



Tanzania Gas Sector Economy in the Light of Human Development

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ABSTRACT

This paper explores the potential direct relationship between increased consumption of energy and economic development of selected countries, and in that regard examines initiatives in Tanzania towards boosting its energy production and consumption to achieve faster development.

1. Introduction

Energy transformation and usage has dominated the social and economic conditions of the world in the history of mankind. Various forms of energy, including natural gas, have been driving development and improving the quality of life of human beings.

The level of energy consumption is closely associated with social and economic development. The experience of industrialized countries with bigger per capita energy consumption and that of non-industrialised countries with the reverse provides ample evidence of this point. Thus for Tanzania to make rapid development, it has to invest heavily in energy generation and consumption. So the current policy brief paper explores the linkage between energy use and economic development of selected countries, with particular focus on countries that have achieved rapid development due to Gas production. Further, the paper looks at the preparedness of the Tanzania Government (GoT) to follow best practices learned from

the successful countries in this regard.

2. Natural Gas in Economic Development

2.1 Development of Natural Gas as Energy and Feedstock

Natural gas is used in many ways, primarily as energy source and feedstock for producing other commodities. It is used in power generation, cooking and heating in households, in vehicles and many other applications. Also it is used as raw material to produce a large range of products like fertilizers, methanol and many other products. All these applications have developmental significance.

Consumption of energy is reflected in overall economic development, being proportional to growth of GDPs of nations. For instance: (a) the higher the energy consumption per capita, the higher the GDP per capita, and (b) developed countries have higher energy consumption per capita than developing countries (See Table-1).

Table-1: Comparison of Energy Consumption and GDP for selected African Countries (A) and Industrials Countries (B)

(A) Country	kwh	GDP/Capita US\$		(B) Country	kwh	GDP/Capita US\$
Kenya	795	787		S. Africa	4803	7266
Uganda	54	506		China	2944	4433
Mozambique	394	387		Brazil	2384	10978
Ethiopia	320	341		Australia	10286	51586
Nigeria	136	1432		Belgium	8388	43000
Tanzania	97	525		Denmark	6327	56486
Angola	242	4219		France	7734	39186
				Italy	7384	33761

NB: Data for year 2010

2.2 Lessons from Netherlands, Malaysia, Trinidad & Tobago, and Thailand

Additional positive evidences on the impact of the gas economy are found in countries like Malaysia, Netherland, Thailand, and Trinidad and Tobago. These countries planned well and developed the gas industry for the benefit of their citizens. Though, Tanzania cannot follow exactly any single model adopted in those countries due to many varying factors¹, there are useful lessons to learn.

Key lessons include: (a) **Ownership**: the resources belong to the citizens and must be managed to benefit the entire society, (b) **Domestic Content**: through domestic utilization broad-based growth can be achieved, (c) **Participation**: a country can benefit mostly through high level participation of its people along the entire value chain, and (d) **Management**: effective specific gas revenue management mechanism should be installed.

For the emerging natural gas producers, making the right balance between production

and consuming the gas produced is an intricate challenge. It balances between putting these resources for use in the domestic market or shipping them overseas for commercial advantage. Typically, emerging producers are “advised” by international experts to avoid government participation in exploration and production, in favour of exclusive private sector production operations². This hides the fact that all economically successful countries developed the public sector capacity in this area simultaneously with facilitating private participation.

2.4 Tanzania Opportunity to Emulate Successful Gas Producer Countries

Tanzania is fortunate: it can build on other countries’ experiences to get the legislative, regulatory and policy framework right (OPM Workshop report, August 2013), but Tanzania should not be shy also build requisite capacity for participating strategically in the entire value chain of the gas industry.

This may comprise the following Major Industrial Utilization ends:

¹ Such as when oil was discovered or country size and population, level of development at the time of discovery, governance, culture and other societal values

² OPM Workshop report - Public sector capacity needs to be developed only for undertaking contract negotiation, regulation of the sector, contract management, and management of the fiscal regime.

For Utilisation in The Domestic Industry (examaples)		For Exportation
<ul style="list-style-type: none"> • Electricity Generation • LPG • Ammonia, Urea, Methanol and its derivatives (- D.M.E) • Direct Reduction Iron and Steel Production 	<ul style="list-style-type: none"> • Polymers – Plastic Industry • Transportation • Energy Technologies • Small Domestic Users – C.N.G. and Pipeborne 	<ul style="list-style-type: none"> • Pipeline System to neighboring countries • CNG • LNG to overseas markets

3. GoT INITIATIVES

From the foregoing discussion, it is an opportune moment that Tanzania has discovered natural gas, when sufficient experience and technology is available around the world, full of international best-practice, standards and approaches. Nonetheless, this good avenue for Tanzania cannot be adopted wholesale.

3.1 Natural Gas Sector Road map

Fittingly, the Government has defined a draft road map to guide activities in the natural gas sector in the future, in order to develop a robust natural gas industry in Tanzania. The key objectives in the short term, include launching the Gas Policy, Gas Act, Gas Master Plan, Institutional Reforms, Capacity Building, Security Enhancement, Management of Public Expectations, Gas Revenue Fund, Improving CSR strategies and Gas Pricing. In the Medium term, the strategy addresses developing facilities for handling deep sea gas, creating efficient domestic market, launching intensive communication strategy countrywide and reviewing the fiscal regime. The long term strategy will address Participation of Tanzanians for enhancing reliability of natural gas supply, optimization of natural gas usage and promoting PPP (Private Public Partnership) in natural gas investments.

3.2 Draft Natural Gas Policy

A specific policy is under development to address downstream challenges encountered and to guide operations for maximization of benefits in the gas industry in the future. The policy will cover all the objectives identified in

the roadmap.

3.3 Local Content Strategy

Domestic utilization, Local Content and Participation:

Refers to the level of use of Tanzanian local expertise, goods and services, people, businesses and financing in natural gas activities. Government efforts here have registered significant achievements, for instance: (a)The Songo Songo gas is consumed locally (approx. 90% through Power Generation, 10% - Industrial use) with an aggregate saving on replaced liquid fuel of around USD 5 billion by April 2013; (b) Domestic piped gas supply in Dar es Salaam – on pilot, (57 houses connected); (c) CNG for vehicles in Dar es Salaam – (60 vehicles converted); (d)The Mnazi Bay gas-based power generation, currently with installed capacity of 18 MW is generating 12 MW supplying Mtwara and Lindi Regions; (e) An MOU for a new 400 MW plant at Mtwara by an IPP has been signed.

Other projects include construction of a largest cement factory in sub Saharan Africa with production capacity of 3,000 tons per day in Mtwara; and A fertilizer factory to utilize Mnazi Bay gas. In future, an industrial park will be established adjacent to the LNG plant to accommodate natural gas intensive industries ;and other industries will also be established in cities and townships located along the pipeline route.

Institutional and Human Capacity Building:

MEM has launched a comprehensive capacity building strategy for oil and gas fields to produce at least 50 experts by end of 2016. This is parallel with strengthening Tanzania’s higher education institutions, namely

University of Dodoma (UDOM), University of Dar es Salaam (UDSM) and Nelson Mandela University in Arusha. At the moment the focus is mainly on applicable sciences subjects. The next phase will include accountants, lawyers and other relevant subjects. On the institutional set up, MEM is restructuring the Tanzania Petroleum Development Corporation (TPDC) and Tanzania Electric Supply company (TANESCO) into functional and efficient organizations.

Service Industry (SMEs): This involves provision of services to natural gas businesses as well as final consumers such as hotels, restaurant/bars, transport, construction or operation centers, and many others. An additional strategy is required to stimulate and support entrepreneurship to enhance local content to ensure that domestic producers are able to supply the skills, goods, and services required by the new industries.

3.4 Energy Production and Supply strategies

Capacity Build up and Access: Tanzania, through the Big Results Now (BRN) programme, has selected energy as the most essential ingredient for rapid development. In this respect, Tanzania will have to diversify its energy sources, away from unstable Hydro sources to encompass Coal, Natural Gas, Wind, Geothermal and Solar sources. The new thrust is on boosting energy production based on natural gas. The strategy under the BRN is to raise the current low per capita electricity consumption of about 135 kWh to a 236kWh by 2015. Generation capacity is planned to increase from 1,375MW to 3,197MW.

Total electricity consumption in Tanzania is very low, while demand is forecast to rise rapidly from 135kW/hr in 2012 to 444 kW/hr and 616 kW/hr by 2025 and 2035 respectively (Power System Master Plan), i.e. a 7% increase per annum. By comparison Kenya's and India's per capita consumption were 795 kW/hr and 616 kWh respectively.

The new integrated capacity enhancement plan under BRN is expected to deliver over 1300MW of power for nearly 5 million more people with electricity by 2015/16 through investments in power generation, transmission and distribution. In this regard, 7 new plants with 1,310 MW capacity, and 7 high voltage power transmission lines traversing over 3100km will be built.

4. CONCLUSION

The general conclusion of this Policy Brief is that the gas economy can, with the right policies and strategies, deliver significant human development. But this requires strategic domestic participation. To this end Government has laid out initiatives that build on lessons learnt from successful gas producing countries to launch own strategy. The key principles guiding the GoT include:

- (i) Tanzania to invite investors for the upstream segment,
- (ii) National capacity will be enhanced for strategic participation,
- (iii) Local content use will be prioritized for the benefits for the broader economy,
- (iv) It is vital to earn and retain public trust and manage public expectations,
- (v) Build capacity to enable actors to perform in a transparent and accountable manner.



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