Helpdesk Research Report: Natural Resource Revenue for Service Delivery
Date: 31.03.2010

Query: What is the experience of developing countries in translating major expansions in natural resource-related revenues into improved service delivery? What is the experience of countries with low levels of government effectiveness and poor control of corruption? Which countries are the success stories and what can we learn from their experience? Have development partners been able to support countries to manage the transition associated with a major expansion in resource extraction activity?

Enquirer: AusAID

Contents

1. Overview

There is a large body of research which explores the links between natural resource abundance and economic growth – the so-called 'resource curse'. There is also some discussion in the literature of the relationship between natural resources and development outcomes more broadly. However, there is very little literature which addresses the impact of natural resource revenues on the quality of service delivery per se. The most relevant studies are those which look at increases in public spending resulting from revenue windfalls (Collier et al., 2009; UN-DESA, 2007; RWI, 2008; Auty, 2008) and those which explore the link between resource revenues and social policy (Hinojosa, 2008; Ascher, 2008). A number of country specific studies provide insights into successful examples of natural resource revenue management, although the link to service delivery is rarely made explicit.

Other significant fields of research which have relevance to this query are those which examine: (a) the link between natural resources and corruption; (b) corruption in the health and education sectors; and (c) donor engagement in natural resource management. Due to time constraints, these have not been included in the analysis. However relevant collections of resources from the U4 anti-corruption resource centre and previous GSDRC research can be found in the additional resources section of this report.

Natural resource revenue and social expenditure

The literature generally finds that there are large differences among natural resource dependent developing countries in terms of the effects of resource wealth on social expenditure. One study found that the association between revenue and expenditure in social sectors is generally positive and significant (Hinojosa et al., 2008). Evidence from Brazil (Caselli and Micheals 2009) suggests that revenue windfalls correlate closely with spending increases in the areas of urban infrastructure and housing, education and health services, although the link to improvements in socio-economic outcomes is unclear. Generally speaking, however, most countries do not earmark revenues from natural resources for specific development programmes and it is therefore is very difficult to draw conclusions on any causal relationship.

There is more consensus on those factors which hinder positive outcomes from natural resource revenue. Most commonly cited are limited capacity to rapidly scale up social investments, lack of information, rent-seeking and patronage. Collier et al (2009) argue that effectively linking public expenditure of resource revenues to development requires the capacity to manage change, a sensible balance between public consumption and investment, combating Dutch disease, and linking spending to a strategic vision. Importantly, if public spending rises too fast the processes of decision and implementation will deteriorate. In countries with weak institutional capacity, alternative mechanisms for distributing rents should therefore be examined as a policy option, including partial reforms. (Norad et al. 2009)

Decentralisation

The issue of decentralisation is often raised with reference to the distribution of natural resource related revenues. Given the debate on the role of decentralisation in improving the responsiveness and accountability of service provision it would appear to be particularly relevant here. According to one study, countries in which natural resource revenues represent a large share of the budget (Nigeria, Bolivia, Indonesia and Mexico) seem to be more likely to have systems for the partial redistribution of revenues among all regions (between 17% and 41% of revenues). Nevertheless, even where these mechanisms are in place, there is limited effectiveness in redistributing resources in favour of the poorest regions (RWI 2008). Furthermore, local investments funded by natural resource revenues tend to focus on infrastructure and are rarely appropriate for local needs.(UN-DESA, 2007)

Much less has been written about the development impacts of the use of these revenues at the local level. This is due to limitations with international transparency initiatives and a lack of information about the intermediate steps between revenue flows to government and execution of projects on the ground. (UN-DESA 2007)

Examples of success

The case of Botswana is widely cited as an example of responsible management of resource revenues. It is also where the link to improvements in infrastructure, human capital and basic service delivery is most apparent. In Botswana's case key factors for success included cautious macro-economic policy, low volatility in the global price of the resource (diamonds), good governance and the control of rent-seeking, a broad consultative process, domestic ownership of the reform process, separation of state powers, social and political stability, and multiparty parliamentary democracy. (Norad et al, 2009; Lange and Wright, 2002)

Other successful (or partially successful) examples include Peru, Chile, Vietnam, and Indonesia.

2. General documents

Collier, P., van der Ploeg, F. and Venables, A. J., 2009, 'Managing Resource Revenues in Developing Economies', Oxford Centre for the Analysis of Resource Rich Economies and Centre for the Study of African Economies
http://users.ox.ac.uk/~econpco/research/pdfs/ManagingResourceRevenuesinDevelopingEconomies.pdf

Part 5 of this paper discusses the different channels through which government can allocate resource revenues. Broadly speaking these are: a) distribution to the private sector through citizen dividends or through the tax/benefit system; b) increasing public spending; c) lending to the domestic private sector and/or by reducing public debt; and d) external lending, foreign reserve accumulation or establishing a Sovereign Wealth Fund.

The second of these is of most interest here. The authors argue that effectively linking public expenditure of resource revenues to development requires the capacity to manage change, a sensible balance between public consumption and investment, combating Dutch disease, and linking spending to a strategic vision. Importantly, they argue, if spending rises too fast the processes of decision and implementation will deteriorate. At the micro-level (ie spending on specific public goods/services) one problem is limited technical capacity and information to devise a set of prioritised spending plans. The other problem is to do with incentives (leading to corruption or rent seeking).This is more likely to happen in countries with well-developed patronage systems.

As the authors point out, "the challenge is not only to get a big increase in public investment in many developing countries, but to also make sure that it is the right type of public investment and that it is investment of high quality. The past has witnessed many white elephant projects, since it is the inefficiency of such projects that makes them politically appealing as credible devices of redistribution […] These issues are particularly severe in the context of resource windfalls. Large-scale revenues come on stream abruptly and are likely to be volatile. Administrative systems lack the information and capability to scale-up expenditures rapidly, and this leads to inefficient spending programmes. This argument obviously reinforces the case made for smoothing expenditure. It also suggests that any initial jump in spending should be small, waiting until capacity to spend efficiently is developed." (p 25)

They also suggest that it is important for the government to publicly face down the lobbying surge created by windfall revenues. One approach is to establish explicit and transparent new decision processes for natural resource revenues linked to a clear vision of long-term development. By spotlighting the new spending, it makes scrutiny easier and signals to citizens that the windfall will not be captured by special interests.

Hinojosa, L. et al., 2008, 'Social Policy and State Revenues in Mineral-Rich Contexts', Paper commissioned for UNRISD project on Social Policy in Mineral-rich Countries, Geneva
http://www.sed.manchester.ac.uk/research/andes/seminars/Hinojosa_etal_UNRISD_Seminar3.pdf

This article examines the linkages between increases in mineral resource revenues and social policy, taken here to encompass both "traditional" social welfare issues such as health, education and social security as well as "non-traditional" social protection and growth-enhancing issues. In particular, it examines the likely effects of mineral wealth on social expenditure level and composition, and on the promotion of new social policy initiatives. Overall, it finds large differences among mineral rich developing countries and cautions against any broad generalisations.

Section 3 of the paper analyzes the relationships between mineral wealth and the state's ability to capture revenue and use it in social services by testing three sets of connected assumptions about: 1) the extent to which mineral export dependence affects the level of state revenue; 2) the ways in which mineral wealth and social policy are connected; 3) the institutional conditions under which governments mineral wealth can produce social welfare.

Specifically, assumption 2 posits that: "in mineral dependent economies, the linkage between mineral wealth and social policy occurs in four dimensions:

2.1. mineral wealth encourages higher levels of social expenditure;
2.2. mineral wealth produces fiscal space for social policy;
2.3. mineral wealth influences the composition of social expenditure;
2.4. mineral wealth enables new social policy initiatives to get started."

With regards to the second of these dimensions, the association between revenue and expenditure in social sectors is generally found to be positive and significant. Similar results are reported for tax revenue. The correlation of social contributions (as a percentage of total revenue) and public expenditure in the health sector is positive, but negative in the case of public education. The analysis also suggests, however, that in countries with high mineral dependence, revenue that is captured by governments and, hence, the amounts allocated for expenditure in social sectors, tends to be lower. The evidence is less conclusive in regard to allocation of mineral tax resources among sectors, even though it seems to favour the education sector.

UN-DESA, 2007, The use of non-renewable resource revenues for sustainable local development: Challenges and opportunities for developing countries
http://www.commdev.org/content/document/detail/1994/

This UN-DESA Expert Group Meeting reflects on conditions for effective use of oil, gas and mineral revenues for local sustainable development. According to the report, whilst there has been much research on macro-economic and institutional conditions for good management of resource revenues, much less has been written about the development impacts of the use of these revenues at the local level. This is due to limitations with international transparency initiatives and a lack of information about the intermediate steps between revenue flows to government and execution of projects on the ground.

In spite of differences in the institutional frameworks and the nature of revenues from natural resources across countries, there are a number of common lessons, including:

- the environmental and social costs of oil or mining activities on local communities directly affected by them are not adequately taken into account
- the selection of projects financed out of natural resource revenues often has no or only distant relation with local priorities
- bricks and mortar tend to act as a substitute for a consistent local development strategy
- budget execution (disbursement) rates are consistently low.

The main reasons for these outcomes include: the struggle for control of natural resource revenues; capacity gaps; lack of information; the social and environmental costs of extractive activities; and the limits of Corporate Social Responsibility (CSR) as an answer to development concerns.

Gylfason, T., 2000, Development and Growth in Natural Resources, Education, and Economic Development http://notendur.hi.is/gylfason/pdf/eea2000k.pdf

This article begins with the assertion that natural resource rich countries tend to have slower economic growth over the long term than do non-natural resource rich countries: "Of 65 countries that can be classified as natural resource rich, only four managed to attain both (a) long-term investment exceeding 25 percent of Gross Domestic Product on average from 1970 to 1998, equal to that of various successful industrial countries lacking raw materials, and (b) per capita GNP growth exceeding 4 percent per year on average over the same period. These four countries are Botswana, Indonesia, Malaysia, and Thailand. The three Asian countries achieved this success by diversifying their economies and by industrializing; Botswana, rich in diamonds, without doing so." (p1)

The article takes a different approach from much of the resource curse literature insofar as it analyses the relationship between natural resource endowment, economic growth and education. With respect to the latter, it finds that three different measures of education (inputs, outcomes, and participation) are all inversely related to natural resource abundance (p 4), leading to the conclusion that: "natural resource abundance seems likely to deter economic growth not only through the Dutch disease, rent seeking, and overconfidence […] but also by weakening public and private incentives to accumulate human capital." (p 5)

3. Country-level experiences

Cross-country analysis

Norad, Norwegian Ministry of Foreign Affairs, Chr. Michelsen Institute, and the World Bank, 2009, 'From Curse To Development: Natural Resources, Institutions, And Public Revenues', Conference and workshop report, September 8-11, Holmenkollen Park Hotel Rica, Oslo, Norway
http://www.cmi.no/research/project/?1313=from-curse-to-development-natural-resources

This conference highlighted promising areas to support development in resource-dependent economies and key entry points for linking domestic and international efforts to harness extractive resources for development. The subsequent workshop evaluated the preliminary findings from case studies from sub-Saharan Africa (Angola, DRC, Ghana, Nigeria, Niger), East Asia (East Timor, Laos, and Mongolia), and Latin America.

The main findings from the conference were:

- Recognised best practice in the various stages of the extractive industry value chain is rarely adopted and implemented in resource dependent countries. The main reasons for this are linked to poor institutional quality and political economy factors.
- Engaging with resource-rich countries not only requires technically sound practice advice, but an appreciation of the political economy. Examining the micro politics of the natural resource management (NRM) sector in a systematic way is critical to identifying reforms and interventions that can help to increase accountability.
- Perverse incentives are often the result of the enormous wealth generated by the extractive industries, which can in turn be used to avoid and discourage transparent oversight and investments in institutional capacity.
- History matters. The trajectory of previous commodity dependence cycles should be taken into account when discerning institutional incentives.
- In low institutional environments, alternative mechanisms for distributing rents should be examined as a policy option. Partial reforms must also be considered when comprehensive best practice reforms are not feasible.

- Development agencies should promote consultations between government, the private sector, and civil society. Development agencies can have a significant impact in the process if they help build the capacity of domestic civil society organizations and their understanding of the extractive industries.
- Political-economy analysis can facilitate engagement with governments and create innovative proposals for reform.

As an example, Botswana's long-term national development plans were highlighted as a method of promoting responsible management of resource rents (p 8). In Botswana's case key factors for success were a broad consultative process, domestic ownership of the reform process, good governance, separation of powers among the three arms of the State, political stability, multiparty parliamentary democracy, and sound macro-economic policies.

Pp. 14-19 of the report presents a summary of findings from the workshop. including the extent and effectiveness of natural resource revenue and expenditure management, intergovernmental benefit sharing, and public investment management in each of the case study countries.

Revenue Watch Institute, 2008, 'Extractive Industries Revenues Distribution at the Sub-National Level', RWI, New York
http://www.revenuewatch.org/news/publications/RWISubnatlRevSharing_2008.pdf

This paper presents a comparative analysis of the legislation that regulates the distribution of revenues from Extractive Industries (EI) across levels of government in seven resource-rich countries (Bolivia, Brazil, Ghana, Indonesia, Mexico, Nigeria and PNG). The study concentrates on the oil and gas sectors in all countries except for Ghana, where mining is the main extractive activity.

Some of the findings most relevant to this report include:

- In 4 out of 7 countries, extractive industry revenues represent between 20% and 40% of total revenues (and more than 75% in Nigeria and less than 1% in Brazil). With the exception of Bolivia, the three countries with the highest revenue reliance are also the weakest in overall revenue collection. (p 8)
- Of the seven countries, only Bolivia earmarks a significant percentage of revenues for social expenditures and development programmes (p 12).
- The legislation surveyed in this paper does however contain several provisions that attempt to specifically redress the negative effects of extraction, either by mitigating externalities or by introducing mechanisms to make the EI an engine of development. These include social development funds, environmental mitigation funds, infrastructure expansion requirements, local labour requirements and participation in equity stakes. (p 36)
- Almost all the countries considered in this paper share some of their revenues from extractive activities with sub-national governments on a derivation basis. Countries in which EIR represent a large share of the budget (Nigeria, Bolivia, Indonesia and Mexico) seem to be more likely to have in place mechanisms for the partial redistribution of revenues among all regions (between 17% and 41% of revenues). Nevertheless, even where redistribution mechanisms are in place, the country studies show their limited effectiveness in redistributing resources in favour of the poorest regions (Indonesia, Bolivia, Nigeria), either due to the inadequate formula or to the limited amount of funds redistributed. (pp 36-37)

Auty, R., 2008, 'Political Economy of African Mineral Revenue Deployment: Angola, Botswana, Nigeria and Zambia Compared', Working Paper 28, Real Instituto Elcano, Madrid
http://www.realinstitutoelcano.org/wps/wcm/connect/688e22804f018a599c45fc3170baead1/WP28-2008_Auty_Political_Economy_African_+Mineral_+Revenue_+Deployment.pdf?MOD=AJPERES&CACHEID=688e22804f018a599c45fc3170baead1

This paper compares the experiences of Botswana, Zambia, Nigeria and Angola in managing revenues from natural-resources. It suggests that Botswana's relative success has resulted from cautious macro-economic policy, control of rent-seeking and concern for the welfare of the poorest. This was facilitated by favourable social conditions including low ethnic tension, the rejection of statist policies, the precarious nature of Botswana's mineral dependence, and the unusual stability of diamond prices. However, Botswana's success is qualified by its slow progress with economic diversification.

In contrast, the Zambian government drew on mineral rent to accelerate statist development in the late 1960s that quickly distorted the economy and intensified mineral dependence. The government struggled to manage rent entitlements when copper prices plummeted after 1974. Ethnic rivalry exacerbated this problem by sustaining competition for rents that conflicted with economic reforms to stabilise and restructure the economy. Ethnic tension was more potent in Nigeria, where military regimes used rent to appease regional ethnic groups at the expense of efficient domestic rent absorption. Angola's dynamic economy was quickly distorted by central planning and then ethnic conflict, which encouraged rent-seeking that repressed markets.

de Renzio, P, Gomez, P. and Sheppard, J., 2009,'Budget transparency and development in resource-dependent countries', International Social Science Journal, Volume 57, Issue s1

Based on a survey of 24 resource dependent countries, this article finds that, overall they do suffer from a significant transparency gap in their budget systems although to significantly varying degrees. It also shows that the level of budget transparency and accountability and HDI scores are positively correlated, although this relationship cannot be assumed to imply causation in either direction.

In order to shed some light on the linkages between budget transparency and accountability on one side and human development outcomes on the other, the article looks at countries with extremely different performances on both: Peru, Vietnam and Angola, highlighting a series of factors that contribute to shape these linkages. These include:

- the type and degree of dependency on natural resource revenues, and whether the economy as a whole is diversified and integrated with the global economy.
- the nature of the political regime – democratic or autocratic, developmental or predatory – and the nature of budget institutions, including the process through which they were reformed to increase transparency and accountability.
- The existence of an active civil society that is interested and engaged in issues of fiscal transparency and oversight.

Peru's reliance on mineral resources rather than hydrocarbons and its diversified economy may have been combined with deepening democratisation, increasing degrees of fiscal transparency and growing civil society involvement to deliver better development results. In Vietnam's case, successful growth-oriented policies were coupled with timid attempts at improving transparency and encouraging participation, given the autocratic – but developmental – nature of the state. Growth and development outcomes were achieved despite weak transparency and accountability, but these may not be sustained in the future. Angola remains locked in a vicious cycle of poverty and poor governance, with limited domestic accountability and mobilisation, despite increasing international pressure and scrutiny.

Tsalik, S., 2003, 'Natural Resource Funds: Case Studies in Success and Failure', Chapter 2 in Caspian Oil Windfalls: Who Will Benefit?, Caspian Revenue Watch
http://caspianrevenuewatch.org/news/publications/051203.pdf

This chapter looks at natural resource funds (NRFs) in North and South America, Africa, Europe, and the Middle East. NRFs are a mechanism to address the challenge of budget planning in countries dependent on natural resource when commodity prices are highly volatile. NRFs can be used as stabilization funds or savings funds, or, in some cases, a combination of both.

Best practice examples from the case studies such as Norway and Alaska provide important guidelines on how to build transparency and accountability into an NRF. Examples such as Venezuela, Oman, and Kuwait demonstrate how vulnerable NRFs are when power is concentrated in the hands of an executive and an absence of democracy results in no effective oversight. The examples of Chad and Chile illustrate how NRFs can function even where democracy is weak and distrust of government high. Transparency, a strong sense of public ownership, and a separation of oversight powers are identified as three key ingredients in the success of an NRF. Some of the best performing NRFs have accumulated savings, enjoyed popular support, provided some kind of public expenditures, and/or smoothed out government spending while maintaining continuity in the fund's rules and functions. In the more problematic cases, an NRF's assets declined over time while the fund failed to raise living standards or to create a viable non-oil economic sector. Revenues and expenditures were shrouded in secrecy, rules fluctuated, and an absence of separation of powers allowed for easy raiding of the NRF.

Botswana

Lange, G. M. and Wright, M., 2002, 'Sustainable Development In Mineral Economies: The Example Of Botswana', CEEPA Discussion Paper 3, Centre for Environmental Economics and Policy in Africa, Pretoria http://www.commdev.org/files/1844_file_botswana_sustain.pdf

This article presents Botswana as an excellent model of a resource-rich economy using natural-resource related revenues (predominantly from diamonds in this case) to escape the 'resource curse' through prudent macroeconomic management. Botswana developed its own system for reinvestment of mineral revenues to offset depletion, the Sustainable Budget Index (SBI), which requires that all mineral revenues be reinvested. In the process Botswana has achieved remarkable improvements in infrastructure, human capital, and the basic services supplied to its population, for example (p 32):

- paved roads: 23 km in 1970, increased to 2,311 km by 1990
- safe drinking water: 29% of the population in 1970, increased to 90% by 1990
- telephones: 5,000 connections in 1970, increased to 136,000 by 2001
- female literacy: 77% by 1997

However, the author cautions that The SBI as a tool for determining investment priorities may be less useful in future. There is evidence that not all of public sector investment has been productive, and that a better allocation of mineral revenues might improve the sustainability of the economy.

Nigeria

Shaxson, N., 2009, 'Nigeria's Extractive Industries Transparency Initiative. Just a Glorious Audit?', Chatham House http://eitransparency.org/document/shaxson-neiti-glorious-audit

According to the author of this report, Nigeria is often considered as a flagship of EITI because of its relative success in publishing detailed data and for the institutional structure that has developed within the country. Other factors that have contributed to this perception include the fact that for a while it enjoyed apparently strong political commitment; and the fact that it has been engaged for a long time.

This report explores the extent to which Nigeria's EITI (NEITI) has lived up to its goals, potential and reputation. Of most relevance here is the conclusion that measured against EITI's and NEITI's broader goals of fostering better governance and accountability, the initiative has not shown impressive results, and so far it is hard to see how better transparency has led, in turn, to better governance in Nigeria.

Chad

Gary, I. and Reisch, N., 2005, 'Chad's Oil: Miracle or Mirage? Following the Money in Africa's Newest Petro-State', Catholic Relief Services and Bank Information Center
http://www.bicusa.org/proxy/Document.9546.aspx

According to this report: "The Chad-Cameroon Petroleum Development and Pipeline Project […] represents the foremost test case of the extent to which oil revenues can be used to alleviate poverty in a challenging developing country context." In an effort to help achieve this, the World Bank imposed certain conditions on loans to finance the project, including the establishment of a revenue management law to ensure that the majority of direct revenues from oil production are spent on priority sectors targeting poverty reduction and the establishment of a joint government-civil society petroleum revenue oversight committee (the Collège).

However, at the time of writing, many details regarding the calculation of revenues and agreements between the oil companies and the government remained secret. Furthermore, a number of legal loopholes and a lack of government technical capacity to monitor oil revenues make it difficult for citizens to verify the accuracy of revenue information. Whilst the Collège has made promising steps to establish itself and exert its authority, it lacks funding and support from civil society and has suffered from government interference. The experience of the 2004 and 2005 budgets show that many obstacles remain to achieving transparent budgeting of oil revenues and targeted spending for poverty-reduction.

Significantly, the author's argue that "Chad's experience shows that transparency is but one essential ingredient in a system of oversight, accountability and sanction. Transparent information can be used for both formal and informal enforcement of the law, but the tools to use it have to be in place. Investigative and judicial arms of the government must be independent and capable of prosecuting wrongdoing. Elections must be free and fair and Chadians must have the ability to change their government through the ballot box if they think it has not managed the oil wealth well. Informal enforcement – through monitoring by civil society and publicizing information on the radio and via other media – must be part of a system of accountability. Transparency is only meaningful if information is understood by the government and the public, and if the findings of oversight bodies lead to action." (p 3)

Another key lesson is that minimum conditions of respect for human rights, fiscal transparency, and demonstrated government capacity to implement pro-poor programmes must be in place before promoting investment in the extractive industries.

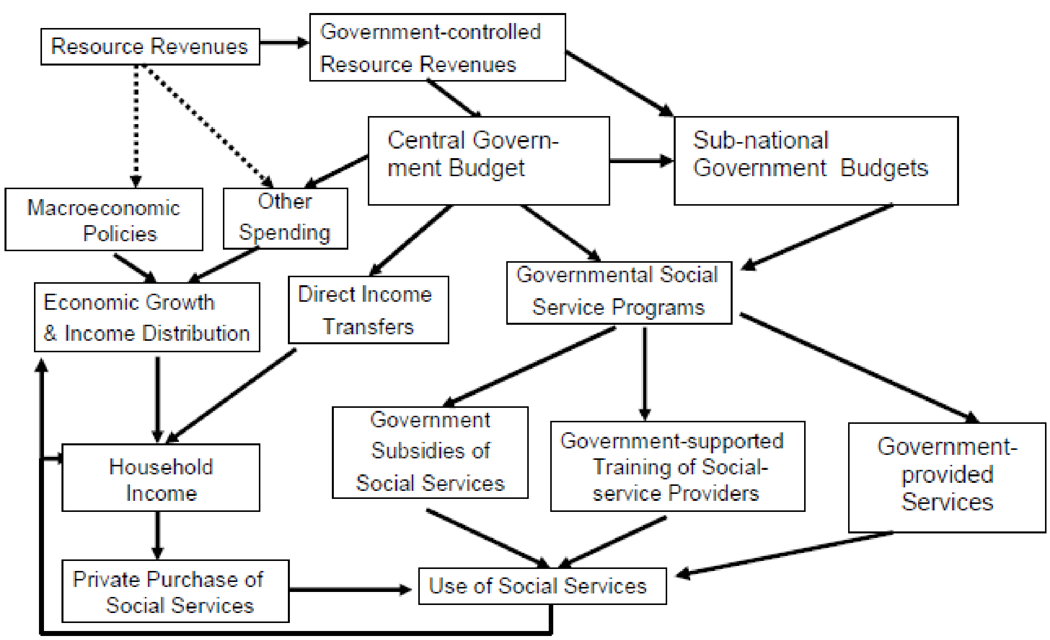
Indonesia

Ascher, W., 2008, 'Mineral Wealth, Development, and Social Policy in Indonesia', Paper Commissioned for UNRISD Project on Social Policy in Mineral-rich Countries, draft, UNRISD, Geneva

This paper explores Indonesia's relative success in translating mineral wealth into sustained economic development and, more recently, in channeling resources into social programmes, despite considerable corruption a poor human rights record and limited democratization. According to the author, key to this success have been, among other things:

- Recent progress in addressing the potential leakages that can reduce the volume of natural resource revenues available for promoting greater quality and affordability of social services.
- Better management of hydrocarbon pricing policy, by reducing the subsidies for fuels on the domestic market, which has enabled the post-Suharto governments to finance greatly expanded social-service programmes. However, the funding of social services is still vulnerable because (a) the central government still collects the bulk of taxes and royalties; and (b) the central government is likely to remain vulnerable to pressures to subsidize fuel prices.
- Better management of hydrocarbon pricing policy also enabled the post-Suharto governance reformers to strengthen the district-level administrations, the crucial institutions for the country's wide-ranging decentralization initiative.

The following diagram illustrates the flows of financial resources and policy influences that natural resources generate in Indonesia.



Chile

Guajardo, J. C., 2008, 'Mineral Rents and Social Development in Chile', paper prepared for the UNRISD project on Social Policy in Mineral-Rich Countries.

According to this paper, the collection of rents from mining has had a positive effect in Chile by increasing fiscal revenues, promoting the growth of mining regions, and strengthening the rise of indirectly related economic activities. In the case of national social policies, the income provided by mining has supported an increase of public spending and, as a result, the improvement of social indicators, although there is limited hard evidence to support this. In the author's own words: "This is a well established fact although Chile does not have mechanisms to transfer taxes directly from certain economic activities to specific uses, which makes it difficult to pinpoint the direct benefits provided by mining. There is a broad national understanding, however, that social advances in Chile could not have been reached without the contribution of this economic sector."

The author goes on to argue that the positive relation between mining and development in Chile stems from two fundamental sources: the institutional strength of the nation and the positive political environment which prevails, favouring consensual agreements.

Brazil

Caselli, F. and Michaels, G., 2009, 'Do Oil Windfalls Improve Living Standards? Evidence from Brazil', OxCarre Research Paper 28, University of Oxford
http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp200928.pdf

This paper finds that both onshore and offshore oil generate significant increases in local-government revenues in Brazil, mostly in the form of royalties. These revenue windfalls correlate closely with reported spending increases, particularly in the areas of urban infrastructure and housing, education and health services. However, the study does not find commensurate improvements in various socio-economic outcomes that would be expected to result from these spending increases. Furthermore, increases in household income associated with oil induced government revenues are modest-to-undetectable.

The paper also suggests that reports of "missing money" are accounted for by corruption. As such it recommends that oil-rich municipalities should be given special consideration in the current trend towards greater decentralization and in the design of audit schemes aimed at curbing corruption.

4. Additional resources

GSDRC, 2009, 'Donor Approaches to Extractive Industries', GSDRC Helpdesk Research Report http://www.gsdrc.org/docs/open/HD570.pdf

U4 Theme: Corruption in natural resource management http://www.u4.no/themes/natural-resources/main.cfm

U4 Theme: corruption in the education sector http://www.u4.no/themes/education/main.cfm

U4 Theme: corruption in the health sector http://www.u4.no/themes/health/main.cfm

The Natural Resource Charter http://www.naturalresourcecharter.org/

5. Further information

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