PAGE PARTNERSHIP FOR ACTION ON GREEN ECONOMY

Un Peuple-Un But-Une Foi

Funds and mechanisms for the management of oil and gas revenues to support sustainable development:

Insights from country experiences and lessons for Senegal

Working Paper

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UN environment United Nations Environment Programme

ILO

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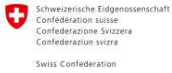
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Acronyms

ADNOC	Abu Dhabi National Oil Company
CEO	Chief executive officer
CNOOC	China National Offshore Oil Corporation
DRC	Democratic Republic of the Congo
ESIA	Environmental and social impact assessment
FCFA	CFA franc
FONSIS	Fonds souverain d'investissements stratégiques
GDP	Gross domestic product
IMF	International Monetary Fund
KDB	Korean Development Bank
MOGE	Myanmar Oil and Gas Enterprise
NRGI	Natural Resource Governance Institute
OECD	Organisation for Economic Co-operation and Development
ONGC	Oil and Natural Gas Corporation (India)
PEMEX	Petróleos Mexicanos
RDF	Regional development fund (Kyrgyzstan)
SWF	Sovereign wealth fund
UNDP	United Nations Development Programme
USD	United States dollar

Executive Summary

Senegal is likely to become a significant oil and gas producer by the start of the next decade. The Sangomar oil field and Tortue-Teranga gas field are proven large-scale discoveries and are expected to begin production between 2021-2023. While Senegal's combined oil and gas resources are not large by global standards, they can be an important driver of economic growth both as the resource is developed and over the peak production period, which could last a decade or more. However, should Senegal becomes oil *dependent*, the foreign capital inflows associated with oil and gas production could cause serious macroeconomic and governance challenges, notably lower quality public spending decisions and increased incidence of rent seeking.

Some types of funds and other institutional arrangements can help address these challenges. For example, enacting a fiscal rule is one generally effective tool for addressing some macroeconomic risks associated with the collection of large oil and gas revenues. Fiscal rules can give rise to the development of a sovereign wealth fund, which invest public money in foreign assets for safekeeping. Other common institutions found in oil- and gas-rich countries are national oil companies, such as Petrosen, budgetary funds that earmark resource revenues for a given set of expenditure items, and strategic development funds and development banks, such as FONSIS.

While each of these institutional arrangements can help improve management of oil and gas resources, each can also undermine public financial management systems or enable mismanagement, corruption or patronage. These risks are made evident by a troubled global history of managing extra-budgetary funds. That said, good institutional management of oil and gas funds is possible. It requires establishing a rigorous organization structure with clear roles and responsibilities; clear and appropriate inflow and outflow rules for oil and gas revenues; clear and appropriate rules for the management or investment of assets; and strong transparency and oversight provisions.

There are several policy options available to enable local communities to benefit from the presence of oil and gas resources. For example, the government can earmark a portion of oil and gas revenues for subnational governments located near fields or transport routes. The government can also enact local content laws or regulations to ensure that locals benefit from employment opportunities, supply oil and gas companies, or build skills and gain experience through their interaction with petroleum companies. Prior to and during the development phase of the field life cycle, the government can also negotiate with companies to encourage them to share their infrastructure with local communities—for example by allowing public access to roads

built for the company—or expand infrastructure capacity to serve local needs—for example by increasing internet capacity or electricity generation beyond company needs.

Locals can also benefit from the establishment of local funds or other financial vehicles. Community development and other corporate social responsibility-type funds are common. Companies generally contribute to these funds either voluntarily or as mandated by law, and the revenues that accrue to them are intended to serve local economic development needs. As with the case of national-level funds, the global experience is quite mixed; while some funds are governed by appropriate institutional structures with strong transparency and oversight provisions, others have failed to generate benefits for locals. As such, companies sometimes bypass formal structures such as funds, instead making cash or in-kind contributions to local communities, though this is not usually considered good practice from a governance perspective.

Finally, there are a number of financial vehicles available to promote good environmental management. At the individual level, companies ought to compensate those negatively affected by oil and gas production, for example through loss of livelihoods or environmental damage. At the macro level, companies ought to be subject to rigorous environmental and social impact assessments prior to project approval. These should cover a wide range of topics including environmental baseline studies, projection of impacts and a closure plan.

Good practice for oil field management involves setting aside a pool of money for closure and site rehabilitation. Governments can require a security deposit or bond in case of environmental damage, which can be held in trust by the government or a third party. These funds are designed to be relinquished to the company after it conducts satisfactory land reclamation and rehabilitation.

There remains a great deal of uncertainty concerning Senegal's fiscal revenue and non-fiscal benefit potential from the oil and gas sector. Projects are still years away from completion, oil and gas prices may shift dramatically within the next few years and decades, and development and operational costs are unclear. Yet the Government of Senegal is now in a position to begin considering different policy options, with an eye to being ready once project details become more well-defined.

One modest recommendation from our report of global experiences would be for the government to systematically weigh the costs and benefits of each of the options presented prior to choosing one or several. This would involve cross-ministerial consultations and discussions driven by the evidence, as well as discussion with cabinet members, parliament, and the broader

public. The more evidence is available to a wider spectrum of policymakers and engaged citizens, the more likely that the choices made will benefit Senegal as a whole.

Introduction

Senegal is likely to become a significant oil and gas producer by the start of the next decade. The Sangomar oil field and Tortue-Teranga gas field are proven large-scale discoveries and are expected to begin production between 2021-23. Several other fields have strong potential. Should all go as planned, Senegal will produce approximately 140,000 barrels per day on the Sangomar field and more than 1 trillion cubic feet of gas per year on the Tortue-Teranga field at planned peak production, placing Senegal in the range of the 40th largest oil producer and 20th largest gas producer in the world over those few years.[1] In short, while these resources are not large by global standards, they can be an important driver of economic growth in Senegal as the resource is developed and over the peak production period, which could last a decade or more.

A projection of fiscal revenues that will be generated by Senegal's petroleum resources is not publicly available. This is unsurprising given the uncertainly around gas prices and costs of production, especially pipelines and other related infrastructure. However countries with similar resource potential—such as Cameroon, Chad and Ghana—have earned in the range of USD 1 to 1.6 billion per year in oil and gas revenues in recent years.[2] Given that Senegal's fiscal revenues in 2015 and 2016 averaged just over USD 3 billion per year, natural resource revenues could, in theory, be significant for the government.

Should Senegal becomes *oil dependent*, the foreign capital inflow associated with oil and gas production could cause serious macroeconomic challenges. Dutch disease, lower quality investment driven by greater expenditure volatility, and government focusing too much on the resource sector rather than on broad-based economic growth are just some of the risks. Furthermore, specialized state institutions in oil dependent countries, such as national oil companies, tend to absorb large amounts of resources.[3] Some types of funds and other institutional arrangements can help address these challenges, as will be described in this paper. That said, any recommendations on managing these revenues would be dependent on which risks are most likely, which in turn would be dependent on reasonable revenue projections.

Regardless of the size of these revenues, there are a number of funds and mechanisms that can encourage the government to use them for maximum public benefit. Several of these financial

[1] Holle Energy (2017) *Energy Sector Analysis Senegal: Petroleum and Gas*, Netherlands Enterprise Agency, Ministry of Foreign Affairs; http://www.offshore-technology.com/projects/sne-deepwater-oil-field/
[2] Extractive Industries Transparency Initiative data, accessed 30 October 2017.
[3] NRGI (2015) *The Resource Curse*. Online: https://resourcegovernance.org/analysis-tools/publications/primer-resource-curse.

vehicles and mechanisms will be discussed in this paper, the aim of which is to inform the Government of Senegal of the policy options available to promote sustainable development through the management of oil and gas resources.

In Section 1, the paper discusses principles and international standards for natural resource revenue management and distribution. The section will cover the macroeconomic and governance challenges with specific emphasis on the role of state-owned companies and subnational governments. Section 2 will discuss the good governance of extra-budgetary funds which are commonly found in natural resource-rich countries. These include sovereign wealth funds, development banks / domestic investment funds, earmarking funds, community development funds and closure funds. Both the potential benefits and risks of different models will be discussed, drawing on many country examples. Section 3 will examine other measures to address environmental and social impact of extractive activities. Among the policies discussed will be Environmental and Social Impact Assessments, compensation to local landowners, local content rules, share-use infrastructure, and mandatory and voluntary social contributions by companies. The final section will conclude and offer several policy options for consideration by the Government of Senegal.

Principles and international standards for natural resource revenue management and distribution

Unique characteristics of non-renewable natural resource revenues

Managing fiscal revenues is one of any government's primary responsibilities. Governments must decide what systems and rules will determine how public funds are controlled and must make decisions around how revenues are distributed. However non-renewable natural resource revenues have special characteristics that constrain management choices or make certain choices more appropriate than others.

First, oil, gas and mineral production is location specific and super-profits. Manufacturers can move to new locations due to burdensome regulation or higher taxes, whereas non-renewable natural resource companies collect large rents and cannot move location. There are several implications. For example, governments have greater leverage to negotiate better deals with private operators in the resource sector than operators in the manufacturing sector. Also, local communities around fields or mines have leverage over national governments and companies. They can pressure governments and companies for a share of the benefits accruing from mines or petroleum fields. These characteristics increase the probability that conflict will arise around a mine or field.

Second, natural resources projects can increase fiscal revenues suddenly and be large relative to overall government revenue. For example, the start of production on Timor-Leste's Bayu-Undan oil and gas field caused a huge influx of foreign currency into the economy in the late-2000s. The sudden cash windfall often occurs during so-called 'peak production' on a new mine or oil or gas field, usually several years after production starts. In many cases, the government spends this entire windfall, without saving a portion or paying down public debt. While government officials, politicians and the general public may expect spending to improve schools, electricity, and other public services, instead the result may be a rise in domestic wages and prices without any substantial development outcome. Alternatively, the inflow of money can lead to exchange rate appreciation, which can harm domestic exporters. Together, these effects can cause a decline in non-oil or non-mineral industries and a lower standard of living for those disconnected from the resource sector. This is commonly known as the 'Dutch disease'.[4]

[4] 'Dutch disease' refers to the deindustrialization of an economy that can occur as a result of a large capital inflow. The disease is caused by a real exchange rate appreciation that causes exports to become more expensive, as well as by a shifting of labour and capital from other industries into the 'boom sector', for example the oil and gas sector. The capital inflow must be extremely large to cause the Dutch disease.

There is strong evidence of Dutch disease effects in Angola, Azerbaijan, Iran, Russia, Trinidad and Tobago and Venezuela, as well as at the subnational level in Brazil, Indonesia and Peru. On the other hand, there is no evidence of Dutch disease in Ghana, Mozambique or Tanzania since their oil or gas windfalls have been too small to cause Dutch disease.

The extent of the damage caused by the Dutch disease depends in part on the 'absorptive capacity' of the economy and the government. If the economy and the government can easily absorb the inflow of cash, then the Dutch Disease can be mitigated. The ability to overcome the Dutch disease depends, in part, on the existence of local public sector expertise to plan budgets, appraise projects and carry out public tenders efficiently, as well as the number and quality of engineers, construction workers, teachers or doctors to absorb new government spending.[5]

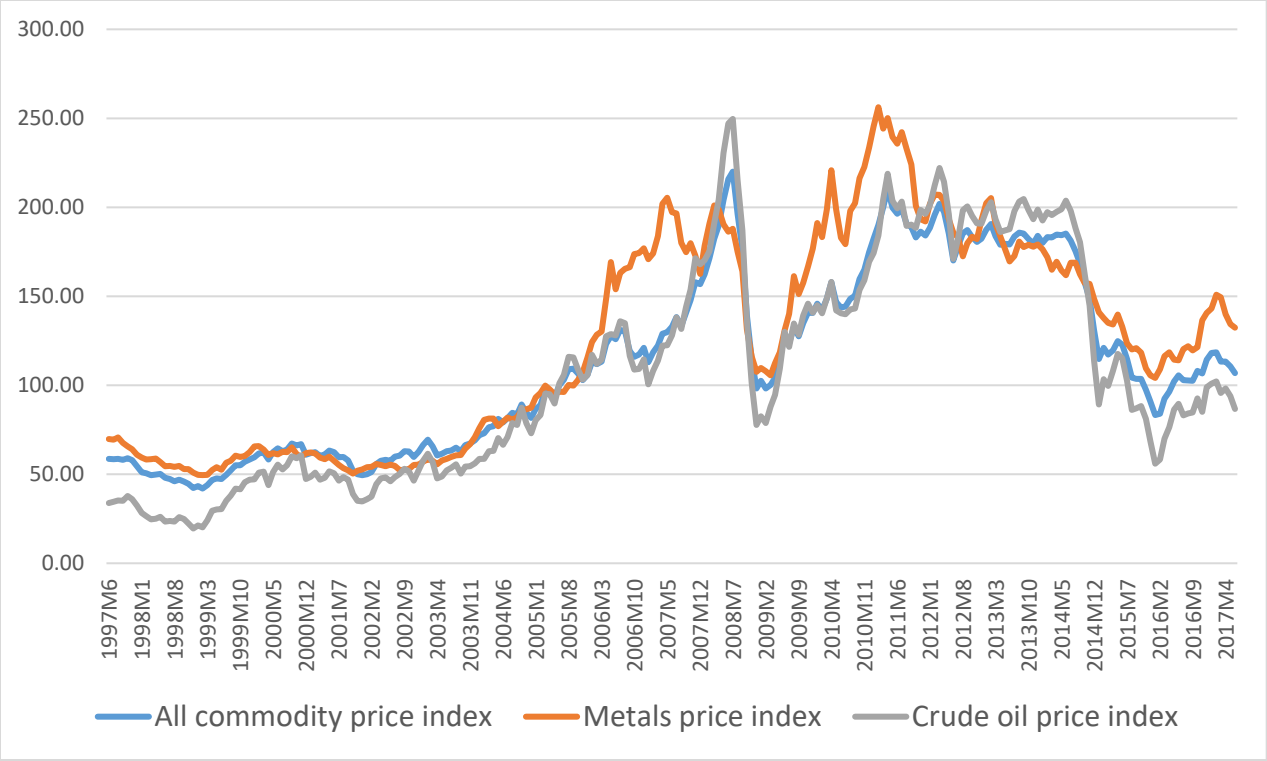
A secondary challenge associated with large and sudden revenues is that they can, and often do, generate significant conflict between political groups, each trying to capture a share of the economic rents. This problem is generally amplified by overly optimistic expectations regarding the size of the revenue windfall. This "presource curse"—which manifests in over-spending and political fights over the resource even before production has started, driven by news of huge resource discoveries—has been estimated to cause an approximate 1 percent drop in long-term annual growth.[6]

Third, commodity prices and production are volatile. Prices are particularly volatile and have become more so since the mid-2000s, as can be seen in Figure 1. The policy challenge lies in how to manage this volatility. Government spending is often directed related to government revenues, meaning government expenditures often increase and decrease in line with changes in revenue. Sudden increases in spending, for instance due to an oil revenue windfall, can lead to poor public expenditure decisions – for example construction of concert halls, new airports and other legacy projects rather than well thought-out water, sanitation, education or electricity projects – and poor quality infrastructure since it takes more than a calendar year to adequately plan and execute projects. When revenues decline, governments often face debt crises or are unable to pay for government salaries or operations and maintenance of new infrastructure. The impact on the private sector can be equally devastating as businesses invest when they receive government contracts and scale back or go bankrupt when government contracts dry up.

Figure 1. Commodity price volatility (2005 = 100) (Source: IMF)

[5] Dutch Disease may also be mitigated in three other ways: Fiscal sterilization (the government saving resource revenues in foreign assets through a natural resource fund), monetary sterilization (the central bank saving resource revenues as foreign currency reserves) or if revenues exit the country through capital flight.

[6] Cust, James and David Mihalyi (2017) *Evidence for a Presource Curse?* World Bank Policy Research Working Paper 8140.



Fourth, oil, gas and minerals are finite or non-renewable resources. Some large mines or oil fields only generate significant revenues for a decade, while others produce for several. This implies that governments have a single chance to spend or save the revenues appropriately. Still, many resource-rich countries do not save, invest, or pay down public debt to benefit future generations when they are receiving their revenue windfalls, leading to a long boom period followed by an economic recession or even depression. Nauru, a mineral (phosphate) rich country, is a case in point. It consumed its mineral wealth rather than save or invest it. Following the start of large-scale production, Nauru went from one of the world's poorest nations to one of its richest, with GDP peaking at $25,500 per citizen (2005 dollars) in 1973. By 2007, it had once again dropped to one of the world's poorest with GDP less than $1,900 per citizen. The economy has not recovered.[7] This story highlights the need for resource-rich countries to invest their windfalls in public services and infrastructure that will grow the economy, or in financial assets, rather than consume them all in the present.

These four sets of characteristics—location specificity, large and sudden rents, volatility and finite nature—suggest that non-renewable resource revenues could be managed differently than other types of revenues. Whether or not they should be depends on the size of resource revenues relative to other fiscal revenues or the size of the national economy. Should they be large enough

[7] Bauer, Andrew (2014) "Fiscal Rules for Natural Resource Funds: How to Develop and Operationalize an Appropriate Rule" in *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.

to necessitate special treatment, there are several policy options available to governments to improve resource governance. The three sets of policies that will be covered here are those that are meant to improve macroeconomic management, state-owned companies and distribution of resource revenues to subnational jurisdictions.

Macroeconomic management: Objectives, risks and policy options

Governments generally work on improving the quality of life of their citizens, which can imply a number of different specific overarching goals. These can include increasing GDP growth, reducing poverty, increasing employment, keeping inflation low and stable, creating an enabling business environment, and providing quality public services for all. In planning how to go about spending money to achieve these goals, government often find it useful to adopt a macroeconomic framework.

In brief, a macroeconomic framework is a set of rules that guide overall spending, saving, borrowing, revenue generation and management of government finances. Public finance decisions are complicated in resource-dependent environments that suffer from the challenges mentioned above, particularly revenue volatility, over-spending and an increase in foreign currency that overwhelms an economy. Macroeconomic frameworks in resource-dependent countries must therefore balance two main objectives: Fiscal sustainability and expenditure smoothing.

Fiscal sustainability refers to the ability of the government to sustain current spending and revenue policies over the long term without defaulting on its public debt. While each government has a different debt tolerance, in general preventing debt crises requires limiting spending growth so it does not diverge too far from fiscal revenue growth, and ensuring that government spending generates broad-based growth that increases tax collection. In other words, fiscal sustainability is partially dependent on high quality government investments rather than government consumption on unproductive legacy projects such as monuments, stadiums or other prestige infrastructure.

Expenditure smoothing involves delinking government revenues from expenditures, as Chile, Peru, Norway and Saudi Arabia have done. These governments have committed to a slow but steady increase in annual government spending despite massive year-to-year increases and decreases in fiscal revenues.

Smoothing fiscal revenues in the short, medium and long terms may be the most important fiscal policy for Senegal as it starts producing oil and gas on a commercial scale. Highly volatile budget expenditures create perverse incentives to spend funds poorly. Often, an increase in oil or mineral revenues is treated as permanent and to be spent immediately, engendering spending on legacy projects like fountains and expensive government buildings. This overconsumption and underinvestment assumes that the good times will last forever, but history (and geology) tell us otherwise. When spending increases too quickly, a bureaucracy will likely find it difficult to adjust, another factor that can lead to poorly conceived, designed and executed capital projects.

On the other hand, a decline in revenues is treated as temporary, leading to an increase in public debt or expenditure cuts, leaving roads half-finished or unmaintained buildings. Resource-rich governments rarely take the time to plan investments that will promote sustainable economic development and serve the population for years. In Azerbaijan, for example, despite 29 percent of the rural population not having access to clean water, and despite spending only 11 percent of the budget on education, the government has spent billions of dollars on new stadiums, a headquarters for their sovereign wealth fund, a concert hall and a conference centre, all planned when oil revenues were high.[8]

Fiscal sustainability and expenditure smoothing can be supported by adoption of a legal **fiscal rule.** A fiscal rule is a permanent constraint on public finances defined by a numerical target. Fiscal rules can act as a commitment mechanism, binding successive governments to a long-term budgetary target and therefore a long-term vision of public financial management.[9]

In general, there are four types of fiscal rule:[10]

- **Balanced budget rules:** Limit on overall, primary or current budget balances in headline or structural terms. This means that expenditures, including or excluding debt payments, must equal revenues over a given period of time. Examples include Chile's fiscal rule that requires the central government to run a structural surplus of 1 percent of GDP; and Mongolia's fiscal rule that the structural deficit cannot exceed 2 percent of GDP.
- **Expenditure rules:** Limit on total, primary or current spending, either in absolute terms, growth rates or percentage of GDP. Examples include Peru's rule that current

[8] Bauer, Andrew (2013) *Subnational Oil, Gas and Mineral Revenue Management*. Natural Resource Governance Institute.
[9] Ibid.
[10] Bauer, Andrew (2014) "Fiscal Rules for Natural Resource Funds: How to Develop and Operationalize an Appropriate Rule" in *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.

expenditures cannot grow more than 4 percent per year; and Botswana's rule that the expenditure-to-GDP ratio cannot exceed 40 percent.

- **Debt rules:** Limit on public debt as a percentage of GDP. Examples include Indonesia's rule that total combined central and local government debt should not exceed 60 percent of GDP; and Mongolia's rule that public debt cannot exceed 40 percent of GDP.
- **Revenue rules:** Limit on overall revenues or revenues from a given source such as the oil, gas or mineral sector entering the treasury. Examples include Ghana's rule that a maximum 70 percent of seven-year average of petroleum revenue enters the budget, a maximum 21 percent is allocated to a Stabilization Fund, and a minimum 9 percent is allocated to a Heritage Fund for future generations; the Kazakhstan rule that $8 billion USD plus/minus 15 percent (depending on economic growth) of petroleum revenue is transferred from the National Fund to the budget annually; and the Timor-Leste rule that revenue entering the budget from the Petroleum Fund cannot exceed 3 percent of national petroleum wealth.

While Senegal does not have its own fiscal rules, it is subject to WAEMU's balanced budget and debt rules. The balanced budget rule states that Senegal and other francophone West African countries must run a fiscal deficit below 3 percent of GDP excluding budget grants and foreign-financed capital expenditures. The nominal debt-to-GDP ratio must remain below 70 percent of GDP.[11] Senegal is one of only three countries in WAEMU, along with Burkina Faso and Niger, to meet its targets in 2016, though the official deficit figures in Senegal do not include off-budget spending. By the IMF's estimate, Senegal's true fiscal deficit was 4.2 percent in 2016.[12]

While governments can enact fiscal rules through legislation, an intermediate step government sometimes take is to adopt a medium-term fiscal framework. Ministries of finance can create multi-year fiscal envelopes that help the government control public finances and impose a medium-term vision on budgets. Though not a replacement for a fiscal rule, a medium-term fiscal framework can help promote fiscal sustainability and smooth fiscal expenditures.

State-owned companies: Types, objectives, risks and policy options

[11] IMF (2017) *Fiscal Rules at a Glance.* Online: http://www.imf.org/external/datamapper/fiscalrules/Fiscal%20Rules%20at%20a%20Glance%20-%20Background%20Paper.pdf.

[12] IMF (2017) *Senegal: Fourth Review Under the Policy Support Instrument.* Online: http://www.imf.org/en/Publications/CR/Issues/2017/07/24/Senegal-Fourth-Review-Under-the-Policy-Support-Instrument-and-Request-for-an-Extension-of-45115.

Most oil-producing countries have national oil companies. Senegal is no different. Petrosen acts as the government's petroleum sector regulator, promoter and equity shareholder. It also prepares and negotiates all petroleum conventions and production sharing contracts, which are signed by the companies and the Ministry of Energy, and is involved in refineries. Petrosen is entitled to a participating interest of 10-20 percent in any oil and gas project, which it has taken in the Sangomar and Tortue and Teranga fields.[13]

National oil companies can have any or all of the following mandates:

- **Commercial:** The company may sell the government's share of crude oil and/or manage the state's equity participation stake.
- **Operational:** The company may participate directly in petroleum sector operations, for example by drilling, managing a field or providing supplies.
- **Regulatory:** The company can negotiate oil and gas contracts and licenses, monitor compliance and enforce legislated and contract terms.
- **Development:** The company can be mandated to train nationals in petroleum sector skills or contribute to economic development in producing areas.

While some national oil companies have several of these mandates simultaneously—such as Angola's Sonangol and Myanmar's MOGE—others have split their regulatory and operational roles in order to avoid conflict of interest. Some of the most effective and efficient national oil companies, such as Norway's Statoil and Argentina's Yacimientos Petroliferos Fiscales (YPF), are purely commercial and operational entities.

National oil companies are important for management of petroleum revenues since they often collect and manage petroleum revenues on behalf of the state. They also often retain a portion of petroleum revenues for reinvestment purposes. While revenue retention can encourage companies to strengthen their operations and contribute to economic development, each dollar or franc going to the company represents a dollar or franc not going to the treasury to be spent on public services such as education or healthcare. Improving efficiency of national oil companies and enacting an appropriate revenue retention rule is therefore crucial to good revenue management in oil-producing countries.

There are four specific risks associated with national oil companies. First, high costs of production and lower revenues per barrel produced—usually a result of poorly negotiated petroleum contracts—can cost the government millions or even billions of dollars per year. Statistically,

[13] Holle Energy (2017) *Energy Sector Analysis Senegal: Petroleum and Gas*, Netherlands Enterprise Agency, Ministry of Foreign Affairs

national oil companies are more inefficient than private sector companies. India's ONGC, Russia's Gazprom and Abu Dhabi's ADNOC are some of the more inefficient companies globally, compared to Chevron, Exxon Mobil and BP which are some of the most efficient.[14] In one recent example, a single bad contract in 2011 by the Nigeria National Petroleum Corporation (NNPC) that swapped oil for less valuable products cost the state at least USD 381 million.[15]

This is not to say that national oil companies should be measured purely based on inefficiency criteria; China's CNOOC employs many times the number of workers it needs, however this is to train Chinese workers in the oil sector. However, the difference between national oil company inefficiency and private sector company inefficiency is that, whereas private sector company shareholders suffer in the case of their inefficiency, it is public services that suffer the most as a result of national oil company inefficiency.

Second, many national oil companies have so-called "quasi-fiscal responsibilities". They are asked to finance non-oil sector expenditures, such as schools, roads or gas subsidies. Alternatively, they use their retained revenue on non-oil sector investments. For example, the Ghana National Petroleum Company has "invested" in telecommunications company Airtel, a motel in Mole National Park and the Black Stars, the national football team. Venezuela's national oil company, PDVSA, spend more money on social programs than on its petroleum operations. These quasi-fiscal responsibilities sometimes cost taxpayers millions or even billions of dollars annually, and bypass parliamentary oversight and normal budgetary procurement systems that help control corruption or patronage.

Third, national oil companies' liabilities sometimes represent a huge risk to the state. For example, Mexico's PEMEX racked up USD 127 billion in pension liabilities of which one third has been taken over by the state during the recent energy reforms. In another example, Myanmar's MOGE borrowed approximately USD 2 billion in foreign denominations from Chinese state-owned banks at 4.5% interest, far above the rate of interest on other state loans. Again, these liabilities draw millions and billions dollars away from spending on public services.

Fourth, many national oil companies retain too much revenue in their bank accounts without justification. For example, the Nigerian Petroleum Development Company, NNPC's upstream

[14] Nadeja Makarova Victor (2007) *On Measuring the Performance of National Oil Companies (NOCs)*, Stanford University Program on Energy and Sustainable Development, Working Paper #64. Online: http://iis-db.stanford.edu/pubs/21984/WP64%2C_Nadja_Victor%2C_NOC_Statistics_20070926.pdf.
[15] Alex Gillies et al. (2015) *Inside NNPC Oil Sales*. Natural Resource Governance Institute. Online: https://resourcegovernance.org/analysis-tools/publications/inside-nnpc-oil-sales-case-reform-nigeria.

arm, retained USD 6.82 billion in 19 months from 2012-13 without major operating costs. There was no justification or explanation how the money is spent.[16]

There are a number of options available to governments to minimize these revenue management risks and strengthen a national oil company. For one, legislation can limit the amount of money that a national oil company can retain or be allocated through the budget process. Kuwait's national oil company, for instance, retains only its costs, 50 cents per barrel produced and revenue of sales to refineries. Alternatively, legislation could cap the amount of revenue retained by the company, subject to parliamentary approval, as in the case of Ghana.

Another option is to strengthen reporting and oversight of the national oil company. Central government agencies (e.g., Ministry of Finance), parliament and independent external auditors should all have access to contracts and financial data within the company. This data should be analysed and action taken in case of misconduct or inefficiencies. Company operations and financial information should also be made public. Unfortunately only a handful of national oil companies globally achieve high standards of national oil company oversight and transparency. According to the 2017 Resource Governance Institute, India, Argentina and Norway have some of the strongest standards; Equatorial Guinea, Turkmenistan, and Gabon have some of the weakest.[17] Currently there is not much public information available on Petrosen's operations and finances.

Finally, national oil companies could benefit from the oversight of independent and professional boards of directors, and be overseen by an independent oil sector regulator. This is the case in Norway and Colombia.

Distribution of resource revenues to subnational jurisdictions: Principles and standards

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.

[16] Ibid.
[17] NRGI (2017) Resource Governance Index. Online: http://resourcegovernanceindex.org/.

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. In Africa, Angola, Cameroon, Chad, the Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Guinea, Madagascar, Niger, Nigeria, South Sudan and Uganda, each have enacted a 'derivation-based' intergovernmental transfer system for all or part of their mineral, oil or gas revenues.[18]
Some resource-rich subnational governments are extremely dependent on these transfers. In Nigeria, 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 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.[19]

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.[20]

[18] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.
[19] Ibid.
[20] Ibid.

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.[21] 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.[22]

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.[23]

A review of international experiences by the Natural Resource Governance Institute (NRGI) and the United Nations Development Programme (UNDP) identified out a number of trends in legal

[21] Jim Cust and Claudia Viale (2016) *Is There Evidence for a Subnational Resource Curse?*, NRGI Policy Paper. http://www.resourcegovernance.org/ analysis-tools/publications/thereevidence-subnational-resource-curse
[22] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.
[23] Javier Arellano-Yanguas (201) *Local politics, conflict and development in Peruvian mining regions*. Institute of Development Studies, University of Sussex.

regimes and revenue sharing formulas, and explored which systems have been most effective. Based on this review, the report provided policy options for designing and implementing efficient, fair and stable resource revenue sharing systems. Among these policy options were:[24]

- **Revenue streams:** 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 may wish to 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.
- **Expenditure responsibilities:** 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.
- **Smoothing fiscal expenditures:** 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.
- **Consensus building:** 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.
- **Transparency and 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

[24] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.

must be made publicly available. Independent audits covering revenue transfers and subnational tax collection should be carried out annually and the results made public.

Good governance of extra-budgetary funds

Introduction: Types, risks and policy options

Many countries use extra-budgetary funds to manage their natural resource revenues. In fact, all but a handful of large oil producers have established a resource-financed special fund. Together, these funds manage trillions of dollars in resource revenues annually.

In some cases, these funds are merely accounts within the state treasury, created for political purposes to demonstrate a commitment to financing a certain expenditure item (e.g. education) or for accounting purposes. For example, Mongolia's petroleum- and mineral-financed General Local Development Fund, which allocates money to subnational governments, is simply a government account. In other cases, they are institutions that are subject to different rules than the rest of the government's financial transactions, such as in the case of the Libyan Investment Authority. They may even have their own staff and legal standing.

Drawing on the IMF definition, extra-budgetary funds are defined here as "general government transactions, often with separate banking and institutional arrangements, which are not included in the annual state (national) budget law and the budgets of subnational levels of government."[25] There are several legitimate reasons why a government might establish an extra-budgetary fund. First, traditional budgets are set on an annual basis, whereas funds can serve as multi-year funds. Timor-Leste Infrastructure Fund is essentially a multi-year earmarked budget. Parliament must approve the fund's budget and spending must be channelled through normal budget processes, however the fund retains any unspent funds at the end of the year. Since its inception, the Infrastructure Fund has financed projects that have electrified 75 percent of Timor-Leste territory, rehabilitated ports, irrigated three regions and paved many public roads.[26]

Second, funds can be used to earmark revenues for a specific purpose. For example, the oil- and land sales-financed Texas Permanent University Fund in the U.S. earmarks interest earned to the public university system in the state. Similarly, Alabama's (U.S.) Forever Wild Trust Fund, financed by between 3-5% of the state's oil and gas revenues, allocates money to environmental protection.

[25] Richard Allen and Dimitar Radev (2006) *Managing and Controlling Extrabudgetary Funds*. IMF Working Paper 06/286. Online: http://www.imf.org/external/pubs/ft/wp/2006/wp06286.pdf.
[26] Government of Timor-Leste (2016) *State Budget 2016 Approved: Infrastructure Fund.* Online: https://www.mof.gov.tl/wp-content/uploads/2016/03/BB3A_Englesh_25_Jan_16_Final.Final_.pdf.

Third, funds can protect a specific stock of fiscal revenues from political interference. Most government pension funds are established as extra-budgetary entities in order to safeguard this pool from appropriation for other purposes. This enhances senior citizens' confidence that they will receive their full pension benefits many years in the future. The Canada Pension Plan and France's Fonds de réserve pour les retraites are good examples of such funds. They both have clear objectives, legal structures, investment strategies and codes of conduct for staff and managers, and publish comprehensive annual and quarterly reports. They also have strong independent audits that are published online and compliance mechanisms to ensure that the funds are managed in the best interest of their ultimate beneficiaries, retired citizens.[27]

Fourth, the budget process sometimes does not function well, especially in low-capacity environments. Extra-budgetary funds can be subject to more stringent transparency, oversight and governance standards than the budget, and be allocated more qualified staff, in order to create islands of good governance inside the government. While this may be true in theory, real world examples of these "island of good governance" funds are rare.

As commonly as they are established to address a justified economic or political need, governments create extra-budgetary funds to avoid public scrutiny or finance pet projects. As the Overseas Development Institute writes, "transactions outside the budget are unlikely to be subject to the same kind of financial discipline as are budget operations (for example, state-owned enterprises may have their own financial regulations and appoint their own auditors), partly because they are financially independent and partly because they are not explicitly compared with other public expenditures. This may result in an increased level of fraud, irregularity, or the use of such funds for unauthorized purposes. In addition, the use of extra-budgetary funds means the reported level of government expenditure may be understated. It also is more difficult to compare the finances of two governments if they have different levels of extra-budgetary funds."[28]

In fact, Senegal has and continues to face challenges associated with the management of extra-budgetary funds. According to the 2011 Cadre de Mesure de la Performance de la Gestion des Finances Publiques au Sénégal, approximately 24 percent of all government revenue in 2007 was extra-budgetary. While a large portion of off-budget government spending dropped to just over

[27] Allie E. Bagnall and Edwin M. Truman (2013) *Progress on Sovereign Wealth Fund Transparency and Accountability: An Updated SWF Scoreboard*. Peterson Institute for International Economics. Online: https://piie.com/publications/pb/pb13-19.pdf.
[28] ODI (2010) *Guide to Transparency of Public Finances: Looking Beyond the Core Budget.* Online: https://www.internationalbudget.org/wp-content/uploads/Looking-Beyond-the-Budget.pdf.

10 percent by 2011, year extra-budgetary entities received more than 5 billion FCFA in 2010/11. At that time it was still unclear how this money was being spent.[29]

The IMF's most recent macroeconomic review of Senegal indicates that these challenges have not yet been fully addressed. Extra-budgetary spending on *Poste* and *Poste Finance* as well as civil service pensions totalled 0.6 percent of GDP or approximately 50 billion FCFA in 2016. Most of this amount was unexpected, leading to a large increase in the public debt level.[30]

For each case of a well-run extra-budgetary fund, there is a case where the fund is a problematic source of corruption and patronage. Of course, there are also cases where a fund is simultaneously a macroeconomic tool and serves the personal interests of the political elite. And there are cases where funds are simply mismanaged or take excessive risks and are therefore ineffective.

There are several categories of risks related to extra-budgetary funds. Among them are the following:

- **Undermining public financial management systems and accountability:** Many extra-budgetary funds are designed to circumvent normal budgetary processes. These can range from parliamentary approval to procurement systems to reporting requirements. While in some cases these measures to bypass the public financial management system can help improve government decision-making, in most cases they slow down improvements to the system and create parallel budgets that are difficult to manage. In the most extreme cases, they lead to states-within-states or competing power structures within the government. For example, land sales in China by subnational governments generally go into extra-budgetary funds, which provides less money for budgetary allocations to health and education.[31] The Azerbaijani and Iranian funds, described below, are cases in point.
- **Do not achieve macroeconomic or policy objectives:** Some extra-budgetary funds are created to address a macroeconomic problem, such as excessive expenditure volatility, mismatching time horizons or to generate an endowment to finance a certain expenditure. Yet many funds do not achieve those objectives since they do not have

[29] Analysis for Economic Decisions (2011) *Cadre de Mesure de la Performance de la Gestion des Finances Publiques au Sénégal : Rapport sur la seconde évaluation du système de la GFP*. Commission européenne.
[30] IMF (2017) *Senegal: Fourth Review Under the Policy Support Instrument.* Online: http://www.imf.org/en/Publications/CR/Issues/2017/07/24/Senegal-Fourth-Review-Under-the-Policy-Support-Instrument-and-Request-for-an-Extension-of-45115.
[31] Yinqiu Liu and Tao Sun (2013) *Local Government Financing Platforms in China: A Fortune or Misfortune?* IMF Working Paper 13/243.

inflow, outflow or investment rules necessary to achieving their objectives. In some cases this is due to poor fund design; in others it is because the actual objectives are different from the stated objectives. The cases of Alberta and Nigeria described below are examples.

- **Excessive risk-taking / lack of due diligence in investments:** Many funds invest in complex or risky assets without the fund managers' being fully aware of the risks involved. In some cases, this is a result of lack of due diligence; fund managers do not adequately research their investments or inadequate information is provided by external managers or asset owners. In other cases, fund managers simply take excessive risk without fully understanding the consequences of their actions. The cases of Angola and Libya described below provide examples.
- **High management fees:** Some funds have been found to pay excessive management fees given the services provided. Passive investment managers generally charge approximately 0.05% of the value of assets annually. While more complex investment strategies and more services, such as accounting and reporting, justify higher fees, in some cases fees paid have far exceeded market rates. Furthermore, performance incentives for investment managers, while common, often lead to high fund costs that are not justified by earnings. The Albertan (Canada) and Libyan funds provide good examples.
- **Patronage and corruption:** Some funds have become outright sources of patronage or corruption through their asset purchases. Fund managers can invest directly in companies where they are beneficial owners, can invest in companies in exchange for a kick-back, or can use fund money to invest to serve their political interests. The mineral-financed Regional Development Funds in Kyrgyzstan, which are designed to fund local infrastructure, socio-economic programs and small loans but which are operated by local officials virtually without oversight, are but one example.[32] The Angola, China, Kuwait and Malaysia examples below provide more details.

Stories of extra-budgetary funds being mismanaged, not achieving their objectives or being used for patronage or corruption can be found on every continent. One of the most extreme examples of excessive risk-taking, poor managerial capacity, conflict of interest and high management fees is the case of the Libyan Investment Authority (LIA). As an example of excessive risk-taking, in 2010 the LIA made a $1.2 billion bet with Goldman Sachs on a derivatives instrument. It lost $1.18 billion out of the $1.2 billion. The LIA's 2012 $300 million investment in Palladyne International Asset Management, a previously unheard-of fund with links to the former chairman of Libya's National Oil Corporation, is an example of a clear conflict of interest. Of note, despite investing

[32] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.

only slightly more than half of these funds, Palladyne recorded more than $50 million in losses from 2008 to mid-2010.One example of high management fees is the LIA payment of $27 million in fees on a $300 million investment with Permal, a fund manager. The fund lost$120 million with Permal.[33]

In a similar example of conflict of interest, high management fees and poor oversight, the Kuwait Investment Authority (KIA) invested $7 billion in Spanish firms beginning in the mid-1980s. By 1992, these investments had declined in value to $2 billion. According to audits and newspaper reports, these losses were facilitated by an absence of internal controls, supervision and transparency. For instance, the in-house managers of the London-based KIA subsidiary that made the investments refused to share trading information with the executive committee, which was meant to monitor fund activities. This system made possible not only mismanagement of assets but also high commissions and profits for insiders. In response, parliament now oversees KIA activities, a monitoring system was established and internal operational rules were tightened.[34]

The 1Malaysia Development Berhad (1MDB) fund, established in 2009, has proven to be another major source of alleged corruption and mismanagement. Designed to attract investment into Malaysia by forming joint ventures with foreign firms, the fund actually indebted itself to over $11 billion by 2014. Among its more suspect transactions are a $1 billion investment in a Saudi oil company in 2009 which has gone missing; funds that were diverted in 2012 from an Abu Dhabi state fund to a firm in the British Virgin Islands (a secrecy jurisdiction); and $4 billion that have been misappropriated from Malaysian state firms.[35] The U.S., Switzerland, Singapore and the U.K. have laid criminal charges or continue corruption and money laundering investigations related to the fund.

The recently established Fundo Soberano de Angola has also become a source of patronage and suffers from many of the same problems as the funds mentioned above. The fund signed a contract with a company, Caioporto, to build a $500 million port. The company had never previously built a port and is owned by a business associate of the head of the fund. Given that the project could not find any private financing, the government guaranteed the company against all losses. While all profits will go to the company, all risk and losses are taken on by the fund and therefore the state.[36]

[33] Andrew Bauer (ed.) (2014) *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.
[34] Ibid.
[35] The Economist (2016) *The 1MDB Affair*, 27 May 2016.
[36] Rafael Marques de Morais (2017) "Stealing with Presidential Decrees" Maka Angola, 14 March 2017.

Stories of mismanagement occur in advanced economies as well. As mentioned, many natural resource funds either do not serve a well-defined purpose or do not meet their objectives. One fund with an explicit mandate to save oil revenues for future generations, the Canadian province of Alberta's Heritage Savings Trust Fund, failed to save for much of a 25-year. Despite peak production and historically high prices at times from 1987 to 2013, only two relatively small deposits were made into the fund over this period. This encouraged unsustainable consumption in the province; today Alberta is facing a fiscal crunch. Additionally, some self-declared stabilization funds, such as those in Azerbaijan, Kazakhstan, Trinidad and Tobago and Venezuela, have failed to counteract the negative impacts of oil price volatility on government spending.[37]

The Azerbaijani and Iranian funds are examples of extra- budgetary funds becoming parallel budgets or states-within-states, undermining parliamentary accountability, democratic institutions and public financial management systems. In Azerbaijan, for instance, government authorities have used the State Oil Fund (SOFAZ) to directly finance strategic government projects such as the railway between Azerbaijan, Georgia and Turkey. These expenditure items are not subject to the same reporting or public procurement requirements as those financed through the regular budget process, nor are they subject to as much parliamentary oversight.[38]

In Iran, the $40 billion National Development Fund provides loans to private-sector companies, cooperatives and economic enterprises owned by public non-governmental institutions through agent banks. While the fund does not provide information on the current investment allocation of its portfolio, news reports indicate that fund money has been allocated to the domestic tourism, petrochemical, upstream petroleum, and water sectors, among others. The fund is directly controlled by the executive and therefore some decisions bypass normal budgetary and parliamentary procedures.[39]

Finally, Chinese extra-budgetary funds and so-called extra extra-budgetary funds have become a large source of mismanagement and corruption. These funds are meant to be used to retain state-owned company revenues and hold taxes and fees collected by subnational governments. Extra extra-budgetary funds collect unauthorized fees and involuntary "contributions" to the state. They are generally managed with full discretion by local officials. By the end of 1996, extra-budgetary funds amounted to more than 380 billion yuan (approximately $45 billion at the time). Extra extra-budgetary funds, was estimated to be 60-200 billion yuan (approximately $7-24 billion) in 1996. Another estimate of the amount of extra-extra budgetary funds reveals that it is

[37] Andrew Bauer (ed.) (2014) *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.
[38] Ibid.
[39] NRGI-CCSI (2014) *Islamic Republic of Iran: Oil Stabilization Fund and the National Development Fund of Iran*. Online: https://resourcegovernance.org/sites/default/files/NRF_Iran_February_2014.pdf.

approximately equal to the extra-budgetary fund, meaning that these funds' balances equalled approximately 10% of GDP. They have channelled money away from public services, created powerful fiefdoms within various levels of government, created pools of money to finance officials' luxury purchases, and weakened the capacity of government to coordinate and control the macroeconomy and social development.[40]

While these stories illustrate the dangers of creating extra-budgetary funds, there are measures that governments can take to improve the chances that funds will improve public financial management. Chile's Pension Reserve Fund and Social and Economic Stabilization Fund, Norway's Government Pension Fund Global, Timor-Leste's Infrastructure Fund, Mongolia's General Local Development Fund, Ecuador's *Fondo de Ecodesarrollo*, the Texas Permanent University Fund, and Botswana's Pula Fund have arguably each helped manage their governments' resource wealth. The next section discusses some of the preconditions for good fund governance.

General governance provisions: Management and organizational structure, inflows, outflows, transparency and oversight

Many of the challenges listed above can be addressed through constitutional, legislated or other statutory rules. There are five sets of rules that are particularly important for good fund governance:[41]

- **Management and organizational structure:** Strong institutional structure, staffing policies and internal controls of a fund are essential. This involves clear lines of communication between different levels of the institutional hierarchy and a strong internal chain of accountability, both within the fund and between the fund and higher authorities.
- **Inflow / deposit rules:** Inflow or deposit rules determine which revenue streams (e.g., license fees, royalties, oil revenues) will enter the fund, where the money comes from (e.g., the treasury department, internal revenue department, directly from companies), and the timing of such deposits (e.g., monthly, annually).
- **Outflow / withdrawal rules:** The outflow or withdrawal rules determine how much money, which flows (e.g. interest, a percentage of principal), and when revenues will be transferred from the fund to the treasury to be spent according to the annual budget.

[40] Marc Holzer and Mengzhong Zhang (2004) "China's Fiscal Reform: The Issue of Extra Budgeting" in *Journal of Public Budgeting, Accounting and Financial Management*, 16(1), 19-39.
[41] Andrew Bauer (ed.) (2014) *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.

These sets of rules are distinct from the allocation of assets for investment purposes. Rather than for loans, these withdrawals are meant for final consumption.

- **Investment rules:** Funds' investment decisions are generally subject to guidelines, constraints and prohibitions. These are generally meant to prevent excessive risk taking and conflict of interest. Among the rules commonly prescribed are asset allocation criteria, ethical standards, eligible assets, currency restrictions, minimum credit ratings, limits on high-risk assets, restrictions on private market instruments, and liability limits.
- **Transparency:** Fund transparency involves clear roles and responsibilities of government institutions, public and easy access to financial and operational information, open decision-making, reporting and assurances of integrity of information, for example through an external audit. Transparency is important for a number of reasons. For instance, it enables oversight bodies, such as parliament, to monitor fund activities and builds trust with citizens.
- **Oversight:** Oversight bodies identify noncompliance with rules, waste, fraud, abuse and mismanagement, and suggest or enforce corrections. When well designed, they can encourage government to meet their own objectives and follow their own rules. Funds can be subject to oversight from the supreme audit institution, independent external auditor, judiciary, parliament, regulatory agency, or multi-stakeholder group.

Consensus building is also important, as politicians and oversight bodies are unlikely to enforce the rules unless they have a feeling of ownership over those rules. There are many models of consensus building, from parliamentary debates to public surveys to political ententes.

There is no best practice with regard to organizational structure, inflow and outflow rules, or investment rules, though there are international standards for transparency, oversight and management structure. The most well-known of these are the *Santiago Principles,* and the IMF's *Guide on Resource Revenue Transparency* and *Manual on Fiscal Transparency.* The Extractive Industries Transparency Initiative's (EITI) new standard also requires that implementing countries indicate which extractive revenues are recorded in the national budget and allocated to special funds such as sovereign wealth funds or state-owned enterprises.[42]

Yet certain institutional structures or rules may be more or less appropriate for a given objective. For example, if the goal of the fund is to stabilize fiscal expenditures given volatile revenues, then more money should flow from the fund to the treasury when revenues are low and less money should flow when revenues are high. Appropriate rules for different types of extra-budgetary funds are discussed next.

[42] Section 5.1 of the EITI Standard 2016.

Sovereign wealth funds

According to the International Forum on Sovereign Wealth Fund, a sovereign wealth fund (SWF) is defined as a government-owned entity, established for a macroeconomic purpose, which does not have liabilities and invests at least partly in foreign assets.[43] As of 2017, there were approximately 60 SWFs financed by oil, gas or mineral revenues or by fiscal surpluses in countries dependent on natural resources. Within Africa, the governments of Algeria, Angola, Botswana, Equatorial Guinea, Gabon, Ghana, Libya, Mauritania, Nigeria, Sao Tome and Principe, and Uganda have established at least one.

Sovereign wealth funds are generally created to serve one or several of the following purposes:[44]

- **Smoothing expenditures:** Governments can save a portion of fiscal revenues in funds (sometimes formally called "stabilization funds") when revenues are high and draw down on these funds when revenues decline in order to prevent "boom–bust" spending cycles. For example, the American state of Wyoming has been able to grow through periods of temporary oil and mineral price declines due in part to the availability of a pool of funds to draw on during downturns.
- **Sterilizing capital inflows:** Sovereign wealth funds can help mitigate "Dutch disease" by sterilizing large capital inflows; in this case, foreign exchange inflows associated with large remittances; foreign aid; or natural resource sector sales. Countries or regions with relatively small economies that receive large unexpected inflows—for instance, from scaling up oil, gas, or mineral production quickly—may find that these inflows can lead to exchange rate appreciation or inflation. This can cause local businesses to become less competitive internationally and harm the non-resource economy. Governments can help mitigate Dutch disease by saving a portion of their fiscal revenues in foreign assets. This is called "fiscal sterilization." Countries such as Norway and Saudi Arabia have kept their exchange rates under control or inflation lower than it would have been otherwise by saving resource revenues in foreign assets rather than spending them domestically.
- **Saving fiscal surpluses:** Governments may wish to run a fiscal surplus over the long term in order to create an endowment for future generations for at least three reasons. First,

[43] http://www.ifswf.org/

[44] Bauer, Andrew (2017) "Playthings and Parallel Budgets: Sovereign Wealth Fund Economic and Governance Performance" in *The New Frontiers of Sovereign Investment* (eds. Malan Reitveld and Perrine Toledano). Columbia University Press.

large oil or mineral producers may wish to prevent a recession once these resources are depleted. Second, there is an ethical case to be made for intergenerational equity; future generations may be equally entitled to the benefits of oil or gas extraction as today's generation. Third, some governments may find it difficult to spend all resource revenues as they are collected without generating significant waste. Some governments do not have the "absorptive capacity"—the skills, technology and administration to spend large amounts of money quickly and efficiently without generating inflation—to spend the entire revenue windfall immediately. In response, some governments save a portion of fiscal revenues. Investing a portion of oil revenues in financial assets and living off the investment returns can extend the financial benefits of extraction beyond the life of the oil field or mine, perhaps even indefinitely. With small populations, high personal incomes, and vast oil wealth, many Persian Gulf countries, including Kuwait, Oman, Qatar, and the United Arab Emirates, as well as Norway, have chosen to save for these reasons. In low-income settings, some governments have elected to "park" some revenues in foreign assets until they develop enough capacity to spend the money well or until the economy grows enough to absorb the revenues, as in the cases of Timor-Leste and the oil-rich Bojonegoro Regency in Indonesia, which is currently establishing a subnational SWF.

- **Earmarking revenues for public investments:** SWFs can be used to limit the discretion of politicians in making spending decisions by earmarking revenues for specific public investments like water systems, sanitation, electric power, medications, or education programs. Importantly, *earmarking* does not refer to making public spending decisions through the fund's choices of asset holdings, bypassing the formal budget process. Doing so could damage the integrity of the public financial management system, possibly circumventing accountability mechanisms such as parliamentary oversight and audits, and lead to the use of resource revenues for patronage. Examples of earmarking include Alabama's earmarking of some oil and gas revenues for land conservation, municipal capital expenditures, and senior services and Ghana's rule that oil revenues must fund "development-related expenditures".
- **Ring-fencing natural resource revenues:** Given oil and gas revenues are the product of negotiations with a handful of companies rather than broad-based taxation, as well as the fact that payments are often large and secret, natural resource revenues are often a target of misappropriation. Sovereign wealth funds can help protect public funds from corruption or mismanagement, as long as they are subject to strict transparency provisions and effective oversight. For example, the São Tomé and Príncipe National Oil Account is subject to rigorous disclosure requirements that ensure that fund operations are scrutinized and oil and gas revenues are all accounted for.

Sovereign wealth funds can be established as special accounts within the central bank or treasury, or as separate institutions. They are also usually serviced by custodian banks that help with accounting, tax issues and reporting. What matters more than the physical location of the money is the fund's institutional structure.

Accountability to the cabinet, parliament and the public are all essential for overcoming some of the risks mentioned earlier in this paper. In practice, this means setting up an institutional structure whereby all decisions are being overseen by at least two organizations, one internal and one external. Internal organizations can refer to managers, internal auditors, supervisory councils or elected officials. External organizations can refer to parliament-appointed supervisory councils, independent external auditors, the media, civil society organizations, or the judiciary. While the details are context specific, there are proven strategies to ensuring that managerial structures and oversight are effective.

Inflow and outflow rules for SWFs also ought to be context specific and serve the objectives of the fund. That said, certain rules are more effective than others in achieving those objectives. For example, Kazakhstan's National Fund was created as a stabilization fund to reduce the negative impacts of volatile oil prices on the economy, and as a future generations savings fund to save a portion of oil revenues for future generations. As of 2005, the Fund's deposits include corporate income tax, excess profit tax and rent tax on oil and gas exports as well as bonuses, royalties and production sharing from approved petroleum companies, as well as proceeds from the privatization of state property in the mining and manufacturing sectors and proceeds from sales of agricultural land. The fund also retains investment income.

As of 2010, annual transfers are fixed at $8 billion per year, plus or minus 15 percent dependent on the business cycle, which can now be used to fund current budget expenditures in addition to development programs. A portion of the fund is also withdrawn to cover its operational expenses and to pay for annual external audits.[45]

In a completely different example, the Alaska Permanent Fund in the U.S. is a future generations savings fund and a source of funding for direct cash distribution of oil revenues to Alaskans. Between 1982 and 2012, a total of $19.4 billion was paid out to Alaskan citizens via these annual dividend check distributions. In 2012, $878 was distributed to each citizen.

Deposits into the Alaska Permanent Fund consist of 25 percent of all mineral lease rentals, royalties, royalty sale proceeds, net profit shares, federal mineral revenue sharing payments

[45] NRGI-CCSI (2013) *National Fund of the Republic of Kazakhstan*. Online: https://resourcegovernance.org/sites/default/files/NRF_Kazakhstan_October2013.pdf.

(from leases issued on or before December 1, 1979) and bonuses received by the state from mineral leases issued on or before February 15, 1980; 50 percent of all mineral lease rentals, royalties, royalty sale proceeds, net profit shares, federal mineral revenue sharing payments (from leases issued after December 1, 1979) and bonuses received by the state from mineral leases issued after February 15, 1980; and all investment income.

The principal of the fund cannot be touched, only the fund's earnings. In any given year, 21 percent of the Fund's net income for the last five years is withdrawn. From this amount, half is allocated to the Permanent Fund dividend program to be directly distributed to Alaskans through dividend checks. The amount of the dividend check payments is calculated simply by dividing the amount that's been allocated by the number of eligible recipients. The price of oil is not a factor. Next, a portion of the funds withdrawn is allocated back to the Alaska Permanent Fund principal. This is to counter the devaluing effects of annual inflation on the principal. Then, an amount is allocated to the Alaska Permanent Fund Corporation to cover its operating budget. Finally, any remaining funds are reallocated back to the fund for reinvestment.[46]

Investment rules also ought to be a function of the fund's objectives. For instance, a stabilization fund which needs to be drawn upon in case of low fiscal revenues must be invested in much more liquid assets than a long-terms savings fund which can invest in higher-risk and less liquid assets. Similarly, a fund that is designed to sterilize capital inflows should not be allowed to invest in the domestic economy since that undermines the sterilization objective.

The Alberta (Canada), Chile, Norway and Timor-Leste SWFs have each codified comprehensive investment rules that limit the risks fund managers can take and, in Norway's case, impose ethical investment guidelines on fund investments. The rules and guidelines vary, but commonalities include prohibiting domestic investments as well as the purchase of assets that are in non-convertible currencies or are highly-risky, such as real estate in locations with weak property rights. The rules and guidelines also specify the remunerations scheme for external managers, limiting fees and risk-taking.[47]

Strategic investment funds / development banks

[46] NRGI-CCSI (2013) *Alaska Permanent Fund*. Online: https://resourcegovernance.org/sites/default/files/NRF_Alaska_August2013.pdf.
[47] Andrew Bauer (ed.) (2014) *Managing the Public Trust: How to make natural resource funds work for citizens*. NRGI-CCSI.

Another type of extra-budgetary institution is a so-called "strategic investment fund". In practice, these funds, such as the new Angolan SWF or Senegal's own Sovereign Fund for Strategic Investment (FONSIS), act as public-private-partnership (PPP) funds, national development banks or other types of state-owned companies, financing domestic projects that the market, for one reason or another, will not finance. Strategic investment funds explicitly financed by oil revenues include Bahrain's Mumtalakat, the Gabonese Strategic Investment Fund, the Libyan Local Investment and Development Fund (a subsidiary of the Libyan Investment Authority), the Nigeria Infrastructure Fund (which is a subsidiary of the Nigerian SWF) and the Russian Direct Investment Fund.[48]

They are meant to operate as national development banks would, investing with two objectives in mind, profit and development outcomes. Identical to a development bank, their aim is to "crowd-in" private sector investment and provide long-term capital as equity or debt. The only difference is that they sometimes invest in projects without a private sector partner, but on commercial terms, much as state-owned enterprises do around the world. The lack of partners increases the risk associated with a given investment. However, unlike most state-owned enterprises, they usually do not have specific sector knowledge or skills and therefore are less well suited to start projects as sole-investors, without a partner who knows the market well.

The global experience with strategic investment funds, PPP funds and national development banks is quite mixed. On the one hand, several of these institutions have been key to their countries' economic development. Germany's Kreditanstalt für Wiederaufbau (KfW) was a key financier of infrastructure and a number of economic sectors during post WWII reconstruction. Brazil's Banco Nacional de Desenvolvimento Economico e Social (BNDES) has, since its founding in 1952, sequentially invested in infrastructure, capital goods, the industrial sector (especially petroleum, mining and energy) and finally small and medium-sized enterprises. The institution is well-known for its long-term outlook, crowding-in private investment and filling the investment gap during Brazil's debt crisis. While the bank has been criticized for relying too much on state subsidies, it is widely cited as an example of an effective domestic investment institution.[49]

In a similar example, the Korean Development Bank (KDB) helped develop the Korean economy by providing credit at favourable interest rates to improve domestic corporations' competitiveness. KDB invested in physical infrastructure (e.g., energy, highways, ports) and targeted industries (e.g., fertilizers, cement, oil refining, steel, automobiles, electronics). More

[48] Havard Halland et al. (2016) *Strategic Investment Funds: Opportunities and Challenges*. World Bank Policy Research Working Paper 7851.
[49] UNCTAD (2016) *The Role of Development Banks in Promoting Growth and Sustainable Development in the South*. Online: http://unctad.org/en/PublicationsLibrary/gdsecidc2016d1_en.pdf.

recently, KDB has shifted towards supporting small and medium-sized enterprises' investments in new technologies, biotechnology and the creative economy. This is to reduce Korean dependence on manufacturing.[50]

However, similar to the experience with SWFs, strategic development funds and development banks have often proven to be sources of patronage, corruption and mismanagement. The Development Bank of Mongolia, for example, has made a long list of bad loans and is a major source of the Mongolian state's indebtedness, which has led to an IMF-led bailout this year. The bank has provided financing for a cement factory, hydro plant, a copper mine, apartment construction and renovations to central heating systems. However, the investment decisions were often politically motivated. Furthermore, the former CEO was arrested for approving debt issuances without tender.[51]

Of equal concern, these funds often undermine public financial management systems by bypassing parliamentary oversight and general procurement procedures for domestic contracting. The $10 billion Russian Direct Investment Fund, for example, invests in domestic companies virtually without independent oversight, creating an unaccountable source of financing for supporters of the ruling regime. The fund is currently subject to U.S. sanctions due to management's alleged involvement in corruption.

Many of the lessons learned from SWF and state-owned company governance can be applied to strategic investment funds and national development banks. As mentioned, good governance standards for SWFs have been codified in the *Santiago Principles.* Similarly, good governance of state-owned companies—especially strategic development funds, PPP funds and national development banks financed by natural resource revenues—are informed by a set of general standards developed by international organizations and think tanks. The Organisation for Economic Co-operation and Development's (OECD) *Guidelines on Corporate Governance of State-Owned Enterprises* and its guide for practical implementation, *Accountability and Transparency: A Guide for State Ownership*, represent a list of standards for all state-owned enterprises endorsed by a set of governments. The World Bank's *Corporate Governance of State-Owned Enterprises: A Toolkit* is a more comprehensive resource for state-owned company governance, though not a set of standards. More recently, the International Monetary Fund (IMF) released *How to Improve the Financial Oversight of Public Corporations*, a how-to guide for ministries of finance.

[50] Ibid.

[51] Khaliun Bayartsogt (2016) « Ex-head of Mongolian development bank arrested » *Nikkei Asian Review*. 15 October 2016. Online: https://asia.nikkei.com/Politics-Economy/Policy-Politics/Ex-head-of-Mongolian-development-bank-arrested.

While not every standard is applicable in every context, in general these standards highlight the need for clear ownership policy, legal framework and performance monitoring framework. These funds should have clear objectives and mandate, and the government should clarify their functions as their owner, ensuring a high degree of professionalism and effectiveness. The legal framework should provide the government with powers to control fund finances, require that they publish accurate and audited financial statements and annual reports on operations. There should also be clear investment guidelines that constrain excessive risk-taking and encourage these funds and banks to meet their "double bottom line", profitability and crowding in private investment. Finally, fund performance should be measured against its objectives, which requires clear benchmarks and monitoring of performance by an independent government entity, for example, an independent board, president's office, ministry of finance or state-owned holding company.

Several suggestions have been developed to aid in the drafting of the investment guidelines themselves. For example, projects financed by the fund or bank should be aligned with national development priorities. FONSIS has been described as following this suggestion. Also, staff benefits and remunerations ought to attract high-skill investment managers who can manage complex financial transactions.[52]

While it is beyond the scope of this paper to assess FONSIS's performance, it bears mentioning that the fund has to date invested in a medical diagnostic centre in M'Bour, a 30 megawatt solar power plant and an industrial park near Dakar. That said, as of October 2017, FONSIS did not publish financial information on its website. An independent external audit is unavailable and there has been no independent assessment of the fund's performance, as is suggested under the *Santiago Principles* and OECD guidelines.

Earmarking funds

Governments regularly create extra-budgetary funds to earmark spending to a specific sector or expenditure item. The most common earmarks are for pensions, education, infrastructure and subnational governments, however earmarking funds exist to guarantee a source of financing for environmental protection, extractive sector research and development, cultural protection and many other government priorities.

[52] Havard Halland et al. (2016) *Strategic Investment Funds: Opportunities and Challenges*. World Bank Policy Research Working Paper 7851.

Similar to SWFs, earmarking funds can be accounts within the treasury or quasi-independent institutions. What makes them earmarking funds is that a pool of money is required to be spent, rather than invested for financial return, on a specific item or sector.

There are literally thousands of earmarking funds around the world. However only a small percentage of these are financed explicitly from natural resource revenues. For example, the Alabama Capital Improvement Trust Fund (U.S.) is allocated 28 percent of the state's oil and gas revenues net of corporate income taxes. Similarly, the Forever Wild Land Trust Fund, which purchases land for nature preserves and public use and carries out educational programs, receives most of its funding from the 3.3 percent of oil and gas revenues and a small share of the earnings of the Alabama Trust Fund, a SWF.[53]

Timor-Leste's Infrastructure Fund and Human Capacity Development Fund are good examples of earmarking funds linked to strategic development plans. Both behave as multi-year earmarked budgets which finance plans and projects that will boost the low-income SE Asian country's long-term economic growth and help alleviate poverty. Their financing comes directly out of Timor-Leste's Petroleum Fund which in turn is the recipient of all of the government oil and gas revenues. The funds' 5-year budgets are reviewed and approved by parliament and are executed according to normal budgetary procedures. In 2015, the Infrastructure Fund spent USD 292 million on projects, including electricity, irrigation, sanitation and drainage in the capital, a highway and an airport rehabilitation.[54] In terms of transparency, governance and effectiveness, these funds are in many ways models to emulate.

In an example of an earmarking fund for subnational government financing, 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.[55]

Similarly, the Mongolian government deposits 30 percent of petroleum royalties and 5 percent of mineral royalties along with 10 percent of Value Added Tax into the General Local Development Fund. Distribution from this fund to subnational governments—called aimags and

[53] NRGI-CCSI (2013) *Alabama Trust Fund*. Online: https://resourcegovernance.org/sites/default/files/NRF_Alabama_October2013.pdf.
[54] Government of Timor-Leste (2016) *State Budget 2016 Approved: Infrastructure Fund.* Online: https://www.mof.gov.tl/wp-content/uploads/2016/03/BB3A_Englesh_25_Jan_16_Final.Final_.pdf.
[55] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.

soums in Mongolia—is determined by a complex formula that gives equal weight to the following indicators: a Local Development Index which itself consists of 65 indicators; population; geographical characteristics such population density, remoteness and size; and tax generating capacity.[56]

Earmarking can be a useful political messaging tool and can act as a commitment mechanism for current and future government administrations. It can also guarantee a source of funding for certain expenditure items, such as environmental protection, that often receive little or no funding. On the other hand, earmarking suffers from the challenge of fungibility; since money is interchangeable, a government can shift money from one source (e.g., oil revenues) into a project, but then transfer the previous allocation of money from that project to another, leading to a net impact of zero. Thus earmarking often leads to a negligible change in budget allocations.

Community development and other Corporate Social Responsibility (CSR)-type funds

Natural resource funds are not just established by governments. In some cases, they are also established uniquely or jointly by communities, companies, subnational governments or quasi-governmental entities. These funds can be mandated by law, as in the case of Kyrgyzstan's mineral revenue financed Regional Development Funds or Papua New Guinea's trust funds for landowners, or be voluntary initiatives led by companies or communities. Senegal's new mining code requires some money to go into a local development fund, however such a fund for revenues from the oil and gas sector is only now under consideration.

The Raglan Trust in Canada is one example of an effective company-community fund. For more than 30 years, mining companies had been exploring the sulphide nickel deposit in the province of Quebec. However it was only once the Raglan Agreement was signed between the mine operator and the neighbouring aboriginal communities and their community-owned corporations that large-scale production began in 1997. The agreement called for the establishment of the Raglan Trust, a fund managed by the mayors of the two most affected communities, Salluit and Kangiqsujuaq, and the managers of the Makivik Corporation who are elected by the ethnic group in the region, the Inuit. The fund calls for a guaranteed allocation from the company of $1 million for ground-breaking, another $1 million once commercial productions starts plus $300 thousand to $1.125 million per year, gradually increasing. More importantly, it requires the mine to share 4.5 percent of annual net profit with local communities. In 2010, profit-sharing amounted to $15.2 million. In order to ensure that the communities are

[56] Ibid.

receiving their shares, the mine operator must submit an operating cash flow statement to the Makivik Corporation annually, including revenues, costs, tonnes of ore mined, grades, sales, and price data. Makivik Corporation may hire an independent auditor at any time.

The money is split between the two affected communities and the broader region of Nunavik. Of the guaranteed allocation, 50-87 percent goes to Salluit and Kangiqsujuaq equally and 0-33 percent goes to Nanavik. Of the larger profit-sharing amount, 45 percent goes to Salluit, 30 percent to Kangiqsujuaq and 25 percent to Nunavik. Public consultations determine how the money is spent. Kangiqsujuaq residents decided to distribute 80 percent in cash and, with the remainder, to build a gymnasium, three-star hotel and sports facility. This was partly due to already having basic infrastructure in the village. Nunavik also decided to distribute its share mostly in cash. In contrast, Salluit residents decided to distribute 60 percent in cash and save the remaining 40 percent for the benefit of future generations. One weakness of the fund's legal framework is that there is no requirement to public information on distribution.[57]

In an African example, the Niger Delta Development Commission is a federal commission controlled by Nigerian 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.[58]

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 the following formula: 50 percent of royalties from large mines to *oblast* RDFs; 30 percent of royalties from large mines to *rayon* RDFs; 80 percent of royalties from small mines to *rayon* RDFs; and 3 percent of auction revenues to each of the *oblast* and *rayon* RDFs.

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

[57] Raglan Agreement. Online: http://www.nrcan.gc.ca/mining-materials/publications/aboriginal/bulletin/8814.
[58] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.

submitted to the boards and approved on a discretionary basis. Thus there is a risk that these funds will be allocated based on political bases rather than based on an objective assessment of needs and development potential.[59]

There are hundreds of examples of community-level funds financed by extractive companies. While some serve the public interest well, others have been designed to essentially purchase companies' social license to operate in a given region. Similar to sovereign wealth funds and other funds described above, the legal framework, transparency and accountability explain the difference between funds that serves improves development outcomes and those that undermine formal governance structures or take advantage of communities with low capacity. The legal framework—whether legislated or written in a contract or agreement—ought to include clear deposit, withdrawal and investment rules, and clarify the fund's institutional structure. It should also require that financial information related to the fund be made publicly available in an easy-to-read and access format. Finally, there should be community consensus around the rules and annual formal oversight, whether through independent external audits by professional auditors or other types of formal independent oversight bodies, such as civil society groups or officials from outside the region.

Securities, closure funds and rehabilitation funds

Good practice for mine and oil field management involves setting aside a pool of money for closure and mine site rehabilitation. Extractive activities generally have significant environmental impacts and these funds can be used to return the land to its previous condition or, at the very least, make sites safe for human and animal alternate uses. Governments can instead require a security deposit or bond in case of environmental damage, which can be held in trust by the government or a third party. These funds are designed to be returned back (relinquished) to the company after it conducts satisfactory land reclamation and rehabilitation.

While a separate fund is not always required for these purposes, certain countries have established trust funds or allow trust funds to be established. For example, the U.S. state of Arizona's Mined Land Reclamation Act allows companies to choose between a surety bond, certificate of deposit, trust fund, insurance policy, or cash deposit with the state treasurer, among others.[60]

[59] Ibid.
[60] International Institute for Environment and Development (2002) *Research on Mine Closure Policy*.

In most cases, trust funds are held by the government or third party and are therefore quite similar to surety bonds. The government generally invests these funds in low-risk sovereign bonds or other equally safe assets. At times the interest earned is retained by the government to compensate for the administrative costs of managing the bond or trust or to cover costs of mine remediation. In others, the interest earned on unused money is returned to the mine operator.[61]

The security or trust fund deposit amounts are often a source of disagreement between governments and companies. Up-front payments by companies can stifle extractive sector investment, leading some governments to allow companies to pay their bonds over a number of years. Regardless of the timing of payments, the amounts ought to cover any possible future costs of mine or oil field closure and rehabilitation, including environmental and social costs. These costs, such as the costs of returning water quality to pre-mine or field levels, are often difficult to calculate, which partly explains the disagreements.

Similarly, the conditions under which governments can draw down on these funds can also be controversial. Definitions of what constitutes adequate closure or rehabilitation differ from country-to-country and are often unclear. Companies naturally wish to reduce closure and rehabilitation costs and therefore may argue that bonds or fund balances are excessive and the excess should be returned to them. Each case is different, however as a general rule, closure and rehabilitation standards should be as detailed as possible at the start of a mining project. Furthermore, as is the case with other types of funds, the amounts deposited and withdrawn and the justifications for inflows and outflows ought to be made public.

[61] Ibid.

Other measures to address environmental and social impacts of extractive activities

Fiscal vehicles such as funds are far from the only or even main tools governments have at their disposal to address the environmental and social impacts of extractive activities. This section discusses several other measures. These are separated into four *ex ante* measures, those that can be implemented before a mining or petroleum project begins, and one *ex post* measure, that which can be implemented while the mine or oil field is operating.

Environmental and Social Impact Assessments (ESIAs)

Every extractive project ought to be subject to a strenuous environmental and social impact assessment (ESIA) prior to project approval by the government. ESIAs should cover a wide range of topics, including: land ownership; environmental baseline studies; description of physical, human and biological environment; projection of impacts; environmental and social risk assessment; public consultation plan; field plan; and closure plan. ESIAs should also be understandable by the principal stakeholders, especially affected community members.

Unless ESIAs are carried out to a high standard and the recommendations implemented, the project ought not to begin production. They ensure that companies carry out their due diligence and work toward mitigating some of the negative impacts associated with extraction. They also sometimes explicitly incorporate benefit sharing plans as a means of mitigating any harmful impacts.

According to the 2017 Resource Governance Index, only 10 out of 89 countries receive "good" ratings on the existence and application of ESIA rules. Perhaps surprisingly, Cameroon, Cote d'Ivoire and Ghana score quite well while wealthier economies such as Saudi Arabia, Kuwait and Tunisia score near the bottom of the ranking on a composite of ESIA indicators.[62]

Compensation to local landowners

One of the more serious challenges countries face, especially in low capacity environments, is providing adequate compensation to landowners displaced or otherwise affected by extractive activities. Compensation does not only apply to those whose land has been seized for mines and oil fields, but also those displaced by pipelines, roads to/from the sites and supply companies.

[62] NRGI (2017) *Resource Governance Index*. Online: http://www.resourcegovernanceindex.org/.

While governments usually have the right to displace residents under eminent domain laws, governments and companies have a duty to adequately compensate those affected, either financially or in-kind, such as providing new land with similar fertility and water supply.

There are several challenges associated with financial or in-kind compensation. First, residents in many countries do not have clear land title, often because the country's land title system is underdeveloped or recognizes communal land. Thus it is sometimes unclear who deserves compensation. Second, what constitutes "adequate" compensation is sometimes debatable. Governments and companies often value land at a lower price than residents. The lack of transparent land markets makes this valuation all the more difficult. Furthermore, it is sometimes a challenge to value social networks, markets and cultural heritage of a given location. Third, residency is not always clear, especially in regions with much inbound and outbound migration. Still, institutions have developed compensation standards. For example, the International Finance Corporation, a branch of the World Bank, has developed performance standards for resettlement. Among these standards are requirements to "avoid forced evictions" and "when avoidance is not possible, minimize displacement by exploring alternative project designs". The standards also require providing compensation for loss of assets at replacement cost and that the standard of living of displaced persons is improved or restored.[63]

Local content rules

Local content can represent a major source of non-fiscal benefits from national and affected communities. Local content includes (staff and/or managerial) employment requirements, supplier procurement, training and skills development, and technology transfer that benefits locals. It can also include development of downstream industries such as petrochemicals or refining oil into final products.

There are many types of local content provisions. For example, Tanzania has required that the government and state-owned Tanzanian Petroleum and Development Corporation approve a training and employment program before private sector production begins.[64] Nigeria passed a local content law in 2010 that sets out a minimum level of "Nigerian content" to be achieved for each category of goods and services related to the petroleum sector, though no timeframe is attached. The law also creates a board to guide, effectively monitor, coordinate and implement

[63] IFC (2012) *Guidance Note 5: Land Acquisition and Involuntary Settlement.*
[64] CCSI (2015) Local Content: Tanzania – Petroleum. Online: http://ccsi.columbia.edu/files/2014/03/Local-Content-Tanzania-Petroleum-CCSI-July-2015.pdf.

the provision of the Act.[65] Other examples of local content provisions include Uganda's requirement that foreign companies contribute financially and otherwise to petroleum engineering training centres, Brazil's requirement's that what petroleum sector supplies can be procured in the country should be, and Angola's requirement that local staff be trained on the job, with high fines for non-compliance.[66]

Local content provisions—whether in legislation or extractive project plans approved by the government—can kick-start growth in high-potential sectors (e.g., construction), help unlock bottlenecks in the economy (e.g., build management skills, provide access to credit), and generate true partnerships between foreign operators and local suppliers, universities and research centres. On the other hand, they can be sources of corruption, can benefit elites only, enhance a country's dependence on the extractive sector, and generate conflict between those benefiting and those not benefiting from the provisions.

While it is beyond the scope of this paper to explore the many ways that local content can be made to work for citizens, the global experience does point us towards several broad lessons. For instance, local content provisions should be realistic and monitorable. Requiring "80 percent local content within five years" does not mean anything and would simply lead to conflict between companies, locals and government. Also, requiring less than 50 percent equity shares in suppliers or operators by locals simply benefits wealthy elites without generating benefits from the broader population. Finally, it is important to manage local expectations. The extractive industries are capital-intensive, meaning they do not generate many jobs compared to their size and revenues, and the few well-paying jobs they do create generally require highly-skilled and experienced workers. These industries can generate huge benefits for locals, including by developing local skills and supplying locally, but the most significant benefits can be accrued through fiscal revenues.

Senegal already includes local content provisions in several contracts. However the government is currently developing a stand-alone local content law. Coz-Petrogaz, a policy steering committee embedded within the Office of the President, is drafting the bill. The committee, established in 2016, includes the President and key cabinet members, and is managed by a secretariat.[67]

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[65] CCSI (2014) Local Content: Nigeria – Petroleum. Online: http://ccsi.columbia.edu/files/2013/07/Local-Content-Nigeria-Petroleum-CCSI-May-2014.pdf.

[66] CCSI (2014) Local Content: Angola – Petroleum. Online: http://ccsi.columbia.edu/files/2014/03/Local-Content-Angola-petroleum-CCSI-July-2014-.pdf.

[67] Holle Energy (2017) *Energy Sector Analysis Senegal: Petroleum and Gas*, Netherlands Enterprise Agency, Ministry of Foreign Affairs.

Shared-use infrastructure

Most oil, gas and mining projects require the construction of not only the fields or mines themselves but also associated infrastructure. Electricity, water, housing, transport (roads, airports or railways), and information and communications technologies are all needed to run a project. Usually they are located in rural regions where the underlying infrastructure either does not exist or is inadequate for project needs. Thus, in many cases, the extractive company must build the required infrastructure.

Local communities can in turn benefit from the presence of this infrastructure. Electric generation capacity can be increased at a fraction of the cost of building a brand new power plant. Roads can be extended to reach villages. And internet service can be upgraded to cover nearby communities. For instance, Areva's uranium mine in Namibia increased its desalination plant's capacity by 30 percent to serve neighbouring residents. In Mozambique and Malawi, Brazilian mining company Vale has committed to sharing its USD 3.4 billion railway with general cargo and passenger trains. The project is still under construction.[68]

Companies may be unwilling to share some infrastructure with neighbouring communities, either because it would be costly or would slow down production. For example, noting the counter-example provided above, mining companies are often hesitant to share railways with passenger cars or other companies since they wish to retain sole use of the railways to transport raw products when it is most convenient. Similarly, they may not want to pay for increased electric generation capacity to serve neighbouring communities since the cost would be prohibitive.
That said, companies can be convinced to share infrastructure provided they can deduct the costs, taxes are lowered, or shared-use infrastructure is counted towards their social contributions. Provisions requiring shared-use are often included in petroleum or mining contracts or in project plans approved by the government. It is more difficult to convince companies to share infrastructure at later stages since the infrastructure has already been planned or built.

Companies may also be more willing to share some types of infrastructure rather than others. Studies have shown that communications technologies can be extended to communities relatively cheaply and without much effort by companies. Roads and housing are also commonly

[68] Toledano, P. et al. (2014), *A Framework to Approach Shared Use of Mining-Related Infrastructure*. Columbia Center for Sustainable Investment: New York. Online: http://www.vcc.columbia.edu/files/vale/content/A_Framework_for_Shared_use_Jan_2014.pdf

shared or expanded. However railways and electricity are less likely to be shared due to the high cost of development and the logistical and financial complications associated with shared-use.[69]

Mandatory and voluntary social contributions

Companies need not only distribute benefits to local communities via funds, as in the case of the Raglan Trust. They can also distribute benefits directly to communities, either in cash or in-kind contributions, such as building schools, roads and electricity, distinct from infrastructure required by the company's operations. In fact, these initiatives are more common that community trust funds or even local content provisions.

State-owned oil and mining companies are among the largest social contributors. Venezuela's PDVSA, for example, spent USD 13.3 billion on "social development" in 2006. Angola's Sonangol and Saudi Arabia's Saudi Aramco have also spent billions of dollars on social services and infrastructure, effectively replacing some of the roles of government and becoming "states-within-states". Private sector companies make significant contributions as well. In 2006, BP spent USD 107 million on community investments, Shell spent USD 140 million, Exxon spent USD 138 million and Total spent USD 156 million. This includes investments in community healthcare, education, credit for small and medium sized businesses and local sourcing.[70]

Social contributions can be either mandated by law or voluntary. The government of Kyrgyzstan, for example, requires companies operating mines of "national importance" to offer "social packages" to affected communities. Companies are free to determine the content of those social packages.[71] In a well-known example of a voluntary initiative, Royal / Dutch Shell has made many gifts of schools, health centres, agricultural extension services and scholarships in the Nigeria's Niger Delta since the 1960s. Most of these projects have been made *ad hoc* and have not been linked to the region's broader development strategy.[72]

While social contributions provide tangible benefits to communities, their monetary value is usually dwarfed by fiscal revenues or the benefits of some of the more effective local content provisions. At the same time, they have become quite attractive as a means for companies to

[69] Ibid.
[70] Jedrzej George Frynas (2009) "Corporate social responsibility in the oil and gas sector", *The Journal of World Energy Law and Business*. 2(3), pp. 178-195.
[71] NRGI-UNDP (2016) *Natural Resource Revenue Sharing*. Online: https://resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing.
[72] David Ogula (2012) "Corporate Social Responsibility: Case Study of Community Expectations and the Administrative Systems, Niger Delta", *The Qualitative Report*, 17(37), 1-27.

earn a social license to operate, and are popular among community leaders who wish to demonstrate concrete results from negotiations with extractive companies.

Conclusions for Senegal

There remains a great deal of uncertainty around Senegal's fiscal revenue and non-fiscal benefit potential from the oil and gas sector. Projects are still years away from completion, oil and gas prices may shift dramatically within the next few years and decades, and development and operational costs are unclear. Yet the Government of Senegal is in a position now to begin considering different policy options, with an eye to being ready once project details become more well-defined.

This report outlines a large number of potential funds and mechanisms that Senegal could employ to maximize the benefits from the sector. While each presents an opportunity, each also comes with risks. Some of these risks are greater than others. As has been shown in this report, the global experience with extra-budgetary funds and state-owned companies has been generally fraught, especially when a separate large bureaucratic institutions is established. At the same time, special accounts within the national budget framework can certainly help address macroeconomic challenges and signal to the public that the government is committed to using its natural resource revenues for sustainable development.

The keys to success of any of the policies mentioned in this report is the develop an appropriate legal framework—including strong inflow/outflow rules, transparency provisions, and independent oversight—as well as learn from other countries' experiences. Capacity can be built over time as Senegal gains experience in managing oil revenues, however many of the mistakes from around the world can be avoided with the right set of initial rules.

Senegal's low Open Budget Index and Public Investment Management Index scores reinforce the need for significant improvements to public financial management systems prior to the start of large scale oil production in order to mitigate these risks. These indices highlight project appraisal and evaluation as particularly lacking. Independent public finance audits, improved parliamentary oversight and enhanced internal budget controls, for instance to improve project prioritization, are some of the possible reforms.[73] Unless these issues are addressed, it is unlikely that any new financial vehicles or mechanisms will generate the transformative impacts for which they would be intended.

Of the non-fiscal measures, each could be considered carefully, since they are not mutually exclusive options and have proven benefits. However the government may wish to bear in mind

[73] Era Dabla-Norris et al. (2011) *Investing in Public Investment: An Index of Public Investment Efficiency*. IMF Working Paper 11/37; International Budget Partnership (2015) *Senegal: Open Budget Survey*. Online: https://www.internationalbudget.org/wp-content/uploads/OBS2015-CS-Senegal-English.pdf.

that the benefits derived from fiscal revenues have greatly exceeded the non-fiscal benefits from the sector in nearly every case around the world. Thus a greater focus on effective and accountable utilization of fiscal revenues may be sensible.

One modest recommendation from this report would be for the government to systematically weigh the costs and benefits of each of these options prior to choosing one or several. This would involve cross-ministerial consultations and discussions driven by the evidence, as well as discussion with cabinet members, parliament, and the broader public. The more evidence is available to a wider spectrum of policymakers and engaged citizens, the more likely that the choices made will benefit Senegal as a whole.