



# Developing a socially inclusive and sustainable natural gas sector in Tanzania

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## ABSTRACT

Tanzania is experiencing a boom in natural gas. Tanzania's natural gas reserves are estimated at 57 trillion cubic feet and the emergence of gas revenues are expected to be a strong economic growth factor for the country. To be sustainable, this economic growth should be inclusive and should result from balanced investments between technical, human, environmental, and social capital. We investigate household perceptions of Tanzania's nascent natural gas industry and operations. We implemented field surveys in the Mtwara and Lindi regions, regions that will be most directly impacted by the natural gas exploration and extraction owing to their proximity to the discovery sites. 783 respondents were interviewed for the quantitative survey and 20 for the qualitative one. We provide an overview of their awareness, and knowledge of local natural gas activities, and explore their perceptions from the economic, environmental, social, and governance perspectives. Finally, we draw on our findings and offer recommendations for implementing socially inclusive and sustainable policies in the gas sector in Tanzania, in line with the principles of sustainable development, licence to operate, corporate social responsibility and community engagement.

“Natural gas resource found in Tanzania belongs to the people of the United Republic of Tanzania, and must be managed in a way that benefits the entire Tanzanian society”.

United Republic of Tanzania (2013)

## 1. Introduction

In the context of Africa's accelerating demographic growth, the key challenge for the continent in the coming decades will lie in fostering sustainable and socially inclusive growth. For many African economies, extractive resource management is an additional concern. While mineral resource endowments can be assets for economic development, several African countries with strong mineral resource endowments have experienced weaker growth than other countries. Moreover, the growth that occurred within these countries has sometimes been accompanied with a high environmental cost and with little improvement to human development.

Tanzania is currently experiencing a boom in natural gas. There has been natural gas extraction off the coast of Tanzania for over a decade with the first gas discovery occurring on the Songo Songo Island in the Lindi region (offshore and onshore) in 1974 and in Mnazi Bay in the Mtwara region (offshore) in 1982. 5.2 billion cubic feet were produced in 2006 and 35.1 billion cubic feet in 2013. In the past few years, new

discoveries of natural gas in deep water off the southeast coast have created expectations of an enormous new source of revenue for the Tanzanian government (Baunsgaard, 2014; United Republic of Tanzania, 2013; United Republic of Tanzania, 2016), with reserves estimated at 57 trillion cubic feet (Cappelen et al., 2016).

With so much potential profit and benefits to Tanzanians, policy-makers are eager to avoid the “resource curse” of stagnant economic growth that has befallen other countries with a wealth of non-renewable natural resources. Gas discoveries have raised hopes and expectations, both at the national and local levels. Hence, questions of how to proceed in transforming these under ground assets into economic development above ground have become topics of intense national interest.

Experiences from other countries have shown that conflicts can arise between communities living nearby extraction sites and extractive industries (EIs) if early community engagement is not implemented and the benefits of such projects are not shared (Davis and Franks, 2014). In the case of Tanzania, ensuring that local communities have a clear picture of the magnitude and timing of potential benefits will be key to avoiding disillusion (Roe, 2016). Several pieces of recent legislation demonstrate that there is good intent on behalf of the Tanzanian government to ensure that gas exploitation follows principles of “do no harm” and strives to benefit local communities (e.g. Petroleum Act, 2015; Oil and Gas Revenues Management Act, 2015; Tanzania

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Extractive Industries (Transparency and Accountability) Act, 2015; Local Content Policy of Tanzania for Oil and Gas Industry, 2014; Natural Gas Utilisation Master Plan 2016 – 2045, 2016; National Energy Policy, 2015; other cross cutting policies and strategies, such as the Integrated Industrial Development Strategy 2025). Despite the intent of this legislation, there is still somewhat limited capacity at the local level to influence decision-making, and the balance of benefit sharing between local and national interests remains contentious (Hundsbaek Pedersen and Bofin, 2015).

In this context, building a socially inclusive extractives sector will be essential to the sustainability of the Tanzanian economy. As such, there is a growing recognition that if EIs are managed adequately, the sector could play both a key role in the structural transformation of the economy and make significant contributions toward the Sustainable Development Goals, such as Goal 9: “Build resilient infrastructure, promote sustainable industrialization and foster innovation” and Goal 12: “Ensure sustainable consumption and production patterns”.

While some nationally representative surveys have been conducted across a broad section of the country (Ambroz and Mushi, 2015; Sandefur et al., 2015; Cappelen et al., 2016), in an attempt to understand Tanzanian citizens knowledge and views on the natural gas sector there is a dearth of detailed household level data from the regions which will be most directly impacted by the natural gas extraction, due to their proximity to the sites.

Our contribution is twofold. Firstly, we explore local perceptions of the natural gas sector. Secondly, we derive recommendations for the expansion of this emerging industry in an inclusive way. To this end, we carried out a mixed-method survey in the Mtwara and Lindi regions in December 2016, of about 800 respondents for the quantitative survey and 20 key informants. The article is structured as follows: in Section 2 we provide an overview of the conceptual framework; in Section 3 we describe the methodology and the data. In Section 4, we present our results and discussion. Finally, in Section 5, we draw on the findings from the previous sections to provide recommendations for implementing an inclusive and sustainable gas sector in Tanzania.

## 2. Conceptual framework

### 2.1. Studying extractive industries with a micro lens

The macroeconomic impacts of the abundance of non-renewable natural resources in developing countries is well-documented (Auty, 2004; Badeeb et al., 2017; Cockx and Francken, 2016; Dauvin and Guerreiro, 2017; Havranek et al., 2016; Sachs and Warner, 1995; van der Ploeg, 2011). The literature shows that possessing natural resources is not always beneficial to the economic performance of a country, referring to the well-known “Dutch disease” or “natural resource curse.” Macroeconomic research on Tanzania explores these mechanisms and whether or not the country should establish a sovereign wealth fund (Moshi, 2013; Roe, 2016; Simbakalia, 2013; Torvik, 2016).

Recent developments in the literature stress the need to study EIs using a micro lens. Microeconomic studies on EIs are less abundant than macroeconomic studies, especially in African countries. There has been, however, a recent shift with the emergence of concepts such as *corporate social responsibility* (CSR), *inclusive extractive industries*, *benefit sharing*, *shared value*, and *local content*. This had led to more research on the impacts of EIs on host communities. From a normative perspective, these concepts relate to the concept of sustainable development and cover at least one of its four dimensions among the economic, social, environmental and governance ones. However, they hide a wide range of practices by companies across the globe, as revealed for example by the variety of definitions proposed for CSR (see Dahlsrud, 2008).

Furthermore, these concepts, and the resulting practices, have emerged in recognition of market and government failures in the extractives sector. When EI operators and governments calculate the potential economic benefits of extractives projects, the figures tend to be

inflated since social and environmental externalities are not fully accounted for. Market failures can occur due to the existence of information asymmetries between gas operators, local communities and the government (e.g., actual exploration and exploitations costs, management of gas revenues), to imperfect contracts, and to social and environmental externalities. Government failures arise when public decision making does not maximize social welfare. From a theoretical perspective, policy makers may adopt behaviours which diverge from the social optimum, such as seeking to maximize their personal interests (re-election or rent-seeking behaviour), or such as succumbing to the pressure of lobbies. Additionally, public failures can occur in the presence of information asymmetry: policy makers may not be fully informed of the social demand and individual preferences for local public goods; they may also have an informational advantage on available resources in the economy and on the production costs of local public goods. Such failures can lead to an overproduction of negative environmental and social externalities, to a sub-optimal production of public goods and overall, to a level of natural gas production higher than the social optimum. Hence, by adopting a Kaldor-Hicks type criterion, i.e., analysing whether or not total social benefits exceed total social costs, those who gain from EIs could compensate those who are negatively impacted. In addition, other criteria, such as distributional equity and intergenerational transfers, could be taken into account in the decision-making process (see Stavins et al., 2003), as well as static and dynamic efficiency. In order to put appropriate policies in place, the first step is to map out and understand what affects host populations.

As a matter of fact, the different phases of the natural gas production cycle have localized impacts. Compared to other fossil fuels, such as petroleum and coal, natural gas is relatively clean and its production generates less carbon emissions. Nevertheless, the development of the industry, exploration, exploitation, transportation, development, and decommissioning activities will have adverse impacts for the environment and livelihoods (Jones et al., 2015; Speight, 2014; UNEP, 1997; Greenspan Bell, 2017). Nonetheless, natural gas operations could also have positive spillovers for local communities, such as new roads that allow local farmers to access markets, and overall improved access to electricity, etc.

### 2.2. Responses to market and government failures

For many years increasing attention has been given to CSR in the EIs. “The Commission of the European Communities (2001) defines CSR as “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.” The World Bank states: “CSR is the commitment of businesses to behave ethically and to contribute to sustainable economic development by working with all relevant stakeholders to improve their lives in ways that are good for business, the sustainable development agenda, and society at large.” (Kitzmueller and Shimshack, 2012). There exist multiple approaches to CSR (see Bénabou and Tirole, 2010; Lyon and Maxwell, 2008), which can be seen as a response to government failures and public policies, as a response to social pressure, as altruism or strategy, that is, “doing well by doing good” (Bénabou and Tirole, 2010), and a long-term strategy to maximize profits. It can consist of donations, sponsorship, and other philanthropic activities. It can even go further, involving risk mitigation projects and can also consist of creating long-term positive impacts on populations through shared value and long-term projects (Dahlsrud, 2008).

Some companies have already undertaken some initiatives along the lines of CSR.<sup>1</sup> For example, Pan African Energy Tanzania has been

<sup>1</sup> See <http://panafricanenergy.com/social-responsibility/>, <http://goo.gl/CUaTWM>, <https://www.statoil.com/en/where-we-are/tanzania.html> (accessed on 12/02/2017).

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