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Africa Meeting Summary

Tanzania as an Emerging Energy Producer

Hon. Sospeter Muhongo

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INTRODUCTION

The following document provides a summary of a meeting held at Chatham House on 26 February 2013. The meeting looked at Tanzania’s emerging energy sector.

Tanzania is drawing growing attention as a pivotal country in East Africa for oil and natural gas exploration, having led the region in terms of new discoveries of natural gas in 2012. With known gas reserves of approximately 7.5 billion cubic feet, the potential to transform Tanzania's international standing and domestic electricity production is considerable. However, recent protests against the construction of a pipeline to Dar es Salaam highlight the challenges that Tanzania faces in ensuring that the benefits of its natural resources are widely felt.

At this event Honourable Sospeter Muhongo, Minister for Energy and Minerals for the United Republic of Tanzania discussed his plans for the development and management of Tanzania’s energy sector. The meeting consisted of a 30-minute presentation which was given on the record, followed by a question-and-answer panel discussion. The following summary is intended to serve as an *aide-mémoire* for those who took part and to provide a general summary of discussions for those who did not.

Hon. Sospeter Muhongo

Hon. Muhongo stated that Africa currently holds around eight per cent of the 1,652 billion barrels of proven oil reserves globally. However by 2020, Africa will hold around 20 per cent of the world’s reserves due to ongoing discoveries and resource recovery from known reservoirs that are currently inaccessible. The case is similar for total proven gas reserves. Out of 208 trillion cubic metres globally, Africa holds seven per cent of these resources.

Tanzania has sedimentary basins with considerable energy reserves due to its geological and structural composition. The inland basins and modern rift system consist of 114,000 square kilometres (sq km), the coastal and continental shelf basins are 280,000 sq km while the deep sea basins are 140,000 sq km, giving Tanzania a total area of 534,000 sq km of resource-rich sedimentary basins. Considering that Uganda holds an estimated $2 million in oil, or four billion barrels, the potential for Tanzania is very promising.

Hon. Muhongo stated that the first significant discoveries of oil and gas occurred in 1974, and various laws have subsequently been developed. The Petroleum (Exploration and Production) Act was passed in 1980, which comprised of a framework for the application, modification, cancellation and relinquishment of petroleum exploration and production licences. Legislation was expanded in 2004, after a tax system was put in place to regulate petroleum discovery and production. The Income Tax Act of 2004 was followed by the Model Production Sharing Agreement of 2008, which consisted of a tripartite draft agreement between the Tanzanian government, the Tanzanian Petroleum Development Corporation and contractors. This law defined the rights and obligations of all parties and was designed to attract investments. It is currently being updated to complement contemporary government policy on resource management.

Hon. Muhongo explained that exploration first began in 1952 when access to the coastline was made possible. To date, the total geophysical data coverage of seismic areas including onshore and offshore regions is over 100,000 km covered in two-dimensional detail, with over 15,000 km square in three-dimensional detail. Hon. Muhongo added that there has also been airborne magnetic and gravity potential recorded, as well as ship-borne magnetic and gravity prospects and land gravity potential.

According to Hon. Muhongo, 67 wells have been developed since 1954 and there is drilling in progress in two wells. From these, there has been an 80 per cent success rate of oil and gas discovery. Expected drilling for 2012/13 involves many transnational energy companies, some of which are drilling at present. In this period 17 wells are due to be drilled.

Hon. Muhongo observed that there are new opportunities for resource discovery around the deep sea blocks off the coast of Tanzania. Nine blocks are due to enter the fourth licensing round, to be launched after ratification of the gas policy which is likely to take place in the fourth quarter of 2013.

Hon. Muhongo explained that the gas policy was postponed last year as there were not enough guidelines set in place for the government and investors to adhere to. The prepared draft is open to the general public in order to promote transparency. The government is also considering whether to launch the gas policy scheme in cities with significant oil production capabilities or company headquarters including Houston and London.

Hon. Muhongo added that there are applications being considered for newly discovered onshore blocks including Ruhuru Basin, Lake Tanganyika North, Kisangire, Selous Basin, Luwegu, Tunduru and Eyasi-Wembere. Open acreages have been found at Mandawa Basin. Lake Tanganyika holds an estimated two billion barrels of oil. The potential for further discovery is high considering the estimated oil reserves of four billion barrels at Lake Turkana, which is also situated within a rift.

Hon. Muhongo pointed out that there are gas fields along the coast, including on Songo Songo Island, Mnazi Bay, Mkuranga, Kiliwani, Ntorya and in the deep sea. Gas fields were discovered at Songo Songo in 1974, and development for commercial operations began in June 2000, with production starting in July 2004. Hon. Muhongo explained that a review was necessary to regulate and guide the increase in investment, and this was carried out in 1997. Today Songo Songo is producing 103 million standard cubic feet per day (MMSCFD). Of this, 17-18 million MMSCFD goes straight to local factories, and the rest is used for generational power.

Hon. Muhongo stated that demand for gas in Dar es Salaam is higher than gas production. 414 megawatts (MW) of power is generated in Dar es Salaam, and is utilized at 37 connected heating source industries. Compressed natural gas is provided for domestic use and vehicles.

Hon. Muhongo remarked that Tanzania would like to produce and utilize more gas in order to try to stop the negative process of climate change, as currently 40,000 sacks of charcoal are used in the country each day. A 6.3 km-long pipe has been laid in industrial areas to try and reach the five million slum dwellers and minimize charcoal usage.

Hon. Muhongo commented on the gas fields that have discovered in Tanzania. Gas fields were found at Mnazi Bay in 1982 and were developed in 2002. Commercial production began in 2006. 18 MW have been installed for power generation. A processing plant is located onshore at the Msimbati Peninsula, which processes up to 10 million MMSCFD. The current demand is between 1.5 and 2 MMSCFD. A 27 km-long pipe is being constructed to transport power between Mnazi Bay to Mtwara, with a maximum throughput of 70 MMSCFD. Gas produced at Mnazi Bay is used for power generation in Mtwara, where there are 19 MW capability gas generators installed, with a power demand for the Mtwara and Lindi regions of between 12 and 15 MW. Infrastructure, including the pipeline, is being constructed to utilize the potential for power generation, with the aim to get 400 MW of power to Mtwara.

Further gas fields were discovered in 2007 at Mkuranga, 50 km south of Dar es Salaam and in 2008 at Kiliwani, south of Songo Songo. Gas was also discovered in 2012 at Ntorya, 35 km west of Mtwara. Gas utilization is awaiting the implementation of more advanced infrastructure and there is a plan to connect these fields to a 532 km gas pipeline which is currently under construction.

Gas fields have also been discovered in the deep sea off the coast of Tanzania, and drilling began in 2010. Wells have been constructed in Blocks 1, 2, 3 and 4. To date 11 wells have been drilled. Eight have been found to hold gas, two are under appraisal and one was a dry well. The success rate of exploration to date has therefore been 90 per cent.

In summary, gas reserves in these regions are estimated at 35.768 trillion cubic feet with 1.369 trillion cubic feet of proven reserves. Hon. Muhongo urged companies to continue to the second phase of appraisal in order to establish the exact amounts of gas in these regions.

Due to recent gas discoveries, Hon. Muhongo stated, there has been a need for the Tanzanian government to establish appropriate policies and legal frameworks to regulate and encourage resource exploration and extraction. According to Hon. Muhongo, the gas policy is in its final stages and will lead to a Gas Act. There is a Gas Utilization Master Plan that is almost ready for implementation. A petroleum exploration policy is under preparation and the 1980 Petroleum Exploration and Production Act is under review.

Hon. Muhongo noted that there are considerable opportunities for downstream utilization of power sources within the country. The gas pipeline from Mtwara to Dar es Salaam should be completed within the next 18 months, and will be able to transport up to 784 MMSCFD. This will lead to increased power utilization, including power generation from natural gas, fertilizer manufacture, liquid natural gas usage and the building of smelting planets and cement factories. Gas will be used for industrial purposes as well as for vehicles and domestic use. Methanol will also be able to be produced, and plastic factories and petrochemical industries can be established.

The gas pipeline project has been developed extensively. The pipeline will be able to carry 103 MMSCFD with a minimum of 520 MW. Trains will leave Mnazi Bay to transport gas under the ocean. This pipeline will transport gas to Dar es Salaam and gas firing plants, capable of producing 1,000 MW. Hon. Muhongo noted that economic production zones are being developed.

Hon. Muhongo explained that the gas pipeline will be essential to the reduction of poverty in Tanzania. Out of a population of 45 million, only 18.4 per cent of Tanzanians currently have access to electricity. It is necessary to increase electricity usage because this can help reduce poverty. Electricity must reach both rural and urban areas. The Tanzanian government plans to increase current electricity capacity from 1,438 MW to 3,000 MW by 2015. In order to do this, gas utilization must be intensified.

Hon. Muhongo expressed his hope that Tanzania will become a middle-income country by 2025. He added that it would be unrealistic, however, to go from an average income per capita of $500 to $412,500 by 2025, because this would require an average annual economic growth of more than 12 per cent. A reduction in poverty would only require an average economic growth of between 8 and 10 per cent.

Hon. Muhongo explained that it would therefore be more effective for Tanzania to aim to meet the criteria for the middle section of the middle-income category of countries. This would require an average income of $5000 per capita. He rationalized that an increase in the per capita income from an average of $500 to $5000 would necessitate a tenfold increase in gas and power consumption. Tanzania would therefore need to be able to utilize a minimum of 10,000 MW by 2025. In order to achieve this, Hon. Muhongo emphasized the need to consider using mixed energy sources, including power generated from natural gas, coal and hydroelectric power. He added that Tanzania has five dams, but they are currently inoperative due to drought.

Hon. Muhongo also noted that coal is a prevalent resource in Tanzania. The conservative estimate is 1.5 billion tonnes, but there could be up to five billion tonnes in the country. Currently no power is generated from these coal mines as competition in the 1980s was inefficient, but there is a plan to utilize these resources for iron smelting in southwest Tanzania, and to send the remaining power to the national grid. Greenhouse gas emissions are negligible at 0.03 tonnes per capita.

Furthermore, 137.3 million pounds of uranium has been discovered at Mkuju, Manyoni, Namtumbo and Tunduru. Prospecting licences are being granted in regions all over Tanzania.

As the strategy is to become a middle-income country, Hon. Muhongo added that Tanzania must remain competitive and follow the successes of other African countries. Namibia accounts for 8.4 per cent of the world's total production of uranium at 4,496 tonnes. Niger accounts for 7.8 per cent with 4,198 tonnes. Malawi produces 1.2 per cent with 670 tonnes and South Africa at 1.1 per cent and 583 tonnes.

Hon. Muhongo emphasized that renewable energies including geothermal, hydropower, wind and solar energy are also being considered. There are global estimates of over 86,000 terrawatts (TW) of available power (mostly solar), while global consumption is estimated at 15 TW. Tanzania has enormous potential for solar and wind power, and there are plans to make the country a consumer of renewable energy. In southwest Tanzania, conditions are ideal for a geothermal plant due to thermal springs and volcanoes.

Hon. Muhongo concluded his talk by extending a warm welcome to energy companies. He invited them to work in partnership with the Tanzanian government to explore and utilize Tanzania's rich energy potential.

QUESTIONS AND ANSWERS

Question:

Are you foreseeing a significant amount of the gas and oil found in Tanzania to be marked for export? Are there regional aspects to the energy master plan?

Hon. Sospeter Muhongo:

Domestic usage of gas and oil will be very small; Tanzania will not be able to consume all the gas that is being found. The pipeline that is being developed will enable 16 per cent of the gas produced to be sent for use in southern Tanzania, with the remaining 84 per cent to be used for liquid natural gas. This ratio may shift in the next few years if we increase the trillion cubic feet of gas. There is a regional aspect to the Gas Utilization Master Plan. The national grid in southern Tanzania is a major area being looked at, as well as around the Congo River. There are ongoing discussions regarding regional initiatives.

Question:

What plans are in discussion for refineries? Will these refineries involve both oil and gas, and what about the refineries that are cross-border or located in the ocean? Is the issue of oil and gas refinery political as well as economic?

Hon. Sospeter Muhongo:

Floating liquid natural gas is available in the ocean. There has been talk that the production and trade of this has been inefficient. It is difficult to oversee and regulate this sector when plants are off-shore. For the Tanzanian government, it is clear that liquid natural gas plants must have a base on-shore in order to monitor the ships that are coming and going. Refineries in other countries, such as Kenya and Uganda, where there were recent oil discoveries are the business of those countries.

Question:

What does the Tanzanian government expect from investing companies in return for their contribution to the development of Tanzanian economy and society?

Hon. Sospeter Muhongo:

These companies have not invested in the region for charity. Both Tanzania and the companies benefit from the discovery and development of these natural resources and thus the relationship is complementary. The Tanzanian government has never absconded from its financial obligations to these companies and the companies are protected under law. The Tanzanian government does not hold expectations beyond pure investment. It is a positive development that companies are thinking more and moving away from the conservative approach, because the private sector approach must change.

Question:

How will the expectations of residents who live where there are investments and plants be managed, especially considering the recent protests? What will be the immediate benefit for them?

Hon. Sospeter Muhongo:

This issue is the same in all countries. Expectation from poor communities is always high. In Tanzania a large part of the population is poor, and they assume that when oil and gas is discovered they will quickly become rich. The government is duty-bound to manage these expectations. Private companies and the government need to collaborate on this issue. Companies should approach local communities and tell them exactly what they are doing.

According to the Tanzanian constitution, all natural resources belong to all of Tanzania, not just local communities. This was the same with gold found in Lake Victoria.

Processing plants are being built in the southern part of Tanzania. The economic rationale of the protests is rendered obsolete when one considers that factories and processing plants will be built in the immediate area, providing jobs and selling agricultural products. The government and gas companies are working together to provide educational and vocational training for young people. The mining industry is funding scholarships and there are diploma programmes for electricians and engineering.

Furthermore, there will be a reduction in the cost of electricity production in the south and other locations being developed that will benefit those in the local areas as well as all Tanzanians.

Question:

Is the vision for 2015 and 2025 unrealistic? These expectations are resting on the application of technology which has not yet been developed. How can companies that are advocating this plan help the entire country, and not just the specific regions?

Hon. Sospeter Muhongo:

The Master Plan incorporates the definition of economic prosperity for the 21st century. It utilizes science, technology and ambition. Knowledge generation will lead to prosperity and this is something we must promote, in line with the rise of powers in the East in the 20th century. There needs to be human capital in oil and gas development. This is an ambitious plan but we have a detailed educational strategy which will see students undertake degrees across the world, sponsored by both the Tanzanian government and gas companies. The Tanzanian government would like knowledge exchange between the United Kingdom and Tanzania to become an established trend once again.

Question:

How much investment are you expecting in the next five years, and what do you think the financial impact of investment will be?

Hon. Sospeter Muhongo:

Electricity production and consumption will lead to economic growth. By 2015 the economy will be growing by between 8 and 10 per cent, with gas at the centre of this development. For the oil and gas sector is it difficult to calculate GDP improvements as current consumption is negligible. Mineral usage will help lead to a 10 per cent rise in GDP by 2013. The reality is that Tanzania is an emerging energy producer; and we will see the impact in the next few years.