KAPSARC Energy Workshop Series

مركز الملك عبدالله للدراسات والبحوث البترولية
King Abdullah Petroleum Studies and Research Center

The Challenges of Developing Eastern Africa's Natural Resources

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About KAPSARC

The King Abdullah Petroleum Studies and Research Center (KAPSARC) is an independent, non-profit research institution dedicated to researching energy economics, policy, technology, and the environment across all types of energy. KAPSARC's mandate is to advance the understanding of energy challenges and opportunities facing the world today and tomorrow, through unbiased, independent, and high-caliber research for the benefit of society. KAPSARC is located in Riyadh, Saudi Arabia.

Legal notice

Summary for Policymakers

The discovery of significant oil and gas reserves in Eastern Africa provides a major opportunity for boosting economic development in the region. In developing these reserves, Kenya, Mozambique, Tanzania and Uganda have the chance to rapidly transform their economies and address development needs. However, this opportunity comes with risks and policy challenges, and dependency on natural resources for economic growth has been frequently linked to poor macroeconomic performance in developing countries. KAPSARC is working collaboratively with leading economic policy think tanks in four countries to understand one central question: How can countries develop their natural resources to create and sustain inclusive economic development? Aspects of this include:

1. The role of oil and gas fiscal regimes in promoting natural resource development;
2. The role of local content regulations and indigenization in shaping the impact of natural resource-driven development; and
3. The macroeconomic impact of local content regulations and indigenization of natural resource development under different fiscal policy scenarios.

The workshop yielded several insights for policymakers in resource-rich developing countries:

1. Managing a country's expectations, particularly in the communities surrounding natural resource extraction sites, is often overlooked in the negotiations about fiscal regimes;
2. Fiscal regime negotiations are sometimes overly focused on the concept of 'government take', which can ignore the important issue of the tradeoffs imposed on the international oil companies (IOCs) that ultimately commit to investments in the oil and gas sector;
3. Local content policies are a political imperative for oil and gas projects in Eastern Africa and all parties should recognize this;
4. The legacy of mining industries in many African countries has left a wake of resentment and mistrust among local communities that is driving the debate over local content policies in the oil and gas sectors; and
5. The significant social welfare and development needs in East African countries require different fiscal policies for managing natural resource revenues than those prescribed for industrialized nations.

Background to the Workshop

On August 19-20, 2014, KAPSARC hosted a workshop in Nairobi, Kenya, with research partners from leading economic think tanks in Eastern Africa. It was attended by over 30 local and international experts. The research partners came from:

1. Uganda's Economic Policy Research Center (EPRC);
2. Tanzania's Economic and Social Research Foundation (ESRF);
3. Kenya's Kenya Institute for Public Policy Analysis (KIPPRA); and
4. Mozambique's Centro de Estudos Económicos e de Gestão (CEEG)

The workshop considered societal choices and policy challenges related to Eastern Africa's expected windfall revenues from recent hydrocarbon discoveries. This workshop briefing summarizes the broad dimensions of the expected natural resource boom on economic growth and development in Eastern Africa.

Natural resource wealth has been a source of both prosperity and impoverishment in the region. While some countries have harnessed valuable natural resources for successful economic development, others have only seen such opportunities lead to strife and dislocation. The policy challenges facing developing countries endowed with valuable natural resources are complex. Governments face the problem of establishing a stable and credible taxation regime for foreign private investments in upstream exploration and development. Any lack of institutional capacity and good governance will be exposed as governments grapple with spending large resource revenue gains. Front end-loaded government spending of these revenues often leads to an appreciation of the exchange rate which, in turn, causes non resource-related tradable sectors such as manufacturing and agriculture to become uncompetitive. This phenomenon, referred to as Dutch Disease in the macroeconomic literature, coupled with absorptive capacity constraints in the domestic economy, can reduce the efficiency of public investments.

Eastern African governments face these policy challenges and other critical choices in allocating public savings, investments, and social welfare transfer payments. Much analytical work has already been done to characterize optimal policies and regulations in the context of resource rich developing countries. This workshop, KAPSARC's first in a series focused on natural resource-driven development, selected three initial topics to explore:

1. Establishing an effective fiscal regime for the upstream oil and gas sectors;
2. Promoting employment and domestic value added via industrial policy and local content regulations; and
3. Understanding macroeconomic impacts of natural resource-driven development.

Fiscal Regimes for the Upstream Oil and Gas Sectors

Extractive industries such as oil and gas require large investments to develop and sustain their financial contributions to government revenue and export incomes for the domestic economy. Fiscal regimes in the upstream oil and gas sectors are heavily influenced by the extractive industries, and governments frequently have neither the scale of capital nor the technological expertise necessary to develop natural resources themselves. As a consequence, countries rely on IOCs to explore, appraise and develop these resources. Both parties quite naturally seek to maximize their respective financial returns while shifting the associated risks of resource exploitation onto the other. Unlike contracts between private parties that can appeal to legal authorities to enforce contractual rights and obligations, it is harder to compel governments to abide by contractual terms. Thus governments and IOCs must continually wrestle with competing interests amid changing circumstances.

A central challenge for Eastern African governments in monetizing their natural resources lies in getting the fiscal regime for oil and gas exploration and production 'right'. Fiscal regimes seek to maximize value to the state by weighing short-term and long-term interests. Governments attempt to balance development needs with the potential revenue flows from natural resources. Natural resource tax revenue policies are best integrated with the country's fiscal regime as a whole.

Managing expectations countrywide and particularly among communities in regions surrounding natural resource extraction sites is necessary to counter misconceptions about the size of the wealth and the flow of revenues. Too often, the citizenry of developing countries perceive natural resource wealth to be a 'free good' and consider that subsidized prices of petroleum products and natural gas are a birthright. Local communities living near resource extraction sites may hear 'trucks in the night' and assume the wealth is being 'stolen' by government elites and the IOCs. Policymakers engender greater trust when they are transparent about dealings with the IOCs and they educate the public about the real scale of revenues and shared benefits.

Designing an upstream fiscal regime requires not only the government share of expected revenues but also the size of the total pie to be taken into account. High statutory rates of taxation discourage investments by the IOCs and reduce the recovery rates of natural resource reserves. Stable fiscal rules throughout the price cycle, establishing over time consistency and trust between IOCs and governments, can encourage higher levels of investment.

Successful models of various taxation regimes in the upstream oil and gas sector incorporate not only geological and engineering characteristics of resource reserves but also strategic investor behavior. Investors will tailor their exploration and development efforts to reduce their tax burden, impacting the intensity and scope of exploration and field development, enhanced recovery, field extensions and the timing of field abandonments.

A good petroleum fiscal regime can be defined as one that is flexible, stable and simple to administer, although there is no universal solution for policymakers to select from a 'menu' of fiscal regime options. Each fiscal regime option requires evaluation of trade-offs between risks and rewards. The following are some examples:

– Royalties are easy to administer but they tend to distort investments, reducing the size of the exploitable resources;
– Income tax regimes shift the risk into government hands;
– Bonus payments, on the other hand, offer the advantage of simplicity and certainty of revenues to the government; however, they do not provide enough flexibility under changing economic conditions; and
– Ring fencing, an accounting procedure where a company's license is separated for fiscal calculation purposes, accelerates government revenues. However, it also negatively affects the level of exploration activity since companies may be averse to investing new capital on new high-risk exploration licenses without the tax shelter provided by profits from earlier successes.

There are risks to using the wrong measurements for assessing fiscal regimes. Fiscal regime negotiations are sometimes overly focused on the simple, and often misleading, concept of 'government take'. When designing a petroleum fiscal regime, robust economic models can help policymakers understand the trade-offs imposed on the international oil companies (IOCs) that ultimately commit to investments in the oil and gas sector. However, governments in developing countries typically lack specialized knowledge. This information asymmetry can result in an over-reliance on a limited pool of foreign experts and consulting firms. In addition to developing the industrial capacity to participate in an emerging hydrocarbon sector, developing countries also have to build capacity in the relevant government institutions that will plan, license, and regulate oil/gas industries and the associated revenues.

Local Content Regulations and Industrial Policy

Governments in resource rich developing countries typically face tremendous pressure to promote local industry and employment on the back of natural resource booms. The use of regulations in the hydrocarbons sector to promote economic growth is not a new phenomenon. Ranging from direct state participation in the oil and gas sector to restrictions on imports of equipment and services, regulations requiring domestic sourcing were first introduced in Europe in the 1970s when large oil and gas reserves were discovered in the UK and Norwegian North Sea. These regulations endeavored to promote linkages between the enclaves of extractive activity in the oil and gas sectors and the wider economy.

The Norwegian model is often quoted as a success story of local content policy. However, there are fundamental differences between the Norwegian experience and that in developing countries with hydrocarbon discoveries. For example, Norway was already an industrial, developed nation that enjoyed high standards of governance when oil was found. Nonetheless, Norway's use of local content regulations and the establishment of a national oil company helped to boost the expansion of a local oil service industry in Norway.

There has been a persistent consensus, often in the face of evidence to the contrary, that governments should consider policies, regulations, and in some cases legislation to mandate a level of domestic sourcing of labor and supply. The argument goes that an infant industry[1], when mature, would theoretically lead to significant economic spillovers. Forward linkages would then add value from the domestic processing of the raw natural resources, the establishment of oil refineries, petrochemical manufacturing, and power generation based on natural gas. The need for specialized inputs, large capital resources and skilled labor, together with the technological complexity of the oil and gas sectors, often constrain the development of these linkages. It is still to be demonstrated whether this logic will apply to developing countries with limited pools of capital and skilled labor able to satisfy the specialized and complex needs of upstream oil and gas investments.

Enclave extractive industries[2] in many African countries are perceived to have failed at creating linkages with the local business community or providing sufficient jobs to the local population. For example, the legacy of mining industries in both Tanzania and the Democratic Republic of Congo left a wake of resentment and mistrust among local communities toward the government and extractive industries. Building that trust is seen as essential for any IOC wanting to obtain a 'social license to operate' in local communities where the extractive industries might be located. The political realities require that local content clauses are clearly identified and implemented in upstream exploration and development contracts or governing laws, instead of allowing market forces and IOCs to define the scope and scale of linkages with the domestic economy.

Macroeconomic Impacts

Many developing countries experiencing resource booms have absorptive capacity constraints and suffer an appreciation of exchange rates that cause non resource tradable sectors such as agriculture and industry to lose competitiveness. The revenues from natural resources primarily flow to governments as royalties and taxes, since the extractive sectors are typically enclaves where inputs of skilled labor, intermediate goods and capital are all largely imported. Government decisions on how to save, spend, invest and transfer resource windfalls will determine whether they succeed in creating and sustaining inclusive economic development. The guiding fiscal policy framework for resource rich countries has typically relied on the 'Permanent Income Hypothesis' (PIH).[3] The PIH applied to the resource revenues requires a mechanism to fulfill the inter-temporal budget constraint, allowing the country to sustain a constant flow of spending/ investment equal to the rate of return of invested resource revenues.

However, the PIH approach has been criticized not only for setting benchmarks which are too tight for capital constrained developing economies with low per capita income, but also for the inability to distinguish between consumption and capital spending.[4] An initial scaling up of spending can meet the immediate consumption demands in poor countries while sustaining some level of public investment. However the inter-temporal budget constraint forces spending to be lower in future years. This is sometimes characterized as a 'Big Push' development strategy to get the country out of poverty.

The creation of investment funds or trusts is a mechanism for maximizing the benefits to society while addressing macroeconomic issues. They allow for the transfer of natural resource wealth into financial assets for future generations, but also alleviate the Dutch Disease and absorptive capacity constraints if the wealth is invested abroad. Funds can also be used for stabilization purposes, reducing the impact of price shocks on the government budget. The Norwegian Sovereign Wealth Fund is held up as the global standard in terms of its management and ability to achieve its objectives worldwide. However, Norway's small population and high level of economic development afford it latitude that cannot be enjoyed by Eastern African countries. They have large populations with significant social welfare and development needs that make natural resource funds politically contentious.

Next Steps for KAPSARC and our Research Partners

KAPSARC will be focusing on the themes of fiscal regimes, local content and the macroeconomic impacts of natural resource development over the next year with specific research projects conducted in collaboration with our research partners. The first effort will analyze the fiscal regimes currently enacted in the four Eastern African countries under study. Probabilistic scenarios involving price and production profiles will be developed to illustrate the possible trajectories in government revenues. These scenarios will be developed with the advice and support of officials from Energy and Finance ministries in Eastern African countries.

The second effort will utilize a macroeconomic modeling approach to simulate the impacts of various fiscal policies on the economy of a resource rich developing country. These fiscal scenarios will be developed in collaboration with our research partners in each country. The macroeconomic model will be calibrated for each country and implemented collaboratively with the partner research centers.

The third effort will assess local content and indigenization. The likely production scenarios for oil/gas exploration and development will be estimated to understand the potential magnitude of oil and gas revenues for each country. The enterprises in each country that are most likely to participate in the oil and gas industry will be systematically assessed through a structured interview and survey administered by our research partners. Through this effort we will identify a panel of enterprises that can be tracked to understand how local content policies and regulations are affecting the development of firms in Eastern African countries.

KAPSARC will be holding three workshops in 2015 to focus on specific issues and present research outputs and discuss methodological issues with our partners in Eastern Africa and with experts from abroad. These efforts in Eastern Africa will eventually be combined to provide a comprehensive assessment of how local content can contribute to inclusive economic development in countries that are developing their natural resources. This original research will be contextualized with country case studies where local content has already been developed. Taken together, these insights will fill an important gap in our knowledge about how energy can be developed to spur inclusive economic growth for the benefit of society.

End Notes

[1]A new industry in a country that experiences relative difficulty or is absolutely incapable in competing with established competitors abroad.

[2]An export based industry dominated by international or non-local capital that extracts resources or products from another country.

[3]Sharma, N. and Strauss, T. (2013). "Special fiscal institutions for resource-rich developing economies: The state of the debate and implications for policy and practice." Overseas Development Institute Research Report. Accessed December1, 2014. http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8393.pdf.

[4]See Collier, P., Ploeg, F. V. D., Spence, M., and Venables, A. J. (2009). "Managing Resource Revenues in Developing Economies.", and Collier, P. (2010). "Principles of resource taxation for low-income countries" in The Taxation of Petroleum and Minerals: Principles, Problems and Practice, 75-86. New York City, NY: Routledge.

About the workshop

In August 2014, KAPSARC convened the first East Africa workshop in Nairobi from the series of workshops focusing on local content and macroeconomics impacts of natural resource developments. The workshop was held in two days, with the first day dedicated to fiscal regimes in the upstream oil and gas sector and macroeconomic impacts, the second one focused on local content regulations and industrial policy. The workshop's discussions were held under the Chatham House Rule of capturing the discussion on a non-attribution basis.

Peninah Aheebwa - Senior Petroleum Economist, Petroleum Exploration and Development Department

Enrique Blanco Armas - Senior Economist Mozambique, World Bank

Vanda Castelo - Economist, Direcção Nacional de Estudos e Análise de Políticas

Tilak Doshi - Program Director, KAPSARC

Alemayehu Geda - Professor Macro & International Economics, Addis Ababa University

David Hobbs - Head of Research, KAPSARC

Wumi Iledare - President of the International Association of Energy Economics, University of Port Harcourt

Christine Jojarth - Lecturer, Stanford University

Fred Joutz - Visiting Fellow, KAPSARC

Ibrahim Kasirye - Deputy Director, Economic Policy Research Center

Joseph Kieyah - Principal Analyst, Kenya Institute for Public Policy Research and Analysis (KIPPRA)

Lawrence Kiiza - Director, Economic Affairs, Ministry of Finance, Planning and Economic Development, Kampala, Uganda

Neema Lugangira - Local Content Expert, Independent

Bohela Lunogelo - Executive Director, Economic and Social Research Foundation

Daniel Mabrey - Research Fellow, KAPSARC

Artem Malov - Senior Research Associate, KAPSARC

Baltasar Manzano - Visiting Fellow, KAPSARC

Constantino Marrengula - Assistant Professor, Faculty of Economics, Centro de Estudos Economicos e Gestao (CEEG)

Mary M'Mukindia - Chairman, Jacaranda Holdings, Kenya

Manuel Moses - Head of East Africa, International Finance Corporation (IFC)

Hossana Mpango - Economist, Economic and Social Research Foundation

Gonansa Mugulusi - Economist, Petroleum Exploration and Development Department

Isabella Mwangi - Researcher, Kenya Institute for Public Policy Research and Analysis (KIPPRA)

Knut Olsen - Principal Industry Specialist, IFC Global Oil & Gas

Muhammad Saggaf - President, KAPSARC

James Smith - Cary M. Maguire Chair in Oil & Gas Management, Edwin L. Cox School of Business

Sarah Ssewanyana - Executive Director, Economic Policy Research Center

Natznet Tesfay - Head of Africa, IHS Country Risk

Roger Tissot - Research Fellow, KAPSARC

Brighton Vaz - Technician at Directorate of Studies and Economic Analysis, Ministry of Finance, Mozambique

Fan Zhang - Quantitative Modeler, Econometric Modeling Team, International Monetary Fund (IMF)

Notes

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About the team

Anne-Sophie Corbeau is a Research Fellow specializing in gas markets; she holds two MSc in energy engineering and economics from Centrale Paris and University of Stuttgart.

Tilak Doshi is a Senior Research Fellow specializing in oil and gas markets. He holds a PhD in economics from the University of Hawaii / East-West Centre, USA.

Fakhri Hasanov PhD is a Visiting Research Fellow working on East Africa. He is the director of the Center for Socio-Economic Research at Qafqaz University.

Fred Joutz is a Senior Research fellow His research focuses on energy macroeconometric modeling. He holds a PhD in Economics from the University of Washington.

Daniel Mabrey PhD is a Research Fellow in the Policy and Decision Sciences program. He is project lead on research efforts in East Africa.

Artem Malov is a Senior Research Associate specializing in facilities and cost engineering. He holds a MSc in reservoir engineering.

Baltasar Manzano is a Visiting Research Fellow in the East Africa project at KAPSARC. He holds a PhD in economics.

Marcelo Neuman is a Visiting Researcher collaborating with KAPSARC's Local Content Project in East Africa. He is an Associate Professor and researcher at the University of Sarmiento in Argentina.

Roger Tissot is a Research Fellow specializing in local content. He holds MA Economics and MBA; worked in Business Development and as advisor to government petroleum authorities.

Akil Zaimi is a Senior Research Fellow and was an upstream petroleum economist for 30 years where he advised governments and companies on investments, fiscal terms, and financing.