the results made public.



APPENDIX: RESOURCE REVENUE SHARING CASE STUDIES

1. REVENUE SHARING CASE STUDY: BOLIVIA

Natural gas and oil revenues represent some of the largest sources of income for Bolivia's economy. In 2014 the oil and gas sector represented 8.7 percent of GDP and 55 percent of total exports. The sector has contributed to more than one third of the treasury's income in recent years. Bolivia is also a major producer of silver.

Bolivia is divided into nine departments, 112 provinces and 339 municipalities. Departments and municipalities raise very little own-source revenue and most of their revenue consists of intergovernmental transfers to finance expenditures. Departments are responsible for large infrastructure projects. Municipalities are responsible for infrastructure maintenance as well as many healthcare, education, police, culture, sports and tourism services, for instance.

Oil and gas revenues are transferred to subnational entities via two channels: a general intergovernmental transfer system and a derivation-based system. According to the general transfer system, municipalities are meant to receive 20 percent of general tax-based intergovernmental transfers to fulfil their mandates. This is called 'fiscal cooperation'. An additional source of revenue for municipalities (the 'heavily-indebted poor country (or HIPC) transfers') is allocated on the basis of poverty rates. Indigenous territories are also legally recognized and receive a small share of revenues.

The derivation-based system differs by revenue stream (e.g. royalties, profits tax). Royalties constitute the main source of oil and gas income for the four producing departments (Santa Cruz, Tarija, Cochabamba, and Chuquisaca). An 11 percent royalty is levied on all oil and gas production, distributed to departments by volume of production. Since Tarija's three fields contribute nearly 70 percent of Bolivia's national production of hydrocarbons, it has received 60 percent of total royalty payments since 2006. An additional compensation royalty of one percent is shared among the two poorest departments, Beni and Pando; two thirds to Beni and one third to Pando.

There is very little information available about the sharing of royalty revenue within each department. The only departments offering some information on this are Tarija and Santa Cruz. Tarija allocates 45 percent of its revenue from royalty payments to the province of Gran Chaco. Santa Cruz allocates its royalty revenue according to the 50/40/10 formula: 50 percent for producing provinces, 40 percent for non-producing provinces, and 10 percent for indigenous villages.

The Direct Tax on Hydrocarbons (IDH), a large profits tax introduced in 2005, is also distributed to departments by derivation. According to the law, each producing department is meant to receive four percent of the IDH and each non-producing department receives two percent. Within each producing department, departments retain one percent, municipalities are allocated 2.7 percent, and universities 0.3 percent. No specific percentage of either royalties or IDH needs to be spent on any specific expenditure item or project.

In October 2007, President Evo Morales changed the internal distribution of IDH revenue within departments: the share accruing to municipal governments would increase from 34 percent to 67 percent, while transfers made to departments would diminish from 57 percent to 24 percent. This change was part of the country's fiscal decentralization process. Municipalities today receive more than one third of their revenue from the IDH. In 2012, 47 percent of total revenue received by municipalities came from the IDH and the rest largely came from their participation in revenue received from the application of the general fiscal regime (fiscal co-participation), most of which does not necessarily come from the oil and gas sector.

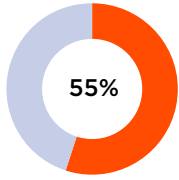
Revenue from the IDH also allows the government to finance a universal old-age pension scheme, *Renta Dignidad* (formerly known as *Bonosol*) as well as other conditional cash transfers programmes, such as the *Bono Juancito Pinto*.¹ While the distribution of revenue

1. The *Bono Juancito Pinto* is a cash transfer in Bolivia whose beneficiaries are children going to public schools. It was established in 2006 with the aim of reducing dropout rates. It is paid through two instalments, one at the beginning of the academic year and one at the end, each worth US\$14.5 per student.

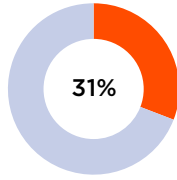
BOLIVIA

POPULATION (MILLION): 10.7

RESOURCE FOCUS:  Natural Gas



OIL AND GAS EXPORTS AS A SHARE OF TOTAL BOLIVIAN EXPORTS



OIL AND GAS REVENUE AS A SHARE OF 2014 GOVERNMENT REVENUE

PETROLEUM PRODUCING DEPARTMENTS

- Santa Cruz
- Chuquisaca
- Tarija
- Cochobamba



GOVERNMENT

Bolivia has a unitary system of government composed of three tiers: 9 departments, 112 provinces, and 339 municipalities. Departments and municipalities raise very little own-source revenue so they largely rely on intergovernmental transfers to finance spending.

WHOSE JOB IS IT?

DEPARTMENTS

- Education
- Healthcare
- Roads
- Electification
- Water

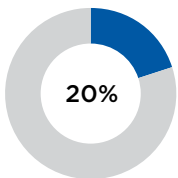
MUNICIPALITIES

- Education and health infrastructure
- Police
- Sports
- Culture
- Tourism

TRANSFERS

Oil and gas revenues are transferred to subnational entities via two channels: a general intergovernmental transfer system and a derivation-based system.

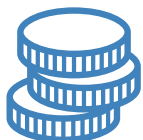
INTERGOVERNMENTAL SYSTEM



Municipalities are meant to receive 20 percent of general tax-based intergovernmental transfers to fulfil their mandates.

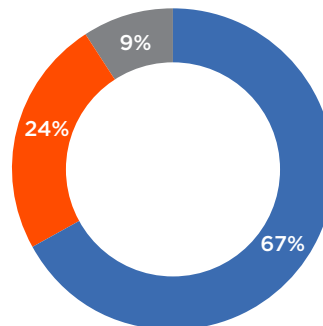


An additional source of revenue for municipalities (the 'heavily-indebted poor country (or HIPC) transfers') is allocated on the basis of poverty rates.



Indigenous territories are also legally recognized and receive a small share of revenues.

DIRECT TAX ON HYDROCARBONS (IDH) DISTRIBUTION



- Municipalities
- Departments
- Universities

Source: World Bank (2015).

from the IDH has been modified several times by President Evo Morales, the 11 percent royalty has been unaltered since its creation, and it constitutes a critical source of income for Bolivia's four producing departments. Bolivia's 2009 Constitution turned this royalty into a legal right, making it even more difficult to change.

The national government discloses a large amount of disaggregated information on oil, gas and mineral revenues and fiscal transfers. This allows local governments to verify they are receiving what they are entitled to. For example, the Ministry of Economy and Finance releases all data on transfers made to departments, municipalities and universities, as well as on cash transfers made to private beneficiaries (*Renta Dignidad* and *Bono Juancito Pinto*). The report provides the beneficiaries for each transfer and the amount. Intergovernmental transfers made to departments, municipalities,

and universities—including IDH transfers, but not royalties—are available on the Ministry of Economy and Finance webpage.² The Analysis Unit of Social and Economic Policy, an Executive Branch research unit, also offers disaggregated information on revenues transfer to and between departments, provinces and municipalities, including royalties.³ Additionally, a breakdown by type of revenue is available for each municipality: revenue from fiscal co-participation, HIPC flows and IDH transfers. The information is presented in a clear and understandable way. Finally, the website of the Ministry of Hydrocarbons and Energy contains a Royalty Information System, which provides information about the hydrocarbon production by department, field and company, as well as the value of hydrocarbons produced and the amounts in dollars received by each departmental government. The data is available on a monthly basis.⁴

2. The reports are available here: http://www.economiayfinanzas.gob.bo/?opcion=com_contenido&ver=contenido&id=2885&id_item=646&seccion=269&categoria=1523 and <http://www.economiayfinanzas.gob.bo/viceministerio-de-presupuesto-y-contabilidad-fiscal.html>.

3. The report is available here: http://www.udape.gob.bo/portales_html/dossierweb2012/doss0308.htm.

4. The data can be found here: <http://www2.hidrocarburos.gob.bo/index.php/viceministerios/97-viceministerio-de-exploracion-y-explotacion-de-hidrocarburos/liquidacion-de-regalias-y-participacion-al-tgn.html>.

2. REVENUE SHARING CASE STUDY: CHINA

The energy industry has played an important role in China's economic growth and contributed significantly to its GDP. According to BP's Statistical Review of 2014, China remained the world's largest energy producer, accounting for 19.1 percent of global energy supplies.⁵ It is the world's largest producer of coal, the fourth largest producer of oil, and the sixth largest producer of gas.⁶

Its energy resources are distributed unevenly. The northern region (north of the Kunlun Mountain-Qinling-Dabieshan line) accounts for over 90 percent of the country's proven coal reserves, with Shanxi and Shaanxi provinces being the two largest coal producers.⁷ China's major oil and gas fields are located inland, the bulk of which are contained within eight major basins located across the western and north-central parts of the country.⁸

China is unique in that, despite being the world's largest country by population and third largest in terms of territory, it has a unitary system of government and a strong degree of fiscal, administrative and political centralization. There are five levels of administrative units: provinces, prefectures, counties, townships and villages. At the provincial level, there are 23 provinces, four municipalities, five autonomous regions and two special administrative regions.

Permits for mineral, oil and gas production are issued by the Ministry of Land and Resources or its provincial branches. The Ministry of Land and Resources issues permits for: (1) mineral resources crossing provincial borders; (2) mineral resources in territorial waters and other marine areas under the jurisdiction of China; (3) mineral resources mined by foreign investors; and (4) mining of petroleum and natural gas. Its provincial-level branches issue permits for all other resource extraction activities.

To date, only three major national oil companies and one provincial oil company have received certification of legal status to exploit oil and gas. The three national companies are China National Petroleum Corporation (CNPC), China Petroleum and Chemical Corporation (Sinopec) and China National Offshore Oil Corporation (CNOOC). CNPC focuses largely on resources in Northern China, Sinopec controls the southern region and CNOOC explores offshore petroleum resources. The fourth company is the province-owned Shanxi Yanchang Petroleum Corporation. All four companies have many subsidiaries and branches across different areas and provinces. CNPC, for example, holds 16 oilfield services companies, 32 refining and chemical companies, and 149 other subsidiaries in China.

The major sources of revenues from mining, oil and gas extraction are taxes, royalties, mineral resource compensation fees, special petroleum proceeds and mandatory environment-related payments. State-owned enterprises (SOE) also pay dividends to the government.

In China, the central government has the power to set tax rates and subnational governments can only collect and manage the taxes assigned to them under the current tax regime. Since 1994, China has adopted a centre-local tax sharing fiscal system, under which: (1) the central government and the local governments draw up their own budgets and manage their administrative matters separately; (2) taxes are assigned between central and provincial government, and are categorized as central taxes, local taxes and shared taxes; (3) central tax administration and local tax administrations were established to manage tax collections; (4) the central government returns a certain percentage of taxes earned in a specific province to that provincial government annually; and (5) intergovernmental transfers are made annually.⁹

5. BP global statistical review *Country insight: China*, <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/country-and-regional-insights/china.html>

6. Ibid

7. Pew Center on Global Climate Change, *Coal in China: Resources, Uses, and Advanced Coal Technologies* <http://www.c2es.org/publications/whitepaper/coal-initiative-series/coal-china-resources-uses-and-advanced-coal-technology>

8. Xinhua News, "China's oil distribution", http://news.xinhuanet.com/energy/2012-07/16/c_123418808.htm

9. Decision of the State Council Regarding Implementing the Central-Local Tax Sharing Fiscal Management Mechanism, promulgated on 15 December 1993.

CHINA

POPULATION (BILLION): 1.37

RESOURCE FOCUS:



Oil, gas, and coal



LARGEST OIL AND GAS PRODUCING PROVINCES

- Heilongjiang
- Tianjin
- Shaanxi
- Shandong
- Xinjiang
- Sichuan

LARGEST COAL PRODUCING PROVINCES

- Inner Mongolia
- Shanxi

GOVERNMENT

China has six levels of administration: central, province, prefecture, county, township and village. The central, county and township governments are expressly responsible for service delivery. Provinces exercise unified leadership over the lower levels. Prefectures are monitoring bodies. Villages are merely organizational units.

WHOSE JOB IS IT?

CENTRAL

- National defense
- Foreign affairs
- Large infrastructure projects
- Universities
- Hospitals
- Geological prospecting

COUNTY

- Education
- Healthcare
- Public security
- Science and culture
- Urban and rural development
- Judicial administrations

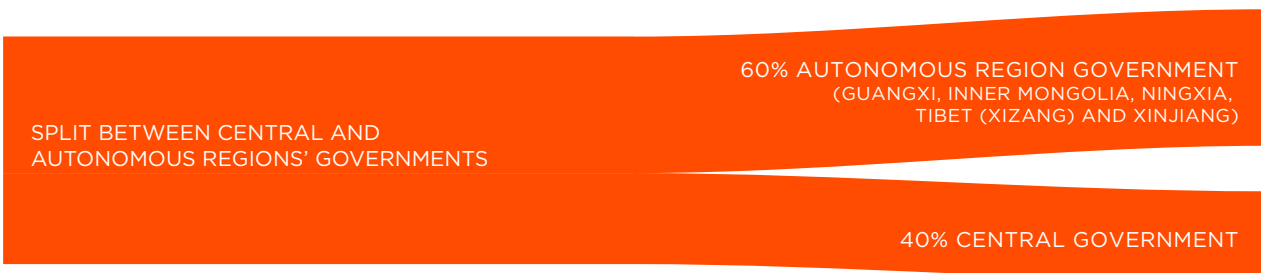
TOWNSHIP

- Maintenance of local infrastructure (e.g. roads)
- Sanitation
- Family planning
- Sports

NATURAL RESOURCE REVENUES

In 1997, the government started to levy mineral resource compensation fees. These fees now apply to most mineral production but not to oil, gas or coal extraction.

MINERAL RESOURCES COMPENSATION FEE DISTRIBUTION



Source: World Bank (2015); Lawrence Berkeley National Laboratory (2012).

There is no systematic legal text documenting all the taxes in China. Different kinds of taxes are stipulated in scattered laws, regulations and notices. The general legal framework was established by two notices: the Notice of State Council on Income Tax Revenue Sharing Reform Scheme, promulgated on 31 December 2011; and the Notice of Ministry of Finance on Corporation Income Tax Collected from Railroad and Other Enterprises Revenue Sharing and Related Issues, promulgated on 27 November 2002.¹⁰

Corporate income tax is the second most important source of fiscal revenues after VAT at the national level. According to the two notices above, for oil and gas companies corporate income taxes are retained by the central government while for other companies (including mining) they are shared between the central and local governments (60 percent and 40 percent, respectively).

VAT is the largest sources of revenue for the central government. Business taxes are by far the most important source of revenues for provincial governments. Another revenue stream from the extractive industry is the resource tax, the equivalent to a royalty. For oil and gas, resource taxes are calculated on the basis of revenues, while for most other mineral resources they are calculated on the basis of volume produced. As of October 2016, the resource tax rate on oil and natural gas was six percent.

For mineral resources (other than oil and natural gas), the Government also collects one-off royalty payments for exploration rights and annual royalty payments for exploitation rights. These payments are calculated on the basis of mining land acreage and are collected by the relevant level of the government (mostly provincial).

Since 1997, the government has started to levy mineral resource compensation fees. The main regulation governing them is the *Provisions on Administration of Collection of Mineral Resources*

Compensation Fees. This compensation fee was initially levied on all mineral resource extraction activities, but later was reduced to zero for crude oil and natural gas in 2014.¹¹ The compensation fee is shared by central and provincial governments. Generally, the distribution ratio is 50–50 for central and provincial governments, but for the five autonomous regions such as the Tibet Autonomous Region and Inner Mongolia Autonomous Region, the ratio is 40 percent for the central government and 60 percent for the provincial governments.¹²

Since 2006, Special Petroleum Proceeds have been levied. These levies were instituted to reap some of the profits associated with international oil price increases and are therefore similar to windfall profits taxes. They are sliding-scale levies, with rates varying depending on the international price of crude oil. They were instituted by the *Decision of the State Council on the Collection of Special Petroleum Proceeds* and are assigned to the central government.

In addition, SOEs owned by the central government pay dividends and other capital gains arising from dividends they receive from other enterprises in which they hold shares, income from the transfer of shares and from liquidation of SOEs.

The majority of resource revenue streams assigned to the central government are pooled into the national budget and redistributed together with other fiscal revenues. However, the central government share of royalties and compensation fees share need to be spent in their region of origin and are largely spent on state geological exploration.

Overall, the fiscal revenue sharing system is very centralized in China given the size of its population and territory. Consistent with this underlying fiscal framework, resource revenues are also quite centralized, with the exception of business taxes which are predominantly assigned to local governments. Some smaller revenue streams, such as royalties and resource

10. Notice of the Ministry of Finance on Railway Transportation and Other Enterprises Income Tax Sharing Related Matters, implemented on November 27, 2002; Notice of the State Council on Income Tax Sharing Reform Plan, implemented on 1 January 2002.

11. Notice of the Ministry of Finance and National Administration of Taxation on Adjusting Resource Tax of Crude Oil and Natural Gas Related Policies, promulgated on 9 October 2014. According to this Notice, the Compensation Fee of crude oil and natural gas was reduced to zero while the resource tax rate was increased to six percent.

12. Article 10, *Provisions on Administration of Collection of Mineral Resources Compensation Fees*, promulgated on 3 July 1997 by the State Council.

taxes, are either assigned to or transferred to provincial governments in accordance with the derivation principle. SOEs in the oil sector also pay dividends to the central government.

The lack of transparency in the fiscal framework governing resource exploitation and intergovernmental sharing arrangements

is significant, probably due in large part to the tremendous number of laws, regulations, notices, decisions and other normative documents. The oil and gas sector is dominated by three major SOEs which further complicates the revenue sharing mechanism. In contrast, for other mineral resources, the revenue sharing mechanism is more transparent.

3. REVENUE SHARING CASE STUDY: KYRGYZSTAN

The mining sector plays an important role in Kyrgyzstan. Mining accounted for 8.4 percent of GDP, 40 percent of total export earnings, and 17.5 percent of total government tax revenue in 2014.^{13, 14} Kyrgyzstan's extractive resource production includes gold, mercury, oil and gas, antimony, non-metallic mineral resources, and coal. Gold accounts for the lion's share of total production value. The largest mine in Kyrgyzstan is a gold mine, Kumtor, in operation since 1997. Kumtor alone accounted for about 68 percent of fiscal revenues generated by mining in Kyrgyzstan in 2012.¹⁵ Several other significant gold deposits are at various stages of late exploration, feasibility, development or production.

Kyrgyzstan is a unitary republic divided into *oblasts* (provinces) and two cities of national status (Bishkek, the capital, and Osh). Each *oblast* is divided into *rayons* (districts). *Rayons* are further subdivided into small cities and *aiyl aimaks* (rural municipalities), which can consist of one or more villages. As of March 2016, there are:

- 7 *oblasts*
- 40 *rayons*
- 29 small cities
- 453 *aiyl aimaks*

Substantial local governance reforms since 2012 have led to increased powers and independence of *aiyl aimaks*, and reduced the fiscal and administrative role of *rayons* and *oblasts*. In 2013, a two-tiered budget system was introduced, replacing a three-tiered budget system; government revenues began being distributed between republican and local budgets (budgets of *aiyl aimaks* and cities). The *oblast* and *rayon* budgets are incorporated into the national republican budget.

There has been near continuous conflict between local communities and mining companies since 2012. In 2013, 43 mining entities were identified

as being exposed to conflict or with potential for conflict.¹⁶ To address conflicts, the government has undertaken reforms of the mining licencing process and made efforts to increase allocation of resource revenues to mineral producing localities. While licences are granted by the central government, local communities are involved in licence application hearings, mainly via subnational authorities. Representatives of local authorities are included in the composition of tender and auction commissions along with representatives of various government bodies and members of parliament (in the case of tender commissions). Local communities, as well as mass media, can also directly monitor the auction process as each auction is held in the town or village near to the mineral deposits.

Almost all fiscal revenues from the natural resource sector—with the exception of property and land taxes and 'non-tax payments' discussed below—are collected by the central government. These include corporate income tax, value added tax, royalties and bonuses, excise taxes, customs fees, revenues from state property, dividends from state equity, and administrative fines. However, some of these revenues are automatically transferred to the *aiyl aimak* or city where they originate, including land and property taxes, administrative fines, and revenue from the management of municipal property.

In 2013, new natural resource revenue sharing legislation was adopted which provides local governments hosting mining projects with more revenues. In addition to land and property taxes, administrative fines and revenue from municipal property, a portion of corporate income and sales taxes, royalties, and auction and tender revenues are transferred to *aiyl aimaks* and small cities depending on whether or not the jurisdiction is affected by mining as defined by licence area. The amounts are not set in legislation and change from year to year.

13. State Geology and Mineral Resources Agency, *Development of the mining sector in the Kyrgyz Republic*, (2015).

14. Kyrgyzstan EITI report 2013-14, <https://eiti.org/report/kyrgyz-republic/2014>

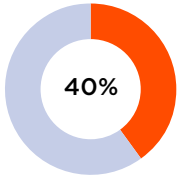
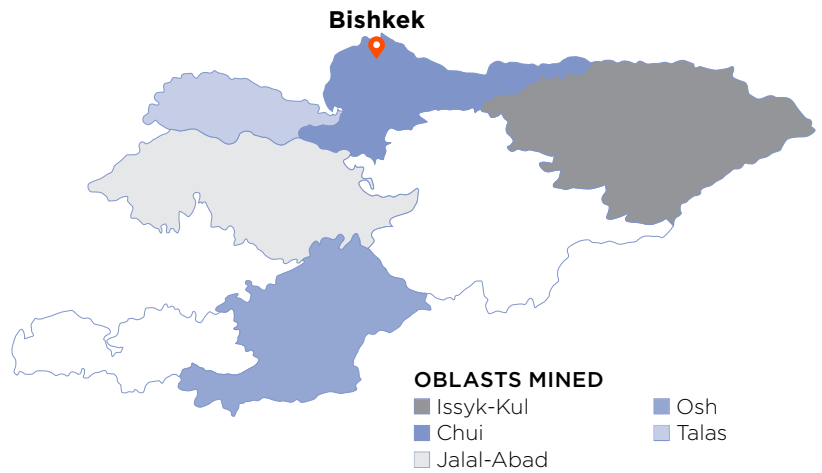
15. Based on figures in draft "Medium and Long-Term Strategy of Mining Industry Development of the Kyrgyz Republic", page 146, Table II.6.7: Tax revenues to the state budget from mining industry.

16. David Gullette, *Conflict sensitivity in the mining sector of the Kyrgyz republic* (OSCE Academy, Bishkek, 2014).

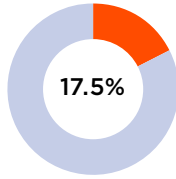
KYRGYZSTAN

POPULATION (MILLION): 6.0

RESOURCE FOCUS:



MINERAL EXPORTS AS A SHARE OF TOTAL EXPORTS IN 2014



MINING REVENUE AS A SHARE OF GOVERNMENT REVENUE IN 2014

GOVERNMENT

Kyrgyzstan has four levels of administration: National, *oblast*, *rayon* and *aiyl aimak*. Currently, only the national and *aiyl aimak* levels have their own budgets and significant expenditure responsibilities.

WHOSE JOB IS IT?

NATIONAL LEVEL^a

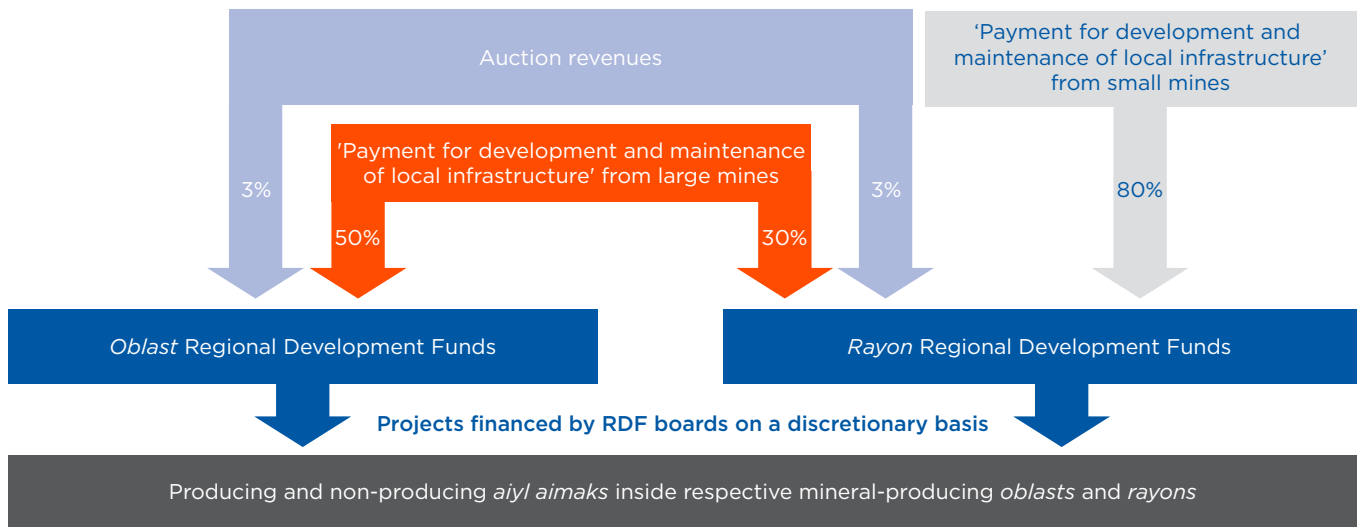
- Foreign affairs
- Scientific research and statistical services
- Defence
- Maintenance of state-owned enterprises and institutions
- Fuel and energy
- Transportation and communications
- Maintenance of *oblast* and *rayon* administrations

AIYL AIMAK AND SMALL CITY LEVEL

- Local economic development, including investment promotion and management of municipal property
- Maintenance of public utilities (e.g. roads, lighting, waste removal, parks)
- Drinking water
- Maintenance of municipal enterprises and institutions
- Public order and emergency response
- Municipal transportation
- Local historical and cultural monuments
- Mining property liquidation and conservation, mine site remediation, public environmental consultation, and local community consultations to prevent illegal interference in mining companies' activities

NATURAL RESOURCE REVENUES

MAJOR FLOWS OF MINERAL REVENUES TO REGIONAL DEVELOPMENT FUNDS (RDFS)



Source: World Bank (2015).

Note: a. There are also some projects where the Government shares expenditure responsibilities with local municipalities.

In brief, *aiyl aimaks* and small cities are allocated 50 percent of income and sales taxes, distributed among all *aiyl aimaks* and small cities as part of the normal intergovernmental transfer system, plus 50 percent of royalties from minerals except gold, oil and gas, distributed only among mining-affected *aiyl aimaks* and small cities. They also receive three percent of revenue generated by bids for mining licences plus seven percent of revenue generated by auctions, as well as payments made for retaining a licence.

In addition, a so-called ‘payment for development and maintenance of local infrastructure’—which is essentially a royalty—equal to two percent of mining companies’ gross income was introduced in July 2013 as a payment to producing areas. This type of ‘non-tax payment’ does not apply to coal, mercury or underground water resources. The purpose of this payment is to help *aiyl aimaks* and small cities with economic development and maintenance of local infrastructure.

As opposed to all other revenue streams, these ‘non-tax payments’ are collected directly by *aiyl aimak* tax authorities rather than the central government tax authority. However, due to capacity constraints, in practice they are supported by regional treasury offices. Twenty percent of these payments are directly allocated to the budgets of *aiyl aimaks* and cities where the mines are located, whereas 80 percent are allocated to the national budget for further distribution among all other *aiyl aimaks* via Regional Development Funds (RDFs).

RDFs were introduced in 2014 to finance the development of local infrastructure and the social-economic programmes of all *aiyl*

aimaks and small cities, including: greening and infrastructure, recreation, environmental protection, improvement of lands and irrigation systems, drinking water provision, new enterprise start-ups, preventing and mitigating disasters, tourism development, and renewal and acquisition of new technology and equipment. Under current regulations, RDFs can also be used to finance micro-credit loans and mortgages.

RDFs are divided into *oblast* and *rayon* development funds. *Aiyl aimaks* and small cities can receive financing from RDFs on a competitive basis upon submission of project proposals. A final list of project proposals to be financed is approved by supervisory boards, consisting of no fewer than 11 members, mostly national and subnational government officials with some representation by local politicians and NGOs.¹⁷ Even though no limitations on which villages or small cities can submit project proposals are envisaged in regulations, it is assumed supervisory boards will not provide funds to *aiyl aimaks* and small cities surrounding mines, as they already receive 20 percent of the payment. There are few guidelines on how to prioritize the projects which will receive financing, leaving the boards of the funds with much discretion. Furthermore, the funds are not subject to independent audits and, while they must publish quarterly reports, it is unclear what information they will include.

In addition to the ‘payments for development and maintenance of local infrastructure’, there are other sources of funds in the RDFs which come from various fees related to bidding for and retaining mining licences. These are outlined in Table A1.

17. Regulations on Regional Development Funds Formation Order.

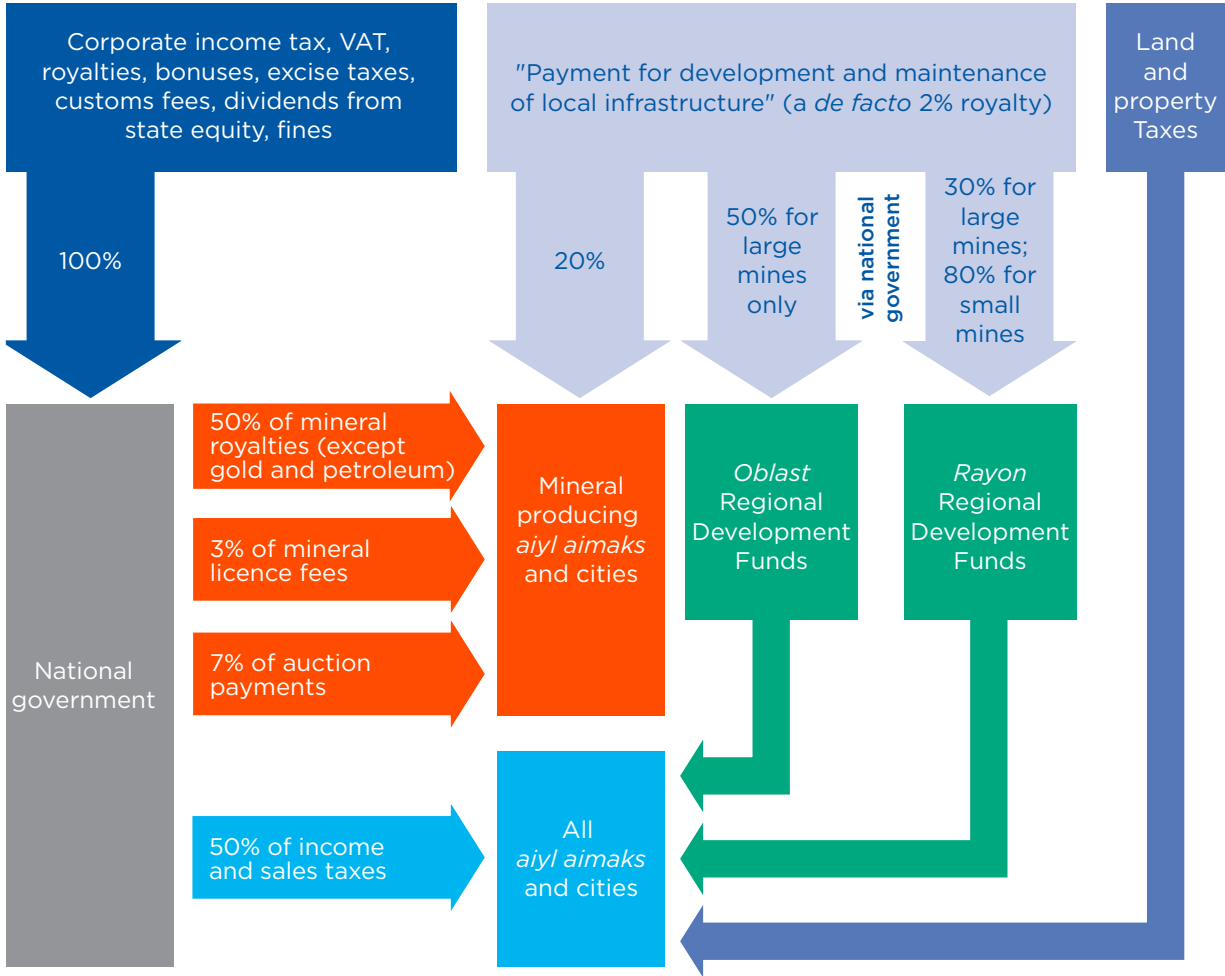
TABLE A1. Sources of Regional Development Funds

OBLAST DEVELOPMENT FUND	RAYON DEVELOPMENT FUND
50 percent of 'payment for development and maintenance of local infrastructure' from gold deposits with reserves of more than 50 tonnes and other mining objects of national importance	30 percent of 'payment for development and maintenance of local infrastructure' from gold deposits with reserves of more than 50 tonnes and other mining objects of national importance
	80 percent of 'payment for development and maintenance of local infrastructure' from gold deposits with reserves of less than 50 tonnes and other mines which are not objects of national importance
Three percent of revenues generated from auctions	Three percent of revenues generated from auctions
Payments for licence retention which are located on lands not belonging to <i>aiyl aimaks</i> and cities	100 percent of 'payment for development and maintenance of local infrastructure' located on lands belonging to forestry funds and land reserves
Voluntary contributions	Voluntary contributions
Other sources not prohibited by legislation	Other sources not prohibited by legislation

In addition to funds allocated directly to local budgets, mining affected *aiyl aimaks* and small cities enjoy social packages, either in form of money or in-kind contributions or both. Even though legislation requires social packages only with regard to mines and deposits of national importance (57 projects), in practice some other companies provide such additional benefits to local communities to mitigate potential conflicts. If mining companies decide to provide monetary payments to local communities, such funds are directed to specially created public funds. Since there are no transparency mechanisms required by legislation, it is difficult to monitor whether or not funds are used to improve the economic and social conditions of local people. Besides, because no clarifications are provided in laws and regulations on the amount of the social package, a 'fair' amount remains open to dispute, thus causing even more conflicts in some *aiyl aimaks*.

These measures—'non-tax payments' to local budgets and the social package—aim to provide local governments in mineral-producing areas with more revenues and, as such, compensate them for the negative impacts of mining and thereby reduce conflict. However, given that mineral production is still relatively small in Kyrgyzstan, and mineral prices have declined substantially since 2013, the amounts which can be received by local governments are currently relatively small. The system is also designed in a way that concentrates payments at the smallest administrative unit, which can pose challenges for good revenue management once mineral production and commodity prices increase.

FIGURE A1. Flow of Mineral Revenues to National and *Aiyl Aimak* Governments



4. REVENUE SHARING CASE STUDY: MALAYSIA

Malaysia is the world's second largest exporter of liquefied natural gas and the second largest producer of oil and natural gas in Southeast Asia. In addition, it has mineral resources such as tin, copper, coal and iron ore, although some of them, notably barite, copper and tin have depleted considerably.¹⁸ The mineral sector (including mining, oil and gas) accounts for 8 percent of GDP. The Malaysian economy is diversified, with manufacturing and services accounting for 80 percent of GDP, which means that Malaysia consumes a significant portion of its mineral, oil and gas output.¹⁹

Geographically, the country is divided into Peninsular Malaysia in the west and Malaysian Borneo in the east. It is a federal country composed of 13 states. The King is the head of state, elected for a five-year term from among the nine sultans of the Peninsular Malaysian states, and the Prime Minister is the head of the executive branch.²⁰ Executive power is vested in the federal government by the constitution. The cabinet is led by the Prime Minister. Legislative power is vested in a bicameral parliament consisting of the Dewan Rakyat (House of Representatives) and the Dewan Negara (Senate), and from there it is divested to each of the 13 state governments.

The majority of Malaysia's oil comes from offshore fields. Four states—Kelantan, Sarawak and Sabah in Malaysian Borneo, and Terengganu in Peninsular Malaysia—are major producers of petroleum and liquefied natural gas. Mining of metallic ores mostly takes place in the central region of Peninsular Malaysia, covering the states of Pahang, Terengganu, Kelantan, Johor, Perak and Selangor.²¹

Resource revenue sharing arrangements differ significantly for oil and natural gas on the one hand and minerals on the other.

Oil and natural gas resources are federally owned and placed under the ownership and control of Petronas, Malaysia's state-owned oil company. Petronas, established as a federal government-owned company under the Petroleum Development Act 144 of 1974, plays a central role in managing the Malaysian petroleum sector and petroleum revenue sharing arrangements.²² Petronas operates at all stages of petroleum and gas production from exploration to extraction to refining. Foreign companies need to enter into an agreement with Petronas to participate in Malaysia's oil and gas sector.

The main revenue streams from the petroleum sector are royalties (referred to as 'cash payments' in the Petroleum Development Act), crude oil export duty, petroleum income taxes and dividends.

Royalty rates are not specified in legislation but are agreed formally between Petronas, the federal government and a number of the relevant producing state governments.²³ They are also reflected in the production sharing agreements (PSAs) with private companies both domestic and foreign. However, the PSAs are generally not publicly available.

From news reports, it can be gleaned that current royalty rates are five percent for producing states and five percent for the federal government.^{24, 25} This has been the subject of complaint by several major producing states, such as Sarawak, which has lobbied for its royalty entitlement to be increased from five percent to

18. United States Geological Survey of Malaysia, 2014 Report, p.1. <http://minerals.usgs.gov/minerals/pubs/country/2013/myb3-2013-my.pdf> (accessed on 12 January 2016).

19. IMF Country Report, "Malaysia", March 2015, available at: <https://www.imf.org/external/pubs/ft/scr/2015/cr1559.pdf> (accessed on 15 January 2016).

20. Ibid.

21. Ibid.

22. See 'About US' section of website of PETRONAS at <http://www.petronas.com.my/about-us/Pages/default.aspx> (accessed on 12 January 16); Petroleum Development Act 144 of 1974, Sections 2 and 3, available online at Malaysia's e-Federal Gazette portal at: <http://www.federalgazette.agc.gov.my> (accessed on 11 January 2016).

23. US Library of Congress, "Crude Oil Royalty Rates", a research summary located online at <https://www.loc.gov/law/help/crude-oil-royalty-rates/index.php> (accessed on 13 January 2016).

24. See, for example, Anas Alam Faizli, "Malaysia's Oil Royalty Rumble", Malaysia Today, 9 April 2013, <http://www.malaysia-today.net/malaysias-oil-royalty-rumble/> (accessed on 15 January 2016).

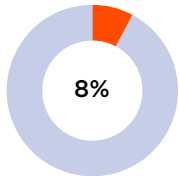
25. See also, NRG Revenue Sharing Working Paper (Draft dated September 2015), p 9: "Malaysia has a similar system whereby a fixed 5 percent royalty is given to producing states according to an agreement with PETRONAS the national oil company."

MALAYSIA

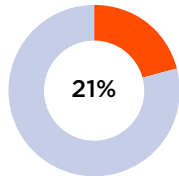
POPULATION (MILLION): 30.3

RESOURCE FOCUS:

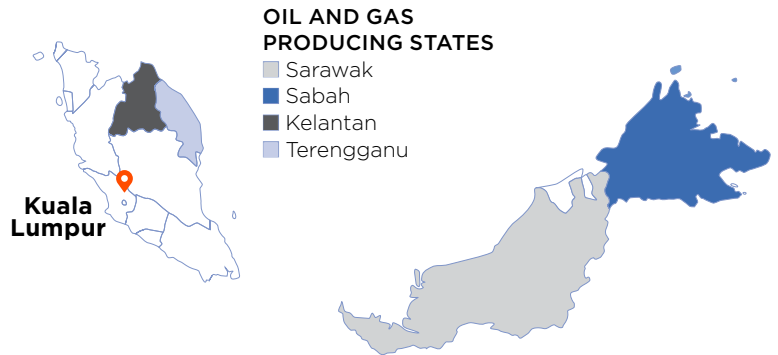
 Oil and gas



NATURAL RESOURCE RENTS AS A SHARE OF GDP



OIL AND GAS EXPORTS AS A SHARE OF ALL EXPORTS



GOVERNMENT

Malaysia is a federal country composed of 13 states and three federal territories. States are subdivided into district, mukim and kampung levels. The states of Sabah and Sarawak have a level between the state and district called a division. Districts are mostly responsible for implementing federal and state policies. They can delegate downward to mukim officials and kampung representatives.

WHOSE JOB IS IT?

FEDERAL

- External affairs
- Defense
- Police and internal security
- Pensions, welfare and unemployment insurance
- Ports and harbors
- Large roads, bridges, railways and ferries
- Water supply and water power (over multiple states)
- Education
- Healthcare

STATE

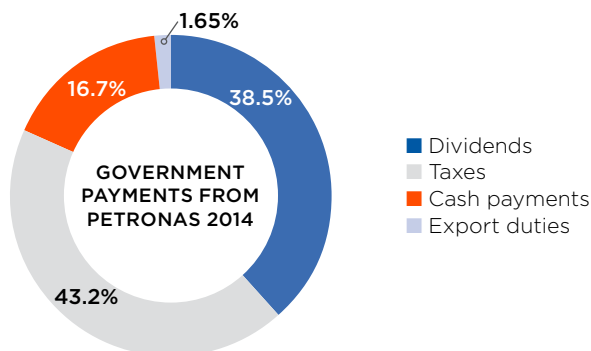
- Mineral leases and permits
- Land management
- Agriculture and forests
- Roads, bridges and ferries within a single state
- Rivers and canals
- Libraries and museums

CONCURRENT (FEDERAL AND STATE)^a

- Public health and sanitation
- Drainage and irrigation
- Mineral land rehabilitation
- Housing
- Culture and heritage

NATURAL RESOURCE REVENUES

Resource revenue sharing arrangements differ significantly for oil and natural gas on the one hand and minerals on the other. In general, Malaysia's resource revenue sharing system has strong derivation-based characteristics. One challenge is that the system lacks transparency.



Sources: World Bank (2015); World Bank (2014); The Observatory of Economic Complexity (MIT) (2014).

Note: a. According to schedule 9 of the federal constitution, the federal government is partly responsible for the "development of mineral resources, mines, mining, minerals and mineral ores, oils and oilfields; purchase, sale, import and export of minerals and mineral ores; petroleum products; regulation of labour and safety in mines and oilfields." State and federal governments are jointly responsible for the rehabilitation of mining sites.

20 percent.²⁶ Furthermore, Kelantan state claims that the federal government has not paid the five percent royalty since 1998. Kelantan filed a suit in 2010 demanding that Petronas pay outstanding and future cash payments for petroleum produced off the Kelantan coast.

All oil and gas companies also pay a petroleum income tax to the federal government and Petronas pays dividends to the federal government. In 2014, Petronas reported 75.3 billion RM (Malaysian ringgit; approximately US\$23 billion) in payments to different levels of government broken down as follows: 29 billion RM in dividends, 32.5 billion RM in taxes, 12.6 billion RM in cash payments and 1.2 billion RM in export duties.²⁷

In contrast with oil and gas, mineral resources are put more squarely under control of state governments, as set out in the constitution. The 1994 Mineral Development Act (MDA) allows states to enact their own 'State Mineral Development Acts'.²⁸ According to the MDA, state governments have the powers to issue mining licences. State governments are at various stages of adopting their own state MDAs. For example, Kelantan adopted one in 2001,

Selangor adopted one in 2000 and Sarawak adopted one in 2004.^{29, 30, 31} Sarawak's publicly available Mineral Ordinance 2004 demonstrates that mining companies pay licence fees, rents and royalties to the state government.

That said, according to schedule 9 of the federal constitution, the federal government is partly responsible for the "development of mineral resources, mines, mining, minerals and mineral ores, oils and oilfields; purchase, sale, import and export of minerals and mineral ores; petroleum products; regulation of labour and safety in mines and oilfields." State and federal governments are jointly responsible for the rehabilitation of mining sites.

Malaysia's resource revenue sharing system is mature, as its main elements were put in place in the 1970s. Oil and gas revenues are more centralized while mineral revenues are more decentralized. In general, Malaysia's resource revenue sharing system has strong derivation-based characteristics. However, the system lacks transparency. Payments to subnational governments are dependent on often secret intergovernmental agreements, PSAs and MDAs, and the payments themselves are usually not publicly disclosed.

26. See Tawie, Sulok, "Sarawak to ease demands on oil royalty in light of price slump, says Chief Minister", The Malay Mail, 11 January 2016, available at <http://www.themalaymailonline.com/malaysia/article/sarawak-to-ease-demands-on-oil-royalty-in-light-of-price-slump-says-chief-m#sthash.21ZskFay.dpuf> (accessed on 15 January 2016).

27. PETRONAS Annual Report, 2014, p.26,49. <http://www.petronas.com.my/investor-relations/Documents/Annual%20Report%202014.pdf> (accessed on 15 January 2015).

28. See website of Malaysian Chamber of Mines, 'Mineral Legislation'. http://malaysianminerals.com/index.php?option=com_content&task=view&id=218&Itemid=168 (accessed on 12 January 2016).

29. "Mineral Enactment 2001", gazetted on 2 August 2001, came into operation on 21 November 2001, and regulations came into force on 8 January 2000: see summary available through the website of Malaysian Chamber of Mines, at <http://malaysianminerals.com/images/datesofsme%27s.png> (accessed on 12 January 2016).

30. "Mineral Enactment (Selangor) 2000", gazetted on 22 June 2000, came into force 18 January 2001, and regulations came into force 25 October 2007. <http://malaysianminerals.com/images/datesofsme%27s.png> (accessed on 12 January 2016).

31. Minerals Ordinance 2004, Chapter 56, Laws of Sarawak, gazetted on 30 June 2004, entered into force on 1 July 2010: see <http://malaysianminerals.com/images/datesofsme%27s.png> (accessed on 12 January 2016).

5. REVENUE SHARING CASE STUDY: MONGOLIA

Mongolia has enormous natural resource potential and today is a significant producer of copper, gold and coal. On average, from 2006–2011, mineral revenues accounted for 27.6 percent of fiscal revenues, before declining to just over 16 percent from 2012–2014.³² In a country where local communities are often very small, scattered and impoverished, and there is a general lack of infrastructure or social services, expectations from large mining projects are high. Mining communities often find themselves in direct conflict with companies or the government because of a lack of dialogue and unrealistic expectations around resource-related benefits.

Over the last few years, the country has witnessed increasingly frequent conflicts between affected communities and mining companies. For example, in recent years local community representatives have confronted companies over environmental, local content, transparency, economic and other issues in almost all major mining regions. These include Khuvsgul over the impact of phosphorus deposit development, Umnugovi over water issues on Rio Tinto's Oyu Tolgoi project, and Dornogovi over the impact of uranium exploration on livestock and human health.

Mongolia is a unitary state with a limited degree of fiscal and political decentralization. It is administratively divided into 21 *aimags* (provinces) and 334 *soums* (districts). Both *aimags* and *soums* have elected representatives which constitute local parliaments (Citizens' Representative Khurals).

Most government revenues from the mineral and oil sectors are centralized. While the national government collects all major taxes from the extractive sector, including mineral royalties and corporate income taxes, local governments collect smaller taxes and fees, such as immovable property taxes, land use fees, vehicle taxes, water use fees and royalties on common minerals (gravel and sand). Mineral licences are issued by the national government; however, *aimags* and *soums* are consulted during the licensing process.

In recent years, some efforts have been made toward increasing fiscal decentralization. A key initiative in the decentralization process was the Local Development Fund (LDF) introduced in 2013 and funded partly from mineral royalties.

Due to the decline of mining revenues, the revenues of the LDF have declined substantially in recent years from 195 billion tögrögs (approximately US\$108 million) in 2014 to 106 billion tögrögs (approximately US\$56 million) in 2015.³³ The decline in mineral revenues has been a significant source of complaint from mining regions. In response, parliament amended the Budget Law, allocating 30 percent of mineral royalties from the locality (excluding royalties from 'large projects of national amplitude') and 50 percent of mining licence fees from the relevant *aimags* and *soums* to the LDFs of those localities. These changes came into effect in January 2016.

Decisions on the uses of LDFs are carried out in a participatory manner. In this way, the LDF spending decision-making process is a significant departure from that used previously in Mongolia. Public discussions are held at each level of administrative unit regarding projects to be funded from an LDF in each locality. These needs are then aggregated and prioritized, and proposals are submitted for financing from the LDFs.

LDFs suffer from several weaknesses, some of which are related to design and others to implementation. In terms of design, considering the insignificant amounts of funds which circulate through the LDFs, they utilize a complex formula for allocation. The funds also do not have clear-cut objectives. Finally, the current allocation formula which uses population size results in a significantly higher level of allocation to the capital city Ulaanbaatar, which is also the wealthiest region. The changes effective as of January 2016 adopt a more derivation-based system of resource revenue sharing, though the design complexity remains.

32. Data for 2006–2011 is from U. Gankhuyag and O. Banzragsh, Extractive industry and the financing of child-inclusive social development in Mongolia (2014). Data for 2012–2014 is from IMF, Mongolia: 2015 Article IV Consultation Staff Report (2015).

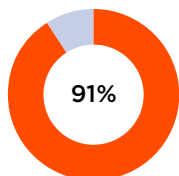
33. Ibid.

MONGOLIA

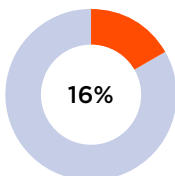
POPULATION (MILLION): 3.0

RESOURCE FOCUS:

 Coal, copper and gold



OIL, GAS AND MINING EXPORTS AS A SHARE OF TOTAL EXPORTS



MINERAL REVENUE AS A SHARE OF GOVERNMENT REVENUE

LARGEST MINERAL PRODUCING AIMAGS (2014)

- Orkhon
- Selenge
- Tuv
- Umnugobi



GOVERNMENT

Mongolia is a unitary state administratively divided into 21 aimags (provinces) and 334 soums (districts). Both aimags and soums have elected representatives which constitute local parliaments (Citizens' Representative Khurals).

WHOSE JOB IS IT?

NATIONAL

- Education services
- Health services
- Defense
- Pensions
- Foreign affairs
- Mining
- Energy
- Industrial policy
- National transport infrastructure (e.g. roads, railways)

CITY AND AIMAG

- Urban planning and establishing new infrastructure
- Social care, welfare services and poverty alleviation
- Development of small and medium-sized enterprises
- Water supply, sewerage and drainage systems
- Housing
- Public transport
- Environmental protection and rehabilitation
- Large-scale roads and bridges
- Utilities for public areas, landscaping, public hygiene, street lighting, cleaning, and waste removal
- Maintaining electrical infrastructure

SOUM

- Utilities for public areas, public hygiene, street lighting, cleaning and waste removal
- Protection of nature and the environment
- Public lighting
- Maintenance of sidewalks, recreational areas and children's playgrounds

NATURAL RESOURCE REVENUES

Effective January 2016, mineral producing *aimags* receive:

30%
MINERAL ROYALTIES FROM LOCALITY

EXCLUDING ROYALTIES FROM LARGE PROJECTS OF NATIONAL AMPLITUDE

50%
MINING LICENSE FEES

NATIONAL

- Corporate income tax
- Value added tax
- Excise tax
- Customs duties
- Fuel and diesel tax
- Mineral royalties
- Mining licence fees
- Air pollution fees
- Water pollution fees
- SOE dividends

CITY AND AIMAG

- Personal income tax
- Land use fees
- Immovable property tax
- Vehicle tax
- Water use fee
- Common minerals royalty
- Income on local property

6. REVENUE SHARING CASE STUDY: NIGERIA

Nigeria is Africa's largest oil exporter, and the world's tenth largest oil producer, accounting for more than 2.2 million barrels a day.³⁴ In 2011, oil revenues generated US\$50.3 billion, representing approximately 70 percent of government revenues. Despite producing oil for over half a century, Nigeria continues to suffer from high poverty rates.³⁵

Nigeria operates a federal system of government composed of three tiers: a federal government, 36 states and a federal capital territory, and 774 local governments. Each of these levels has constitutionally defined functions.³⁶ The constitution also guarantees the existence of a democratically elected system of local government. The federal government of Nigeria is currently responsible for defence, foreign affairs, law and public order, railways, telecommunications, roads of national interest, and air and sea travel. States are to provide education, healthcare, and public works within their jurisdictions, and ensure the promotion of economic and social growth. Although the constitution recognizes the 774 local governments, the federal government assigns most of their administration to state governments, making them mainly agents of their state government. State governors are considered to be very powerful in the country as they control lavish budgets and often undertake fiscal affairs without consulting the federal government, civil society, international donors, or local constituencies.³⁷

The federal government of Nigeria makes monthly revenue transfers to all state and local governments from the Federation Account. These transfers, which represent approximately 80 percent of total federally-collected revenue, mainly consist of oil and gas revenue.” should be changed to “which represent approximately 80 percent of subnational fiscal revenues, are mainly derived from the oil and gas sector.”³⁸

A critical part of Nigerian politics—petroleum revenue sharing—has historically created tensions between producing areas in the Niger Delta and the federal government. In a context of fiscal federalism, the oil-producing regions in Nigeria continue to demand more revenue from the centre, although transparency and accountability of these revenues, especially at the subnational level, are largely absent.

In the 1970s, oil became the largest source of revenue for the country. People in the Niger Delta region, who mostly represent ethnic minorities, believed that the new allocation formula had been structured to the detriment of oil-producing states.³⁹ This led to the elected state governments and community-based organizations in the region mobilizing to demand a larger proportion of federally collected oil revenue, following the derivation principle.⁴⁰

As a result, no less than 13 percent of oil revenues should be allocated monthly to states according to each state's level of production. The amount received by each producing state is then shared among state and local governments according to relative revenue contribution. The remainder of the budgeted oil revenue is then channelled to the federation account. Although total oil and gas revenue has increased over the years, the share accruing to the producing states through the derivation principle has decreased, from 50 percent of total budgeted oil revenue in 1967 to the 13 percent share established by the 1999 Constitution and continuing today.⁴¹ Oil-producing states also receive a share of money in the Excess Crude Account, a sovereign wealth fund that occasionally saves a portion of Nigeria's oil and gas revenues. However, these are disbursed by the federal government on a discretionary basis.

34. Resource Governance Index 2012, Nigeria Country Profile.

35. Relative poverty as defined by the National Bureau Statistics of Nigeria refers to the living standards of the majority in a given society or country, and separates the poor from the non-poor. Households with expenditure greater than two thirds of 'total household per capita expenditure' are non-poor, whereas those below it are poor.

36. Vanessa Ushie, *Political Decentralization and Natural Resource Governance in Nigeria*, Research Report (The North-South Institute, 2012).

37. Ibid.

38. Fiscal Allocation and Statutory Disbursement Audit 2007–2011, Summary Report, NEITI, 2014, p.27.

39. Prior to the 1970s, 50 percent of the oil was allocated to these states, compared to the current share of 13 percent.

40. Ibid.

41. Ibid.

NIGERIA

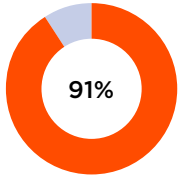
POPULATION (MILLION): 182.2

RESOURCE FOCUS:  Oil

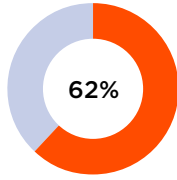


OIL PRODUCING STATES

- Abia
- Akwa Ibom
- Bayelsa
- Cross River
- Delta
- Edo
- Imo
- Lake Chad
- Ondo
- Rivers



OIL AND GAS EXPORTS AS A SHARE OF TOTAL EXPORTS



OIL REVENUE AS A SHARE OF GOVERNMENT REVENUE

GOVERNMENT

Nigeria operates a federal system of government composed of three tiers: a federal government, 36 states and a federal capital territory, and 774 local governments.

WHOSE JOB IS IT?

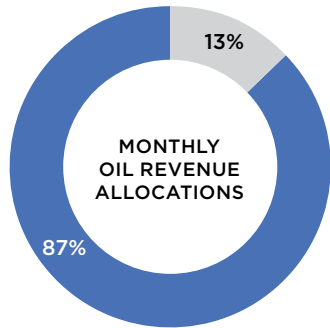
FEDERAL

- Defense
- Foreign affairs
- Public law and order
- Railways
- Telecomms
- Roads of national interest
- Air and sea travel

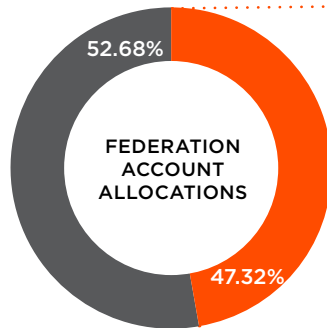
STATE

- Education
- Healthcare
- Public works
- Economic and social growth

TRANSFERS

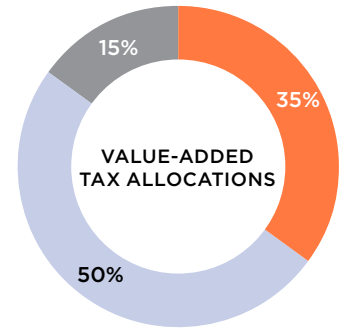
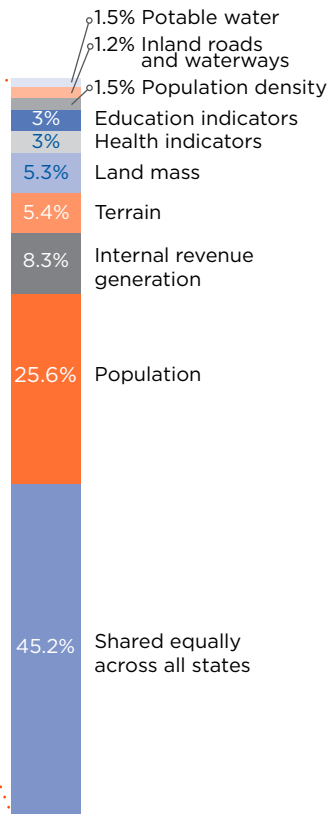


- Directly to producing states
- Deposited in Federation Account



- Retained at federal level
- Allocated to local and state governments via Revenue Mobilization, Allocation and Fiscal Commission (RMAFC) formula

RMAFC FORMULA



- Local governments
- State governments
- Consolidated revenue fund of the federation

Sources: World Bank (2015); The Observatory of Economic Complexity (MIT) (2014); IMF (2016) (2014 data).

Dependence on oil revenue is particularly high for oil producing states, namely Akwa Ibom, Bayelsa, Delta, Rivers, Imo and Ondo, all of which are in the Niger Delta region. Among the six states studied, Akwa Ibom and Bayelsa depend the most on oil revenue. In every year in the period from 2007–2011, oil revenue for these two states represented more than 80 percent of their total revenue.

Revenue from the federation account is then distributed as follows: 52.68 percent is retained at the federal level and the rest is allocated to local and state governments according to a formula, which is proposed by the Revenue Mobilization, Allocation and Fiscal Commission (RMAFC) and approved by the National Assembly. The formula has not changed since 1999. It allocates revenue to local and state governments based on the following 10 economic and demographic indices: 45.2 percent equally shared across all states, 25.6 percent based on population, 8.3 percent based on internal revenue generation, 5.3 percent based on land mass, 5.4 percent based on terrain, 1.5 percent based on population density, 1.2 percent based on rural roads and inland waterways, 1.5 percent based on potable water, 3 percent based on health indicators, and 3 percent on education indicators.

Alongside the transfers made from the federation account, the three tiers of government are also allocated revenue from the VAT pool. The VAT pool is shared as follows: 35 percent for local governments, 50 percent for state governments, and 15 percent for the Consolidated Revenue Fund of the Federation.

Several national government institutions in Nigeria publish information on subnational revenue transfers. These include some publications from the Ministry of Finance on revenue sharing with subnational governments, reports published by the Office of the Accountant-General, and information disclosed by the Central Bank of Nigeria. Nigeria's Ministry of Finance publishes only aggregate level data and it only covers some periods of time. The Office of the Accountant-General has monthly Federal Accounts Allocation

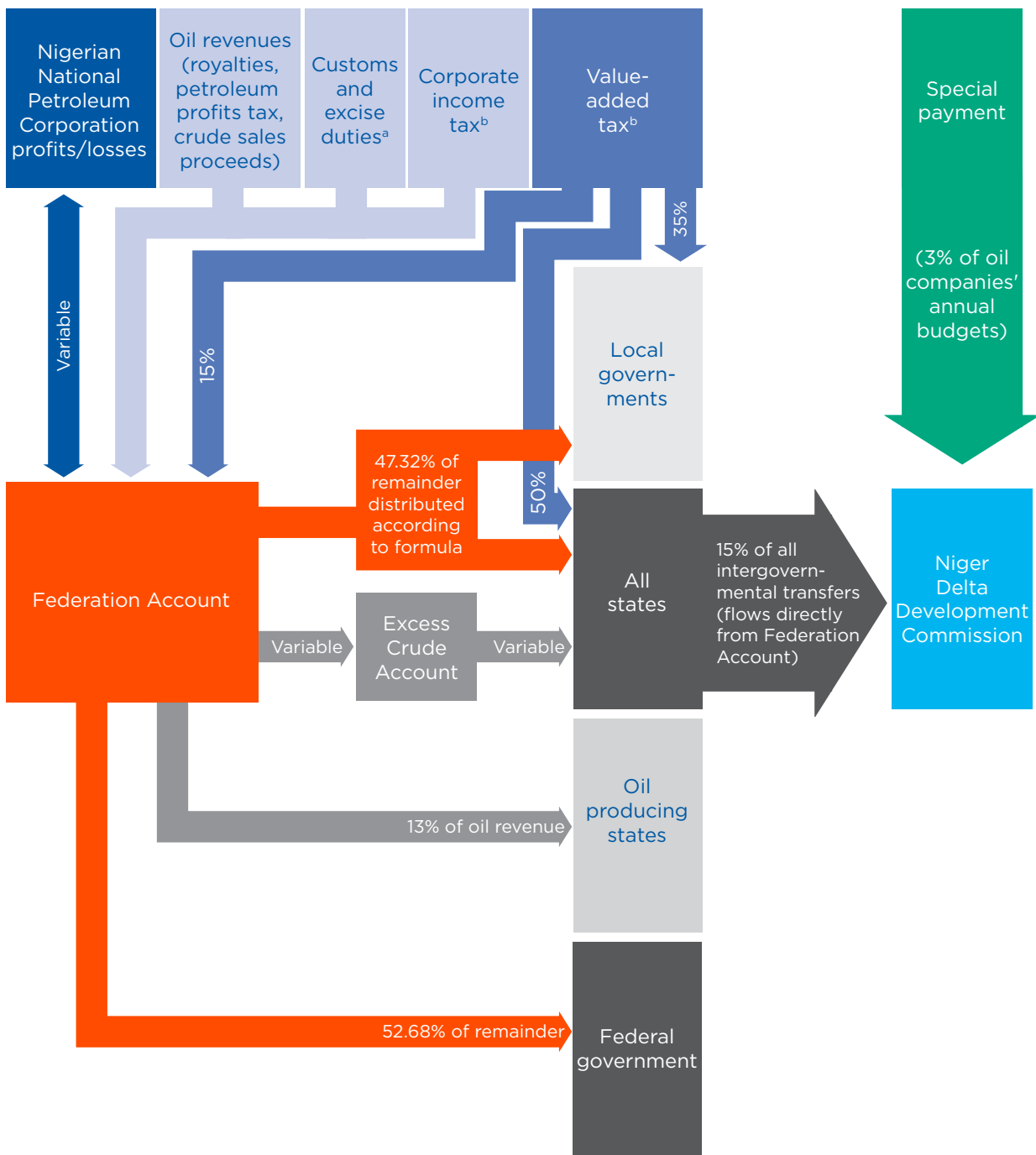
Committee (FAAC) reports which can be downloaded. The most recent publicly available report is dated July 2015. The FAAC reports, which contain information on revenue transfers to the states and local governments, are detailed, comprehensive and easy to read. In the context of fiscal federalism in Nigeria, the 36 state commissioners of finance are members of the FAAC, which approves distribution of revenues between the three tiers of government on a monthly basis. This means that the published sums are agreed by all parties before publication by the Ministry of Finance.

The Central Bank of Nigeria (CBN) publishes information on disaggregated revenue flows to the states and local governments, and overall subnational finances in its reports (annual and in-year). The CBN reports are detailed and comprehensive, and include the subnational share of transfers to and from the Excess Crude Account, foreign exchange gain, non-oil tax revenue, and internally-generated revenue. The CBN's published information on subnational revenue transfers is also comprehensive, particularly with regard to the Annual Report and Annual Statistical Bulletin, which include notes on statistical methods, and a general description of fiscal policy management in Nigeria. Finally, the Nigerian Extractive Industries Transparency Initiative (NEITI) Fiscal Allocation and Statutory Disbursement (FASD) audit report details allocations made to the three tiers of governments and special funds, and analyzes the application of the funds. The latest report was published in 2014 and covers the period 2007–2011. It can be found on the NEITI website.⁴²

States do not publish information on monthly revenue receipts from the federal government. Bayelsa is the only state which discloses the revenue transferred to it from the federation account. The 2012 Bayelsa Income and Expenditure Transparency (BIET) Act makes it mandatory for Bayelsa State and its local governments to declare the total amount transferred to them within 14 days from the first day of every new month.

42. NEITI Secretariat, NEITI: Fiscal allocation and statutory disbursement audit 2007–2011. Summary Report (Nigeria Extractive Industries Transparency Initiative, Abuja, Nigeria, 2014). http://www.neiti.org.ng/sites/default/files/pdf_uploads/NEITI-FASD-Audit-Report-2007-2011/NEITI-FASD-Audit-Summary-Report-2007-2011-300614-SS.pdf

FIGURE A2. Resource Revenue Sharing in Nigeria



Notes:

- 93% of the custom and excise duties is transferred to the Federation Account, and the remaining 7% is transferred to the Nigerian Customs Service (NCS).
- 96% of the revenue collected from the Corporate Income Tax is transferred to the Federation Account. The remaining 4%, which represents the cost of collection, is transferred to the Federal Inland Revenue Service (FIRS). Similarly, 96% of revenue from the value-added tax is transferred to the VAT pool, and the remaining 4% is kept by the FIRS.
- Distribution among local and state governments is made as follows: 40% equally shared, 30% according to population, 10% according to geographical extension, 10% according to revenue raising effort.

7. REVENUE SHARING CASE STUDY: PHILIPPINES

Natural resource activities in the Philippines represent a growing share of the economy. The archipelago boasts sizeable reserves of nickel, gold, silver, copper, zinc and chromite, and currently produces modest quantities of oil and natural gas. Between 2003 and 2013, the official share of minerals in total exports increased from approximately two percent to more than six percent, though government statistics do not account for severe underreporting of production and extensive illegal mining. The Philippines became a candidate country to the Extractive Industries Transparency Initiative (EITI) in May 2013.

The smallest administrative units are known as *barangays*.⁴³ Cities and municipalities are composed of multiple *barangays*. While most city and municipal governments fall under the jurisdiction of the Philippines’ 81 provincial governments, 38 highly urbanized cities are administered independently.

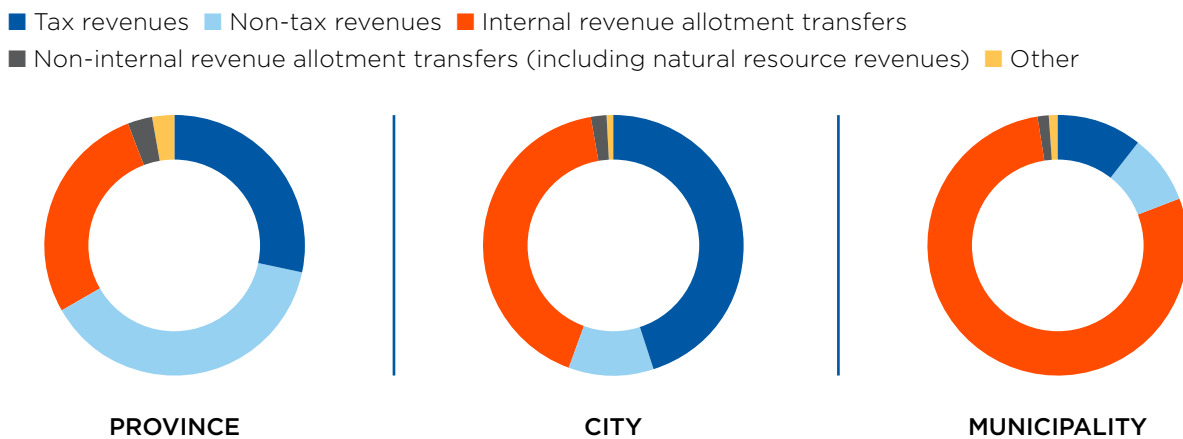
Subnational governments at the municipal and provincial level play an important role in service delivery and local economic development. The Philippines undertook significant decentralization in 1991 with the enactment of the Local Government Code (LGC) which devolved responsibility for administering local infrastructure and public works, agricultural

extension, health and hospital services, social welfare and housing, community-based forestry, solid waste management, and tourism promotion to subnational governments. The LGC and other laws outlining subnational responsibilities also grant local governments limited regulatory powers, including the authority to issue licences for small-scale mining, reclassify agricultural lands, and enforce the national building code and environmental laws, including small-scale mining laws.

Expanded operations under this broader mandate are funded largely through transfers from the central government, which accounted for approximately 12 percent of the 2015 national budget. According to the Bureau of Local Government Finance, in 2014, payments from the central government accounted for 65 percent of local government units’ combined operating income, with local tax and non-tax revenues representing 35 percent of total subnational revenues. Dependence on central government transfers among provincial and municipal governments averaged nearly 80 percent.

The 1987 constitution stipulates that “local governments shall be entitled to an equitable share in the proceeds [...] of national wealth within their respective areas.” The LGC stipulates that subnational governments are

FIGURE A3. Source of City, Provincial and Municipal Government Revenues, 2014




Source: Bureau of Local Government Finance

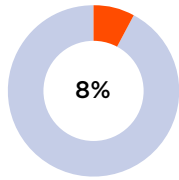
43. In June 2015 there were more than 42,000 bangarays.

PHILIPPINES

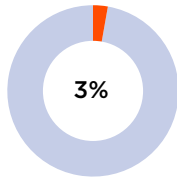
POPULATION (MILLION): 100.7

RESOURCE FOCUS:

 Nickel, gold, silver, copper, zinc, and chromite



MINERAL EXPORTS AS A SHARE OF TOTAL EXPORTS



NATURAL RESOURCE RENTS AS A PERCENTAGE OF GDP

LARGEST MINERAL PRODUCING REGIONS (BY VALUE)

- Cagayan Valley
- Bicol Region
- Central Visayas
- Caraga
- Cordillera Administrative Region



GOVERNMENT

The Philippines operates as a unitary government with 81 provinces, 38 cities and tens of thousands of *barangays*. Cities and municipalities are composed of multiple *barangays*. The Philippines undertook significant decentralization in 1991 with the enactment of the Local Government Code (LGC) which devolved responsibility for many services to subnational governments.

WHOSE JOB IS IT?

RESPONSIBILITIES GRANTED TO LOCAL GOVERNMENTS

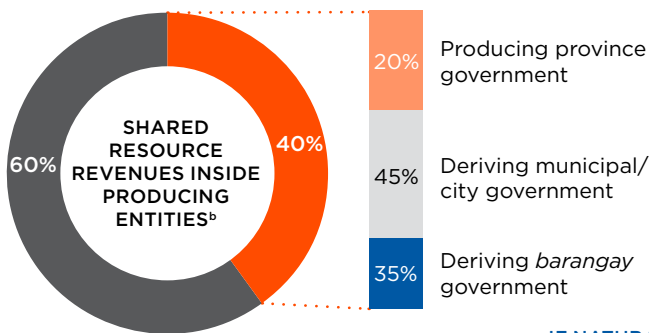
- Administering local infrastructure and public works
- Agricultural extension
- Health and hospital services
- Social welfare and housing
- Community-based forestry
- Solid waste management
- Tourism promotion

SOME REGULATORY POWERS OF LOCAL GOVERNMENTS

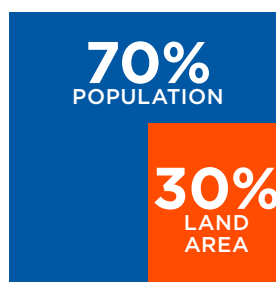
- Authority to issue licences for small-scale mining
- Reclassify agricultural lands
- Enforce the national building code and environmental laws, including small-scale mining laws
- Power of eminent domain
- Enforcement of National Building Code
- Regulation of real estate trade and business

TRANSFERS

The 1987 constitution stipulates that “local governments shall be entitled to an equitable share in the proceeds [...] of national wealth within their respective areas.”



IF NATURAL RESOURCES CROSS JURISDICTIONAL LINES, SHARES OF EACH JURISDICTION ARE DETERMINED BY WEIGHTING



1% ROYALTIES
THE PHILIPPINE MINING ACT OBLIGES OPERATORS TO PAY INDIGENOUS PEOPLES 1% ROYALTIES WHEN MINING OPERATIONS OCCUR WITHIN ANCESTRAL LANDS

Sources: World Bank (2015); The Observatory of Economic Complexity (MIT) (2014); World Bank (2014); PEITI (2015).

entitled to 40 percent of gross taxes, royalties and charges from mining, forestry, fishery and other similar activities from the preceding fiscal year. If resource extraction is undertaken by a government agency or state-controlled corporation, local government units' share of extractive revenues is determined by the central government as the greater of: (a) one percent of the company's gross sales from the preceding calendar year; or (b) 40 percent of total collections from mining taxes, royalties, forestry and fishery charges, and fees levied in their jurisdiction.

These resource revenues (the 40 percent due to local governments) are further allocated to province, municipality/city and *barangay* governments as follows: the government of the province where the resource is located will receive 20 percent, the municipal/city government receives 45 percent, and the *barangay* government receives 35 percent of revenues. In other words, the non-producing *barangays* or municipalities of the producing province do not get any allocation. If natural resources are situated in an independent city, then the city government will receive 65 percent of revenues and the *barangay(s)* will receive 35 percent of revenues. If natural resources cross jurisdictional lines, the shares of each jurisdiction are determined based on population (weighted at 70 percent) and land area (weighted at 30 percent).

Where mining operations occur within the ancestral lands of indigenous peoples, the Philippine Mining Act obliges the operator to pay royalties equal to at least one percent of total revenues to indigenous groups. Under the Indigenous Peoples' Rights Act, any mining activities in ancestral lands can only be undertaken with Free, Prior and Informed Consent (FPIC) of the local indigenous peoples, providing some indigenous groups with an opportunity to negotiate higher revenue shares. In practice, few groups collect what they are entitled to or negotiate higher shares.

The LGC stipulates that "national wealth revenues" must be utilized by subnational governments to finance local development and livelihood projects in consultation with local development councils and elected representatives. At least 80 percent of local government revenues received from hydropower, geothermal or other energy projects are earmarked for projects aimed at lowering electricity costs.

However, the contribution of natural resource wealth to subnational governments' budgets is usually slight, even in many jurisdictions with significant natural resource wealth. Natural resource transfers are most significant for a small number of municipalities such as Claver and Tagana-an, where they account for between 30 and 40 percent of total revenues. Subnational governments also receive some revenues directly from local extractive industries, including business and property taxes as well as registration and permitting fees.

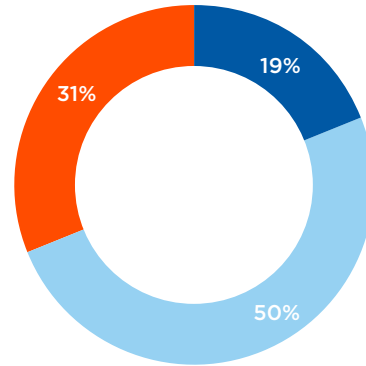
Calculation and distribution of extractive revenues to local government units involved coordination between multiple government agencies including the Department of Budget and Management (DBM), the Department of Finance (DOF), the Department of the Interior and Local Government (DILG), and the Department of Environment and Natural Resources (DENR). In 2009 and 2010, these four departments issued joint circulars to streamline the process. The process involves: (i) in February of Year 1, DENR gives estimates of annual volumes and values of mineral production for the current year to DOF; (ii) on the basis of this, DOF estimates taxes to be collected from mining companies in the current year, including a 40 percent allocation to be made to local governments and gives it to DBM; (iii) DBM includes this estimate in the budget proposal for Year 2; (iv) in Year 2, DENR gives DOF the actual volumes and values of mineral production of Year 1, on a per-project basis; (v) on the basis of this, DOF calculates the

actual taxes due to the government, including to local governments, and issues certifications on the basis of which transfers are made to local governments. In addition, DENR periodically informs DOF of newly issued mining licences and DILG periodically informs DOF of mergers and abolitions of local government units.⁴⁴

Despite the adoption of more streamlined procedures for the release of local government shares, it takes at least two years from the moment the mineral is extracted until the local government receives its due share. In addition, various tax exemptions and holidays for mining sector investors may delay the start of payments by three to six years, meaning local governments may wait years after mineral production starts to receive their shares or may receive far less than they expect. Figure A4 illustrates delays in excise tax shares. Finally, even upon receiving their shares, local governments lack detailed information about their due and actual shares received from mining and other natural resources.

FIGURE A4. Delays in Disbursement of Natural Resource Excise Tax Revenues to Local Government Units, 2012

- Payment received on time
- Payment received within 12 months
- Payment delayed more than 12 months



Source: Extractive Industries Transparency Initiative Scoping Study on Local Revenue Streams and Subnational Implementation

44. C.G. Soriano and E.P. Makayan, *Review of collection and distribution of revenues from natural resources*, (Philippines Poverty Environment Initiative, study commissioned by UNDP, UNEP, DILG and DOF by the, 2012).

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1. Philippe Le Billon, *Wars of Plunder* (Columbia University Press, New York, 2012).
2. Michael L. Ross, *The Oil Curse* (Princeton University Press, Princeton, 2012).
3. Nicolas Berman, et al., *This Mine is Mine! How Minerals Fuel Conflicts in Africa* OxCarre Research Paper 141 (2014). <http://www.oxcarre.ox.ac.uk/files/OxCarreRP2014141.pdf>
4. Michael Keating and Oli Brown, *Addressing Natural Resource Conflicts: Working Towards More Effective Resolution of National and Sub-National Resource Disputes* (Chatham House, 2015). <https://www.chathamhouse.org/publication/addressing-natural-resource-conflicts#sthash.82DKnHle.dpuf>
5. In this paper 'resource revenues' refer to revenues derived from extraction of subsoil non-renewable resources.
6. Examples of where revenue sharing was included in peace agreements, thereby helping to end civil war include Indonesia (Aceh and West Papua), Nigeria's Niger Delta, Papua New Guinea (Bougainville) and Sudan/South Sudan.
7. Richard M. Bird and Robert D. Ebel, "Fiscal federalism and national unity." In: Ehtisham Ahmad and Giorgio Brosio, eds., *Handbook of Fiscal Federalism* (Cheltenham, Edward Elgar Publishing Ltd, 2006).
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