

International Policy Conference Proceedings

Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy

14-15th March 2011, Accra, Ghana



**UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION**

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Preface



by Kande K. Yumkella

Director-General
United Nations Industrial Development Organization

The International Policy Conference on “Competitiveness & Diversification: Strategic Challenges in a Petroleum-Rich Economy” organized by the United Nations Industrial Development Organization (UNIDO) and the Ghana Ministry of Trade and Industry, held in Accra, Ghana, on 14–15 March 2011, addressed the following thematic areas of the well-known phenomenon of the paradox of plenty, the resource curse and, more formally, the ‘Dutch disease’: Governance, competitiveness and diversification; competitively avoiding the ‘Dutch disease’; diversifying investment in industry; strategic disputes, dynamics and resolution; extractive industries, transparency and public interest; minerals and negotiation; enabling conditions; and the role of the National System of Innovation.

The service of the international community—through UNIDO as one of the specialized agencies of the United Nations—to provide global fora for addressing the policy issues and industrial economics that emerge from the challenges of

development, particularly those that occur in resource-rich countries, found expression in the International Policy Conference. As emerging economies such as Ghana look for competitive policy postures that will enable them to escape the paradox of plenty by diversifying their economic structures, the Conference brought together leading experts to discuss the multifarious nature of the problem and possible solutions with government policymakers from Ghana.

The collection of chapters in this volume represents the best of international policy analysis and research on the ‘Dutch disease’ with serious attention to the evidence-based approach to economic policymaking. The economic as well as the political economic and institutional explanations for the paradox are presented in terms of the challenges and the need to enhance dynamic competitiveness and increase the rate of diversification and specialization in the national economy facing the challenges of a resource boom.

Foreword



by Hanna S. Tetteh

Hon. Minister of Trade and Industry
Republic of Ghana

There is an increasingly poignant focus on resources—natural and raw materials—and their relation to the economic development of developing countries in the light of the growth patterns of emerging markets. The major concern regarding resources and development revolves around the issue of rich abundance and emiserating conditions of unbalanced and inequitable growth. The general paradox that resource-rich countries in Africa should be the ones which appear to be the farthest away from the frontiers of modern economic development needs to be a focus of empirical, practitioner and theoretical policy research and economic analysis. Among the resources that are challenging in their management for the greater economic good, hydrocarbons seem to be the most difficult to manage well in fiscal, economic and industrial policy terms over the long run. This paradox of plenty, the resource curse and more formally, the Dutch disease, encapsulates the challenges of development.

In the light of the start of the commercial production of hydrocarbons from off-shore in the 4th quarter of 2010, policymakers in Ghana, regional West Africa and sub-Saharan Africa met leading international experts on the ‘Dutch disease’ to discuss the characteristic economic dynamics that are triggered by oil discovery in a developing country and the policy responses to mitigate the worst effects of the phenomenon that is adverse to well-balanced economic development.

The characteristic economic dynamics that are triggered by oil discovery in a developing country—in various themes—were addressed by the International Policy Conference on Competitiveness and Diversification: Strategies in a Petroleum-Rich Economy, organized by the Ghana Ministry of Trade and Industry and UNIDO, held in Accra, Ghana, from 14–15 March 2011.

Economic history shows that the discovery of hydrocarbon resources in a country does not lead automatically to prosperity and welfare. On the contrary, many oil-rich economies face difficulties translating resource revenues into sustainable economic growth with commensurate equity across society and manufacturing value-added in economic activities. The Conference addressed the paradox of plenty, the resource curse and more formally, the ‘Dutch disease’ in the eight thematic topics of:

- Governance, competitiveness and diversification
- Competitively avoiding the ‘Dutch disease’
- Diversifying investment in industry
- Strategic disputes, dynamics and resolution
- Extractive industries, transparency and public interest
- Minerals and negotiation
- Enabling conditions, and
- The role of the national system of innovation

in order to arrive at policy prescriptions that enable economic policymakers to mitigate, as much as possible, the negative externalities of the phenomenon.

As offshore regional West Africa becomes ‘the next oil frontier’—and bearing in mind the economic experiences and lessons from the first movers in this industry—appropriate policy configurations and their calibration that avoid the resource curse are very much in demand. This International Policy Conference on Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy has enabled policymakers from the region a view of the challenges and possible solutions.

Acknowledgements

The International Policy Conference on *Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy on 14-15 March 2011, Accra, Ghana*, would not have been possible without the close collaboration of key personnel from the Ministry of Trade and Industry (MOTI), the United Nations Industrial Development Organization (UNIDO) and other Ministries of the Government of Ghana, namely the Ministry of Foreign Affairs and Regional Integration, the Ministry of Environment, Science and Technology, the National Security and the State Protocol Departments.

Profound expressions of appreciation and special gratitude are extended to the Director-General of UNIDO, Dr. Kandeh K. Yumkella; the Honourable Minister of Trade and Industry, Ms. Hanna Tetteh; the Honourable Deputy Minister of Trade and Industry, Dr. Joseph Samuel Annan for initiating the Conference, making generous resources available for the execution of the Conference and actively participating in the Conference; the Chairman of the Conference, Mr. P. V. Obeng for chairing the opening and closing ceremonies; and to UNIDO for providing resources and inviting the distinguished expert speakers.

Gratitude also goes to the dedicated members of the Conference Steering Committee comprising select UNIDO staff: Dr. Frank L. Bartels, Ms. Gifty Kyei-Boateng, Ms. Esther Takyi; the MOTI staff, Mr. Kofi Larbi, Mr. Akwasi Amo Himbson, Mr. Robert Tandor, Dr. John-Hawkins Asiedu, Mr. Johnson Adase, Mr. Nana Kwasi Boatey, Mr. Nana Akraasi Sarpong, Mr. Kwasi

Ofori-Antwi and other Ghana Government officials, notably Ms. Eunice Asante, Mr. George Nelson, Mrs. Akua Sekyiwa Ahenkora, Mr. Peter Mensah, Mr. Kwasi Twum Addo, Mr. Gabriel Nikoi, Mr. Gustav Dovlo and Mr. Stephen Komnashar for their valuable contributions, thereby enabling the successful organization of the Conference.

Appreciation is also extended to Mr. Yao Modenou for his IT expertise during the Conference and special appreciation goes to the UNIDO Research Associates, Ms. Akua Asamoah Debrah, Ms. Jane Brew, Ms. Christabell Afrane, Ms. Anna Piccini and Mr. Kazuaki Kondo for providing research expertise, information services and reviewing and formatting the draft papers, the presentation slides, managing the logistics for the Conference as well as assisting in the organization of the Conference and in matters related to the Conference venue and reception logistics. Further appreciation goes to the staff of the Best Western Premier Accra Airport Hotel for successfully hosting the event.

MOTI and UNIDO are also especially grateful to all speakers: Thorvaldur Gylfason, Arne Wiig, Inge Amundsen, Peter Jenkins, Stewart Eldon, Herbert McLeod, Joseph Asamoah, Susan Ariel Aaronson, Marie Lintzer, Fred Cawood, Pedro Conceição, Ritin Korla, Sabine Köszegi, Mohamed Ibn Chambas and Abdulqawi Ahmed Yusuf, Conference ministerial delegates, country experts and all high-level invitees for their participation.

Opening Statement

by H.E. The President of the Republic of Ghana
Presented by the Hon. Min. Ms. Hanna Tetteh, Minister of Trade and Industry

Honourable Ministers
Your Excellencies
Members of the Diplomatic Corps
Members of the Business Community
Distinguished Delegates
Distinguished academicians, scientists, participants, guests
and friends from the media
Ladies and Gentlemen,

The holding of this conference to address the issues of economic competitiveness and diversification in the context of the recent discovery and extraction of petroleum in Ghana is very timely indeed. As you all know, Ghana began producing crude oil in 2010, and exporting it this year. As a new petroleum exporting country, we have to establish an appropriate policy framework to enable us to manage effectively the challenges arising from the bounty of hydrocarbons.

We share these challenges with many other countries in our region, as offshore deposits of hydrocarbons have been discovered in several locations in West Africa. The discovery of the Jubilee field in 2007 encouraged oil exploration off the coasts of Cote d'Ivoire, Liberia and Sierra Leone, which in turn led to discoveries of oil off Sierra Leone in 2009 and 2010. The coastal regions of West Africa, from Ghana to Sierra Leone and beyond, are thus seen as *the world's next frontier for oil* with a significant potential. According to the U.S. Geological Survey, an assessment of the Senegal and Gulf of Guinea Provinces indicated average undiscovered resources of 2.4 billion barrels and 4.1 billion barrels, respectively, in 2010.

Surprisingly, as affirmed by experience and empirical evidence—some of which has been generated by the community of experts who have graciously accepted our invitation to come to Ghana and share their knowledge at this conference—the discovery of hydrocarbon resources does not automatically lead a country to prosperity and welfare. History shows that oil-rich developing countries can find it extremely difficult to translate resource revenues into economic growth and positive welfare externalities. Many developing countries with abundant mineral resources have failed to promote economic and social development by taking the wrong policy positions, and have become victims of the “resource curse” or the “paradox of plenty”.

This international policy conference on “Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy”, hosted jointly by the Ghana Ministry of Trade and Industry and the United Nations Industrial Development Organization (UNIDO), aims to address the underlying economic dynamics and structural forces of the resource curse. In doing so, it seeks to assist the policymaking community in Ghana and in neighbouring countries to identify the appropriate policy options to optimize the potential benefits from the commercial production of hydrocarbons, which began in Ghana in the fourth quarter of 2010 and will soon commence elsewhere in the region. It is not too early to begin to wrestle with, and overcome, the policy challenges.

The key question is whether a typical developing country can meet the necessary conditions to benefit from its petroleum resources and mitigate the resource curse. These include strong institutions, a robust legal and regulatory framework, adequate human capital and a policy framework aimed at promoting a well-balanced diversification of the economy.

Given that the fundamental determinants of economic growth and development are an effective national economic policy and institutional framework, on the one hand, and global integration, on the other, it is not surprising that abundant natural resource endowments can, and often do, have negative effects in circumstances where the policy and institutional environments are not fully developed. There is no denying that strong institutional capacities and extensive policy capabilities are essential to prevent the paradox of plenty.

Against this background, the present conference will address specific policy challenges related to:

- The effective management of the hydrocarbon resources and resource revenues, for economic growth
- The collateral dynamics of oil/gas resources with a view to avoiding the resource curse
- Structural stability and investment
- Industrial diversification in the face of resource export dependency
- Local participation in high-technology sector(s), and
- Sovereign wealth management.

The resource curse has been a feature of resource-rich economies since the oil booms of 1973/74 and 1979/81. Explana-

tions for hydrocarbon revenues creating negative effects on growth and development point to two categories of determinants—economic and political/institutional. Remedies to the resource curse are based on a long-term strengthening of national institutions and economic strategy.

The resource curse—Economic determinants

The economic determinants of the resource curse include:

1. The effect of natural resources on the competitiveness of non-hydrocarbon export products, which has come to be known as the “Dutch disease”.
2. The degree of integration of the natural resource sector with the rest of the national economy and the nature of its linkages to other sectors.
3. The roles of the state and market forces in determining ownership structures in the natural resource sector, leading to the possible emergence of perverse incentives, and
4. The interrelationships between accountability, or the lack of it, in public spending and the impacts of crude oil/gas price fluctuations on the overall economic structure.

The Dutch disease

The first economic determinant of the resource curse is the so-called Dutch disease. This takes its name from developments in the Netherlands in the late 1950s and early 1960s when the discovery of natural gas in the North Sea resulted in an appreciation of the Dutch Guilder, which in turn reduced the competitiveness of the country’s manufactured and service exports. In the short-term, a natural resource boom manifests itself in an appreciation of the exchange rate due to inflows of investment and foreign exchange. These effects are exacerbated in the longer-term by the migration of labour and capital to the booming hydrocarbon sector from other productive sectors in the economy, leading to a concentration rather than a diversification of the economy. The results are higher costs and reduced national competitiveness through higher export prices for domestic products not related to the natural resource sector. The appreciating exchange rate also reduces the cost of imports and leads to increased import pressure on the non-hydrocarbon sectors of the domestic economy.

Weak linkages of the natural resource sector to the broader economy

The second economic determinant of the resource curse is related to the fact that the natural resources sector is often not embedded in the domestic economy in terms of supply and value chains, and usually has only weak technological linkages with other sectors of the economy. Hence, a growing petroleum industry will not “spill over” to stimulate growth in the agricultural, manufacturing or services sectors of the economy. The result can be the creation of economic “enclaves”, leading to negative externalities with attendant social problems.

State participation and market concentration

Due to the strategic importance of potential revenues from oil/gas production, the state has large incentives to actively participate in the management and functioning of the natural resource sector. In consequence, other productive sectors do not or may not attract as much attention from government,

leading to under-investment and slower overall economic growth.

Public spending and consequences of price fluctuations

The availability of oil/gas revenues frequently prompts increases in public spending which are often unsustainable. The situation can be aggravated further if governments use future oil revenues as collateral to increase borrowing, and so accumulate higher levels of external debt. The windfall revenues generated by the oil/gas sectors often also lead to increased spending on state bureaucracies, with an attendant shift in power and the emergence of complex networks seeking to maintain their vested interests.

The resource curse—Political and institutional determinants

The political and institutional determinants of the resource curse include:

1. The quality of institutions, accountability and attitudes regarding democratic standards and corruption.
2. The link between natural resources and the prevalence of social tensions and civil war.

Lack of accountable institutions

From a political and institutional perspective, the principal threat of the resource curse is the emergence of a “rentier state”. This concept refers to a state that derives a significant proportion of its budget directly from a few vital resources, for example, the production of oil and gas, and is characterized by shallow and weak regulatory systems unable to deal effectively with the demands of good governance.

Social tensions, violence and civil war

The discovery of natural resources can lead to social tensions and civil war. Low growth rates and income levels can create low opportunity costs for rebellion against the authorities and make civil war more likely—especially in countries with large populations where petroleum revenues are not high enough to enable all segments of society to have a share of the benefits. Thus, the fight for rights to control and spend the revenues can create severe instabilities in the economy. The quest to gain control of the revenue streams can be a powerful motivation for conflict.

I am confident that the deliberations of this important conference will fully address the socio-economic challenges of crafting viable policy options for managing the challenges generated by the extraction of substantial mineral deposits and the emergence of the impressive revenue streams that accompany them. I also believe that this conference, the first of a series, will enhance the capability and capacity of the policymaking community in Ghana and the West African region to respond effectively to these challenges.

I wish you well in your deliberations and trust that the sharing of experience and knowledge, and the initiation of a network of collegiate enquiry into how best to take advantage of the discovery of the bounty offshore will have long-lasting beneficial effects on the region.

Thank you.

Welcome Address

by the Hon. Min. Ms. Hanna Tetteh, Minister of Trade and Industry

Presented by the Hon. Deputy Minister of Trade and Industry, Dr. J. S. Annan

Honourable Ministers

Your Excellencies

Members of the Diplomatic Corps

Members of the Business Community

Distinguished Delegates

Distinguished academicians, scientists, participants, guests and friends from the media

Ladies and Gentlemen,

Ghana began producing and exporting crude oil in 2010 and 2011, respectively. As a new petroleum exporting country in the West African sub-region, there is the hope among the people of Ghana and in the international community that Ghana will succeed.

As we all know, the discovery of hydrocarbon resources in a country does not lead automatically to prosperity and welfare. History has shown that resource-rich economies, particularly developing countries, have found it extremely difficult to translate resource revenues into economic growth and positive welfare externalities.

This conference, sponsored by the Ministry of Trade and Industry and UNIDO, bringing together ministers and policymakers responsible for mineral resources, is devoted to how African countries can address the management and diversification of their abundantly rich mineral resourced economies and build sustainable futures for their people.

The immediate objectives of this conference are to provide policy advice to governments on the development of strong institutions as key to development and growth, and policy advice on the diversification of the economy. We must also realize that the creation of robust regulations and laws by the government will ultimately lead to accountability in public spending.

Thus, the Conference addresses policy challenges concerning:

- Resources and resource revenue, management for economic growth

- Collateral dynamics of oil/gas resources—avoiding the resource curse
- Structural stability and investment
- Industrial diversification in the face of resource export dependency
- Local participation in high-technology sector(s)
- Sovereign wealth management.

Preventing the negative outcomes of the resource boom concerns the quality of institutions and economic strategy.

As most of us are aware, the draft Oil Revenue Management Bill is intended to make it easier to monitor the inflows and outflows of petroleum revenues and ensure transparency and accountability of oil resources. The proposed law is also intended to prohibit oil from being used as a guarantee to secure loans from multilateral and bilateral sources.

The Government of Ghana has partnered with the private sector to put in place the requirements for infrastructure to develop a petro-chemical industry. It is hoped that this will create massive employment and help the country to be self-sufficient in electricity generation. The Government has also prioritized the importance of safety and environment protection.

Ladies and gentlemen, the Government of Ghana is aware of the immense challenges to be met in order to benefit from petroleum resources, that is why the Ministry of Trade and Industry, together with UNIDO, has assembled an epistemic community of world-renowned experts and practitioners to address the challenges and opportunities, policies and strategies as well as actions and commitments to improve the governance of the resources sector.

The bedrock for growth in any economy is the responsiveness and usage of innovation by the available skills present in the economy. It is important to enhance growth through local participation in the high-technology sector(s). However, for such innovativeness to be enhanced there must be coordination between policymakers in government, the private sector including medium and high-tech industries and knowledge-

based institutions. Ghana's new and bustling oil industry, which is in its nascent stages, can be stifled if the degree of innovativeness is unavailable for the skilled set needed by the oil industry.

As a result, it has become necessary for the Government of Ghana to cut the sod for the commencement of two new universities, that is, the University of Energy and Natural Resources at Sunyani and the Volta University of Allied Sciences to provide the human and technical capacity for the oil industry.

Ghana with its democratic credentials is expected to provide the enabling conditions necessary for the development of the oil sector. The arguments concern:

1. The quality of institutions, accountability and attitudes regarding democratic standards and corruption.
2. The link between natural resources and the prevalence of social tensions and civil war.

Estimations show that in the low oil intensity countries the oil sector has positive externalities on the non-oil sector and vice versa. More specifically, estimations show that a 1 per cent growth in the oil sector leads, on average, to a growth of about 0.1 per cent in the non-oil sector in the subsequent year, while a growth of 1 per cent in the non-oil sector leads to a 0.25 per cent growth in the oil sector.

On the other hand, estimations show that the 'natural resource curse' effect tends to be dominant only in high oil

intensity countries. In this regard, a 1 per cent growth of the oil sector leads to a decline of 0.15 percentage points in the non-oil sector's growth.

This indicates that the oil sector can influence other sectors positively in terms of low oil intensity countries and vice versa in high oil intensity countries.

The term "Dutch disease" was devised to describe the adverse impact on Dutch manufacturing due to the increase in income associated with the discovery of natural gas in the Netherlands in the 1960s, essentially through the appreciation of the real exchange rate. It has since been used with reference to adverse structural changes that economies undergo as a result of sectorised booms associated with factors such as positive external terms of trade shocks and large capital inflows, including aid. The Dutch disease is illustrated by real exchange rate appreciation and shrinkage of the tradable sector.

Reflecting on the Dutch disease, it is plausible that *a growing petroleum industry will not "spill over" to stimulate and encourage growth in the manufacturing, agriculture or services parts of the economy*. Thus, it is worth considering a natural resource curse (impact of Dutch disease) with reference to West African countries like Ghana.

At the end of this conference it is hoped that Ghana, as well as the other African countries present, will have extensive policy capabilities and strong institutional capacities.

Thank you.

Opening Statement

by Director-General Dr. Kandeh K. Yumkella

Honourable Ministers
Your Excellencies
Members of the Diplomatic Corps
Members of the Business Community
Distinguished Delegates
Distinguished academicians, scientists, participants, guests
and friends from the media
Ladies and Gentlemen,

I am delighted and honoured to make the opening remarks to this International Policy Conference on “Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy” in the presence of such an audience of distinction. The cooperation between my Organization, the United Nations Industrial Development Organization (UNIDO) and the Government of Ghana in industrial development since 1985 has produced significant outcomes—this Conference is one such.

This International Policy Conference, sponsored by the Ministry of Trade and Industry and the United Nations Industrial Development Organization (UNIDO), embracing Ministers and policymakers responsible for mineral resources, is devoted to the theme of how African countries can manage their abundantly rich mineral resources, avoid the pitfalls of ‘the paradox of plenty’ and build sustainable futures using the Continent’s extractive industries to create competitive and diversified economic growth with positive welfare externalities.

The deepwater offshore oil and gas activity for the West Africa Region is extensive. It will tie into existing and further to be developed shallow water infrastructure as the basis for West Africa as the world’s next frontier for hydrocarbon discoveries and development. Therefore, this Conference calls for insights to policy and strategic developments with respect to industrial resources, resource economics and resources contestation.

This International Policy Conference focuses on African economic diversification and competitiveness; and crucially important, the Conference will address the challenges and opportunities, policies and strategies as well as actions and

commitments to improved governance of the resources sector.

The Gulf of Guinea is estimated to hold approximately 3 to 4 per cent of the global total of hydrocarbon reserves—not insubstantial at about 35 billion barrels of oil and about 8 per cent of global proven gas reserves. This implies that the emergence of the Gulf of Guinea in the global economy is a challenging prospect—a prospect marked by some US\$130 billion worth of oil and gas investments for sub-Saharan Africa between 2011 and 2020.

Ghana’s role is just about to start—whether the country creates a path trajectory that will be seen as a model to emulate or makes policy choices that confine it to the example of others remains to be seen. The new petroleum exporting Ghana will need to be increasingly adept at meeting the requirements for well-configured and equally well-calibrated policy with respect to managing hydrocarbons, their development and associated powerful revenues. The bounty can be for the good or otherwise.

The regional dimensions of the Gulf of Guinea hydrocarbons bonanza justify the presence of regional ministers. Ghana’s Jubilee field has fuelled the search for other oil and gas deposits along the coast from Senegal to Namibia.

Despite current concerns about global growth prospects, the issues concerning African resources revolve round long-term world growth—the indispensable need for industrial minerals for economic prosperity—and, in particular, the acknowledged rapid growth of the emerging market economies of Asia and Latin America. In this connection, that Africa faces significant developmental challenges is too well known. These many challenges distil into one glaring factor—the truncated industrial development of Africa compared to other regions.

The question is what Africa—particularly West and sub-Saharan Africa—can do about harnessing mineral resources to meet the challenges of development? The overall objective of this International Policy Conference is a welcome part of the response to enable policymakers and stakeholders to engage more effectively with the unique challenges and

opportunities that African countries are facing with respect to the exploitation and trade in minerals.

Africa entered the twenty-first century with a legacy of significant economic, industrial and political challenges—and very richly endowed with industrial commodities and minerals—that together need to be placed in perspective.

The resource endowment in Africa is staggering. According to the US Geological Survey, mineral deposits are such that Africa ranks first or second in quantity of world reserves of bauxite, cobalt, industrial diamonds, phosphate rock, platinum-group metals, vermiculite and zirconium. Africa has 90 per cent of the world's deposits of cobalt, 90 per cent of platinum, 50 per cent of gold, 98 per cent of chromium, 64 per cent of manganese, 33 per cent of uranium and 80 per cent of columbite-tantalite. Hydrocarbon reserves are put between 80 and 200 billion barrels. A conservative estimation of the current value of the reserve base of sub-Saharan Africa minerals is US\$1.2 trillion.

Primacy of industrialization

The story of development is one of natural and human resource transformation into economic value—and here the natural resources of Africa come into play—with respect to an industrial revolution that embodies technical, managerial and operational transformation of agricultural to industrial economies. The start of the twenty-first century is full of innovative changes that add value to products and services—in short, the industrial dynamic of competitiveness and diversification have been given an accelerated spurt from rapid advances in high-tech and the widespread availability of general-purpose technologies. It is high time Africa shifted from commodities to higher value products. In this endeavour, manufacturing is undoubtedly the principal propellant of human and natural resource transformation.

The demographic profile of Africa suggests a population of some 1.4 billion by 2030 and 1.9 billion by 2050, with 50 per cent of the people living in capital cities and urban conurbations. The question is how are the people to be gainfully employed? This is where the use of the resource 'windfall' revenues for enabling structural change for diversifying the economy to enhance competitiveness and create jobs comes in.

Unfortunately, as experience and evidence indicates blatantly, the exploitation of hydrocarbon and mineral resources does not lead automatically to prosperity. History shows that oil- and gas-rich economies, particularly developing countries, find it extremely challenging to transform resource revenues into competitive and diversified economic growth with positive externalities. Many developing countries with abundant resources have failed in development and have regressed in the face of the "resource curse" or otherwise the "Dutch disease" or "paradox of plenty".

This International Policy Conference on "Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy", given commercial hydrocarbons production offshore, enables the policymaking community here in Ghana and in the near abroad to have policy options. It is not too early to begin to wrestle with, and overcome, the policy challenges.

Can a typical developing economy muster the necessary policy to prevent the paradox of plenty? There is little evidence, so far, that the commodity boom, which is fuelling growth, is lifting people out of poverty in Africa. A high pace of economic growth and simultaneous immiseration is a deep cause for concern. The trend suggests that enhancing the pace of structural change, and diversification and—of crucial importance—increasing African international competitiveness through value addition in the minerals sector remain key to the solution of reducing the incidence of extreme poverty in Africa. Also vital is the proper alignment of incentives to enable budgetary allocations for the requisite human resource development to take advantage of spillovers from the hydrocarbons and mining boom.

On the one hand, globalization has generated prosperity for those countries with capacity and capability to innovate and compete, but, on the other hand, it has resulted in steady economic decline and marginalization for countries that are technologically excluded and unable to be innovative, to diversify their economies and become more competitive.

To overcome the paradox of plenty, major challenges have to be met. These include: robust institutions; strategic diversification in economic sectors; strengthening the inter-linkages between economic sectors in terms of input-output dynamics; robust regulation and laws. Thus, the Conference addresses policy challenges concerning:

- Resources and resource revenue, management for economic growth
- Collateral dynamics of oil/gas resources—avoiding the resource curse
- Structural stability and investment
- Industrial diversification in the face of resource export dependency
- Local participation in high-technology sector(s)
- Sovereign wealth management.

The economic and the political/institutional perspectives of the resources curse—with examples from resource-rich sub-Saharan Africa—provide ample illustration. Preventing the negative outcomes of a resource boom concern the quality of institutions and economic strategy.

The Conference programme points to the multifaceted dimensions of the challenges and policy options available concerning: resources and economic growth, macroeconomic and employment dynamics, the important role of foreign direct investment, diversification strategies, resource revenue man-

agement, government, state and non-state actors in resource management, conflict resolution, managing the fragility of the political economy in resource-rich environments, the oil in Ghana, public interest and good governance, trade in minerals and the economics of resource ownership rights.

It is hoped that during our deliberations the economic and institutional perspectives that are exposed, the issues that are 'worked' on and the solutions to policy craft that emerge will assist in enabling the policymaking communities in respective countries represented here today to forge coherent and robust policies for the management of the resources sector.

With West Africa as the world's next frontier for hydrocarbon discoveries and development, UNIDO anticipates this Conference to be the first of a biennial series that will be held in

the region. I am certain that solutions to the challenges of designing and implementing policy for managing resources, and their accompanying voluminous revenues, will emerge from the presentations at this important Conference.

It is hoped that this Conference will enhance the capability and capacity of the policymaking community in Ghana and regional West Africa. I wish you very well in the deliberations, confident that shared expertise, experience and knowledge will initiate the network of collegiate enquiry that will be shaped into a 'think tank' on competitiveness and diversification that, over the long-term, will deal with advanced ways to manage the bounty offshore in the region.

Thank you.

1. Introduction

Economic evidence has consistently demonstrated over the long-term that (natural) resources, in the broadest definition, are crucial for economic growth and the basis for social progress. Advanced, industrialized and now developing countries are increasingly aware that resources, be they geographical and geological, hydrographical and climatological are essential for transforming economic comparative advantages into competitive economic performance through science, technology and innovation.

However, the dynamics associated with and the dimensions, factors and variables of the economic management of such processes are complex and entail certain risks at the level of macroeconomic policy. These risks may be configured by the balance of positive and negative externalities that emerge from exploiting natural resources. In particular, resources associated with relatively high ratios of value to low mass or volume, irrespective of mineral price volatilities, and ‘booms’ carry high risks for countries that have relatively low capacities and capabilities in economic policymaking. Such mineral resources are exemplified by hydrocarbons and metallurgical ores which are strategically crucial for high-technology industrial production. The multifarious challenges associated with these resources feed into the problem of using the proceeds from the exploitation of the resources for the socio-economic development of citizens. This introduction to the publication arising from the international policy conference on *“Competitiveness and Diversification: Strategic Challenges in a Petroleum-Rich Economy”*, which was co-sponsored by UNIDO and the Ghana Ministry of Trade and Industry, focuses on the role of hydrocarbons as natural resources —although this phenomenon is associated with all kinds of resources¹, especially when their economic exploitation results in booms.

Hence, it is surprising that the booms that follow the discovery of hydrocarbon resources in a country do not automatically result in prosperity and welfare. Economic history, both past and recent, shows that oil-rich economies, particularly developing countries, often find it extremely difficult to translate resource revenues into economic growth and

positive welfare externalities. Many developing countries with abundant resources have failed to develop and have, at best, fallen victim to the “resource curse” or the “paradox of plenty”² or, in the worst case, have become failed states. Several examples from sub-Saharan Africa and from developing countries in other regions are well-known.

This introductory chapter to the publication collates the papers presented at the international policy conference on *“Competitiveness & Diversification: Strategic Challenges in a Petroleum-Rich Economy”* and portrays the underlying economic dynamics and structural forces of the resource curse that were addressed at the conference, which was co-sponsored by UNIDO and the Ghana Ministry of Trade and Industry in light of the commencement of commercial production of hydrocarbons from off-shore Ghana in the 4th quarter 2010, and the continuing discovery of additional hydrocarbon reservoirs off-shore West Africa along the Guinea coastline, which is increasingly viewed as the next frontier in the development of the global hydrocarbon industry³.

The key question in this context, therefore, is whether a typical developing country in sub-Saharan Africa has the strong institutional framework, well-articulated regulatory mechanisms, relevant human capital formation, well-configured economic policies, and, of course, the (crucial) political will necessary to mitigate the worst manifestations of the resource curse.

To effectively avoid the resource curse and benefit from petroleum resources, the major prerequisites that need to be met are: strong institutions which are key for development and growth, increasing both the rate of competitiveness and the diversification of the economy, and robust regulation and laws. The papers presented at the international policy conference specifically address policy challenges in the areas of:

¹ Throughout this chapter the terms petroleum, oil/gas, hydrocarbons, natural resources and resources are used interchangeably.

² Throughout this chapter the resource curse, the paradox of plenty and the Dutch disease are used interchangeably.

³ Asamoah, J. (2009) *Making the oil and gas find in Ghana a blessing*, Accra: Joasa Publications.

- Resources and resource revenue, management for economic growth
- Collateral dynamics of oil/gas resources—avoiding the resource curse
- Structural stability and investment
- Industrial diversification in the face of resource export dependency
- Local participation in high-technology sector(s)
- Managing the negotiations of mineral rights
- Negotiating conflict resolutions associated with mineral resources
- Sovereign wealth management.

The resource curse has been a prominent feature of resource(s)-rich economic development, specifically since the oil price booms (1973/74 and 1979/81). Explanations and empirical evidence for hydrocarbon revenues that have negative effects on growth and development are encapsulated by two perspectives—the economic and the political/institutional. Several examples from resource-rich sub-Saharan Africa in recent years are clear illustrations of the resource curse. Remedies to the resource curse revolve around the robustness of institutions and on an economic strategy which focuses on the fundamental determinants of development over the long term—notwithstanding the pressing urgencies of the short-term needs for socio-economic development. It is essentially institutional factors which enable a country to transform its natural resources and revenues into economic growth and development.⁴

Given that the interrelated dynamic national management of economic geography, institutions and global integration (with the added geostrategic dimension) represent the fundamental determinants of economic growth, it is ironic that abundant natural endowments can, and often do, have negative effects on development. Strong institutional capacities and extensive policy capabilities are necessary to prevent the resource curse.

There are several explanations for the complex link between abundant resources and weaker economic growth and poorer institutional performance. The key arguments fall into two main categories, the economic and the political/institutional, and given the complexities of globalization and the dynamics of the national economy which are intertwined with the two categories, they take on different weight at different times and in different economic spaces. In combination, however, these key arguments are precursors to oil/gas resources and determine whether associated revenues become a curse or a blessing for the given economy.

1.1. The resource curse - The economic perspective

In brief, the economic arguments to explain the resource curse phenomenon are as follows:

⁴ Rodrik, D., Subramanian, A. and Trebbi, F. (2002) *Institutions rule: The primacy of institutions over geography and integration in economic development*, NBER Working Paper No. 9305.

- The so-called “Dutch disease” emphasizes the effect of natural resources on the national macroeconomy and competitiveness of commodity exports, manufactured exports as well as import-competing products.
- Where the natural resource sector is located in the national economy in terms of influence and weight as well as the nature of its linkages (density, information and exchange flows and transactions) to other sectors.
- The respective roles of the state and market forces regarding ownership structures in the natural resources sector and resulting incentive schemes (perverse or otherwise).
- The interrelations between (usually a lack of) accountability in public spending and the volatility therein, and the impacts of oil/gas price fluctuations on overall economic structures and the manner of their adjustment.

1.1.1. The Dutch disease

The first economic argument—the one most often related to the resource curse—is the so-called Dutch disease⁵. A natural resource boom manifests a shorter-term effect as the real exchange rate appreciates due to inflows of investment and foreign exchange as well as a longer-term and structural effect of labour and capital migrating to the booming sector attributable to extreme asymmetries in costs and prices being signalled from other productive sectors in the economy, thus concentrating rather than diversifying the economy. The overall results are higher costs and reduced national competitiveness due to higher export prices for domestic (non-oil) industrial products unrelated to the natural resource sector. The appreciating exchange rate reduces the costs of imports and leads to increased imports of consumption goods while simultaneously rendering import-competing goods and services uncompetitive.

1.1.2. Weak linkages of the natural resource sector with the broader economy

The second economic argument concerns the position of the natural resources sector within the structure of the economy in terms of input-output relations, the density and transaction frequency of supply and value chains, and the techno-economic (backward and forward, horizontally and vertically integrated) linkages with other sectors in the economy that are weak with few tractable externalities. Hence, with weak links and an emaciated policy, a booming hydrocarbon industry will not spill over to stimulate and encourage growth in the manufacturing, agriculture or services sectors of the economy. Often, the result is the creation of foreign direct investment (FDI) enclaves that lead to negative externalities with serious accompanying social problems that arise from

⁵ In the narrow sense of the term, the concept “Dutch disease” refers to the de-industrialization experienced in the Netherlands in the late 1950s and early 1960s, when the discovery of natural gas in the North Sea resulted in the appreciation of the Dutch Guilder. “Crowding out” reduced the profitability of manufacturing and service exports. (See Gylfason, T. (2001), *Lessons from the Dutch disease: Causes, treatment, and cures*, Institute of Economic Studies, Working Papers Series, W01:06).

the 'shadow economy' which, without guided policy action, evolves near the enclave to service it.

1.1.3. State participation and market concentration

Due to the strategic importance of the natural resource in itself as well as the high volume revenue flows from oil/gas production, the state has substantial and powerful incentives to actively participate (not always in an impartial or optimal manner) in the management and functional operations of the natural resource sector. Thus, other productive sectors which are necessary for competitiveness and for diversifying the economy, do not attract as much—if any—attention from government. Once the state has decided to collateralize the resource rents, there is pressure to focus on commoditizing the resource in the short-term (for further rents) rather than to adopt policies that lead to manufacturing value-added processing. This invariably leads to unbalanced and/or under-investment in other sectors of the economy and, hence, slower overall economic growth than would otherwise be the case.

1.1.4. Public spending and consequences of resource price fluctuations

In developing countries, in particular, the pressure (from the usually cash-starved government sector) for increased public spending, which emerges from the resulting high-volume revenue flows, is often unsustainable. This can worsen the situation as governments fall into a pattern of using future hydrocarbon revenues as collateral to increase borrowing, thus resulting in higher levels of external debt as well as deficit funding. Windfall revenues also tend to lead to increased spending on, and by, state bureaucracies, including higher wages and, as a consequence, power and control shifts to complex networks that compete to maintain their interests and the (recently) established status quo. The situation is often exacerbated by the government refusing to either sterilize the revenues or put them offshore in investment vehicles that generate returns for future generations.

1.2. The resource curse - The political/institutional perspective

The arguments build around two key dynamics:

1. The level and quality of institutional development (in terms of both organization and 'rules of the game'), accountability and the prevailing attitudes and 'corporate' culture regarding democratic standards, transparency and corruption.
2. The linkages between the 'lootability' of natural resources, incentives and the prevalence of social tensions and civil war.⁶

1.2.1. Lack of accountable institutions

From a political/institutional perspective the phenomenon of the 'paradox of plenty' is explained by the concept of the

'rentier state'. A rentier state is one that derives a significant share of its budgetary funds directly from a few vital resources, for example, oil/gas production, and is characterized by shallow, immature and weak regulatory systems that are unable to effectively cope with high revenue flows and the demands of good governance. In such a political economy, which is further handicapped by fractions in terms of cultural factors (language, religion, social norms, systems of trust, etc.) and is truncated in terms of information connectivity and by civil society's underdeveloped hold on the political process, political elites are able to usurp, or co-opt, institutions for their own ends.

1.2.2. Social tensions, violence and civil war

The discovery of high-value resources can lead to social tensions and civil war. Social marginalization, emaciated growth rates and poor income levels can create very low opportunity costs for insurgency groups and rebellion against the authorities and thus makes civil war more likely—especially when the barrels of petroleum per capita is low due to small petroleum reserves in contrast to large populations that have to share the benefits. Therefore, the contestation (which can easily turn into a conflict) for the right to control and spend the revenues can create severe instabilities in the economy. The revenue streams can be a powerful driver of inter-ethnic competition as revenues can be used to finance conflicts and to thus gain more control.

The chapters that follow address the phenomenon referred to either as the paradox of plenty, the resource curse or the Dutch disease, and present options available to policymakers to mitigate and moderate the worst manifestations of the economic challenges of putting resource rents to beneficial use in socio-economic development.

The papers presented have been edited into chapters. A brief introduction to each of the chapters now follows.

In Chapter 2, *"Resources and economic growth: Is Africa (Ghana) different?"*, Thorvaldur Gylfason presents an analysis of the significant implications of natural resources on the conduct of economic policies in the context of the design and role of institutions in resource-rich countries. The chapter reviews the experiences of selected resource-rich countries, including Botswana and Mauritius, and highlights successful policies. Crucial fiscal, monetary and exchange rate policy issues that arise are examined in light of policy options developed in Norway, the world's third largest oil exporter. The role of good governance, including democracy, and useful lessons from Norway's experience are portrayed. First, human capital matters most, in addition to democracy—an important aspect of social capital. Second, some ways of managing natural resources are more conducive than others for building up human and social capital.

In Chapter 3, *"Dealing with the Dutch disease in a fragile political economy environment"*, Herbert McLeod addresses the daunting and onerous challenges that confront resource-rich

⁶ UNEP (2009), *From conflict to peace building. The role of natural resources and the environment*. http://www.unep.org/pdf/pcdmb_policy_01.pdf

developing countries in remaining competitive and simultaneously diversifying the economy in the context of fragile political and social systems. Such conditions exhibit widespread capacity weaknesses and deep-seated corruption, and as the policy prescriptions available seem to be mainly technical they give insufficient emphasis to the social and political environment within which they are to be applied. The chapter goes on to indicate that for states with a socio-economically fragile political and economic governance, radically innovative measures are required to moderate the worst externalities of the Dutch disease. And because as with all diseases, prevention is better than a cure, the chapter analyses the key features of governance and economic management in fragile states that are likely to exacerbate or curb the Dutch disease. Against this background, several policy measures to ameliorate the paradox of plenty are identified.

In Chapter 4, *“If diversification is good, why don’t countries diversify more? The political economy of diversification in resource-rich countries”*, Arne Wiig and Ivar Kolstad examine the claim that diversification represents an effective strategy for resource-rich countries to reduce problems related to the resource curse. They assert that this depends on whether diversification has a positive effect on a country’s institutions. There is substantial evidence that hydrocarbon exports can have negative impacts on institutions, however, there is a lack of evidence on the extent to which diversification leads to better institutions. The authors suggest that it is the pattern of industrial activity rather than diversification per se that affects institutions like democracy. They also indicate that not all forms of diversification lead to better institutions and furthermore that where diversification produces a positive impact on institutions, it may be extremely difficult to achieve, especially when it threatens the power base of the ruling elite. Policies to avoid the Dutch disease consequently require in-depth analysis of the political economic context of diversification strategies in the given country.

Inge Amundsen elaborates the argument in Chapter 5, *“Revenue management corruption challenges and redistribution”*, that high-volume petroleum revenues pose serious corruption challenges. His analysis depicts how corruption in the hydrocarbon sector amplifies the resource curse, and how in particular it undermines the institutions and practices of good governance and revenue distribution. With high levels of corruption and economic mismanagement of revenues, governments’ take tends to be reduced, competition hampered and both economic and political monopolistic tendencies reinforced. In such a dynamic, ‘resource curse’ problems intensify, especially through political corruption which is essentially reflected in the practice of extraction and power preservation.

In Chapter 6, *“Strategic dispute dynamics and resolution: Government, business and non-state actor interfaces”*, Peter Jenkins reviews the causes of disputes related to the rights, ownership and exploitation of hydrocarbon and mineral resources in Africa. The typology of strategic disputes is

identified in terms of two dimensions—between states and within states—and four categories, namely: inter-state and therefore international; intra-state (i.e., between central government and the provincial, regional or local authorities); between central government and the corporate sector, especially the foreign affiliates of transnational corporations; and between central government and a variety of non-state actors. The author proposes policies and measures that can be implemented to avoid such disputes and that minimize the risk of escalation once conflicts have broken out. The chapter also highlights the virtues of proactive mediation as a cost-effective means for resolving disputes. The chapter ranges beyond the hydrocarbons sector into the mineral sector, noting that useful lessons can be learned from reviewing a broader category of natural resource-related issues. The author considers the potential causes of civil unrest in the assumption that an unstable political environment can be a fertile breeding ground for conflict. The chapter outlines the issues that treat “dispute” and “conflict” synonymously and prefaces Chapter 7 by Stewart Eldon on dispute resolution.

Chapter 7, *“Negotiating skills for conflict resolution”* by Stewart Eldon offers a practitioner’s view of the negotiating skills and strategies essential for managing and resolving conflicts that arise from economic differences, mineral resources, social disparities or political arguments that emerge from competing for strategic resources. The key elements identified require an understanding of the substance of the dispute as well as the interests and personalities involved. The author indicates that success is more likely if an effective negotiating strategy is devised that gives significant weight to state- and institution-building and is based on a whole-of-government approach. The security and defence sectors can make an important contribution, even when armed conflict is not a factor, and requires sustained efforts against corruption to bring about results.

Chapter 8 moves beyond economic and security considerations. In *“Strategic resources and their management: The oil find in Ghana”*, Joe Asamoah addresses the record of richly endowed economies that have underperformed economically. Sub-Saharan Africa provides some examples. The author argues that Ghana, the latest oil producing country in sub-Saharan Africa, might not necessarily follow in the footsteps of poor performers due to the benefit of being a late entrant. The author admits to the dearth of proper analysis, diagnosis and uptake of the systemic challenges of the “Dutch disease” in developing resource-rich countries in sub-Saharan Africa and posits that prudent management of Ghana’s oil can be achieved, *inter alia*, by enacting enabling laws and enforcing these, by setting up “independent” regulatory institutions and practising transparency in the oil industry. The discourse on the competition for resources provides an exposé on the latter-day scramble for Africa. Additionally, the chapter opines that the Ghana National Petroleum Corporation—the parastatal tasked with leading the exploration, development and production of hydrocarbon resources in Ghana in a sustainable manner—should, as a matter of urgency, enhance

its human capital in order to marshal the resource flows, the cash flows and the technical details and data required to manage the oil and gas industry. Finally, the author suggests that the expectations of Ghanaians with regard to the oil discovery need to be well-managed.

In Chapter 9, *“How empowering Ghanaians can help Ghana avoid an oily mess”*, Susan Ariel Aaronson argues that national wealth is not fully expressed by a country’s supply of oil, gold, BMWs or iPods, but that people in fact represent a nation’s ultimate wealth. In this regard, how nations interact with and empower citizens determines a country’s future. And because Ghana has long been a model for other sub-Saharan African countries, how Ghana uses its new oil wealth to develop could become a beacon for other states of what to do or what not to do. The chapter discusses how outsiders and Ghanaians perceive Ghana’s governance in terms of “Brand Ghana”. The author contends that, while respected for its democracy and governance, Ghana’s actual performance has been, at best, uneven on multidimensional governance metrics. The author suggests that Ghana could use its oil money to make its governance participatory, responsive and accountable, pointing out that scholarly research indicates that policymakers can reduce corruption by investing in the enhancement of social and human capital (education, health, infrastructure, etc.) and to thus ensure political accountability.

Harrison Mitchell, Marie Lintzer and Nicholas Garrett in Chapter 10 *“Promoting legal mineral trade in Africa: New policy approaches”*, refer to the vast wealth of Africa’s oil, timber, gas, diamonds, gold, coltan and bauxite reserves and other industrial minerals and that their extraction and responsible management have the potential to fuel continent-wide development. However, the enrichment of political elites has too often resulted in slow economic growth and social tensions in many African countries. This chapter argues that resource wealth need not necessarily be a curse and explains how current initiatives can contribute to translating the continent’s potential into tangible growth in the context of the promotion of legal natural resources trade, certification, transparency and traceability. The authors’ empirical work in the natural resources sectors suggests that many initiatives to promote legal trade prioritize Western consumer-driven standards over the needs of African states, businesses and workers. Failure to take local realities into account results in a gap between expectations and what can feasibly be implemented. The chapter suggests that the design of policies and standards should be underpinned by an assessment of key stakeholders and the institutional infrastructure of the natural resources sectors in light of local realities and capacities.

Fred Cawood in Chapter 11, *“The economics of mineral ownership rights, negotiations and legal issues”*, discusses the economic, legal and policy issues affecting the mineral sector and, more specifically, how these issues relate to the allocation of mining rights that moderate and minimize the Dutch

disease. The analysis shows that optimal mining is influenced by concepts such as righteousness, economics and sustainable development. Economic rents and benefits partly exist on account of the unique nature of natural resources and, more pertinently, because of how the extractive industries and their regulators conduct their business. The definition of rent creates an expectation of broader economic benefit to society, the state and industry. However, because of ‘failures’ in the real world such rents are not automatic and must be earned, either symmetrically or otherwise, through appropriate laws and policies introduced by the state and by the extractor through prudent extraction of the resource. If not, negative externalities outweigh positive contributions and an economic activity that should be a blessing becomes a curse for the country. The relationships inherent in this dynamic are complex and require sensitive negotiations in order to manage the conflicting needs that arise. Analysis indicates that compromise is required that will not impact the sovereignty of the state that owns the resources which are on and underneath its territory. However, without access to foreign capital to unlock the benefits of mining, natural resources with their associated economic benefit remain buried for the host country. Africa has learned many lessons on how and how not to exercise sovereignty in its search for realistic trade-offs between the many conflicting objectives. A prerequisite for sustainable economic development, therefore, is to address governance problems and capacity constraints for administering resource law and a policy framework to ensure compliance and long-term economic growth.

In Chapter 12, Pedro Coneição, Ricardo Fuentes and Sebastian Levine address the issues related to *“Managing natural resources for development in low-income countries”*. The authors discuss the “natural resource curse” and macro-economic policies that can be adopted to avoid the adverse effects that are often associated with the endowment of natural resources. Additionally, the authors address the “double edged sword” of the need for both long-term investment as well as poverty reduction through the provision of practical steps for learning and the application of best practices.

In Chapter 13, which addresses the innovation aspects of resources management, *“National Systems of Innovation (NSI): Measurement and implications for science technology and innovation policy in Ghana”*, Ritin Koria and Sabine Köszegi highlight the increasing importance of the systemic approach to innovation within the setting of knowledge-based economies. In addition, the authors explain the crucial role of measurement and monitoring for the formulation of coherent evidence-based science technology and innovation policy that is crucial to the exploitation of resource revenue flows for national development. The example provided in this chapter is the UNIDO remote methodology used for the measurement of the National Systems of Innovation applied to the Ghana context.

2. Resources and economic growth: Is Africa (Ghana) different?

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Abstract

Natural resources have important implications for the conduct of economic policies and the role and design of institutions in resource-rich countries. A brief review of the experiences of a few resource-rich countries, including Botswana and Mauritius, highlights the successes of those that have done well, as well as some of the fiscal, monetary and exchange rate policy issues that arose along the way. Special attention is given to Norway, the world's third largest oil exporter, and the role of good governance, including democracy. Several useful lessons can be drawn from Norway's experience. First, human capital matters most, as does democracy, an important aspect of social capital. Secondly, some ways of managing natural resources seem more conducive than others to the build up of human and social capital. These are general lessons by nature and thus also apply to Ghana and the rest of Africa.

1. Introduction

There was a time when economic geographers studied raw materials and their distribution around the world and assigned a crucial role to natural resource wealth and raw materials, their ownership and trade routes. Ownership of those important resources tended to be equated with economic and political strength. The European powers' scramble for Africa from 1881 onwards—this was when France occupied Tunis with Germany's consent—was primarily a scramble for the great continent's resources. The slave trade from the mid-15th century on can be viewed from this perspective.

It did not take long, however, for it to become clear that natural resources do not always confer widely shared benefits on those who own them. Even after the end of colonial rule in Africa and elsewhere, many resource-abundant countries—Congo is a case in point—remained in dire straits. Some other countries—Nigeria, for example—which discovered their natural resources following independence also did not experience rapid economic growth for reasons that seem, at least in part, to be related to the poor management of their natural resource wealth. Even so, some natural resource-rich countries have made impressive progress. Botswana, Chile and Mauritius will be singled out in what follows. On the

other hand, several resource-poor countries succeeded in becoming rich, including Hong Kong, Japan and Singapore.

The new economic geography places relatively little emphasis on natural resources by recognizing several distinct sources of wealth, namely the accumulation of human and social capital. There are many different kinds of man-made capital and, accordingly, many different sources of economic growth which people and their governments can exploit. Social capital refers to the quality of formal and informal institutions, including governance, transparency and trust.

Worldwide, natural capital only constituted a small part (6 per cent) of total national wealth in 2005 (World Bank, 2010a). If intangible capital—that is, human and social capital—is excluded from the calculation, natural capital constitutes 26 per cent of total tangible capital at the global level. Tangible capital comprises produced capital, urban land, natural capital and net foreign assets. For comparative purposes, sub-Saharan Africa's natural capital amounts to 28 per cent of the continent's total wealth and 70 per cent of its total tangible capital. In the Middle East, the figures are 34 per cent and 58 per cent, respectively.

Recent economic growth theory suggests that the interplay of several sources of economic growth and development is important for growth. For example, the conversion of natural capital into human and social capital to foster growth requires, or is at least facilitated by, good institutions and governance. In another example, investments in human and social capital tend to go hand in hand and reinforce one another. Here, two types of classification can be helpful.

First, growth can be *extensive*, driven forward by the accumulation of capital, or it can be *intensive*, resulting from a more efficient use of existing capital and other resources. Among the numerous alternatives for promoting economic and social efficiency, one of the most effective ones is the accumulation of human capital through education, on-the-job training and health care. There are many other ways to increase efficiency and economic growth. For instance, free trade can empower individuals, firms and countries to break the confines of their production frontiers which under autarky would entail lower living standards. Moreover, it is

now widely recognized that the quality of economic policies and societal institutions, including good governance, can help generate sustained growth, as can various other factors which are closely related to economic organization, institutions and policy (Acemoglu and Johnson, 2005).

A second classification distinguishes among several different types of capital that, like plants, grow at different rates:

- Savings and investment to build up *real capital*—physical infrastructure, roads and bridges, factories, machinery, equipment, etc.
- Education, training, health care and social security to build up *human capital*, i.e., a better and more productive work force.
- Exports and imports of goods, services and capital to build up *foreign capital* to supplement domestic capital, among other things.
- Democracy, freedom, equality and honesty—that is, absence of corruption—to build up *social capital* to strengthen the social fabric, the glue that helps hold the economic system together and keep it effectively running.
- Economic stability with low inflation to build up *financial capital*—in other words, liquidity—that lubricates the wheels of the economic system and helps to keep it running smoothly, and
- Manufacturing and service industries that promote diversification of the national economy away from excessive reliance on low-skill intensive primary production, including agriculture, based on *natural capital*.

Natural capital differs from the other types of capital presented here in that it may be a good idea—for reasons to be discussed below—to be on guard against excessive reliance on this particular type of capital. Here it is important to clearly distinguish between natural resource abundance and natural resource dependence. Abundance refers to the amount of natural capital a country has at its disposal: mineral deposits, oil fields, forests, farm land and the like. Dependence denotes the extent to which a given country depends on these natural resources for its livelihood. Some countries with abundant natural resources, for example, Canada and the United States, have outgrown these resources and are no longer particularly dependent on them. Other resource-abundant countries, for example, the members of the Organization of Petroleum Exporting Countries (OPEC), depend on their resources, some practically on all they have got. Still other countries, say, Chad and Mali, have few resources yet depend on them for the bulk of their export earnings because they have little else to offer for sale abroad. Others still have few resources, but do not depend on the few they have in any significant way. The idea that diversification away from natural resources may be beneficial for long-term growth focuses on dependence rather than abundance, even if this distinction may in some instances be difficult to make in practice. It is quite conceivable that excessive dependence on a few natural resources may hurt economic growth, even if an abundance of natural resources, if well managed, may have a positive impact on growth. By contrast, no country has ever suffered from excessive reliance on human capital built up through education.

The rest of the article is organized as follows. First, we consider the implications of natural resources for the conduct of economic policies and the role and design of institutions in resource-rich countries. Next, we briefly review the experiences of a number of resource-rich countries, highlighting the successes of those that have done well, with a special emphasis on Norway, the world's third largest oil exporter. Finally, we consider the lessons Ghana and other African countries may be able to draw from recent experiences.

2. Policy issues arising in natural resource-rich countries

This section addresses the three key areas in which the management of natural resources in resource-rich countries raises important issues: (i) fiscal policy, (ii) monetary, financial and exchange rate policy with an emphasis in both cases on the important role of institutions and governance and (iii) the need for diversification away from excessive dependence on a few resources as well as from narrowly based power elites. Let us first turn to taxes.

2.1. Fiscal policy issues and institutions

It makes a difference in economic terms how public revenue is raised to finance society's collective needs and how efficiently the revenue is spent. The overall objective of tax policy should be the collection of enough revenue at the lowest possible cost and distortion. The worst possible option for collecting revenue is resorting to inflation tax, which is probably the least efficient and most harmful and distorting of all methods of taxation. Most other forms of taxation have side effects that discourage households and firms from doing the things they would like to do. Import tariffs impede foreign trade and consequently also economic efficiency and growth. Income taxes discourage work and market production. Sales taxes disproportionately fall on low income households which spend most of their income on necessities and are left with little to save. Natural resource-rich countries can to some extent avoid these problems because they possess a tax base that provides the opportunity to collect public revenue at a minimal cost to efficiency through distortions. This is because the resources will stay put—they are there—and cannot be moved. This argument is akin to the old story that land taxes are more efficient than taxes on movable factors of production. But there is a difference, a big difference. Natural resources belong to the people.

As a matter of near-universal principle, people's right to their natural resources is a human right proclaimed in key international law documents and enshrined in many national constitutions (Wenar, 2008). Thus, Article 1 of the International Covenant on Civil and Political Rights states that "All people may, for their own ends, freely dispose of their natural wealth and resources". The first article of the International Covenant on Economic, Social and Cultural Rights is identical. Except in the United States, where rights to oil resources were legally transferred to private companies, natural resources are, as a rule, common property resources. This means that by law the resource rents accrue in large part to the government. Hence, no taxation is really needed except as a formality. In

any case, the word ‘tax’ is inappropriate in this regard. Here, ‘fee’ is a more fitting word, because fees are typically levied in exchange for providing specific services such as a permission to utilize a common property resource. Therefore, resource taxes should instead be referred to as ‘fees’ or ‘resource depletion charges’ (Gylfason and Weitzman, 2003). In any event, it is important to use the proceeds from resource fees to either finance socially productive expenditures or to reduce the use of other less efficient revenue sources to keep the overall tax burden manageable. Good fiscal governance requires careful attention to allocative and technical efficiency on both sides of the fiscal equation, public expenditures as well as revenue mobilization needed to finance those expenditures.

The legal aspect of natural resources as a human right has another important implication. The accrual of natural resource rents by the government presupposes representative democracy and, hence, with reference to international law, the legitimacy of the government’s right to dispose of the resource rents on behalf of the people. This principle is, for instance, acknowledged in the Permanent Constitution of the State of Qatar, Article 1, which states: “Its political system is democratic.” Further, Article 29 stipulates: “Natural wealth and its resources are the property of the State; and the State shall preserve and exploit the same in the best manner in accordance with the provisions of the law.” In another example, Article 108 of the Iraqi Constitution of 2005 proclaims that “Oil and gas are the property of the Iraqi people in all the regions and provinces.” Again, with reference to international law, such a proclamation presupposes political diversification through representative democracy.

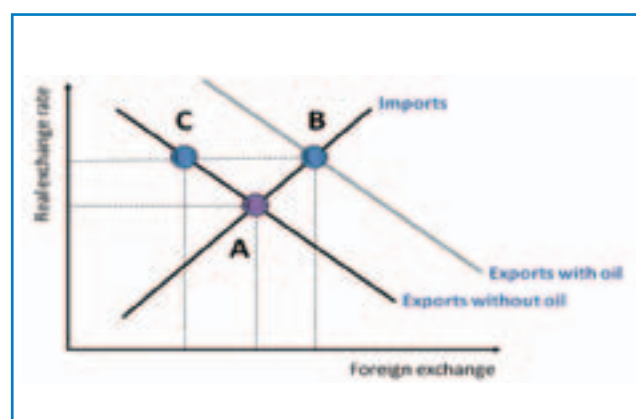
Because their prices tend to be volatile, abundant natural resources tend to go hand in hand with fluctuations in export revenues. Such volatility calls for fiscal stabilization. This raises the classic question of rules versus discretion. Discretionary stabilization measures aimed at building up foreign exchange reserves and fiscal revenues when commodity prices are high, and using up reserves and revenues when prices are low, can be criticized on the grounds that they tend to kick in too late and thus become counterproductive, exacerbating the volatility of earnings. Fiscal rules, on the other hand, can be faulted for being too mechanical and insensitive to circumstances. This is a classic dilemma for which no one-size-fits-all solution exists.

Chile applies a fiscal rule by which the Government can run up a deficit that is higher than the target of zero, or 1 per cent surplus relative to GDP, insofar as the GDP falls short of potential or the price of copper is below its medium-term (10-year) equilibrium level (Frankel, 2010). The aim of this scheme is to shield producers—and the national economy—from price fluctuations. This subjects the scheme to similar reservations as price stabilization funds and, more generally, rules-based stabilization policies. The scheme has both pros and cons. One novel aspect of the Chilean scheme is that two panels of independent experts determine the output gap and the medium-term equilibrium price of copper to reduce the risk of short-sighted political interference. This approach is applicable across a broad range of natural resources.

2.2. Monetary policy issues, finance and exchange rates

Several monetary policy issues arise in connection with natural resource management. Perhaps the most important one relates to the Dutch disease, so named for triggering fears of deindustrialization in the Netherlands following the appreciation of the Dutch guilder after the discovery of natural gas deposits in the North Sea around 1960 (Figure 1). In fact, the Dutch recovered from the ailment fairly quickly and saw their exports and imports rise rapidly relative to GDP. As it turned out, gas exports did not, in fact, crowd out other exports. In other words, the ‘Dutch’ part of the term proved to be a misnomer. How about the ‘disease’ part? This remains a matter of controversy. Some observers view dislocations due to high currency values simply as a matter of one sector benefiting at the expense of others, without seeing any macroeconomic or social harm in it. Others view the Dutch disease as such, pointing to the potentially harmful consequences of the resultant reallocation of resources—from high-tech, high-skill intensive services to low-tech, low-skill intensive primary production, for example—for economic growth and diversification. Clearly, an overvalued currency hurts exports and import-competing industries. This is one of the most robust empirical relationships in international economics.

Figure 1. How oil discovery crowds out non-oil exports



Until recently, Norway’s total exports were long stagnant in relation to GDP following the oil discoveries around 1970. That is, oil exports crowded out non-oil exports one to one relative to GDP. Norway does not have high-tech companies that compare with Sweden’s LM Ericsson, Finland’s Nokia or Denmark’s Bang and Olufsen. Yet another sign of Norway’s tendency, albeit a weak one, towards the Dutch disease is perhaps its unwillingness—almost unique in Europe—to join the European Union. This reluctance is based in part on the popular belief that Norway’s oil wealth has reduced the country’s need for the benefits European Union membership offers. Even so, Norway has proved successful in keeping inflation low to prevent the overvaluation of its currency. Sustained price stability requires good monetary governance through independent yet accountable central banks. Likewise, healthy financial sector development also requires efficient

monetary governance, including credibility and transparency. A lack of transparency seems to have played a role in the financial crisis that began in the United States in 2007.

The volatility of commodity prices does not only pose a challenge for fiscal policy, but also for monetary policy by causing volatility in exchange rates, export earnings, output and employment. Experience shows that volatility can be detrimental to investment and growth (Aghion and Banerjee, 2005). Exchange rate volatility is no exception. This is one reason why natural resource-rich countries are prone to sluggish investment and slow growth. With this in mind as well as the resounding success of the euro since its launch in 1999, more and more countries in Africa and around the world are discussing plans to pool their currencies to foster economic stability and growth. This is the surest, albeit not risk-free way to use monetary policy to avoid overvaluation and excessive currency volatility. To paraphrase Winston Churchill's comment about democracy: the best way to preserve the integrity of the national currency is to abolish it—or, more precisely, share it with others.

The build-up of natural resource funds raises a number of issues. Stabilization funds are intended to insulate the economy from volatility in commodity prices. Countries have a choice to consider the fund either as part of the government's fiscal chest available for current use or as a reserve for future subject to strict rules about its planned use. After a few years of experimenting, Norway decided to place itself firmly at one end of the spectrum, having in recent years invested virtually all of its oil revenues in foreign securities and setting them aside in a pension fund for future use. Low and middle-income countries, however, have more pressing current needs and may therefore find the Norwegian approach impractical. Even so, they could benefit from trying to depoliticize the use of natural resource revenues by vesting them to an independent authority set up along the lines of independent yet accountable central banks, judiciaries and supervisory authorities. Understandably, easy revenues from natural resources are especially tempting for politicians in urgent need of public support. Therefore, prudence calls for firewalls to be erected between sovereign wealth funds and the heat of the day-to-day political process. This is a question of checks and balances, of finding ways to reduce the risk that natural resource revenues are misspent or even squandered for short-term political gain.

The underlying issue here is the risk of rent seeking, especially in conjunction with ill-defined property rights, imperfect or missing markets and lax legal structures. The problem with rent seeking, apart from the injustices it tends to produce, is that it also tends to divert productive efforts and resources away from more socially fruitful economic activity. Without adequate checks and balances, even full-fledged democracies can fall into this trap. Less democratic countries appear to be even more prone to this risk. This is why important international initiatives have recently been taken to encourage increased transparency in the use of natural resource revenues. The Extractive Industries Transparency Initiative (EITI) aims to establish a global standard for transparency in oil, gas

and mining. The Natural Resource Charter (NRC) lays out “a set of principles for governments and societies on how to best manage the opportunities created by natural resources for development.” The Revenue Watch Institute (RWI) promotes responsible management of oil, gas and mineral resources for the public good. Put bluntly, open access to other people's money tends to breed carelessness as well as a false sense of security that may nurture the attitude that anything goes, resulting in the neglect of many of the factors that actually foster growth, including education and institutions. This is the sense in which, if it is not well managed, natural capital may tend to crowd out other types of capital.

The question of other people's money raises yet another legal issue. Sovereign wealth fund managers are not necessarily free to manage the funds entirely as they see fit if their guidelines and rules do not fully comply with international or local laws. Because the legal issues raised by Wenar (2008) are new to most economists and policymakers, it is not clear that these guidelines and rules were designed to be waterproof. To illustrate the point, Wenar tells the story of Equatorial Guinea where the oil export boom after 1990 has produced immense but highly concentrated private wealth amid public squalor, even though the oil wealth belongs to the people according to Article 1 of the International Covenant on Civil and Political Rights, which Equatorial Guinea has signed.

2.3. Double diversification

Economic diversification encourages growth by diverting economic activity from excessive reliance on primary production in agriculture or on a few natural resource-based industries, thus facilitating the transfer of labour from low-paying jobs in low-skill-intensive farming or mining to more lucrative jobs in more high-skill-intensive occupations. Political diversification encourages growth in a similar way by redistributing political power from narrowly based ruling elites to the people, thereby often replacing an extended monopoly of sometimes ill-gotten power with democracy and pluralism. The essence of the argument is the same in both cases: diversity pays.

Modern mixed economies need a broad base of manufacturing, trade and services to be able to offer people a steadily improving standard of living. Therefore, they need to find ways of diversifying their economic activity away from once dominant agriculture which tends to perpetuate poverty and similarly, away from too much dependence on a few natural resources which tend to stifle or delay the development of modern manufacturing and services. To function effectively, national economies also need broad political participation and a broad base of power to be able to offer citizens an efficient and fair way of exercising their political will and civil rights through free assembly, free elections and the like. Without political democracy, bad governments tend to last too long and do too much damage. The need for diversification is especially urgent in resource-rich countries because they often face a double jeopardy—that is, natural resource wealth that is concentrated in the hands of relatively small groups who seek to preserve their own privileges by standing in the way of both economic and political diversification which, after all, would diffuse their power and wealth. Rent

seekers typically resist reforms—economic diversification as well as democracy—that would redistribute the rents to their rightful owners (Auty, 2001; Ross, 2001).

While diversification is a widely shared goal, it is not necessarily obvious how it can be achieved. But some guidelines can be offered. First, avoiding currency overvaluation is important because an overvalued currency punishes both the export industries specializing in manufacturing and services and the import-competing industries. It takes considerable discipline to resist the temptation to allow the currency to appreciate above its appropriate level, because of the politically popular benefits that accrue from cheap foreign exchange for both households and firms that depend on imported inputs. This is yet another reason why independent but accountable central banks, immune by law from political pressures, are so important. Monetary policy is now widely considered as being too important to be left in the hands of impatient politicians, which is why central banks in many countries have been granted greater independence from political authority to pursue the monetary policy objectives they see fit—almost invariably, low inflation—determined by the government.

The same argument applies to the stabilization function of fiscal policy as well as to those aspects of fiscal policy associated with the disposal of natural resource rents and to the related factors mentioned above. This argument does not, of course, apply to fiscal policy across the board, because government expenditure and revenue decisions are inherently political in their nature and cannot and should not be separated from the political process in a democracy. Other institutions, such as supervisory authorities that monitor banks and financial markets and, where such bodies exist, monitor the management of natural resource rents, also need protection through statutory independence from political authorities. Good governance requires institutional design that ensures effective checks and balances. Transparency is thus a prerequisite for good governance. Transparency must go hand in hand with accountability as well as with confidentiality, where appropriate, including protection for whistleblowers. In this regard, the Extractive Industries Transparency Initiative, the Revenue Watch Institute and the Natural Resource Charter have a potentially helpful contribution to make, just like Transparency International. Such international efforts deserve to be supplemented by civil society in individual countries, especially in those that are prone to the problems that often accompany an abundance of natural resources.

Third, more and better education at all levels of schooling is conducive to diversification because a good education opens the door for workers to get well-paying jobs in services and manufacturing. Education and diversification go hand in hand. In sub-Saharan Africa the share of services in GDP increased from 46 per cent in 1965 to 54 per cent in 2008, while in North Africa and the Middle East, the services share dropped from 48 per cent to 46 per cent. By comparison, high-income countries saw the share of services in GDP rise from 55 per cent in 1970 to 73 per cent in 2007 (World Bank, 2010b).

How much government involvement is necessary for diversification? The government plays a key role in education at all levels. Increased school enrolment at the secondary level as well as at higher levels of education would help, aside from being desirable in its own right. In order for graduates to be able to find jobs, the government must see to it that the exchange rate of the currency is compatible with profitable manufacturing and services exports. Otherwise, young people will not be motivated to get a higher education (Pritchett, 2006). Furthermore, the government needs to foster a business-friendly environment that makes it easy to establish new firms. The World Bank's annual Ease of Doing Business ranks the ease with which a business can be set up, including construction permits, employment of workers, registering property, loan approval, protection of investors, paying taxes, trade across borders, enforcement of contracts and shutting down a business. In the current ranking (2010), Singapore ranks first out of 183 countries, followed by New Zealand, Hong Kong SAR and China. The top three frontrunners are followed by the United States and the United Kingdom in fourth and fifth place, respectively. The top oil producers on the list include Norway in tenth and Saudi Arabia in 13th place.

3. Norway and other success stories

3.1. Norway's oil

It was only with the advent of educated labour that Norwegians began to harness their natural resources on a significant scale. Human capital accumulation represented the primary force behind Norway's economic transformation. Natural capital was secondary. The World Bank attributes 62 per cent of Norway's national wealth to intangible capital, including human capital, 21 per cent to produced capital and urban land and only 13 per cent to natural capital; the remaining 4 per cent share is net foreign assets (World Bank, 2010a). Today, earnings from oil represent a quarter of Norway's GDP and investment, a third of its budget revenues and half of its export earnings. Norway's Petroleum Fund, established in 1990 and now named Government Pension Fund to reflect its intended use, will before long amount to US\$ 100,000 per person, or almost two times Norway's purchasing power parity adjusted per capita GDP. It is invested entirely in foreign securities.

Norway's fiscal policy and its management of its oil wealth have played an important role in stabilizing the local economy. Previously, a variable but declining share of each year's net oil tax revenue was transferred to the government budget, essentially to cover the non-oil budget deficit. However, as the relative importance of the petroleum sector declines, the share of petroleum revenues used to cover budget deficits will naturally tend to rise. Even so, the domestic economy has been largely shielded from the influx of oil revenues, thereby avoiding overheating and keeping the value of the Norwegian krone from rising. This deliberate strategy has averted or at least limited the potential damage to non-oil exports and import-competing industries, which a more marked appreciation of the krone in real terms would have

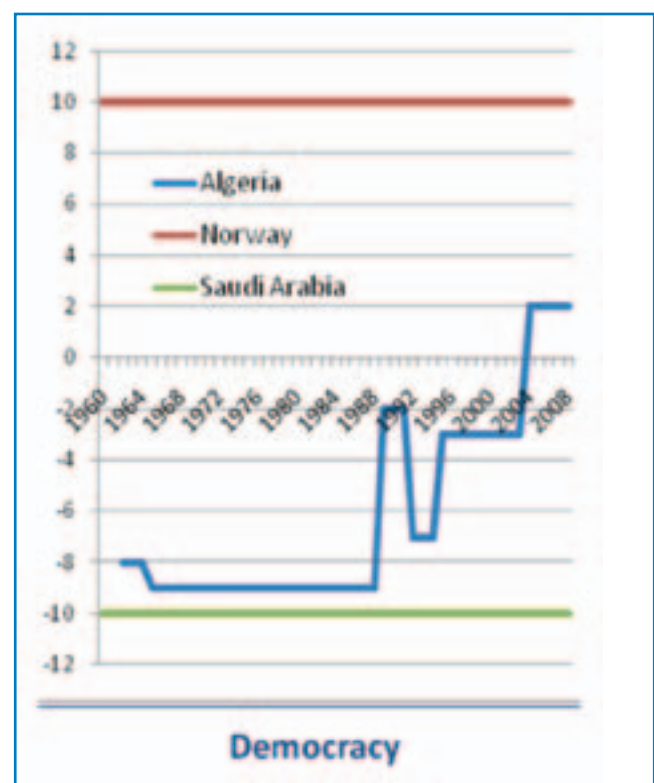
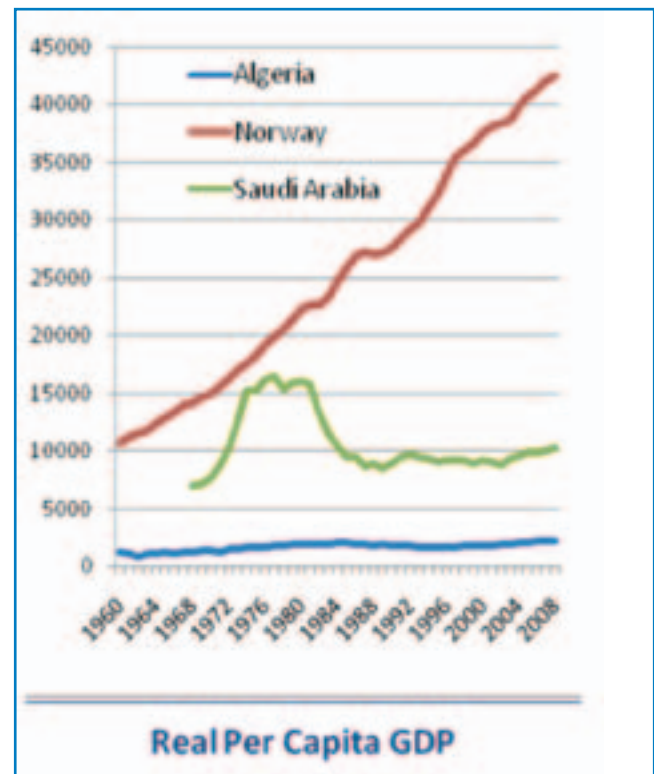
caused. Low inflation in Norway reflects the Government's disciplined fiscal and monetary policy and, in particular, its resistance to the temptation to channel the country's oil wealth for current use on a large scale in the face of loud calls to use a larger share of the oil revenues to address domestic social needs rather than to continue building up the Government Pension Fund.

Norway's sensible approach to oil wealth management deserves the attention it has received in other resource-rich countries around the world. Several key features characterize Norway's approach:

- From the outset, even before the first drop of oil was extracted, the oil and gas reserves under Norwegian jurisdiction were defined by law as common property resources, thereby clearly establishing the legal rights of the Norwegian people to the resource rents.
- On this legal basis, the Government has absorbed about 80 per cent of the resource rent over the years, having learnt the hard way in the 1970s to use a relatively small share of the total to meet current fiscal needs, and instead setting most of its oil revenue aside in the state's Petroleum Fund, now the Government Pension Fund.
- Further to the preventive legislation passed at the outset, the Government laid down economic as well as ethical principles ('commandments') to guide the use and exploitation of the oil and gas for the benefit of current and future generations of Norwegians.
- The traditional main political parties have had a shared understanding from the beginning about the need to protect the national economy from an excessive influx of oil revenue to avoid overheating and waste, a view that is not, however, shared by the Progress Party (est. 1973), and
- The Central Bank (Norges Bank) which, with the adoption of inflation targeting in 2001, embarked on a course towards increased independence from the Government, manages the Fund on behalf of the Ministry of Finance, maintains a distance between politicians and the Fund which has grown to around US\$ 450 billion (US\$ 94,000 per person in Norway in 2009).

By Norwegian law, and in keeping with the International Covenant on Civil and Political Rights, the oil wealth belongs to the state. The petroleum industry extracts oil and gas on public land, albeit offshore. In principle, all the rent from oil and gas should accrue to the Norwegian people through their elected government. The state's entitlement to these resources constitutes the legal basis for government regulation of the petroleum sector as well as for its taxation. Exploration and production licenses are awarded to domestic and foreign oil companies alike for a small fee. The Norwegian Government expropriates the oil and gas rent through taxes and fees, as well as through direct involvement in the development of the resources rather than through sales or auctioning of exploration and production rights.

Figure 2. Algeria, Norway and Saudi Arabia



For all of these reasons, Norway has been able to avoid rent seeking and related problems which have afflicted other oil exporting countries—Algeria, Iran, Libya, Mexico, Nigeria, Russia, Saudi Arabia, Sudan, Venezuela and others. Figure 2 illustrates how Norway and Saudi Arabia's paths diverged after the mid-1980s when the two countries had a similar

per capita GDP. Economic indicators do not, however, do full justice to the impressive progress made by Algeria and Saudi Arabia where, since 1960, life expectancy has increased by no less than 25 years and 27 years, respectively, compared with only 7 years in Norway. All things considered, what sets Norway apart is that it was a well-functioning, full-fledged democracy long before the oil was discovered. The composite democracy index presented in the figure ranges from -10 to 10 (this is the polity 2 index of the Polity IV database, see Marshall and Jaggers, 2001). Democratic governments are less likely than dictators to try to seize resources to consolidate their political power (Mehlum, Moene and Torvik, 2006; Collier and Hoeffler, 2009). In several other countries, point resources such as oil and minerals have proved particularly “lootable”, though not in Botswana to which we now turn.

3.2. Botswana, Chile and Mauritius

At the time of independence in 1966, Botswana had 12 kilometres of paved roads, 22 college graduates and 100 secondary school graduates (Acemoglu, Johnson and Robinson, 2003). Diamonds were discovered the following year, in 1967, and now provide tax revenue equivalent to a third of GDP. Botswana has managed its diamond mining quite well and used the rents to support rapid growth, making Botswana the most prosperous country in mainland Africa, having surpassed South Africa a few years ago in terms of purchasing power parity adjusted per capita gross national income (GNI). In Botswana, gross secondary school enrolment rose from 19 per cent for each cohort in 1980 to 80 per cent in 2006, compared with an increase from 50 per cent to 89 per cent in Mauritius over the same period. Between 1980 and 2007, Botswana increased its public expenditure on education from 6 per cent of GDP to 8 per cent compared with 4 per cent in Mauritius.

Unlike Sierra Leone’s alluvial diamonds which are easy to mine by shovel and pan and easy to loot, Botswana’s kimberlite diamonds lie deep in the ground and can only be mined using large hydraulic shovels and other sophisticated equipment and are therefore not very lootable (Olsson, 2006; Boschini, Petterson and Roine, 2007). This distinction has probably helped Botswana thrive while Sierra Leone failed, as has, most likely, South African involvement—that of De Beers, in particular—in the Botswanian diamond industry. True, with a Gini coefficient of 60 according to the UNDP, Botswana has one of the world’s least equal distributions of income and a correspondingly high poverty rate. Even so, Botswana has, by and large, enjoyed remarkable economic success accompanied by political stability and a steady advance of democracy (Figure 3). With low inflation, albeit slightly higher at 10 per cent per year on average between 1966 and 2008 than in sub-Saharan Africa as a whole, good policies have without doubt contributed to this outcome. So have good institutions. The corruption perceptions index of Transparency International for 2009 ranks Botswana higher than all other African countries, placing it 37th in a group of 180 countries. The Ibrahim Index of African governance 2010 ranks Botswana in third place out of 53, just behind Mauritius and the Seychelles. The World Bank’s Ease of Doing Business index for 2010 has Botswana in 45th place out of 183 countries, behind Mauritius (17) and

South Africa (34) and ahead of all other African countries as well as, for example, Chile (49) and Peru (56). Tragically, due to the HIV/Aids epidemic, Botswana’s remarkable economic achievements have been accompanied by only a modest increase in life expectancy by four years since 1960, compared with a longer life expectancy by 14 years in Sierra Leone and six years in the Democratic Republic of Congo (Figure 3).

Figure 3. Botswana, Congo and Sierra Leone

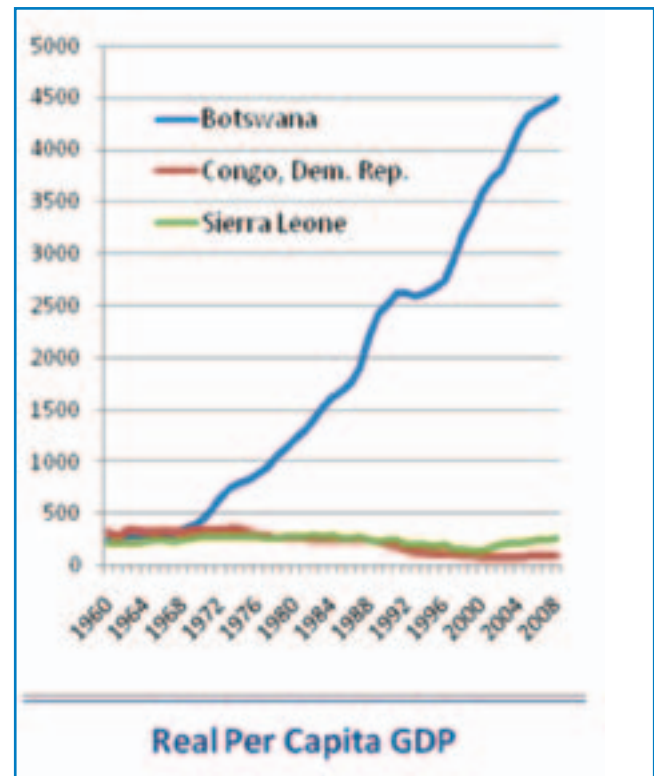
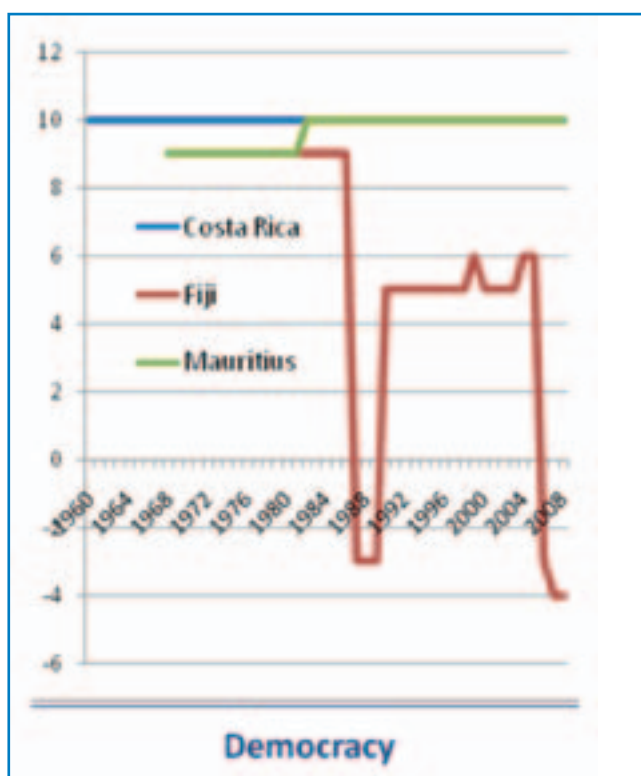
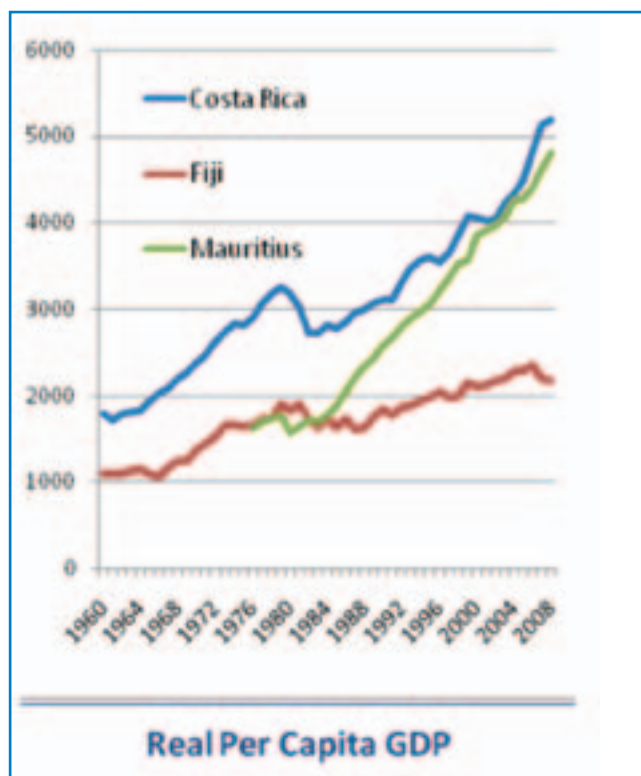


Figure 4. Costa Rica, Fiji and Mauritius



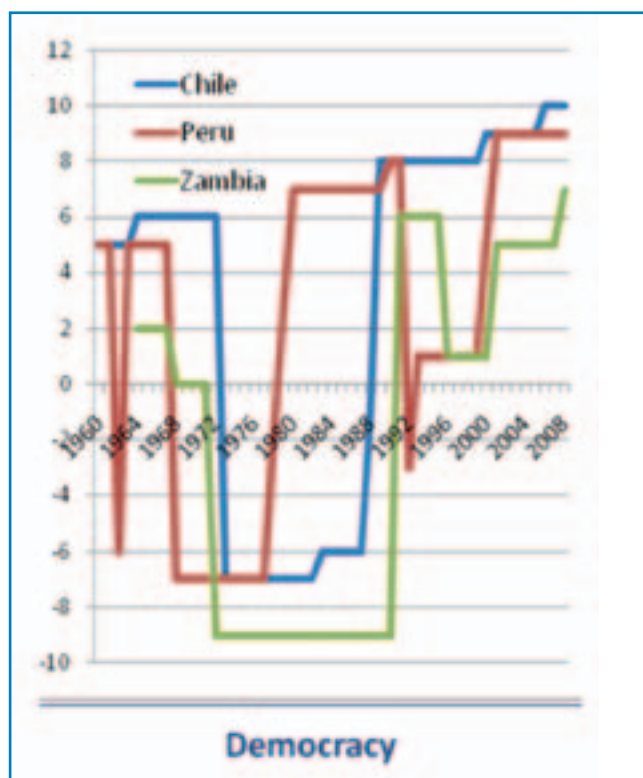
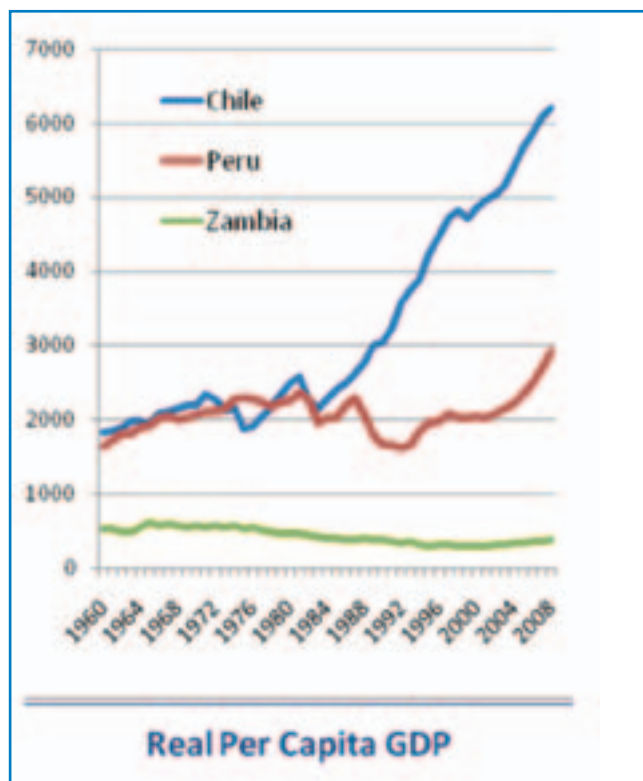
Unlike Botswana, Mauritius has made a deliberate and successful effort to reduce its reliance on its main export commodity, sugar. This was achieved through good policies and effective institutions, emphasizing foreign trade through

diplomacy and other means as well as education. The share of manufactures in merchandise exports increased from 2 per cent in 1970 to 57 per cent in 2008. Even so, sugarcane remains the dominant crop, generating 25 per cent of export earnings. Since the mid-1970s, total exports have hovered around 50 per cent to 60 per cent of GDP like in Botswana. These are high ratios by African and international standards, even for small countries with populations below two million. During 1977–2008, inflation remained, on average, below 9 per cent annually. During the same period, investment in Mauritius amounted to 26 per cent of GDP against 32 per cent in Botswana. Life expectancy at birth in Mauritius has increased by 13 years since 1960 as it has in Fiji, another sugar exporter, while Costa Ricans have added 17 years to their average life expectancy (Figure 4).

Hence, like Botswana, Mauritius has done many things right. Beyond the usual determinants of growth that Mauritius got right, including education, exports and investment, Frankel (2010) suggests that the cosmopolitan nature and origin of Mauritius' population has contributed to the island's successful, harmonious and democratic development by creating a balance between ethnic groups like in Singapore, Hong Kong SAR, China and Dubai. Frankel points out that the three African countries with the highest governance rankings (Mauritius, Seychelles and Cape Verde) are all small islands that have no indigenous population, suggesting that it is an advantage when everyone comes from elsewhere, as is the case in the United States—except, of course, for native Americans.

Figure 5 shows the development of real GDP per capita and democracy in Chile, Peru and Zambia. Zambia failed to achieve growth despite its substantial copper deposits, but has all the same made commendable, albeit somewhat uneven, progress on the democracy front. The rapid growth of Chile and Peru has gone hand in hand with an increase in life expectancy by 22 and 26 years, respectively, while life expectancy at birth in Zambia has remained stagnant at 45 years since 1960. Since its return to democracy in 1988, Chile has made rapid progress and become a fully fledged democracy and member of the OECD, tripling its real per capita GDP since the 1980s. Chile has opened up to trade: exports of goods and services increased from 13 per cent of GDP in 1960 to 45 per cent in 2008. By contrast, Zambia, also a major copper exporter, saw its exports plunge from 60 per cent of GDP at the time of independence in 1964 to 37 per cent in 2008. Even so, manufactures accounted for only 12 per cent of Chile's total merchandise exports in 2008 compared to 16 per cent in Peru, to name another major copper exporter and 7 per cent in Zambia. In Chile, 84 per cent attend secondary school compared with 98 per cent in Peru and 52 per cent in Zambia. Inflation is a thing of the past in Chile while Zambia has mostly grappled with double digit inflation or worse since independence. Chile therefore also fits into the general picture: exports, education, investment and price stability are good for growth, especially when encouraged by good governance and democracy.

Figure 5. Chile, Peru and Zambia

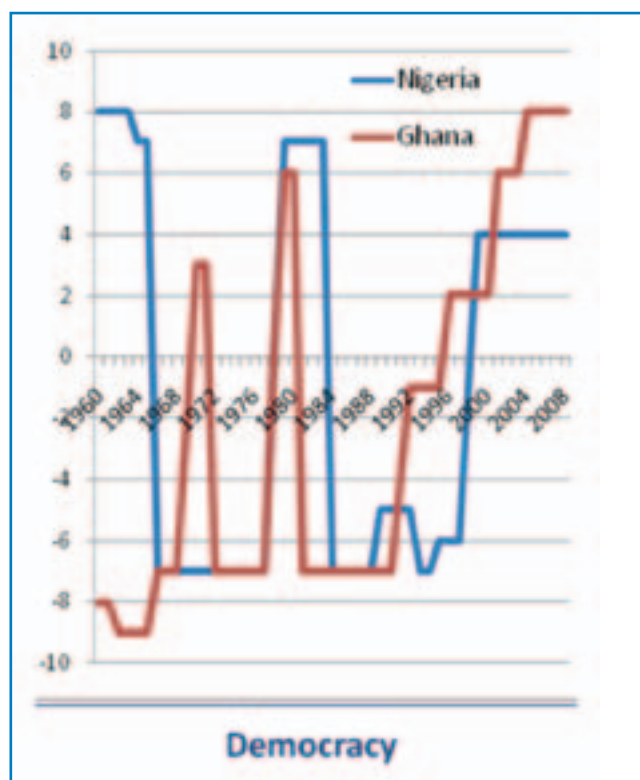


4. Conclusion

The list of countries that have failed to use their abundant natural resources to foster rapid economic and social progress is long. Before we conclude, let us consider Nigeria.

To stimulate growth in Nigeria, it has been suggested to transfer oil revenues from public hands to the private sector (Sala-i-Martin and Subramanian, 2003). But the private sector is not infallible either as events in global financial markets since 2007, including Nigeria, have demonstrated once again.

Figure 6. Ghana and Nigeria



Consider this analogy: if judges prove to be corrupt, the solution is not to privatize the judicial system. Rather, the solution should be to replace the corrupt judges and reform the system by legal or constitutional means aimed at securing the integrity of the courts. If the privatization route is taken, however, it matters to whom in the private sector the oil rent is transferred. If the rent is divided evenly among the adult population as in Alaska, the allocation can be deemed fair, albeit not necessarily efficient. If, on the other hand, the resource rent is allocated to select interested parties as is the case in Iceland, where common property fishing quotas have been handed to boat owners free of charge for 25 years, the allocation fails both the fairness as well as the efficiency test.

In this spirit, rather than dwelling on failure, this article has highlighted some key features of some of the most successful natural resource-rich countries, especially Norway, in addition (in brief) to Botswana, Chile and Mauritius. Empowered by vigorous trade, a strong emphasis on education, effective policies and good governance, these countries have been able to harness their resource rents for the benefit of their people, the rightful owners of the resources by local law as well as by the International Covenant on Civil and Political Rights. Privatization has not been part of the solution. The United States remains the only country that transferred its oil wealth to private companies long ago and quite legitimately within its democratic system of government. By contrast, the Norwegian Government in its role as guardian of the people has kept a tight grip on the country's oil wealth while at the same time setting up a governance structure intended to safeguard the Petroleum Fund—now the Government Pension Fund—from political interference. Clearly, African countries with pressing economic and social needs cannot be expected to show the same patience as the Norwegians. Africa is in a hurry.

Even so, it is within African countries' grasp to build governance structures designed to separate the management of their resource wealth from short-term political pressures. Any country with an independent judiciary or independent central bank, or both for that matter, knows by experience how to set up institutions for the purpose of immunizing those public policy spheres deemed too important to be left in the hands of myopic and impatient politicians from the vicissitudes of the political process. Yet even if this task can be satisfactorily accomplished, it remains necessary and desirable to tailor fiscal, monetary and exchange rate policies and institutions in resource-rich countries to their special circumstances, not least to increase the efficiency of revenue collection to the furthest possible extent and to uproot the scourge of overvaluation.

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3. Dealing with the Dutch disease in a fragile political economy environment

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Abstract

One of the most daunting challenges confronting a petroleum (or natural resource-rich) developing country in this period of commodities boom is the task of avoiding the Dutch disease while remaining competitive and simultaneously diversifying the economy. The task is even more arduous in an environment of fragile political and social systems, exhibiting widespread capacity weaknesses and deep-seated corruption. The policy prescriptions often designed to take on this challenge are mainly technical in nature and very rarely give sufficient emphasis to the social and political environment within which they operate. For fragile economies where political and economic governance are usually strained, bold and innovative measures are needed to keep the symptoms of the disease under control. When the roots of the disease are to be found in revenues from offshore oil, the impact and severity of the disease is likely to be even more pervasive, going beyond economic effects to exacerbating political and social tensions prevalent in the fragile environments. However, as with all diseases, prevention is better than cure. Hence, the “cure” is to put in place such provisions before the onset of the disease.

The paper analyses key features of governance and economic management in fragile states that are likely to aggravate the symptoms of Dutch disease and at the same time render application of solutions difficult. Drawing from the analysis, a number of possible policy measures to ameliorate the effects of the disease are presented.

1. Introduction

A large body of literature exists on the causes, symptoms, and solutions or cure for what is commonly called the Dutch disease. Instead of looking at the underlying economic theories, this paper examines how the disease manifests itself in a fragile political and economic environment. The analysis is followed by some suggestions to counteract the negative effects. Even for a “normal” economy the challenges of dealing with the disease are formidable and can have

repercussions on the socio-political landscape of the country. In states with weak democratic processes, where checks and balances are absent or poor and where the sceptre of conflict is ever present, the consequences for the growth of the developmental state built on democratic principles and practices are likely to be negative, unless pre-emptive measures are taken very early on (Sachs, 2007; Brahmabhatt, Canuto and Vostroknutova, 2010). The policy prescriptions to deal with the Dutch disease more often analyse the economic forces at play and, to a lesser degree, the social and political environment within which they operate. The seminal study on the topic (Corden and Neary, 1982) emphasizes structural issues and implications for resource allocation and income distribution. Even more recent analysis (Lama and Medina, 2010) provides a cursory treatment of the additional challenges that fragility imposes.

A few studies (Sachs et al., 2007) closely examine the effects in developing countries. However, these studies underestimate the difficulties posed by the institutional and socio-political weaknesses of fragile states that render implementation of orthodox solutions almost impossible¹. For these “fragile” countries, where political and economic governance are usually strained, bold and innovative measures are needed to control the symptoms of the disease.

This paper analyses the special features of fragile economies that render conventional prescriptions to combat the disease difficult to administer, and which are even more unlikely to be effective. It then examines the potential political, social and economic effects of the Dutch disease in such environments and the possible policy measures to keep the disease under control.

1.1. Fragility

For ease of discussion and analysis, the World Bank’s definition of fragile states is used as a basic indicator of fragility,

¹ Chad presents a classic case. In 2005, the World Bank agreed with the Government to set up a Sovereign Wealth Fund that would be held outside the country, managed independently and primarily involve development projects. Within a year, the country’s Parliament voted to modify the terms of the agreement, effectively ending any hopes for curing the Dutch disease which the deal would have generated.

which is useful for cross-country comparison. The Bank considers a Country Policy and Institutional Assessment Index (CPIA) of less than 3.2 as the benchmark for fragility. This is a useful indicator as it captures the essential features of a country, which compound the application of many of the remedial measures for the Dutch disease that are found to work elsewhere, and at the same time, it allows simple cross-country comparisons. However, it is recognized that when tested against empirical evidence, a number of countries with weak institutions and vulnerable systems are found to lie above the threshold. Take the case of Sierra Leone and Kenya: both countries are not considered fragile, yet the last general elections in Kenya put the country at the brink of civil war. In Sierra Leone, each time general elections approach there is widespread fear that the country will degenerate into violence. Thus, many of the countries that pass the 3.2 threshold may exhibit other symptoms of fragility.

Table 1 CPIA ratings for selected resource-rich countries (2009)

Country	DRC	Ghana	Kenya ²	Sierra Leone
CPIA Rating	2.5	4.0	4.0	3.2

Source: WDI and GDF 2010, World Bank

For the four countries selected above, only DRC can be classified as fragile, the rest are on or above the threshold for fragile states, but not significantly so. Kenya with a rating of 4.0 is included in the list to put the situation of Ghana into perspective (the maximum rating is 6.0).

Kaplan (2008) identifies two structural problems as besetting fragility: weak national institutions and political fragmentation and identity (social cohesion). The problem is that he does not provide a simple and objective measure that can be applied universally. Nevertheless, his approach provides a more useful indication of fragility.

In the table above, the two countries with low CPIA scores and low socio-economic indicators also present the following:

- Dysfunctional institutional arrangements creating rivalry among the elites or ruling groups³
- Laws, rules and institutions are not resilient and cannot accommodate stress and shocks without collapsing⁴

² Not a resource-rich country, but included because of recent upheavals in the country.

³ The case of Enron in the USA is instructive. Such a massive blow-up with universal condemnation by the populace of what went on is unlikely to happen in Sierra Leone. The society itself would have been divided into those who use politics to protect the culprits, and those belonging to the opposing party calling for the CEO's blood.

⁴ A non-fragile country is the U.S. It handled the stress of the Gore/Bush elections without resorting to military intervention or outright civil war or external intervention; the UN, the OAS, the international community did not have to intervene and recognize Bush or Gore during the intriguing stages of the elections announcements.

- The prevalence of informality⁵
- All are natural resource based and export-led economies
- Policy shortcomings in the management of national revenue.

All of these factors combined make the application of solutions or corrective recipes for the problems of the Dutch disease difficult.

1.2. The Dutch disease

The origin of the term refers to the developments in the Netherlands when the gas fields commenced production in 1959. It describes the effects of the appreciation in the value of the local currency and the consequences for the "other" sectors, when there is a sudden flood of funds from natural resource revenues or even foreign aid (Jayasuriya, Steele and Weerakoon, 2005). Usually, the manufacturing sector suffers most due to higher production costs.

An extensive body of literature exists on the topic, ranging from theoretical analysis to detailed empirical case studies primarily of oil-rich countries. As is always the case, there are differing views on the causes of the Dutch disease and, therefore, on how to cure it. For the purpose of this discussion, it is useful to note that there are slight variations between the symptoms of the Dutch disease provoked by off-shore oil and those by windfalls in base metals or even aid.

Table 2 Mineral production as a percentage of GDP

Countries	2000	2001	2002	2003	2004	2005	2006	2007
DRC	11.08	11.37	12.41	11.36	11.18	12.45	12.24	15.75
Ghana	7.675	7.42	7.416	7.368	7.175	7.343	8.221	8.241
SL	13.54	9.59	12.58	18.06	16.35	12.63	10.31	14.54

2. The effects of the disease in fragile states⁶

In the case of off-shore oil, the extraction process in fragile countries has limited linkages with the rest of the economy. The employment effect is limited to the few skilled and manual workers who are nationals and employed in the rigs. Backward and forward linkages are virtually non-existent outside the services sector. The effects on the economy are therefore primarily manifested through the revenue flows—at least initially. In short, the effect is almost entirely a net injection of foreign currency, which in turn increases the value of the local currency.

In the case of base metals, such as iron or alluvial deposits of precious metals, the extraction process engages other

⁵ Informality permeates all forms of activities—economic, commercial, political, etc. Most decisions, whether of a national or local nature, are taken outside formal forums (McLeod, 2007). The ability to plug into one or more of the crisscrossing informal networks is the key to successful endeavours in both societies.

⁶ Ghazvinian, 2007.

sectors far more than in the case of off-shore oil extraction. In the former, legal and illegal employment opportunities, flourishing support services and the indirect effects on non-tradables are immediate and evident.

Sachs (2007) demonstrates that while oil producers have fared better than their non-oil producing counterparts judging from socio-economic indicators, their performance tends to be far lower than the potential that could be associated with such wealth. He argues that oil wealth can finance higher levels of consumption and investment, particularly public investment. He advocates using windfall revenues on public investment rather than consumption—for poorer countries, the windfall should be used to provide basic needs, infrastructure and private sector-led growth.

In a fragile state, as the currency appreciates in value and as the revenue flows in, those who are able to control access to it due to weaknesses in governance (family contacts or sheer ingenuity), will be the winners. They could be designated the new oligarchs. They also have consumption baskets with high import content and enjoy the relatively lower priced imports. The increase in prices of non-tradables affects them less than the poor. It should be noted, however, that the elites are the decision-makers and may therefore be less likely to adopt measures that are of little interest and benefit to them. In fact, today they glibly attribute price increases to globalization⁷, suggesting that not much can be done locally.

From the above it is clear that in the case of off-shore oil windfalls, the major question is how to manage the additional revenue⁸ in such a way as to mitigate the negative effects of currency appreciation. Solutions range from controlling money supply, maintaining off-shore accounts, providing direct cash transfers as in Timor Lest, Brazil, Mexico, etc.

The “resource” movement towards sectors supporting oil will not exert as strong or as direct a pull as in cases in which the windfall is attributable to other minerals—in particular, the mining of base metals such as iron ore. The reason paradoxically is that the oil sector, at least in the early stages, has few linkages with the rest of the economy.

The currency appreciation effect of the Dutch disease, whether due to natural resource revenues or even foreign aid, is usually illustrated using the manufacturing sector as the sector most affected by higher production costs (see, e.g., Jayasuriya, Steele and Weerakoon, 2005). However, the dominant sector in most fragile states is subsistence agriculture. As lower priced foodstuffs outprice domestic products, the higher prices for domestically produced foodstuffs lead

to a fall in farmers’ income, as consumers substitute higher priced staple foods—rice—for lower priced imports.

As a result, profits in the domestic sector drop, or what is even more likely, rural farmers’ incomes drop.

2.1. The social effects

There is a wide variation in the degree of effectiveness of the checks and balances established by societies to control and contain selfish tendencies in favour of the greater good. For various reasons not unrelated to the historical circumstance of a country, the effectiveness of these checks and balances varies. They are strongest where political and economic institutions that support society are well developed with strong traditions. They are most ineffective where the institutions and traditions are poorly developed or have been demolished and completely altered in the recent past. This is the case in fragile countries that have recently emerged from conflict.

Another example of political fragility that is even more directly related to governance demonstrates its importance in the application of cures for the Dutch disease. In one country, for example, a mining company got Parliament out of recess to ratify its mining agreement. This was achieved within 48 hours with the entire Parliament, both the opposition and ruling parties, voting in favour of the agreement. A similar incident occurred elsewhere (Henisz, Dorobantu and Gray, 2009). This is an example of weakness in the system of checks and balances which are so essential for a parliamentary system of democracy to function effectively.

Sierra Leone experienced its Dutch disease between 1952 and 1954 (Van der Laan, 1965). At the peak of the diamond rush, it is reported that over 75,000 Africans were engaged in illicit mining; most were from the agriculture sector, and the sector consequently suffered. There were food shortages and high inflation. It is not surprising that there were riots in the main towns in 1955 in the aftermath of the call for a general strike. At the time the term Dutch disease had not yet been coined. But the symptoms already existed. It can even be argued that Sierra Leone carried the disease into its independence status and set the stage for its eventual collapse. Manufacturing never went beyond the high cost import substitution stage, and the agriculture sector remained in the doldrums.

2.2. Expenditure effect

When a cash-strapped economy suddenly uncovers considerable wealth, the tendency is to first spend, and review the implications later. If the expenditure is “good”—efficiently managed and effective, i.e., spent on essential infrastructure that will yield services in the short and medium term—then this in turn will generate higher profits from other sectors as the cost of such services fall. Unfortunately, the weak budget controls and planning in fragile countries dilutes the effectiveness of “good” spending through leakages, compromises in procurement procedures and discretionary granting of waivers. Hence, for fragile situations, recommendations

⁷ Admittedly, this is partially true, but the soft option of blaming globalization protects them from taking difficult decisions on the domestic front.

⁸ The oil boom strengthens the local currency as all outputs are exported. Imports become cheaper, local industries suffer and lose out to imports; layoffs, distortion of production and food shortages are the consequence.

must go beyond the selection of “good” expenditure and include measures for the control of expenditures.

While trade liberalization and exchange rate policies can limit price and cost inflation, the downside are the long-term effects on agriculture from where the mass of the population derives its livelihood. In fragile environments, there is a tendency to buy off the urban poor at the expense of the unorganized rural masses, further reinforcing poverty and inequality. The solution is therefore to develop innovative ways to provide subsidies or cash transfers. Some include free seeds, subsidized inputs, support for low-cost housing, selected subsidies on fuel, etc.

There are also ripple effects, for example, changes in relative prices that could even lead to structural changes in the economy. In Sierra Leone in the fifties, there was a drop in agricultural output as youth moved into the diamond areas, rapid urbanization in addition to a dramatic increase in social instability in these areas, as the traditional social controls in rural societies were not established in the new diamond areas.

In the absence of a carefully crafted revenue management policy, the general tendency is to embark on substantial infrastructure projects, and with this comes opportunities for corruption in the awarding of contracts (Collier, 2010). Competition for business in situations where procurement rules are known for their exemptions rather than their enforcement inevitably leads to graft, favouritism and patronage.

In smaller states, the presence of a single dominant operator inevitably leads to state capture: a situation where all roads lead to that single operator (oligarch), from churches engaged in fund raising, to an NGO seeking to fund the next sensitization workshop. Or even the judge, whose niece needs a job and gets a recommendation from the oligarch who was at the President’s private dinner the previous evening.

One option which has not yet extensively been used by civil society thus far is marshalling and releasing the forces of the citizenry to provide checks to some of the excesses linked to the weaknesses of the state. Recent events in the Arab world show the potency of the power of the people. In Sierra Leone, civil society was instrumental in bringing an end to the conflict, and is proving increasingly effective in countering the negative effects of fragility. Engaging the population in open debates designed to inform and elicit opinions is proving to be a very powerful weapon for dealing with some of the features of fragility.

In this context there is a tendency for policymakers to assume or take for granted the objectives of mining as maximizing the contribution towards the country’s sustainable devel-

opment. An inclusive process of defining the objectives of natural resource exploitation compels responses to difficult questions on inter-generational issues, expenditure patterns and reaching consensus on what society is prepared to risk and tolerate in the exploitation of its natural resources. Even within government, such an exercise forces different interest groups—particularly finance, environment, immigration, etc.—to understand what trade-offs government must make and the longer term implications of various decisions relating to the exploitation of the natural resource.

In the 1960s, these questions were rarely asked. Participation in determining what policy objectives to pursue was minimal—even among the elites in the leadership. The negotiation of the terms and conditions for extracting the deposits was primarily a matter for the Ministry of Finance, the Law Office and the relevant sector’s ministry. It is therefore not surprising that few countries on the continent gained much in the form of sustainable growth or a sense of ownership by the citizens in the management of resource revenues.⁹ Ebrahim-Zadeh (2003) captures this succinctly in the phrase “too much wealth managed unwisely”.

3. Operational strategies to deal with the disease

Developing an effective strategy must commence with a proper analysis of the nature and causes of the disease and the environment within which it will evolve with a view to designing measures that could limit the most conspicuous effects even before their emergence.

Negotiating mining agreements is the beginning of such a strategy. The nature and contents of mining agreements define the terms and conditions for exploiting and extracting the natural resource. In turn, these can influence the degree of its negative and positive effects. This is more so the case for minerals than for off-shore petroleum. As indicated earlier, there are far greater opportunities for the integration of the minerals sector into the rest of the economy than for the petroleum sector. Hence, the resource movement effect is more intense.

Fragile countries which exhibit the weaknesses outlined earlier must design strategies for negotiating mineral agreements based on carefully crafted and widely understood objectives before engaging prospective investors. The next step is implementation. With weak systems, monitoring the implementation of provisions in mineral agreements tends to be non-existent. Drawing from the experience

⁹ In Gaborone in the early 1980s, when revenues began to pour in from diamonds and copper, there were internal discussions on how to spend and how much to save from the flow of funds, although national debates were not organized. On the other hand, in Cameroon in the early 1990s, the head of the oil sector stated in an interview on national prime time TV that the proceeds from the oil sector and its use were complex, and that only he and the President could understand it.

of Sierra Leone and the DRC, monitoring mechanisms, at best, existed on paper, but did not exist otherwise and the normal mechanisms of the state were not up to the task. Fragile states must therefore undertake special efforts to set up monitoring systems while the normal state apparatus is strengthened to carry out monitoring activities. Finally, in the long term, diversification of the economy will neutralize the negative effects of the disease.

In order to deal with the Dutch disease, the long-term goal of building a sustainable economy that is competitive and diversified should remain paramount. Diversification will reduce long-term vulnerabilities and dampen the shocks of the Dutch disease. The target should be industrializing outside a mineral resources base in the medium term and advancing later to industries based on natural resource endowments.

As the story of POSCO demonstrates, a vision backed by courage, discipline and determination pays off. The vision must be conceived now. Unlike the 20 year visions drafted in the 1990s in African countries, civil society should hold successive governments accountable for their implementation in the new ones.

4. Conclusion

The features of fragility compound the implementation of orthodox responses to the Dutch disease. At the heart of the weaknesses of fragile states lie economic and political governance challenges. Measures to mitigate the negative symptoms of the disease must simultaneously deal with the problems of poor economic management and capacity limitations. Experience has shown that the task should not be left to the government alone, but should include the private sector and civil society.

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4. If diversification is good, why don't countries diversify more? The political economy of diversification in resource-rich countries

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Abstract

For resource-rich countries, diversification is claimed to represent a strategy for reducing resource curse problems. This, however, depends on whether diversification has a positive effect on the country's institutions. While there is a lot of evidence that exports of oil have a negative impact on institutions, there is a lack of evidence on the extent to which diversification leads to better institutions. Theoretical arguments suggest that it is the pattern of industrial activity rather than diversification per se which affects institutions like democracy. In other words, not all forms of diversification lead to better institutions. Furthermore, where diversification has a positive impact on institutions, diversification may be difficult to attain when it threatens the power base of the ruling elite. It is therefore necessary to analyse the political context of diversification strategies in a country.

1. The resource curse, factors explaining it and the role of diversification

Oil production in Ghana will begin in 2011 and revenues from the Jubilee field alone will constitute around 6 to 7 per cent of GDP in 2011–12 (IMF, 2009). Other fields are being explored and production at Jubilee will double to 250,000 barrels per day by 2014. Though Ghana is likely to be a small oil producer in the African context (Nigeria and Angola produce around two million barrels per day), Ghana's exports are already dominated by natural resources, and oil will further reinforce this concentration. Gold and cacao are the most important export commodities, and Ghana lacks a manufacturing base (IMF, 2010). Concerns have been raised that the start of oil production may generate a resource curse, whereby resources impair rather than promote development (Sachs and Warner 2001; Sachs and Warner 1999)¹, a problem many other African countries rich in natural resources face. While the IMF claims that this risk is not as high in Ghana as it is in other African countries on account of better governance, Oxfam (2009) is concerned that institutions will be undermined when oil production starts. To quote Oxfam:

¹ See, however, Alexeev and Conrad (2009) who claim there is no resource curse.

"Oil wealth tends to erode democratic accountability. Ghana's challenge will be to ensure the right institutions and transparent policies are in place before oil production starts" (p. 3). In debates on ways to counteract the resource curse, diversification is often mentioned as a potentially effective means. The most frequent argument for pursuing a diversification strategy is that this may have the potential to counteract the Dutch disease effects of natural resources. Dutch disease explanations of the resource curse contend that access to natural resources drives up the domestic price level and crowds out the tradable manufacturing sector, resulting in lower rates of productivity improvement and economic growth. Diversification is seen as a way of preventing such decreases in productivity by broadening the given country's economic base. The literature reviews in Page (2008) and Hesse (2008) both place great emphasis on this argument. With their focus on productivity enhancement, Carrère et al. (2009) can also be placed within this tradition. More broadly speaking, diversification is sometimes claimed to be of importance not just for resource-rich African countries, but as a prerequisite for further economic growth in Africa (Economic Commission for Africa, 2007) or a key strategic element to improve African competitiveness and regional integration (Hammouda et al., 2006a, 2006b), as well as for a new development paradigm for integrating African economies into world trade.

This paper discusses the extent to which diversification can be an effective means for reducing the detrimental effects natural resources can have on an economy. Consequently, diversification has to address the key mechanisms delinking natural resources and economic development. As pointed out in Kolstad and Wiig (2009) and Collier and Goderis (2007), for instance, there is little evidence that the Dutch disease is a key mechanism underlying the developmental problems developing resource-rich countries face. In contrast, recent studies on natural resources and development have highlighted political mechanisms as the likely explanation for the detrimental effects natural resources may have on a country's economy. One important mechanism is patronage (Robinson et al., 2006), where rents from natural resources are used by a regime to shore up political power, resulting in public revenues being misspent on politically expedient, but economically unproductive activities. The other key mechanism

is rent seeking, where agents undertake efforts to acquire a share of the rents from natural resources rather than pursue productive activities, with lower productivity growth as a result (Mehlum et al., 2006).

Assuming patronage and rent seeking are a key explanation for problems relating to natural resources, diversification will have to address the scope of these activities if it is to efficiently counteract the resource curse. The scope for patronage is reduced through institutions of democratic accountability, which curtail the extent to which public resources are used to preserve the power of an elite, while the scope for rent seeking can be reduced through institutions, such as the rule of law, which give economic agents incentives to invest in productive activities.

Diversification could conceivably have an effect on institutions. There is a large body of literature indicating that structural changes of the economy shape political interests and outcomes (see, for instance, Lipset 1959; Cimoli and Rovira 2008; and Sokoloff and Engerman 2000). Moreover, Auty and Pontara (2008) consider diversification by promoting a dynamic market economy in rural Mauritania as a means of counterbalancing the urban rent-based economy.

In the following, we will focus on theoretical and empirical evidence linking diversification with democracy. Two related, yet distinct questions will be asked: does diversification increase the chances for democracy in a country? And what factors—political factors included—determine the degree of diversification in a country? The first question relates to the desirability of diversification in an economy, and goes beyond general phrases about productivity increases in the manufacturing sector to focus on the issues that really matter in resource-rich countries, namely institutions. The second question asks to what extent diversification is possible in the event that it is desirable. An early study by Davis (1995) found that out of 23 mineral-rich countries only Tunisia was able to diversify its economy in the period 1970–1991. In spite of efforts to diversify, diversification seems to require a long period of structural change. Moreover, countries that did not diversify actually performed well! Hence, it is not a given that countries should diversify (see also Matsen and Torvik, 2005) and if so, it is not an easy task as there are political constraints to doing so.

The paper is structured as follows. Section 2 discusses definitions and the measurement of diversification, as well as some descriptive data that provide a backdrop to later sections. In Section 3 we examine theory and empirical evidence on the link between diversification and democracy. The focus is on how the structure of the economy shapes incentives to introduce democratic institutions. Section 4 looks at the reverse relationship, i.e., the extent to which a lack of democratic institutions may affect the degree of a country's diversification. Section 5 concludes with tentative implications for policy and further research.

2. How can diversification be measured?

The pattern of diversification in an economy can be analysed at different levels of the value chain: diversification of imports

and intermediary production, of factor endowments, of technology, of production and of exports of goods and services (or even the destinations of exports). At all levels diversification implies a lower level of concentration, whether in imports, production or exports. Moreover, one can measure diversification in terms of public revenue sources (oil rents vs. other income as a share of public funds) and how the income is allocated. Here, we focus on diversification in terms of production and exports.

Diversification can take place within a particular sector such as the manufacturing sector; it may also imply less concentration across sectors. It can entail increased selling of existing products to new markets, producing new products or improving the quality of existing products (Brenton et al., 2009). The term “intensive margin” refers to a diversification process in which export values rise as a result of increasing volume on (active) existing product lines. Production of new product lines or to new destinations is referred to as “extensive margin” (see, for instance, Carrère et al., 2009). Hummels and Klenow (2005) show that export growth is mainly driven by growth at the extensive margin, i.e., through new products, although this finding is disputed in the literature (see, for instance, Brenton et al., 2009).

A very rough proxy of diversification in natural resource-rich countries is the natural resource export as a share of total exports. There are also more fine-tuned indices for the diversification of exports or production. Most of these are taken from the income distribution literature such as the Gini, Theil, and Herfindahl indices (for an overview, see Carrère et al., 2009). Reported concentration measures are usually based on measuring the inequality of export shares.

Table 1 provides an overview of the diversification of exports among some sub-Saharan African (SSA) countries over the last 25 years. The diversification index applied in Table 1 only measures diversification among products, not services, and accordingly does not take into account whether countries have been able to diversify into services. The index ranges from 0 to 1, where 0 refers to a diversified economy while 1 refers to a specialized country (a country where exports are concentrated on a few number of commodities)².

Based on Table 1 we can identify some tentative patterns:

- The level of diversification has been relatively stable for Ghana at 0.44 or around the average for SSA and Botswana during the same period. Ghana is more diversified (i.e., has a lower index) than the average ECOWAS country but is less diversified than the typical SADC country. In both sets of countries, concentration has increased over the 25-year period.
- Neighbouring countries including Burkina Faso, Benin, Côte d'Ivoire, and Togo have a more diversified industrial structure than Ghana. The level of diversification

² See Appendix 1 for the formula applied here.

increased in Benin, Burkina Faso and Togo over the time period under observation.

- Major petroleum exporters in sub-Saharan Africa like Angola, Nigeria, Sudan and Gabon are the most concentrated merchandise exporters, but some mineral rich countries like Zambia also exhibit a considerable concentration of exports.
- Large economies without access to large oil reserves such as South Africa, Kenya, and Mozambique have a more diversified industrial structure than the other countries.

3. Does diversification improve the chances for democracy?

3.1 Theories of economic structure and democracy – From Lipset to Acemoglu

In one of the most influential articles in political science, Lipset (1959:75) claims that “the more well-to do a nation, the greater the chances it will sustain democracy”. In other words, increased general income in a given country increases its

Table 1. Concentration of merchandise exports in selected countries in SSA. 1995, 2002 and 2009. Herfindahl-Hirschman normalized index

	1995	2002	2009
South Africa	0,22	0,11	0,14
Kenya	0,23	0,30	0,22
Togo	0,36	0,24	0,25
Mauritius	0,35	0,32	0,25
Gambia	0,31	0,33	0,26
Mozambique	0,36	0,46	0,32
Burkina Faso	0,57	0,60	0,34
Benin	0,67	0,47	0,35
Cote d'Ivoire	0,34	0,44	0,36
Ghana	0,44	0,48	0,44
Botswana	0,50	0,79	0,45
Mauritania	0,50	0,52	0,50
Zambia	0,83	0,50	0,65
Gabon	0,81	0,75	0,72
Sudan	0,35	0,50	0,76
Nigeria	0,86	0,85	0,83
Angola	0,90	0,90	0,95
Sub-Saharan Africa	0,24	0,29	0,42
Economic Community of West African States (ECOWAS)	0,49	0,51	0,58
Southern African Development Community (SADC)	0,16	0,18	0,30
Developing economies excluding China	0,10	0,13	0,15
Major petroleum exporters: Developing Africa	0,72	0,68	0,75

Source: <http://unctadstat.unctad.org/TableViewer/tableView.aspx?ReportId=120>

The ranking of countries in the table thus suggests that there may be a relation between diversification and the level of democracy in a country. The most diversified countries in SSA have fairly democratized regimes, while the countries most heavily specialized (in natural resources, in particular) are typically less democratic. Does this mean that diversification drives democracy or that a lack of democracy inhibits diversification? These are the questions we will look into in more detail in the following sections.

probability of democracy. Lipset presents several mechanisms linking economic development and democracy, including increased levels of education, greater receptivity to political tolerance norms and an enhanced presence of civil society organizations. Here, however, we focus on the mechanism most closely linked to diversification. Lipset claims that one important consequence of rising income levels in a country is the emergence and growth of a middle class. While a society consisting of a large impoverished mass and a small elite will

either produce an oligarchy (elite rule) or tyranny (popularly based dictatorship), increased incomes of the lower strata will reduce their allegiance to extreme ideologies, instead preferring the gradualist reform policies of moderate democratic parties. A larger middle class hence increases the chances for democracy.

Lipset did not explicitly discuss economic diversification, but pointed to the significance the concentration of economic power and the mode of production play for the formation of a democracy. For instance, he argues that industrialization and urbanization are favourable for democracy. To the extent that diversification entails movement away from an agrarian society and the strengthening of an urban working class, this form of structural transformation of the economy may make democracy a more likely outcome. Along the same line of reasoning, one can argue that diversification away from natural resources can reduce the economic power of the state and the elites. In fact, Lipset also discusses the role modernization can play in reducing patronage activities in countries in which economic and political institutions are not sufficiently segregated.

There are two ways to understand Lipset's basic thesis. One is that increased income generally increases the chance for democracy through the suggested mechanisms. Another way to see it is that increased wealth increases the likelihood of democracy, conditional on the wealth creating the necessary intermediate effects, such as a larger middle class. As Lipset notes, not all sources of income are positive for democracy, specifically, income from agriculture may not spur democracy the same way as manufacturing. Recent studies of oil-rich nations suggest that the effect on democracy may be highly dependent on the type of activity from which income is generated. In a much cited article, Ross (2001) asserts that income from oil may undermine democracy in three ways. Firstly, the *modernization* effect discussed above does not take place, as access to oil makes it less likely for an economy to switch to manufacturing activities, which in turn induces citizens to push for democracy. Secondly, it may cause the *rentier effect* as the government is not pressed to tax its citizens, leading to lower accountability. Access to rents may also instigate patronage activities in which case the elite consolidate their economic and political power base. Finally, it may lead to the *repression effect* when the revenue from oil makes it possible for the government to increase its control over citizens and prevent the formation of social groups that are independent of the state.

These arguments suggest that the effect of income on democracy is contingent on the sources from which the income derives, which implies that it is the *pattern* of industrial activities in a society that affects its prospects for democracy. By implication, diversification only has a positive effect on democracy to the extent that it entails an expansion of industrial activities conducive to democracy. In other words, it is the pattern of industrial activities that matters, not diversification per se. While previous studies suggest that diversification into

agriculture or oil may in fact reduce prospects for democracy, can we single out specific characteristics of industrial activities that increase or decrease the chances for democracy?

The formal model of Acemoglu and Robinson (2006a) provides some possible answers to this question. Their model analyses a society that consists of two groups, a small elite and a large group of ordinary citizens. In a non-democracy, the elite hold political power and use it to introduce policies favourable to them, for instance, low levels of redistribution to the poor. The citizens may, however, choose to revolt against this condition and change the system to their benefit, which may result in major losses for the elite. To prevent such an outcome, the elite may decide to make some concessions to the citizens. However, if the power of the citizens to revolt is only transitory and tied to some salient event such as a crisis, the elite will choose to go back on these concessions once the crisis has passed. Aware of this, the citizens will not view elite promises of concessions as credible, so concessions will not suffice to stave off revolt. The only way the elite can credibly commit to making concessions of this sort and thus avert a revolt, is to transfer political power to the citizens, in effect, to democratize.

For the elite to prefer this course of action, the costs incurred by a popular revolt would have to be greater than the costs incurred by democratization. If the interests of the elite are not too susceptible to revolt and/or the threat to their interests of losing political power is great, they will prefer repression over democratization. This line of reasoning provides some insights into what types of industrial patterns are conducive to democratization. Acemoglu and Robinson (2006a) stress that the sources of elite income are an important determinant for whether the elite prefer repression or democratization. They note that there are three reasons why an elite consisting of landowners, in particular, will be more averse to democracy than an elite whose investments are in human or physical capital. Firstly, land is immobile contrary to human and physical capital, and hence an easier target for redistributive taxation in a democratic society. Secondly, social revolt is less costly to landowners than to physical and human capital owners, who are more reliant on cooperation in production and trading activities. And thirdly, labour repressive institutions are more compatible with agricultural technologies than with manufacturing. They thus conclude that "democracy is more likely when the elite are industrialists rather than landowners" (p. 31). Acemoglu and Robinson (2006b) also discuss how other factors such as inequality impede democracy.

These arguments have more general applicability than to land and manufacturing only, they tell us something about the characteristics of industries conducive to democracy, and hence about which patterns of industrial activity will increase the chances for democracy. Specifically, the question of the mobility of elite investment is important in this context, differentiating between elite ownership of assets that can and cannot be easily shifted to accommodate tax-

tion. Generally, land and natural resources fall into the 'less mobile' category, while human and physical capital is more mobile. Even within these categories there may be nuances, however, in the degree of mobility or reliance on stability and cooperation, which in turn influences the degree of elite resistance to democracy.

Summing up, what do these arguments tell us about the effect of diversification on democracy? Or, to more specifically address the underlying research question of this paper, can diversifying natural resource dependent countries improve their chances of attaining and sustaining democracy? The answer is that it depends. Diversification away from natural resources may improve chances for a viable democracy if it entails diversification into industries that are based on factors that are relatively mobile, such as many forms of manufacturing or services³.

Diversification into industries based on immobile factors controlled by a small elite, for instance, agriculture, in a society where land ownership is heavily concentrated is unlikely to foster democracy. In other words, though many sub-Saharan African countries may have a comparative advantage in agriculture, exploiting this advantage may not be the best way of promoting democratic rule.

3.2 Empirical studies of diversification and democracy

The positive relationship between income and democracy posited by modernization theory has been found in a number of empirical cross-country studies. More recent studies, however, suggest that the link between these two variables is not a causal one, but driven by unobserved variables affecting both democracy and income. In a more recent study using panel data and instrument variable techniques, Acemoglu et al. (2008) reveal that any positive association between income and democracy disappears once country fixed effects are added or income is instrumented for. They suggest instead that the origin of democracy is attributable to historical factors that have led to divergent political and economic development paths of various societies.

The lack of convincing evidence for a general causal relationship between income and democracy is not surprising in light of the theories presented above. If the effect of income on democracy is contingent on the sources from which income is derived, a generally positive relationship between the two cannot be expected. And empirical studies of the impact of oil wealth on democracy suggest that there is a negative relation between the two. One of the earliest empirical contributions on the impact of natural resources on democracy is Barro's study (1999). He finds a significantly negative effect of an oil dummy variable on democracy measured based on the Freedom House indices on political rights and civil liberties. The much cited study of Ross (2001) also presents empirical evidence that oil and minerals impede democracy, and not

only in the Middle East. More recent studies such as Tsui (2010) and Aslaksen (2010) corroborate this finding, and the latter study shows that the relationship is robust to the inclusion of country fixed effects, and hence unlikely to be driven by (time-invariant) unobserved differences between countries. The study by Alexeev and Conrad (2009) provides evidence of the contrary, suggesting that the effect of natural resource wealth on institutions is neutral.

In their conclusion, Acemoglu et al. (2008) acknowledge that causal effects between income and democracy "may be conditional on some other characteristic" of a country, and argue that this is an important area for further research. We are not, however, aware of any studies (apart from those testing the impact of oil) which have tried to test the extent to which the industrial structure, degree or pattern of diversification represents a key condition for a positive effect of income on democracy. Nor does it seem that many empirical studies exist on a possible direct relationship between industrial patterns or diversification and democracy. This is therefore a topic for future research.

4. Are there political constraints to diversification?

4.1 Theories on the politics of diversification

If there are economic advantages to diversification, and diversification (at least into certain industries) increases the chances for democracy, why do countries, and in particular resource-rich countries, not diversify more? That so many countries have not successfully diversified their economies in spite of good reasons for diversification indicates that diversification is not always easy to attain. There may be several reasons for this, but political interests may be an important one. According to Dunning (2005), resource dependence is the outcome of strategic decisions by incumbent elites to limit the extent to which political opponents can challenge their power. He argues that since Mobutu in Zaire, for example, feared that diversification could make him lose his grip on political power, he did not support diversification efforts.

In the model developed by Acemoglu and Robinson (2006a), the industrial structure of countries is basically taken as a given. However, the pattern of industrial activity in a non-democratic country may also be the result of conscious decisions by a ruling elite. The elite face a clear trade-off when deciding whether or not to pursue a strategy to introduce new industries. On the one hand, this could help the elite access new sources of income, for instance, from manufacturing or services. On the other hand, the elite will likely foresee that these new areas of industry might make them more vulnerable to popular revolt, and hence make it more likely that they will lose political power and access to rents over which they previously had control.

If the income from existing immobile factors are sufficiently large compared to the expected income from new industries, diversification into new areas is not necessarily in the interest of the ruling elite. This is related to arguments proposed

³ See Gylfason (2008) on the importance of human capital in resource-rich countries.

by Acemoglu and Robinson (2006b), according to which the fear of political replacement leads the elite⁴ to oppose technological improvements and institutions when there is no credible way of compensating the political elites ex post who have lost political power. The elite have more fear of being replaced when the political stakes are high (for instance, when they control natural resources). It is not the fear of losing economic rent, but instead the fear of losing political power that is key; if the elite can keep its political power, it can also retain potential gains from technological improvements and structural changes. A similar argument is found in Acemoglu and Robinson (2008). An established elite will block new production to the extent that it threatens its economic and political power.

In other words, if current sources of income are important to the ruling elite, they will be unlikely to introduce a strategy of diversification into industries whose existence undermines their political power. To the extent that the elite introduces industrial policies of diversification, these will likely focus on diversification into industries that shore up their political power. In other words, if the elite in a resource-rich country also controls its immobile assets, diversification will likely focus on industries that make intensive use of that asset. This, however, is unlikely to promote democracy. Moreover, in resource-rich countries with weak institutions of democratic accountability, strategies of diversification may be implemented as an additional patronage tool, i.e., another means of conferring advantages on supporters of the political elite. This form of diversification policy is likely to focus on political rather than societal payoffs, and may help us better understand why so many resource-rich countries fail to achieve actual diversification in spite of ostensibly implementing policies to that end. In other words, successful diversification may not be constrained by the problem of picking ‘winners’ (supporting companies and industries that can compete on world markets) as much as by the deliberate picking of ‘losers’ (companies characterized by high political, yet low economic competitiveness)⁵.

4.2 Empirical evidence on the politics of diversification

The classical empirical study on the determinants of diversification in production was conducted by Imbs and Wacziarg (2003). They show that sector level employment and value added follow a U-shaped concentration pattern across a wide variety of data sources: countries first diversify, in the sense that economic activity is spread more equally across sectors, but relatively late in the development process, there is a point at which they start specializing again⁶. Cadot et al.

⁴ See, for instance, Wiig and Kolstad (2010) who discuss ways in which well-intended policies may result in an expanded scope of patronage.

⁵ See, for instance, Hodler (2009), Ades and Tella (1997).

⁶ Theoretical explanations for diversification in the work of Imbs are related to preferences for variety when income increases, and a portfolio argument. Higher income goes hand in hand with the expansion of markets and with better diversification opportunities. Diversification reduces idiosyncratic risk and is accommodated by increasing capital stock or available credit. At some

(2009) find a similar U-shaped pattern in the diversification of exports. These and most other studies on the determinants of diversification do not explicitly address the issue of political constraints to diversification or changes in industrial structure.

Some evidence on related issues does, however, exist. In a study on economic growth volatility, Cuberes and Jerzmanowski (2009) present evidence that higher barriers for entry into the production of new goods or services exist in non-democratic countries, resulting in less diversification. De Waldemar (2010) analyses the effect of rent seeking on diversification and finds a significantly negative effect. The study attempts to control for reverse causality (from diversification to rent seeking) by using lagged regressors as instruments, and legal origin and religion as instruments for corruption. As the level of rent seeking may proxy for the lack of democratic institutions in a society, this provides some indications that there are political constraints to diversification. However, this hypothesis needs to be tested more explicitly in further studies.

5. Conclusion: Some policy considerations

Theoretical arguments imply that the diversification of an economy does not necessarily increase the chances for democracy. A country whose economic activities are fully concentrated in one human capital intensive industry may have better prospects for democracy than a country whose production or exports are equally divided between two industries intensive in oil and land, respectively. It is the pattern of industrial activity that affects the probability of democracy, not diversification per se. Where a country's elite has its main investment in assets characterized by (among other things) mobility, the elite has less to lose from democracy and is more likely to introduce democratic institutions. For a country whose economic activities are concentrated in natural resources like oil, this has two sets of implications. Diversification into sectors whose production are based on more mobile factors (such as manufacturing or services) will induce less elite opposition to democratization and improve chances of a viable democracy. Diversification into sectors based on immobile factors controlled by the elite (such as agriculture in societies where land ownership is heavily concentrated), may cement elite opposition to democratization and not improve the chances of democratic transition.

It is possible that this conclusion requires some modification. While the expansion of industries intensive in mobile factors may increase chances that democratic institutions are introduced and maintained, high mobility of a country's tax base also means that there is less scope for democratic decisions to matter. A number of studies on globalization have pointed out that increased mobility of companies and tax bases have reduced the scope for national governments to implement

stage these effects on diversification are offset by countervailing reasons for specialization (such as comparative advantages), lower trading costs, and agglomeration effects due to demand externalities from international trade.

policies of national redistribution. If the aim is not only to have institutions that are nominally and procedurally democratic, but institutions that can implement decisions that are in line with the people's distributive preferences, this may imply that expanding industries intensive in factors characterized by extreme mobility may not be desirable. In other words, the focus should then be on expanding activity in industries characterized by intermediate mobility; mobile enough to reduce elite opposition to democracy, yet not too mobile to preclude the possibility of substantial democratic decisions being made. It has been noted that a number of African countries are looking to Mauritius as a model for development and are therefore considering becoming tax havens. As financial assets are among the most mobile internationally, it is doubtful that this strategy, albeit perhaps conducive to democratization, will leave much room for subsequent substantial democracy.

Theory also sounds a clear warning to anyone seeking to promote diversification as a way of making resource-rich countries more democratic. If rents from current economic activities are sufficiently important to a country's elite, it is unlikely to implement policies that will effectively undermine its hold on political power and, hence, its material basis. To the extent that undemocratic regimes heed external advice to diversify the economy, there is the possibility for diversification strategies to be designed or implemented in ways that serve to strengthen rather than diminish the regime's political power by focusing on industries intensive in immobile assets controlled by the regime, by using support for new industries as just another patronage tool. External actors should therefore be careful in providing advice which may add legitimacy to such types of activities.

It is important to note that while there is some empirical evidence of political constraints to diversification, the above arguments are based on theory and need further empirical testing. While our focus has been on democracy, there are of course other types of arguments for (and against) diversification. However, in an analysis of the role of diversification for improving development prospects in resource-rich countries, we argue that it is important to focus on its effect on institutions of democracy, as such institutions are essential for addressing the key problems these countries face, notably the problem of patronage.

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Appendix 1. Herfindahl-Hirschmann index

Concentration index, also referred to as the Herfindahl-Hirschmann index, measures the degree of market concentration. It has been normalized to obtain values ranking from 0 to 1 (maximum concentration) based on the following formula:

$$H_j = \frac{\sqrt{\sum_{i=1}^n \left(\frac{x_i}{X}\right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}}$$

where H_j = country or country group index
 x_i = value of exports of product i

$$X = \sum_{i=1}^n x_i$$

and n = number of products (SITC Revision 3 at 3-digit group level).

5. Revenue management, corruption challenges and redistribution

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Abstract

Petroleum revenues may cause some serious corruption challenges. This paper depicts how corruption in the petroleum sector adds to the resource curse, and specifically, how corruption can undermine the institutions and practices of good governance and revenue distribution. With high levels of corruption and economic mismanagement of revenues, the government's take is reduced, competition hampered and both economic and political monopolistic tendencies reinforced. The 'resource curse' problems may intensify, in particular through political corruption, which is the practice of extraction and power preservation.

1. The resource curse and revenue management

Petroleum revenues may cause some serious corruption challenges. With high levels of corruption and economic mismanagement, the government's take is reduced, as the "commissions" and "fees" paid out to a few government officials dwarf the value of under-taxed profits accruing to companies. Competition is hampered and economic as well as political monopolistic tendencies are reinforced. The government's revenues will to a lesser degree be spent on the development of the country; more is siphoned off and spent on consumption and power preservation. The 'resource curse' problem intensifies.

The economic mechanisms of the "resource curse" are fairly well known. One is the relative price effect by which the increasing value of the local currency makes imports cheaper and exporting more difficult; another is the volatility of the petroleum prices, which lower investments and create uncertainty in every production sector. Resource cursed countries tend to suffer from over-investments in the extractive sector and under-investments in alternative production. Resource cursed countries also tend to de-industrialize¹.

Besides, resource cursed countries tend to be characterized by increasing inequalities; the rich get richer and the share of the poor increases. There is also a tendency of government

squander on grandiose infrastructure projects and "white elephants". Money is also pocketed (privatized) and exported; illicit money flows out of petroleum producing countries sometimes take astronomic proportions².

The political mechanisms of the "resource curse" are less well known. With substantial revenues from the petroleum sector, the benefits of controlling the state increase. More is available for consumption, enrichment and embezzlement. Higher government revenue enhances the "cake" and thus the prize of controlling the state.

Furthermore, the autonomy of the state increases. It is no longer dependent on taxing the general economy. It suffices to control the petroleum sector and the revenues from it. This is the "un-earned" rents and the rentier state model economists talk about. By controlling the state and the petroleum revenues, there is not much need for additional taxation of domestic economic activity and no need for a "social contract" with taxpaying citizens. Those who control the state can fend off the influence of business interests, other economic interests (manufacture, agriculture), and the middle class, civil society and interest organizations.

The rents also increase the powers of the state, as they provide the means to buy loyalty and allies, and to pay off rivals and perceived and potential opponents. The rents can be used for building clientelist networks, vote buying and to pay off the state institutions of checks and balances and of oversight and control. Parliamentarians can be bought, as

¹ This is the so-called "Dutch disease".

² Money is haemorrhaging out of poor countries: in 2006, between US\$ 850 billion and 1.06 trillion left developing countries through illicit channels. This includes bribery and theft by government officials, drug trafficking, racketeering, counterfeiting and commercial tax evasion. The figure dwarfs official aid flows; the 22 OECD member countries provided US\$ 103.9 billion in aid in 2006 (Fontana, 2010:1). Ghana alone lost about US\$ 1.4 billion during the period 2000–2008 in "Real Illicit Financial Flows" according to estimates (Kar and Cartwright-Smith, 2010:36). This massive flow of money out of Africa is facilitated by a global financial system comprising tax havens, secrecy jurisdictions, disguised corporations, anonymous trust accounts, fake foundations and money laundering. It drains countries of hard currency reserves, heightens inflation, reduces tax collection, hampers investment and undermines free trade. It has its greatest impact on those at the bottom of the income scales, removing resources that could otherwise be used for poverty alleviation and economic growth (Kar and Cartwright-Smith, 2010:1).

can commissioners of election, anti-corruption auditors and the like. In the final instance, the state elite can purchase the necessary military and security hardware and personnel needed to defend against challengers. The elite controlling the state will have access to the means and necessary instruments of coercion.

The economic consequences of the resource curse are serious enough: a relative weakening of non-petroleum sectors and the appurtenant interest groups, increasing poverty levels and social inequality, and sometimes even increasing the scope of social conflict. The political consequences are equally disturbing: cronyism, clientelism, the undermining of the institutions of control and of checks and balances and authoritarian tendencies.

Among the 'resource cursed' countries we find Angola, Nigeria, DR Congo, Sudan, Sierra Leone, Liberia, Zambia, Colombia and Afghanistan. These countries are characterized by poor economic development and a very low Human Development Index (HDI), despite substantial income from minerals and other resources. On the other hand, there are a number of countries whose natural resources seem to protect them (and even bless them). These 'resource blessed' countries include Norway, Australia, Canada, Chile, Brazil, Malaysia and Botswana (Mehlum et al., 2006).

Economists have for some time discussed the 'resource curse' or the 'paradox of plenty', seeking explanations as to why some countries with rich resource endowments have modest economic growth and unexpectedly little long-term economic development (see, among others, Heller, 2006; Lederman and Maloney, 2007; Robinson et al., 2005; Rosser, 2006; Sachs and Warner, 2001; Boschini et al., 2007). Among the stronger economic explanations is that an increase in revenues from natural resources appreciates the exchange rate and makes other sectors less competitive, and that the volatility of commodity prices are disruptive. In particular, the negative price effect and a decline in investments 'crowds out' manufacturing and agriculture (du Plessis and du Plessis, 2006:353–4; Lederman and Maloney, 2007:1).

1.1. Political explanations and consequences

The literature also highlights political and institutional factors. According to Heller, the analysis has to shift to political institutions to explain the resource curse, and according to Mehlum et al., the main factor between success and failure is the quality of institutions (Heller, 2006; Mehlum et al., 2006). There now seems to be a convergence in economic theory that the quality of state institutions, the availability of rich resources and development outcomes are connected.

Economists are, however, mainly preoccupied with institutions that have a direct effect on economic performance, like the institutions governing the profitability of private enterprises (tax regimes, protection of property rights and contract enforcement, bureaucratic efficiency and 'business climate'). There is, however, also an entire political economy tradition of institutional analysis referred to as the 'new institutionalism' which emphasizes the role of a broader set

of political institutions in economic development (see, for instance, Hall and Taylor, 1996; Powell and DiMaggio, 1991).

The theory on the relationship between institutional factors (institutional quality) and the presence of abundant (mineral) resources denotes how the presence of resources and sudden substantial government income negatively affects institutions. At the same time, faulty institutions also affect the economy in a negative way and even more so in the presence of high and sudden rent inflows.

Resource wealth can create forces that block the development of political institutions. First of all, because states with a weak institutional capacity cannot prevent group conflict over access to resource rents, nor can they prevent (economically unproductive) investments in lobbying for protection, subsidies and preferential policies. Institutions of 'poor quality' fail to protect property rights and contracts and fail to avert entrepreneurs from rent seeking. Besides, power holders will exert political pressure to obstruct and dismantle state institutions in order to enable their extraction of rents and to protect their power positions for further accumulation.

The struggle for control of the state by political insiders, top-level bureaucrats, military officials and business interests, for instance, is particularly harmful. The presence of natural resource abundance has even led to civil wars. The war in Angola, the wars in the Congo and in Sudan are often described as conflicts over the access to natural resources, with an ensuing decay of the state apparatus (Cramer, 2003; Hodges, 2001 and 2004; Ross, 2004). "Dysfunctional democracies invite political rent appropriation; low transparency invites bureaucratic corruption; weak protection of property rights invites shady dealings, unfair takeovers and expropriation; weak protection of citizens' rights invites fraud and venal practices; weak rule of law invites crime, extortions and mafia activities; a weak state invites warlordism" (Mehlum et al., 2006:1120).

It is historically traceable how the discovery and exploitation of rich resources has led to significant institutional weakening when the state institutions were weak in the first place. It is, however, noticeable that institutional decay and ensuing economic decline only seem to follow when state institutions were weak prior to the resources boom. A country is cursed when the discoveries and subsequent incomes are made before accountable and democratic state institutions have been established and consolidated; it is cursed when its institutions are not strong enough to withstand the pressure from various groups for access to the newly found riches³.

The 'resource curse' theory holds that oil dependency hinders democracy (Ross, 2001), and that more specifically, the consequences of discovering and exploiting natural resources will be negative only in authoritarian and semi-authoritarian regimes. Furthermore, resource-rich regimes are extremely

³ In contrast, countries like Norway and the United Kingdom were well-governed before oil and gas was discovered, and their institutions were thus not afflicted by the curse (Heller, 2006).

difficult to democratize, because the ruling elites have both the incentives and the means to defend their privileged position.

1.2. Institutions of extraction and redistribution

There is a need to outline in detail the institutions that matter the most in the face of the resource curse. First, there is an analytically important distinction between the institutions of extraction and the institutions of redistribution. The institutions of extraction are necessary for the production and extraction of economic resources and for extracting the rents from the minerals sector, in particular. The institutions of redistribution are the institutions of power sharing (elections, checks and balances) and of revenue redistribution (infrastructure, health and education, social security and other state services).

The institutions of extraction usually work relatively efficiently, even in resource cursed countries, because they are needed. Ruling elites use these institutions for the extraction (or looting) of resource rents. Therefore, they are politically protected, sometimes above the law, and at times kept outside of the bloated and inefficient *modus operandi* of the ordinary state bureaucracy⁴.

At the same time, the institutions of redistribution, which serve the purpose of sharing economic and political resources, function poorly because they are unwanted and only necessary to limit social unrest and power rivalry (from the ruling elite's point of view), and are consequently manipulated politically and sidelined.

The institutions of extraction, which enable the ruling elite to extract and enrich itself, typically include institutions like the presidency (presidential powers and the executive branch), the national petroleum companies (NOC), ministries of finance and petroleum, tax authorities and the central bank. In the absence of democratic controls, these institutions can facilitate 'primitive accumulation', unproductive investments and 'suspicious consumption'.

The institutions of redistribution are primarily the institutions of power sharing; i.e., the institutions of checks and balances, but also the institutions of wealth sharing, i.e., the institutions of economic redistribution, which are rooted in

and sometimes supplement the institutions of power sharing. The main institutions of political power sharing are the parliament (legislature, national assembly) and the judiciary (high or supreme court), which curb the 'government's' and presidential and ruling elite's domination.

The parliament is important for stemming the 'resource curse', because it can (potentially) balance the powers of the president and ruling elite, reduce government rent seeking and patronage and redistribute income. The judiciary can curtail the tendencies towards monopolies, economic crime and mafia methods. In addition, there are a number of special institutions of supervision and control, like ombudsmen, auditors and commissions. Together, these constitute the institutions of 'horizontal' accountability.

The institutions of redistribution also include the institutions of 'vertical' accountability, of popular participation, voice and control. The most important of these institutions are elections (without elections, there is no democratic accountability), which includes functioning and credible opposition and political parties, followed by civil society organizations and the media. The institutions of 'vertical' control, of popular participation, insight and voice are also essential for the redistribution of power and of resources. This function is exercised through elections, but also through political parties and elected representatives in between elections, as well as through manifestations and direct action.

Elections are the most important vertical channel for stemming the 'resource curse'. Popular control is possible through elections in which citizens can elect another government, and through open political debate on economic policies and direct participation in policymaking. Free and fair elections and genuine political alternatives are prerequisites, however.

2. Corruption in extractive industries

Corruption and economic mismanagement can take place all along the value chain⁵. The costs and consequences can be severe, depending on the extent of supervision and control and of the checks and balances in the system. The more authoritarian the government, the bigger the scope for illicit elite enrichment. What follows is an outline of possible corruption problems in the petroleum sector. The list is not exhaustive, but it includes some of the better known and well described problem areas, in addition to some lesser known ones.

2.1. Corruption in petroleum exploration

In the exploration and development phase, geological, resource and environmental mapping takes place to process and evaluate the geophysical data for exploration drilling. In this phase, the selection of operators also takes place, field development plans are made and the construction and installation of necessary infrastructure is initiated (feeder

⁴ In Angola, for instance, the state oil company Sonangol as an essential tool for the empowerment and enrichment of the Angolan ruling elite, "was from the very start protected from the dominant (both predatory and centrally planned) logic of Angola's political economy. Throughout its first years, the pragmatic senior management of Sonangol accumulated technical and managerial experience, often in partnership with Western oil and consulting firms. By (...) the early 1990s, Sonangol was the key domestic actor in the economy, an island of competence thriving in tandem with the implosion of most other Angolan state institutions. However, the growing sophistication of Sonangol (...) has not led to the benign developmental outcomes one would expect (...). Instead, Sonangol has primarily been at the service of the presidency and its rentier ambitions [...]. This highlights the extent to which a nominal 'failed state' can be successful amidst widespread human destitution, provided that (in this case, Sonangol and the means of coercion) exist to ensure the viability of incumbents" (Soares de Oliveira, 2007a:1).

⁵ Corruption here is defined as "abuse of public authority and power for private benefit" in accordance with World Bank's thumb rule definition.

roads, support camps, pipelines, rigs, etc.). The most important factor at this stage is the establishment of a regulatory framework which determines the responsibilities of all actors involved in the industry, including the private sector and the government. By defining certain requirements regarding exploration, field development activities, applied technologies, number of operators, the role of NOCs and monitoring opportunities, this framework sets the scene for the industry's activities (al-Kasim et al., 2008).

2.2. Legal framework or licences

One of the first and fundamental decisions a government has to make is whether to regulate petroleum production by law (a petroleum law, also called concessionary system, which is common in countries like Norway and the UK) or by a licence system (usually referred to as a production sharing agreement (PSA) or a production sharing contract (PSC))⁶. Issues like the concession period, taxation levels and procedures, technology transfers, environmental protection, local content, security issues, inspection and control regimes can either be determined by law, with each individual contract referring to the respective law, or it can be regulated by individual contracts that stipulate the conditions.

The latter involves a considerably higher corruption risk (al-Kasim et al., 2008; Rosenblum and Mapels, 2009). Where government officials and companies have to deal with conditions embedded within a contract, it opens up for negotiations, renegotiations and the influence peddling that comes with it. The regulatory capacity of the state is diluted, as conflicts become subject to international arbitration rather than domestic courts, and the variations between contracts reflecting the different preferences of individual companies will make government monitoring cumbersome. Furthermore, PSA contracts usually contain confidentiality clauses.

Contract transparency is critical for better addressing the resource management of the petroleum industry. With contract transparency, governments will be able (in the long term) to negotiate better deals, as the information asymmetry between the government and companies closes. Contract transparency will also (in the shorter term) help government agencies responsible for managing and enforcing contracts to collaborate. "With contracts publicly available, government officials will have an incentive to stop negotiating bad deals, due to corruption, incompetence, or otherwise" (Rosenblum and Mapels, 2009:11).

Besides, citizens will better understand the complex nature of extractive agreements if they are out in the open. Contract

transparency will result in more stable and durable contracts, both because they are less subject to the population's suspicions and because the incentives for governments and companies to negotiate better contracts will be increased (Rosenblum and Mapels, 2009). Therefore, host states should create robust legal regimes to govern relationships with investors instead of individual contracts. Model contracts with as few variables as possible should be adopted and permissible modifications specified. This reduces transaction costs and corruption pressures by reducing the number of costly negotiations. It further reduces the technically difficult and costly regulatory oversight (Rosenblum and Mapels, 2009).

Let us take Nigeria as an example. From 1985 to 1993, the military dictator General Ibrahim Babangida (IBB for short) governed Nigeria, a period that proved disastrous as IBB institutionalized corruption as a tool of political control. A recent report estimates that Nigerian leaders stole more than US\$ 89.5 billion from the national treasury from 1970 to 2008, and that Nigeria lost more money through illegal outflows than any country in the world during that period (Kar and Cartwright-Smith, 2010).

In Nigeria, extractive political corruption takes place above all in awarding upstream licences. During the military rule, most licences were awarded on a discretionary basis by the head of state. At the height of personal power concentration under General Abacha (1993–1998), the President took control of the entire oil sector by giving the presidency full control of the national oil company and all oil trading. The President and Minister of Petroleum awarded oil blocks on a discretionary basis. Fees for the blocks were negotiated behind closed doors, upfront, and were completely open to usurpation and corruption.

Although Obasanjo set out to make Nigeria's oil block bid rounds more competitive (and held bid rounds in 2000, 2005, 2006 and 2007), these bid rounds also had serious shortcomings. Nigeria's Petroleum Act still gives the Minister of Petroleum full authority over the allocation of licences for the exploration, prospecting and mining of oil. There are consequently no legally mandated processes or oversight mechanisms for the allocation of blocks. Besides, in his second term as elected President, Obasanjo also remained Minister of Petroleum for six years, micromanaging the petroleum sector from the Presidency (Amundsen, 2010; Soares de Oliveira, 2007b)⁷.

In Nigeria, the awarding of large-scale contracts to oil service companies is also riddled with corruption. Aspiring contractors have used fake consultancy firms to channel payments to the government, manipulated their own company's financial systems to acquire extra cash, and distributed payments to

⁶ A PSC is typically a contract between the President of the Republic, the Minister of Energy (or Petroleum), and/or the state-owned national petroleum company (NOC) and any companies chosen as onshore contractors in the petroleum industry. The contract details the specific rights and provisions these contracting partners have when taking part in a particular petroleum production field. A typical oil project could have around 100 subcontracts uniting a large number of parties in a vertical chain from input supplier to output purchaser. Among these is one "primary" contract between the state (or the NOC) and the (private, foreign) company (or consortium of companies) that is superior to the other contracts.

⁷ In Nigeria, a new Petroleum Industry Bill is currently under consideration in the National Assembly. It aims to replace all existing legislation relating to the oil and gas sector and to fundamentally revamp the institutional set-up of the industry by breaking up the powerful NNPC. It can, however, also be seen as a step in the direction of executive control of the industry itself.

representatives designated by those at the highest levels of government (Amundsen, 2010).

Furthermore, Nigeria's national oil company (the Nigerian National Petroleum Corporation, NNPC) has been used by most Nigerian Presidents as a private purse. Former President Yar'Adua admitted that the NNPC "has not been transparent, and it is one of the most difficult agencies of government to tackle because of vested interests of very powerful people in the country"⁸. The NNPC allocates contracts which "do not always follow advertised criteria or guarantee competitive pricing", and handles the crude sales and remittances of proceeds without, however, always remitting all revenues (Amundsen, 2010:26).

2.3. "Dead Meat" private oil companies

Whenever direct bribery and the embezzlement of funds from the national treasury has to some degree been restricted in an increasing number of oil producing countries through the introduction of an improved revenue management system, another mechanism for the misappropriation of funds emerges. Increasingly, national private oil companies are set up to collaborate with international oil companies in consortia to win petroleum production contracts. These are not always genuine oil companies, however, but "straw" companies owned by former and current government ministers, ruling party officials, state oil company directors and members of the ruling families.

According to the Government's "local content" policies, multinational companies are requested to "invite" local national oil companies into their consortia to bid for the exploration and production of oil. These local companies can contribute very little in terms of financing, technology or other inputs, and the real ownership of some of these is in fact unknown to the operators. Sometimes, they even default on their initial payments until they get their share of the profits⁹. According to a report on the Norwegian company StatoilHydro, in Angola it was "in partnership with a local private oil company despite suspicions that the company's undisclosed owners may include government officials, in a country perceived to be one of the most corrupt in the world" (Global Witness, 2008:1)¹⁰.

This is also an increasing practice in Nigeria, where government officials have benefited from procedures that favour

⁸ This Day, Lagos, 15 December 2007.

⁹ What a representative of ChevronTexaco in Angola referred to as "dead meat companies".

¹⁰ With no transparent business register in Angola and the possibility to register a company as an "anonymous limited-liability company", the ownership of private companies by political figures and their contracts with the state administration is concealed. Thus, in July 2005, Norsk Hydro was awarded a 20 per cent share of an oil licence in Angola, Block 4/05, with Sonangol (Angola's state oil company) as the operator with a 50 per cent share. The remaining 30 per cent share was split equally between two Angolan private companies, Somoil and Angola Consultancy Resources. The involvement of these two companies "was not welcomed by Hydro", but it signed the contract, nevertheless (Global Witness, 2008:3-4).

companies in which they have a financial stake. For instance, senior political leaders have reportedly manipulated tenders to benefit large logistics companies for their own private gain and officials have given preference to companies owned by their political and economic allies (Amundsen, 2010).

2.4. Corporate social responsibility

Ironically, activities and funding schemes labelled "corporate social responsibility" can sometimes add to the corruption problems in the petroleum industry. Donations by multinational petroleum companies have an underlying profit-maximization motive and rationale. Through "branding" and reputation management, involvement in social projects can improve their reputation and thus increase their odds of winning contracts (Amundsen and Wiig, 2008:6). These corporate objectives do not necessarily correspond with the interests of society and we have seen the duplication of work and projects that are unsustainable because they have no public follow up mechanisms (schools without teachers, for instance). More importantly, it is relatively easy to manoeuvre social projects into serving the political and clientelist interests of the ruling party and of the government.

In Angola, for instance, there are two basic streams of foreign private contributions from petroleum companies. The first stream (and the most important in terms of amounts) is the money paid by the commercial companies in the petroleum sector based on the signature bonus system. Signature bonuses may include a "social bonus" component, which is either a percentage or a round sum donated for unspecified "social projects" or broad social areas like education and health. The amounts for signature bonuses and social bonuses have increased considerably over the last few years, and the money arrives in tsunami-like waves following the bidding rounds. A fair estimate is that the social bonuses on oil contracts in Angola are worth at least US\$ 100 million per year, and are steadily increasing¹¹.

Although the signature bonuses now figure in the state budget, the social bonuses do not. Sonangol manages these social and signature bonuses (Amundsen and Wiig, 2008). This opens up opportunities for all kinds of misuse of the funds; the companies themselves serve as the only accountability mechanism; yet they are eager to be on good terms with the government. This enables the presidency and the ruling party to determine the physical location of projects in accordance with their political needs.

The second stream is the post-tax voluntary contributions of companies for social projects that are managed directly by the companies either through their own charity organizations (such as the Shell Foundation) or through various charity

¹¹ In 2004, Chevron paid a social bonus of US\$ 80 million on the extension of its licence for Block 0, in addition to a signature bonus of US\$ 210 million. The accounting firm KPMG, which carried out a diagnostic study of the Angolan oil sector in the early 2000s, noted before the payment of this bonus in 2004 that the management of social bonuses was opaque. The consultants were unable to find any record of which social projects benefited from such bonus payments (Global Witness, 2010).

organizations, churches, foundations and NGOs. The post-tax voluntary contributions are modest in size, but they are much more visible and actively promoted by the companies. For the operator Esso, the contribution is around US\$ 5 million a year through the Exxon Mobile Foundation. ChevronTexaco donates around US\$ 10 million (Amundsen and Wiig, 2008).

The problem with this is that the motivation of oil companies to provide social funds is guided by corporate objectives rather than altruism, and that these corporate objectives do not necessarily correspond with the interests of society. Besides, information about oil companies' social activities is quite opaque, and it is difficult to monitor what the oil companies are actually doing. It might be that petroleum companies have certain strategic advantages in project implementation (as large and sometimes powerful negotiators with strong technological and political capability), but their social activities may increase the lack of political will by the government to provide services and add to the problems of corruption and clientelism.

3. Corruption in revenue management

We have seen examples of how corruption and mismanagement can take place all along the value chain from the preparatory and exploration phases to the development and production phases, and to rehabilitation and decommissioning. However, equally important in this regard is the corruption that takes place after the revenues have been collected, namely in the redistribution and spending phase. Political corruption is perhaps the most important consequence of the ruling elite's manipulation of the institutions of extraction; political corruption involves people at the highest levels of the political system and the purpose is both to extract for private enrichment and consumption and to maintain the hold on power through favouritism and the manipulation of institutions.

3.1. Political corruption

Political corruption can be defined both with reference to the main actors involved, i.e., individuals at the highest levels of the political system, and the purpose of the corrupt behaviour, i.e., personal enrichment and the maintenance of positions of power.¹² In other words, political corruption may entail private and group enrichment and may occur for power preservation purposes. These two forms of political corruption are often connected. The latter process, however, is under-researched and underestimated, since much of the focus in the literature has been on accumulation.

Political corruption in the form of accumulation or extraction occurs when government officials use and abuse their hold on power to extract from the private sector, from government revenues and from the economy at large. These processes of accumulation are referred to as extraction, embezzlement, rent seeking, plunder and even kleptocracy ("rule by thieves"), depending on the extent and context.

Extraction mainly takes place in the form of soliciting bribes in procurement and government projects, in privatization processes and in taxation. Two of the most affected sectors worldwide are military procurement and minerals extraction, because of the involvement of top-level politicians, national interests and secrecy.

The other process, i.e., when extracted resources (and public money) are used for power preservation and power extension purposes, usually takes the form of favouritism and patronage politics. It includes a favouritist and politically motivated distribution of financial and material inducements, benefits and spoils. Methods include money and material favours to build both political loyalty and support. Power-holders can pay off rivals and opponents to secure election victories, buy votes and, if necessary, buy loyal decisions from election commissions to secure re-election. By giving preference to private companies, they acquire campaign and party funds and by paying off the governmental institutions of control, they can halt investigations and audits and gain judicial impunity.

Political corruption occurs at the highest levels of the political system and can thus be distinguished from administrative or bureaucratic corruption. Bureaucratic corruption takes place at the implementation end of politics, for instance, in government services like education and health. Political corruption takes place at the formulation end of politics, where decisions on the distribution of the nation's wealth and the rules of the game are made. Political corruption is usually also distinguished from business and private sector corruption. This is only a matter of academic classification; however, since it "takes two to tango" and because the bribes offered by private companies, both domestic and international, are significant corruption drivers. Sometimes, corruption is indeed "supply driven" and benefits the briber more than the bribed.

3.2. Power preserving political corruption

Incumbents can use many methods to retain power of which many are perfectly legal, while others are illegal and corrupt. The corrupt use of political power for power preservation and extension may take the form of buying political support through favouritism, clientelism, co-optation, patronage politics and vote buying. Means include the distribution of financial and material benefits (money, gifts and rents), but also symbolic values like status and "inclusion". The corrupt use of political power for power preservation and extension also includes the manipulation of various oversight and control institutions, creating various "impunity syndromes".

One form of political corruption for power preservation is the use of money and material inducements to build political loyalty and political support. This can take place at all levels, from opposition parties and MPs to citizens. Political loyalty and support can be bought in very many different ways: it may take the form of direct money payments or promises thereof, the offer of jobs, appointments and positions (including ministerial, judicial, regional and other senior government positions), or positions in public companies and parastatals and even titles of nobility.

¹² This section draws on Amundsen, 2006, and Amundsen, 1999.

Through corrupt means, power-holders can secure their hold on power by buying and manipulating the public institutions of accountability and control. Parliamentary majorities and favourable legislative decisions can be bought, as can favourable decisions and lax controls by various control agencies (ombudsmen, comptrollers, auditors, prosecutors). Even loyal decisions from electoral commissions and high courts have been bought.

It is political corruption when state resources—made available to office holders for public purposes—are used for party campaigning and electioneering in a biased, unconstitutional manner. Material support to political parties and political campaigns can also be obtained from private businesses, and will be corrupt if state resources or other advantages are offered in return. The consequences of this form of political corruption are grave, and perhaps even worse than the consequences of extractive political corruption. Political corruption for power preservation purposes leads to bad governance in the form of unaccountable and favouritist political decisions; manipulated, weak and distorted institutions; lack of transparency and accountability; immunity and impunity; and elections that are not free and fair.

The two processes of political corruption—extraction for private benefit and enrichment and the use of corrupt means for power preservation—are important analytical categories, especially when it comes to formulating counter-measures. Importantly, the two processes are often connected. Many of the larger political corruption scandals include both aspects: large-scale bribery schemes are concluded when the extracted money is used to buy political support, and the full circle is made when the purpose of power is wealth and the purpose of wealth is power.

4. Conclusion: Institution building

As we have seen, there are numerous mechanisms by which power-holders and government insiders can extract from the petroleum sector. They can take bribes directly in the commissioning and contracting phases, especially when negotiating and renegotiating PSA arrangements and they can take “signature bonuses” and “facilitation money” upfront. Then, they can siphon money off from the national oil company (NOCs being used as the private purse of government officials) and they can use fake private oil companies and sub-contractors to “free ride”.

Furthermore, power-holders and government insiders can use the petroleum sector in different ways to preserve and enhance their positions of political power. Essentially, they can spend the rents on power preservation. More specifically, they can also request donations and ‘favours’ from companies to acquire campaign and party funds and ensure that oil companies’ CSR projects and infrastructures benefit their political allies.

To restrict these practices and to thus reduce the possible impact of the resource curse, long-term efforts that have

to be made on all fronts simultaneously have to be implemented in both the economic and political spheres. Some priorities stand out, however. In the economic realm, it is a question of reducing inequalities by supporting pro-poor policy change. It is also a question of reducing the petroleum industry’s ‘crowding out’ effect on other economic sectors, primarily agriculture and manufacture, by improving the business climate, by generating new economic activities and through economic diversification. This can potentially lead to the development of a middle class in the long term, which historically is the best guarantee for liberal politics.

In the political realm, it is a question of strengthening the institutions of checks and balances, accountability and control. The political response to the resource curse is the reduction of political monopolism and the institutionalization of efficient control mechanisms. The solution to such problems lies, in particular, in the institutionalization of public control mechanisms and in the ‘ring-fencing’ of informal practices. It is a question of the ability of Ghana’s public as well as private institutions to control and withstand the pressures for extraction (‘privatization’ and usurpation of oil wealth and public money) and favouritism (clientelism, patronage, elitism). This should take place at a broad front and include the horizontal institutions of accountability (separation of powers, legislature and judiciary and special institutions of restraint and control), as well as the vertical institutions of accountability (political parties, elections and public participation).

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Annex

Ghana governance statistics

According to existing statistics on corruption and governance in Ghana, the country seems to be undergoing a slow but steady progress¹³.

According to Transparency International's *Corruption Perceptions Index*, Ghana scored 4.1 in the 2010 CPI, up from 3.9 in 2009 and 2008, 3.7 in 2007, and 3.3 in 2006 (a score of 10 stands for very 'clean'). This is a persistent and significant progress, and Ghana is now on par with Namibia and South Africa, and ranked much higher than most of Africa.

According to the World Bank's *World Governance Indicators*, most indicators show a steady increase, at least since 2004/2005. Voice and accountability have improved, the regulatory quality is slightly better, but political stability, government effectiveness, and control of corruption have been stagnant since 2005 and the rule of law has slightly declined. Nevertheless, the overall picture is positive with significant improvements having been achieved for all indicators since 1996. Ghana is now in the 50–75 percentile range for all indicators (100 represents the highest level), which again puts Ghana on par with countries like Mali, Benin, Botswana, Namibia, and South Africa, and ranks much higher than most of Africa.

According to the *Ibrahim Index on African Governance*, Ghana scores 64.9 overall (in a range from 0 to 100), and ranks 7th in Africa (after Mauritius, Seychelles, Botswana, Cape Verde, South Africa, and Namibia). Ghana has steadily improved, and lies well above the African average. Rule of law, national

¹³ Sources: TI's Corruption Perceptions Index (<http://www.transparency.org>); World Bank's World Governance Indicators (WGI) (<http://info.worldbank.org/governance/wgi/index.asp>); the Mo Ibrahim Foundation's Ibrahim Index of African Governance (<http://www.moibrahimfoundation.org/en/section/the-ibrahim-index>); International Budget Partnership's Open Budget Survey (<http://internationalbudget.org>); Extractive Industries Transparency Initiative (EITI) (<http://eiti.org>), and Revenue Watch Institute (RWI) (<http://revenuwatch.org>).

security, the environment, and the rural sector are the better-governed areas.

According to the *Open Budget Index* (OBI) of the International Budget Partnership, Ghana has demonstrated significant improvements in its government budget practices and now ranks 54 (in a range from 0 to 100). However, Ghana is still in the large (middle-range) group of countries that “provide some information, scoring between 41 and 60, though this information is far less than what is required to obtain a clear understanding of the budget and to provide a check on the executive”¹⁴. Ghana’s legislature and Supreme Audit Institutions (SAI) are “moderately strong”. Ghana’s score increased from 42 to 54 from 2006 to 2010, largely because the Government now publishes a mid-year budget review, a year-end budget report, and an audit report. The Government still provides the public with only some information on the Central Government’s budget and financial activities during the course of the budget year. This makes it challenging for citizens to hold the Government accountable for its management of public money.

According to the *Extractive Industries Transparency Initiative* (EITI), Ghana is one of only five compliant countries in the world (i.e., found to be consistent with the EITI *Implementation Criteria*, a global standard for transparency in the oil, gas, and mining sectors). Ghana submitted its final validation report to the EITI board in June 2010 and was designated *EITI Compliant* in October 2010.

According to the *Revenue Watch Institute* (RWI), “Ghanaian authorities are making progress in improving expenditure transparency, and the country has introduced targeted legislation in recent years designed to ensure accountability, transparency and efficiency in public resource management, including the *Financial Management Act* of 2003 (which regulates the public sector to ensure transparent and effective management of state revenues and expenditures) and the *Public Procurement Act* of 2003 (which aims to foster competition, efficiency, transparency and accountability in procurements).

Further efforts in expenditure transparency include the 2007 launch of *Public Expenditure Tracking Surveys* (PETS) in the education and health sectors, and Ghana’s inclusion of a requirement in its EITI framework that district, municipal and metropolitan assemblies report royalty receipts and how they are used. Ghana’s *Publish What You Pay* (PWYP) coalition is supporting an ongoing community capacity-building exercise to track these disbursements. (...) Nevertheless, (there are) critical weaknesses in budget documentation, in

¹⁴ Interestingly, while the Open Budget Survey demonstrates a dismal state of budget transparency in oil exporting countries (the oil cursed “hydrocarbon regimes” with an average score of 26!), Ghana figures among the much better off “mineral dependent” countries with a group average of 49. For Ghana, the established regulatory regime of mineral extraction and exports (coal, copper, diamonds, gold, platinum, silver, tin, etc.) may well be an advantage when moving into the petroleum sector.

the transparency of inter-governmental fiscal relations, and (...) in internal audit systems in Ghana. (...) Room for improvement with respect to public involvement in monitoring and auditing processes remains”.

Furthermore, the secrecy surrounding mining and oil contracts is an issue in Ghana. Before Ghana endorsed the EITI principles, all discussions of contract transparency were branded as anti-business, but much has been achieved since the first EITI report recommended that all of Ghana’s mining contracts, including investment agreements, be made public. Nevertheless, obstacles to transparency remain¹⁵.

There is a strong call for Ghana to enact a Freedom of Information Law and affirm the public’s right to information as a critical means to bolster and promote transparency. Continued public and media discourse is taking place on this issue, and discussions regarding the oil sector have increased since the launch of the EITI and the recent oil discoveries. The Government has expressed its intention to initiate a FOIA bill, but without continued pressure, there is no evidence of that happening any time soon.

A key challenge for the Government is to reconcile the gains and commitments made through the EITI process for the traditional mineral industries with the euphoria surrounding the Jubilee Field discovery. To this end, the Government submitted two bills to Parliament in 2010 with major implications for oil sector governance. The first addresses the governance of petroleum exploration and production, including the relationship between the state and international oil companies. The second would establish two transparently operated oil funds to protect Ghana against economic volatility and provide a heritage for future generations.

¹⁵ According to RWI, the Ghana National Petroleum Corporation is not committed to contract disclosure. It has issued a model contract and related laws, available in CD-ROM format, but this presents a technological barrier and does not address the fundamental problem that actual contracts remain unavailable for comparison. The model contract, drafted in the 1980s, also faces scrutiny over whether it adequately addresses contemporary market realities (and it still contains the clause that “Any information or material supplied by the Company to the Government pursuant to the provisions of this Agreement shall be treated by the Government, its officers and agents as confidential and shall not be revealed to third parties, except with the consent of the Company (which consent shall not be unreasonably withheld), for a period of 12 months, with respect to technical information, or 36 months, with respect to financial information, from the date of submission of such information. The Government and persons authorized by the Government may nevertheless use any such information received from the Company for the purposes of preparing and publishing general reports on minerals in Ghana”. Besides, individuals involved in the negotiation of Ghana’s recent oil contracts report that the Government was concerned about companies’ reaction if it committed to contract transparency, although Ghana has recently announced that its oil contracts will be made public (Rosenblum and Mapels 2009:44). Another challenge to contract transparency is the fact that the previous Government headed by John Kufour set up a separate, parallel inter-ministerial committee for oil, which reported directly to the president’s office and was not related to (or accountable to) the EITI management committee. Thus, the current contracts for Tullow Oil, US Kosmos Energy and Anadarko were awarded through direct negotiation instead of an open competitive bidding process.

6. Strategic dispute dynamics and resolution: Government, business and non-state actor interfaces

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Abstract

This paper reviews the most likely causes of dispute that relate to the ownership or exploitation of hydrocarbon and mineral resources on the continent of Africa. It identifies four categories of dispute: between one state and another; between central government and provincial, regional or local authorities; between central government and the corporate sector, especially the foreign affiliates of transnational corporations; and between central government and non-state actors. It suggests policies and measures that can help prevent the occurrence of such disputes and minimize the risk of escalation once conflicts have erupted. Finally, it highlights the virtues of mediation as a cost-effective technique or method for resolving disputes. A companion paper by Sir Stewart Eldon reviews other dispute resolution possibilities.

This paper reaches beyond the hydrocarbon sector to the mineral sector, as useful lessons may be drawn from reviewing a broader category of natural resource-related issues. It also ranges beyond possible dispute causes to consider potential sources of civil unrest on the assumption that an unstable political environment can be a fertile breeding ground for conflict. Finally, it treats the words “dispute” and “conflict” as synonymous, whereas in reality the former usually precedes and causes the latter.

1. Causes of resource-related disputes

Since 1960, there have been a number of underlying causes for strategic disputes and civil unrest in Africa. The desire to acquire control of mineral or hydrocarbon resources has not always been a factor. Other factors include:

- Inter-factional strife for control of the state
- Longstanding ethnic rivalries
- Religious differences
- Cold War manoeuvring by members of NATO and the Warsaw Pact
- Climate-induced migration, and
- Trafficking in small arms and light weapons and, more recently, narcotics and persons.

Disputes that can be traced directly to mineral and hydrocarbon resource issues fall into the following categories:

- Inter-governmental disputes stemming from contested boundaries or maritime limits
- Disputes between governments and provincial entities relating to the allocation of revenue from the exploitation of resources, to the consequences of such exploitation for local communities, or to the environmental impact of exploitation
- Disputes between governments and business enterprises relating to the operations of these enterprises, and
- Disputes between governments and non-state actors.

Though it is often said of Africa that the boundaries left by the colonial occupiers have been the source of much trouble, there have been relatively few overt terrestrial or maritime border delimitation disputes since the end of the Colonial Period: Ethiopia/Eritrea, Libya/Chad, the Western Sahara, Botswana/Namibia and Nigeria/Cameroon come to mind (the conflict between Ugandan and Tanzanian forces in 1978–79 was unrelated to border delimitation). Of these, two appear to have been resource-related and three (Ethiopia/Eritrea, Libya/Chad and Botswana/Namibia) were unrelated to resources¹.

Resources are not the only cause of the dispute over the Western Sahara which, in its current form, dates back to the 1975 withdrawal of Spain from the territory. Nonetheless, the territory's rich phosphate deposits have played more than an incidental role. A succession of UN Special Envoys has been unable to break the deadlock that has prevailed since 1975, not for want of trying. The dispute has not been submitted to the International Court of Justice (ICJ).

The dispute between Nigeria and the Cameroon over the Bakassi Peninsula and related maritime limits can be seen as a locus classicus of a resource-related border dispute. The most valuable issue at stake was ownership of some of the large oil deposits that lie in the Gulf of Guinea. This dispute was referred to the ICJ in 1994. The ICJ delivered an opinion in 2002. UN mediation helped secure acceptance of this ruling by both parties after several years (UN, 2006).

¹ Conflicts in Africa, www.globalissues.org.

Two resource-related intra-state conflicts have more in common with an inter-state boundary dispute than with the tensions between a central government and provincial entities, to which we will come shortly. The 1967 Nigerian Civil War was motivated by a desire to establish an inter-state boundary where none existed, and was related in part to the hydrocarbon deposits of the Niger Delta region. The dispute was resolved by force of arms after much loss of life.

The inhabitants of the mineral-rich province of Katanga fought for independence in the early 1960s from the central government of what is now the DRC. This, too, was resolved by force of arms, but in this case, it was the arms of UN troops operating under Security Council mandates. Again, the loss of life ran into tens of thousands.

1.1. Disputes between governments and provincial entities

The locus classicus is the Delta region of Nigeria. Entities representing the inhabitants of that region claim that the Nigerian federal authorities have failed to honour commitments to share oil extraction revenues with local governments. Damage to the environment, affecting the livelihood of local fishing communities, has exacerbated the tensions. As a consequence, oil and gas installations have come under attack from well-armed and mobile indigenous groups².

The long struggle for control of Angola after the departure of the colonial occupier in 1974 represents an example of a resource-related conflict between a central government and provincial insurgents, although other factors came into play, notably (and ostensibly, at least) ideological differences and superpower rivalry.

The civil wars that racked Sierra Leone between 1991 and 2002 are a further example. The initial objective of the Revolutionary United Front was the occupation of south-eastern regions of Sierra Leone that are rich in alluvial diamonds (Abdullah, 2004).

Tension between northerners and southerners in the Sudan predates the end of the colonial period. Significant religious and ethnic differences have long been apparent. It is arguable that northern and southern Sudan should have parted company when the United Kingdom pulled out in 1956. Since the discovery of oil in southern Sudan, these differences have been exacerbated. The conflict known as the Second Sudanese Civil War, which began in 1983, was in part a conflict over the allocation of revenues flowing from hydrocarbon extraction (Seymour, 2003).

1.2. Disputes between governments and businesses

Non-artisanal extraction of hydrocarbon and mineral deposits normally takes place on the basis of contractual arrangements, the parties being the central government and a local company or the affiliate of a foreign corporation. The relative importance of transnational affiliates has tended to vary from one resource to another and from one host state to another; but by way of generalization, it can be said that foreign affiliates have accounted for a very large share of non-artisanal

mineral production in least-developed African countries such as Tanzania, Zambia, Mali and Guinea, and for a majority of hydrocarbon production in Angola, Sudan and Equatorial Guinea (UNCTAD, 2007).

Such contractual arrangements can give rise to disputes. There are many ways in which a company may fail to comply with the terms of a contract, some of the most notable relating to revenue-sharing, the payment of taxes, employment of local labour and the environmental impact of projects.

A more insidious source of dispute via civil unrest is the spreading of corruption. Corruption has tended to become endemic in societies that rely on extractive industries as their main source of income (Ross, 2001). Transnational corporations can fuel this process by non-transparent business practices³.

Another source of unrest is the abuse of human rights by private security firms engaged to protect the extractive assets of transnational corporations. This is by no means a widespread phenomenon but cases of abuse have been documented⁴.

2. Dispute avoidance

This section looks at how the risk of resource-related disputes can be averted or kept to a minimum and how best to contain a dispute that has broken out.

A distinction can be made between inter- and intra-state disputes. Inter-state disputes may be more difficult to avert because the parties involved are sovereign entities; but they can be more easily contained because institutional mechanisms are in place that are specifically geared to that purpose, as well as by a relevant body of international treaty and case law.

Where an agreement exists that relates to the border between two states it makes sense for these states to submit any disputes relating to the interpretation of that agreement to the ICJ. Art. 36 of the Statute of the ICJ establishes the Court's competence to interpret treaties and international law in all cases referred to it by the parties or by the United Nations. The Court's impartiality is guaranteed. The ICJ has accumulated considerable experience in this field. It contributed to the settlement of the Libya/Chad dispute (1994) and the Botswana/Namibia dispute (1999), in addition to the Nigeria/Cameroon dispute, as noted above, and several non-African territorial disputes.

³ Despite "positive transparency trends" among International Oil Companies (IOCs)—less so among Nationally Owned Companies (NOCs)—the overall level of disclosure remains unsatisfactory. In particular, few companies disclose payments on a country-by-country basis. 2011 Report on Oil and Gas Companies, Transparency International and Revenue Watch. 1 March 2011.

⁴ Interim Report of the Secretary General's Special Representative on the Issue of Human Rights and Transnational Corporations, UN, 2006.

² Nigeria – Niger Delta, www.globalsecurity.org

The obvious alternative is to submit a dispute to the United Nations. Art. 35.1 of the UN Charter stipulates that any member of the UN may bring any dispute to the attention of the Security Council or the General Assembly. Art. 36.1 provides for the Security Council to recommend appropriate procedures or methods of adjustment. That said, Art. 33 requires parties “first of all, to seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice”. And Art. 36.3 requires the Security Council to “take into consideration that legal disputes should as a general rule be referred to the International Court of Justice”.

Submitting a border delimitation dispute to adjudication by an impartial body has a political advantage that recourse to mediation lacks, since mediation nearly always entails both parties making concessions, and governments that concede to other governments are often vulnerable to domestic criticism. On the other hand, impartial adjudication (in effect, arbitration) is likely to result in one of the two parties scooping the jackpot while the other is left with little to show for his or her moderation.

At this point mention should also be made of the UN Law of the Sea Convention. The Convention establishes a basis for the delimitation of the territorial seas, exclusive economic zone, and related sea beds of states that have adjacent or opposing coasts (Art. 15). Norway and the Russian Federation recently reached a maritime delimitation agreement in the Barents Sea, which is based on the provisions of this convention. The Convention also contains provisions relating to the exploitation of resources below the sea bed and for dispute settlement.

2.1. Intra-state disputes

Nothing is more important than strong institutions and the rule of law for the avoidance or minimization of disputes between governments, on the one hand, and provincial authorities, businesses and non-state actors, on the other.

The value of strong central government institutions has been stressed so often in economic development literature that it would be otiose to dwell on the subject here. Suffice it to say that “strong” is not a synonym for “authoritarian”. It means “competent”, “efficient”, “impartial in the application of rules and regulations”, “fair”, “respected”, “accountable” and “dedicated to the common good of all members of the relevant community” or at least “to the greatest good of the greatest number”.

Such institutions take years to develop (but can be destroyed in just a few months). The prevailing culture of an institution—a vital component of its strength—is generally determined by those at the top; but recruitment and retention policies and criteria have a crucial influence on the calibre of the workforce. Articles 7 and 8 of the UN Convention Against Corruption set out several measures that parties to the Convention are urged to take to ensure high standards of efficiency, integrity, honesty and responsibility when recruiting and retaining public officials.

The rule of law is equally important. This requires political authorities to abstain from interference in judicial processes and the entire community to recognize and respect the judiciary’s independence. It also requires high standards of integrity within the judiciary. As in the executive branch, cultural norm setting from the top and recruitment and retention policies play a vital role. Art. 2 of the UN Convention Against Corruption makes clear that the measures referred to in the previous paragraph should apply not only to the executive, but also to the judiciary.

Another cross-cutting measure that can minimize the risk of resource-related disputes is the sovereign wealth fund (“fund”). It is an instrument of such potential value that it deserves extensive treatment. However, here it would be inappropriate to do more than list some of the benefits that can arise from creating a “fund” to serve as a repository for all revenues accruing to central government from the extraction of a natural resource:

- A “fund” allows the proceeds of resource extraction to be used in accordance with sound macroeconomic principles. Disbursements from it can be paced and spaced to avoid rapid expansion of the domestic money supply. This will reduce the risk of a “resource boom”, i.e., of the inflationary conditions that have been a feature of many hydrocarbon-rich small economies in the past. Inflation is a scourge for those whose incomes cannot keep pace with rising prices and for those who have accumulated savings and lack the knowledge and experience to switch them into inflation-proof investments. Inflation inhibits productive investments. It is a fertile breeder of the disillusionment and alienation that can turn the ruled against their rulers.
- Disbursements can be concentrated on building up the community’s economic potential (e.g., through education and health), on projects that can be expected to generate national income by enhancing the export potential of certain agricultural and manufacturing sectors (subsidies to individual enterprises should be avoided) and on strengthening the executive and judiciary (see above).
- A fund allows government to demonstrate that none of the income drawn from an extractive source is being siphoned off for undeclared purposes (transparency).
- Disbursements can be equally transparent. Government can demonstrate that capital and current expenditure is equitable and likely to be conducive to the common good or to policy objectives that have been approved by elected representatives of the national community.
- The right to authorize disbursements from the fund can be restricted to a small circle of administrators. This minimizes the risk of embezzlement or the diversion of wealth for unauthorized purposes.
- In a democracy the relationship between the administrators of a fund, the government and the elected

representatives of the national community is of particular importance. A well-functioning relationship can generate national consensus on how to use the proceeds of a resource boom and on the timing of the disbursements to avoid the destabilization of the macro-economy. Government should articulate an overarching strategy for deploying the proceeds for the long-term benefit of the national community. Fund administrators should report to the representative branch at regular intervals, ensuring transparency in relation to both accruals and disbursements from the fund.

2.2. The interface with local communities

Arriving at a formula which ensures that local communities receive an equitable share of the revenues from resource extraction represents a major political challenge. It is nonetheless a challenge that should not be shirked, since our brief review of the causes of resource-related disputes suggests that a perceived lack of equity in this respect can be among the most likely causes of violence and widespread suffering (Addison et al., 2004).

This formula is likely to vary from one country to another, influenced by a host of local factors. In Nigeria, the share of proceeds channelled to the Delta region fluctuated from 50 per cent in the 1960s to 0 per cent in 1980 to 13 per cent in the late 1990s, according to a UNDP study⁵. In the Sudan, the South, between 2005 and independence, accounted for around 75 per cent of the 500,000 barrels of oil produced per day, and was receiving 50 per cent of the production revenue since 2005 (Oxford Analytica).

One prerequisite for a successful revenue-sharing agreement and the avoidance of subsequent disputes is for local communities to perceive that those who negotiate on their behalf are legitimate representatives; central government may need to play a role in the organization and monitoring of local elections to ensure that this takes place.

Central government may also need to safeguard against the occurrence of the “Dutch disease” at the local level. An equitable share of resource revenues may have a destructive effect on local markets and may trigger the social and economic ills that a Sovereign Wealth Fund is designed to prevent at the national level. At the local level, these ills can include migration to local communities from less prosperous regions – even perhaps from adjoining states. The resulting competition for work between locals and non-locals can lead to unrest and disturbances. The risk of this happening can be reduced if central government’s strategic plan for the disbursement of resource revenues entails benefits, including employment, for all parts of the country. In some cases it may also be advantageous to offer development assistance to communities in neighbouring states adjacent to the booming region, to raise the living standards of residents of those communities and to reduce the incentive for migration. In addition, it may be necessary for central government to insist

on transparency in relation to the flow of revenue to local budgets and in relation to the uses of that revenue⁶.

Social problems may also arise from a failure on the part of companies engaged in extractive activities to respect local labour laws and health and safety regulations. Regular monitoring by central government officials, and intervention when necessary, can minimize this risk.

Finally, central government must take into account the possible impact of a resource boom on the local environment. The environmental consequences of oil production are among the grievances of local communities in the Delta region of Nigeria. The avoidance of damage is best addressed through legislation and regulation of the companies engaged in a given extractive activity. When damage occurs, the issue of compensation must be addressed and central government may have to assume the role of ensuring an equitable outcome.

2.3. The interface with business

Contractual arrangements can take the form of concessions, joint ventures, production sharing agreements and risk service contracts (UNCTAD, 2007). The scope of these arrangements to give rise to disputes is well-evidenced. Negotiating them is therefore one of the serious challenges that face governments that seek to extract value for the national community from large hydrocarbon or mineral deposits. Questions of equity are as relevant to such negotiations as to the uses of resource revenues. A balance has to be struck between incentivizing the company to meet the highest standards of efficiency and compliance with social and environmental norms, and capturing value for the national economy in the form of government revenue (taxes, royalties or dividends), local employment, local procurement and local content.

Given the limited space here, it would not be sensible to attempt more than a checklist of government actions that can minimize the risk of disputes arising from such contractual arrangements:

- Governments need to enhance their bargaining powers by accumulating as much information as possible on the nature and extent of national hydrocarbon and mineral deposits, and on global and regional negotiating precedents that may be relevant. They may see a case for engaging the services of experienced foreign consultants.
- Whether it is reasonable to expect the affiliate of a transnational corporation (TNC) to use a project to channel knowledge and technology to host entities needs consideration, as does the feasibility of local procurement, content and employment requirements.

⁵ As an example of revenue mismanagement at the local level, Bayelsa State in the Delta region of Nigeria received US\$ 200 million per month during part of 2008, which remains unaccounted for. No evidence of this money having been spent on the projects to which it was allocated has ever been produced. A. Nossiter, “Riches flow into Nigeria, but are lost after arrival”, The New York Times, 8 February 2011. http://www.nytimes.com/2011/02/09/world/africa/09nigeria.html?_r=1&ref=africa

⁵ Niger Delta Human Development Report, 2006.

- The terms of the arrangement must encompass provisions for companies to comply with the host country's social and environmental legislation, such as mining codes and health and safety standards. In this context, assurance can be sought from TNC affiliates that the parent company is subscribing to the ten principles of the UN Global Compact. Several hundred business associations, representing a much larger number of companies, are participating in this initiative.⁷ Participants are expected to integrate the ten principles into their operations and throughout their supply chains.
- It is equally desirable that a TNC parent be a participant in the Extractive Industries Transparency Initiative (EITI). EITI requires companies to make public their operational expenditure, including what they transfer to host governments by way of taxes, royalties and signature bonuses. Compliance with EITI by transnational corporations and their affiliates can provide valuable support to the host government's transparency policies. Fifty of the world's largest oil and gas and mining companies actively participate in the EITI process⁸.
- Host governments can reasonably insist on the provision of consultation for the government in advance of all decisions that are likely to have a local impact or that may affect the revenue stream from a project. The desirability of averting the risk that such decisions give rise to disputes justifies such a requirement.
- In some circumstances it may be appropriate to include provision for the physical protection of extractive installations. In principle, it is preferable for host government forces to provide physical protection. The use of private security companies by TNC affiliates can give rise to tension with local communities and be a source of dispute.
- Any contractual arrangement should contain provision for dispute resolution; mediation and arbitration should feature amongst the options.

This section of the paper provides an appropriate 'home' for a reference to the importance of a well-functioning domestic regime for controlling and combating anti-competitive business practices. Resource booms can lead to the accumulation of capital by a small segment of the national community. Members of such a minority may be tempted to use their wealth to buy out local manufacturers and service providers and to establish monopolies or cartels. Such anti-competitive practices can cause hardship to consumers and lead to the loss of export competitiveness. These practices can be avoided through legislation and the establishment of a strong competition authority.

2.4. The interface with non-state actors

Non-state actors can come in many forms. This paper will touch only on three: non-governmental organizations (NGOs); organized crime networks; and armed insurgents.

⁷ UN Global Compact website.

⁸ EITI website.

NGOs can provide early warning of grievances that have the potential to develop into strategic disputes. Though some NGOs may be inclined to exaggeration when engaged in advocacy, as a general rule they can help governments stay in touch with what ordinary people are saying, thinking and feeling. They can offer a useful indication of what is stirring within local communities or the lower reaches of national communities. It is therefore in the central government's interest to view NGOs as allies in the quest for equity, inclusiveness and transparency. NGOs can also be seen as a tripwire for engaging governments at a stage when issues are still susceptible to resolution through dialogue and negotiation.

The 2010 report on the globalization of crime of the UN Office on Drugs and Crime (UNODC) draws attention to an evolution in the world of organized crime: loose networks of criminals are replacing the traditional gang as the prevalent organizational form. UNODC infers from this that disrupting and dismantling criminal markets is becoming the most effective way of combating organized crime. An extension of this strategy is to prevent the emergence of criminal markets.

These findings are relevant to the theme of this paper in two respects. Resource booms can create or expand markets for narcotics, counterfeit goods and prostitutes supplied through human trafficking—three of the most common forms of organized crime. And UNDP studies have shown that there is a correlation between organized crime and respect for the rule of law: organized crime tends to propagate lawlessness and corruption. It eats away at the institutions on which governments rely for minimizing the risk of strategic disputes.

Art.31 of the UN Transnational Organized Crime Convention sets out a number of measures governments can take to prevent or at least reduce the likelihood of the establishment of organized criminal groups. It stresses the value of promoting public awareness of the threat and of cooperation between states and relevant regional and international organizations. Technical assistance provided by UNODC is available upon request to states who are parties to the Convention.

In the light of these UNODC findings resource-rich states need to be especially vigilant. They would do well to recognize the high probability that if boom conditions are allowed to develop, these will fuel a boom in organized crime. In effect, the desirability of averting an organized crime boom is a further argument for avoiding a resource boom by making judicious use of the Sovereign Wealth Fund concept discussed above.

Reference has already been made to cases in which the quest for control over natural resources has caused insurgencies and armed conflict. A companion paper by Sir Stewart Eldon examines how this type of conflict can best be resolved. In some cases—when insurgents are motivated by more than greed, that is to say, by legitimate grievances—engagement may offer a better prospect for resolving the issue than force.

3. The case for mediation

If differences of interest develop unchecked to the point at which the parties are no longer able to resolve whatever divides them through amicable discussion, the parties usually have a choice between litigation, arbitration and mediation. Litigation and arbitration can result in a clear victory for one party and a clear loss for the other. For the victor this can be satisfying and financially rewarding. Nonetheless, both parties will have run the risk of a ruling against them; both are likely to have had significant legal costs, and both are likely to have waited for a ruling longer than they would have wished.

Mediation, on the other hand, is quick, flexible and inexpensive, and is likely to result in neither party being an outright loser, as compromise is the essence of a mediated settlement. The task of a mediator is to help the parties abandon the positions they have been clinging to and to step back to consider where their basic interests lie. While it is rare for positions to overlap—they are likely to oppose each other—some overlap of basic interests is common.

It is this area of overlap that a mediator can help parties focus on. Once this has been achieved, human creativity comes into play. The mediator encourages the parties to think of ways in which they can give expression to their shared interests and, if he/she is worth his/her fee, the mediator supports their efforts by insinuating ideas of his/her own. The mediator conveys offers and counter-offers back and forth between the separate rooms the parties are closeted in until both are convinced that the fairest available outcome has been reached—or both conclude that the outcome on offer is preferable to staying up all night!

Occasionally, one of the parties walks away from mediation before a settlement can be reached, which is each party's right. This usually happens when a party concludes that the "best alternative to a mediated agreement" is preferable to the best settlement that appears achievable through mediation. The party's calculations will have taken into account the consequences of the mediation's failure and the cost of pursuing an alternative course of action.

A good mediator never dictates to the parties, never lays down the law. He/she elicits information by asking probing questions and listening carefully. He/she helps the parties understand the significance of what they have told him/her by reframing the information they have volunteered or he/she has drawn from them. He/she relies on instinct and experience to know when to apply pressure to the parties to move forward, and when to leave them time to absorb and analyse fresh information provided by the other side. He/she understands the importance for most human beings of self-respect and "face". He/she feels quiet satisfaction if, when a curtain falls on the proceedings, the parties have not only struck a deal, but have also come to feel less bitter about whatever it was that divided them to begin with.

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7. Negotiating skills for conflict resolution

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Abstract

This paper offers a practitioner's view of the negotiating skills and strategy necessary to manage and resolve conflicts. These skills can be applied both to armed conflict and to 'softer' disputes arising from economic differences, mineral resources, social disparities or political arguments. Key elements involve an understanding of both the substance of the dispute and the interests and personalities involved. Success is more likely if an effective negotiating strategy can be devised giving significant weight to state- and institution-building. This should be based on a whole-of-government approach and involve broadly based indicators of success. The security and defence sectors can make an important contribution, even when armed conflict is not a factor. Sustained efforts against corruption can enable results in a number of important areas and provide a good general measure of progress.

1. Negotiating strategy

1.2. Substance: Interests and positions

The first requirement of any negotiation is to be clear about the substance of the conflict. This sounds obvious, but too often one or all of the parties to a dispute is not clear what the dispute is really about. It is important not to confuse position (what people will say) with interests (what they want and need) and to focus on the latter. This involves knowing not only the substance of where you stand, but where the other side stands as well.

Opposed positions can sometimes conceal compatible interests, which can form the basis for a settlement. Put simply, any negotiator needs to be clear about his or her ideal outcome (the 'top line'), the point below which negotiation becomes pointless (the 'bottom line') and the mix of acceptable outcomes in between. All these may change as the negotiation proceeds. It is clearly not possible to make the judgements necessary to secure a good outcome without being able to put yourself in the other side's shoes and knowing with reasonable certainty how they are likely to react.

Hundreds of books have been written about negotiation, and there are many conceptual frameworks within which

negotiators can choose to operate. One of the most durable was developed by the Harvard Negotiating Program in the 1980s. A variant of that framework¹, published in the 1990s, suggests that a good outcome to a negotiation is either no agreement or an agreement that:

- Is better than your Best Alternative to a Negotiated Agreement (BATNA)
- Satisfies your interests well, the other side's acceptably and others' tolerably enough to be durable
- Is an elegant no-waste solution among the best of many options
- Is legitimate for all—no one should feel taken in
- Includes commitments that are well planned, realistic and operational
- Involves an efficient process with effective communication that builds the kind of relationship you want with other stakeholders.

1.3. People

It is worth keeping these criteria in mind as background to the rest of this paper. The last of them highlights a second and most important point about conflict resolution and negotiation. It is simply that both are about human beings. The problem and the people dealing with it are two different things. Without knowing the people, their background, desires, feelings, and motivations—not to mention, on occasion their temper—success is much more difficult. At the UN Security Council in New York, 15 Permanent Representatives are charged with representing the interests of their governments. They and their deputies spend an enormous amount of time together and get to know each other well. This helps considerably in managing the delicate business of negotiation and often the big players do not get things all their own way. Representatives of smaller or less powerful countries who are able to judge the negotiating dynamic correctly can—and often do—make key contributions.

1.4. Reaching out: Style and networks

Good personal relationships also help generate a shared commitment towards the negotiation process and a successful outcome. Effective negotiation should be about two (or more) sides helping each other to make progress. Sometimes this

¹ © 1991 by Conflict Management Inc, 20 University Road, Cambridge MA 02138, USA.

can be done by trading presentation for substance. If an issue is of minor importance for one side but of great significance to the other, it may be a good idea to give way and let the other side take public credit, storing up one's own for issues of greater importance. When the going gets tough, it can be helpful to broaden the subjects under negotiation to give at least a feeling of balance rather than force a stalemate. In sum, it is good practice to be tough on the problem but soft on the people.

By itself, a negotiating technique will not produce a settlement without a strategy. Today's conflicts are increasingly complex, both in terms of substance and in the variety of stakeholders they involve—including, in particular, non-state actors. In insurgencies like Sierra Leone and Afghanistan, it will become necessary at some stage to reach out to members of the insurgency who are prepared to embrace a constitutional settlement. Civil society organizations can play a very significant role in helping to resolve social and economic conflicts, not least by helping to develop capacity in such areas. And business interests, including those of multinational corporations, are often vital in resolving commercial and economic conflicts.

This means developing a capacity to reach out to a broad range of potential stakeholders without giving way on essential substance. A softer style and strategy can be more helpful than a hard one, which can discourage communication and result in stalemate. Often, state institutions and actors can find it difficult to engage in parallel dialogues with state and non-state actors and bring the results together in a way that effectively balances personal relations and substance. Sometimes information-gathering and other networks either do not exist or are used in the wrong way. And on other occasions it may not be easy to find the right constituencies.

When I was growing up near Cape Coast fifty years ago, the Western Region of Ghana, where oil has been discovered, was probably among the least developed parts of the country. To be sure to effectively deal with the tensions new wealth can bring, it is essential to have in-depth knowledge of local dynamics and needs. This can be particularly difficult to acquire at a time of potential external or regional instability². Without the creation of good personal links and information flows there is a danger of misunderstanding and lack of engagement at the tipping points of crises.

2. The broader context

Designing a successful strategy requires awareness of the broader context and willingness to act on it. A detailed inventory of the elements necessary for a successful outcome can be a useful negotiating tool; it would be prudent in this context to pay special attention to the powers and structure of any bodies or institutions necessary to support an agreement. In a minerals context, these might, for example, include effective

regulation of the industry and the provision of services and development to the local population. More generally, and in the context of state failure, some authors (Ghani and Lockhart, 2008) have suggested drawing up an index of state functions as a way of shaping both the desired end-state of the negotiations and the measures necessary to reach it.

Poverty, social unrest, economic deprivation, organized crime and corruption have long been acknowledged as both causes and consequences of state failure and, ultimately, conflict. The effects of domestic instability and lawlessness can reach much further than the state concerned—the events of 11 September 2001 are perhaps the most glaring example of that phenomenon. Without careful handling, new resource flows such as oil—while of course welcome in themselves—can become potential destabilizing factors. Corrupt and criminal activities in parts of the developing world can significantly affect the security and well being of those outside it. In October 2007, the UK Serious Organised Crime Agency seized fake cheques, postal orders, and bank drafts from Nigeria worth more than £8 million destined for the UK market. Thirty-two months later, the Agency announced that online scammers from West Africa were defrauding Britons of thousands of millions of pounds³. Nigerian links to the airline bomb plot on Christmas Day 2009 also highlighted the fragility of parts of West Africa and the importance of focusing on state building and security in the region.

2.1. The conflict cycle

Events in Sierra Leone and Liberia demonstrate well the continuum between state failure, conflict, and post-conflict reconstruction. For the policymaker, the first objective has to be to stop state failure in its tracks. But the bleakest scenario is for a successful progression through conflict to reconstruction to metamorphose into the vicious circle depicted in Figure 1 below. One cause of such a vicious circle is the absence of effective state institutions in which ordinary people can have confidence. Thus, a state-building dimension is fundamental to any sustainable approach to conflict management.

Figure 1. The Conflict Cycle



² For example, the BBC reported in 2010 that there were about 4,000 refugees from the Niger Delta in the Western Province.

³ See, e.g., <http://www.spamfighter.com/News-14537-SOCA-Online-Fraudsters-Defraud-Britons-off-Millions-of-Pounds.htm>

Once conflict—whether physical or economic—has broken out, perspectives can sometimes narrow. Negotiating efforts can become geared to accommodating the requirements of the main parties rather than setting out roadmaps towards a durable outcome. Private greed can easily become a factor in the minds of key protagonists and can inhibit negotiated settlements (McRae and Hubert, 2001).

Figure 2. Pressure of Negotiating Conflict



Figure 2 depicts some of the pressures that can be experienced when negotiating in these circumstances. Left unchecked, these pressures can lead to less than ideal outcomes. The prominent Africa scholar Gerard Prunier has described the 2002 All-Inclusive Peace Agreement in the DRC—although necessary to stop major organized violence—as ‘reeking of rewards for crime coupled with pork-barrel politics’. Despite a formal end to the war in July 2003 and an agreement by the former belligerents to create a government of national unity, 1,000 people died daily in 2004 from easily preventable cases of malnutrition and disease. By 2008, the war and its aftermath had killed 5.4 million people, mostly from disease and starvation, making the outcome less than optimal.

2.2. A whole-of-government approach

Adopting a whole-of-government approach can be very helpful in deciding what constitutes a good strategic outcome. A pooling of information may be essential to ensure an accurate picture of the problem and its potential outcomes. Often, the interests of a number of government departments will be at stake and there will be cross-linkages between them. Internal perspectives may vary and there may be tensions, for example, over financial concessions offered to attract an outside investor and any loss of revenue resulting from them. As well as classic instruments of state power, there may be many potential negotiating levers that do not become apparent without broad internal horizon scanning. These could include economic, fiscal, social and employment measures and investment incentives. It is also prudent to include discussion of sanctions and potential disincentives as part of a negotiating strategy.

A good system of internal coordination can assist greatly in underpinning these discussions. It should be sufficiently broad to include all those with a real interest in the matter at hand without being too cumbersome or unwieldy. It should be responsive enough to take decisions quickly and to take account of the political and resource dimensions of a conflict. And it should be transparent enough to allow the interests of outside stakeholders such as parliament and civil society to be properly taken into account.

It is not for outsiders to dictate national machinery of government questions. However, there is much to be said for underpinning coordination arrangements with an independent secretariat that is not beholden to any particular part of government, but linked with, and responsive to, its Head (who ultimately will have to rule on any points of disagreement). It is for discussion whether those responsible for coordination should have executive responsibility for the conduct of negotiations; both options can work. In the United Kingdom, for example, the Cabinet Office Secretariat—answerable ultimately to the Prime Minister, but available to all Departments as a common asset—undertakes coordination of European Union business through a system of Ministerially-chaired committees, but does not implement policy itself. In the US, the National Security Council can undertake a similar role in respect of defence and foreign policy, but can sometimes assume more executive responsibilities.

2.3. Setting the right framework

Planning should involve consideration of the most effective framework for settling the dispute. Sometimes circumstances will dictate this, but on other occasions there may be a choice. Should negotiation best be conducted bilaterally or under the auspices of an external organization? Should there be direct face-to-face talks or should contacts be undertaken through an intermediary? There are no hard and fast answers to these questions. Whatever framework is adopted will self-evidently need to command the confidence of all sides to the dispute, but head-to-head negotiations may not always yield the most productive outcome. If time allows, there is often a lot to be said for exploratory contacts before any formal negotiations begin. And as a general rule the principals on both sides should not get involved before they really need to; initially, the running is often best left to their collaborators.

Formal negotiation may not always be the most effective way of settling a dispute. Another option, including where legal and commercial issues are at stake, may be mediation. Under this scenario, a mediator appointed by and with the confidence of the parties assists them in resolving their differences. He or she controls the process and facilitates discussion but takes no view on the substance, which the parties must ultimately resolve themselves. Mediation is confidential and without prejudice so that if the process fails, nothing discussed during it can be used subsequently. It can offer a cheap alternative to litigation and provide an effective way of resolving disputes at local or national level. A mediator can

also help bridge any cultural gaps between governmental and non-governmental stakeholders. The use of mediation is increasing in a number of African countries, including Kenya, where it is seen as an effective way of ensuring transparent implementation of the provisions of the new Constitution.

Arbitration is another potential avenue of dispute resolution. It can be binding or non-binding and conducted by a trusted individual, an organization or a court. An arbitrator has the power to suggest or—depending on the terms—impose, a settlement of a dispute. Arbitration can thus be a powerful tool. A disadvantage is that it can often take a long time, and each side needs to be sure the other will respect the terms of the settlement decided by the arbitrator.

2.4. National, international and domestic balance

The ideas presented in this paper have been mainly set in the context of national strategies for conflict resolution and dispute settlement. However, in many instances there is an external dimension, either because a regional or international organization is involved or because one or more of the principal stakeholders is based or has interests outside the country. The more internationally based negotiating efforts become, the less the direct control that can be exercised by a single government. So the balance between national and international activity should be considered carefully.

The same applies, in a domestic context, to the balance between centrally and locally directed efforts. Here, circumstances will vary by country and the state of the governance and other systems in place. In some countries such as Afghanistan and Pakistan (see, for example, Synnott, 2009), experience suggests a need to operate as closely to the ground as possible, but that can itself give rise to tensions with central government, particularly if that government is weak or uncertain. Circumstances may be different in more stable or centrally regulated societies.

3. Indicators of success

This paper sets out in broad terms what a good outcome to a negotiation should look like. But it is worth thinking more systematically about indicators of success. In terms of good negotiating technique, success indicators allow a measure of how well things are going; in terms of politics they can provide justification for strategic or tactical decisions. What constitutes success depends on the nature of the conflict or dispute and when and how it needs to be settled. However, effective success indicators are likely to:

- Be comprehensive, and usually involve security, political and economic benchmarks. It may also be appropriate to include a number of social policy indicators relating, for example, to health or unemployment. Benchmarks should also be considered for non-governmental stakeholders; one measure that could be considered for the commercial sector might be some measure of corporate social responsibility.

- cover both short and long-term indicators.
- include, and give special weight to, the integrity of state institutions.

These sorts of indicators can be easily and instructively applied to the subjects discussed earlier in this conference. Strong institutions, robust regulation and diversification are keys to combating the so-called ‘resource curse’ of new hydrocarbon revenues impacting negatively on national economies. The literature suggests some useful targets, for example, oil production levels of more than 50 barrels per head per year as economic indicators of success (Myers, 2005). However, it is less easy to quantify timescales, set social policy and political targets with certainty, and establish clarity on how non-governmental actors should fit into the picture.

4. The security and defence sectors

The security and defence sectors can often have a disproportionate effect on the delivery of successful dispute resolution, even if the points at issue may not be overtly related to armed conflict. One reason for this is their key role in delivering sustainable state institutions, particularly where other manifestations of government are weak. Another is that in many cases—particularly, but not limited to states newly emerging from conflict—they are likely to be of high importance to the political leadership, and thus better resourced than many other parts of government. The Defence Ministry in Sudan is currently a case in point.

The importance of security and defence is not limited to the developing world. In Europe and Asia, driven by the requirements of, e.g., Partnership for Peace or NATO membership, defence ministries have often led the way in security sector reform⁴. Properly resourced and reformed they can set an example for other areas of government; badly developed they can have a disproportionately harmful effect. Differing popular views of the Egyptian Army and Security Police during events in Cairo in January and February 2011 serve to emphasize this contrast. An important lesson is that to be effective and help establish the right trajectory towards stability and economic growth, the security forces have to operate with broad popular support. This requires both well-established democratically focused security and defence institutions, confident of their role and position in society, and firm action to root out and deal with any abuses of that position.

Effectively tasked and managed, and with the right doctrine, the security sector can make an important contribution to the whole-of-government approach advocated in this paper. First and foremost, an acceptable level of security is necessary to support development and economic growth. In guaranteeing that security, the police and security forces can provide information and insights not available to other

⁴ For example, a US Congressional Research Service Report of 14 April 2009 (www.fas.org/sgp/crs/row/RL34701.pdf) noted that the main challenges to Albania’s candidacy for NATO membership were questions about the pace of its political reforms; it had made significant progress in military reforms.

parts of government. The police in particular are also in the front line in the fight against corruption and organized crime. Left unchecked, both practices have the potential to trigger the cycle of conflict depicted in Fig. 1 of this paper. There is much anecdotal evidence of the connection between organized crime and corruption—the increasing use of West Africa as a staging area for drug trafficking routes between Latin America and Europe is a case in point. But there has been little systematic exploration of the linkages; the former Director General of the UK's Serious and Organised Crime Agency has called for a more comprehensive approach towards tackling corruption and organized crime (Hughes, 2010).

5. Corruption

Corruption significantly impacts the issues that are the subject of this conference. One emerging finding from a series of conferences on Transition in Afghanistan organized jointly in 2010-11 by the Royal United Services Institute, Transparency International, and the Konrad Adenauer Foundation⁵ is that corruption seriously threatens the success of the international mission. Work against it is important in enabling progress in security, governance and development—all of which are fundamental to a successful transition.

Similar considerations apply to many pre- and post-conflict situations. In these circumstances there is a strong argument for making progress against corruption an explicit part of a conflict resolution strategy. Corruption impacts on both the public and private sectors, and very directly affects the integrity of state institutions. Experience from Afghanistan

and elsewhere suggests that the increased resource flows resulting from international involvement often increase corruption levels. The exploitation of mineral resources is particularly susceptible to corrupt practices; robust tendering, contracting and regulatory measures are necessary to avoid 'resource plunder'.

There are a growing number of indicators available to measure corruption, including the World Governance Indicator (WGI) developed by the World Bank Institute in 1996. This measures six different governance factors, all of which are of relevance to conflict resolution. They are Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, the Rule of Law and Control of Corruption. Transparency International publishes an annual Corruption Perceptions Index (Transparency International, 2010) and a Global Corruption Barometer that assesses general public attitudes towards, and experience of, corruption in dozens of countries around the world. Success in tackling corruption generally equates to success in managing the longer-term implications of conflict.

Working with NATO and others, Transparency International's Defence and Security Programme has developed a handbook of practical steps designed to build integrity and reduce corruption risks in defence establishments⁶. Many of the suggestions in it read across directly to other parts of government. Until recently, defence and security were regarded as rather closed areas for counter-corruption work. However, recent experience shows that defence and military officials are increasingly enthusiastic about pursuing corruption—not

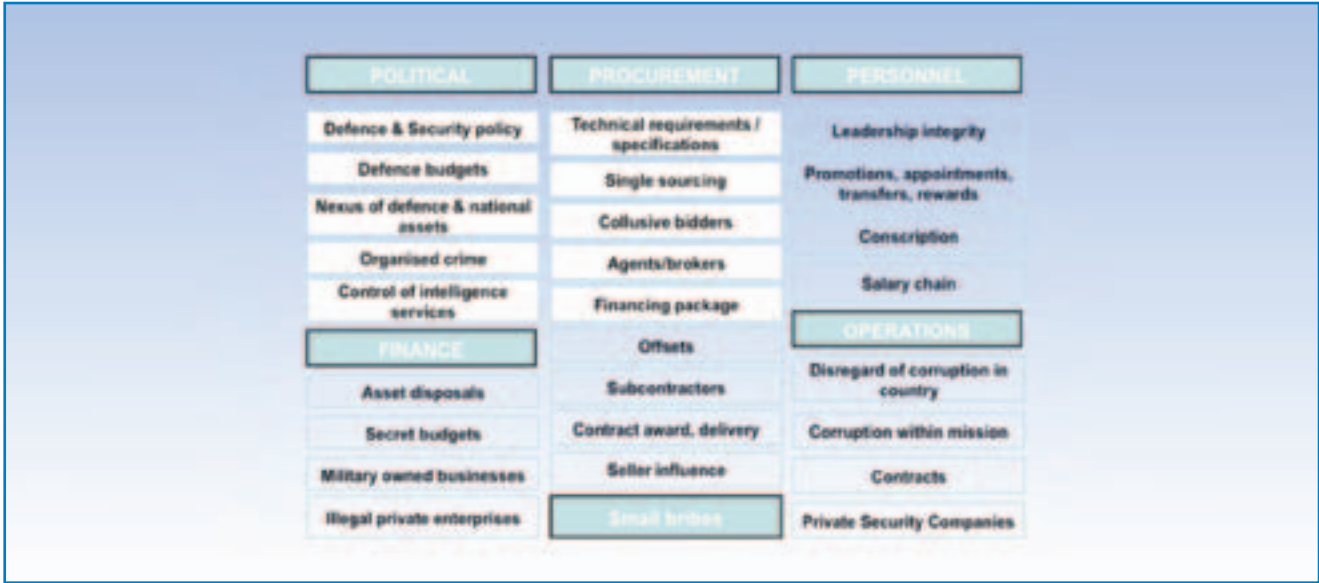
Figure 3. Impact of corruption in defence



⁵ Final conclusions published in May 2011.

⁶ Available at <http://www.defenceagainstcorruption.org/publications>

Figure 4. Transparency International Defence Corruption Typology



least because of the inefficiencies it brings when resources are scarce and because it reduces public trust in the armed forces and the police. Two graphics from the Transparency International Handbook, which are reproduced below, are helpful for understanding the rationale behind negotiating strategies of the sort suggested in this paper. Figure 3 illustrates how corruption in defence impacts on the military, development and good governance.

Figure 4 shows the typology suggested by Transparency International for identifying corruption risks in defence and security establishments. Many of the risk factors are similar to those discussed in other sessions of the policy conference.

6. Conclusion: Success is possible

Finally, it is worth looking at the progress (or lack thereof) made by countries emerging from conflict. Taking the World Governance Indicator on Control of Corruption as an index of improvement, Figure 5 shows results from a number of oil-producing countries, including Ghana.

Figure 6 shows similar results from a selection of countries that have experienced major conflict. Although there are other examples of decline, the figures demonstrate that it is possible to make inroads in tackling corruption over a relatively modest timescale and sometimes from a very low base.

Figure 5. Control of corruption in oil producing countries

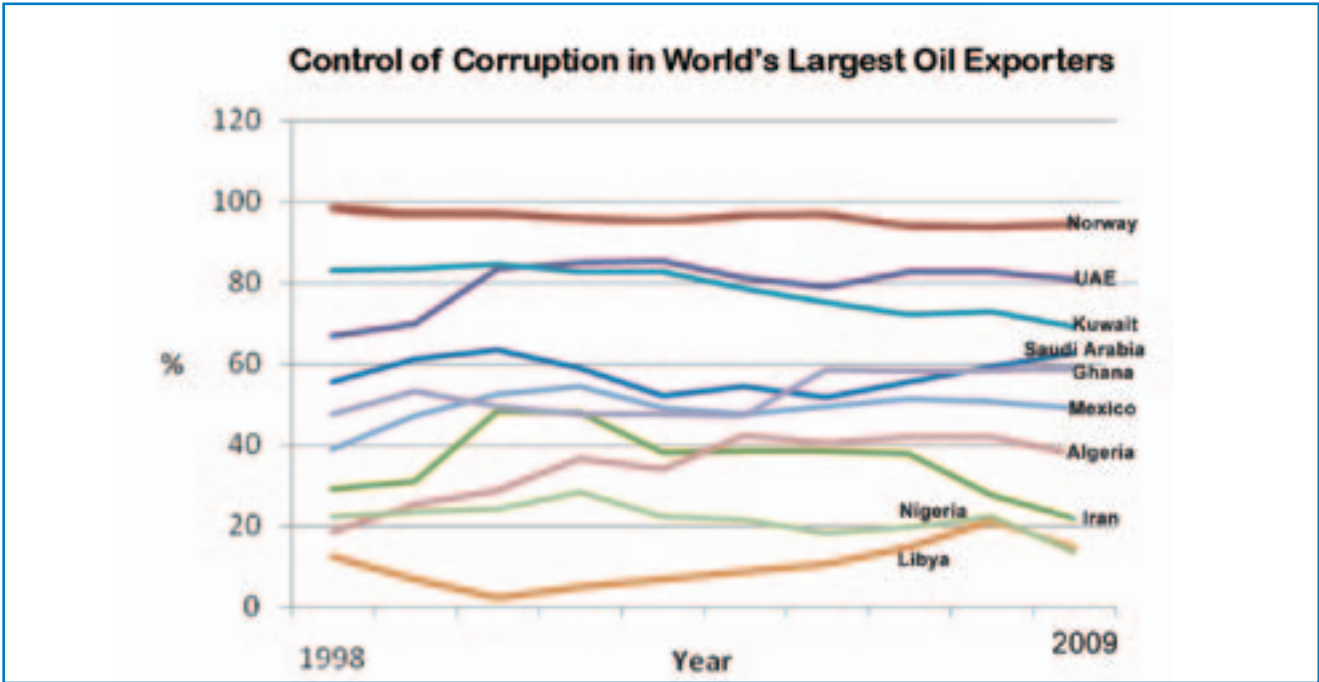
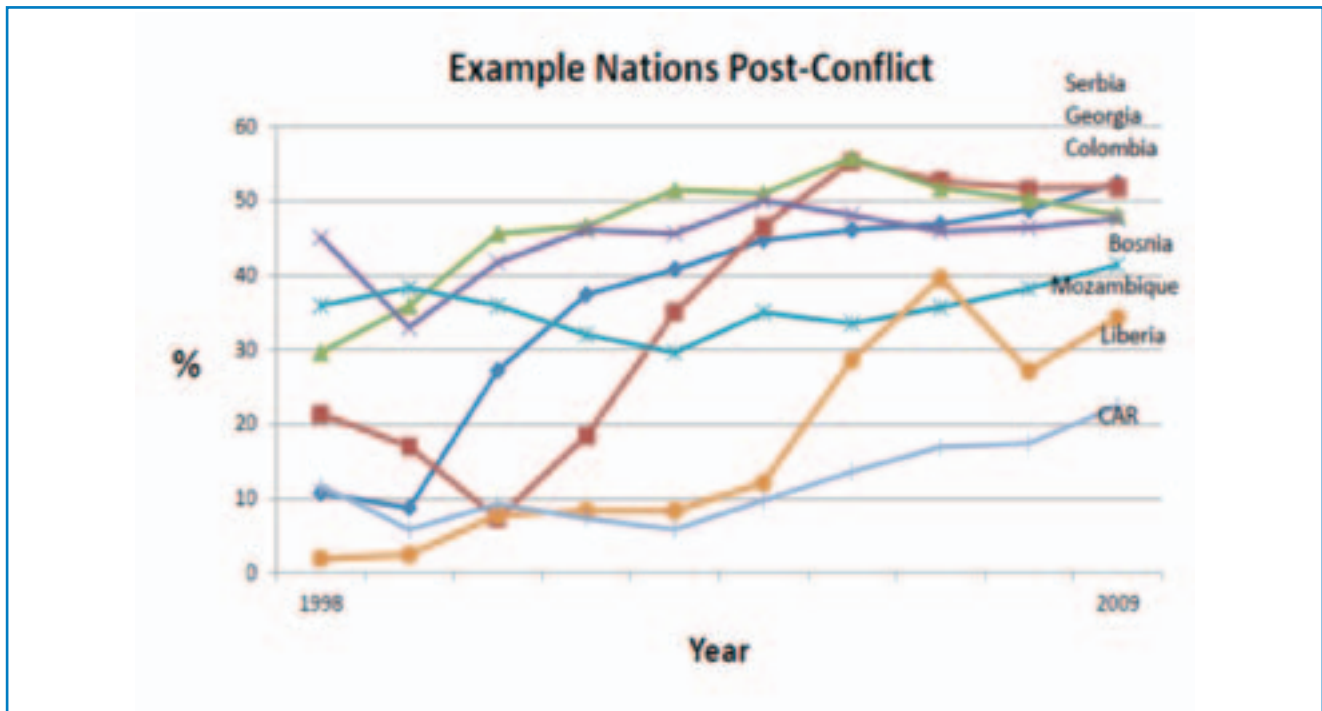


Figure 6. Improvements in control of corruption in some post-conflict countries



The graphs do not indicate the reasons for the improvement, which is often due to a complex mix of factors including economic growth, improvements in governance or a sustained effort against corruption itself. But they illustrate that post-conflict tensions can be managed successfully and that with careful strategic handling, an upward trajectory is possible.

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8. Strategic resources and their management: The oil find in Ghana

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Abstract

The economies of some countries that are richly endowed with strategic resources like oil and gas have underperformed, and sub-Saharan Africa has an abundance of classic examples. However, the economy of Ghana, the latest oil producing country in sub-Saharan Africa, may not necessarily follow the same path due to its advantage of being a late entrant. This paper acknowledges the dearth of proper analysis, diagnosis and uptake of systemic challenges such as the “Dutch disease” associated with resource-rich countries in sub-Saharan Africa, and accentuates the concomitant adverse socio-economic impacts. The paper posits that the prudent management of Ghana’s oil can be achieved, *inter alia*, by enacting enabling laws and their enforcement, setting up “independent” regulatory institutions and practising transparency in the oil industry. More importantly, the paper suggests the formation of a “think tank” to critically study, model and holistically evaluate the potential impacts of the expected huge cash inflows into the oil sector on the other economic sectors of the country. The discourse on the competition for resources provides an exposé on the latter-day scramble for oil in Africa. Additionally, the paper opines that the GNPC—the parastatal tasked with leading the exploration, development and production of hydrocarbon resources in Ghana in a sustainable manner—should, as a matter of urgency, enhance its human capital to marshal the resource flows, the cash flows and the technical details and data required to manage the oil and gas industry. The expectations of Ghanaians with regard to the oil discovery need to be effectively managed.

1. Background

Sub-Saharan Africa abounds in large quantities of strategic resources and has been exploiting them from time immemorial. The strategic resources are intended to assist the sub-region develop its economy, but their mere mention evokes apprehension at times because of their abuse by a few well-connected individuals. What precisely are strategic resources? These are resources used to create value for customers and shareholders (finance-lib, 2011). Are strategic resources normally difficult to manage? The problem does not lie with the resources per se, but with the management

thereof. Follet as cited in Stoner and Freeman (1989) posits that management is the art of using people to get things done and that managers reach organizational goals not by performing tasks themselves, but by arranging others to perform the necessary tasks. Considering the level of mismanagement that characterizes the exploration, development and production of natural resources, particularly in sub-Saharan Africa, the rhetorical question is whether we are poor managers or rather is it a question of having been ‘jinxed?’

2. Introduction

Since first striking oil in commercial quantities in June 2007, and subsequently in August 2007 and February 2008, Ghana has gone into overdrive mode in terms of expectations and, rightly so, considering that the black gold is perceived as being able to transform economies overnight. However, it is also seen as a panacea to all problems. Numerous debates have taken place and many articles have been published in Ghana concerning the apprehension or expressions of joy about the oil find in the country. In this regard, however, will oil achieve more socio-economic development for Ghana than the numerous minerals and other natural resources that have and continue to be exploited in commercial quantities? Have Ghanaians thought about the “paradox of plenty” or the “resource curse?” Are the government, research community and academia, NGOs and the rest of society doing enough to redress the possibility of having this socio-economic challenge in their backyard? The success achieved in fast tracking the development and production of oil from the Jubilee field was both a technological and logistical feat in itself. However, it brought in its wake a lot of challenges in terms of the country’s readiness to enact various laws, to craft appropriate policies, put in place regulatory instruments and institutions and manage the heightened expectation of Ghanaians. The latter concerns the nurturing of the emerging upstream oil and gas industry through a trajectory of sustainability.

2.1. Strategic resources

Strategic resources are of limited availability and of huge importance to an organization or country. In some cases it may be difficult to identify those resources that create value for an organization. Why? The difficulty lies in the dearth

of understanding how resources work together collectively towards value creation. It is pertinent to move beyond the practice of considering operating functions like finance, sales, production, marketing and logistics to be mere static entities in their respective operational areas. By viewing an organization through the lens of resource creation for its stakeholders, the former is aided by the coming together of various functional areas.

Hence, the organization's management is able to concentrate on the appropriate resources for value creation. Of necessity, there are two pertinent resources required for the proper functioning of the organization. These are enabling and value-driving resources. Enabling resources are cash, human resources, relevant skills, technology and physical assets, while value-driving resources are customer service satisfaction, supplier satisfaction, product competitiveness, profitability, brand, employee satisfaction and operational efficiency. The ability of a country's leadership to distinguish between the dual resources and understand their inter-relationship assists in the creation of value over time. The leadership team takes ultimate responsibility for managing the accumulation and utilization of those resources to create value over time (Puente and Rabbino, 2003).

2.2. Management

According to Mescon et al. in Stoner and Freeman (1989), management encompasses the process of planning, organizing, leading and controlling the efforts of members of an organization and utilizing all other organizational resources with a view to achieving the stated organizational goals. The word "process" denotes a type of continuum as opposed to a single event. Another interesting feature of the definition worthy of mention is the fact that the key actionable words are in the present continuous. Again, the word "all", qualifying "other organizations", connotes the idea of inclusivity. In a nutshell, if we take a country to represent the organization, then the body politic may be likened to the members of the organization. The interesting thing in this case is the fact that the word "all" has not been used to qualify the word "members." This implies that not all efforts of the members of the body politic need to necessarily be controlled. This appears to indicate some form of contradiction. A critical analysis of the definition provides a way out of this seeming paradox.

In managing the strategic resources of a country, the managers are continuously thinking through their actions in advance, coordinating the material and human resources, guiding and influencing people under them to undertake relevant tasks, while ensuring that the country is on a trajectory to achieve its defined objectives. The question that immediately comes to mind is who are the managers? The managers are in a tier, and using a bottom-up representation, range from supervisors, sectional leaders, heads of departments, general managers, chief operating officers, chief executive officers, the directors and chief directors of the relevant government departments, the ministers and the chief of staff to the state president. It may appear to be a tall order, but who is to ensure that those in this value chain are up to the task?

2.3. Competition for resources in Africa

Africa has been dubbed the 'virgin continent' on account of its huge endowment with natural resources, some of which are yet to be exploited. In some areas in Africa where highly strategic minerals and natural resources are located, there are constant sources of tension in the form of endless civil wars. Again, in a few cases, there is a balance of forces due to opposing interests. Arms and ammunition are displayed with reckless abandon with the aim of fuelling the tensions so as to perpetuate the looting spree or control of the largesse. Over the last few decades, there has been renewed interest in Africa by the West and the new superpower, which is increasingly becoming ubiquitous. The question often asked is whether this renewed interest is economically driven or a classic case of recolonization. China considers Africa the future engine of global growth. Nonetheless, the perception is prevalent that China's return to Africa is characterized by a manipulation of weak African countries with a view to controlling access to their resources, including the flooding of African markets with cheap goods from the Chinese mainland. Beijing has the capability to make and implement decisions much faster. For example, while the World Bank—a Bretton Woods institution—takes about five years to conceptualize a road or railway, China takes a mere six months. The commendable factor is the speed of China's service delivery in Africa, which is forcing development finance institutions in the West to speed up their processes, reduce red tape and bottlenecks, including the implementation of policies, in a more practical manner (Freemantle, 2008).

Notwithstanding its numerous problems, Africa is a land of promise and opportunity because of its immense natural resource wealth. It is especially for this reason that India, China, the European Union and the United States have been forming various partnerships with African countries that offer mutual rewards. China has been signing back-to-back deals with African countries in order to tap the continent's natural wealth and, in turn, foster Africa's industrialization and development. Recently, Asian trade and investment have been increasing in Africa, forming part of the global trend towards South-South cooperation among developing nations (Nagpal, 2008).

India is in pursuit of Beijing's path to boost oil and gas imports from resource-rich Africa to decrease its dependence on Middle Eastern nations such as Iran. While India's investment in energy in Africa is relatively minimal, it is seeking to advance its partnership with Africa and deem India to be a natural market for Africa's rich hydrocarbon resources. The prospects for India's partnerships with African countries have also improved in the recent past with a boost in investments by Indian companies in nations like Libya, Sudan, Nigeria, Egypt and Gabon. The Indo-African partnership is substantial, as Africa has the capability to play an essential role in enhancing India's oil supply security through the diversification of its crude oil import sources. More importantly, Africa has 10% of the world's entire oil and gas reserves, and its hydrocarbon exploration potential remains relatively unexploited. While India and China have awakened to the realities and are invest-

ing in nearly all sectors in Africa, US presence has mostly been restricted to the energy sector. Investment experts indicate that foreign direct investment flowing into Africa has more than doubled since 1998, but few US companies have invested in the region except for the oil and mining sectors (Alexander's Gas & Oil Connections, 2008).

Figure 1. The Eirik Raude Drilling Unit (courtesy Canadian Wellsite)



2.4. The resource curse

Considering the fact that most of the resource exploration, appraisal and exploitation in sub-Saharan Africa have been characterized by curses, it is necessary to look at what a resource curse entails. According to Wikipedia (2011) and Gylfason et al. (1999), the resource curse refers to a scenario in which countries and regions with plenty of natural resources, particularly point source nonrenewable resources like minerals and fuels, tend to show less economic growth (by inhibiting investment in human capital) and inferior development outcomes than countries less endowed with natural resources. Are curses generally associated with the exploitation and production of natural resources, particularly oil, or is this just a figment of the imagination? For an informed position, it is necessary to critically diagnose the various curse claims from the standpoint of their original theoretical framework or in the pretext of their current variants with a view to basing judgement on appropriate empirical evidence (Clarke, 2010). It is hypothesized that the resource curse occurs for many different reasons, including:

- A decline in the competitiveness of other economic sectors (caused by appreciation of the real exchange rate as resource revenues enter an economy).
- Volatility of revenues from the natural resource sector due to exposure to global commodity market swings.
- Government mismanagement of resources, and
- Weak, ineffectual, unstable or corrupt institutions (possibly due to the easily diverted actual or anticipated revenue stream from extractive activities).

It is important at this stage to list some of the manifestations of the resource curse. According to Adam (2011), some of the

resource curse's symptoms include the security of democracy challenges, the nexus of oil abundance with violent conflicts, environmental degradation, the institutionalization of authoritarian rule, fiscal indiscipline, collateralization of future oil revenues and corruption. Ghana is fairly democratic considering that it has successfully conducted relatively free, fair and transparent elections since 1992. In fact, a noteworthy endorsement of Ghana's democratic credentials was President Barack Obama's decision to hold his historic speech on Africa's institutional and democratic development (Adam, 2011). It is too early to have a meaningful discourse on the linkages of oil abundance and violence in Ghana, as the country has just found its first oil and no such cases have yet been reported. Ghana has, however, formed a body—the Petroleum Security and Co-ordinating Committee—for the protection of the country's oil and gas fields against terrorist attacks, sabotage and environmental pollution (Ghana Oil, 2011).

With regard to environmental degradation, Ghana experienced some mud spillage in the sea by Kosmos Energy, even before the first oil was found. A ministerial committee was established to investigate the incidents and to decide on appropriate punitive action. Kosmos Energy refused to pay the fine handed down, asserting that the Minister did not have such powers under the Constitution or any other law in Ghana. This incident demonstrates an underbelly of some of the contractual agreements the country has entered into with the international oil companies within the context of national laws (Xinhua, 2011). This raises an early red flag which calls for immediate redress.

It must be pointed out that despite Ghana's awareness of the dangers associated with oil and gas exploitation, the preparedness of the country to put appropriate legislation in place on exploration and production is questionable. While the bill being debated in Parliament is silent on gas flaring, it also does not include sufficient measures to avert spills and the mechanism to deal with them (Adams, 2011). Additionally, Ghana has been having problems with fiscal discipline (Allen and Bougha-Hagbe, 2008).

Two unfavourable signals emanate from Ghana's legislative body—the move to expunge the proposal for a heritage fund and the passing of a bill that allows the collateralization of oil revenues that will accrue in future. Among the unfavourable impacts of the collateralization of oil is the potential to enhance the Government's borrowing appetite, which might lead to fiscal deficits and the related fiscal sustainability challenges (Adams, 2011).

3. The oil find in Ghana

3.1. History of oil extraction in Ghana

Evidence of commercial drilling for oil in Ghana indicates that extraction took place in the latter years of the 19th century at Boka Agloe, a small village in the Jimoro district of the Western region. "Master Hayes" undertook the extraction of

oil. However, he did not return to the then-Gold Coast after leaving the shores of Ghana for his country during WWII. According to one Chief Osman, an octogenarian, the oil that was collected for Master Hayes was exported to Western Europe by sea. Again, during the erstwhile Busia regime in Ghana in the early seventies, oil was found in Saltpond in Ghana's central region. There is currently some oil production offshore Saltpond in the Saltpond and Central Basins. The oil find can be properly discussed by contextualizing the formation and role of the GNPC—the national oil company.

The GNPC was established in 1983 as a state-owned company under PNDC Laws 64 and 84. The mandate of GNPC is to undertake the exploration, development, production and disposal of petroleum, and is underpinned by PNDC Law 64. The legal framework that governs the contractual relationship between the State of Ghana, GNPC and the prospective investor in upstream operations was provided by PNDC Law 84. In addition, the two statutes were supplemented by the Petroleum Income Tax Law, PNDC 188 of 1987.

The enormous tasks that the GNPC faces include, *inter alia*, generating international interest in Ghana's hydrocarbons, the development of young professionals (Offshore Ghana, 2011), natural gas transportation and processing plants (GNPC and EDM, 2011). In view of this, the parastatal should as a matter of urgency enhance its human capital to marshal the resource flows, the cash flows and the technical details and data required to manage the oil and gas industry.

The conclusion of a Petroleum Agreement in 2004 between the GNPC and a consortium of Kosmos Energy, Tullow Oil, Anadarko, Sabre Oil and the E. O. Group for the exploration of the West Cape Three Points Block was the genesis of modern day oil exploration and production in Ghana. Also, the awarding of the Deepwater Tano to another consortium consisting of Tullow Oil, Kosmos Energy, Anadarko and Sabre Oil assisted in the preparation for the massive oil and gas finds in the country in June and August 2007. Since August 2007, other equally significant oil finds have been made in several wells in offshore Ghana.

3.2. Mahogany – 1 discovery well

The trailblazing oil find in the Mahogany – 1 well was made on 7 June 2007 about 63 km from Half Assini and at a distance of 132 km southwest of Takoradi—the port and oil city. The well was drilled to a depth of 3,826 m and in water depths of 1,322 m. The drilling which penetrated 271 m of gross reservoir sands encountered a hydrocarbon pay of 96 m, with a 370 API oil gravity.

3.3. Hyedua – 1 discovery well

On August 2007, oil in commercial quantities was again found at Hyedua – 1 discovery well about 5.3 km southwest of Mahogany and one in the Deepwater Tano oil block of Tullow Oil. This discovery well was drilled to a total depth of 4,002 m, encountering a gross reservoir interval of 202 m with 41 m of net hydrocarbon bearing pay. It was subsequently found

that the reservoir sands were in pressure communication with the Mahogany – 1 discovery well. This provided for a 361 m combined hydrocarbon column across the Deepwater Tano and West Cape Three Points licences.

3.4. Other wells

Since August 2007, other wells, discoveries, appraisals, etc., have indicated varying commercial quantities of hydrocarbons. Among these are the Odum – 1 discovery well, the Tweneboah – 1 discovery well, the Sankofa – 1 discovery well, the Mahogany – 4 discovery wells and the Dzata discovery wells. The preparation by the consortium and GNPC to fast-track the production of oil culminated in the turning of a tap by the President of Ghana, John Evans Atta Mills, on 15 December 2010 to signify Ghana's first oil extraction from the Jubilee field. Indications are that Ghana has relatively bright prospects with respect to oil production and the future will reveal the extent of its endowment and production (Asamoah, 2011).

4. The Dutch disease

Usually, oil production is a cause for celebration, but it is also associated with certain systemic challenges that need to be addressed to prevent it from becoming a curse. A classic case of this is the "Dutch disease." The Dutch disease manifests itself in the following way: Deindustrialization occurs in a nation after the discovery of natural resources, raising the value of the currency, thereby making manufactured goods less competitive compared to those of other nations. This phenomenon leads to an increase in imports and a decrease in exports. The term "Dutch disease" was coined in Holland following the discovery of the North Sea gas (Investorswords.com), when the country experienced symptoms very similar to what is being described here.

The increase in imports has a number of socio-economic implications. It leads to less patronage of locally produced goods, which eventually causes the demise of local industries due to the relative cheapness of imported goods. The collapse of local industries has adverse spin-offs like high unemployment, increase in crime and other social vices. The raising of the value of the currency makes locally produced goods more expensive than imported ones. This phenomenon leads to less patronage of locally manufactured goods with the resulting effect of local production becoming unsustainable. The pertinent question is how Ghana—the newest producer of crude oil and gas—will avoid the Dutch disease? Ghana can take a cue from Norway, Trinidad & Tobago and Qatar. These countries have, in my opinion, had oil and gas blessings.

4.1. Enabling environment for an oil blessing in Ghana

If Ghana is to benefit from an oil blessing, the country needs to implement a number of measures. In particular, certain institutions need to be established and appropriate strategies and tactics adopted. On the institutional level, Ghana needs to, without further delay, set up an oil and gas think tank. This think tank needs to be staffed by professionals

and technocrats from various industries and professional persuasions as well as socio-economic empiricists. The think tank should critically analyse the expected financial inflows to the country in the short, medium and long term. It must critically project the potential impacts of these inflows, using tools like mathematical modelling, input-output analysis and econometrics. Other measures that need urgent attention are presented below:

- Ensuring that the oil and gas revenues due to the government are collected;
- Regularly publishing the revenues received from oil and gas activities;
- Active participation in the processes set up by Extractive Industries Transparency International.

4.2. Maximizing returns to the government

- Avoiding issues that lead to political instability, violation of the human rights of people living in areas contiguous to where oil and gas are produced, secrecy in contractual agreements, opaque revenue payments; and any increase in government budget spending as the government enters into negotiations with foreign partners.
- Thoroughly studying the experiences and fallouts from the mining industries in order to take a holistic approach to the management of the oil and gas industry.
- Avoiding the temptation to create an enclave economy, where employment opportunities would be available to few people who are connected with the top government or company officials (Freiku, 2008).
- Prioritizing development projects to be funded from a dedicated account and providing annual audits of the utilization thereof.
- Unequivocally implementing the transparency initiative.
- Avoiding the neglect of any economic sector on account of potential high cash inflows from the emerging oil and gas industry, and
- Allocating special revenues to the oil and gas producing areas as is the case in Nigeria for the Niger Delta region (Asamoah, 2010).

The management of the Ghanaians' expectations in light of the oil discovery requires full attention. The Government and its agencies, NGOs, research and academia and religious bodies must work together to disperse the idea from the minds of Ghanaians that oil production is a panacea for all socio-economic problems. Furthermore, the contractual arrangements between the Government and international oil companies need to be made public.

5. Conclusion

The socio-economic development of sub-Saharan Africa has not matched its strategic resource endowment, particularly oil, due to the scant attention that has been paid to economic challenges like the Dutch disease, unbridled corruption and the dearth of prudent management. Ghana has just become

an oil producing country and has the benefit of being a late entrant and can thus avoid the mistakes her neighbours made. However, the setting up of an oil think tank will go a long way to mitigate the adverse impacts of the Dutch disease and other socio-economic challenges.

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9. How empowering Ghanaians can help Ghana avoid an oily mess

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Abstract

The wealth of a nation is not fully expressed by its supply of oil, gold, BMWs or iPods. As Adam Smith taught us, people are the ultimate wealth of nations. How nations interact with and empower their citizens will determine their country's future. And because Ghana has long been a model for other countries, how Ghana uses its new oil wealth to develop could become a beacon or a lesson for other states in what not to do. Ghana could become a model for how developing countries use their oil to stimulate equitable sustainable growth.

1. Introduction

This paper begins with a discussion of how outsiders and Ghanaians see Ghana's governance (Brand Ghana). Ghana is respected for its democracy and governance, yet its performance has been uneven on multidimensional governance metrics. Surveys of Ghanaians also reveal mixed attitudes about governance in Ghana. Yet Ghanaians are optimistic about their future. I suggest that Ghana can use its oil money to make its governance participatory, responsive and accountable. Scholarly research suggests that policymakers can reduce corruption by investing in their people (education, health, infrastructure, etc.) and ensuring political accountability. I suggest ways that Ghana can ensure that its citizens (whether wired or not) can monitor their government. In so doing, Ghana may be better positioned to expand trade and investment and make the government both accountable and effective.

In September 2009, Ghanaian President John Atta Mills set up a "Brand Ghana" office. Nation branding is a strategy to determine what a country is, "what it stands for, and what it is going to be known for."¹ He hoped such a brand would signal a unified positive image of Ghana at home and abroad (NA, 2008, 2009).

Ghana may have difficulty forging such a brand. Ghana is widely seen as an African success story. But its performance, like many other nations, is mixed. The government is stable

and democratic, but the economy is not diversified. Mining comprises some 12 per cent of government revenue; but the bulk (some 75%) of its exports include commodities such as cocoa, logs, minerals, gold and electricity (World Economic Forum, 2010). In contrast with many other resource-rich countries, Ghana has so far avoided the resource curse (the resource curse is a term to describe the inadequate governance and corruption that often occurs in nations blessed with abundant national resources (Auty, 1994; Sachs and Warner, 2001; Gillies, 2010). However, Ghana began to drill oil this year, and this oil will bring billions in new revenue. Some observers fear that Ghana could mismanage these resources and endanger its hard fought progress (Gary, 2009; Harvey, 2010). Ghanaian leaders have not yet clarified how they will use this oil money to invest in its people, stimulate development, and diversify the economy². But herein I argue that Ghana's new oil revenues provide an opportunity to make Ghana's governance more accountable, participatory and responsive. In that effort, Ghana might find its brand.

2. Ghana and governance

On the one hand, Ghana is an effective democracy with a thriving independent media and civil society. The EU called it a shining example of sustainable economic development among sub-Saharan African countries and President Obama noted Ghana's strong democracy.³ On the other hand, the economy is not diversified. Ghana attracts little foreign investment outside of commodities and has a crime and money laundering problem (Gary, 2010; CIA, 2011).⁴ During its most recent WTO trade policy review, where members examined Ghana's trade and governance performance, the Secretariat reported that although Ghana is growing, future growth is threatened

² Ghana may be interested in embracing the Natural Resource Charter (www.naturalresourcecharter.org) which is a set of principles for governments and societies on how to use the opportunities created by natural resources effectively, drafted by a group of leading academics and practitioners in the field of natural resource governance.

³ WTO, Trade Policy Review, WT/TPR/M/194, #29, p. 9; and President Obama's speech in Accra, http://www.huffingtonpost.com/2009/07/11/obama-ghana-speech-full-t_n_230009.html

⁴ The OECD ranks Ghana a 6 (of 7) for risk. <http://www.business-anti-corruption.com/en/country-profiles/sub-saharan-africa/ghana/resources/>

¹ <http://nation-branding.info/2011/02/05/latvia-nation-branding/>

by infrastructural problems, unclear antitrust (competition) policies, and a lack of credit⁵. A study for the UK Development Agency DFID found that Ghana suffers from an “enduring neopatrimonial” or patron client environment that weakens demand for change and discourages long-term reform (Booth et al., 2005). The World Bank noted that Ghana’s traditional court system and British-based modern law legal systems exist in parallel, creating insecurity and making contract enforcement difficult. It also notes that the police are corrupt and the state does not fully control and administer rural areas⁶. The South African Institute of International Affairs warned that Ghana relies heavily on foreign expertise and aid for revenue (Ross, 2010). In the long run, Ghana cannot grow without a well-educated, productive workforce⁷. Yet, Ghanaians go abroad for university, and many of the most educated do not return home. Ghana cannot possibly build a future economy without a cadre of scholars, technologists, innovators, etc. Thus, Ghana must find ways to improve its higher education and primary school systems.

Moreover, Ghanaian officials must think long-term about their agricultural sector. It must be able to feed its people and move them out of poverty. However, many countries that have abundant mineral resources tend to ignore the consequences for the agricultural sector. Ghana has a comparative advantage in agriculture. If Ghana invests in modernizing agriculture, increasing access to credit for farmers, and educating farmers on new technologies, seeds and crops, it can help ensure that farmers are not left out of economic growth and that their exports do not become too costly (if the cedi rises with greater oil output).⁸ Ghana can also modernize and supplement its agricultural extension service to help farmers meet industrialized country sanitary and phytosanitary standards. By making agriculture a priority and by investing in farmers, farmer technology, and access to credit and education, Ghana may well be able to take advantage of rising commodity prices and move even more people out of poverty (Nankani, 2009; Booth et al., 2005).

Ghana’s mixed performance is also reflected in multidimensional measurements of governance.⁹ For example, the Mo Ibrahim Foundation looks at the quality of governance: it ranked Ghana 7th out of 53 African countries. However, Ghana began the century at rank 7 and has remained there 10 years later.¹⁰ In the World Bank’s “Doing business” report,

which rates countries’ business environment, Ghana ranks 67. On this metric, Ghana has improved—it has made it easier to get credit, is doing better at protecting investors, but the Bank concluded that it still has not created an effective environment for entrepreneurship (World Bank, 2010). On the new Revenue Watch Index, which measures Ghana’s performance on transparency, the country also receives low scores. In fact, despite fully complying with EITI, Revenue Watch described Ghana’s approach to transparency as “scant” (Revenue Watch Institute, 2010; 2011). The Legatum Prosperity Index measures national progress at providing citizens wealth and well-being. Ghana is ranked 90 of 110 countries. Legatum stressed that Ghanaians are optimistic; they see the country as meritocratic and as a good place to start a good business. However, the survey also found that “only a third of the population is satisfied with their standard of living. The country does not have firm foundations for future growth.”¹¹ Finally, the Bertelsmann Transformation Index measures country efforts on democratic governance and on a socially responsible market economy. It found that many resources are wasted through corruption and there is a clear lack of customer-oriented service culture, even in the tourism sector (Bertelsmann Foundation, 2009).

Ghana is not alone in its mixed performance; even the richest oldest democracies have problems with governance. Yet these studies reveal that Ghana can and should work harder to diversify the economy, provide credit and invest in its people.

3. Ghanaian views

The governance surveys look at Ghana from 10,000 feet. The Ghanaian people probably have a more accurate mixed vision of Ghana. Surveys reveal that the Ghanaians are relatively pleased with their government and optimistic about their future. They believe their democracy will prosper with the new oil money (Timberg, 2008). A 2008 survey found Ghanaians believe the government effectively provides basic health services (83 per cent); addresses educational needs (81 per cent); combats HIV/AIDS (78 per cent); empowers women (75 per cent) and manages the economy (69 per cent) (Afrobarometer, 2008).¹² However, nearly 7 in 10 Ghanaians polled in 2008 believe that the government should act like a parent and take care of people like children. The Center for Democratic Development CDD-Ghana is concerned that this “implies residual acceptance of patronage; and attitudes of subservience to authority.” The CDD feared that if people see their representatives as parents, citizens will not act to hold these same legislators to account (Afrobarometer, 2008b; Lindberg, 2009). Moreover, Ghanaians see local government bodies and representatives as corrupt, unresponsive and unaccountable.

⁵ WTO, “Ghana, Trade Policy Review,” WTO, WT/TPR/M/194, 2008, p. 2, 7, 9, http://www.wto.org/english/tratop_e/tptr_e/tp294_e.htm

⁶ <http://www.business-anti-corruption.com/en/country-profiles/sub-saharan-africa/ghana/snapshot/>

⁷ The Bertelsmann Foundation reports that “maintenance, sustainability and quality of teaching remain major problems, especially in the country’s north.” (Bertelsmann Foundation, 2009).

⁸ I am grateful to Antoine Heuty, Deputy Director of Revenue Watch, for this insight.

⁹ WTO, Trade Policy Review, WT/TPR/M/194, # 3. 4, p. 2, #23, p. 7, #29, p. 9. S

¹⁰ <http://www.moibrahimfoundation.org/en/section/the-ibrahim-index>

¹¹ Legatum Prosperity Index, 2010, www.prosperity.com/country.aspx?id+GH

¹² They are less confident of the government in reducing crime (64 per cent); providing reliable electric supply (64 per cent); providing water and sanitation services (62 per cent); maintaining roads and bridges (61 per cent); ensuring everybody has enough to eat (56 per cent); fighting corruption (55 per cent); creating jobs (54 per cent), and improving living standards of the poor (50 per cent). The poll was taken in 2008.

Yet most Ghanaians have not acted to inform and influence their local government representatives. Weak citizen engagement has reduced trust in Ghana's governance¹³.

4. Trust, good governance and political participation

Despite their disenchantment with local government, Ghana has strong levels of trust for national leaders. Institutional trust is the key linkage between citizens and the state for creating legitimacy (Pierre and Rothstein, 2010; Ackerman and Kornai, 2004; Lederman et al., 2001). With trust, decisions can be made through consensus.¹⁴ Ghana is well positioned to provide political accountability: it has a strong and diverse press as well as anti-corruption counterweights such as a free press and a system of checks and balances (World Bank).¹⁵ The government is working to be transparent and responsive, but it has not adopted resource contract transparency (Revenue Watch 2009; 2010a). Meanwhile, Ghanaians can do more to hold their government to account.¹⁶

4.1 A few ideas

Global Integrity, one of the leading international NGOs working on improving governance, evaluates how nations have worked to create bulwarks against corruption. It notes that Ghana lacks conflict of interest regulations, has a weak system of monitoring political financing, little executive, judicial, and legislative accountability and whistle-blowing protection measures.¹⁷ Global Integrity also reported the irony that some citizens have had to bribe officials to gain access to information about Ghana (Global Integrity, 2010).¹⁸ The Parliament should consider enshrining citizens' right to know legislation, as well as other key counterweights. It should also inform citizens of their right to access to government information which helps ensure effective democracy.¹⁹

Ghanaian leaders can do more to involve and empower citizens, even those without web or mobile phone access.

¹³ Afrobarometer, "Popular Opinions on Local Government," 5-6.

¹⁴ The UN Development Programme (UNDP) defines governance as "the exercise of...authority to manage a country's affairs at all levels. It comprises mechanisms, processes and institutions, through which citizens and groups articulate their interests, exercise their legal rights...and mediate their differences" (UNDP, 1997).

¹⁵ World Bank, Business Fighting Corruption, Ghana, <http://info.worldbank.org/etools/antic/detailR.asp?ID=35>

¹⁶ Charron, N.(2009) 'The Impact of Socio-Political Integration and Press Freedom on Corruption', Journal of Development Studies, 45: 9, 1472-1493.

¹⁷ <http://www.globalintegrity.org/reports/2006/GHANA/scorecard.cfm>

¹⁸ Although the Executive has supposedly proposed the right to know legislation, I found no information on this on the homepage of Ghana's Government. <http://www.ghana.gov.gh/>. http://www.humanrightsinitiative.org/index.php?option=com_content&view=article&id=71&Itemid=72

¹⁹ In 1946, the UN established that "freedom of information is "the touchstone of all the freedoms to which the United Nations is consecrated." In short the UN has established that there is a basic human right to secure access to publicly held information as well as a duty of government officials to make such information available..

First, the Government should encourage the public to actively participate in decision-making. Ghana only has 5 per cent internet penetration, so it needs to ensure that those without web access (as well as those who are illiterate) have information about what Government is doing. Policymakers can disseminate information through notice boards, newspapers, media broadcasts as well as the internet (see, for example, Darbshire, 2010). Policymakers should not only provide information, but ask for information. Thereby, Ghana can improve government services.

Ghana could also disseminate information about free tools that can enable citizen watchdogs. As 63 per cent have access to mobile phones²⁰, these phones may prove to be the most useful tool in monitoring government. On phones individuals can:

- Tweet. A tweet is a short message. Anyone can tweet anonymously by simply leaving a voicemail on one of these international phone numbers (+16504194196 or +390662207294 or +97316199855) and the service will instantly tweet the message. No internet connection is required. People can listen to the messages by dialling the same phone numbers or going to twitter.com/speak2tweet
- Report bribes²¹
- Use apps that allow farmers to see whether they are getting a fair price ²²or help concerned citizens survey their neighbours regarding equal access to public services.

Ghana could also promote knowledge of other technologies that can be used on multiple platforms to report information. These include: Ushaidi, which means "testimony" in Swahili. It was developed to map reports of violence in Kenya after the post-election fallout at the beginning of 2008. The Ushahidi platform provides tools for communities to crowdsource real-time information using SMS, email, Twitter, and the web; Comm.unity, wireless, a device-to-device information system that bypasses the need for centralized servers, coordination or administration. It builds on the users' social networks, but the user can remain anonymous. Comm.unity is designed to work on as many devices as possible and with as many different radios as possible (WiFi, Bluetooth, IR, etc.) which build networks beyond social networks. Finally, See click fix encourages active citizenship by offering a variety of platforms to report citizens' concerns—whether potholes or pot sales. Citizens can report issues through their website, mobile apps, widgets and voice mail. And citizens can also use the web to anonymously report bribes: <http://www.ipaidabribe.com>.²³

²⁰ Internet and telephone figures obtained from data provided on the CIA Factbook.

²¹ World Bank Apps for Development Competition 2010, <http://wbapps.ideascale.com/a/dtd/Bribery-reporting-system/81089-10789>

²² World Bank Apps for Development Competition 2010, <http://wbapps.ideascale.com/a/dtd/All---In---One-Info-Hubs-for-villages/90396-10789>

These platforms and apps are not perfect. They could provide citizens and policymakers with much needed feedback. Alternatively, citizens might manipulate or exaggerate information. These platforms might also empower the equivalent of high-tech lynch mobs.²⁴ Moreover, as we saw in Egypt (Arab Spring 2011), the government might pressure companies to halt services or breach the privacy rights of individual consumers. In promoting citizen activism, Ghanaian policymakers should set firm rules that respect internationally accepted norms of freedom of expression, access to information and privacy. By so doing, the Government of Ghana will not only disseminate integrity but be a role model for integrity.

5. Conclusion

In a recent web posting about events in Egypt, Ghana's Vice President E. John Dramani Mahama wrote, "Digital technology is redefining our political landscape and will continue to do so in ways that we have yet to even imagine."²⁵ But Ghanaians can imagine how they might use these technologies to inform citizens and encourage citizens to provide feedback and guidance. In so doing, Ghana may find and highlight its brand of good governance.

After all, oil may be the fuel that lubricates the world's markets, but it does not have to make Ghana greasy. Participatory governance could be a slick solution for the Ghanaian people.

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²⁴ For a good understanding of these issues, see Hope, 2011. For example, governments might require cell phone companies to deactivate user accounts or violate their privacy rights.

²⁵ H.E. John Dramani Mahama, Vice President of the Republic of Ghana, http://www.ghana.gov.gh/index.php?option=com_content&view=article&id=4774:wired-for-freedom-in-africa&catid=96:top-headlines

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10. Promoting legal mineral trade in Africa: New policy approaches

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Abstract

With reserves of oil, timber, gas, diamonds, gold, coltan and bauxite, to name only a few, Africa has some of the largest natural resources deposits in the world. Their extraction and responsible management have the potential to fuel development across the continent. While numerous initiatives are underway to support this goal, persistent poor natural resources management and the neglect of diversified prosperity in favour of enrichment of a narrow political elite have too often contributed to slow economic growth and social tensions in many African countries. This paper argues that resource wealth need not be a curse for Africa and explains how current initiatives can contribute to translate the continent's potential into tangible growth. In the context of the promotion of legal natural resources trade, certification, transparency and traceability initiatives are typically identified to respond to challenges impeding legal trade. However, the authors' on the ground work in the natural resources sectors suggests that many initiatives to promote legal trade prioritize Western consumer driven standards over the needs of African states, businesses and workers. While an aspiring approach to ensure that businesses operating across Africa reach international standards is to be encouraged, a failure to take into account local realities results in a gap between what is expected and what can feasibly be implemented. Natural resource management initiatives should be a national project led by the government and citizens for the benefit of the country. Policies developed for states and businesses must be informed by an assessment of how natural resources sectors function in reality, which includes a contextualization of the sectors, factoring in local, national, regional and international political and social economies. The paper suggests that the design of policies and standards should be underpinned by an assessment of key stakeholders and the institutional infrastructure of the natural resources sectors. They should take into account what is feasible in the light of local realities and capacities in the short to medium term, while fixing aspirations on international standards in the long term. The paper introduces tools to help move this agenda forward in practice.

1. Introduction

With reserves of oil, timber, gas, diamonds, gold, coltan and bauxite, to name only a few, Africa has some of the largest natural resource deposits in the world. The dominant discourse on natural resources in Africa has been one of illegal exploitation and conflict, yet the extraction and responsible management have the potential to fuel development across the continent. This paper argues that effective policies to promote legal mineral trade in Africa can translate the continent's potential into tangible growth.

Traditionally relying on a significant mining sector for its economic growth, Ghana stands on the verge of becoming an oil exporting country, following the historic 2007 offshore discovery now known as the Jubilee Field (Revenue Watch Institute, 2011). Commercial extraction began in December 2010, and oil is expected to generate over USD 1 billion per year in export revenue over the next 20 years (IMF, 2009). Along with this large oil reserve, estimated at between 800 million and 1.8 billion barrels, Ghana's extractive sector includes gold, diamonds, bauxite, manganese and salt, as well as substantial resources of iron ore. Gold is the most important mineral mined, accounting for 90 per cent of mining sector revenue, 37 per cent of total exports and up to 40 per cent of revenue in some districts (Mbendi, 2011). Overall, mining is responsible for 5 per cent of the gross domestic product (GDP) (Ghana Mining Portal, 2011) and 12 per cent of government revenue (Boon and Ababio, 2009).

Despite this resource richness, the country ranked 130th out of 160 countries on the United Nations Human Development Index for 2010 and 53.6 per cent of the population was still living on less than USD 2 a day in 2006 (World Bank, 2006)¹. With the discovery of oil, the challenge for the Ghanaian Government is to develop an effective system for managing the available natural resources in a way that will benefit its people.

A detailed discussion about ways to achieve a development return on potential is discussed below. However, it is worth

¹ More recent data are not available.

pausing to reflect on the differences between the oil and mining sector and how they require different approaches to reform. The mining sector is characterized by a large number of companies of varying sizes and artisanal miners exploiting diverse minerals, while the oil sector tends to be dominated by a smaller number of large industrial companies extracting only oil and characterized by capital intensive activities at the extraction phase (Darby and Lempa, 2006). As a consequence, the oil revenue streams tend to be centralized while the less regulated mining sector is characterized by a far more diversified revenue stream. This is also reflected in the way the revenues of each sector are captured. While oil producing countries' revenues are captured primarily at the national level, there is an increasing trend in the mining sector for significant revenues to be paid to sub-national levels of government (such as state, regional and local governments or authorities) (Darby and Lempa, 2006). This can be explained by the often greater and more focused impact of the mining sector on the local communities and regions where mineral resources are located.

Additionally, the contribution of the mining sector to fiscal revenues is generally much smaller than in hydrocarbon-rich countries. Revenues from the mining industry average approximately 12.8 percent of total fiscal revenues in mineral-rich countries, while earnings from the oil and gas sectors account for an average 55 percent of fiscal revenues (EITI, 2009). This contrast largely explains the fact that mining is less lucrative than oil and gas. However, as global demand for raw materials continues to rise, revenues generated by the sector are likely to increase (EITI, 2009).

With these differences in mind, lessons can be learned from the mining sector to inform revenue distribution and development policies in the emerging oil sector in Ghana. This paper argues that resource wealth need not be a curse for Africa and explains how current initiatives can contribute to translate the continent's potential into tangible growth. In the context of the promotion of legal natural resources trade, certification, transparency and traceability, initiatives are typically identified to respond to challenges impeding legal trade. However, the authors' work on the ground with mining communities, governments and companies in the natural resources sectors suggests that many initiatives to promote legal trade prioritize Western consumer-driven standards over the needs of African states, businesses and workers. While an aspiring approach to ensure that businesses operating across Africa reach international standards is to be encouraged, a failure to take into account local realities results in a gap between what is expected and what can feasibly be implemented. Policies developed for states and businesses must be informed by an assessment of how natural resources sectors function in reality, which includes a contextualization of the sectors, factoring in local, national, regional and international political and social economies.

This paper is structured as follows. Section 2 describes the current main approaches to tackling illegal mineral trade; Section 3 analyses the current proposed solutions' limita-

tions; Section 4 introduces other necessary requirements and tools to guarantee effective policy implementation and secure private sector investments; and Section 5 concludes.

2. Proposed solutions to promote legal trade

Mineral trade, especially in the African Great Lakes region, has often been associated with conflict, weak governance structures and corruption, to name only a few. In order to avert this resource curse and respond to challenges affecting mineral trade, a number of solutions to move the mineral trade from informal to formal have been identified by policymakers, the international development community and private investors. The following paragraphs discuss these solutions, focusing on sanctions and embargoes, certification schemes and transparency initiatives. They are illustrated by concrete examples rooted in sub-Saharan African countries.

2.1. Sanctions and embargoes

The international community has often called for international trade restrictions and sanctions against individuals and businesses that trade natural resources with armed groups. This approach was especially popular in the 1990s as the United Nations Security Council (UNSC) rapidly increased its use of sanctions to restore international security and target rogue states. Sanctions are still seen as a fashionable solution today (Rice and Borger, 2009). For example, in the DRC, the UNSC passed a resolution in 2003, renewed in the following years as well as in 2010 (UNSC, 2010), which imposes an arms embargo on all foreign and Congolese armed groups and militias operating in the DRC. The UNSC also imposed targeted sanctions measures (travel ban and assets freeze), and broadened the criteria under which individuals and entities could be designated as subject to these sanctions.²

Another example of sanctions promotion is the recent publication by James Stewart, prosecutor at the International Criminal Court, which sets out the relevant judicial definitions and precedents that enable national courts to prosecute individuals from corporations involved in the illicit trade in natural resources (Stewart, 2010). This guide could be a tool for sanctioning entities and individuals involved in the illicit exploitation of 'conflict resources', focusing on the illegality of the resource transactions themselves.

The United States Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act), section 1502 on Conflict Minerals, passed into law by the Obama Administration in July 2010, can also be cited as a measure having similar effects as sanctions. The Act requires companies reporting to the Securities and Exchange Commission (SEC) to file periodic reports disclosing their use of 'conflict minerals' originating in the DRC or adjoining countries. Regardless of whether conflict minerals are actually being used, section 1502 creates additional compliance costs for companies that will need to ensure awareness of the various inputs and levels of their

² With the adoption of Resolutions 1533 (2004), 1596 (2005), 1649 (2005), 1698 (2006), 1768 (2007), 1771 (2007), 1799 (2008) and 1952 (2010).

supply chains (Shearman & Sterling, 2010). If, after undertaking the due diligence underlying the reporting requirements, the reporting company concludes that its products do not contain 'conflict minerals' that directly or indirectly finance or benefit armed groups in central Africa, such products may be labelled 'conflict free' and imported to the USA (Resource Consulting Services, 2011).

2.2. Certification and assurance schemes

Certification schemes are typically designed to assure one of four main objectives: 1) Origin/Chain of custody; 2) Management systems; 3) Process and production methods; and 4) Product/Manufacturing quality (Levin, 2008). In the context of so-called 'conflict minerals', certification systems serve as an alternative to a wholesale export ban on natural resources. Unlike sanctions, certification is managed by companies seeking to demonstrate to those in the commodity chain that the commodity has been produced in a responsible way. Thus, certification primarily depends upon a proactive process of internal professionalization by companies (and oversight bodies) party to the scheme to meet the requirements, rather than in response to regulations imposed by government.

With the first objective in mind, certification processes have often been identified as solutions to prevent military groups from benefiting from mineral resources and to ensure 'conflict free' mineral trading chains (Mitchell, 2010). The most well-established certification system for the mineral trade is the Kimberley Process Certification Scheme (KPCS), in effect since 2003. It was set up to assure consumers that by purchasing diamonds they were not financing war and human rights abuses. The KPCS requires participating members³ to identify the origin of diamonds produced in their countries. Requirements include: establishing a system of internal controls designed to eliminate the presence of conflict diamonds from shipments of rough diamonds exported from its territory, designating an exporting authority, ensuring that rough diamonds are exported in tamper resistant containers, amending laws or regulations to implement and enforce the certification scheme, collecting and maintaining relevant official production, import and export data (Kimberley Process Review, 2008).

Another example, among many, of certification and assurance schemes implemented in Africa's Great Lakes region is the Certified Trading Chains (CTC) initiative launched by the German Federal Institute for Geosciences and Natural Resources (BGR). By ensuring traceability of the trading chain, CTC serves as an instrument to ensure that the trade of certain mineral resources is conducted legally and does not support belligerent groups in a specific region (Blore, 2011).

2.3. Transparency initiatives

Transparency, which can be defined as public access to infor-

mation, or more precisely 'timely and reliable economic, social and political information [...] accessible to all relevant stakeholders' (Bellver and Kaufmann, 2005) has often been identified among donors and policymakers as central to curbing corruption and other dysfunctions of resource-rich developing countries (Kolstad and Wiig, 2009). President Sarkozy, for instance, discussed the need for a European legislation forcing major companies in the extractive sector to publish what they pay to host countries at the G20 summit in February 2011 (Elliott, 2011). Transparency initiatives can have an influence on corruption-related problems by, amongst other things, making corrupt acts more risky, by making it easier to provide good incentives to public officials and by helping make politicians more accountable to the public (Elliott, 2011).

Regarding natural resources, a transparent revenue system is seen as a necessity prior to accountability, which in turn is necessary for general good governance. Revenue transparency also has a purely commercial justification. Opacity can expose operators, and by extension investors, to reputational risks in cases where public dissatisfaction with national governments fuels speculation about the volume and use of revenues derived from mining operations and result in illegitimate accusations against responsible mining operators (Wright, 2009). Transparency can also reduce the political risks associated with a mining project as it provides the basis for achieving broad political consensus on revenue allocations, reducing the likelihood that future governments find it necessary to renegotiate contracts, and therefore undermine long-term financial plans for the project (Wright, 2009).

In that context, a key initiative, the Extractive Industries Transparency Initiative (EITI), was established in 2003. The initiative seeks to support improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas and mining (EITI, n.d.). The main motivation for the initiative is that oil and mineral rents are seen as the property of the country. Thus, mechanisms to collect, distribute and use the rents should be clear and acceptable to all (Kolstad and Wiig, 2009). Ghana was accepted as an EITI candidate country in September 2007 and was designated EITI compliant on 19 October 2010 (GHEITI, n.d.). The country is yet to incorporate its oil industry into the EITI scheme, which will, when it happens, be an important step in oil revenue transparency.

Section 1504 of the Dodd-Frank Act is also an attempt to force real transparency in the extractive industries and in the exploitation of minerals. All companies registered on the SEC will soon be legally bound to disclose payments made to governments for the purpose of the commercial development of oil, natural gas and minerals.

3. Limitations to the proposed measures

Despite having sometimes positive effects and attractive aims, the measures identified to promote legal mineral trade have

³ As in 2010, there were 49 participants in the KPCS, with the European Community counting as a single participant. Please refer to the KPCS portal for a complete list, available from: http://www.kimberleyprocess.com/structure/participants_world_map_fr.html (accessed on 20/01/2011).

had limited application. The following paragraphs discuss these limitations in each of the proposed solutions.

3.1. Sanctions and embargoes

Individual sanctions, such as those imposed by the UNSC in the DRC against people involved in the illicit mineral trade (AllAfrica.com, 2010) have proven to be ineffective for two reasons. First, the informal mineral trade in most of mineral-rich countries in Africa is big enough to absorb all the trade without being affected by an individual who is sanctioned and therefore has to stop trading. In this regard, the targeted sanctions mechanism is a reactive mechanism that by nature serves to punish and not to prevent the harm. In a context where operators are replaceable sanctions will thus fail to achieve their objective.

Second, there is a lack of backing from national authorities to implement sanctions. For example, no UN Member State has yet put forward to the UN Sanctions Committee the names of individuals or companies engaging in illicit mineral trade (African Press International, 2011), therefore questioning the feasible enforcement of sanctions. In October 2010, for instance, a British court declined an application for a judicial review of the Government's decision not to list United Kingdom companies trading in Congolese conflict minerals for targeted UN sanctions (Global Witness, 2010). Sanctions are therefore in most cases not enforced and fail to change the status quo of illegal mineral trade.

Many observers believe prosecuting the pillage of natural resources as a war crime would be an effective means of channelling funds away from militias in conflict zones (Global Witness, 2010). The threat of being prosecuted could, however, deter businesses from operating and even investing in countries like the DRC or Cote d'Ivoire altogether, where the mineral trade is not always formal, leading to a ban on minerals imported from these countries. A ban can also be the indirect consequence of burdening due diligence requirements, such as the ones inferred in section 1502 of the Dodd-Frank Act, that would deter mining corporations from investing and operating in sensitive countries. This can in turn lead to disastrous consequences for already impoverished local communities losing jobs and income (African Press International, 2011).

In North Kivu, for instance, profits from largely informal mining products represent two-thirds of the official revenues of the entire area (African Press International, 2011). The effect of a mining suspension in this area could therefore be disastrous for the population which relies mainly on mining exploitation. DRC President Kabila's temporary mining suspension between October 2010 and March 2011 has already illustrated this negative impact. The ban has strangled the local economies and sent a death blow to the subsistence economies (Tegera, 2011).

Another example of the negative effects of a ban on minerals exports is the situation experienced by Ghana's Akwatia area

during the temporary suspension of diamond exports in 2006 and 2007 in response to criticisms that the country might have been a repository for 'conflict diamonds' (Hilson and Clifford, 2010). The ban depressed local prices for diamonds, in the process bankrupting hundreds of the industry's local level buyers and sponsors. Moreover, many diamond investors and exporters fled the country, fearful of being (wrongly) implicated in a national investigation of 'conflict diamonds' (Hilson and Clifford, 2010). Already crippled by decades of neglect and shortages of funding, Akwatia's small-scale diamond miners have been subjected to even further economic pressures brought about by the ban. It initiated a chain of events that further diminished interest in and depreciated the value of the country's diamonds, depriving small-scale diamond miners of viable sources of sponsorship, triggering the collapse of several local industries and perpetuating poverty in the town (Hilson and Clifford, 2010). More than two years after the ban was lifted, the town remains in a debilitated state, showing few signs of recovery.

This example highlights the need to pay careful attention to the local impacts of international actions adopting punitive approaches. Before sanctioning a country on the ground of trading conflict diamonds, for instance, dynamics of small-scale mining should be carefully reviewed based on an assessment of local realities (Hilson and Clifford, 2010). These data should be used to inform policy and design and implement more appropriate industry support schemes.

3.2. Certification and assurance schemes

Certification schemes can, in theory, be powerful means to promote mineral trade. However, they often face difficulties in their implementation. The following criticisms are based on the KPCS, which is the most well-established certification system for the mineral trade.

Supporters of the KPCS point to the scheme's success in stemming the flow of 'conflict diamonds' by verifying the origin of the gems (Bone, 2010). The authors argue, however, that the true success of the KPCS is attributable to two achievements: (1) helping to formalize the international diamond trade at the point of export and (2) providing some rationalization of the sector. By increasing their ability to tax formal trade and exports, formalization and rationalization have assisted the governments of producing countries to strengthen their fiscal link to the diamond trade (Mitchell, 2010).

Although the KPCS requires producing countries to establish internal control systems to verify that diamonds are conflict free, full and genuine assurance of origin is difficult to obtain. This is particularly true in developing countries with large artisanal mining communities, where the informality, size and geography of the sector combine with a lack of resources, capacity and political will (Mitchell, 2010). In Cote d'Ivoire, for instance, small quantities of conflict diamonds continue to be laundered through well-established informal trading networks whose size and effectiveness place them well beyond the control of local and international authorities (Mitchell, 2010).

The realities of the informal diamond trade in West and Central Africa therefore call into question one of the primary goals of the KPCS, which is to support peace-building by depriving rebel groups of access to diamonds. In order to function properly the KPCS expects all actors and operators in mining, trading and exporting to be properly registered and licensed; individual transaction forms are to be kept for every transaction; there should be regular reports on mining and production at the mining level and on transactions at all levels; and internal controls should be based on 'check and double-check' procedures at all levels (Van Bockstael, 2008). While logical in theory, in practice these control mechanisms differ from existing structures and practices in most sub-Saharan African countries. They comply with actions of industrial miners but cannot be implemented in artisanal informal markets.

3.3. Transparency initiatives

The reconciliation of financial data between mining or oil companies and government bodies serves as a useful means of identifying systemic shortcomings, and potentially, corruption in resource-rich countries (Garrett and Lintzer, 2010). For instance, the interaction between members of the government, companies and civil society in the context of the EITI in the DRC has facilitated discussion between stakeholders and may in the end serve to make the government more accountable, companies more responsive, and non-government members more aware of the challenges facing both the government and companies. By enabling civil actors to hold government to account and push towards governments' openness, systems of transparency such as the EITI can affect corruption in several ways.

However, putting aside questions about the priority given to transparency reforms over other policies,⁴ the following question is worth asking: are the transparency initiatives currently implemented in resource-rich countries well designed and sufficient by themselves to tackle corruption?

The following discussion is based on the EITI, which is the key transparency initiative in resource-rich countries. One challenge is that the EITI itself only guides one part—revenue disclosure—of a broader push towards transparency, which also includes budget transparency and public accountability for expenditure. Given that the EITI focuses solely on reporting revenues, which is only one part of a broader resource management process, promoting the initiative must be considered in conjunction with other initiatives supporting transparency in the value chain and drives to improve economic governance more generally (Garrett and Lintzer, 2010). In that context, international organizations, such as the World Bank, are demanding that transparency approaches be broadened to cover the expenditure side, as envisioned under what is currently known as the 'EITI ++' approach (EITI, n.d.). Implementation is, however, still pending.

⁴ For a detailed account on this question, please refer to Kolstad and Wiig, 2009.

Another challenge is governments' ability to use anti-corruption tools such as the EITI. In addition to access to information, there is a need for 'the ability to process information, and the ability and incentives to act on processed information' (Kolstad and Wiig, 2009). This means that outreach efforts will have to use creative ways of communicating the EITI results to the population, broadening the constituency for better governance in the country of implementation.

Finally, an approach that centres on the concept of transparency alone is not sufficient to change a country's political economy. Conflict-breeding fragile states like DRC, and the interaction of politics into businesses in countries like Cameroon, are supported by a wide range of factors. Transparency initiatives alone, such as the EITI, cannot successfully tackle corruption, conflict, human right abuses, rent-seeking and poor economic governance. The EITI itself stresses that 'it is not a silver bullet which will end corruption and solve all problems of resource revenue management' (EITI, 2009). Larger governance reforms and capacity-building initiatives are necessary to support the successful implementation of transparency processes.⁵ In post-conflict areas, elements of wider reform include—but are not limited to—improving civil service efficiency, reforming the judiciary, as well as strengthening civil society and progressing security sector reforms. These larger reforms are discussed in Section 4.

4. Other requirements

The authors' on the ground work in Africa's Great Lakes region suggests that, overall, initiatives to promote legal mineral trade in Africa like the ones previously discussed have two common characteristics:

- They have often been designed in a way that is more suited to a Western context, without always taking into account local realities of how African states and businesses function. Donors, NGOs and private investors often miss an understanding of the political economy on the ground and the solutions are not sufficiently 'African generated'.
- As a consequence, policy-making in each case has not taken account of how local realities affect feasible outcomes. Despite many virtues, certification schemes fail to prevent conflict; sanctions fail to change the actions of rebels and traders who have means of avoiding capture and were not effectively incentivised; transparency initiatives alone do not solve corruption. Additionally, preponderant focus on macro-level issues has often led to many assumptions being made about local activities in the mineral sector.

Certification schemes best illustrate these criticisms. It appears that attempting to establish certification before traditionally informal sectors have been formalized is likely to

⁵ <http://www.pactworld.org/cs/promines>

undercut the ability to enforce certain tenets such as origin. In order to provide meaningful assurance of origin, national and international agencies and organizations must engage with the informal sector on two levels: first by helping to formalize exploitation and trade, and second by providing the informal sector with both the will and the means (that is, with incentives and capacity) to support assurance of origin that meets Western consumers' standards for origin and quality control (Mitchell, 2010).

Regarding the conflict resolution aim of certain certification schemes such as the KPCS, it has been limited unless such aims are integrated into a broader strategy that includes conflict prevention and good governance of all income sources. In the short-term, reforms of the security sector and the reconstruction of governance structures, which could provide the foundation for effective and conflict aware management of mineral resources, are necessary in combination with any certification initiative.

More generally, effective policy-design is likely to involve more local stakeholders' participation and account of what is feasible in light of local realities. Natural resource management must be a national project led by the government and citizens for the benefit of the country. The way the Certified Trading Chain (CTC) project was implemented in Rwanda can be an example of this success. Despite being a 'Western initiative', policies were developed locally, in consultation with stakeholders after site visits. As a result, the CTC initiative takes into account the local context (including capacities) and adapt to local needs. The initiative is still being implemented and the Government of Rwanda is now adopting it for all mining companies. The civil society's involvement in the EITI process can also be quoted as an encouraging step towards more effective policy-design.

Regarding transparency initiatives, the authors' on the ground research has shown that unless the state and institutions' capacity is strengthened, local communities are unlikely to benefit from revenue transparency processes (Garrett and Lintzer, 2010). The World Bank Mining Sector Assistance Projects in the DRC, Cameroon, Uganda, Mauritania, Burkina Faso and Sierra Leone are examples of necessary capacity-building initiatives. A programme like PROMINES, which is being implemented in the DRC to reform the Congolese mining sector, also illustrates such complementary initiatives. The aim of the project is to strengthen the capacity of the state to manage its mineral resources responsibly. It is a multi-stakeholder initiative involving companies, the government, civil society and donors, and focuses on supporting the implementation of transparency processes.

In addition to these complementary requirements to more effectively implement initiatives and design policies, the private sector also has its role to play in the promotion of legal mineral trade. Companies are increasingly recognizing that improving their own impacts and addressing wider social and environmental challenges of the communities they operate

in will be crucial in securing their long-term success. This in turn is likely to generate growth for the recipient country in which the company invests. The following paragraphs describe what tools can be used by these companies to guarantee effective implementation of policies and secure investments.

4.1. Political economy analysis

For private investors in the mining sector in high-risk environments, understanding and acting upon the political, economic and social dynamics in the locality, will help secure their investments and increase the effectiveness of their corporate and social responsibility (CSR) work. A political economy analysis (PEA) is a framework that helps assess the existing power structures (whether formal or informal), institutional capacities as well as the interaction between business and politics in an investing company's operating environment. Applying a PEA makes risks and opportunities more apparent and helps to put into perspective expectations about what can be achieved. From an investor perspective, PEAs lend themselves well to examine interactions between stakeholders at each stage of the natural resource 'value chain' to determine what actors yield influence and for what reasons. A PEA thus helps to assess and mitigate risks, to make more effective the engagement with local communities, government, non-state actors, civil society and other stakeholders in a mining-investment project.

4.2. Socio-economic impact assessment

A socio-economic impact assessment (SEIA) is an effective way of analysing the dynamics between trade and the local political economy. In the context of a mining project, a SEIA examines the effects of the project on host country's economy and its intended and unintended social consequences. Economic impact is measured in terms of changes in economic growth and associated changes in jobs (employment) and income (wages). Identifying customary rights, certain cultural, gender and labour practices and local uses of land, as well as assessing the impact of the investment on local habitat are part of a SEIA. The assessment estimates the level of economic activity if the project is implemented and calculates the difference from what would otherwise be expected if the project were not realized. The results of the impact analysis can determine whether public support should be provided on the given grounds. As for mining investors, a SEIA can mitigate the risk of non-acceptance of the project, as well as the expropriation and regulatory risks. It builds a local knowledge framework building on the locals' concern about the investment. The investor can then develop strategies to meet local concerns and build local support.

5. Conclusion

Recent figures show that six out of the ten most rapidly expanding economies in the world over the past decades were in sub-Saharan Africa (The Economist, 2011). They included Angola, Nigeria, Chad, Mozambique, Ethiopia and Rwanda – in most, growth was linked to the discovery and exploitation of natural resources. In that context, mineral trade should be

an opportunity for development. However, it has often been associated, especially in Central and West Africa, with negative outcomes such as conflict, weak governance structures and informalization of the supply chain, to name only a few. This paper has argued that current proposed approaches to promote mineral trade have often focused on mitigation of these negative impacts rather than promotion of positive measures, highlighting their limitations. Sanctions have proven to be difficult to implement successfully and can have severe effects on regional and local economic development when not targeted at individuals; certification schemes have unproven link to preventing conflict; and transparency initiatives alone do not solve corruption. The paper suggested that these measures should be complemented with capacity-building initiatives and should take more into account local realities and needs of African states.

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11. The economics of mineral ownership rights, negotiations and legal issues

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Abstract

The aim of this paper is to discuss economic, legal and policy issues affecting the mineral sector and, more specifically, how these issues relate to the allocation of mining rights. Optimal mining is influenced by concepts such as righteousness, economics and sustainable development. Economic rents and benefits exist partly because of the unique nature of natural resources and, more pertinently, because of how extractive industries and their regulators conduct their business. The definition of rent creates an expectation of broader economic benefit, i.e., which benefit should be a blessing to both the state and industry. However, in the real world such rents are not automatic and must be earned by the state through appropriate laws and policies and for the extractor through prudent extraction of the resource. Otherwise, the negative aspects will outweigh the positive contribution, and an economic activity that should be a blessing becomes a curse for the country. Rent considerations also affect fiscal policy and, more specifically, the structure of royalty schemes. The extractive industries are, in many respects, different than the other sectors operating in the economy, hence the need for special ownership and investment considerations. Mineral ownership, mine ownership and legal rights to ownership are therefore crucial to the discussion. The law and policy must clearly state investor rights and obligations, the legal system of ownership, the administration of rights and how these issues combine to affect security of tenure for companies. Because the extractive industries do not operate in a vacuum, there are many stakeholders with an interest in mining activities. These relationships lay the foundation for complex relationships that require sensitive negotiations in order to manage the conflicting needs that arise. A compromise is required that will not affect the sovereignty of the state owning the resources on and beneath its territory. However, without access to foreign capital to *unlock* the benefits of mining, these natural resources, with their associated economic benefit, will remain buried for the host country. Such investment gives mineral development an international dimension and adds to the complexity of its regulatory framework. Africa has learned many lessons on how and how not to exercise sovereignty in its search for

realistic trade-offs between the many conflicting objectives. There are several documents, most noticeably by the United Nations and the World Bank that should be consulted in the process of developing a regime for optimal economic development on the back of mineral wealth. No two countries are the same and the specifics of their mineral regulatory frameworks continue to be shaped by dynamic economic, social and cultural interplay. A prerequisite for sustainable economic development is to address governance problems and capacity constraints for administering the law and policy framework. The ultimate aim should be to encourage and enforce optimal development of resources where the respective stakeholders understand each other's roles and rights. This objective should be achieved under the umbrella of an equitable investment regime, allowing access to relevant information, an efficient and unambiguous system of rights and property titles and implementation of a clear licensing regime backed by meaningful reporting tools and appropriate mechanisms to ensure compliance and long-term economic growth.

1. Introduction

It is during the negotiation of mineral tenure that the appropriateness and economic fundamentals of a country's law and policy framework are put to the test. This paper discusses the economic, law and policy issues affecting the mineral sector and, more specifically, how these issues relate to the allocation of mining rights. It further emphasizes the need for, and significance of, optimal mineral development at a concession level as the fundamental building block for broad-based sustainable development.

2. Drivers of a country's mineral law and policy framework

This section is an introduction to the thrust of the paper, namely that optimal mining as an economic concept is fundamental to broader economic growth and sustainable development. Optimal mining implies that the economic activity, called mining, has the profit motive as its main driver, but such profits must be earned only after payment of all costs,

including the costs to compensate for the impact on the environment and society, as well as to allow for tangible benefits for the host country. The regulatory framework is influenced by the nature of mining, the broader economic landscape in which mining finds itself and the relatively new concept of sustainable development. Common sense matters not discussed include prudent revenue and budget management, respect for people's rights and rewarding those who are prepared to take unusual risks.

2.1. Nature of mining

2.1.1. What is mining?

The many stakeholders in mining are testimony of its special nature. It is an economic activity that creates wealth by the extraction of non-renewable natural resources. It gives a one-off opportunity to stakeholders to make the most of these resources, hence the need for optimal mining. It is also site-specific, which means the activity is confined to the land where the mineral resource naturally occurs. It is also important to appreciate that there must be a willing buyer for production and that the consuming markets are sometimes far away from the land where the mineral is mined. These factors make mining heavily dependent on infrastructure such as energy, transport and export facilities. Mining is also harmful to the environment—not only because of the mining method, but also mostly as a result of waste products generated during the process. This damage is a result of what miners call the grade, which means that the valuable part may be minute relative to the volume mined. Gold is a good example because for every tonne mined about ten grams of gold are produced. The result is that almost the entire tonnage mined ends up as a waste product in some form.

Each mine is also unique in terms of its mining method, for example, surface mining, underground mining, solution mining, alluvial or water-based mining and waste dump or tailings re-treatment, since the choice of method depends on specific circumstances and costs. Most laws define a mineral product as '[...] an inorganic substance that occurs naturally in the earth' and it is this substance, which miners call ore, that is extracted—not the finished products. There are exceptions, but those are rare, e.g., certain clays. This means that some processing, possibly smelting and refining, will be necessary before minerals can attract the interest of potential buyers. Such processing depends on the characteristics of the ore, market requirements and the technology required to extract the marketable portion from the broken ore. Many mines have multiple products supplying different markets, which further raises the level of complexity for the mining company and its regulator.

2.1.2. Reserves and resources

The resource base in the earth's crust is significant, but it is not realistic to mine the entire crust. Crowson (1998) explained that it is only of academic interest to know that, for example, gold's relative scarcity in the earth's composition is minute (0.000 000 4 per cent). What matters are concentration factors because for every mineral there is an economic cut-off grade. Minerals are not uniformly distributed in earth's crust and their occurrences are governed by geography and geology; for example, natural concentration of ore deposits could occur in veins or lodes. Minerals are, therefore, finite resources and can thus be counted, defined and reported if sufficient information is available. Figure 1 illustrates the typical considerations and assumptions for classifying mineral resources and (economic) reserves.

Figure 1. Classification of mineral resources

Cumulative Production	Identified Resources			Undiscovered Resources	
	Demonstrated		Inferred	Probability Range	
	Measured	Indicated		Hypothetical	Speculative
Economic	Reserves	Inferred Reserves			
Marginally Economic	Marginal Reserves	Inferred Marginal Reserves			
Sub Economic	Demonstrated Subeconomic Resources	Inferred Subeconomic Resources			
Other Resources	Includes nonconventional and low-grade materials				

Source: Crowson (1998)

2.1.3. Ownership and investment

Ownership and investment issues are dominated by the role of the state in mining and the level of participation in ownership required by the state. State mining enterprises (SMEs) historically tended to be too inflexible in decision-making, resulting in inefficient mining operations and sub-optimal mining of the country's mineral resources. Because SMEs are subject to political influence, the operations could end up being holloved out because revenues intended as mining investment capital are leaked and incorrectly used, for example, to pay the wages of far too many employees when the mine becomes a haven for easy employment. This is sub-optimal depletion and of little benefit for the country. Therefore, the ownership and investment structure has matured to a situation of mainly state ownership of resources and investor ownership of capital. Typical participants, who all have different needs and pose special challenges to the design of a mineral law and policy framework, include the following:

- Small-scale companies, artisanal and community diggings (ASM) concentrating mostly on high unit value products, for example, gemstones and gold. Such diggings are widespread throughout developing countries. They often use primitive methods, have poor health and safety (H&S) and environmental standards and exploit women and children at the operations, if uncontrolled;
- Junior companies are usually domestically owned mining companies, financed by foreign capital and focused on exploration rather than mining;
- Multinational companies that lack new opportunities in their home countries seek diversification through the spreading of risk and have access to high-level managerial, technical and technological resources;
- Non-mining companies specializing in high-end technologies, specialized extraction methods, construction and other services upon which mining companies rely; and
- The state, which sometimes exercises its sovereignty through ownership participation or establishing SMEs to extract commodities strategic to the economy.

The investment process for the extractive industries is a staged decision tree linked to development rights that require risk management at each stage. The mining process for mining starts with early exploration and/or reconnaissance, leading to detailed exploration, sampling and surveying of the property. There is relatively small risk for the company up to the stage where it can produce a bankable economic feasibility study. Greenfields development causes the risk to increase significantly with the principal risks being:

- Building the mine on time and within budget;
- Achieving the technical mine design;
- Inexperienced workforce; and
- Delays because of regulatory inefficiency.

The investment process ends with rehabilitating the mine followed by closure, with provision for latent economic, environmental and social impacts.

2.2 Political economy and sustainable development

Political economy and sustainable development are very important drivers but are not the main focus of this paper. Therefore, the main issues are only highlighted without any further discussion. The economics of mining have an extensive reach because of the need for international trade and its impact on a country. The macro economy of a country relies on specific objectives for the mineral industry, for example, the contribution of mineral development to national objectives, use of policy and law to ensure optimal resource depletion and the correction of market failures in the minerals sector through policy instruments to ensure an appropriate balance between economic efficiency and social equity. The micro economy at an operational level is concerned with determining profits (revenue from product sales and payment of costs) and managing the factors of production. Because of electorate pressure on the state to deliver benefits generated by the extraction of non-renewable minerals and to demonstrate national sovereignty over natural resources, the sector is often highly politicized.

Sustainable development is a relatively new and complex matter for mining companies to understand. The Brundtland definition of “(Development which) meets the needs of the present without compromising the ability of future generations to meet their own needs” (UN, 1987) does not mean that the minerals should be kept in the ground for future generations, but rather that the wealth-creating potential of mineral resources must be maximized. It is generally accepted that the concept has three dimensions (economic, environmental and social sustainability) within the framework of good governance. The definition of sustainable development is also problematic for mining companies because individual ore deposits are not sustainable due to their finite nature, and for sustainable development to become possible, it will depend heavily on the economics of the project.

3. Mineral ownership and legal rights

3.1 Economic rents and benefits

The interpretation of economic rent from the writings of Ricardo is ‘the return for capital from the poorest mine paying no rent would regulate the rent of all the other more productive mines’. It therefore represents that portion of value added that exceeds the opportunity costs of all factors of production and is determined by the highest cost producer still in business. In the mining industry, rents can increase significantly for high-grade ore bodies and during periods of high prices. There is, therefore, significant potential for mines to earn economic rent, resulting in benefits at a microeconomic level, which must also translate into wider (macroeconomic) benefits for the country. Broad economic benefit requires quality institutions, optimal mining practices and good governance. Government policies must be aimed at stimulating economic growth so that:

- The direct contribution of mining to the economy can grow with multiplying effect;
- Exports can grow to earn foreign currency; and
- Sustainable value could be added to mineral production through economic linkages.

The indirect contribution of mining could be measured through incomes, employment, tax revenues, infrastructure development, size of supplier industries, downstream linkages, backward linkages and education outputs. Despite the potential of the industry to generate benefits, there are also negative aspects that require constant monitoring, for example:

- The transfer of social and environmental costs from the company to society
- Ore deposits are eventually depleted, which becomes a problem when the local economy over relies on its benefits
- Earnings from mineral exports are volatile and uncertain
- There is potential for Dutch disease
- Rent-seeking behaviour results in leakages to the economy
- The economic multiplier diminishes over time and
- Socioeconomic issues and civil unrest often originate at mining areas.

Rent accrues over the life of the mine and not in a given year, and if the abovementioned issues are not monitored and managed, the potential exists for government to fail its citizens. The mineral/petroleum law and policy framework must, therefore, incorporate the following rent considerations:

- Knowledge on the national resource base
- Inclusion of all costs under the definition of opportunity costs, inclusive of Hotelling's user cost, that is, cost to future generations because of depletion today
- Undeveloped deposits have no value while still in the ground for a country that needs the economic benefit today
- Progressive tax systems in the minerals industry, for example, the fiscal policy and the structure of the royalties must reflect rent earnings
- Appropriate management of mineral revenues and
- Linkages to the rest of the economy are integral to both national planning and mine development.

3.2 Investor rights and obligations

The sovereign right of the state must make provision for investor rights, which must be protected through the rule of law when the company complies with its set obligations. Such investor rights and obligations are defined by the legal system of ownership, security of tenure and the legal obligations of the company.

The legal system of ownership - This consideration deals with the role of the state in mining and structure of mine

ownership (e.g., private, national, provincial, community or shared ownership). Ownership decisions also affect empowerment policies, for example, the Mining Charter concept in South Africa. Participation decisions influence matters such as whether or not mining has precedence over other land uses and who receives fees, for instance, the exploration fee during prospecting and surface rent during mining. Mineral ownership determines who will receive the royalty instalments, while fiscal policy dictates how economic rents should be shared.

Security of tenure – The terms and conditions of rights must allow for optimal mining and give the necessary security to the investor sinking the capital into the project that such risk will be rewarded. Fundamental to this issue is the need for a comprehensive land and mineral rights registry.

Obligations – These include the need for requirements on health and safety, environmental provision, social requirements, local empowerment programmes, gender, skills development, reporting and information system establishment and management. For these obligations to achieve policy intent, there must be compliance and enforcement of the rule of law.

3.3 Administration of rights

The administration of rights is critical for optimal mining; it is the actioning of policy intent at the coal face. The responsible state agency administering security and continuity of tenure must understand the policy intent, be competent in its administration and rigorous in its processes of allocation and monitoring of rights. The typical considerations for each type of right are briefly discussed in this section.

Reconnaissance permission – Considerations include the fee, maximum size, duration, renewal, minimum spending, work programme, environmental plan, social obligation, reporting requirements, in addition to rights and restrictions.

Prospecting right – Considerations, rights and restrictions are similar to a reconnaissance permission.

Retention permit – Considerations, rights and restrictions are similar to a prospecting right, but more emphasis is placed on the relinquishment of areas and possibly the property.

Mining right – The main considerations are as listed above, but also include health and safety, minerals marketing and mine closure requirements. Payments depend on the method of allocation, but normally involve mining royalties and sometimes tendered payments when the country has an auctioning system.

3.4 Complex relationships require sensitive negotiations

It is at the negotiation table that the workability of policy instruments is revealed. It is a dynamic structure comprising hidden interests, fragile relationships and acknowledgement of inter-dependence—all of which require sensitivity and

compromise.

Instruments to stimulate mineral development in the host country – These include political and social stability, guaranteed property rights, clear and enforceable mining code, appropriate administrative and legal framework, transferability of profits/dividends and reasonable exchange rate stability.

Instruments to maximize the net economic benefit of mining in the host country – These include reasonable ownership and participation, fair taxation, realistic downstream processing requirements, integrated mine development, ASM assistance and rules, prolongation of mine lives through investments, encouragement of exploration and provision for mine closure, rehabilitation and social advancement.

Instruments affecting the mining industry in the host country, such as land-use trade-offs, state participation, environmental regulations, national/regional/local needs, international regulatory developments, national development policy, economic stability, strategy to combat Dutch disease, international diplomatic relations, conditions of sale and export, transfer pricing, export controls, export taxes and cartel issues.

Instruments used by importers. An international compromise position is required to balance the needs of producing/exporting countries with that of consuming/importing countries. The desire to ensure a steady supply of minerals to their (importing) industries affects the mining industry in exporting economies. It is, therefore, important to understand the needs of consuming countries and reasons for their policy requirements on research and development (R&D), substitution, recycling, ownership and attempts to control production, contents of bilateral or multilateral agreements, trade and tariff policy, competition policy and restrictions on the usage of materials or on end-use products.

Conflict resolution starts by stakeholders understanding the issues and each others' needs. In a joint study on this issue, UNIDO & GTZ (2008) listed the typical sub-Saharan problems as insufficient economic growth, periods of high growth are normally due to commodity price increases and not policy effectiveness, widespread and rising informality, a small, sometimes missing, middle class who lack upward mobility, weak inter-firm linkages, low levels of export competitiveness, lack of innovation capabilities, insufficient access to information, insufficient spending on R&D; generally a low level of education; inadequate exchange of information between governments, industry and public groups; price volatility causing sudden and significant drops in commodity prices; and poor relationship between policy and actual practices. Past mistakes include inadequate political will to work towards the common *public* good, poor public service delivery despite large bureaucracies, distortion of markets (e.g., through corruption), misuse of revenues (e.g., to pay high debt to sustain government spending), spending of currency denominated inflows and excessive dependency on resource revenues. Conventional solutions such as aid programmes, support schemes (e.g., project-based aid), donations, sponsored policies and privatization programmes have shown disappoint-

ing long-term results in Africa. A probable solution is the strengthening of governance and the thrust of this paper, namely better design, implementation and enforcement of law and policy aimed at optimal resource depletion.

4. Strategy for sustainable development

In developing a strategy for sustainable development using mineral resources as the platform, it must be clearly understood from the onset that *"there is no such thing as 'standard approach' (...)* Policy options and recommendations must be country specific and must be adapted to the local economic, social and cultural environment" GTD (2008). In order to have a reasonable chance of success for sustainable economic development, policymakers must design appropriate policy supported by law, which is a three-staged process, namely to:

1. *Address governance problems and capacity constraints.* The preamble to Agenda 21 correctly states that success is first and foremost the responsibility of governments, which must develop national strategies, plans, policies and processes for good governance. Political will is key to establishing quality government institutions as well as a national strategy that sets the basis for optimal resource development which is critical for avoiding the resource curse;
2. *Aim for sustainable growth and economic development.* This aim starts with prudent mineral revenue management by reviewing the fiscal policy for the mining sector, using resource revenues wisely by investing and reinvesting proceeds for the future, for example, to finance development infrastructure and establishing stabilization funds, implementing sustainable development as a national ideology by linking mineral development with economic policy and promoting linkages between mining and other economic sectors through a resource-based industrialization strategy; and
3. *Aim for optimal development of mineral resources.* This is the thrust of this paper and the rest of this section explains the specifics aimed at optimal development.

According to the World Bank (2009), *"a clear legal and regulatory framework ensures that respective stakeholders know their rights and obligations"*. Such a framework is essential for an optimal development of mineral resources. Optimal mining requires an efficient and clear system of rights and property titles, rules to manage the local impact of mining, and a sound knowledge of Agenda 21 monitoring instruments (UN, 2004). Such instruments include the development of mineral policies to address country issues, the integration of environment and development issues in decision-making, assurance of public access to relevant information, and very importantly, regulatory compliance.

4.1 Establishing a mineral policy and law frameworks for optimal development

This first requires the introduction of an equitable investment regime and development of mineral policies according

to sustainable development principles and unique country issues. The law must reserve mineral ownership in the public because the *“State, or the lower governments, have inherent sovereign claim to all the minerals in their jurisdictions”* (Musselli et al., 2009). After the mineral ownership issue is clarified, the state must set corporate structure requirements, for example, level of foreign ownership in companies, level of national employment and the role of the state in mining. The linkage of concessions/agreements/licenses to national objectives is then necessary for sustaining the benefits of mining after resource depletion, reducing the cost of mining to society, setting transformation (called BEE in Africa) requirements, and enforcing corporate social requirements (CSR). Mineral laws (statutory laws with regulations) and model agreements are very useful as supplementary agreements with other stakeholders, for example, the Charter concept in SA, community development agreements, contracts with lower government structures for specific undertakings and for the compilation of statistics or information to understand and market the minerals sector. Having access to quality information assists government and industry to promote the sector, assists government in making good decisions, and manages expectations effectively.

4.2 Establishing an efficient and clear system of rights and property titles

Regardless of the system of rights decided upon (e.g., licensing, production sharing, auctioning and/or contract of work regime) the system must provide for security of tenure so that investors become willing to risk investment in the knowledge that they can expect a return thereon within a reasonable time frame. Musselli et al. (2009) appropriately observed that *“security of title is a basic requirement if private enterprise is going to invest in mineral extraction”*. The system of rights must cover and demonstrate understanding for the known stages of mining. Furthermore, in consideration of Africa’s potential for discovering more deposits, it is critical to obtain the rights leading to a discovery. Titles must be:

- Granted on a first-come-first-served basis, which does not necessarily mean first-come-first-granted and
- Enforceable, transferable and allowed to be used to raise finance and be able to be registered at a mining cadastre as a form of property.

The success of the system of rights further relies on efficient administration (subject to the rule of law where officials are accountable for their decisions), appropriate compliance measurement and reporting tools, annual reports on programmes and public availability (accessibility) of reports and statistics.

4.3 Establishing rules to manage the local impact of mining

The combination of law and agreements is appropriate for enforcing optimal mining. The rules must enforce the duties of the mining industry, set CSR requirements and decide on

the boundary in responsibility between the state and the company for broad-based economic development. A mixture of voluntary and legal instruments to achieve CSR is appropriate for achieving the following outcomes:

- Regular reporting of activities and information
- Enforcement of health and safety standards and
- Linking security of tenure with compliance and reporting.

The site-specific nature of mining causes local problems that require local solutions. Mines in remote areas are more likely to be accepted, but mines could expect resistance in environmentally or culturally sensitive areas. Underground mining is less intrusive and environmentally obvious. The rules must also strengthen the extent to which a mine is integrated within the local economy because enclaved mining practices provoke antagonism. An example is the need for linkages and local sourcing of labour. Infrastructure also affects the local impact of mining, for example, mines with dedicated pipelines, railways, roads, and so forth have a smaller impact on the local environment than mines using existing transport networks. The rules must further provide for the size of the mine (large mines have a larger environmental footprint), waste dumps and infrastructure require large surface areas, which footprint is compounded by mine drainage, dust and noise. Mines should never be abandoned without planning for proper closure and the cost of closure must be planned for over the life of the mine. Some flexibility is required to allow for the short-term impact of markets and economics, which may cause temporary mine closure. Disasters may also cause premature closure, which may result in insufficient funds to pay for closure and post-closure impacts. Polluter pays policies will prevent the state from ending up with any such liabilities.

5. Conclusion

This paper highlights the importance of optimal mining as a prerequisite for sustainable development. Mineral rents are not automatic and must be earned by the state through appropriate law and policy, and the extractor through prudent extraction of the resource. Otherwise, the negative aspects will outweigh the positive contribution of an economic activity that should be a blessing, but then becomes a curse for the country. Fundamental to this is the need for optimal mineral development at a concession level. The issues discussed in this paper are not exhaustive, especially when it comes to the specifics of implementing the law and policy instruments referred to. The paper offers a framework for policy debate, while the tools of implementation are better discussed in Otto and Cordes (2002) and Cawood (2009).

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12. Managing natural resources for human development in low-income countries

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Abstract

The management of natural wealth and turning wealth into prosperity is challenging. If countries endowed with natural resources are to avoid the natural resource curse and increase human development, they will have to implement an overall strategy to manage their natural resources based on two broad elements: a) avoiding the resource curse through timely macroeconomic management and b) investing the revenues derived from natural resources into human, physical and financial capital and expanding efficiency-enhancing social protection. The typology presented in our study suggests that the poorest countries use their natural resource rents to meet basic needs and infrastructure, while countries in the middle of the development ladder ought to use the revenues to transition their economy and achieve a knowledge and service-based economy through investments in higher education and R&D. More developed countries ought to invest their natural resource wealth in other financial assets to ensure inter-generational and long-term fiscal probity. Moreover, this paper also argues that appropriate indicators should be used, such as total wealth or genuine savings rather than GDP, to monitor the investment of natural resource rents into other forms of capital. These broader concepts of savings and wealth could be further broadened to include other types of capital such as industrial and social capital.

1. Introduction

Managing natural resources is challenging. Many countries with large endowments of valuable natural resources do no better, and often do worse than less endowed countries. This recurrent fact has been called the “natural resource curse” or the “paradox of plenty”. Yet, the natural resource curse is not inevitable. Some countries have been able to effectively manage natural resources to advance their development. There is now a broad understanding of some of the measures, especially in terms of the macro-economic policies needed to avoid the adverse effects that can emanate from natural resource endowment. But merely managing the short-term impacts is not enough to advance human development. As

discussed in this paper, investing the proceeds from natural resources into the long-term accumulation of all forms of capital (human, physical, social and “institutional”), as opposed to financing current consumption, is necessary.

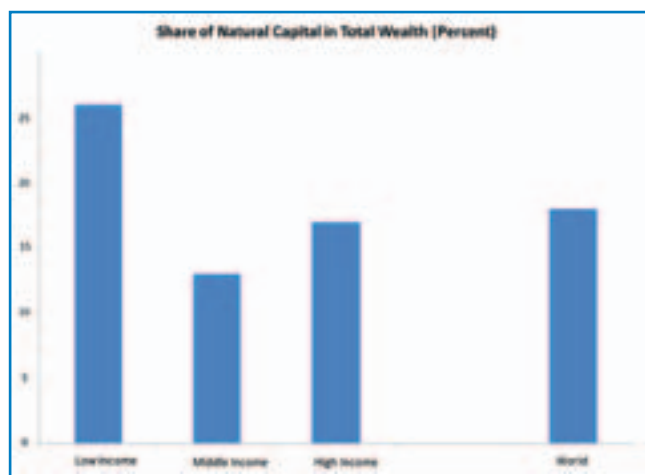
Natural resources account for a large share of the wealth of countries with low human development outcomes where few other sources of wealth exist (World Bank, 2006) (Figure 1). The management of natural resources is therefore particularly relevant to Africa, where many countries experience low human development outcomes and due to the high degree of dependence of many African economies on commodity exports and fiscal revenues. While this dependence has been declining, it is still by far the highest in the world (Figure 2). Natural resource wealth has also been linked to the onset, intensity and duration of violent conflict, which is a particular problem for countries in Africa (Collier and Hoeffler, 2002). In turn, conflict has negative impact on human development through the destruction of lives, assets and opportunities. In an environment of restricted external financing for development, and where there is pressure on national governments to expand fiscal space, increasing domestic revenue from extraction of natural resources is of particular importance. Well-managed extraction of natural resources represents an enormous opportunity for many of the poorest countries in the world to finance the investments needed to advance human development and accelerate progress towards the MDGs.

Thus, while much can be learned from the experiences of richer countries, managing natural resources in developing countries needs to consider both the requirements for long-term investment in a context of less abundant capital, as well as the acute immediate needs for poverty reduction and expansion of education, health and other human development outcomes.

At a minimum, it is important to capture the rents and to manage the macro-economic impacts of the large and volatile inflows of foreign exchange that emanate from the sales of the extracted resources. There are several suggestions on how to do this in practice, including through the design of exploration and extraction contracts that maximize the benefit

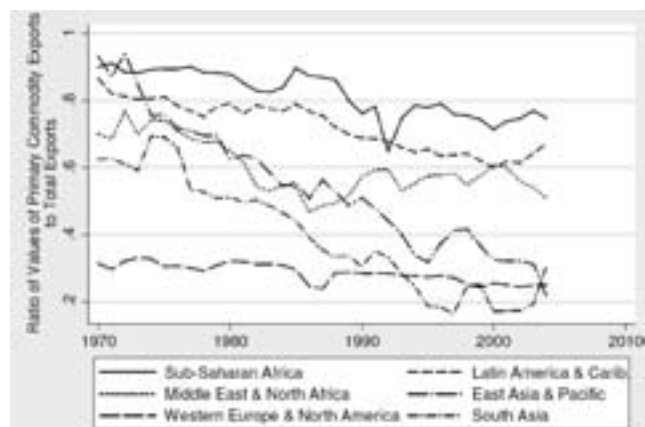
for the government, managing volatility through stabilization funds, and increasing transparency in the management of the funds, e.g. through the establishment of natural resource funds and/or fiscal rules (Humphreys, Sachs & Stiglitz, 2007). Once mechanisms have been put in place to capture the rents and manage the short-term adverse macro-economic impacts, policymakers need to make a decision on where to invest the proceeds from natural resources, as many confront the decision of what to do with, say, oil revenues—should they save them, build highways or spend them on social policy?

Figure 1- The share of natural capital in total wealth is highest in low income countries



Source: World Bank (2006).

Figure 2- Natural resource dependence: Declining, but still very high in Africa



Source: Ploeg (2008).

Ultimately, the priorities will be set by policymakers responding to the developmental aspirations of their people. But it is helpful to frame these choices in terms of broad parameters such as the relative social rates of return to each type of capital—that is, identify projects in different sectors of the economy and society that will provide stronger impetus for the development process—and ensure their timely imple-

mentation consistent with each country's absorption capacity. In essence, countries with lower human development would gain relatively more by investing in physical and human capital to foster rapid progress of human development, as health and education improvements are important determinants of progress in human development. On the other hand, more developed countries with already high endowments of physical and human capital would gain relatively more by investing in assets that preserve income flows for future generations.

There are no silver bullets that enable countries to avoid the resource curse and make the best possible use of natural resources for development. Still, it is possible to outline general principles that indicate how countries can avoid, or mitigate, the resource curse. The next section reviews some of these principles that have emerged from empirical studies. One particularly important aspect is how higher levels of institutional capital (governance) and human capital make it less likely for a country to suffer from the resource curse. Moreover, abundant natural resources in themselves influence governance structures and the likelihood of the outbreak of conflict. While these issues related to governance are fundamental determinants of the intensity of the resource curse (see Ploeg, 2008 for a comprehensive review), they are very broad and influence a wide range of economic development outcomes. Conversely, it is not possible to fully "insulate" the natural resource sector from broader weaknesses in governance and institutions. Thus, this paper considers a narrower set of challenges to pin down more practical and concrete recommendations, namely how to deal with the macro-economic impacts and with the highly volatile nature of commodity prices.

The third section takes on the issue of how to make the best possible use of natural resource revenues to advance human development. It suggests a framework to help make choices on how to allocate resources under the general principle that the choices to be made should be consistent with expanding national wealth. Section four presents concrete "good practices" meant to illustrate some of the actions taken for countries to manage the risks that come with natural resource extraction, and advance development as well as the role of UNDP in strengthening the ability of countries to manage their resources. Section five concludes the paper.

2. The natural resource curse: How to avoid it?

Several countries with large quantities of oil, natural gas, gold, diamonds and other mineral deposits have not experienced sustained economic progress. For example, reviewing the determinants of economic growth in Africa, Beny and Cook (2009) find that the share of exports of petroleum and related products is negatively correlated with economic growth. On the other hand, countries with few natural resources have experienced dramatic transformations in their economic structure that led to massive increases in the standard of living of their populations—the South East Asian tigers (Hong Kong

SAR, Singapore, Taiwan and South Korea) fit this description and so do many European countries. In fact, Beny and Cook (2009) show that in Africa, when a high share of petroleum exports goes along with a high share of exports of other goods and services (suggesting some economic diversification away from natural resources), the impact on economic growth is positive. This is consistent with findings from other studies of the determinants of economic growth in Africa (e.g., Ndulu and O’Connell, 2007) and elsewhere (Sachs and Warner, 1995, 2001).

Given that there are cases where natural resources have fostered development, endowments of natural resources are not per se a curse but more a “double-edged sword” (Frankel, 2010). A study prepared as a background paper for the 2010 Human Development Report explores the relationship between natural resource abundance and human development (Pineda and Rodriguez, 2010). It shows that, in contrast to much of the literature on the resource curse, exports of natural resources are positively correlated both with economic growth (although not very strongly) and with changes in the Human Development Index (Figure 3). The Pineda and Rodriguez study, as well as several others, report the “average effect”, given a multitude of different

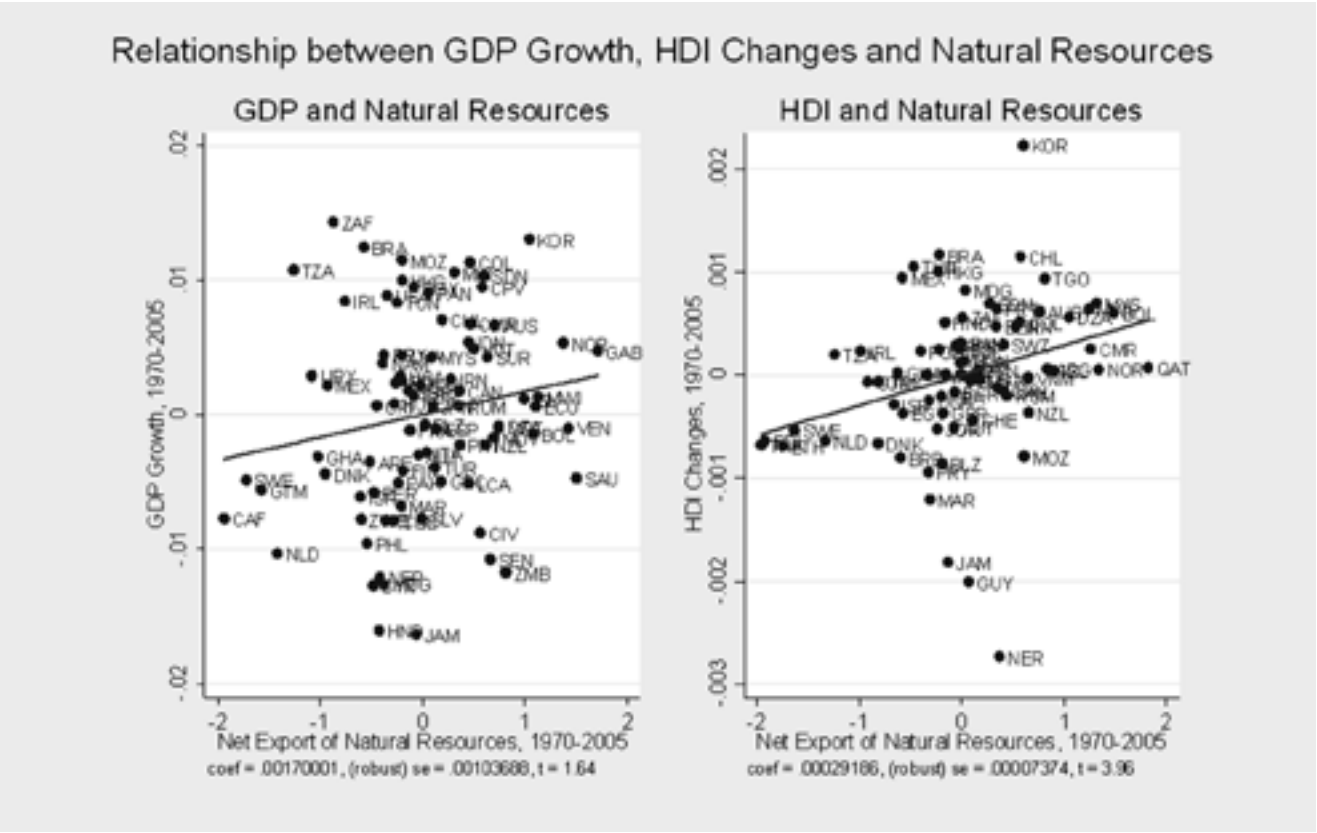
experiences. This “average effect” masks the fact that, as mentioned above, there are several countries where the exploitation of natural resources did more harm than good. Moreover, what makes the “natural resource curse” unusual is that minerals and other commodities constitute wealth in themselves. When the natural resource curse strikes, vast wealth is transformed into long-term economic and social problems.

There are several channels through which extraction of natural resources negatively alter the development path of a country. Two of the most commonly highlighted are the Dutch disease—named after the discovery of natural gas in the Netherlands in the 1960s—and the volatility of commodity prices, which often induces pro-cyclicality of savings, public spending and capital flows. There are, however, two preconditions to effectively manage natural resource wealth: Avoid conflict and enhance the ability of national institutions. Below, a brief description of each of these elements is provided.

2.1. Improving governance and the institutional framework

The effectiveness of all policies to manage risk associated with natural resources requires a strong institutional framework—in fact, a large share of the literature on the natural

Figure 3 Exports of natural resources, economic growth and HDI changes



Source: (Pineda and Rodriguez, 2010)

resource curse points to institutional weakness (corruption, lack of rule of law, weak governance) as a major determinant of the curse. The development of independent, accountable and transparent institutions that can help the government manage the proceeds from natural resources is important. In fact, one could argue that establishing strong institutions prior to the exploitation of the resource is the safest way to avoid the curse. Acemoglu, Johnson and Robinson (2006), for example, found that the relative healthy institutions in Botswana allowed the country to properly manage the mining of diamonds—a particularly successful initiative expropriated mining rights away from tribes and towards the state, cementing the common interest and fending off potential tribal problems. The initial quality of Botswana’s institutions created a positive and reinforcing dynamic, whereby the revenue from diamond mining were used to further strengthen national institutions. The origin of these institutions is found in: (i) the inclusive pre-colonial institutions (notably the kgotla or community forum) for airing public dissent and reaching consensus; (ii) a rather light impact of British colonialism on these institutions, and; (iii) the interests of the elite in maintaining the status quo after independence and especially after the discovery of diamonds. This in turn led to the development of well-protected property rights of actual and potential investors, and constraints placed on the political elites by the political system and the participation of a broad cross-section of society. Leith (2005: 120) argues along similar lines: *“Botswana’s exceptional growth record...is not explained by a single silver (or diamond) bullet; rather, it is explained by a whole range of policies that worked together and were supported by effective institutions.”*

There is not a simple response to the quest for well-developed institutions and recommending that countries should enhance their governance to avoid the resource curse is somewhat glib. The examples of countries with relatively low institutional capacity that have managed to find the right conditions to exploit their natural resources—breaking the negative cycle—are probably more instructive for policymakers in developing countries. Chile, Indonesia and Malaysia are good examples in this regard. Gleb and Grassman (2010) highlight how these countries shared the goals of preserving social stability, accelerating economic growth and creating credible and stable groups of “technocrats” willing to engage and influence political leaders. Very importantly, strong constituencies outside of the natural resource sector were considered and listened to in the management of natural resource proceeds.

2.2. Avoiding the Dutch disease

The Dutch disease occurs, to simplify, when the sudden increase of foreign-currency denominated export revenue (from mineral and other natural resources) generates an appreciation of the real exchange rate. This, in turn, affects the competitiveness of the non-natural resource exporting sectors. It increases the relative price of non-traded goods (such as housing) and tends to shift labour and capital towards non-traded goods and the natural resource exporting sector. The detrimental effect on other exporting sectors can be

particularly relevant in the case of Africa. It can harm agricultural production, given that some produce may become much cheaper to import, and harm agricultural exports. And it may slow down or even reverse the development of manufacturing.

Avoiding the appreciation in the *nominal* exchange rate through monetary mechanisms—mostly through intervention by the central bank to soak up the incoming foreign currency—is an option. The problem with this approach is that central bank intervention is likely to be inflationary—which in turn impacts the *real* exchange rate—unless the interventions are sterilized, which has its own fiscal costs. Another option suggested by Frankel (2010) is a monetary regime for commodity producers called Peg the Export Price. The idea is to keep the price of the main exporting commodity stable in *local currency terms*: if the price of oil in dollars increases by 10 per cent, then the price of the local currency in dollars should increase by 10 per cent. Frankel himself admits that it is a “rather extreme proposal” and argues that the “important point is to include export commodities in the index and exclude import commodities” in a price index used in inflation targeting (Frankel, 2010: 30).

Sachs (2007) argues that fears of the Dutch disease are overblown and that the real concern should be whether the appreciation of the real exchange rate squeezes out the non-natural resources tradable sectors. He explains that this can be avoided if the proceeds from natural resources are invested in projects that increase the productivity of the whole economy. The difficult decision for policymakers refers to the timing of investments since the actual deployment of productive projects will take time and will generate adjustment costs. Sachs argues that the optimum response is to spread the investment over time, and to maximize the benefits of the investments net of the adjustment cost themselves.

2.3. Minimizing the effects of commodity price volatility and pro-cyclicality

The prices of oil, natural gas, gold and other commodities are notoriously volatile. Take, for instance, the peaks and troughs in the price of oil in 2008. In the summer of 2008, the price of a barrel of oil reached \$127, while in December of that year it had fallen to \$36 (US Energy Information Administration). Such volatility has the potential to create problems for countries relying on natural resources, exacerbating boom and bust cycles, as public spending and capital flows increase when the price of the natural resource is high and decrease when it is low.

Price volatility is harmful because the effects during booms do not compensate for the losses during price busts, and behaviour during booms may sow the seeds for trouble during busts (for example, by over-borrowing). Collier and Venables (2008) find that in Africa, a favourable terms of trade improvement has no effect (on average) on next year’s growth, but that a terms of trade loss of 10 per cent reduces next year’s growth by 3.6 percentage points.

Smoothing consumption and investment linked to natural resource revenue is very important to avoid the curse. Different policies have been implemented to achieve this, including hedging volatility in sale prices, creating stabilization funds, reserve accumulation by central banks and reducing capital inflows during booms. Other proposals include indexing sovereign debt to the price of export commodities, so that debt service is more costly during price booms and cheaper during price slumps.

The effectiveness of these policies hinges on sticking to the rules during both good and bad times. While this can be politically difficult, it has been done successfully. For example, in early 2008, the Mexican Government bought a put option that allowed them to sell the totality of its 2009 oil production at \$70 per barrel (the price of oil when the contract was written was higher than \$100 per barrel). When the price of oil collapsed, the Mexican Government exercised its option and avoided a drastic drop in public revenue. Another alternative is to institutionalize stabilization funds. In Chile, the Government sets aside a large proportion of their copper export revenues into the Economic and Social Stabilization Fund (ESSF) which replaced the Copper Stabilization Fund that had been implemented in 1985. The ESSF is designed in such a way that it increases when the Government runs a fiscal surplus and is drawn down when there is a deficit. During 2009, when the price of world commodities (including copper) fell abruptly, the Chilean Government increased its public spending funded by the ESSF, minimizing the effects of the fall in copper prices and the global financial crisis on the Chilean economy.

3. Investing for human development

Avoiding the pitfalls related to the managing the macro-economic impacts of natural resources is crucial. But equally important is enhancing the social impact of the income generated by the extraction of natural resources. Some of the elements needed to avoid the natural resource curse are also the cornerstone for expanding people's choices and freedoms—that is, to advance human development—in resource-rich countries.

A strategy that could strongly promote human development would invest the proceeds from natural resources and would not be used to finance consumption. There is a very simple accounting reason for this: for those natural resources that are non-renewable, exploration is limited in time. Sound wealth management suggests that assets should not be used to finance non-productive projects—in other words, natural assets should only be transformed into other types of productive assets. To increase the assets of a given society—and also to diversify its productive capacity—a large bulk of natural resource proceeds could be used to expand education, health, water, sanitation, power, roads, other infrastructure and other long-term investment projects. Using the proceeds to finance investment in different types of capital instead of public or private consumption is desirable for two reasons. First, it limits

the impact of the Dutch disease, because when it comes to infrastructure, in particular, it will increase the demand for imports. Second, it allows for increases in the productivity of the economy and the country as a whole.

The academic literature has focused on conceptual issues related to inter-temporal aspects of natural resource management (Solow, 1974; Hartwick, 1977) that is, how to determine the timeline to extract resources that is fair to both current and future generations. Recent advances in measurement enable the operationalization of some of these concepts. There are now estimates of capital accumulation that take natural resource depletion into account. Take, for instance, the World Bank's Adjusted Net Savings and Total Wealth estimates. Using these measures, the analysis of natural resource management can be linked to the concept of weak sustainability. The idea behind weak sustainability is simple: a country is on a sustainable path if its wealth is non-decreasing over time. This implies that a country that makes use of its natural resource endowment will be sustainable if it invests the money obtained from the sale of minerals and other commodities (non-renewable) into other types of capital: human, physical or "institutional". This idea has been called the "Hartwick Rule" or "invest resource rents". The rule however, does not provide any guidance in which type of capital to invest the resource rents.

Part of the challenge in terms of practical implementation of policies to pursue sustainable wealth management is in the indicators used. GDP is notoriously flawed to capture depreciation of natural and environmental resources. Partly because of this, the World Bank has for several years been calculating the Genuine Savings (or Adjusted Net Savings) and Total Wealth indicators mentioned above. These data capture a broader range of capital, hence the name Total Wealth. The advantage of this type of indicator is that it captures the depletion of the stock of natural resources and the negative effects on the environment. The empirical evidence is not encouraging: studies using genuine savings data show that "it is the most resource-abundant countries of the world that have also been the poorest genuine savers over the last thirty years, with many of them having persistently negative GS rates." (Dietz, Newmayer and Soysa, 2007: 49). This result could be interpreted as a manifestation of the natural resource curse.

Policymakers could consider that as a criterion for the effective use of natural resources their Genuine Savings and Total Wealth show a sustainable path (in the case of GS, they should be positive; in the case of Total Wealth, it should be non-decreasing). Genuine Savings contains information on the net increase in produced capital, a proxy for human capital accumulation and an estimate of the net depreciation of natural capital. It is easy to imagine a rule where resource abundant countries with sizable revenues from oil, mining and other natural resources should invest in either physical or human capital; moreover, this investment should be reflected in the Genuine Savings indicator. It is worth repeating that

spacing these investments to minimize the adjustment cost is important.

An alternative way to increase standards of living is to transfer the rents directly to the population on a per capita basis. Several authors have suggested this approach (Sala-i-Martin and Subramanian, 2003; Collier, 2006; Birdsall and Subramanian, 2004). While there is an equity-enhancing element to this proposal, it may limit the impact on improving health, education and the public investment in public goods. There may also be other unintended consequences such as rent-seeking and destabilising behaviour at the local level.

One possibility is to condition the transfers, for example, only families—or mothers—showing evidence that children attend school and regularly visit their health clinic. Evidence from different conditional cash transfer schemes around the world shows that these programmes have a positive effect on the education and health of the poorest people (Fizbein and Schady, 2009). Another suggestion is to target the transfers, for example, only to mothers or to girls in school—which could, in turn, promote a vast array of social benefits. Conditioning the transfers has the advantage that people will not consume the newly acquired money but are required to invest it into their children. Under any circumstance, cash transfers require a well-functioning bureaucracy—either to collect taxes or to set up and run the CCT programme.

Spending part of the proceeds on a social protection programme can also be efficient, particularly in countries with low human development. There is strong evidence that poor households embark in practices that are not efficient when they face risk—they, for instance, reduce their food intake or take children out of school which has long-term implications on their productivity (as well as impact on their levels of human development) (Dercon, 2006). Social protection is very important in these cases, as it could provide an efficiency boost to local economies, allowing poor households to improve their decision-making. Using natural resource revenues for social protection would then have a positive feedback effect and long-term benefits in terms of risk management for poor households; for this to be correctly implemented, however, governments will need to map out the inefficient practices that poor households use to cope with risk and shocks. Ultimately, even if cash transfers have a role to play in terms of allocating the *some* of the proceeds from the revenues especially in low income countries, the government needs to play a central role in terms of ensuring that the *largest part* of the rents from the natural resources are accumulated in other forms of capital.

However, total wealth accumulation is not necessarily the end goal for policymakers. If society is concerned about human development, this wealth should be used to expand people's choices. If this is the case, there is a stronger case to invest in health and education, which are an important element of people's ability to generate income but are also important intrinsically. By using a broader notion of capital to include other forms such as human, institutional and

social capital objectives of capital accumulation and human development are not necessarily in conflict. Although, and as will be discussed further below, in practice they can be difficult to manage.

We therefore suggest a basic typology to enhance human development with the proceeds from natural resources. The basic idea is that the resource rents would be transformed into alternative types of productive capital. Success in achieving this goal could be assessed by monitoring Genuine Savings. In general terms, resources could be used in three ways: i) in capital-enhancing activities (infrastructure, basic services and institutions, for instance); ii) in social protection transfers iii) in a “future generations” fund. The balance between each of these would depend on the level of development of the country.

Countries that have covered their infrastructure needs with extensive health and education coverage and a well-developed social protection policy would be well-placed to open up a “future generations” fund. Countries in early stages of development would require investment in projects with high social returns. Finally, countries in the middle stages of development could diversify their investment into infrastructure to improve their economic productivity, enhancement to the social protection schemes and a relatively small share for a “future generations” fund.

The details of this proposal following Sachs (2007) are the following:

1. The poorest countries would use their natural resource rents to meet basic needs (water, food and basic education and health services), basic infrastructure (roads, power, communication networks) and social protection. In the Genuine Savings indicator, the transformation of natural resource rents should be reflected in human and physical capital. Countries in Africa could benefit from investment in the agricultural sector (irrigation and use of fertilizer, for instance). These investments would likely have a multiple dividends as they would increase long-term agricultural productivity and would have an impact on poverty. In addition, if well-implemented, they could counteract the negative impact of the appreciation in the real exchange rate and thus avoid part of the Dutch disease.
2. Middle income countries would use the proceeds to finance the transition to an economy less reliant on natural resources. This could include investments in higher education and research and development as well as institutional development aimed at enhancing social protection.
3. High income countries could invest the proceeds in other financial assets (as Norway, for instance, has done with the Sovereign Wealth Fund) to transfer savings into welfare enhancements for future generations. The genuine savings indicator will see the net savings component increase when this occurs.

4. Practical steps: Learning from other countries

According to the IMF, 51 countries are endowed with considerable amounts of mineral and other types of natural wealth (IMF, 2007). Some examples below of good practices among the members of this group illustrate the potential of using natural resources to enhance development.

a. Capturing the rents and investing in institutional capacity

Institutions with the ability to limit personal and group interest are paramount in order to make the best of natural resources. International organizations thus have a clear possibility to promote the expansion of human development in resource-rich countries by enhancing the capacity of national institutions. One case in point is negotiations with transnational companies that will extract the resource. This aspect is essential for the ability of governments to capture the rents from natural resource extraction. The balance of power between low human development countries and multinational corporations is not always symmetric. Enhancing the technical knowledge of government officials would improve the ability of countries with limited negotiating capacity. Some argue that stronger transparency in the negotiation process could also reduce corruption.

A UNDP project in sub-Saharan Africa, the Regional Project for Capacity Development for Negotiating and Regulating Investment Contracts, follows similar objectives, while aiming to maximize Africa's investments in, and exploitation of, its natural resources by developing and building national capacities to help: a) accelerate poverty reduction, and attainment of the MDGs; b) manage the environment and promote sustainable development while ensuring adequate protection of the poor; and c) in post-conflict countries, facilitate training of national stakeholders to promote recovery and the restoration of administrative and service delivery capacity necessary for proper government function and oversight (UNDP, 2010). The project is designed to build capacity in countries with natural resource wealth on three different levels: in the short-term through training workshops for a selected group of government officials involved in negotiations; in the medium-term through technical assistance for the development and amendment of policy, legislation and regulation; and in the long-term, through the creation of a knowledge management plan and design of courses in institutes of education that contribute to the development of experts in managing natural resources for development.

b. Reinvesting the proceeds of natural resources

Botswana is one of the clearest examples of how natural resources can be used to enhance development. Botswana is a prime exporter of diamonds which account for 98 per cent of mineral value in the country. From 1990 to 2007, the production of diamonds almost doubled, from 17.3 to 33.6 million carats. Over the same period, GDP growth rates

averaged 5.4 per cent and while the HDI of Botswana has not reflected large improvements, it is mostly due to the impact on life expectancy caused by the HIV/AIDS epidemic.

Lange and Wright (2004) explored this case in detail. They find that total wealth (the sum of their physical, natural, human and other intangible assets) in Botswana has increased steadily over the past three decades, and while the absolute value of mineral wealth has increased, the share in the economy has been constantly decreasing, which implies a reinvestment of mineral wealth into other types of productive capital.

An important element of Botswana's success is the use by the Government of a Sustainable Budget Index (SBI). Lange and Wright mention that "without a formal investment rule, the emphasis (in Botswana) has been to reserve all mineral revenues for investment expenditure. From the mid-1990s, a formal rule to this effect was introduced which is now routinely included in the various assessment of economic performance produced by the government. The SBI reflects whether government is spending the mineral wealth instead of investing it. If the SBI is higher than 1 (which means that non-investment spending is larger than recurrent revenues), then the country is depleting its natural wealth without creating alternative assets. In recent years, there has been growing concern that the SBI has risen above one, especially once unproductive capital expenditure such as defence and social welfare programmes are removed. Moreover, there is concern with the falling productivity of public investments, which is thought to be a major contributor to falling Total Factor Productivity in recent years (Levine, 2009). Botswana thus illustrates the complexity that countries are faced with in terms of optimal resource extraction, capital accumulation and economic diversification.

Indonesia offers an example of a country that used oil revenues in the 1970s and 1980s to support improvements in agricultural productivity and diversification into other sectors. Oil income was used to invest in natural gas, which was exported and used as input to fertilizer production. Oil and gas revenue, in turn, enable the diffusion of fertilizers at a highly subsidized price, resulting in rapid gains in agricultural yields. Prudent management of the exchange rate also enabled the economy to diversify into manufacturing.

c. Avoiding pro-cyclicality

Policies to smooth the swings associated with natural resource revenues are probably the most widely used around the world. A common tool is the use of "stabilization funds". Chile is the most commonly cited example. As mentioned above, the Chile fund was transformed from the Copper Fund into a broader Economic and Social Stabilization Fund. The Chilean experience shows the importance of credible commitments to rules by the government. Chile's fiscal policy is governed by rules—the budget deficit (or surplus) is determined by the economic production of the country in a given year and the price of copper in the world markets.

Other countries have used derivatives to minimize the volatility of commodities prices. As mentioned above, Mexico successfully hedged its 2009 oil production. The bet provided the Mexican Government with a windfall of \$8 billion (Figure 4). However, hedging has large political risks—had the price of oil remained high, the Mexican Government would have paid for the right to sell without any benefit. In fact, when Ecuador tried the same and lost money, the head of the central bank was accused of corruption.

Figure 4 Profits from Mexico's hedging of the oil price



Source: *Financial Times*

Hedging against price changes can be useful to minimize volatility—that is their primary goal; they are not designed to generate revenue. Yet the political risks of hedging are still perceived as too high in many places.

d. Commodity or Sovereign Wealth Funds.

As noted above, some countries put special emphasis on channelling natural resources through savings to enhance future welfare by establishing commodity funds. Countries such as Norway, Kuwait and the United Arab Emirates make use of “Sovereign Wealth Funds” to invest the proceeds of natural resource extraction into financial assets. Successful funds are transparently managed and run by professionals who are independent of political needs. The Norway Pension Fund (formerly known as Norway’s Oil Fund) is often referred to as the best practice, but the realities of Norway are very different to other countries with natural resource wealth: for instance, the goal of Norway’s fund is to ensure the savings needed to guarantee the public pension expenditures in the coming years (which is particularly relevant given the country’s demographic structure).

Since 1996 a unique feature of the foreign exchange reserve management in Botswana has been the separation of the reserves into two sub-portfolios: 20 per cent of reserves are in the short-term Liquidity Portfolio and 80 percent in the long-term Pula Fund (Levine, 2009). Forty per cent of this Fund’s assets are invested in equities and 60 per cent in long-term fixed income assets such as bonds. This way, the Pula Fund becomes a type of Sovereign Wealth Fund, although still part of the balance sheet of the Bank of Botswana, and

has allowed for the mineral revenues to be invested in line with the philosophy of sustainable utilization of the natural resource. One of the objectives of establishing the Pula Fund was to take advantage of the high level of reserves and invest part of them in assets such as long-term bonds and equities, with the expectation of earning a higher return than could be achieved on conventionally managed foreign exchange reserves. In this way, an alternative long-term earner of foreign exchange for the country was developed. In recent years, income from external reserves has been the third most important constituent of budgetary revenues.

As noted above, while some of the revenues may be channelled in this way in developing countries, in the poorest countries with dire human and physical investment needs, it is likely that the returns are higher to investing domestically in building up physical and human capital—in a way that is consistent with the countries capacity to manage those investments.

5. Conclusion

Managing natural wealth and turning it into prosperity is challenging. Countries endowed with natural riches can either find the path to increased human development or fall prey to the natural resource curse. This paper argues that an overall strategy to manage natural resources for human development consists of two broad elements: a) avoiding the resource curse through timely macroeconomic management and b) expanding people’s choices with the revenues obtained from the natural resources through investment in human, physical and financial capital and the expansion of efficiency-enhancing social protection.

Gelb and Grasman (2010) distil some of the common features of countries that have been able to avoid the resource curse and use natural resources to enhance their development. These countries have been able to avoid boom-and-bust cycles and to spend resources effectively. While institutions seem to have determined these outcomes in some countries—e.g., in Botswana and Norway—success has even been achieved under challenging political and governance conditions—e.g., in Indonesia and Chile. What they seem to share is:

- a) Widely shared goals of preserving social stability and accelerating economic growth;
- b) A credible and stable cadre of “technocrats” that interact and influence political leaders;
- c) Strong constituencies outside of the natural resource sector (e.g., fisheries in Norway, agriculture in Indonesia, traditional chiefs and cattle owners in Botswana) that argue for prudent spending during booms and for effective spending otherwise;
- d) Link savings and investments to explicit objectives of economic and social progress, helping citizens understand the allocation decisions.

There is no reason why, even if all of these conditions are not wholly met, to greatly enhance the management of natural resources for development. Another finding of Gelb and Grasman (2010), also highlighted in other literature, is that the successful management of natural resources has relied on home-grown strategies that take into account the given opportunities and address the challenges specific to each country.

This has strong implications for the policy advice and support that could be useful in helping African countries better manage their natural resources. Specific recommendations have to be rooted in a thorough analysis of the economic conditions and political economy in each country. Financial conditionality is likely to have little or no leverage in resource-rich countries. What UNDP along with other development partners can do is:

- a) Strengthen capacity to manage the technical aspects of natural resource management (a small cadre of technocracy able to deal with the challenges of managing natural resources at each level from the exploration to the exploitation stages) as well as to enhance the ability of countries to be able to plan and implement effective spending plans (on health, education, social protection);
- b) Share experiences across countries of both successful and less successful paths in natural resource management, imbue in the debate a longer-term development perspective linked to social and developmental goals, such as the Millennium Development Goals;
- c) Help to diffuse and develop capacity in countries to adopt good practices such as those of the Extractive Industries Transparency Initiative;
- d) Enhance the voice and information of constituencies outside of the natural resource sector, especially in agriculture in Africa, to help mobilize support for more prudent and effective management of natural resource revenues.

Beyond these more general findings, the paper also discussed a set of guiding principles that have been presented in the literature and which may be helpful for making decisions on resource allocation. Different levels of human development grant different policies for managing natural resource wealth. The basic typology discussed in this paper can help policymakers identify priorities and design development programmes. This typology suggests that the poorest countries use their natural resource rents to meet basic needs (water, food and basic education and health services) and basic infrastructure (roads, power, communication networks). Countries in the middle of the development ladder could utilize the revenue to transition the economy and achieve a knowledge and service-

based economic structure through research and development and investment in higher education.

Finally, more developed countries could invest their natural resource wealth in other financial assets to ensure inter-generational equity and long-term fiscal probity. This paper also suggests using an appropriate indicator, such as genuine savings or total wealth instead of GDP, to monitor the investment of natural resource rents into other forms of capital. In turn these broader concepts of savings and wealth could be broadened even further to take on board other types of capital such as industrial and social capital. Industrial capital can be critical for the longer-term effects on the productive capacity of the economy, which is important to counter the adverse competitive effects of currency appreciation, but also more fundamentally key to the diversification of and structural transformation of the economy. This transformation is what is needed if the economy is to continue to grow, and human development is to continue to expand, beyond the time of the resource extraction. Or “the day after” as they say in Botswana with reference to the imminent depletion of their diamonds. Social capital is critical for human development although often not captured even in broader measures of welfare. But if social capital is low, e.g., through widespread exclusion of women or political oppression, human development cannot take place. As the uprisings that erupted in North Africa and the Middle East in 2011 have shown, advances in aggregate economic social outcomes that are not accompanied by public participation and protection of human rights are not sustainable.

The demands and expectations on UNDP to assist countries in realizing this potential are high and growing. In the 2010 “Freetown Declaration” issued by the African Governors of the World Bank and IMF, UNDP was specifically urged to deepen its support the establishment of good governance institutions for the management of natural resource revenues and to assist countries to negotiate extraction agreements that are both fair and consistent with the countries’ development agendas. This paper has highlighted some of the key areas that UNDP will be working with countries in the years to come in order to manage the risks associated with natural resources and turn these into opportunities for advancing human development.

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13. National Systems of Innovation (NSI): Measurement and implications for science technology and innovation policy in Ghana

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Abstract

This paper highlights the increasing significance of the systemic approach to innovation within the setting of knowledge based economies. In addition, the paper explains the crucial role of measurement and monitoring for the formulation of coherent, evidence based science, technology and innovation policy. The example provided in this paper is UNIDO's remote methodology to measure the Ghanaian National System of Innovation (GNSI).

1. Introduction

The increased importance being placed on the characteristics of country rankings and relative competitive positions within the global knowledge based economy has lead to knowledge production and transfer being considered key mechanisms for economic and competitive advancement (European Research Council Expert Group, 2003). Knowledge organized in its embodied and disembodied forms not only refers to the codifiable and explicit understanding that can be transferred extrinsically by technology, hard copy and skills, but also to the tacit and implicit components of understanding held intrinsically in individuals, organizations, collective experience and epistemic communities of practice.

This knowledge production and transfer are crucial determinants of an economy's ability to increase its competitiveness (relative to others) and diversify the depth and breadth of its primary, secondary and tertiary sectors in terms of increasing value-added (Bartels and Lederer, 2009).

The latter forms, because of their idiosyncratic and intrinsic nature, may not be readily codified, replicated or transferred across inter- or intra-organizational boundaries. As stated by Oyelaran-Oyeyinka (2005, p. 5) "[...] technological knowledge is crucial to development. However, designing the right social institutions to absorb, retain, advance and sustain knowledge has turned out to be more challenging". In addition to understanding the importance of codified and tacit knowledge, it is also important for governments concerned with competitiveness to efficiently utilize policy instruments and

internal resources (economic agents and institutions) if they are to achieve competitive advantage through NSI.

As indicated by Leydersdorff and Ektowitz (1996), the characteristics of NSI—that is, the strength and quality of interactions between government, knowledge-based institutions (KBIs) and industry—are critical determinants of efficiency and effectiveness in the creation and dissemination of both tacit and codified knowledge. The advantages of being able to employ the skills of another is self-evident; however, the numerous and multifaceted institutional challenges and cultural difficulties that accompany this process at the scale of national economies may be neither entirely clear nor tractable.

The aim and objective of this paper is therefore to gain an enhanced understanding of the importance of the main actors' perspectives and interactions—as development assets—within the NSI of Ghana and provide a strong basis for their valid measurement for the development of policy to effectively achieve national targets.

The paper is structured as follows: Section 2—literature review—reviews the seminal literature on NSI and focuses on the model that informs the proposed method of measurement. Section 3—Ghanaian context—presents current governmental objectives and argues for the need to effectively measure the current system. Section 4—methodological approach—presents the measurement tool. Section 5—expected outputs—discusses the estimated results in terms of policy insights. Section 6—concluding remarks—concludes and presents issues for further research.

2. Literature review

The Systems of Innovation concept is seen as evolutionary (Lundvall, 2007) and has developed substantially from its early conceptualization and empirical framework through the seminal works of Pavitt (1984), Patel and Pavitt (1994) based on Friedrich List's concept of 'national systems of production' (List, 1841; Carlsson, 2006). The taxonomy of systems of innovation gives rise to four key areas of focus, namely: national, regional, sectoral and technological systems of innovation. Additionally, there are global systems of innovation (Archibugi and Iammarino, 1999), metropolitan innovation systems as defined by Fischer, Revilla-Diaz & Snickars (2001) and spatial

innovation systems elucidated by Malecki and Oinas (2002). The spatial overlap of these categorizations raises a number of issues concerning policy boundaries in terms of, *inter alia*, incentives, eligibility, the remit of implementing institutions and sources of performance success (or failure).

2.1. National systems of innovation

The rate of innovation and associated competitive advantage generated by NSI are dependant upon the way intra- and inter-organizational relationships are resourced and managed within cooperational and conflictual contexts which arise because of agency problems and management utility. This includes the relations between and within knowledge, information and skills as well as their interlinkages and reciprocating exchange of value. Concepts and explanations used to understand the dynamics of economic and social development through innovation are becoming more systemic (Antonelli, 1999; Cohendet et al., 1999). Their articulation is moving towards an understanding of networks and interactions as complex adaptive systems or 'self-organizing systems' with respect to properties of non-linear systems¹, knowledge generation and flows as opposed to linear models of demand 'pull' or 'technology push' (Nelson and Winter, 1982; Dosi et al., 1988; Leydesdorff and Van den Basselaar, 1994). NSI is one such phenomenon. Based on findings from the theoretical and empirical work at the 1999 conference on "National Innovation Systems, Industrial Dynamics and Innovation Policy" (DRUID, 1999), we can ascertain that within the taxonomy, NSI encompasses at least eight dimensions. These are: methodological; knowledge; learning; organizational, inter-industry and inter-firm linkages; growth and industrial renewal; NSI in developing countries; globalization and NSI; and NSI policy. These dimensions denote the evolution and dynamicism of NSI and shed some light on why considerable efforts have been made to measure the factors and variables of NSI performance at varying levels (meta, macro, meso and firm).

At the meta level, work carried out by Archibugi and Iammarino (1999) examines the global nature of NSI. This is further developed by Blanc and Sierra (1999) and Carlsson (2006) who highlight the increasing internationalization of alliances between firms or networks within the context of research and development activities.² Their findings highlight the important role KBIs play, namely universities, private and public research centres and international firms engaged in research based techno-scientific collaborations. These actors are the focus of Leydesdorff's (2001) "neo-evolutionary" model of university-industry-government interactions, known as the triple helix. Schoser (1999) provides a secondary perspective at the meta level and adds two dimensions to the categorization of NSI, namely the level of formality and distance from the innovation process. Informality is considered central to networking and the development of the social capital that lubricates the functioning of the NSI (Bartels, 2005). A characterization of NSI at the macro level leads us to the work

of Bjørnskov and Svendsen (2002) who use decentralization and social capital to demarcate the economic performance of Scandinavia. In contrast, Asheim and Coenen (2004) and Munk and Vintergaard (2004) develop a meso or cluster based taxonomy in which the importance of the knowledge base and its organizational nature and institutional characteristics and involvement in innovation are key factors. Narrowing the focus further to the firm level, Braadland and Anders (2002) include skills and the systemic nature of innovation in their classification of NSI. These varying approaches to characterize NSI reflect differing purposes of inquiry and focus. To further delineate the NSI approach we look at how the definition of NSI has evolved.³

- 'the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies.' (Freeman, 1987, pp.1)
- 'the elements and relationships which interact in the production, diffusion and use of new, and economically useful knowledge [...] and are either located within or rooted inside the borders of a nation state.' (Lundvall, 1992, pp.2)
- 'a set of institutions whose interactions determine the innovative performance [...] of national firms.' (Nelson and Rosenberg., 1993, pp.4)
- 'the set of institutions and economic structures affecting the rate and direction of technological change in the society.' (Edquist and Lundval, 1993, in UNIDO, 2005, pp.10)
- 'the system of interacting private and public firms (either large or small), universities, and government agencies aiming at the production of science and technology within national borders. Interaction among these actors may be technical, commercial, legal, social and financial, in as much of the goal of the interaction is the development, protection, financing or regulation of new science and technology.' (Niosi et al., 1993, pp.212)
- 'the national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country.' (Patel and Pavitt, 1994, pp.5)
- '...that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies.' (Metcalf, 1995, pp.38)
- 'The National Systems of Innovation approach stresses that the flows of technology and information among people, enterprises and institutions are key to the innovative process. Innovation and technology development are the result of a complex set of relationships among actors in the system, which includes enterprises, universities and government research institutes' (OECD, 1997, pp.7).
- 'The envelope of conforming policies as well as private and public institutional relations, and their coherent social and capital formations, that determine the vector of technological change, learning and application in the national economy' (Bartels, Voss, Bachtrog and Lederer, 2008, In press).

¹ According to Allen (2000, p.85) "Self-organisation is a natural property of real nonlinear systems".

² See also Dunning (1997) Alliance Capital and Global Business, London: Routledge, for an appreciation of the increasing networked nature of international businesses including the offshore outsourcing of knowledge work.

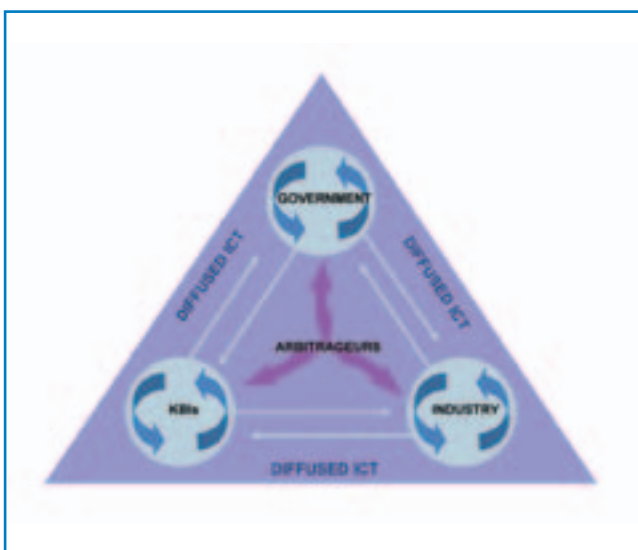
³ For a recent review of the NSI concept, see (Lundvall., 2007).

From the evolution of the definitions provided, it is evident that there are certain recurring concepts, for example, organized (formal and informal) knowledge transfer, skills, interaction and learning. Institutions in the dual sense of organizations as well as the ‘rules of the game’ (North, 1991) are the cornerstones of this approach along with the transfer of tacit ‘know-how’ (to the extent possible) and codified knowledge.

Phrased differently, NSI consist of linkages (both formal and informal) and their intensity between institutions that facilitate intellectual flows and flows of knowledge resources (Buckley and Carter, 2004) in the economy. The fundamental enabling factor of these flows appears to be the extent of learning (taking into account the impact of geography and location) (Marshall, 1920).

However, given the definition that alludes to the ‘envelope’ of conforming policies, there are two points that are excluded from the traditional framing of NSI which we will include in our model, namely the effects of diffused information and communication technology (ICT) and arbitrageurs. Through the spread of digital information and ICTs a new mode of development has evolved (Perez, 1983; Freeman and Louça, 2001). Our conceptualization of ICT in NSI is not based solely on the concept of access, but the work of Hilbert et al. (2010) who view the digital divide as being attributable to issues of storage, the ability to compute and transmit digital information; to contextualize not just the quantity of hardware but also the corresponding performance in relation to all three NSI actors. Within the developing country context the three actors are perceived to hold relatively traditional and separate roles, with little or no overlap in function, i.e., “entrepreneurial academics, academic industrialists, and business strategy in government” (Ekztowitz, 2002, pp. 117). This is evidenced by the lack of bodies such as technology transfer or licensing offices within universities or venture capitalists. Therefore, access to the necessary financial and information resources would lead to the need for independent institutions, namely arbitrageurs. Figure 1 illustrates this concept.

Figure 1 Conceptualization of ICT in NSI



This paper addresses NSI because: a) they provide policy insights at a national level; b) the NSI model is well framed (Leydesdorf, 2001); and c) the variables are constrained within a national/geo-economic setting, therefore, there is formally no need to look into external variables with reference to actors’ behaviour.

3. The Ghanaian context

As stated by the European Commission (2001) in Philpot et al. (2010, p.1) “Innovation is now the single most important engine of long-term competitiveness, growth and employment”. This message is also echoed by Bordt et al. (2006) whose empirical work highlights the linkages between innovation and growth. Earl and Gault (2006) further elaborate on the concept by asserting that in order to successfully measure innovation, its outcomes and impacts, i.e., a systems approach should be applied. And, in this regard, there is a need to understand all components of the system and their relation to each other as “not only are actors and their activities important, but so are the linkages to other actors within the system (Earl and Gault, 2006, p. 2)”.

To relate these concepts to the competitiveness of a nation, in this case, Ghana, we should also understand that “policy is a part of the system, and it has outcomes and impacts, just as a new technology or business process does” (Earl and Gault, 2006). From a developing country perspective it should be noted that there are good and some better ways to develop policy, but above all, it is important to “avoid copying the latest policy fashion” (Arocena and Sutz, 2000, p. 59). Thus, informed policy requires an understanding of the relevant actors within a system, their inter-relational dynamics and their individual requirements. The consequences of misinformed and incorrectly targeted policy is evidenced by the Canadian innovation system, when only certain human resource groups were targeted by programmes and policy which resulted in the creation of serious gaps (McDaniel, 2006).

Within the context of Ghana several unsuccessful attempts have been made over several years to promote science, technology and innovation for socio-economic development. However, in 2010 another attempt was made by the Government of Ghana and resulted in the formulation of the ‘Science, Technology and Innovation (STI) System Development Programme of Ghana’ and the document ‘Policy Prescriptions for Technology and Innovation’ [Ministry of Trade and Industry (MOTI)]. The 2010 programme differed from previous attempts as it was structured as an implementation plan for the overall STI policy developed in 2009. The short-term objective is to “restructure the entire science and technology machinery, infrastructure and programmes in order to make them more responsive to national needs and priorities in all sectors of the economy” (Ministry of Environment Science & Technology (MEST), 2010, p. 4). One of the activities aimed at achieving this objective is the establishment of an effective NSI for Ghana.

At this point it is worth mentioning that Ghana already has

a functioning NSI with reference to the presence of all three actors (government, industry and KBIs), and all have some degree of interaction. However, the question that needs to be posed is how effective these interactions are and how efficiently they function. This requires measuring NSI variables at the level of each actor.

The importance of understanding the positioning of the three actors’ interactions, i.e., their exchange transactions and collaboration, is reiterated in the work of Leydesdorff and Etzkowitz (1998) who suggest that there are three forms of the ‘neo evolutionary’ Triple Helix (TH) Model that explain government, industry and KBIs’ interactions. In TH-Type I, the three spheres of the actors are strongly institutionally defined, however, with relatively weak interactions across the defined boundaries, which occur through mediatory bodies (i.e., liaison, technology transfer and contract offices). TH-Type II differs in that the mechanisms of communication between the actors are strongly influenced by the market and technological innovations (Nelson and Winter, 1982) and the point of control is at the interfaces (Leydesdorff, 1997). Finally, in TH-Type III, the institutional spheres of the three actors as well as the performance of their traditional functions assume each others’ roles. With the emergence of TH-Type III a complex network of organizational ties has developed, both formal and informal among the overlapping spheres. Hence, “universities take on entrepreneurial tasks such as marketing knowledge and creating companies, while firms develop an academic dimension, sharing knowledge among each other and training employees at ever higher skill levels” (Leydesdorff and Etzkowitz., 1998, p. 98).

The work of Porter, Sachs and McArthur (2002) provides an alternative means to illustrate the current stage of a country’s development based on their ‘three stage model’. First, the ‘factor-driven stage’ is represented by high levels of agricultural self-employment. Secondly, the ‘efficiency-driven stage’ is marked by increased production efficiency. And finally,

the ‘innovation-driven stage’ is characterized by increased knowledge intensive activities. According to Sala-I-Martin et al. (2007), the first two stages of development are dominated by institutions whereas innovation has a greater impact on economic activity in stage three.

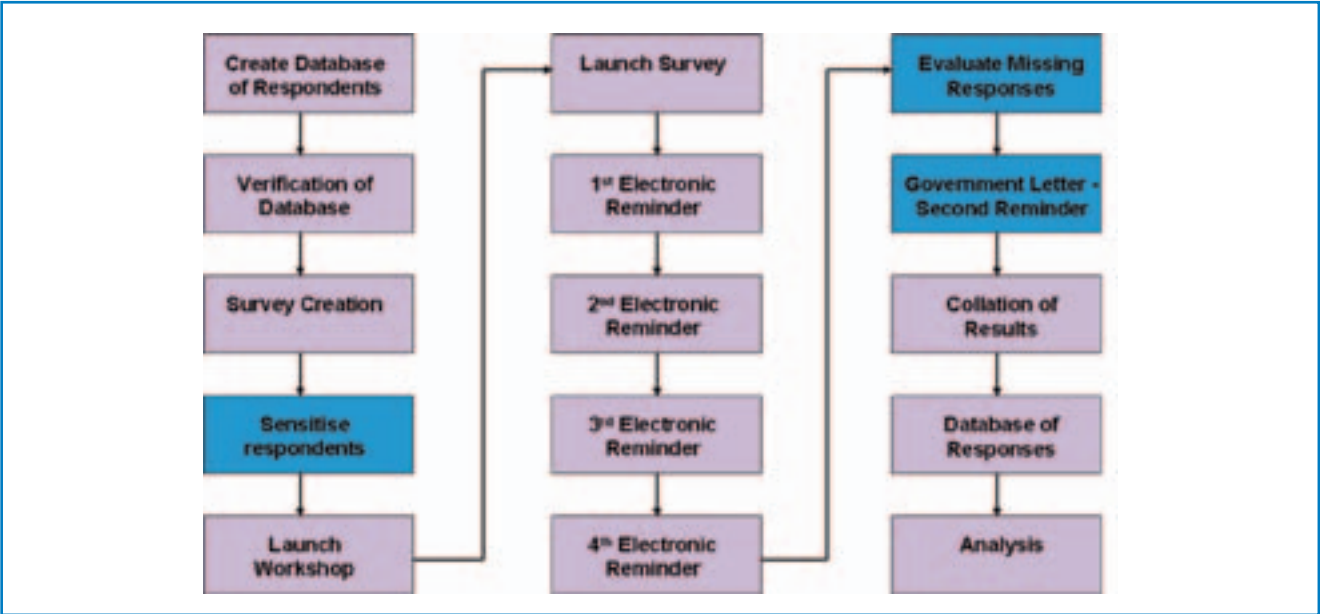
With this in mind, we would like to overlay both the three stage model and the Triple Helix model to justify the study of the systemic interactions of the actors within the NSI of Ghana. We postulate that suitable, well configured and well calibrated policies have the highest positive impact at the national level both in the innovation-driven stage and the Triple Helix Type III. Both of these focus on maximal interactions and knowledge intensive activities. The earlier stages in both models show the actors involved to have more of an independent role reliant on the basic subsistence economy. Transition from the first to the third stage in both models requires policy-driven changes at the institutional, market and actor level. Again, to gauge Ghana’s current position and level of NSI assets as well as the relations required to make the transition to the ‘innovation-driven stage’ or to TH-Type III, clear measures and indicators are necessary.

To summarize, “at the most elementary level, evidence based policy making refers to the notion that policy intervention and direction are underpinned by an understanding of how things develop” (Gera et al., 2006, p. 58). One such means is through conducting an innovation survey which “although... under-exploited, they provide many opportunities for the development of new internationally comparable indicators” (Arundel et al., 2006, p. 183). The next section of the paper elaborates the proposed methodology, highlighting the ways in which it will provide substantial details about Ghana’s NSI.

4. Methodology

This section discusses the steps involved in planning and executing the Ghana NSI survey, along with the problems associated with a study of this type, and the innovative meas-

Figure 2 . Graphical overview of the methodology used in conducting the Ghana NSI survey



ures taken to address these issues. Figure 2 above provides a graphical overview of the methodology used in conducting the Ghana NSI survey.

The first step in the survey process is the identification and creation of a comprehensive database of respondents. The target respondents chosen were derived from the three main NSI actor groups⁴, according to the 'triple helix model' proposed by Leydesdorff and Etzkowitz (1996), and an extra intermediary body, namely:

First, the policy community (essentially the Government) is represented by officials working in the relevant division of public institutions who are directly or indirectly responsible for innovation. These include institutions such as the Ministry of Science and Technology, Economy, Finance, Trade, Education and Industry. Government funded research institutes are also included in this category.

Secondly, the knowledge community (KBIs) is represented by heads of university and innovation-related faculties/departments (economics, science, engineering and business) as well as heads of think tanks and research institutes. Privately funded research institutes are also considered in this category.

Thirdly, the industrial community is represented by the CEOs of firms in the medium- and high-technology manufacturing sector in accordance with the sectoral ISIC Rev. 3 classification.

Finally, the intermediary body selected was that of arbitrageurs, i.e., venture capitalists and knowledge brokers. This group of actors is not represented in the traditional TH model, but is of crucial importance as the innovation process requires internal and external knowledge which has led to the emergence of new business models and new types of companies. As such, knowledge brokers and venture capitalists fill this gap through the provision of links, knowledge sources and even technical knowledge so that firms can improve their performance in terms of survival rate as well as accelerate and increase the effectiveness of their innovation processes (Zook, 2003; Hargadon, 1998; and Baygan and Freudenberg, 2000). Their resource allocation role is based on the assessment of advantages in information asymmetries (Williamson, 1969, 1971, 1973).

For all selected actors full contact details were obtained: those of government representatives were provided by MEST and MOTI; the contact details of industry CEOs were retrieved from the online business directory *Kompass*, which was chosen on account of its comprehensive list of worldwide companies and the function allowing to find multiple e-mail addresses, and those for KBIs and arbitrageurs were obtained through desk research.

The next point of discussion is response rate. Low response

rates are seen as problematic by the researcher as sampling error increases to the odds of samples that are too small to draw any meaningful conclusions from (Harzing, 2007). Overall response rates have been found to differ significantly, both across different professions and occupational groups as well as across countries. Evidence suggests that response rates by managerial staff are lower than those of non-managerial staff (Baruch, 1999). In a recent meta analysis, Cychota and Harrison (2006) identified an overall top manager response rate of 32 per cent. In an international research context, these rates are, on average, likely to represent an upper boundary, however, steps were taken to maximize the response rate and will be addressed in more detail below.

The next step, one that requires a great deal of thought, is survey design. Generally, questionnaire length is considered an important predictor of response rate (e.g., Berdie, 1973; Tomaskovich-Devey, Leiter and Thompson, 1994). With respect to the Ghana NSI survey, the variables were developed based on a review of NSI literature by the UNIDO Statistical Research and Regional Analysis Unit, which initially consisted of 300 comprehensive variables. In order to ensure the highest possible response rate, the survey instrument was revised and the number of variables reduced to 138.

Empirical evidence supports the treatment of ordinal variables as conforming to interval scales (Labovitz, 1967, 1970, 1971). For this reason and for the purpose of clarity and ease, direction and strength of the response scales were carefully considered within the design process. Matell and Jacoby (1972) state that as the number of steps in a scale increases the number of respondents who use the midpoint decreases. However, the exclusion of a midpoint in a scale leads to a greater negative bias within the results (Garland, 1991). In light of this, the Ghana NSI survey incorporated a five-point Likert scale which utilized a midpoint, thus reducing the bias towards both extreme answers and towards false negatives.

The next step in the survey process is the choice of method for survey delivery of which numerous types exist within the literature, each with differing perspectives and assessments. From the list of mail, telephone, interactive voice response and internet, we chose the latter based on the following justifications: i) In terms of maximizing the use of the budget, internet surveys offer a much larger sample size than the conventional mail survey (Berrens et al., 2003); ii) The time dimension associated with conducting web-based surveys is much lower in comparison to other forms (Cobanoglu et al., 2001); iii) The quality of retrieved data is higher in terms of non-response and the ability to include conditionality in a discreet manner (Olsen, 2009); iv) Higher reliability of end responses is achieved due to the reduced need for data entry (Bartels et al., 2009; Ballantyne, 2004; Muffo et al., 2003). However, on the whole, there is need for caution when sampling using a web-based survey. In particular, careful attention needs to be paid to the level of computer access of the target population (Olsen, 2009). In the case of the Ghana NSI survey, the target population is a sub-population with very high internet access, even within the developing country context, and is therefore of less relevance.

⁴ In 2009, the Ghanaian National Innovation Indicator Survey was conducted by the World Bank. The survey presented differs considerably from this earlier attempt in that the only actors surveyed were industry and KBIs. The governmental arm of the TH model was excluded (World Bank, 2009).

As previously noted, maximizing the response rate is crucial to achieve good survey results. Various strategies associated with the survey process exist to increase response rates. In general, it is advantageous to follow a multi-stage survey process that includes the circulation of an announcement letter and the distribution of reminders (Dillman, 2000). Announcement letters and reminders also have a secondary benefit, namely the creation of sponsorship. Harzing (2004) discusses the importance of sponsorship, particularly given the geographical and cultural distance between researchers and respondents. Generally, sponsorship can be provided by an international professional organization, participating organization, international committee of recommendations or at the level of the individual unit of analysis. Conversely, a negative aspect of sponsorship is the creation of the Hawthorne effect (Zwane et al., 2010). As the survey will be conducted by UNIDO and MEST and MOTI, with the two ministries authoring the sensitization and reminder letters, a level of value may be attached to the survey by respondents, thus giving it an atypical degree of importance. In order to circumvent a bias of results, the amount of information relayed in both the invitation and the reminder letters with regard to the actual content of the survey will be minimal.

The next section looks at the expected outputs of the survey, the type of analysis to be conducted and the way in which the results can be used by the Government of Ghana.

5. Expected outputs

Given the typology of NSI variables measured by the survey, instrument analysis will be limited to three statistical analyses. These are frequency analysis (to provide an overview of the nature of the respondents with respect to NSI), cross tabulations (to provide comparisons and contrasts between respondents as actors in the NSI framework) and factor analysis (to indicate the underlying factors which significantly influence barriers to, and policy instruments for, innovation). With respect to frequency analysis and cross tabulation for the reporting of results and for the sake of parsimony, the five-point Likert scale will be collapsed into a dichotomy. The scale measures Very Familiar and Familiar and Neutral, Unfamiliar and Very Unfamiliar reclassified as Familiar and Unfamiliar, respectively. Neutral is placed on the negative side of the dichotomy in the assumption that the respondents are actors in the NSI, irrespective of the state of its development and are assumed to be knowledgeable; hence, neutral does not represent a positive result. This position reduces the tendency to overstate the state of development of the NSI, notwithstanding the argument of potential bias (Bachman and O'Malley, 1984; Chen, Lee & Stevenson, 1995)

The utilization of factor analysis as an analytical method will enable the identification of a relatively small number of factors or underlying dimensions that can be used to represent relationships within the variable set (Stewart, 1981). The factors deduced are a representation of the underlying structure that is responsible for the variation of variables in the data and thus the population (Kim Jae-On and Mueller,

1978). Phrased differently, the factors obtained will infer the commonalities and divergence of the underlying perceptions of NSI actors towards the present Ghanaian NSI.

To complement the survey's primary statistical outputs, a secondary level of outputs on the enhancement and institutionalization of the NSI concept amongst the NSI actors will be aimed at as well. To this end, outputs and their impacts will include: i) Co-authored academic publications—enhancing collaborative activities, exchange of ideas and codification of knowledge; ii) Policy briefs and papers—provision of guidelines for the creation of and spatial and temporal management of incentives; iii) Policy seminars and workshops—exchange of ideas and transfer of tacit knowledge; iv) Establishment of cross institutional networks—establishment of the mechanisms for exchange of tacit and codified knowledge; v) establishing and developing the capacity and capability for the repetition of the survey—institutionalization of NSI and development of longitudinal measurement and monitoring capacity; and forging collaborations with international partners (Vienna University of Technology)—expansion of institutional collaborative networks dedicated to the study of NSI.

6. Conclusions

To summarize the core concepts presented in this paper it should first be noted that knowledge production and transfer and increased diversification are a prerequisite for competitiveness and economic advancement.

To this end, the establishment of the specific organizational structures and mechanisms for the aforementioned knowledge creation and transfer is a challenge, particularly when visualized from a national systemic context. Traditional models for the illumination of this concept have often been oversimplified, with key actors being excluded, particularly in the developing country context.

With this in mind, advancement in terms of knowledge creation, dissemination and diversification requires focused evidence based policy, which in turn requires a clear mapping of resources, an understanding of the perceptions of key actors as well as their interactions. Measurement and mapping at the national level is of particular importance as it enables policymakers to effectively direct what little resources they have.

The survey methodology outlined in the paper is both innovative and dynamic, however, to maximize its potential impact on the crafting of policy there is a need for further study and replication to obtain a longitudinal perspective.

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