

2011

**TANZANIA OIL & GAS
STATUS AND TREND**



TANZANIA OIL & GAS STATUS AND TREND



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TABLE OF CONTENTS

List of Tables, Maps and Figures	v
Foreword	vi
Acknowledgements	viii
Acronyms	ix
EXECUTIVE SUMMARY	xi
Background & Context	xi
Objective of the Study	xi
Scope of the Study	xi
Methodology of the Study	xii
Study Findings	xii
Recommendations	xiii
CHAPTER ONE	1
INTRODUCTION	1
Discussion of Study Objectives	1
Tanzania: A Resource-rich Country	2
Corruption	3
Methodology & Scope of the Study	4
CHAPTER TWO	5
TANZANIA OIL & GAS STATUS AND TREND	5
History of Oil and Gas Exploration in Tanzania	5
Tanzania Petroleum Development Corporation	7
Quantity of Oil and/or Gas in Tanzania	8
CHAPTER THREE	10
KEY ACTORS VIS-À-VIS TANZANIA OIL & GAS PROJECTS	10
Introduction	10
Aminex PLC	12
Dominion Petroleum	14
Ophir Energy	14
CHAPTER FOUR	17
TANZANIA OIL & GAS INSTITUTIONAL, POLICY AND LEGAL FRAMEWORK	17
Tanzania Petroleum Development Corporation	17
Policy, Legal and Regulatory Framework	17
Key Environmental Issues in the Petroleum Act 18	18
Production Sharing Agreements	19
CHAPTER FIVE	21
OIL AND GAS PROJECTS CHALLENGES TO SOCIETY AND ENVIRONMENT	21
Global Environmental Policy Debate	21
Poverty vs. Environment Link	22

Tanzania Oil & Gas: Status and Trend Study Report

Environment vs. Oil/Gas Exploration, Development and Production	23
Advantages	24
Disadvantages	24
Other Disadvantages	25
Oil and/or Gas vs. Coastal Environment	27
Oil and/or Gas vs. Human Rights Abuses	28
Oil and/or Gas vs. Corruption	28
CHAPTER SIX	30
LINKAGE OF OIL AND GAS TO OTHER SECTORS OF THE ECONOMY	30
Key economic linkages Conceptual Aspects	30
Tanzania Local Content Considerations	31
Corporate Social Responsibility (CSR)	33
Community Development	33
Oil and/or gas fiscal incentives-derived linkages	34
Environmental Management	34
Compliance with EITI etiquettes	35
CONCLUSION & RECOMMENDATIONS	39
Conclusion	39
Recommendations	39
APPENDICES	41
Appendix I	41
<i>Maurel & Prom</i>	41
Appendix II	42
<i>Petrodel – Tanga</i>	42
Appendix III	43
<i>Response from TPDC</i>	43
Appendix IV	46
<i>Recommendations of Parliamentary Mineral and Energy Sub-Committee</i>	46
Appendix V	52
<i>MODEL PSA ADDENDUM FOR NATURAL GAS for Deep Sea Operations</i>	
<i>Addendum to Existing PSA between GOT, TPDC and Contractor</i>	52
SELECTED REFERENCES	65

LIST OF TABLES, MAPS AND FIGURES

Map 2/1: Possible Oil and/or Gas Deposits Areas	6
Table 3/1: Oil and/or Gas Exploration Companies Operating in Tanzania.	10
Figure 3/1: Tanzania Coastal Areas Earmarked for Oil and/or Gas Exploration and Exploitation	11
Table 3/2: Minex Exploration Operations in the Country	12
Figure 3/2: An Eagle eye's View of the Nyuni (left) and a Well Head at Nyuni Island at (right)	13
Figure 3/3: Dominion Petroleum PSA Area	14
Figure 3/4: Ophir Oil Exploration Activity Map - Blocks 1,3-4	15
Figure 3/5: Antrim's Exploration Interest Area	16
Figure 5/1: The Internet Photo of Oil Refinery in the Gulf of Mexico	23
Box 5/1: The History of Tanker Transportation – Large Supertanker Accidents	26
Figure 5/2: The Oil Spill Affected Public Beach Environment, Grand Isle, Louisiana, USA	28
Figure 6/1: Sahara Landing Craft at Nyuni Island	30
Table 6/1: Political Risk Indicators of Viable Mining Investment Ventures into Africa	31
Figure 6/2 (a): EITI Essence	36
Figure 6/2 (b): EITI Circle	37
Figure 6/2 (c): EITI Process	38

FOREWORD

Research and documentation of oil and/or gas trend and availability status in Tanzania is consistent with the goal and objectives of Publish What You Pay (PWYP) Tanzania Coalition Work Plan for year 2010-2011.

The study is conducted against the background of insufficient availability of oil and/or gas pertinent information in the public domain. There is only few documented literature about the country's oil and/or gas; activities, actors, plot allocations, licenses, explorations, technologies, imported equipment, contracts, production figures, exports et la, available for public consumption in Tanzania. It is in the best interest of Publish What You Pay Coalition in Tanzania to search, document and make available to public, the credible oil and/or gas data, information, knowledge and/or wisdom for Tanzanians in particular, but indeed also for various stakeholders' access and use.

The need for oil and/or gas information availability for public access and use cannot be over emphasized. It has become imperative to support public awareness and understanding of current trends and issues around oil and/or gas policy, licensing, contraction, as well as legal and regulatory framework in the country. Persistent oil and/or gas information and knowledge gap on the downstream and upstream operations has motivated the coalition thus prompting this study.

Reducing information gap in the oil and/or gas industries is vital for reinforcing transparency and accountability along the value chain of the duo extractive industries in Tanzania, especially now when the country is the Extractive Industries Transparency Initiative (EITI) implementing country.

Publish What You Pay coalition in Tanzania is desirous and has committed itself to ensure disclosure and availability of significant oil and/or gas material information to the public domain. Tanzanians have the right to, and must know the facts and issues on what has been taking place in the oil and/or gas industries in the country. A number of companies are licensed by the Government to explore and exploit (extract) oil and/or gas in the country amid community and national feeble knowledge and awareness, including in the areas where land has been earmarked, licensed and allocated to foreign owned multinational corporations (MNCs).

While oil and/or gas companies have been searching for potential underground or underwater oil and/or gas fields and look out for discoveries, possibly drilling wells to confirm commercial viability of the resources, there is a lot to be desired as far as the environment and human safety is concerned.

Similarly, as envisaged, confirmation of commercial availability of oil/gas will prompt embarking on fully fledged production, involving oil/gas refinery plant construction, products transportation and distribution, thus resulting in immense environmental hazards. To that end, Tanzanians deserve the right be informed about the trend and status of oil/gas exploration and/or extraction in the country. The information thus provided must be relevant enough to backup Tanzanians assessment of social and economic benefits accrued from oil/gas investment in the country.

Tanzania Oil & Gas: Status and Trend Study Report

It is, therefore, important that Tanzanians are aware of the key players in the oil and/or gas industry in the country. It is feared though, that lack of information disclosure law (Freedom of Information Act), coupled with weak public knowledge about the institutions involved, may cause difficulties for public access to oil and/or gas relevant information.

This study is an attempt and a contribution of Tanzania PWYP Coalition to allay challenges facing stakeholders' access to oil and/or gas material information in the country. Public awareness is a prerequisite for public demand for, and ensuring environmental and economic accountability. Tanzanians have the right to know by names and orientation, the companies, policy, laws, contracts, revenues and other issues attached to oil and/or gas licenses.

It is from the findings of this study that Tanzanian men and women will know for sure the trend and status of oil and/or gas in the country. The citizens will know the availability situation, proven quantities and corresponding commercial viability. This will also give an insight on the operation trends, actors, policy, legal and regulatory frameworks, and social-economic impacts of oil and/or gas operations in the country.

Bubelwa Kaiza

PWYP-Tanzania National Coordinator; and PWYP-ASC Member (Eastern and Southern Africa)

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As the Coalition is well aware and understands that the study would not have been realised without the generous funding of Open Society Initiative for Eastern Africa (OSIEA), it would like to extend its gratefulness to the latter for the funding of this study. Finally, PWYP-Tanzania extends especial thank to Evans Rubara, a consultant who worked tirelessly to compile the first draft of this report.

The work and professional support of PWYP-Tanzania staff is well recognised.

PWYP-Tanzania Coalition Steering Committee

ACRONYMS

Bcf	Billion cubic feet
BP	British Petroleum
COMARCO	Consolidated Marine Contractors
CPI	Transparency International's Corruption Perception Index
CSOs	Civil Society Organisations
CSR	Corporate Social Responsibility
EIAs	Environmental Impact Assessment
EITI	Extractive Industry Transparency Initiative
EMA	Environmental Management Act
Eoi	Expression of Interest
FDIs	Foreign Direct Investments
ForDIA	Concern for Development Initiatives in Africa
GDP	Gross Domestic Product
GI	Geosurvey International
GoT	Government of Tanzania
GST	Geological Survey of Tanzania
IEDC	International Economic Development Corporation
MEM	Ministry Energy and Minerals
MoFEA	Ministries of Finance and Economic Affairs
MPSA	Model Production Sharing Agreement
MPSA	Model Production Sharing Agreement
MSG	Multi-stakeholder Group
NEMC	National Environmental Management Council
NEP	National Environmental Policy
NFW	New Field Wildcats
NIS	The National Integrity System
NMCs	Multinational Corporations
NSGRP	National Strategy for Growth and Reduction of Poverty

Tanzania Oil & Gas: Status and Trend Study Report

OSIEA	Open Society Initiative for Eastern Africa
PAT	Pan African-energy Tanzania Limited
PCIAC	Petro Canada International Assistance Corporation
PI	Public Interest
PSA	Production Sharing Agreement
PWYP	Publish What You Pay
SEIAs	Strategic Environmental Impact Assessments
STAMICO	State Mining Corporation
Tcf	Trillion cubic feet
TEITI	Tanzania Extractive Industry Transparency Initiatives
TPDC	Tanzania Petroleum Development Corporation
TRA	Tanzania Revenue Authority
UNECA	United Nations Economic Commission for Africa
URT	United Republic of Tanzania
WB	World Bank

EXECUTIVE SUMMARY

(i). Background & context

Tanzania has, for decades¹ been involved in extractive industries exploration, development and production. The country has excellent opportunities for oil and/or gas exploration and development in the 'unexplored' but highly potential sedimentary basins. Terms for potential investors are set out in the Model Production Sharing Agreement (MPSA) of 2004 and in the Petroleum (Exploration and Production) Act of 1980. The Production sharing Agreements (PSAs) are signed between the investors and the Tanzania Petroleum Development Corporation (TPDC), which is the Government oil company.

The country's major (1970s) gas find includes Songo Songo (Kilwa district, Lindi region) and at Mnazi Bay (Mtwara region), and Mkuranga (2007), Coast region. Natural gas produced from Songo Songo has been used for electricity generation (since 2004), Mnazi Bay gas field is currently developed for Mtwara and Lindi electricity. The construction of a relatively bigger pipeline to transport gas from Mnazi bay through Songo Songo to Dar es Salaam is underway.

Moreover, Tanzania is well known for mineral deposits; gold, diamonds, rubies, nickels, uranium, coal, tanzanite (Tanzania exclusive mineral) at la. The country has, as well, huge deposits of copper, cobalt, gypsum, iron, lead, limestone, phosphate, tin, titanium and vanadium. Tanzania mining history goes back to the German colonial period, showing insignificant attempts to shelter people from mining environmental hazards.

(ii). Objective of the study

This study has the goal of unearthing, documenting and availing Tanzania oil and/or gas material information and knowledge to public domain - the strategy to empower public scrutiny of the country's oil and/or gas operations vis-à-vis relevant policy, legal and regulatory (fiscal) regime.

The study is rationalised by commitment of PWYP-Tanzania to facilitate citizens' right to access to extractive industries material information as a means to steer public awareness on oil and/or gas projects, production (revenue) sharing agreements, and (Strategic) Environmental Impact Assessment (EIAs) contents. Public access to oil and/or gas information is vital for the civil society to monitor and/or evaluate key actors' compliance to PSAs, EIA and the compulsory international codes and standard requirements for extractive industries transparency and environment. It is, indeed, the best interest of the study to analyse the extent to which poverty eradication policy as stated in the National Strategy for Growth and Reduction of Poverty (NSGRP) is consistent with oil and/or gas fiscal regime.

(iii). Scope of the study

This study will extend to cover the following areas:-

- a. Tanzania oil and/or gas status and trend.
- b. Key actors vis-à-vis Tanzania oil and/or gas projects.
- c. Tanzania Oil & Gas Institutional, Policy and Legal Framework.
- d. Oil and gas projects challenges to society and environment.
- e. Linkage of oil and gas to other sectors of the economy.

¹ It should be noted that multinational mining operations began during the German colonial rule (1884 - 1918); by 1898 there were mining activities of international recognition in Geita, Kahama and Sekenke.

(iv). Methodology of the study

To carry out this study required two folds of methodology; review of documents and literature materials available from academic domain, online publications, and official publications of the Government on or related to oil and/or gas (policy papers, Acts of Parliament and Ministerial regulations). The second methodological fold was conducting interviews with key oil and/or gas actors (Tanzania Petroleum Development Corporation and selected companies).

(v). Study findings

Tanzania oil and/or gas status and trend

The data available from the past ten years' rigorous oil and gas exploration indicate Tanzania to possess substantive quantity of gas and oil potential. Nine gas fields are confirmed to have been encountered in Tanzania. Onshore fields include Mnazi Bay, Mkuranga, Songo Songo and Kiliwani-North. Offshore fields include Pweza, Chewa, Chaza, Jodari and Zafarani. Two fields, Songo Songo and Mnazi Bay are on production stream. However, TPDC had, by 2009, estimated 7.72 Trillion cubic feet (Tcf) worth of natural gas in four of its natural gas rich areas - Songo Songo harbours 1-2 Tcf, Mnazi Bay 3-5 Tcf, Kiliwani 70 Bcf, and Mkuranga 200 Bcf to have been respectively confirmed².

Songo Songo gas field has been producing commercially since 2004, providing gas for power generation input to the national grid, and for some Dar es Salaam manufacturing industries direct power uses. The Mnazi Bay gas field has been producing since early 2007, also providing power for the southern areas of Mtwara, Lindi, Masasi, Newala and Nachingwea.

Gas drilling is ongoing in three onshore wells (Ziwani-1, SSA-11 and Ntorya-1). The Ntorya-1 well in Ruvuma Basin, Zafarani-1 and Zafarani-1A wells in Block2, and Jodari-1 well in Block 1 have all been declared to be gas discoveries. In addition, the Zafarani-1 well has been side-tracked.

Tanzania oil and /or gas key actors

The oil and/or gas key actors in the country are those involved in exploratory or extractive activities. TPDC is both the regulator and investment partner in oil and/or gas investments on behalf of the Government. A total of 26 PSAs, covering onshore and offshore blocks, have been signed. The Lake Tanganyika North Block award is still under negotiation with Total Exploration Company of France and the Ruhuhu Basin PSA Application by Jacka Resources of Australia is about to be concluded.

Institutional, legal and policy framework

Tanzania Petroleum Development Corporation has the oversight role of governance of oil and/or gas matters, chiefly responsible for:-

- i. Promotion and monitoring of exploration for oil and/or gas.
- ii. Development and production of oil and/or gas
- iii. Overseeing Research and Development (R&D) of oil and/or gas industry in the country.
- iv. Management of oil and/or gas exploration and production of data.
- v. Advising the Government on oil and/or gas (petroleum) related issues.
- vi. Marketing and selling of natural gas under the existing PSAs arrangement.
- vii. Undertaking management activities of strategic fuel reserves.
- viii. Dealing in petroleum products in the country.

² In January, 2012 at the time of compiling this report, information broke out from Statoil, ExxonMobil, British Gas and Ophir that the companies had in their respective offshore exploration blocks in Tanzania, discovered a combined huge natural gas find amounting to 60 TCF.

Petroleum exploration and development in Tanzania is regulated under the Petroleum (Exploration and Production) Act 1980. This Act vests powers to oversee exploration and extraction of petroleum deposits in the United Republic of Tanzania in the hands of the state. The Act, amongst others, is designed to create and facilitate favourable legal environment to the oil exploratory and extractive companies.

The Act expressly permits the Government to enter into petroleum agreements under which an oil company may be granted exclusive rights to explore for and produce petroleum. Under the Production Sharing Agreements arrangements, TPDC is permitted to enter into such agreement with the oil companies on behalf of the Government. The terms of these agreements form the basis of the licences and are negotiable.

The PSA defines the terms and conditions of exploration and development of the resources by replacing existing tax and license regimes with a contract based arrangement that exists for the stated life of the project. It is expected that:

- i. The government of the United Republic of Tanzania will retain its rights and ownership of the oil and/or gas resources. The company invests all the capital needed to develop the fields and pays bonuses to the Government at key milestones during the project development, and
- ii. Oil and/or gas investors are obliged to pay 5% royalty for off-shore and 12.5% for on-shore oil and/or gas produced in Tanzania to the Government throughout the lifetime of the project.
- iii. Through TPDC Tanzania is entitled to earn 50% or higher of profit gas³ share (30% of total gas output).

Advantages and disadvantages of oil and/or gas projects

Fossil fuels comprising mainly coal, oil and gas are formed after millions of years of decomposition of dead plant and animal bodies. The fast growing rate of human need and use of oil and/or gas in the world today implies foreseeable depletion of the resources in future.

Linkages with other economic sectors

Policy strategy to enhance local content of extractive industries operations would be required to assess the extent to which oil and/or gas operations are linked to the entire economy. Contribution of mining activities to GDP, which is considered as more booming than oil and/or gas activities, is less than 3%. The high-tech equipment and expertise needed for oil and/or gas exploration or extraction and transportation (gas) are not manufactured in Tanzania but imports procured from outside the country by MNCs.

(vi). Recommendations

Eight policy recommendations derived from analyses of the study findings are stated at the end of this report.

³ See the MODEL PSA ADDENDUM FOR NATURAL GAS For Deep sea Operations appended (appendix V)

CHAPTER ONE

INTRODUCTION

Tanzania has, for quite some time, been involved in oil and/or gas exploration. And the signs are that Tanzania may, in the near future, become an oil and gas producing country. Whereas the commercially viable quantity of gas is confirmed, the current unexplored high potential opportunities of sedimentary basins increase hopes for the country's hydrocarbons development. Terms of agreements with investors are spelt out in the model Production Sharing Agreement (PSA) of 2004 and in the Petroleum (Exploration and Production) Act of 1980. The Production sharing agreements are signed between the investors and Tanzania Petroleum Development Corporation (TPDC), which is a public corporation.

Major gas discoveries were earlier made in the Songo Songo island, and Mnazi Bay, Mtwara. Another gas find was made in 2007 in Mkuranga. Natural gas extracted from Songo Songo is transported through a pipeline to Dar es Salaam for electric power generation, which is supplied to the national power grid. Part of the gas is supplied to the cement and few other manufacturing industries in Dar es Salaam, again, for direct power generation. The Mnazi Bay gas fields had, since 2007, been developed by Artumas Group (Canadian Company) to generate electricity for the southern corridor regions of Mtwara and Lindi. Construction of pipeline to transport natural gas from Mnazi bay through Songo Songo to Dar es Salaam is ongoing.

Other than the natural gas, Tanzania is well known for its abundant deposits of gold, diamonds, rubies and others including the exclusive mineral - tanzanite. The other proven deposits include coal, copper, nickel, cobalt, gypsum, iron, lead, limestone, nickel, phosphate, tin, titanium, vanadium and uranium. The country's mining history goes as far back as during the German colonial rule (1884-1918), when mining activities in Geita, Kahama and Sekenke won international recognition.

(i). Discussion of study objectives

Research and documentation of oil and/or gas trend and availability status in Tanzania is consistent with the goal and objectives stated in the work plan of Tanzania Publish What You Pay Coalition for year 2010-2011. The goal of the study is to find, disclose and document Tanzania oil and/or gas material information and inherent knowledge on the availability status (commercial viability of proven quantities), operations trends, actors, policy, legal and regulatory frameworks, and social-economic impacts of oil and/or gas activities in Tanzania. The study is therefore critically evaluating the country's oil and/or gas exploration and development policy, legal and regulatory regimes.

Oil and/or gas information is scantily available in the public domain in Tanzania. It is in the best interest of Tanzania Publish What You Pay Coalition to make oil and/or gas relevant information available in the public domain as a means to facilitate public engagement with companies and the Government to promote transparency and accountability along the value chain of oil and/or gas resources. It is only when citizens are acquainted with well researched and documented credible data, information and knowledge the public is able to make wise, correct and timely interventions. Public awareness on extractive industries, oil and/or gas inclusive, has become imperative in the country, especially now when Tanzania is implementing EITI, a voluntary international standard for resources - minerals, oil and gas transparency and accountability. Persistent need for availability of policy, legal and regulatory regime information on oil and/or gas downstream and upstream operations - exploration, development, extraction, production, transport, and distribution of the resources requires appropriate response.

As part of Tanzania PWYP coalition campaign mission, commitment to facilitate public access to extractive industries vital information is partly addressed by conducting this study and disseminating its findings. Availability and accessibility of oil and/or gas information will apparently prompt citizens' proactive use of the information. The use is expected to result into incremental effect in the oil and/or gas production activities local content, the implication of which is increased share in the Gross Domestic Product (GDP) of oil and gas investment activities in Tanzania. Efforts to eradicate poverty as stated in the National Strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA) pre-suppose availability, access to and citizens' effective use of extractive resources (oil and gas inclusive) information and knowledge. Moreover, apart from potential opportunities, oil and/or gas projects-related information - revenue sharing arrangements and/or (Strategic) Environmental Impact Assessment (EIAs) details are considered vital for public rigorous scrutiny of Government and companies compliance to PSAs and/or (S)EIA vis-à-vis EITI and/or applicable environmental codes and standards. Credible, reliable and relevant information about Tanzania oil and gas geology, policy, laws and fiscal regime will reinforce Tanzanians knowing the extent to which the policy and fiscal regimes are consistent with NSGRP/MKUKUTA. The study will thus help answer the question on whether the existing oil and/or gas policy and legislation are relevant to lift Tanzania from abject poverty.

A number of companies are said to have been licensed by the Government to explore and/or exploit oil and/or gas resources in the country amid total public obscurity. Public knowledge of local and foreign private or public companies licensed to explore and exploit oil and gas in Tanzania is of utmost importance. Information disclosure and public knowledge about the institutions involved and the corresponding institutional framework governing oil and gas exploration and extraction is difficult in the country without access to information legislation. This study is designed to allay the challenges created by lack of access to information legislation with a focus on oil and/or gas production in Tanzania.

Indeed, to ensure sustainable environment and accountability - corporate social responsibility being critical at this juncture - requires that the public is aware, and know by names and orientation, the companies and other actors involved in, or licensed to carry out oil and/or gas production activities. When oil and gas companies are searching in the underground or underwater oil and/or gas fields, possibly drilling wells to confirm commercial viability of the resources, there is a lot to be desired as far as the environment and human life damages are concerned. Similarly, in the downstream, when gas and/or oil quantities are confirmed as commercially viable; refineries, transportation and distribution create environmental hazards that Tanzanians must be aware of along with knowledge of social and economic benefits accrued from the resources. Much as the study is envisaged to provide a yard stick for gauging transparency and accountability in the oil and/or gas industries in Tanzania, it is equally intended to inform the public, especially local communities, about the associated environmental damage and corresponding control measures. Equitable compensation of community members affected by oil and/gas investment projects will transform conflicts into stakeholders' benefits, equitable growth and development. The study findings will mobilise stakeholders, including members of parliament, policy makers, civil society advocacy groups and media on the efforts required to reinforce transparency and accountability along the oil and/or gas production values chain.

(ii). Tanzania: a resource-rich country

Tanzania is known for gold, diamonds, rubies, tanzanite, coal, copper, nickel, cobalt, gypsum, iron, lead, limestone, nickel, phosphate, tin, titanium, vanadium and uranium deposits. The Government had after ten years of independence resolved to drive mining investment when through an Act of Parliament, it established the State Mining Corporation (STAMICO) in 1972. Among other roles the latter was charged with mineral prospecting and mining; acquisition and holding of interests/shares in mining undertaking

on behalf of the Government; and regulating the business of artisanal and small-scale mining activities in the country⁴.

For obvious economic policy backlash reasons of 1980s STAMICO went down, especially during the period 1990 and 2005. By 1997 formal mining investment in Tanzania had been virtually dormant as official policy discouraged private ownership and investment in the mining sector despite public sector mining continuing slanting. Both the Mining Policy (1997) and the Mining Act (1998)⁵ ushered in large scale mining investment in the country. Tanzania was then an insignificant gold producer, but with introduction of large scale mining the trend changed; Tanzania is now the forth⁶ largest gold producer in Africa after Mali, Ghana and South Africa. Large scale mining in Tanzania is dominated by gold mining (64%) (Tanzania EITI, 2011) for both accrued revenue and physical activities followed by gas (20%), limestone (14%), diamond and tanzanite (1%) each.

Despite being a resource-rich country, Tanzania belongs to that category of Least Developed Countries (LDCs) that continue to muddle through poverty. Way back in 1999, the Government registered the country in the World Bank's conceived Highly Indebted Poor Countries (HIPC) membership. The country has more than often relied on donors' handouts to fund its annual budgets (donor dependence is > 40%); recurrent and development budgets alike. The country is predominantly rural (> 80%), which however, because of poor and misguided development policy, the nation is food insecure relying on peasantly agricultural production/food supplies, which accounts for over 40% of GDP. Tanzania has, since 1997, suffered endless power rationing, thus grossly affecting nascent manufacturing, construction, extractive and service industries.

(iii). Corruption

Tanzania has, in the last 10 years, suffered increasing corruption; petty and grand. However, a conventional calculation determinant to confirm the incremental trend, whether the factor rate is arithmetic, geometric or exponential, is not established yet. Transparency International's Corruption Perception Index (CPI) indicates Tanzania has tended to improve but sinking again; gaining momentum from 2.9 CPI score points (2005) to 3.2 CPI score points (2007)⁷, slowing to 2.7 CPI score (2010) and rising again to 3.0 CPI score (2011).

The country has suffered succession of grand corruption at the heart of government in the past six years. The Ministries of Finance and Economic Affairs (MoFEA), Energy and Minerals (MEM), Tanzania Revenue Authority (TRA), Agriculture and Food Security (AFS), Works (MW), Natural Resources and Tourism (MNRT), Transport and Communication (MTC), to mention only a few procuring entities, have dominated public media and parliamentary debates in the course of their frequently exposed grand corruption scams. On the other hand, petty corruption involving the administration of justice (the police

⁴ This is not original but the Government's recent response (politics of mining) to public outcry for neglect of small and artisan mining. The original version obligated STAMICO to regulate both small and large scale mining activities, but regulatory role over large scale mining activities was rescinded to leave Large Scale Mining Companies free from institutional but individual (Director of Minerals) oversight.

⁵ The 1997 Mining Policy and 1998 Mining Act have since repealed and replaced by the 2009 Mining Policy and 2010 Mining Act.

⁶ Readers should be cautious not to generalise this position. It does not connote the gold reserves available in Tanzania, but the actual quantity of gold produced in a particular year so the position keeps changing. Mining Companies are the key players.

⁷ Tanzania ranked 88th in 2005 CPI (globally) and 14th (regionally-Africa); the rankings were 94th in the 2007 CPI (globally) and 14th in the region (Africa).

force and the judiciary), the power utility monopoly, health and education service providers, revenue collection agencies, land allocation, to mention only few social service outlet agencies, has been rampant and escalating. The corruption Perception Surveys (CPS) reports (ForDIA, 2008-2010)⁸, East Africa Bribery Index (EABI) reports (TI-Kenya, 2009, 2010, 2011)⁹ and the National Governance and Corruption Survey report (PCCB, 2011)¹⁰ have all clearly shown Tanzania as dipping in corruption. The CAG report for the period ending June 30/2010 indicates the financial loss in the Central Government alone, of Tanzania shillings 362,026,933,382.25 (US\$ 242,987,000) (CAG, 2011), and Tanzania shillings 15,204,037,729 (US\$10,204,700) reported as lost through dubious payments in the Local Government Authorities. The first Tanzania Extractive Industries Transparency Initiative (TEITI) indicates a discrepancy of US\$36 million (TEITI, 2011) in which the government failed to account the revenue received in both taxes and royalties from mining and gas companies.

The National Integrity System (NIS) is not in order, and it is possibly dreadful. It threatens the possibility of country's oil and/or gas development and production (upstream and downstream operations) to equitably benefit all citizens. The Government needs to act quickly to avoid the possibility of the country plunging into resource curse syndrome, which has battered such other countries as Nigeria¹¹. Public access to accurate oil and/or gas information is considered the best strategy to avert Tanzania from sinking into resource curse. Availability in the public domain of oil and/or gas policy, legislation and regulations (fiscal regime) information is expected to inform citizens' investment decisions in or around oil and/or gas resources, whose multiplier effect is the industry's local content/GDP share increase.

(iv). Methodology & scope of the study

This study adopted the following methodology:

- i. Documentary review, and
- ii. Interviewing key oil and/or gas actors (TPDC and selected oil/gas companies).

The study is specifically designed to search, analyse and document oil and/or gas relevant facts in the form of data, information, knowledge and possibly wisdom about oil and/or gas availability status and trends. The study covers the period of 60 years, tracing oil and/or gas data from as early as 1952 to 2011. A combination of qualitative and quantitative data is used to enrich the quality of the report.

To that end, the study report covers the following major components:

- a. Tanzania oil and/or gas status and trend.
- b. Key actors vis-à-vis Tanzania oil and/or gas projects.
- c. Tanzania Oil & Gas Institutional, Policy and Legal Framework.
- d. Oil and gas projects challenges to society and environment.
- e. Linkage of oil and gas to other sectors of the economy.

⁸ Between 2008-2010 ForDIA published annual CPS reports.

⁹ TI-Kenya collaborating with TI chapters in Uganda and Rwanda, ABUCO in Burundi and Tanzania Transparency Forum (TRAFO) in Tanzania publishes the annual EABI reports.

¹⁰ The report released in July 2011 was conducted in 2009 with funding from DANIDA and World Bank

¹¹ Nigeria earns US\$ 600 million a day from 2.5 million barrels a day but the country is still poor; like Tanzania, Nigeria applied for HIPC; WB rejected the application.

CHAPTER TWO

TANZANIA OIL & GAS STATUS AND TREND

History of oil and gas exploration in Tanzania

Oil and/or gas exploration in Tanzania has been conducted from time to time over the last 50 years. A number of multinational petroleum companies had been in the country at different times. The discovery of gas in SongoSongo, Kilwa district (Lindi region) and Mnazi Bay in Mtwara is the only significant outcome of 5 decades oil and/or gas exploration efforts.

So far, a total of 35 exploration and development wells have been drilled. Between 1954-2000, 27 new field wildcats (NFW) and eight delineation wells (at SongoSongo) were drilled. Of the 27 exploratory wells, 25 were drilled in the coastal basins and two in the interior rift Rukwa Basin.

The petroleum exploration data in Tanzania consists of wide ranging geological and geochemical studies, geological and drilling records from nearly one hundred boreholes and twenty-eight deep wells; and many thousand kilometers of gravity, airborne magnetometer and seismic surveys. The data are available for inspection at TPDC's Exploration Office in Dar-es-Salaam. A Technical report has been prepared which reviews this data and provides an assessment of the hydrocarbon potential of Tanzania. The country was initially mapped by the Geological Survey of Tanzania¹² (GST) with its head offices in Dodoma and maps are available at a scale of 1:50,000. By 2008 twenty wildcat exploration wells and eight development wells had been drilled in Tanzania, giving a drilling density of one well per 12,000 sq.km for the onshore sedimentary basins and one well per 8,000 sq.km for the offshore.

A number of these wells, both early and more recent, were located on the basis of poor quality or inadequate seismic control and in retrospect turned out to be invalid structural tests. Others were drilled on the less prospective basin margins which happened to be regional structural culminations. There is excellent coverage of aeromagnetic data over the whole of Tanzania, both onshore and offshore, from a 1971 survey by AGIP and a 1976 survey by Geosurvey International (GI). The coverage of gravity data can best be described as 'patchy', consisting mainly of regional surveys.

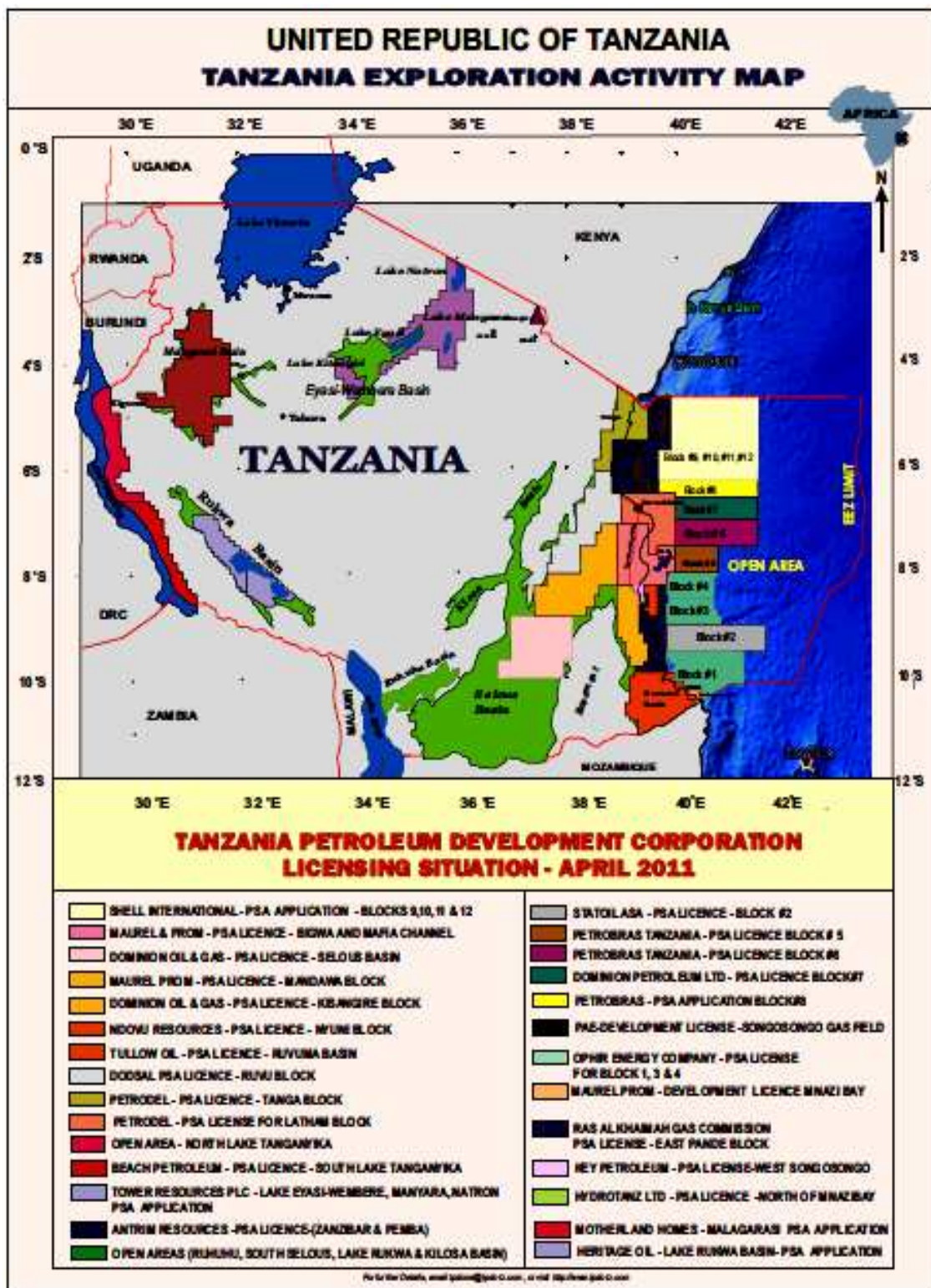
The best coverage is the coastal area over the Mandawa and Ruvuma Basins, the larger offshore islands and in the Lake Rukwa Basin. In the Ruvu, Selous and Rufiji areas the coverage is mainly limited to data along the more recent seismic lines.

These areas can be clearly seen on the exploration activity map below:

¹² Formerly known as Tanganyika Geological Survey

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Map 2/1: Possible oil and/or gas deposits areas where exploration activities is taking place



Source: TPDC

Tanzania Petroleum Development Corporation

The formation of TPDC (1969) coincided with awarding oil and gas field's concession to AGIP. The concession previously given to BP under the British¹³ protectorate, covered the same onshore areas and the continental shelf to the water depth of 200m.

Between 1973 and 1982, AGIP teamed up with AMOCO to drill six wells (3-onshore and 3-offshore), resulting in the discovery of Songo Songo and Mnazi Bay gas fields.

Global oil price rise of early 1980s is considered to have prompted Tanzania's third oil and/or gas exploration phase. Shell, International Economic Development Corporation (IEDC) and Comarco Group, Elf and Amoco were awarded oil and/or gas exploration licenses. In 1981, Shell (later joined by Esso), was assigned five licenses covering the Ruvu and Selous Basins. Between 1981 and 1985 Shell carried out an extensive exploration campaign which included the acquisition of over 6,400 km of seismic zone.

Despite this extensive seismic zone, much of the thick sedimentary section in the Rufiji channel and Selous Basin remains covered by only a broad regional grid. The next drilling was limited to three wells; Ruaruke North-1, Liwale-1 (the only well in the Selous proper) and Lukuliro-1, a dry hole on the flank of the Rufiji channel. There are no records found on any drilling activities in the Ruvu Basin.

At the same time, the remaining part of the Ruvu Basin was awarded to IEDC, later joined by BHP and Elf, who after a limited seismic campaign drilled two wells on the western side of the rift-Makarawe-1 and Kiwangwa-1.

As from 1978 onwards, TPDC made a significant contribution to exploration, conducting onshore seismic programs in the Ruvu, Kimbiji/Bigwa, Pemba, Mafia and Ruvuma areas and offshore around Songo Songo, Pemba, and Zanzibar. In 1982/83 they drilled the Kimbiji East-1 and Kimbiji Main-1 wells. Petro-Canada drilled an aid funded well, Tan Can-1, close to the Kimbiji area in 1983. TPDC also carried out an appraisal program on the Songo Songo gas-field comprising seven wells (Songo Songo-3 to 9).

During 1983-84, attention of the international oil industry was drawn to the Modern Rift System in Tanzania by geophysical surveys funded by Petro Canada International Assistance Corporation (PCIAC) and the World Bank, and by seismic surveys conducted by Duke University as part of Project PROBE on Lake Tanganyika and Nyasa. Subsequently, exploration licences were assigned to Amoco, which drilled two shallow wells in the Rukwa Basin - Galula-1 and Ivuna-1.

At the end of the 1980s, licences were held by Shell over the Mandawa and Mafia Basins and by Texaco in the Ruvuma Basin, one exploratory well was drilled in each area.

In 1995, the Irish company, Dublin International Petroleum Limited, signed a PSA over Mandawa and Rufiji Basins and two exploration wells were drilled in 1996 at Mandawa. In 1997, two Canadian companies, Antrim Resources (now Antrim Energy limited) and Canop World-wide, signed PSAs over the Pemba/Zanzibar region and the Dar-es-Salaam/Mafia region, respectively. In 1998, Gulf Western Mining signed an agreement covering parts of the Tanga Region, Ruvu and Kimbiji areas. Canop's allocated exploration activity area consists of three contiguous blocks; the Kisangire Block, Dar-es-Salaam Platform Block and the Mafia Island Basin Block.

¹³ In 1890, the Heligoland-Zanzibar Treaty was signed between the British Colonial rule and Sultan Seyyid Said of Oman. This made Zanzibar and Pemba a British protectorate, British rule through a Sultan remained largely unchanged from the late 19th century until 1957.

In 1998, Tanzania offered acreage up for foreign investment. In March 1999, Ndovu Resources of Australia acquired the rights to explore oil in 31 offshore blocks for a period of 11 years. The area covers eastern Songo Songo Island, and stretches to the Rufiji Delta in the Coast Region.

Early in 1999, Western Geophysical signed an agreement to carry out deep-sea speculative surveys and in August 2000, Western Geophysical announced that it would be carrying out phase II of this 2-D seismic acquisition programme covering the Pemba Basin, offshore Tanzania. The data had to be available in time for the licensing round planned for the fourth quarter of 2000.

Quantity of oil and/or gas in Tanzania

There is substantive record of success in Tanzania's search for hydrocarbons in the past decade of active exploration. Natural gas - methane-rich, ethane and higher hydrocarbons are ubiquitous. Gas ratios are characteristic of gases associated with oils and several wells in the field have tested 42 to 50 degree API condensate. Biomarker analysis conducted on the condensate indicates derivation from moderately mature type II/III kerogen. Songo Songo was Tanzania's first significant hydrocarbon discovery in which gas from Lower Cretaceous sands tested up to 23 million cubic feet per day of gas and minor volumes of high API oil. Drilling is ongoing in three onshore wells (Ziwani-1, SSA-11 and Ntorya-1). The Ntorya-1 well in Ruvuma Basin, Zafarani-1 and Zafarani-1A wells in Block2, and Jodari-1 well in Block 1 have all been declared to be gas discoveries. In addition, the Zafarani-1 well has been side-tracked.

Confirmed Gas Quantities

By 2009, approximately 7.72 Trillion cubic feet (Tcf)¹⁴ quantity of gas reserve was confirmed. The reserve in Songo Songo was estimated at 1-2 Tcf, Mnazi Bay 3-5 Tcf, Kiliwani 70 Billion cubic feet (Bcf), and Mkuranga 200 Bcf, respectively. To date, nine gas fields have been encountered in Tanzania. Onshore fields include Mnazi Bay, Mkuranga, Songo Songo and Kiliwani-North. Offshore fields include Pweza, Chewa, Chaza, Jodari and Zafarani. Two fields, Songo Songo and Mnazi Bay, are on production stream (TPDC, 2011).

Songo Songo gas field had since 2004 produced commercially; providing gas for power and industries in Dar es Salaam. The Mnazi Bay gas field has been producing since early 2007, also providing power for the southern areas of Mtwara, Lindi, Masasi, Newala and Nachingwea. Kiliwani, Mkuranga and deep-sea¹⁵ gas reserves are being appraised to establish their commercial viability.

Exploration expeditions are currently going on in Nyuni (East of Songo Songo area); deep-sea block-5 (to the east of Mafia Island) and in the near future more exploration drilling is expected in the deep-sea blocks 1, 2, 3, and 4. There are high probabilities of more gas discoveries in the near future according to TPDC. Recently the latter has opened up hydrocarbons exploration in the rift valleys of lakes Tanganyika and Rukwa.

¹⁴ However, as we were compiling this report (January 2012), information broke out from Statoil, ExxonMobil, British Gas and Ophir that the MNCs had discovered more natural gas in their respective offshore exploration blocks. The media reported a combined natural gas find amounting to 60 TCF.

¹⁵ This was not placed clearly but one assumes that the deep-sea areas referred to here are related to the blocks 1, 2, 3, and 4 which covers the area adjacent to Songosongo and runs through to Mnazi Bay.

Oil Findings

While a great success has been recorded on natural gas front, “exploration of oil has not shown much success as the search is still on” [TPDC, 2010]. The search for oil has intensified. A number of exploration fields are visible in the coast and offshore, and in the inland basins. According to TPDC “the outcome has been mixed and no discovery has been made to assert the availability of reserves that could be termed as viable for economic extraction. The geology suggests that we should continue to explore, which is what we are doing.” This suggests, therefore, drilling of oil exploration wells is a work in progress.

CHAPTER THREE

KEY ACTORS VIS-À-VIS TANZANIA OIL & GAS PROJECTS

(i). Introduction

Oil seeps have been used as an indication of hydrocarbon availability in Tanzania. However, only few exploration and development wells have been drilled so far. The Songo Songo and the Mnazi Bay natural gas fields remain Tanzania's biggest gas finds as of August 2011.

Oil and/or gas exploration activities are increasing. The Government has recently signed a number of PSAs, including the one with Maurel & Prom of France and Petrobras of Brazil for areas close to the Nyuni Licence area and with the Artumas Group of Canada, for the Mnazi Bay area in Mtwara. Narratives from TPDC indicates 20 Production Sharing Agreements to have been entered in 2007, although TPDC website shows only 17 companies qualified as actively involved in oil and/gas exploration activities, as shown in the table below. The reduction is said to be caused by TPDC's rejection of some Expression of Interest (Eoi) submitted by incompetent companies.

In June, 2006 EnerGulf revealed through a press statement that TPDC had revoked the offer to negotiate a Production Sharing Agreement for the Tanga Block. In the stead, the latter invited negotiation with another company. EnerGulf's offer was made based on the submitted details for technical and financial capability but, which after carrying out due diligence, proved contrary. EnerGulf was asked to increase its offer with respect to the percentage of profit oil allocated between TPDC and EnerGulf. Based on the pro-forma exploration and development economic models, the company declined to amend its offer.

Table 3/1: Oil and/or gas exploration companies operating in Tanzania.

Company name	Country of Origin	Area/Block
Antrim Resources	Canada	Zanzibar/Pemba
Artumas Group	Canada	Mnazi Bay
Dominion Oil & Gas	UK	Mandawa, Kisangire, Selous & Deep Sea Block#7
Dodsai Resources	UAE	Ruvu Block
KEY PETROLEUM	Australia	West SongoSongo
Mauriel ET Prom	France	Bigwa & Mafia Channel
Ndovu Resources/Tullow Oil	Australia	Nyuni, Ruvuma
Ophir Energy	Australia	Deep Sea Block#1,3,&4
Pan African Energy	UK	SongoSongo
Petrobras	Brazil	Deep Sea Blocks#5,6 &
Petrodel Resources/Heritage	UK	Tanga, Kimbiji & Latham
RAK-GAS Company	UAE	East Pande
SHELL International	Holland	Deep Sea Blocks#9,10,11,&12
STATOILHYDRO ASA	Norway	Deep Sea Block#2
HYDROTANZ	UK	North Mnazi Bay
TULLOW OIL	UK	North Lake Tanganyika
BEACH PETROLEUM	AUSTRALIA	South Lake Tanganyika

Source: TPDC

Below is the excerpts from the EnerGulf press statement:

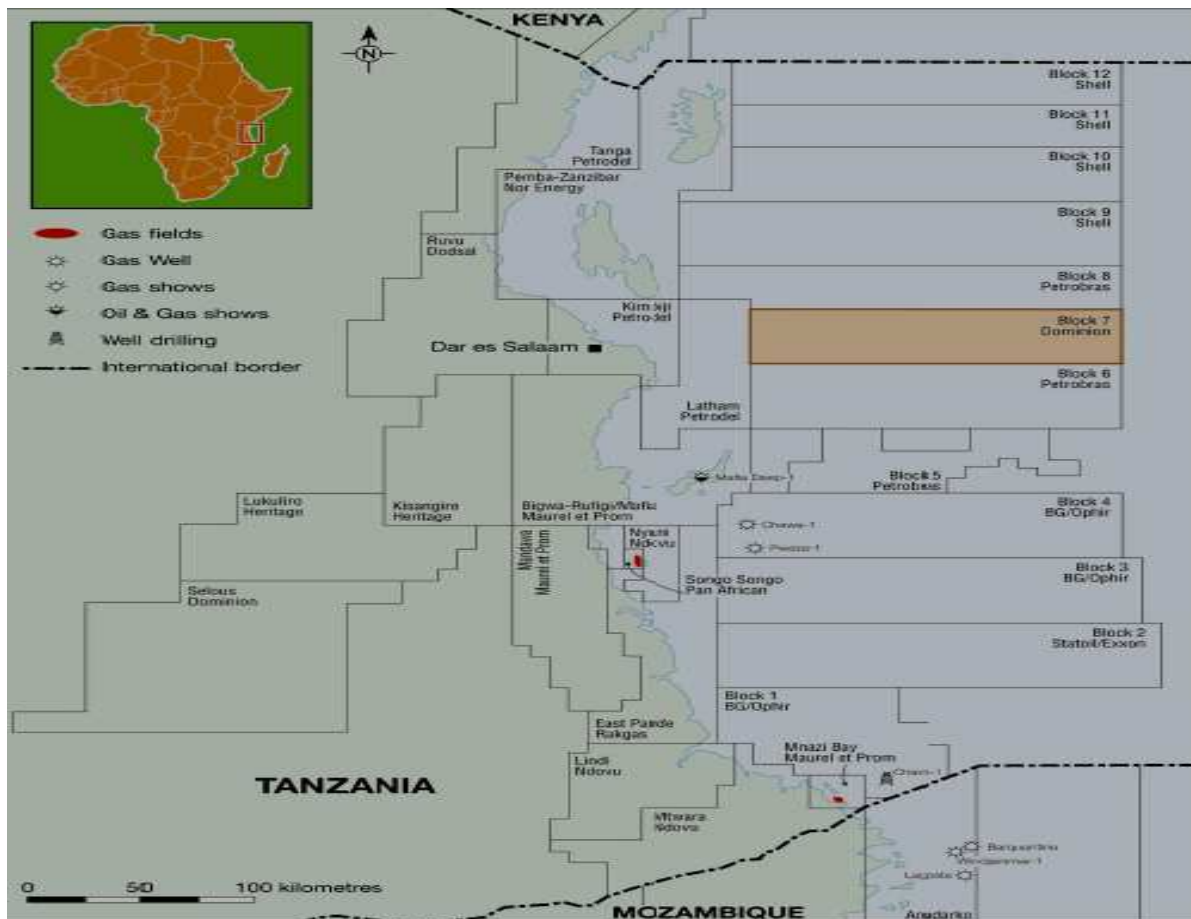
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In March 2005 EnerGulf Resources Inc. entered into a memorandum of understanding (MOU) with JEBCO Seismic Ltd. to explore for petroleum on the Tanga Block along the coast and offshore Tanzania in East Africa. Oil seeps and multiple source units have been identified in the area and prolific sand development may be seen both within the Miocene and the Cretaceous with secondary targets in the Eocene and Paleocene.

Box 3/1: excerpts from EnerGulf press statement

The figure below indicates a general close-up overview on the earmarked coastal areas for oil and/or gas exploration, development and exploitation.

Figure 3/1: Tanzania coastal areas earmarked for oil and/orgas exploration and exploitation



Source Dominion Petroleum Tanzania

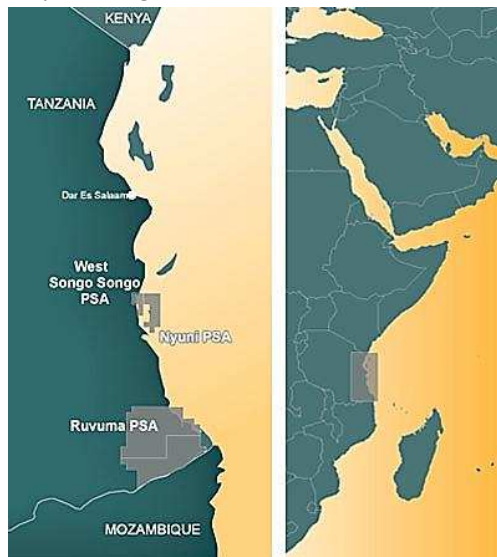
(ii). Aminex PLC

Aminex has been working in Tanzania since 1999. The Company has thus far drilled 4 exploration wells; two of which encountered commercial quantities of natural gas. Kiliwani North-1 tested gas at 40 million cubic feet/day and is being developed for commercial production. The following table shows the exploration activities which have been carried out by the company.

Table 3/2: Minex exploration operations in the country

Exploration Location	Operator	Progress
Nyuni/East Songo-Songo (“Nyuni”)	65% operated by Aminex (includes the Kiliwani North discovery)	3 wells drilled
West Songo-Songo	50% operated by Key Petroleum	Drilling not commenced
Ruvuma PSA (Lindi & Mtwara)	37.5% operated by Tullow Oil	1 well drilled

Map 3/1: Figure 4: Aminex/Ndovu Resources exploration license areas



Source/Aminex Plc.

Aminex's subsidiary Ndovu Resources Ltd holds the exploration rights to Nyuni, a licence area offshore the Rufiji River delta. This came as consequence of acquiring Tanzoil NL in February 2002. Nyuni-1 was drilled to a depth of 3,895 metres and was the first offshore exploration well in Tanzania for many years.

The well logged hydrocarbon saturations in Lower Cretaceous and Jurassic formations encountered numerous oil and/or gas shows throughout a thick sandstone sequence and established the presence of oil from a Jurassic source in the region for the first time.

Ndovu Resources Limited has identified gas potential and from the two wells already drilled by the Company it is estimated to have 278 billion cubic feet (equivalent to 46 million barrels of oil) on an average probability basis, from the combination of two separate accumulations. These are categorised as ‘contingent resources’ and not as ‘reserves’,

as only one well has been drilled on each accumulation thus far. The independently assessed hydrocarbons at Nyuni, mapped from seismic but not yet drilled, amounted to 2.548 trillion cubic feet gas (tcf) in place (equivalent to 425 million barrels of oil) from three separate license areas.

Ndovu is currently holding 50% interest in the Nyuni PSA, but is expected to increased to 65% pursuant to a farm-in agreement scheduled to take effect once Nyuni-2, an exploration well designed to test a large prospect underlying Nyuni Island in the north east part of the concession, is drilled.

The Ruvuma PSA comprises two adjoining licences, namely Lindi and Mtwara, in the extreme south-east corner of Tanzania. It spans 12,000 km² of which roughly 80% is onshore and 20% offshore. Ndovu originally held 100% of the Ruvuma PSA but subsequently farmed it down to Tullow Oil and Solo Oil so that Ndovu now holds 37.5%.

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Likonde-1 well, drilled in 2010, established the presence of oil, gas and a substantial reservoir section but was not a commercial discovery. Further drilling is likely in 2011.

The Ruvuma River is the frontier between Tanzania and Mozambique with high potential for oil and/or gas on both sides of the border, onshore and offshore. The Ruvuma basin is one of the last under-explored major river deltas in Africa and currently subject to a high level of exploration activity. Exxon-Mobil and BG are new entrants while Anadarko has an ongoing drilling programme in Mozambique. Aminex-Ndovu and partners hold the rights to virtually all the prospective onshore acreage on the Tanzanian side of the river.

Aminex's Kiliwani North-1 discovery, in 2008, remains the most successful pure exploration well in Tanzania since gas was discovered by Amoco-AGIP over thirty years ago. Aminex is the first company ever to have taken a PSA into its third full term in Tanzania and will be the first to apply for a development licence for a totally new discovery in over thirty years.

Nyuni-2 was expected to be spudded in April 2011. The Nyuni PSA consortium holds the rights to the Nyuni area under production sharing terms with the Tanzanian Petroleum Development Corporation. Oil and/or gas exploration and development activities asre as viewed in the figure below.

Figure 3/2: An eagle eye's view of the Nyuni (left) and a well head at Nyuni Island at (right)



Source/Ndovu Resources

In one of their update Press statements, Brian Hall - Aminex Plc. Chairperson said, “We are pleased to be able to report proved reserves (1P) valued at \$49 million in the US, mainly as a consequence of our 2010 drilling programme at Shoats Creek, which will continue this year with two firm wells planned. The reserves have been partly offset by abandonment of the Sunny Ernst-1 well in Texas, drilled by the Company in 2000. This valuation is equivalent to approximately 6.75p per share based on the number of shares in issue prior to a placing and open offer currently in progress. On the same basis, the valuation of proved plus probable reserves (2P) is equivalent to 9.6p per share. The US largely underpins the current market capitalisation of the Company but the independently evaluated volumetrics of the Nyuni PSA alone demonstrate the upside potential for the Company of its licences on the East African coastal margin, which is currently enjoying a surge in exploration activity.”

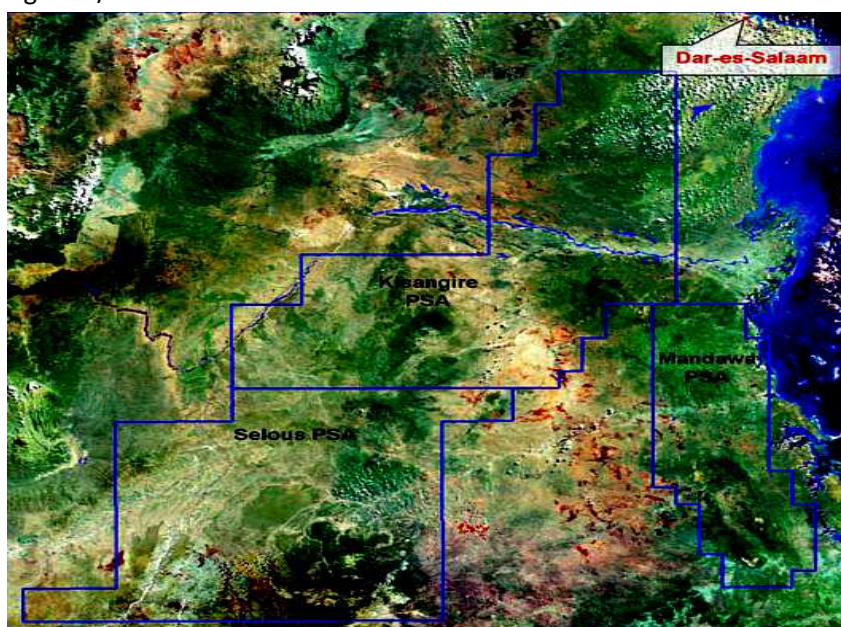
(iii). Dominion Petroleum

Dominion Petroleum holds three PSAs Onshore Tanzania, namely Mandawa, Kisangire and Selous. These three PSAs cover the Mandawa basin and half of the Selous basin (the Selous PSA being in the southern part of the Selous basin and Kisangire being in the northern part of the Selous basin - as shown in the figure below). Besides the PSAs, also Dominion Petroleum has 4 licences.

The PSAs cover the areas where exploration activities had already been carried out by British Petroleum (BP) and Shell in the early 1950s and AGIP shortly after independence in the early 1970s. In this activity, BP-Shell carried out a pre-seismic exploration where they drilled 1 deep well while their counterpart AGIP implemented an 8-fold seismic (dynamite and vibrator) drilling activities on 6 wells, thereafter making 2 gas discoveries.

These activities covered the whole Coastal area in Tanzania and were followed by subsequent exploration activities between 1981 – 1991, 1995 – 2000 and 1997 – 2000 by Shell (4 wells covering approximately 5000), Dublin (3 wells in Mandawa) and Canop & Paladin (in Kisangire), respectively.

Figure 3/3: Dominion Petroleum PSA area



Source/Dominion Petroleum

The Selous basin was first formed by rifting during the Permian as one of the South African Karoo basins. The basin formed on a North East-South West trend with extensional faults opening in a North West-South East direction, but offset along its length by transform zones.

Resource potential has been recorded in shales, within the Karoo, both in outcrop in a side graben to the Selous Basin and in other analogous Karoo basins, such as in Madagascar. Extension on the dominant basin edge fault switched from east to

west sides of the basin along these transformations. Intra-basin highs are found in the Selous PSA and probably form the core of the Kisangire high (northern Selous basin - Kisangire PSA) (Copstake & Quinton).

PSA and licence areas allocated to Dominion Petroleum covers 10.1 million Acres and 40,447 cubic kilometres when all put together.

(iv). Ophir Energy

Ophir Energy Tanzania, PSA operators for deepsea Block 1, 3, 4 in offshore Tanzania, have been drilling the well Pweza-1 off the island of Mafia. Drilling started on 18th September 2010 in 1440 metres of water, and was intended to be drilled to 4600 metres subsea. Drilling was carried out using the Norwegian drillship, the Deepsea Stavanger.

Tanzania Oil & Gas: Status and Trend Study Report

In 2010, the Government of Tanzania announced that Pweza-1 Well had successfully encountered a natural gas column of nearly sixty (60) metres between 2625 metres while drilling through the main target. The drillship is now moving to the second drilling location called Chewa-1, within the same Block-4, about 20 km to the north west of the location of Pweza-1. Drilling of Well Chewa-1 was expected to start before end October 2010.

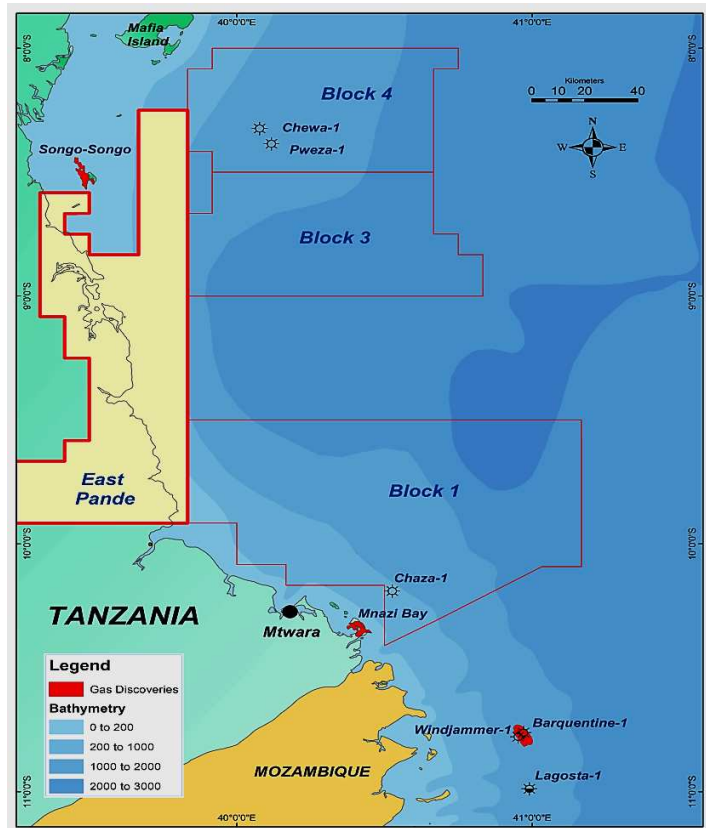
Figure 3/4: Ophir Oil Exploration activity map - Blocks 1,3-4

In this project, Ophir is in partnership with British Gas (BG), the later holding a 60% interest. TPDC has back-in options.

The partners have been exploring for hydrocarbons in the area since 2006, through acquisition, processing and interpretation of seismic data, both 2D and 3D. Several prospective areas have been identified, which will require testing by drilling. The drilling of the well Pweza-1 is the start of well 3 exploration/drilling campaign, using the Deep-sea Stavanger. The third well will be drilled at the location Chaza-1 in Block 1 near Mtwara.

The discovery of gas in the well Pweza-1 marks the beginning of an intensive exploration drilling campaign in Tanzania.

It was projected that, “between September 2010 and December, 2011, Tanzania should be drilling a maximum of ten (10) offshore wells, an investment of about US\$500 million in exploration operations.”



Source/Ophir Oil

Ophir concedes that “there will be further investment in development operations once commercial quantities are confirmed.”

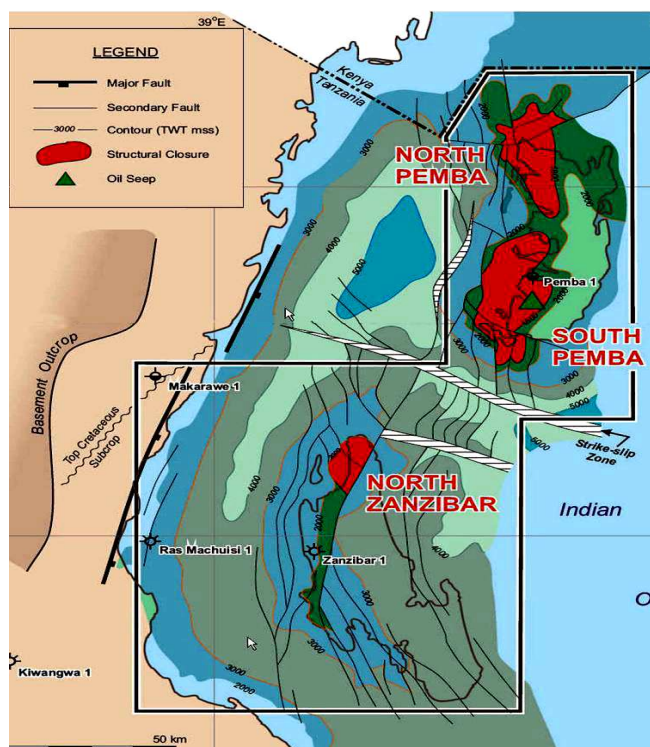
There are also a few more oil and/or gas exploration companies in Tanzania, which have started operations or finding pact on joint ventures with other companies.¹⁶ Maurel & Prom and Cove Energy are considering a joint venture with Artumas. Petrodel is only identified with a little information on the allocated concession for exploration activities in Tanga.

Antrim’s 20% interest is carried through the pre-drilling exploration phase of the licence and Antrim holds an additional 10% right to participate in the licence following analysis of the drilling results.

- The carried interests (up to 30%) would be repaid from future production. The licence covers 3.5 million acres (14,060 km²) in a highly prospective oil and/or gas region.
- The first year work program is being prepared for approval.

¹⁶ The information on these companies were not easily accessible.

Figure 3/5: Antrim's Exploration interest area



Source/Antrim

The Pan Africa Energy operates the Songo Songo gas field and has so far produced 4.6 bcf of natural gas from the Songo Songo field since commencement of commercial operations in late 2004.

The five production wells in the Songo Songo field continue to perform in line with expectations and have produced 7.2 bcf since startup of commercial production in July 2004.

The larger part of gas produced from Songo Songo since early 2005 has been to propel five turbines at the Ubungu Power Plant. Tanzania Breweries and Wazo Hill cement plants in Dar es Salaam have also depended gas supply from Songo Songo.

The brewery and cement manufacturing factories purchase the Protected Gas, which is owned by TPDC. Additional gas production, which is not required to meet the needs of the Protected Gas customers, is marketed by EastCoast Energy.

Gas produced and sold from the Songo Songo field is classified as either Protected Gas or Additional Gas. The Protected Gas is 100% owned by the Tanzanian Petroleum Development Corporation and is sold to Songas Limited (Songas) under a 20 year Gas Agreement either for use at the Ubungu Power Plant or for onward sale to the Wazo Hill Cement Plant or for the Village Electrification Programme.

CHAPTER FOUR

TANZANIA OIL & GAS INSTITUTIONAL, POLICY AND LEGAL FRAMEWORK

(i). Tanzania Petroleum Development Corporation

Tanzania does not fall short of making policies, laws and regulations, regulatory agencies or commissions geared to direct, control and coordinate various development structures, systems and operations in the country. The Tanzania Petroleum Development Corporation is one such bodies formed to regulate oil and gas functions in the country. TPDC, which started operations in 1973, is the state corporation established under the Public Corporations Act No.17. It was established through the Government Notice No.140 of 30th May 1969. The corporation is charged with overseeing oil and gas operations as well as representing the Government in the oil and/or gas undertakings.

Hydrocarbons activities in Tanzania are regulated under the Petroleum Act 1980 and a similar legislation enacted in 2008, various Production Sharing Agreements, the Energy Act of 2005, Energy Policy of 2003, the Income Tax of 2004, Environmental Management Act 2004, and the National Environmental Policy 1997. TPDC is charged with the following responsibilities:

- i. Promotion and monitoring of oil and/or gas exploration
- ii. Development and production of oil and/or gas
- iii. Conducting research and development of the oil and/or gas industry in the country
- iv. Management of oil and/or gas exploration and production data
- v. Advising the Government on petroleum related issues
- vi. Marketing and selling of natural gas as per PSAs stipulations
- vii. Undertaking the management of strategic fuel reserves, and
- viii. Undertaking the trading in petroleum products.

The Ministries of Water and Irrigation and Minerals and Energy oversee their direct and/or derivative petroleum exploration and development policies through TPDC. The institution is organised into five directorates: Exploration, Production and Technical services; Finance and Administration; Overall Management; Internal Auditing; and Marketing and Investment.

(ii). Policy, legal and regulatory framework

The Constitution of the United Republic of Tanzania provides that all petroleum and petroleum products, crude oil and natural gas are Union Matters (Article 4 (3) read together with item 15 of the First Schedule to the Constitution of the United Republic of Tanzania). The Constitution further requires every person to protect natural resources of the country including petroleum and gas.

As et of policy and laws are in place to guide and regulate oil and/or gas in Tanzania. These are the National Energy Policy, 2003; the National Investment Policy, 1996; the Petroleum (Exploration and Production) Act, 1980; the Petroleum Act, 2008; the Energy and Water Utility Regulatory Authority (EWURA) Act, 2001; the Tanzania Investment Act, 1997; and the Environmental Management Act, 2004.

The Petroleum (Exploration and Production) Act of 1980 regulates oil exploration and development activities in the country. This Act vests title to petroleum deposits within Tanzania in the state and it is designed to create favourable legal environment for exploration by oil companies. The Act expressly permits the Government to enter into a petroleum agreement under which an oil company may be granted exclusive rights to explore for and produce petroleum. Under the Production Sharing Regarding

the agreements that are currently in place, TPDC is granted the licences under the Act with the Government and TPDC enters into PSAs with the oil companies. Nevertheless, terms of the PSAs form the basis of the licences and are negotiable.

However, the Petroleum Act is not without weaknesses or gaps. The Act vests wide discretionary powers to the Minister responsible for energy to issue exploration and development licenses and he/she is not required to consult anybody before issuing such licenses. This is contrary to good governance principles of oil and gas; it creates conditions for corruption and abuse these powers. Apparently this is viewed as obstacle to transparency and accountability in the governance (regulation) of oil and/or gas activities in the country. No wonder the Ministry of Minerals and Energy is perceived as a corrupt Government institution. The Act is also lacking provisions meant to regulate oil and/or gas importation, exportation, transportation, transformation, storage and wholesale as well as retail distribution of petroleum products. It was in the efforts to address such aforesaid weaknesses the 2008 Petroleum Act was legislated. The latter law does not cover the islands of Zanzibar and Pemba [section 2(1)]. Despite the efforts, the Petroleum Exploration and Production Act of 1980 does not exhaustively cover specific gas exploration and exploitation. Again, the Act provides that “a license will be granted to an individual who is a citizen of Tanzania”, but in practice non-citizens have been and continue to be granted with licenses. Another weakness in the provision for payment of royalty by a license holder without specifying the rate of such royalty to be paid.

The legislative framework offers considerable flexibility to the Government in negotiating terms with oil companies. An exploration licence normally consists of 60 blocks but the law does provide flexibility for more than one licence to be granted and, in certain cases, for a licence to comprise more than 60 blocks. The law also makes provisions for exploration, appraisal, development and production periods. In the event of a commercial discovery of oil and/or gas, the holder of an exploration licence has a right to a development licence, subject to the development plan to ensure the most efficient and beneficial use of the petroleum resources. Moreover, a statement in the Act that 'petroleum matters are union matters' and therefore, should benefit both parts of the United Republic of Tanzania, is a bold political reinforcement, and advantage of the legislation.

(iii). Key environmental issues in the Petroleum Act

The legislation requires the following:

- That all private operators in the exploration or development area must be in a proper, safe and workmanlike manner and in accordance with good oilfield practices.
- That all petroleum companies should take all reasonable steps necessary to secure the safety, health and welfare of persons engaged in those operations in/about the exploration/development area.
- That petroleum exploration firms should control the flow and prevent the waste or escape in the exploration or development area of petroleum, gas or water and prevent the escape in the exploration or development area of any mixture of water or drilling fluid and petroleum or any other matter and to prevent damage to petroleum bearing strata in an area in respect of which the licence is not in force.
- That all petroleum firms should prevent water or any other matter entering any petroleum reservoir through the well in the exploration or development area except when required by, and in accordance with, good oil-field.
- That petroleum firms should prevent the pollution of any water-well, spring, stream, river, lake, reservoir, estuary harbour or area of sea by escape of petroleum, salt water, drilling fluid, chemical additive, gas (not being petroleum), or any other waste product or effluent.

- That all petroleum exploration firms should furnish to the Commissioner prior to the drilling of any well, a detailed report on the technique to be employed, an estimate of the time to be taken, the material to be used and the safety measures to be employed, in the drilling of the well.
- That any registered holder of a licence should furnish to the Commissioner such notice as is prescribed of his/her intention to abandon any well, and the closure or plugging of any well shall be carried out only with the prior consent in writing of the Commissioner.
- That any person who is the holder of an instrument of consent under section 71 of the Act should carry out all exploration operations in the area in respect of which the instrument of consent is in force in a proper and workmanlike manner and in accordance with good oilfield practices, and to take all reasonable steps to secure the safety, health and welfare of persons engaged in those operations in or about that area.
- That any registered holder of a licence or a holder of an instrument of consent under section 71 of the Act should maintain in good condition and repair all structures, equipment and other property in the area subject to the licence or in respect of which the instrument of consent is in force and used in connection with the operations in which s/he is engaged.
- That any operating private firm should remove from its area of operations all structures, equipment and other property that are not either used or to be used in connection with the operations in which it is engaged.

(iv). Production Sharing Agreements

A Production Sharing Agreement (PSA) is a commercial contract between the investor and the state, which allows the investor to undertake large scale, long term and high-risk investments in a sovereign state. The purpose of a PSA is to define the terms and conditions for the exploration and development of resources by replacing existing tax and license regimes with a contract based arrangement that exists for the stated life of the project. The agreements provide for exploration, development and production of hydrocarbon once a discovery is made.

Under Tanzania PSAs it is mainly expected that:

- i. The government of the United Republic of Tanzania maintains ownership rights of the oil and/or gas resources. The company invests all the capital needed to develop the fields and pays bonuses to the Government at key milestones during the project development;
- ii. Oil and/or gas investors are obliged to pay 5% royalty for off-shore and 12.5% for on-shore oil and/or gas produced in Tanzania to the Government throughout the lifetime of the project; and
- iii. Through TPDC, Tanzania is entitled to earn 50% or higher of profit gas¹⁷ share (30% of total gas output).

The model PSA serves as the basic document for negotiations involving foreign oil and gas companies, the Government of the United Republic of Tanzania and TPDC. The PSA sets out the terms and conditions under which exploration and/or production oil or gas is guided and regulated. The Tanzania PSA template terms and conditions are generally conventional to the international competitive ones. However, the Government indicates flexibility and readiness to negotiate some conditions, including the area, work programme and economic gains within specific PSA framework.

¹⁷ See the MODEL PSA ADDENDUM FOR NATURAL GAS For Deep sea Operations appended (appendix V)

Tanzania Oil & Gas: Status and Trend Study Report

The Government goal of introducing the PSAs is to negotiate the oil and/or gas terms with the oil companies, which are fair and balanced, bearing in mind the usual risks associated with exploration vis-à-vis state legitimate desire for revenue. The Government also considers other factors as depletion and non-renewability nature of the oil and/or gas resources. The Government seeks to encourage the development of small and marginal discoveries; obtain a higher share of profits from the more attractive fields, and satisfy the national objectives such as transfer of petroleum knowledge, skills, and expertise together with acquisition of relevant data and information. Because of competitive nature of oil and/or gas industries, there are always new players getting in, while others leaving the industries. Mergers and acquisitions have been common strategies used by companies to survive competition in the industry.

So far 26 PSAs, covering onshore and offshore blocks, have been signed. The Lake Tanganyika North Block award is still under negotiation with Total Exploration Company of France and the Ruhuhu Basin PSA Application by Jacka Resources of Australia is about to be concluded.

CHAPTER FIVE

OIL AND GAS PROJECTS CHALLENGES TO SOCIETY AND ENVIRONMENT

(i). Global environmental policy debate

The oil industry has spread exploration and exploitation activities across continents, not to mention the resulting social, economic and environmental effects literally understood in local context. United Nations member states had, since 1992, subscribed to the United Nations-sponsored sustainable development Agenda 21 movement.

Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of subsequent centuries. It reflects a global consensus and political commitment at the highest level on development and environment cooperation. Its successful implementation is, first and foremost, the responsibility of Governments.

National strategies, plans, policies and processes are recognised as crucial in achieving Agenda 21's goals and objectives. International cooperation were expected to support and supplement national efforts. In this context, the United Nations system has had the key role to play. Other international, regional and sub-regional organizations are also called upon to contribute to this effort. The broadest public participation inclusive of the non-governmental organizations and other groups is also encouraged.

Regarding Tanzania oil and gas industries, a number of actions and programmes relevant to Agenda 21 have had been initiated, including the development of a National Energy Policy. The main objective of the policy is to establish an efficient energy production, procurement, transportation, distribution, and end-use system in an environmentally sound manner.

The policy is envisioned to be executed through: exploitation of the abundant hydro-electric resources; development and utilization of natural gas resources; development and utilization of coal resources; increased petroleum exploration

Agenda 21 Objectives

[2.9] In the years ahead, and taking into account the results of the Uruguay Round of multilateral trade negotiations, Governments should continue to strive to meet the following objectives:

- a. To promote an open, non-discriminatory and equitable multilateral trading system that will enable all countries - in particular, the developing countries - to improve their economic structures and improve the standard of living of their populations through sustained economic development;
- b. To improve access to markets for exports of developing countries;
- c. To improve the functioning of commodity markets and achieve sound, compatible and consistent commodity policies at national and international levels with a view to optimizing the contribution of the commodity sector to sustainable development, taking into account environmental considerations;
- d. To promote and support policies, domestic and international, that makes economic growth and environmental protection mutually supportive.

activities; arresting wood fuel depletion by developing more appropriate land management practices and more efficient wood-fuel use technologies; development and utilization of forest and agricultural residue for power and cooking energy production; minimization of energy price fluctuations; development of human resources for development of energy technologies; and ensuring the continuity and security of energy supplies. Below is excerpt from the National Energy Policy.

7. Tanzania took an active part in the preparations for, and during the United Nations Conference on Environment and Development which enshrined the integration of environmental concerns and economic development in the Rio Declaration on Environment and Development, and Agenda 21. It is working closely with other countries in the Region and the International community to contribute towards a peaceful, healthier and better global environment for present and future generations. Tanzania has become a party, and is implementing a number of global and Regional Environmental Treaties, as a basis for global and regional cooperation in the pursuit for sustainable development. It is host to important sub-regional programmes and projects conceived and implemented in concert with neighbouring countries, as a basis for harmonised management actions and approaches, and as a form of preventive diplomacy.

Source: National Energy Policy, 1997

(ii). Poverty vs. environment link

Poverty is linked to environment in a complex way, particularly for a natural resource-based economy, like Tanzania. Mishandling of natural resources reduces the productivity of the poor and makes them even more vulnerable to extreme events (climatic and economic). Poverty makes recovery from such events even more difficult and contributes to lowering social and ecological resistance.

The state of poverty is also a factor in accelerating environmental degradation in many parts of the country, since the poor, with shorter time horizons and usually less secure access to natural resources, are unable and often unwilling to invest in natural resource management but rather strive for mere survival. However, the poverty-environment spiral does not stop with the poor in the society. Even the Government of the United Republic of Tanzania has in many occasions evidenced poverty by failing to ensure citizens' entitlements are equitably delivered. This would mitigate human activity spoiler effect against sustainable environmental management.

Indeed, it is argued that since the Government of the day has failed in many ways to ensure that the environment is protected, the ordinary citizens may not help but do what has to be done to survive. True as this may be, it is still the collective responsibility of the people of Tanzania to push towards ensuring compliance to existing environmental management policy and laws that will bring about safe environment for all. The need to minimize environmental impact is an important change requirement in the hydrocarbons upstream so are the corresponding regulations. This requires the Government to go beyond the ordinary approaches to environmental management.

(iii). Environment vs. oil/gas exploration, development and production

Figure 5/1: The internet photo of oil refinery in the Gulf of Mexico



Fossil fuels comprise mainly coal¹⁸, oil and gas believed to have been formed millions of years ago beneath the earth's surface from the decomposed bodies of dead plants and animals. Oil, gas and coal are foreseen to be in short supply in the future as man's fuel needs continue to grow at a fast rate. Oil is extracted in a crude form, and when compared to coal, it is easier to extract from the ground through use of pipes, and therefore relatively less costly to transport from one place to another. Once extracted, oil is converted into petrol, diesel and other fuels used as energy source to propel locomotives of various machinery and plants. Use of coal as a fuel predates to the recorded history of industrial revolution; coal was used to run furnaces for the melting of metal ore.

Oil, which is best known as Black Gold, is a prime mover of global economy despite environmental pollution it causes. Exploration, development and production of oil and/or gas create potential and real damages to environment. Certainly, because of the anticipated financial resources accrued from oil, its discovery, particularly in the developing countries, is greeted with great optimism thus underpinning the possibility to compromise protection and conservation of environment for the future generations. Tanzania seems to be not the exception. There are concerns of environmental damage in the coastal areas where oil and/or gas exploration, development and production is underway. Weak policy, laws and regulatory framework; weak institutional and civil society capacity to monitor oil and/or gas companies compliance to existing environmental policy, laws and regulations; and weak technology to manage and transform environmental pollution into development utilities pose the potential threat to Tanzania, specifically the oil and/or gas exploration, development and production areas.

A World Development Report of the United Nations Conference on Trade and Development (UNCTAD) (2007:95), for example, states that extractive activities [*including oil exploration*] can also have profound social and political impacts. They can have a positive effect on development by creating jobs, encouraging business and providing vital infrastructure for remote communities such as roads, electricity, education and health. However, the presence of substantial amounts of oil and/or gas reserves has been identified by many authors as a potentially mixed blessing for oil producing countries (World Bank 2006).

¹⁸ In Tanzania the discussion is more revolving on oil and gas, sidelining coal, a 'family' member of the fossil fuels - also abundantly available.

(iv). Advantages

Fossil fuels are said to be of great importance because they can be burned (oxidised to carbon and water), producing significant amounts of energy per unit weight. There are advantages associated with discovery, extraction and commercialisation of oil and/or gas (energy) of which inflows of foreign exchange and the created job opportunities are invincible. In short, the following are the fossil fuel-cited advantages:

- A major advantage of fossil fuels is their capacity to generate huge amounts of electricity.
- Fossil fuels are very easy to find.
- When coal is used in power plants, they are very cost effective. Coal is also in abundant supply.
- Transporting oil and/or gas to the power stations can be made through the use of pipes making it an easy task.
- Power plants that utilize gas are very efficient.
- Power stations that make use of fossil fuel can be constructed in almost any location. This is possible as long as large quantities of fuel can be easily brought to the power plants.

(v). Disadvantages

Oil and/or gas find carries with it a sense of hope and expectation of Government revenue to improve livelihoods; social and economic wellbeing. However, evidence has shown the contrary as most dreams in many oil and/or gas producing countries have remained elusive. Nigeria, a country producing oil since 1950s, and currently producing 2.5 million barrels (worth US\$600 million) per day is one of the most polluted countries, especially in the oil profuse Niger delta. It is not clear whether Tanzania will escape the Nigeria environmental damage experience when oil and/or gas is fully pronounced. The Tanzania oil and/or gas environmental hazards question arises taking into account the increasing state of corruption in the country and weak environmental oversight institutions, structures and systems. Tanzania environmental destruction due to oil and/or gas development and production could be forthcoming.

The other oil and/or gas exploration and development activities pertinent risks are directly linked to the protected areas and loss of livelihoods. This results from evictions and resettlements of communities living in the oil and/or gas fields thus required to vacate places of their normal residences to give space for oil and/or gas production companies to explore or exploit hydrocarbons.

The environmental friendly technologies that prioritize to minimize negative effects to communities, applicable during oil and/or gas exploration, development and production is considered a viable remedial measure helping to manage the environment.

The other oil and/or gas production-related disadvantages include the following:

- a. Unpredictability of the oil exploration venture that require enormous funding without any assurance on whether or not oil will be obtained. There is the danger to shaft the burden to environment
- b. The life of sea living organisms might be endangered due to use of dynamites/explosives during oil and/or gas exploration, but even development and production stages.

- c. Use of chemicals, when drilling oil and/or gas boreholes, is the environmental pollution potential dangerous to especially the surrounding water, and may kill the sea organisms.
- d. Mud from boreholes apart from polluting water may also hinder deep sea diving for marine eco-tourism and other deepsea activities.
- e. Construction of support infrastructure, including roads, jet landing strips, repair shops, homes, refineries and oil pipes brings in incremental effect to environmental damage.
- f. Accidents at production sites may cause spills and other hazardous effects dangerous to flora and fauna.

(vi). Other disadvantages

Occupational Accidents

No documented evidence is yet available in Tanzania to certify accidents that comes with off-shore oil and/or gas activities. However, accidents inevitably occur during either offshore or onshore developments. These may result due to a combination of factors, including natural, technical, managerial and/or technological mishap. The causes, scale, and severity of the accidents must be followed up and documented to inform the public and policy system.

Typical causes of accidents include equipment failure, personnel mistakes, and extreme natural disasters (seismic activity, ice fields, hurricanes, and so on). The main hazards resulting from occupational accidents may include, but not limited to, spills and blowouts of oil, gas or numerous chemical substances and compounds. The environmental consequences associated with oil and/or gas accidents are severe, sometimes dramatic, when they happen near the shore, in shallow waters, or in areas with slow water circulation.

Drilling accidents

Drilling accidents are usually associated with unexpected blowouts of liquid and gaseous hydrocarbons from the well as a result of encountering zones with abnormally high pressure. No other situations but tanker oil spills can compete with drilling accidents in frequency and severity.

Broadly speaking, two major categories of drilling accidents should be distinguished. One of them covers catastrophic situations involving intense and prolonged hydrocarbon gushing. These occur when the pressure in the drilling zone is so high that usual technological methods of well muffling do not help.

Disadvantages of Fossil Fuel

- ✓ Pollution is a major disadvantage of fossil fuels. This is because they give off carbon dioxide when burned, thereby causing a greenhouse effect. This is also the contributing factor to the global warming experienced today.
- ✓ Coal also produces more carbon dioxide when burned, compared to burning oil or gas. In addition, it produces sulphur dioxide in the environment, the kind of gas associated with acid rain
- ✓ Environmentally, the mining of coal results in the destruction of wide areas of land. Mining of this fossil fuel is difficult and may endanger the lives of miners. Coal mining is considered one of the most dangerous jobs in the world
- ✓ Power stations that utilise coal need large amounts of fuel. In other words, these plants use many trucks of coal on a regular basis to continue operating and generating electricity. The cost o trucks moving back and forth fetching coal would be cut if the mining areas were closer to the plant
- ✓ Use of natural gas can cause unpleasant smell and other problems during transportation
- ✓ Use of crude oil causes pollution and poses environmental hazards, such as oil spills when oil tankers, for example experience leaks or drown deep under the sea. It contains toxic chemicals which produces air pollutants when combusted.

Lean holes have to be drilled to stop the blowout. The abnormally high pressure is most often encountered during exploratory drilling in new fields. The probability of such extreme situations is relatively low. Some oil experts estimate it at 1 incident for 10,000 wells [Sakhalin-1, 1994]. The need to drill lean holes emerges, on average, in 3% of accidental episodes.

The other group of accidental situations includes regular, routine episodes of hydrocarbon spills and blowouts during drilling operations. These accidents can be controlled rather effectively (in several hours or days) by shutting in the well with the help of the blowout preventers and by changing the density of the drilling fluid. Accidents of this kind are not as impressive as rare catastrophic blowouts. Usually, they do not attract any special attention. At the same time, their ecological hazard and associated environmental risk can be rather considerable, primarily due to their regularity leading, ultimately, to chronic impacts on the marine environment. So far, no drilling accidents have been reported in Tanzania.

Transportation and storage accidents

Oil extracted from continental shelf is shuttled by tankers, which deliver hydrocarbons to onshore terminals. Sometimes, tankers get accidents mainly due to running aground into shore reefs, collisions with other vessels, or fires and explosions of the cargo thus causing massive oil spill. According to official data [IMO, 1990], the amount of oil spilled during tanker accidents in 1989 and in 1990 were 114,000 and 45,000 tons, respectively. At the same time, the total volume of oil pollution caused by marine oil transportation was 500,000 tons a year. However, global record is such that large drilling accidents and large tanker catastrophes occur relatively rarely. The history of tanker accidents has been thoroughly described as declining by both the scientific literature and the media. Analyzing the statistics and circumstances of such events indicates that they can hardly be avoided. Despite decline over the past two decades, Tanzania should be prepared to deal with tanker accidents when the country embarks on full scale hydrocarbon exploitation in the future. The history of oil transportation accidents is narrated in the box below.

Box 5/1: The history of tanker transportation – large supertanker accidents

The catastrophic grounding of *Torrey Canyon* occurred in the English Channel in 1967. The spill of 95,000 tons of oil caused heavy pollution of the French and British shores with serious ecological and fisheries consequences. This accident was followed by a number of other tanker accidents, including *Amoco Cadiz* (1978, 220,000 tons of oil spilled), *Exxon Valdez* (1989, 40,000 tons of oil spilled), and *Braer* (1993, 85,000 tons of oil spilled). Each of these episodes developed in unique scenario. The levels of oil pollution reached lethal limits for marine fauna, mainly for birds and mammals. The consequences included much more damage than just ecological disturbances in the sea and on the shore.

Pipelines accidents

Complex and extensive systems of underwater pipelines measure several thousands of kilometres long. They carry oil, gas, condensate, together with various mixtures. Pipelines are very risky, especially during offshore oil developments, along with tanker transportation and drilling operations with accidents mainly resulting from material and welding defects. Depending on the cause and nature of the damage (cracks, ruptures, and others), a pipeline can become either a source of small and long-term leakage or an abrupt (even explosive) blowout of hydrocarbons near the bottom.

The dissolution, dilution, and transferring of the liquid and gaseous products in the marine environment can be accompanied in some cases by ice and gas hydrates formation. The intensity and scale of toxic impacts on the marine biota in the accident zone may differ depending on a combination of many factors. It is important to take into account that accidental oil and/or gas spills and blowouts on the on-land main pipelines pose danger to the coastal marine ecosystems. This happens when on-land pipeline accidents take place near big rivers or in locations of crossings. Polluting river waters eventually affects the sea zone near the river mouth. The on-land pipeline rupture in the Usinsk area, Russia (1994) for example, led to the spill of more than 100,000 tons of oil with the danger of heavy pollution of the Basin of Pechora River. The potential hazard of such situations are even higher during oil and/or gas development.

Even though Tanzania has taken various measures to ensure setting and functioning of institutional, legal and policy that cater for licensing needs allowing exploration and exploitation of oil and/or gas begin in Tanzania the gaps are preponderant. There are no community license yet; therefore, the latter is prone to oil and/or gas exploration and exploitation activities. The current National Energy Policy (2003) and the draft GOZ Energy Policy (2009) do not adequately cover relevant petroleum exploration and development issues. These include policy objectives and strategies to build capacities of communities, private and public companies in petroleum exploration.

(vii). Oil and/or gas vs. coastal environment

Mangrove forests are unique tropical eco-systems occurring along the sheltered shore line with muddy to sandy bottoms. They are variously described as coastal woodland, tidal forests and mangrove forests. Mangroves depend on terrestrial and tidal waters for their nourishment, and on coastal soils and soil deposits from up land as substrate for support. The tides nourish the forests, and mineral rich river-borne sediments enrich the swamp. Thus, the mangroves derive the form and nature from both marine and terrestrial influence. Mangrove forests are among the most productive terrestrial eco-systems and are natural and are a renewable resource (Rao and Anupama, 2006).

This eco-region is losing their habitats as over exploitation of forest for fuel, timber and construction material continues. Mangroves provide services like protection of coasts against wave and wind erosion, moderating the effects of coastal storms and cyclones, shelter and habitat for diverse wildlife particularly avifauna, entrapment of upland run up sediments, thus protecting near shore reefs and reducing water turbidity. Mangroves also provide opportunities for education, scientific research and eco-tourism. [Chijioke EZE].

Section 45 of the National Environmental Policy (1997) makes it clear that “Environmental impacts of actions in one sector are often felt in other sectors,” therefore, it cannot be treated in isolation. It also stresses on the importance of a well-articulated management of the impacts of energy (oil and gas being part thereof) development and use to minimise environmental degradation (section 56). Oil and/or gas exploration and exploitation activities impact would require that there is a clear map on activities and mitigation blueprints in case of an occupational accidents or those accidents taking place in the course of exploration/exploitation activities. NEP states the non-optional requirement of “application of Environmental and (Social) Impact Assessment (ESIAs) as an essential element in industrial planning and development for taking into account of potentially harmful activities on the environment,” (section 56c). Exploration activities have begun in Tanzania but it is a surprise that environmental and social impact assessment reports are not in the public domain despite the fact that gas and oil industries impact start at the very beginning with exploration.

(viii). Oil and/or gas vs. human rights abuses

Oil and/or gas exploration and exploitation activities have serious human rights implications, specifically in the developing countries. Historically, the demand for foreign exchange from the extractive industries has, in most case,s resulted in high government tolerance of Multinational Corporations behaviours in the industry, regardless of their human rights record.

Similar to the manner in which a number of Prospecting and Mining Licenses have been handled in the Tanzania Gold mining industry, multinational investments have formed alliances of convenience to protect their investments and secure foreign revenues but in reality expose the population to human rights abuses. In a number of cases, it has been witnessed that the national security agenda is determined by the security concerns of investors - whether in the mining or oil and/or gas sectors.

While human rights abuses afflicted upon most of the community members, women and children bear the brunt effects of multinational activities in the extractive industries. The latter group may not be the direct targets of human rights abuses; they suffer the consequences of human rights abuses just as much as the victims do. When husbands/partners, fathers, brothers and sons are subjected to human rights abuses, women are left with the responsibility of picking up the pieces and trying to keep families together as best as they can [Akosua K. Darkwah].

Figure 5/2: The oil spill affected public beach environment, Grand Isle, Louisiana, USA



Source: <http://www.spillphotos.com>

(ix). Oil and/or gas vs. corruption

Historically, Governments running the countries endowed with oil and/or gas are viewed as corrupt. Countries in this category are specifically those whose governance systems and structures are too poor/weak to oversee transparency and accountability. According to a World Bank (2006) document, huge spending and contract allocation associated with the oil business can prompt corruption in countries. In addition to scoring low on the Human Development Index, countries which depend on oil revenues exhibit higher levels of corruption as the resources are often misappropriated by corrupt leaders and officials [Palley, 2006].

Natural gas exploration, development and production in Tanzania may not be the exception. Whereas natural gas exploration has continued for many years, and production started 2004, neither does the country have specific policy nor legislation to regulate natual gas operations of exploration and exploitation. Natural gas exploitation from Songo Songo and Mnazi Bay has continued for over 7 years.

PSAs are the only regulatory instruments applicable to regulate natural gas production operations. Moreover, the Commissioner for Energy has sweeping powers; from time to time issuing discretionary directives/orders to regulate natural gas operations. Definitely, this regulatory style does not comply to the applicable extractive industries good governance standards, and it is therefore prone to corruption.

The Songo Songo natural gas project is currently operated by Songas and Pan African-Energy Tanzania Limited (PAT). The Parliament did during the 2011/21 budget sessions accuse PAT for tax evasion, tax planning, transfer pricing and other kind of cheating¹⁹. The Mineral and Energy Parliamentary select committee tasked to investigate the multinational fiscal misdeeds, published a report showing between 2004 and 2009, PAT having repatriated US\$ 20.1 million in transfer pricing only. PAT had spent some of the money to conduct oil and gas exploration in Gabon, Uganda and Nigeria. Two days before the parliamentary select committee released the report in Parliament, the PAT Chief Executive Officer visited the state house, and held talks with the President. The communique²⁰ released to the effect reaffirmed Government commitment to continued cooperation with PAT. So far there are no punitive measures taken against PAT.

Oil and gas regulatory systems and structures in the country are characterised by opacity. Recently, the Government has secured a Chinese loan, amounting to US\$ 778 million²¹ for the construction of a gas pipeline from Mtwara through Somanga-fungu, Dar es Salaam to Tanga. The implication of this decision is the increase of environmental, social and financial costs incurred to construct and maintain two instead of one natural gas pipeline running in the same area. The relatively small Songas exclusive pipeline (2004) will run parallel to the chinese pipeline, each of them pumpig natural gas from the same source to the same destination. Lack of transparency is always considered costly; the price in this case is finally paid by weak civic competent Tanzanians. Moreover, it is worthnoting that the Ministry of Minerals and Energy, hosting the oil and gas docket, has for the last 7 years been on the grand corruption spotlight²².

¹⁹ A Kiswahili version of Mineral and Energy Select Parliamentary Committee report on PAT the allgations of PAT fiscal misdeeds is appended as Appendix 4 to this report.

²⁰ The communique was widely reported in the mainstream media in the country

²¹ One online information (<http://www.energychinaforum.com/news/64378.shtml>) reported the CONSTRUCTION of the 532-kilometre natural gas pipeline from Mnazi Bay in Mtwara to Dar es Salaam expected to start in the second half of 2012 after the signing of 1.2 billion US dollars credit agreement (about Tzs.1.92tri/) between Tanzania and Exim Bank of China, which is financing the project

²² The corrupt-procured Power Purchase Agreement nearly brought down the Government (2008). The Prime Minister Edward Ngoyayi Lowasa was forced to resign for crisscrossing the scam.

CHAPTER SIX

LINKAGE OF OIL AND GAS TO OTHER SECTORS OF THE ECONOMY

(i). Key economic linkages conceptual aspects

Figure 6/1: Sahara landing craft at Nyuni Island



Source/Ndovu Resources

The studies carried out to evaluate mining industry correlation coefficient of economic impact to other industries could help drawing inference on the extent to which oil and gas industries are linked with other sectors of the economy. The higher the impact correlation coefficient, the more meaningful the linkages are between oil and/or gas industries on one hand, and other sectors of the economy on the other hand. However, the experience is such that many developing countries with large mining sectors have had great difficulty to convert mineral wealth to economic development despite high investment rates (Brigitte Bocoum 2000). In most African countries, mineral exports do not bring about the expected political, economic, social, technological, legal and environmental outcomes.

Similar to minerals, oil and/or gas economies are characterized by overwhelming dominance of fiscal linkage over production and consumption. Unlike non-extractive industries depending economies, oil and/or gas economies are prone to shocks, apparently due to various challenges. To that end, achieving to diversify the economy depends largely on the prevailing fiscal policy capability to generate and redistribute revenue that indeed supports other sectors of the economy; The oil and gas local content policy strategy must be in place and effectively functioning. Backward and forward linkages are found to work themselves out through the market more easily but this is conditional to the vibrant manufacturing and constructive industries well supported by commercial and direct service industries. A country depending more on imports for her primary and secondary (consumer and department two) goods, and even skilled labour, is unlikely to set strong linkages in place where oil and/or gas industries link-up with other sectors of the economy. The matter is mainly attributed to structural barriers in which the structures of local production entities are more of parallels linked to foreign counterparts than the internally intertwined coordinated structures. Weak linkage of oil and gas industries to agriculture has resulted into lost earnings or dormant agricultural investment/production.

(ii). Tanzania local content considerations

Local policy to improve local content and, therefore, strengthen linkages of oil and gas industries with other sectors of the economy have sometimes, been misconstrued as threatening political risk by multinational corporations, operating the whole-foreign owned and dominated oil and gas industries. Borrowing from mining industry, countries with mineral deposits are clustered according to political stability to characterise them as indicated in the table below.

Table 6/1: Political risk indicators of viable mining investment ventures into Africa.

	Medium risk (33%)	Acceptable trend (45%)	High risk (22%)
Traditional E&D countries 85%	Ghana, Mali, Burkina Faso, South Africa, Côte d'Ivoire, Botswana 33%	Tanzania, Zambia, Guinea, Namibia 33%	Sierra Leone, Zimbabwe, DRC, Angola 19%
New E&D countries 15%		Madagascar, Mozambique, Swaziland, Mauritania, Senegal, Tunisia, Kenya, Niger 12%	Uganda, Ethiopia, Lesotho, Eritrea, Sudan 3%

Source: United Nations Economic Commission for Africa (1999).

Listed according to the perceived political risks; Tanzania, Zambia, Guinea and Namibia are rated as having acceptable political trend with 33% score out of overall 45%

Further, to opacity apparently haunting oil and gas projects and operations, Tanzania has long suffered from weak civic competence²³. The latter, a prerequisite for citizenry to demand accountability, would inform the Government on the need for oil and/or gas local content policy options, in effect determine linkage with other sectors of the economy. Moreover, the designated oversight institutions charged with holding Government officials accountable are generally indifferent, frozen or compromised. Corruption induced professional incompetence (cause-effect circle) has greatly changed the political attitude (political anthropology) of Tanzanians - from assertive and confident to submissive society persuading entitlements from the Government.

Above all, Tanzania imports more consumer and industrial goods than she exports, thus creating more jobs and boost economic linkages in the countries of origin of the imported goods and services. Oil and/or gas multinational corporations have tended to import expertise, equipment, tools, banking services and even significant labour; similarly denying Tanzania the opportunity to increase local content in the oil and/or gas industries. The first Tanzania EITI report indicates conspicuous absence of citizens ownership in the extractive industries projects. But again, due to lack of extractive industries national

²³ The State of Civil Society 2011 report (CIVICUS, 2012: 267-270) assesses Tanzania civil society as relatively emerging and characterised as one with the potential to play a more significant role in national policy processes. Issues of legitimacy, accountability and what civil society stands for, coarse relationships with Government amid persistent lack of enabling legal and political environment are stated as haunting challenges persistently confronting operations of Civil Society Organisations in the country. The social forces analysis status indicates multilateral and bilateral donors as the most powerful actors in setting and influencing the public policy agenda. Second, but much less influential are multinational and transnational corporations, followed by local business tycoons and the similarly wealthy politicians who command the ruling party, Chama Cha Mapinduzi (CCM), followed then by the government's coercive machinery, the media and, least influential is civil society.

strategy and development vision, there is no policy or law specific to champion oil and/or gas industries linkage with other sectors of the economy. Intuitively, the agricultural sector, industrial and households users of gas (derivative economic activities) have apparent economic linkage potential with oil and/or gas industries. To that end, oil and/or gas industries linkage with other sectors of the economy is practically expected to evolve around;

- i. Employment - this includes low and middle cadre oil and/or gas industrial employees.
- ii. Foodstuff (consumer goods) production and supplies in the oil and/or gas industries.
- iii. Manufacturing and construction industries (pipeline, cement, machine tools, fertilizers).
- iv. Liquefied Natural Gas (LNG) production and distribution (households, and factories).
- v. Gas for power generation project involving SONGAS and Tanzania Electrical Supply Company (TANESCO).

The oil and/or gas industries are expected to generate desired social and economic effects through linkages or local content synergies. The longest gas pipeline in Tanzania (approximately 580km) is currently under construction by the Government through the TPDC [with Chinese technical and financial support; see Chapter 5 (ix) above] and will transport gas to meet domestic power generation and industrial market needs. LNG plants are considered to be future projects although following significant offshore gas discoveries in Tanzania, future infrastructure projects will have to include LNG plants (TPDC, 2011).

Production of LGN for export and domestic (household and industrial) is considered belated because of existing local and East Africa market potential. The Market Feasibility Study Report (April, 2011) for a Natural Gas Pipeline from Dar es Salaam to Tanga (Tanzania) and Mombasa (Kenya) carried out by COWI Consult, commissioned by East Africa Community (EAC),²⁴ recommended the project as economically viable. The realisation of this is largely depending on the Government proactiveness to develop relevant policy to the effect. The Government is, therefore, advised to timely formulate and put in place the long term macroeconomic policy and strategy to the effect. The strategy to promote public and private saving destined to investment in LNG production is considered appropriate. The previously much-talked about but recently launched TPDC 4.5bn/- natural gas pipeline project, which initially plans to connect some manufacturing industries and 57 residential houses, in the Dar es Salaam posh areas of Mwenge, Mikocheni and Oysterbay, with compressed natural gas (CNG), should by all indicators, be considered maiden.

Although oil is not confirmed, the quantity of natural gas discovered so far is enough to inform the national discourse, which will influence the hydrocarbons economic sectors-linkage policy development. The Government and citizens should borrow lessons (failures) learned from rushed exploitation of mineral resources in which the country lost meaningful economic diversification propelled by mining investments. Time may not wait for Tanzania's, the Government's in particular, snail-pace. Orca Exploration Group, for example, has established a division, East Coast Transmission and Marketing, to focus on the development of a 600 k.m. pipeline which would carry natural gas from the Songo Songo Island and Mnazi Bay gas fields in southern Tanzania. The proposed pipeline would transport gas from the Songo Songo Island gas fields to Dar es Salaam via looping an existing 207 k.m. pipeline. From Dar

²⁴ The study was based on the The East African Power Master Plan Study and Pre-feasibility Study of Gas Pipeline Development, Rakgas Tanzania Limited, 25 November 2009 as well as power point presentation of potential gas demand in Tanzania, amongst others. The report is available online;
http://www.eac.int/energy/index.php?option=com_docman&task=cat_view&gid=69&Itemid=70

esSalaam the pipeline would be extended along the coast – north to Mombasa, Kenya and south to Mtwara, near Tanzania's border with Mozambique and the Mnazi Bay gas discovery²⁵.

Developing and put in place effective natural gas exploration and development policy, legal and regulatory framework should be viewed as prerequisite for the decision to exploit hydrocarbons. The strategy to link the gas industry with other sectors of the economy will indeed, require the Government to deliberate on reforming the education (training content) curriculum (policy) that has far reaching ramification on the skills and expertise required in or the derivative industries.

(iii). Corporate Social Responsibility (CSR)

Oil and/or gas Foreign Direct Investments (FDIs) have, in the course of building their public relations, through direct contribution to community social and economic needs, initiated various forms of contributions to society known as corporate social responsibility. CSR extends direct benefits to community and national groups across the country. CSRs are largely regarded as direct support and compensation to social, economic and environmental losses suffered by communities living in the areas where resource are extracted from, offered by especially big foreign companies. The term "corporate social responsibility" came in to common use in the late 1960s and early 1970s, when many multinational corporations were formed.

A number of arguments are, however, pointed out for or against the CSR programmes, which in Tanzania are not regulated; no policy or legislation is in place yet. CSR has tended to encourage positive impact on environment, consumers/customers, employees, communities, stakeholders and the general public. CSR-focused businesses would proactively promote the public interest through encouraging community growth and development, and voluntarily eliminate practices that harm the public sphere. It is the deliberate inclusion of public interest into corporate decision-making processes. This study has not brought out the evidence showing Tanzania oil and/or gas companies active involvement in CSRs direct involvement.

(iv). Community Development

Agriculture is a significant economic activity in Tanzania; the sector offers employment opportunities for up-to about 25% of the labour force in Zanzibar and about 76.5% of labour force in Tanzania mainland. Oil and/or gas exploration and exploitation is anticipated in the offshore and onshore of Tanzania coast as well as Zanzibar. However, majority rural communities are very poor, depending mainly on coastal and marine resources – the sea, inter-tidal marine systems, and forests – for survival and income. Their economy is mainly subsistence comprising of smallholder farming, subsistence forestry, artisanal fishing, lime and salt production, seaweed farming, livestock husbandry and handcrafts (State of the Coast Report, 2003). Exploration, exploitation and eventually production of hydrocarbon in these areas might lead to negative consequences to the community livelihoods (Maro, 2008).

For communities to expect social and economic development from oil and/or gas industries is entirely depending on having effective pro-community development policies in place. The quality of Government and companies' development strategy, together with that of local government, will apparently determine the extent to which oil and/or gas positive outcomes cover the entire community. Similarly, the Rural Energy Act 2005, part II section 4 (a & b) emphasizes that modern energy supply to rural areas promotes growth in economic production and productivity as well as social welfare. It further reiterates

²⁵ Text originates from Orca website;
http://pipelinesinternational.com/news/pipeline_development_a_key_focus_in_tanzania/043728/#

that sustainable development is only achievable when modern energy services in rural areas are promoted, facilitated and supported through private and community initiative as well as involvement. It is therefore, expected that oil and/or gas industries have the potential for rural development. Once aware about how to go about related intricacies, communities would link up to oil and gas by way of direct compensation, royalties, equity participation in joint ventures, and local content derived skills development and employment opportunities. However, in Tanzania, the foregoing proposed strategies are currently still the wishful list, there seems to be nothing material to showcase at the moment.

(v). Oil and/or gas fiscal incentives-derived linkages

Tanzania oil and gas industries are estimated to constitute 20% of extractive industries Foreign Direct Investments (FDIs). The latter are entitled hefty fiscal incentives, including tax holidays, timing differences, general tax reductions, non-income tax-based incentives, investment allowances and tax credits and tax (corporate) exemptions. The economic logic to grant fiscal incentives Government policy of promoting economic growth through employment by FDIs. According to the 2007 Economic Survey, the Tanzania Investment Centre (TIC) registered FDI projects worth more than USD 11,908.49 millions during the period 2005 to 2007 in all sectors. These projects provided job opportunities to 234,537 nationals, which is equivalent to 0.67% of the entire population²⁶.

The fiscal incentives, allowed to benefit oil and gas industries can be suitably likened to a blanket policy the total effect of which being measured through a cost-benefit analysis arithmetic operation. Whereas some incentives such as investment allowances and tax credits allow FDIs to enjoy tax free for import of fuel and/or power generation plants to facilitate FDIs setting independent power supplies, it eliminates the possibility of the national power company supply electricity to oil and gas FDIs. This has a resultant negative economic effect of foregone revenue resulting from FDIs delink from national power grid input.

(vi). Environmental Management

The management of environmental in Tanzania is the prerogative of the National Environmental Management Council (NEMC) as guided by the National Environmental Policy (NEP) 1997 and the Environmental Management Act (EMA) of 2004.

The NEP (1997) defines the environmental framework for various sectors, including energy in which oil and gas industries are subsumed. The key policy objectives of NEP include, among others: sustainability, security, and equitable use of resources to meet the basic needs of present and future generations, without risking beneficiaries' wellbeing. The policy is, therefore, intended to prevent degradation of land, water, vegetation and air the key elements constituting the lifeline. NEP is also charged with nature conservation oversight to conserve and promote Tanzania ecosystem.

The Environment is both a natural and cultural heritage. It is appreciated that indigenous knowledge and culture have helped in the protection of the environment in the past. The present and the future generations, therefore, can benefit from this knowledge.

NEP 1997

²⁶ http://www.taknet.or.tz/topics/FDI_LIVELIHOOD.PDF

EMA (2004) provides the legal and institutional framework for the sustainable management of the environment; impact and risk assessments, the prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement thus guiding the National Environment Policy implementation.

Moreover, NEP emphasizes the importance of public awareness and understanding of essential linkages between environment and development, thus promoting individual and community participation and accountability to environmental management. Six policy challenges are noted, to which urgent attention is required. Mitigation measures are required to address skyrocketing:

- i. Loss of wildlife habitats and biodiversity;
- ii. Deforestation;
- iii. Land degradation;
- iv. Deterioration of aquatic systems;
- v. Lack of accessible, good quality water; and
- vi. Environmental pollution.

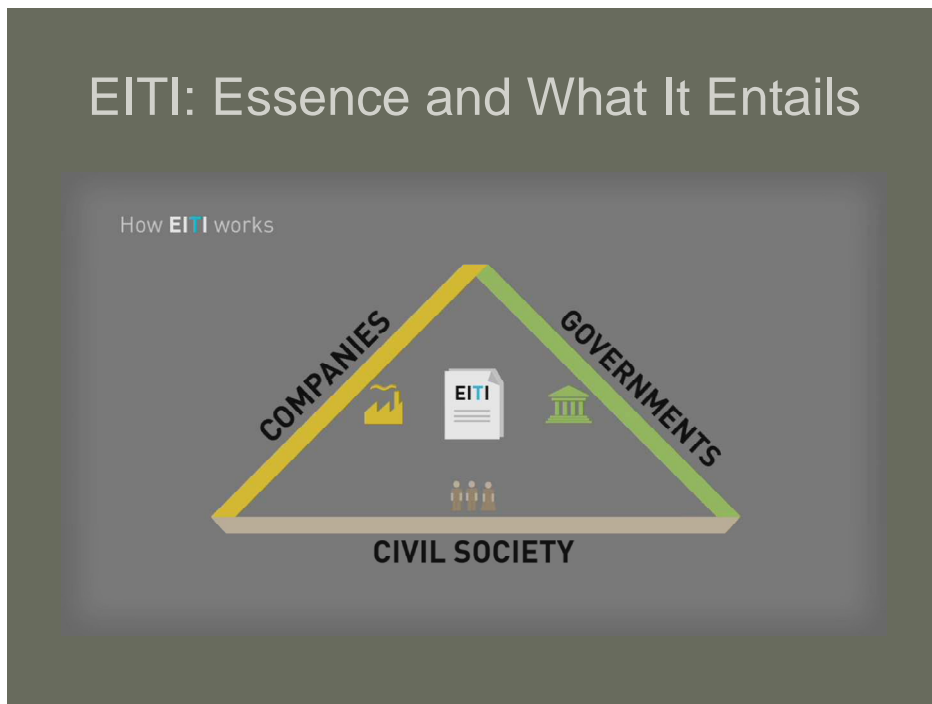
As a strategy to ensure oil and/or gas companies comply to EMA and NEP, NEMC issues a certificate of compliance subject to approved (S)EIAs reports. Moreover, the Government agency conducts regular monitoring to ensure the companies remain compliant to EMA, NEP and the regulations. Indeed, oil and gas companies have the legal obligation to maintain environment during/throughout project life time, and after using environment when oil and or gas extraction project is over. It is therefore important to recognise the environmental maintenance onus as key entry where stakeholders, inclusive of various economic sectors, maintain effective and strong linkage with oil and/or gas industries in the country.

(vii). Compliance with EITI etiquettes

The Extractive Industries Transparency Initiative (EITI) was first announced at the World Summit for Sustainable Development in Johannesburg in 2002 (the 'Earth Summit 2002'), and officially launched in London in 2003. It was founded on the recognition that while oil, gas and minerals can help to elevate living standards across the world, where governance is weak, this may often lead to corruption and conflict.

Three and half (3.5) billion people living in abject poverty belong to the resource-rich countries. Those citizens have never benefited from overly available extractive industries and revenue thereof, paid to governments. Indeed very often, poor governance of the oil, gas and mineral resources leaves citizens suffering from conflict and corruption. The Extractive Industries Transparency Initiative was formed to help transform the situation; make citizens enjoy the resources' benefits. That has created the opportunity for oil and gas-rich countries opt getting out of poverty blues. The transparently and accountably governed extractive resources revenues would foster social and economic growth. With opacity governance of the resources, the oil and gas resource-rich countries are prone to resource curse syndrome; abject poverty, corruption and armed conflict. EITI aims at defeating the resource curse by improving transparency and accountability. The three figures below attempt explain the essence, circle and implementation process of EITI.

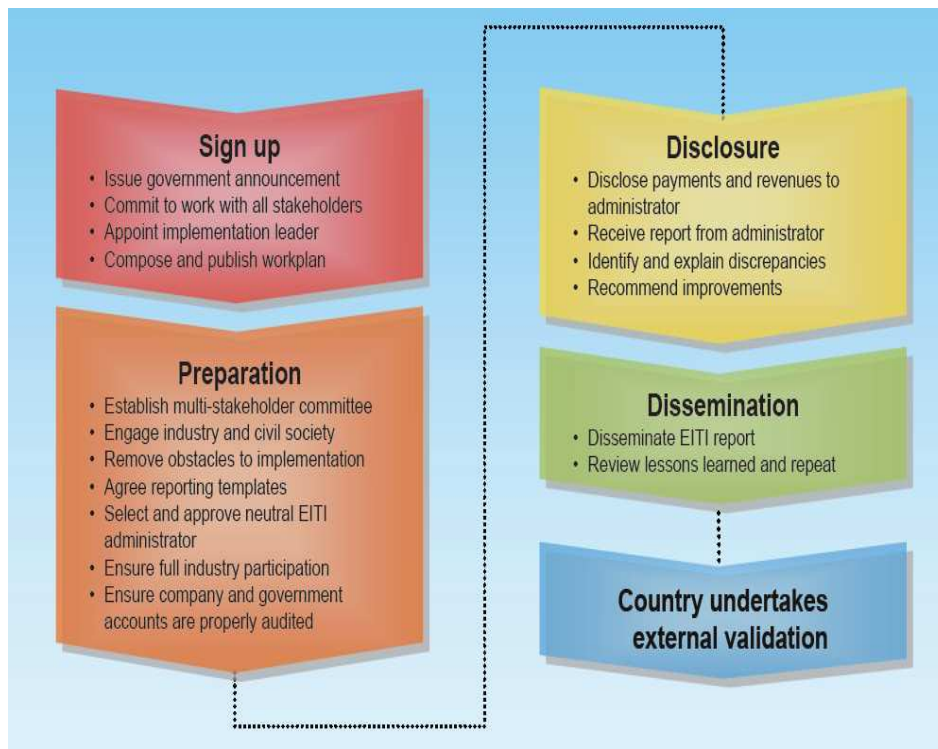
Figure 6/2 (a): EITI essence



Government, companies and the civil society have the crucial role to play to implement EITI. The Government is obliged to disclose revenue receipts from oil, gas and mining companies. The companies are obliged to publish payments made to the Government by companies as the whole process credited with active participation and scrutiny of civil society. The initiative works through the joint and mutual cooperation of the Government, companies and civil society groups. Pertinent information about revenues paid to the Government from extractive industries is authenticated, documented and disseminated to the wider public with which the latter uses to demand accountability.

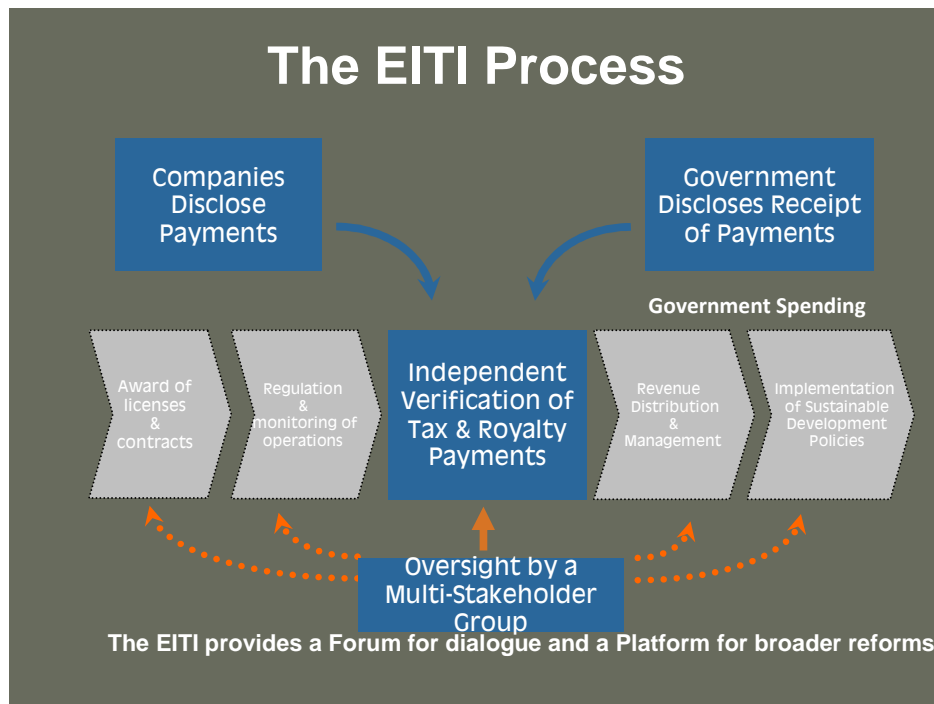
The process requires that Government formally apply for membership. Once accepted as an EITI candidate, the country can then work towards becoming a fully EITI compliant state. The process involves the appointment of a “credible, independent” administrator, and the disclosure and dissemination of information on payments from oil, gas and mining companies to the government to the required standard (and subject to the checks built into the process to ensure that the information provided is comprehensive, comprehensible and accurate). Candidate countries are given a timescale (usually two years) in which to reach full compliance.

Figure 6/2 (b): EITI circle



Since 2003 EITI has been a ground-breaking initiative, and today, revenue transparency is generally accepted as a critical part of the governance package for nations to reap benefits from their natural resources. PWYP members spurred the establishment of the EITI, helped to write its rules – and PWYP members continue to serve on both the EITI’s International Board as well as in national EITI multi-stakeholder groups in implementing countries. There are (December 2011) currently 21 African countries implementing the EITI, 6 of which have been declared compliant (Liberia, Ghana, Mali, Niger, Nigeria and Central Africa Republic); 19 African countries have started reporting revenues, many for the first time; and 39 EITI reports published by African countries are now available, more than half of which present disaggregated data. Tanzania is an EITI implementing (candidate) country since February 2009, with first reconciliation report published in February, 2011. The second report was expected by May/June 2012 to determine the country's EITI compliance status.

Figure 6/2 (c): EITI process



The Oil and Gas Association of Tanzania (OGAT) request to join Tanzania EITI working group came late, and, therefore, did not succeed. Tanzania Petroleum Development Corporation represented the oil and gas interests in the process. According to existing PSAs, the profit and protected gas revenue from oil and gas companies is paid to TPDC, which again channels the payment to the Government through MEM. Tanzania's first EITI reconciliation report covers revenues from oil and gas companies too. However, TPDC is reported in the report as having issues with reporting (weak transparency). TPDC shares a discrepancy of US\$36 million reported in the Tanzania Extractive Industries Transparency Initiative first reconciliation report (TEITI, 2011) in which the Government failed to account for the revenue received in both taxes and royalties from mining and gas companies. TPDC's share in the reported discrepancy is Tzs. 4 billion.

The fact that there is no freedom of information legislation yet in Tanzania suffices to infer the way it is difficult to bring oil and gas companies comply to EITI. However, Tanzania EITI Multi-Stakeholder Group (MSG) has since 2010, resolved to spearhead Tanzania EITI legislation process. A law drafting consultant was assigned and the consultancy is scheduled to end by December 2012. Once the Tanzania EITI law is in place to bring oil and gas companies/operations under the transparency, the initiative will be guaranteed. However, the current oil and gas entities voluntary compliance to EITI is worth noting.

CONCLUSION & RECOMMENDATIONS

Conclusion

Searching for oil in Tanzania started since the last 50 years ago, and it is continuing. No commercial value quantity of oil is confirmed available in the country yet. However, a considerably huge and commercially viable quantity of natural gas is confirmed available in Tanzania. A number of MNCs are already in the country and involved in both exploration and exploitation of natural gas in the country. Extraction of natural gas started since 2004, though still clouded by opacity and discretionary regulatory environment where no specific policy or legislation is in place but PSAs and the far fetched energy law are used to regulate gas exploration and exploitation. The 1980 and 2008 pieces of legislations are used to regulate oil exploration and commercial activities but are overly inadequate, and possibly antiquated. The issues of good governance of revenue and environment related to oil and/or gas exploration and exploitation is still critical. The Government seems to have recognised the need to enforce good governance of extractive industries, oil and gas inclusive, by acceding to EITI. The initiative process is on course and promising with oil and gas companies complying voluntarily. The law to enact EITI in Tanzania is also forthcoming.

Oil and gas are strategic resources to Tanzania national development. However, the resources development trend in the country does not show the Government to have recognised the strategic nature of the duo resources. The national policy framework hardware and software are scattered, diverging or sometimes converging on trivial foreign-interest rationalized aspects, not connected to or coordinated with the development of oil and gas for national development. The extractive industries abundance availability informed national development vision for Tanzania is long overdue. The oil and gas exploration and development should be linked to the national development vision, to which also, the rest of development strategies, programmes and projects are connected. The Government is properly advised not to drag feet, should act swiftly to put the humanware, organoware, hardware and software in place facilitating private and public investment in Liquefied Natural Gas production in the country.

Recommendations

1. Given the confirmed commercially viable quantity of natural gas, the Government should recognise and treat Tanzania as a resource rich country. To that end, it is high time the Government takes note of the country's current requirement and works to coordinate a national consensus-building process intended to figure out the national development vision, well developed and informed by Tanzania country experiences and environment in which the oil, gas and other extractive industries are recognised as engine to realise that vision of national development.
2. The Government should strive to ensure that every Tanzanian is informed and well aware about issues related to oil and gas exploration, development and exploitation. The information package about oil and gas should be available, accessible and comprehensible to all Tanzanians as means to help people link their private and public development and investment plans to ongoing oil and gas developments in effect fitting into the national development vision.
3. Much as oil and gas are strategic resources, the policy, laws, regulations and institutions designed to regulate oil and gas industries in the country must be strategically crafted and fitted. To that end, the Government must act quickly to put adequate and appropriate oil and gas policy, laws, regulations and institutions; review and update PSAs to match the latest generation; introduce built-in strategies for reinforcing compliance to transparency and accountability standards in the course of

regulating the resources; and move to introduce oil and gas knowledge content in and at all levels of Tanzania education system.

4. The Parliament should act quickly to amend various laws related to the current fiscal administration in which the public finance agency role to collect licence and permit fees, annual rental fees, profit gas and protected gas payments, paid by oil and gas companies, is vested in the MEM or TPDC. To that end, MEM and TPDC should rescind direct involvement, thus transferring the fiscal management of oil and/or gas revenue to the Tanzania Revenue Authority, the institution with plausible mandate and audacity to act as such.
5. The Government should see the imperative to initiate a collaborative process with stakeholders; oil and gas companies and civil society organisations to develop or formulate the national CSR policy, law and regulations to guide the manner, type and levels the CSR programmes should be designed and executed.
6. The Government and civil society stakeholders should work together to build the institutional and expertise (human) capacity required to monitor and evaluate compliance to environmental and governance standards by oil and gas companies. To that end, the combined environmental and revenue governance standards should include but not limited to PSAs disclosures, disaster preparedness, licensing transparency, transfer pricing, tax planning, community licensing, and transparency along the entire oil and gas projects value chain.
7. The Government should see the urgency to precisely pull resources, formulate, put in place and facilitate appropriate macroeconomic policy environment and relevant strategy promoting public and private investment in LNG production in Tanzania, for local and export market.
8. The Government should act industriously to diversify the economy geared to set in and expand local material content inclusive of expertise and technical labour, secondary goods, commercial and direct services, foodstuffs, machine tools and R&D to feed into the oil and gas industries in Tanzania. To that end, the institutional reset and fund streamlining should be considered as matter of necessity.

APPENDICES

Appendix I

Maurel & Prom

Farm in to Artumas assets in Tanzania and Mozambique

Mnazi Bay, Tanzania:

Maurel & Prom will farm in to a 38.22% participating interest in the Mnazi Bay permit, with a 47.775% participating interest for Exploration Operations (the difference being due to Tanzanian Petroleum Development Corporation's (TPDC) 20% participating interest in all but Exploration Operations).

Maurel & Prom will assume operatorship of all Petroleum Operations under the PSA (Production Sharing Agreement).

Onshore Rovuma Block, Mozambique:

Maurel & Prom will farm in to a 24% participating interest in the Block. Maurel & Prom and Cove will carry Artumas for the first exploration well to be drilled on this block by the end of 2009.

The Rovuma onshore block is operated by Anadarko, among the largest independent oil and natural gas exploration and production companies in the world.

Offshore Area 1 Rovuma Block, Mozambique:

Maurel & Prom decided not to enter into this offshore permit, of which 8.5% have been taken by Cove Energy.

Maurel & Prom wishes to accumulate reserves in East Africa and thus become a key player in a gas project in the region.

Maurel & Prom share of the total cash consideration in respect of both Tanzania and Mozambique to be paid to Artumas amounts to US\$10.2m. In addition Maurel & Prom and Cove Energy will carry Artumas' share of costs for a 200 sq. km. 3D seismic programme and an exploration well in Tanzania, and Artumas also may elect that Maurel & Prom and Cove will fund Artumas' share of either of two appraisal wells, in which case a further 5% per well will be assigned to Maurel & Prom and Cove.

The transaction is subject to the approval of the relevant government entities, joint venture partners, the approval of Artumas' bondholders and of Cove's shareholders.

Petrodel – Tanga

	TANGA	LATHAM / KIMBIJI
Operator	Petrodel	Petrodel
Other Partners		Heritage Oil
PSA Issuance	20 Sept. 2006	20 Sept. 2006
Area	7,063 km ²	9,354 km ²
Exploration Term	4 Years	4 Years
Background	Petrodel has identified a number of prospects on legacy seismic data that it reprocessed in 2006-2007. In 2007-2008 the company progressed its EIA process in anticipation of its planned 2D seismic.	The offshore Latham acreage is characterised by an extensive tilted fault block terrain, about 110km long, stretching from the north of Mafia Island to south of Zanzibar. This terrain shows compelling evidence of Direct Hydrocarbon Indicators and the partners are currently interpreting 2D seismic data acquired in 2008. Land acreage in Kimbiji, north of the Maurel et Prom Mkuranga discovery, shows structural promise and is the target of the current 2D seismic campaign.
2008-2009 work programme	- Completion of 2D - Potentially, 3D or 1 exploration well.	- Completion of 2D - 3D survey offshore Latham - 1 exploration well onshore Kimbiji

Response from TPDC (Mr. Sebastian Shana Principal Petroleum Geologist)

Dear Mr Rubara,

Below is the response from TPDC onto the questions that you have raised.

1. What is the unraveling trend and status of oil and/or gas in Tanzania?

Gas has been discovered in several areas in Tanzania as follows: Songo Songo, Kiliwani (East Songo Songo), Mnazi Bay (Mtwara), Mkuranga, deepsea blocks 1 and 4. The Songo Songo gas field has been producing commercially since 2004, providing gas for power and industries in Dar es Salaam. The Mnazi Bay gas field has been producing since early 2007, also providing power for the southern areas of Mtwara, Lindi, Masasi, Newala and Nachingwea. The Kiliwani, Mkuranga and deepsea gas discoveries are being appraised to establish the commerciality of the fields. Further exploration drilling is currently going on in Nyuni (east Songo Songo area), deepsea block-5 (to the east of Mafia island) and in the near future more exploration drilling will be undertaken in deepsea blocks 1,2, 3, and 4. It is very likely that more gas will be discovered, the drillbit will tell! Recently, TPDC has also opened up the exploration for hydrocarbons in the rift valleys of lakes Tanganyika, Rukwa, etc.

2. Who are the actors in the initial stages of Oil and/or gas Exploration?

The map attached shows the exploration players and the areas of operations.

- o would these be the same people to carry out exploitation of Oil and/or gas?

The agreements provide for exploration, development and production of hydrocarbon once a discovery is made. Due to the high capital intensive nature of the operations, new players may emerge, but some of the old ones may also stay around. It is common practice in the industry for companies to pair up so as to share the risks and the costs and eventually the revenue.

- o what is the government's stake in all the operations in terms of shares?

The agreements for oil exploration and development are called production sharing agreement. In this form of agreement, the resource belongs to the state, and the investor is given exploration right to invest in the exploration, development and production of hydrocarbon, using mostly his/her own money, free of direct government injection. If a discovery is developed to production and sale, then the investor is allocated a portion of the revenue (Cost Oil/Gas) to re-coupe his/her costs, and the remaining portion of revenues (Profit Oil/Gas) is shared between the investor and the government. The agreements also provide for the government, through TPDC to participate in the development of the resource once commercial quantities are confirmed. Such participation, when exercised, will increase state share of revenues. However, the Government (through TPDC) does not participate in the exploration part of the project due to high geological (and financial) risks associated with exploration, prior to discovery.

The Government's stake is not measured in shares, but in what the Government will get over the life of the project, on a net cash flow basis. An acceptable figure for the state take, under those conditions, is above 50% of the NCF.

3. What are some of the Social, Economic and environmental impacts foreseen resulting from oil and/or gas operations in Tanzania?

There will be greater revenues for the Government in the form of taxes and Government share of revenues; this will provide a new source of (Government) revenues thereby enable the Government to meet its budget projections, vital in the whole aspect of economic development. There will be job creation for locals at all levels as the oil/gas industry develops.

4. How prepared are you as a national agency to handle some of Community/Human Rights issues which would erupt in the course of operation in Tanzania?

Through the Government that governs, there will be put in place deliberate initiatives to benefit the local communities in the advancement of their economies and welfare. The Mnazi Bay project, for example, may not be money making for the Government, but the locals are benefitting with reliable electricity for five years now. The Songo Songo project has provided electricity to nearly ten villages along the pipeline way-leave, the result of which the villages now are able to enjoy pumped water, electricity and undertake minimal industrial activities! Why should they “erupt”?

5. This kind of an activity comes with a lot of Environmental concerns, what are the strategies to handle possible environmental impacts which would come from this activity?

The safeguarding of the environment is of paramount importance in all such projects. As an example, the Songo Songo project has been producing for ten years now, and the Mnazi Bay project has been producing for nearly five years. It is the industry’s determination to maintain the good record so far made in issues related to the environment.

6. Which areas are earmarked for Oil and/or gas exploration in Tanzania (kindly highlight the main activity areas at the moment and the status of activities?)

Please refer to 1, above

7. It may be too early to ask this question, but are could you share any available information on quantity and quality of Oil and/or gas in Tanzania as compared to those found in other countries like Nigeria?

Yes it is too early. No, Nigeria is not my example! Tanzania has not made any oil discovery so far. Tanzania’s gas reserves so far are meagre compared to most other countries in Africa. The challenge here is too use the little we have for the betterment of the economy and avoid the pitfalls that have befallen other countries. Other countries have too much gas, they have been flaring gas which they could otherwise use for local initiatives.

8. The extractive sector in Tanzania have seen a litany of challenges if not problems due to lack of proper linkages with other economic sectors, are there any possible linkages of this activity to other economic sectors foreseen or established?

The missing linkages are not restricted to oil and/or gas only; they are due to the inherent nature of our economies, whereby, we consume what we do not produce. The challenge is to ensure that as the industry develops it will be meeting some of its requirements locally, in the

Tanzania Oil & Gas: Status and Trend Study Report

form of value addition. The other challenge then will be revenue management, which has been the historical problems among many countries that have been blessed with oil and/or gas.

9. Tanzania is a subscriber to the Extractive Industries Transparency Initiative - EITI. What are some of the deliberate measures put in place in line with the EITI stipulations?

10. Does Tanzania as a country has the required capacity to oversee Oil and/or gas activities?

The gas production we have so far is small but significant, in the sense that it gives the Government the opportunity to plan ahead for the eventuality of the large scale (gas) discovery and development. What TPDC is developed will form the core of future endeavours in capacity building as the country goes into large scale production.

Appendix IV

Recommendations of Parliamentary Mineral and Energy Sub-Committee

Kamati inatoa maoni, ushauri na mapendekezo yafuatayo ambayo inaomba Bungeiyapokee, iyaridhiae na kuyaazimia:-

1. Serikali hususan Wizara ya Nishati na Madini itambue kuwa pamoja na TPDC kuwa msimamizi wa Sekta ya gesi kwa niaba ya Serikali, lakini Wizara ya Nishati na Madini ndiye mdau mkuu katika Mikataba hii yenye utata kwa niaba ya Taifa, na hivyo anapaswa kusimama sambamba na TPDC kutetea maslahi ya Taifa kwani Wizara ilikuwa haifanyi hivyo.
2. Kamati imejiridhisha bila shaka kwamba kwa kipindi cha 2004 hadi 2009 Kampuni ya *Pan African Energy Tanzania Ltd (PAT)* imejirudishia isivyo halali gharama zinazofikia jumla ya dola za kimarekani milioni 28.1 sawa na fedhaza kitanzania bilioni 46.3. Kutokana na kujirudishia fedha hizo isivyo halali kumefanya Serikali kukosa gawio lake linalofikia dola za kimarekani milioni 20.1. Aidha, mpaka wakati Kamati inaandaa ripoti hii, Kampuni ya *Pan African Energy Tanzania Ltd (PAT)* imeshindwa kuwasilisha uthibitisho wa uhalali wa kujirudishia gharama nyingine zinazofikia jumla ya dola za kimarekani milioni 36. Hali hii inaonyesha mashaka makubwa katika uendeshaji wa sekta hii muhimu ya gesi.
3. Kwa kuzingatia kuwa *Pan African Energy Tanzania Ltd (PAT)* walifanya udanganyifu wa makusudi kwa kipindi cha 2004 hadi 2009 na kusababisha Serikali kukosa gawio lake inalostahili, Kamati inashauri mapunjo hayo ya Serikali yanayofikia dola za kimarekani milioni 20.1 yarejeshwe maramoja, na kwa kuwa mapunjo hayo ni ya muda mrefu, marejesho yake yaambatanishwe na riba kwa viwango vya benki (*Time Value for Money*). Aidha, upelelezi ufanyike katika hesabu za PAT kwa mujibu wa Sheria ya Kanuni za adhabu vifungu vifuatavyo: (i) kifungu 350 kwa kosa la kuweka mahesabu yasiyo sahihi katika kitabu cha mahesabu; (ii) kifungu 315 kwa kosa la kughushi; (iii) kifungu 316 kwa kutoa taarifa za uongo; na (iv) kifungu 317 kwa kutoa taarifa za mahesabu za kughushi na ushahidi ukipatikana Kampuni ya Pan African Energy Tanzania Ltd Wafanyakazi wote waliohusika katika udanganyifu huu washtakiwe kwa mujibu wa Sheria.
4. Kutokana na Pan African Energy Tanzania (PAT) kukosa sifa za uaminifu, Kamati inashauri Mikataba wa *Pan African Energy Tanzania (PAT)* usitishwe. Aidha, utekelezaji wa kuvunja mikataba huu uende sambamba na kuhakikisha kuwa taratibu za kisheria na za kimkataba zinazingatiwa, uwepo wa usalama wa visima na mitambo na uwepo wa uhakika wa huduma ya upatikanaji wa gesi nchini.
5. Kamati inashauri utaratibu wa Pan African Energy Tanzania Ltd (PAT) kujirejeshea gharama za usambazaji chini ya muundo wa PSA usitishwe mara moja. Aidha, kutoka na mahitaji makubwa ya gesi asili katika matumizi ya viwandani na majumbani, jitihada za uhamishaji wa matumizi hayo ziongezeke na gharama za usambazaji zirejeshwe kwa kutumia *tarrif* za bei.
6. Serikali kama msimamizi wa mikataba inayohaki ya kukagua gharama za mwekezaji. Mikataba yote ya PSA ina vipengele vinavyoipa uwezo huo Serikali au msimamizi wa Mikataba kwa kutambua uwiano wa mgao wa Serikali na usahihi au uhalali wa gharama za mwekezaji. Katika PSA ya Songosongo haki hiyo ya kukagua gharama za Pan African Energy Tanzania Ltd (PAT) imepewa TPDC kwa mujibu wa kifungu 21.2. Hata hivyo Kamati imegundua kuwa Serikali imezembua kusimamia suala hili na hivyokutoa fursa kwa mwekezaji kudanganya na kujilipa

fedha nyingi za walipa kodi wa Tanzania kinyume na taratibu za Mkataba. Kamati inapendekeza mapungufu haya yarekebishwe mara moja.

7. Kwa mujibu wa mkataba wa gesi (kiambatisho E, Aya ya 13), *'katika kipindi ambacho gesi itakuwa imekwisha (depleted), basi mapato yatokanayo na mauzo ya mabaki ya mitambo ya gesi yatatumika kulipia gharama za kurejesha/kutunza mazingira ya eneo la uchimbaji wa gesi katika hali iliyo salama'*. Kamati haipendezwi na utaratibu huo na inaishauri Serikali kupitia TPDC kutafuta utaratibu mzuri utakaokubalika kisheria ambapo Kampuni ya SONGAS itawabidi watenge fungu la pesa la kugharamia urejeshaji/utunzaji wa mazingira wa maeneo ya uchimbaji wa gesi pindigesi itakapokuwa inakaribia kwisha. Aidha, Serikali isikubaliane na vipengele kama hivi mara nyingi wawekezaji hawa huondoka kama sio kutoroka baada ya kumaliza uchimbaji wa migodi au vitalu.
8. Mkataba wa PSA, kifungu cha 10.4 na 10.5 vimetoa utaratibu wa namna ya kugawana mgao unaotokana na faida ya gesi iliyopatikana kutoka eneolenye gesi iliyothibitishwa (*proven gas*) na gesi isiyothibitishwa (*unproven gas*). Mgao huu utabadilika kwa mujibu wa ushiriki (*participation*) wa TPDC. Aidha, kwa kuwa gesi ya ziada inaweza kuzalishwa kutoka katika eneo ambalo gesi imethibitishwa au ambalo gesi haijathibitishwa na Pan African Energy Tanzania Ltd (PAT) wana haki ya kupata sehemu ya mapato yatokanayo na mauzo ya gesi ya ziada (*additional gas*). Kamati inaona kuwa siyo sahihi kuendelea na utaratibu huu kwani kwa kufanya hivyo nikumlipa Pan African Energy Tanzania Ltd (PAT) mara mbili (*doublepayment*) ya kile anachostahili kwa kuwa Pan African Energy Tanzania Ltd (PAT) inanufaika kwanza na marejesho ya utafutaji wa gesi kwenye visima ambavyo tayari vilikuwa vimeisha thibitishwa na TPDC kuwa na gesi na pili anagawana mapato na TPDC. Kamati inasisitiza utaratibu huu wa ugawanaji wa mapato katika mazingira haya unahitaji kuangaliwa upyakwa kuwa hapo awali Pan African Energy Tanzania Ltd (PAT) alipewa unafuu huu kwa kutegemea kuwa angetafuta na kuendeleza vitalu tisa vyagesi na si viwili kama ilivyo sasa kwenye eneo lile lile la uzalishaji tofauti na alivyotakiwa kufanya kwa mujibu wa PSA. Kamati inashauri mkataba kufanyiwa marejeo.
9. Kamati imegundua kuwa, kwa sasa masuala ya sekta ya gesi nchini yanasimamiwa na Sheria ya Utafutaji na Uzalishaji wa Mafuta ya Mwaka 1980 (*The Petroleum Exploration and Production Act, 1980*) na mikataba yauzalishaji na ugawanaji (PSA) ambayo inatoa mwanya kwa wawekezaji kujipatia faida kubwa kuliko anavyostahili. Kamati imebaini kwamba kutokuwepo kwa Sheria ya gesi kumefanya sekta ya gesi ikose mwongozo na usimamizi wa kutosha na hivyo wadau kutojua mwelekeo na imeathiri mahusiano ya wadau kwa jinsi yanavyopaswa kuwa. Hivyo Kamati inaishauri Serikali kukamilisha haraka mchakato wa Sheria ya gesi ili kuhakikisha rasilimali hii muhimu inatumika kwa maslahi ya Taifa.
10. Utaratibu wa umiliki wa mitambo na mali nyingine baada ya muda wa Mkataba kuisha umefafanuliwa vizuri katika kipengele cha 17 cha PSA ikiwemo mali zisizohamishika na zinazohamishika. Aidha, Kamati haikubaliani na na kifungu cha 17.3 cha PSA, *'TPDC wanahaki ya kununua chochote kilichoagizwa na PAT kutoka nje ya nchi na ambachohakijalipiwa kodi kwa bei ya kibiashara, isipokuwa kwa vifaa vilivyoainishwakwenye vipengele 17.1 (a) na 17.1 (b) vya PSA'*. Kwa kawaida, katika PSA yoyote ile, mitambo na mashine zote (ikiwa ni pamoja na mitambo na mabomba ya gesi) zilionunuliwa kwa ajili ya shughuli za kutafuta na kuendeleza gesi/mafuta chini ya PSA, zinatakiwa kuwa mali ya Serikali au Shirika la Mafuta, na kwa sababu

hii ndio maana huwa hailipiwi kodi. Uhamishaji wa haki za umiliki wa mali hufanyika aidha baada ya Kampuni ya kimataifa kurejesha gharama zake za kununulia mitambo na kuifunga au mwisho wa uzalishaji. Kwa mantiki hii, Kamati haioni sababu ya kuwepo kwa kifungu hiki cha 17.3 cha PSA.

11. Msingi mkuu wa mkataba wa uzalishaji na ugawanaji (PSA) ni kwamba mwekezaji anaingia kwanza kuzalisha na baadaye kugawana na serikali kulingana na mapato yaliyopatikana. Lakini mkataba huu mwekezaji amekuta uwekezaji umeshafanyika kwa maana ya visima tayari vimechimbwa na hivyo kukosekana uhalali wa mwekezaji kuwa mbia katika mikataba ya gesi. Pamoja na hoja za utetezi zinazoegemea mazingira ya wakati huo, Kamati inashauri kipengele hiki kiangaliwe upya.
12. Mikataba ya mradi wa gesi iliyojadiliwa na kukubaliwa na kusainiwa na Serikali pamoja na SONGAS ilikuwa kumi na nane. Mikataba hii inavipengele tata na vya makusudi vyenye maana zaidi ya moja ambavyo vingine vinatafsiriwa tofauti na wadau husika. Ipo haja kwa Serikali yetukufanya tathmini ya kina (*Due Diligence*) kabla ya kuingia mkataba nawawekezaji. Ofisi ya Mwanasheria Mkuu wa Serikali imeonyesha kutokuwa makini katika kupitia, kujadili na kusimamia mikataba kama hii inayoingia kwa niaba ya Serikali na hatimaye Serikali imekuwa ikiingia hasara kubwakitika sekta hii ya nishati na wawekezaji wamekuwa wakineemeka kwa kunyonya rasilimali ya watanzania ambao wengi wao ni maskini. Hali hii inaashiria kuwa imefika wakati kwa Serikali kuwachukulia hatua kaliwatendaji wote wanaochangia hasara kubwa kwa Serikali.
13. Kamati imejiridhisha ya kwamba kuna upungufu mkubwa wa watumishi wenye utaalamu wa kisekta kuanzia ngazi ya Wizara, Taasisi zake na hata kwenye jamii, na hakuna mfumo endelevu unaohakikisha nchi inakuwa na wataalamu wanaohitajika (*Succession plan*) katika Sekta za nishati na gesi. Serikali kama msimamizi wa kutoa vibali vya ajira nchini kupitia Ofisi yake ya Menejimenti ya Utumishi wa Umma inapaswa kuwa mstari wa mbele katika kufanya utafiti na tathimini ya ajira zinazombwa ambazo vibali vyake vinatakiwa kutoka haraka ili maslahi ya Taifa yalindwe. Mathalani wataalamu wa kijiolojia ya miamba. Kamati inaamini kuwa dola zakimarekani 64 zilizoripotiwa kwenye ukaguzi wa TPDC kusingetokea kama kibali cha kuajiri wakaguzi wa ndani wa mahesabu wa TPDC kingetolewa mapema.
14. Kamati imeridhika kuwa kuna uhusiano mbaya kati ya TPDC na Pan African Energy Tanzania Ltd (PAT) ukizingatia kuwa mahusiano yao ni ya kimkataba na kila upande unao wajibu na haki ndani ya mkataba (PSA). Mfano mzurini kuwa Pan African Energy Tanzania Ltd (PAT) amekuwa akikiuka baadhiya vipengele vya mkataba wa uzalishaji na ugawanaji (PSA). Pan African Energy Tanzania Ltd (PAT) chini ya Ibara ya XXIV (24.4) anapaswa kufuata sheria zote za Tanzania; Pan African Energy Tanzania (PAT) amevunja Ibara ya 21.1 ya PSA kwa kitendo chake cha kutotunza taarifa au nyaraka zamahesabu yake ya uhasibu kwa mujibu wa taratibu za kihesabu zilizokubaliwa Tanzania. Aidha, Pan African Energy Tanzania Ltd imekuwa haiishirikishi TPDC katika kufanya manunuzi kinyume na taratibu. Mifano hii michache inaashiria uwepo wa uhusiano mbaya unaofanywa na Pan African energy Tanzania Ltd (PAT).
15. TANESCO amelalamika kuwa Pan African energy Tanzania Ltd (PAT) amekuwa akikwepa adhabu pale inapotokea hitilafu kwenye visima vya gesi na mitambo ya kusafisha gesi na hivyo kutupiana mpira na Songas nahii inatokana na Pan African energy Tanzania Ltd (PAT) PAT kuwa

mwendeshaji tu wa visima na mitambo hiyo na siyo mmiliki. Kamati imeridhika kuwa mahusiano ya mbia huyu siyo mazuri na hivyo Serikali iangalie Mkataba wao.

16. Katika Sekta ya gesi lipo tatizo kubwa la baadhi ya visima kuharibika (SS 5, 7na 9) Hata hivyo, Kamati inashangazwa na uharaka wa Kampuni ya Pan African Energy Tanzania Ltd (PAT) kukimbilia kuchimba kisima kingine SSA badala ya kuokoa visima vya awali ambavyo tuna hakika vina gesi nyingi ,zaidi ya hapo zipo taarifa kuwa Pan African Energy Tanzania Ltd (PAT) wanalenga kuchimba kisima kipya SSA ambacho watatumia mtambo wakuchimbia (*drill rig CARROL 6*) ambao umeaminika kuwa ni wa gharama kubwa na haufai kutumika kwa mazingira ya nchi yetu. Kamati inaishauri Serikali kufanya jitihada za ziada kuhakikisha visima vilivyoharibika vinaokolewa ili viendeele kuzalisha kama ilivyo kawaida. Aidha, Serikali ihakikishe kuwa mitambo inayotumika katika kuchimba gesi na mafuta haitaingiza Taifa katika gharama kubwa na ambayo ni rafiki wa mazingira.
17. Misingi ya Hoja walizokuwa wanatoa Pan African Energy Tanzania Ltd (PAT) za kurudisha gharama walizotumia isivyo halali yafanyike kwenye gharama zilizobaki na ambazo zitadaiwa na kurudishwa miaka inayofuata ni batili nani sawa na kufanya marekebisho kwenye 'cost pool'. Hoja hii ikikubaliwa na Serikali itakiuka misingi ya PSA ya kuwa mwekezaji atumie fedha zake kwanza kabla ya kurudishiwa gharama zake. Kamati inasisitiza Pan African Energy Tanzania Ltd (PAT) izilipe fedha hizi haraka iwezekanavyo.
18. Katika hali ya kusikitisha na kuvunja moyo, Kamati imejiridhisha kuwa Wizara ya Nishati na Madini imekuwa haitoi ushirikiano wa kutosha kwa TPDC na EWURA hasa katika kusimamia masuala ya sekta ya gesi nchini. Vitendo vya ukiukwaji wa taratibu, udanganyifu na uhalifu vinavyofanywa na SONGAS na PAT kwa lengo la kuibia nchi vinaendelea kuelewa na havijakemewa na Wizara ya Nishati na Madini ipasavyo. Imedhihirika kuwa mara kwamara Wizara imekuwa ikiwasaidia wawekezaji hawa katika mipango yaoya kufanya udanganyifu mfano ni pale Wizara ilipofanya jitihada zamakusudi kuilazimisha EWURA kupitisha maombi ya bei (*tarrif*) ya Songas ambayo hapo awali EWURA waliyakataa kwa kuwa yalikuwa na upungufu uliokinzana na maslahi ya nchi, zaidi ya hilo Wizara ya Nishati na Madini iliandikia EWURA barua ikielezea kuwa EWURA wamevunja sheria, jambo lakusikitisha Wizara ilitoa nakala ya barua hiyo kwa SONGAS ambao naowaliitumia barua hiyo kama kielelezo katika shauri lao walilifungua kwenye Baraza la Ushindani huru (*Fair Competition Tribunal*) dhidi ya EWURA. Kutokana na mwenendo wa Wizara katika kusimamia Sekta ya gesi kamailivyoelezwa hapo juu, Kamati inaishauri Serikali kupitia upya mfumo wautendaji wa Wizara utakaohakikisha maslahi ya Taifa yanazingatiwa. Ni dhahiri uzoefu wa mgongano wa EWURA na Wizara unaonyesha hatari inayoikabili sekta ya gesi. Aidha, kutokana na madhaifu makubwa yakiutendaji ambayo yameelezwa hapo awali, Kamati inaishauri Serikalikuwawajibisha viongozi wakuu na watendaji waliohusika na uzembe huuna kuteua wengine wenye uwezo haraka iwezekanavyo.
19. Pamoja na jukumu la kufuatilia rasilimali za Taifa (dola milioni 64) Kamati imebaini kuwa ulikuwepo uzembe uliopo kuelewa visima namba 5, 9, kuharibika (*Corrossion*). Matatizo ya kuharibika kwa visima yangeweza kutambulika mapema na kurekebisha kama Pan African Energy Tanzania Ltd (PAT) angezingatia maelekezo ya mkataba (*Gas Agreement* kifungu cha 7.6 (e)) kitendo ambacho hakufanya. Mbali ya hasara ya kupoteza visima hivyo, uendeshaji shughuli

wa aina hii unaliweka Taifa katika hatariya kukosa nishati hii muhimu katika kipindi ambacho gesi asili inategemewa katika kuzaiisha umeme. Hivyo basi Kamati inapendekeza:-

- a. Vipengele vya utunzaji wa visima vilivyopo kwenye mkataba vizingatiwe na Kampuni inayohusika kuharibika kwa visima hivyo wajibike kwa kuvikarabati visima hivyo kwa gharama zake.
 - b. Serikali na wasimamizi wa sekta ya gesi wahakikishe kuwa utunzaji, ukaguzi na matengenezo ya mara kwa mara ya visima yanafuatwa iliisije kutokea visima hivi vinaharibika ghafla na kuhatarisha usalama wa Taifa.
20. Kamati imeona kuwa uwepo wa Kampuni moja ya Pan African Energy Tanzania Ltd (PAT) ya usambazaji wa gesi kutoka maeneo ya uzalishaji kunawanyima fursa wawekezaji wengine na hivyo kusababisha migongano ya kibiashara pamoja na bei ya gesi kutokuwa na uwiano sahihi kwa watumiaji. Kamati imepata malalamiko kutoka wadau wa matumizi ya gesi kuwa hali hii inazuia ushindani wa kibiashara na kunyima fursa kwa viwanda vya uzalishaji wa bidhaa mbalimbali vinavyotumia nishati ya gesi kukua nakutanuka na pia kudumaza uchumi wa nchi. Kamati inatoa ushauri kuwa sasa umefikia wakati kwa wadau wa sekta ya gesi kupewa fursa iliyowazikatika kutafuta, kuzalisha, kusafirisha na kusambaza gesi. Kamati inapendekeza kwa Serikali kuwa, katika Sheria ya gesi itakayotungwa nilazima iainishe ugatuaji (*Unbundling*) kwa upande wa utafutaji, usafirishaji na usambazaji. Hii itasaidia kukuza sekta ya gesi nchini kwa kuwa Kampuni nyingi za gesi zitahusika kikamilifu na gharama kwa watumiaji kupungua kutokana na ushindani.
21. TDPC akiwa ndiye msimamizi wa Sekta ya gesi kwa niaba ya Serikali Kamati inashauri shughuli zote za uwekezaji katika Sekta ya Gesi zisifanyike bila yakuihusisha TPDC. Aidha, TPDC ihakikishe gharama zinazotingiwa kwenye mradi wanazihakiki ipasavyo. Pamoja na hayo Kamati inasisitiza shughuli zozote za uchimbaji zisendelee bila ya kurekebisha visima ambavyo vimeharibika.
22. Kamati imebaini kuwa fedha zinazotolewa na wabia wa TPDC katika utafutaji wa mafuta na gesi kwa lengo la kutoa mafunzo ya wataalamu mbalimbali katika Sekta ya gesi hazitumiki kwa malengo yaliyokusudiwa. Kamati imebaini kuwa fedha zinazofikia dola za kimarekani milioni 1.75 kwamwaka zinazotolewa na wabia hao hazitumiki kwa malengoyaliyokusudiwa. Aidha, Kamati imebaini kuwa sehemu kubwa ya fedha hizimekuwa zikitumika kulipia safari zisizo za mafunzo kwa Viongozi na Maafisa Waandamizi wa Wizara. Kamati inaona kuwa kitendo hiki ni ubadhilifu mkubwa wa fedha za umma na hivyo uchunguzi ufanywe kwa ajili yahatua zaidi kuchukuliwa.
23. Kufuatia kitendo cha Serikali kutumia fedha zilizokuwa zimepangwakuondoa utofauti wa bei (*National Tariff Equalization Fund*) kinyume na bajeti iliyoidhinishwa na Bunge, Kamati inaishauri Serikali kuanzia sasa kutumia fedha kwa ajili ya malengo yaliyokusudiwa na kuidhinishwa na Bunge. Aidha, inapoonekana kuna ulazima wa kubadili matumizi ya fedha hizo zilizoizinishwa na Bunge, ni vizuri taratibu zinazotawala sheria za fedha zikazingatiwa na bila kuathiri Mamlaka ya Bunge.
24. Kamati imejiridhisha kuwa hakuna mpango mahsusi wenye kuonyeshakalenda ya ulipaji wa mkopo wa dola za kimarekani milioni 216 na kwamba kiasi gani kitalipwa na lini. Ni mapendekezo ya Kamati kuwapamoja na manufaa ya mradi huu Mamlaka zinazohusika zinapaswa kujiandaa kwa kupanga ni lini na kwa namna gani watalipa deni hilopamoja na riba yake kwa wakati.

25. Kamati imebaini kuwepo kwa kasoro katika ulipaji wa kodi miongoni mwa Makampuni. Kamati inashauri Mamlaka ya Mapato Tanzania (TRA) iongeze udhibiti katika ukusanyaji wa kodi katika sekta ndogo ya gesi kwa kushirikiana na mamlaka na taasisi nyingine za kiserikali na sekta husika.
26. Ili kulinda misitu na kupunguza gharama kwa wananchi, Kamati inashauri TPDC iwezeshe ili kuweza kutekeleza miradi ya gesi nchini kwa matumizi ya viwandani, majumbani na kwenye magari. Mheshimiwa Mwenyekiti, hitimisho, Kamati inatambua kabisa umuhimu wa uwekezaji hasa uwekezaji unaohusisha sekta ya nishati, Kamati itaendelea kuheshimu, kushawishi na kuunga mkono juhudi za Serikali na wadau mbalimbali katika uwekezaji wa sekta hii. Lakini kamwe haitakaa kimya, haitokubali wala kuunga mkono ubadhilifu katika sekta hii. Aidha, ieleweke kwamba Kamati inakemea moja kwa moja vitendo vya hila, ghirba na hujuma za kimahesabu ziilizofanywa na Kampuni ya Pan African Energy Tanzania Ltd (PAT). Mheshimiwa Mwenyekiti, Kamati imebaini kuwa hakuna usimamizi thabiti na makini katika sekta ya gesi ambao kwa kiwango kikubwa unasababishwa na kutokuwepo kwa sheria ya gesi na hivyo kufanya sekta ikose mwongozo. Kamati imeridhika kuwa pasipo sheria ya gesi huwezi kuendeleza, kusimamia na kulinda maslahi ya nchi katika sekta hii. Kutokana na hali hiyo Kamati inaishauri Serikali kuharakisha haraka iwezekanavyo mchakato wa kutunga sheria ya gesi. Mheshimiwa Mwenyekiti, Kutokana na kuwepo kwa maeneo mengi yenye utata ndani ya mikataba hii yanayosabisha migogoro na kuhatarisha maslahi ya nchi, Kamati inaishauri Serikali kuagiza wadau wote wanaohusika namikataba hii kukaa na kurekebisha vipengele vyenye utata ili kuleta ustawi wasekta. Mheshimiwa Mwenyekiti, Kamati inasisitiza kuwa, Serikali iiamuru Kampuni ya Pan African Energy Tanzania (Ltd) ilipe mara moja kiasi cha dola za kimarekani milioni 20.1 ambazo ni gawiwo la Serikali ililopunjwa kutokana na Pan African Energy Tanzania (Ltd) kukiri kujirejeshea isivyo halali dola za kimarekani milioni 28.1. Mheshimiwa Mwenyekiti, Kutokana na kitendo cha Kampuni ya Pan African Energy Tanzania Ltd (PAT) kuandaa na kuwasilisha mahesabu yasiyosahihi. Kamati inaishauri Serikali ichukue hatua za kuchunguza kama kuna ukiukwaji wa Sheria za nchi na ianze mchakato wa kuwashtaki wahusika na pia kusitisha Mkataba na Pan African Energy Tanzania Ltd (PAT).

Appendix V

MODEL PSA ADDENDUM FOR NATURAL GAS For Deep sea Operations Addendum to Existing PSA between GOT, TPDC and Contractor



THE UNITED REPUBLIC OF TANZANIA

MODEL PSA ADDENDUM FOR NATURAL GAS

**Addendum to Existing PSA between GOT, TPDC and Contractor ABC
For Deep sea Operations**

**MODEL PSA ADDENDUM FOR NATURAL GAS
For Deep sea Operations
Addendum to Existing PSA between GOT, TPDC and Contractor for Block ---
dated**

Preamble

The Parties have agreed to enter into this Addendum on _____2010 in order to facilitate the commercialization of any Natural Gas discovery in the Contract Area.

This Addendum shall form part of the Production Sharing Agreement between the Government of the United Republic of Tanzania (the "**Government**"), Tanzania Petroleum Development Corporation ("**TPDC**") and "**Contractor**" dated (the "**PSA**") and shall be read together with the PSA. This Addendum amends the provisions of the PSA in relation to Petroleum Operations relating to Natural Gas and related matters as provided in this Addendum. In all other respects the PSA will apply to Natural Gas. For the avoidance of doubt, unless otherwise stated, this Addendum does not amend the PSA in respect of Crude Oil. All references to "**this Agreement**" in the PSA and herein shall mean the PSA as amended by this Addendum.

The Parties note that **Contractor** is a Company organised and existing under the laws of the United Republic of Tanzania, with office and legal representatives in the United Republic of Tanzania, recognised under the laws of the United Republic of Tanzania through its Certificate of Compliance No.

This Addendum is entered into in consideration of the rights and obligations in respect of the development of a gas commercialization project bestowed upon each of the Government, TPDC and **Contractor**.

Article 1: Definitions and Interpretation

1.1 Unless otherwise defined in this PSA Addendum, defined terms shall have the same meaning as that given in the PSA. The provisions of Article 1 of the PSA shall include (or where such terms are defined in Article 1 of the PSA shall be replaced by) the following definitions:

- (a) "Adjusted Gas Quantity" means a quantity of Natural Gas produced and saved from the Contract Area less any Natural Gas used for Production Operations.
- (b) "Affiliated Company" or "Affiliate" means in relation to any person, another person that controls, is controlled by, or is under common control with, such person.

- (c) "Associated Gas" means Natural Gas which is found in association with Crude Oil either dissolved in the oil or as a cap of free gas above the oil.
- (d) "Block PSA" means the production sharing agreement relating to Block offshore of the United Republic of Tanzania, entered into between the Government, TPDC and **Contractor** on, as transferred or amended from time to time and "Block" means the area described in Annex A and shown on the map in Annex B of Block PSA.
- (e) "Business Day" means a Day excluding a Saturday or Sunday or public holiday on which banks in the United Republic of Tanzania are open for business.
- (f) "Btu" (British thermal unit) means an energy unit; the quantity of heat necessary to raise the temperature of one pound-mass of water one degree Fahrenheit from 58.5°F to 59.5°F under a standard pressure of 30 inches of mercury at 32°F.
- (g) "Cost Oil" shall be as defined in Article of the PSA.
- (h) "Cost Gas" shall be as defined in Article 9 of this Addendum.
- (i) "Crude Oil Operations" means Petroleum Operations carried out in respect of Crude Oil.
- (j) "Delivery Point" means the point Freight-On-Board of the Tanzania loading facility at which Crude Oil reaches the inlet flange of the lifting tanks hip's intake pipe or such other point which may be agreed between TPDC and the Contractor, or in case of Natural Gas means:
 - (i) the wellhead; or
 - (ii) such other point which may be agreed between TPDC and the Contractor.
- (k) "Exploration Expenses" means those expenses as so categorised in Annex D of the PSA, the Accounting Procedure (as amended herein), which for the avoidance of doubt includes Appraisal expenditure, to the extent not already categorised as Development Expenditure.
- (l) "Gas Plant Liquids" means any liquids (including condensates, propanes, butanes and other liquid petroleum gas fractions) produced in Block..... separated at the well head or the offshore or Gas Plant operating platform, such liquids shall be governed by and marketed in accordance with the Crude Oil terms set out in the Production Sharing Agreement.
- (l) "Gas Plant" means a CNG Plant, GTL Plant, LNG Plant, NGL Plant or a plant for any other products derived from the treatment, conditioning, synthesizing, refining, processing, separation or conversion of Natural Gas.
- (m) "Good Oilfield Practice" means, to the extent that such is not inconsistent with the definition of such term in the Act, such practice as would be used by a reasonable and prudent operator exercising that degree of skill, diligence, prudence and foresight as would reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances and conditions. Reference to "good **oilfield** practice" in the PSA shall be to "Good **Oilfield** Practice" as defined herein.
- (n) "Joint Operations" means the Petroleum Operations carried out jointly by the Contractor and TPDC.
- (o) "MMbtu" means a million British Thermal Units.
- (p) "MMscf" means a million standard cubic feet of natural gas.
- (q) "Natural Gas Operations" means Petroleum Operations carried out in respect of Natural Gas.

- (r) "Petroleum" has the meaning defined in the Act.
 - (s) "Profit Gas" is as defined in Article 9 of this Addendum.
 - (t) "Service Costs" means those costs as so categorized in Annex D (Accounting Procedure) of the PSA, (as amended herein).
 - (u) "TCF' (trillion cubic feet) means a volume of measurement of natural gas approximately equivalent to one quadrillion Btu.
 - (v) "Technical Expert" means a suitably qualified technical expert of international repute who has the skill and competency necessary to assess the sub-surface and engineering as well as the economic aspects of any proposed development and commercialization of an accumulation and (i) in the case of an individual who is retained as an expert, the individual is not a national of either Tanzania or a country in which the ultimate parent companies of the Companies constituting Contractor group are established or (ii) in the case of a company that is retained as an expert, the Company is not incorporated in, nor is any branch office of such company located in Tanzania or in a country in which the ultimate parent companies of the members of the Contractor are established.
 - (w) "Well Head Liquids" will have the same meaning as for the "Gas Plant Liquids"
- 1.2** References to Articles in this Addendum shall (unless otherwise specified) be to articles of the PSA, and references to Annexes and paragraphs shall be to annexes of the PSA and paragraphs of those annexes.

Article 8 Discovery and Development

The provisions of Article 8 (Discovery and Development) of the PSA shall only apply to Crude Oil Operations. In the case of a Natural Gas discovery, the following provisions shall apply:

- (a) "In each instance where Natural Gas is discovered in the Contract Area, Contractor will, within thirty (30) days from the date on which evaluated test results relating to the discovery are submitted to TPDC, inform TPDC by notice in writing whether or not the discovery is, in the opinion of Contractor of potential commercial interest. If the Contractor notifies TPDC that discovery is of potential commercial interest, the Contractor will at the same time notify TPDC whether the discovery is of eventual commercial interest ("Eventual Interest") or of present commercial interest ("Present Interest"). In making such notification, the Contractor will provide TPDC with all information as would be reasonably required, in accordance with Good Oilfield Practice, to support its submission.
- (b) If Contractor informs TPDC that, in its opinion, utilizing Good Oilfield Practice, the discovery is not of potential commercial interest as a standalone or as part of an aggregated production then the Contractor shall, if requested by TPDC, relinquish the said discovery comprising the geological feature (as outlined by the relevant seismic data) in which the discovery is located.
- (c) TPDC's option in Article 8(b) of this Addendum will lapse if not exercised by TPDC within eighteen (18) months from the date that the Contractor informs TPDC that the discovery is not of potential commercial interest pursuant to Article 8(a). During the said period of eighteen (18) months and any subsequent period if the option lapses without being exercised, the Minister will in respect of the discovery to which that notice relates exempt TPDC (as the licence holder) for the remainder of the Exploration Term from the requirements of Section 32 (2) of the Act.

- (d) If Contractor informs TPDC that, in its opinion, utilizing Good Oilfield Practice, the discovery is of Eventual Interest then the Minister shall be advised by TPDC to agree to allow the Contractor to retain the Discovery Block for the longer of four (4) years or the duration of the Exploration Licence and any renewal thereof (the "Exploration Term") and the Minister shall act in accordance with that advice provided that:
- (i) the determination of Eventual Interest shall be based on relevant economic criteria, including but not limited to, potential Petroleum production rates, Petroleum prices, development costs, sufficiency of the reserves discovered in the Block to date, operating costs as well as any other relevant criteria, as established by the Contractor;
 - (ii) Contractor shall reassess the commerciality of the discovery prior to the expiry of four (4) years from the date of notification that the discovery is of Eventual Interest based on the same economic criteria as set out in Article 8(d)(i) of this Addendum; in case of further discoveries that could be tied and developed together in order to make economies of scale, the Contractor shall inform TPDC accordingly;
 - (iii) Contractor shall within thirty (30) days prior to the expiry of four (4) years from the date of notification that the discovery is of Eventual Interest inform TPDC whether, as a result of a re-assessment, it determines the discovery still to be of (a) Eventual Interest; (b) Present Interest, or (c) no potential commercial interest. TPDC shall inform the Minister of the re-assessment study results;
 - (iv) if the results of Contractor's re-assessment determine that the discovery is no longer of potential commercial interest, the provisions of Article 8(b) and 8(c) of this Addendum shall apply
 - (v) If the results of Contractor's re-assessment determine that the discovery has become of Present Interest, the provisions of Articles 8(f) to 8(m) of this Addendum shall apply
 - (vi) If, upon the expiry of four (4) years from the date of notification that the discovery of Eventual Interest, the results of Contractor's reassessment determine that the discovery is still of Eventual Interest, and TPDC, utilizing Good Oilfield Practice, does not agree with such determination, TPDC may, at any time prior to the expiry of the Exploration Term, dispute the results of the Contractor's reassessment. If TPDC and the Contractor cannot resolve such dispute within sixty (60) days of the date on which TPDC informed the Contractor of its opinion, then the matter shall be referred to the Technical Expert and the Technical Expert shall determine whether the discovery is of (a) Present Interest; or (b) Eventual Interest. The Technical Expert shall notify TPDC and the Contractor of its findings and:
 - A. where the Technical Expert determines that the discovery is no longer of potential commercial interest the provisions of Article 8(b) and 8(c) of this Addendum shall apply;
 - B. where the Technical Expert determines that the discovery is of Present Interest and the Contractor agrees with such determination, the provisions of Articles 8(f) to 8(m) of this Addendum shall apply;
 - C. where the Technical Expert determines that the discovery is of Present Interest and the Contractor disagrees with such determination, then the Contractor shall if requested by TPDC, relinquish said

- discovery comprising the geological feature (as outlined by the relevant seismic data) in which the discovery is located; or
- D. where the Technical Expert determines that the discovery is still of Eventual Interest, the Contractor may retain the discovery for the remainder of the Exploration Term.
- (e) Where the Contractor has relinquished a discovery pursuant to Article 8(d)(vi)(c) of this Addendum and TPDC decides to appraise and develop such discovery, the Parties will meet and discuss in good faith the development of said discovery such that it does not impact the exploration, appraisal and development of the remainder of the whole Block.
- (f) Where, Contractor (a) pursuant to Article 8(a) of this Addendum, has informed TPDC that, in its opinion the discovery is of present commercial interest, or (b) pursuant to Article 8(d)(vi)(b) of this Addendum the Contractor agrees with the determination of the Technical Expert that the discovery is of present commercial interest, Contractor will:
- (i) As soon as practicable thereafter, submit to TPDC, for the consideration of the Advisory Committee, its proposals for an Appraisal programme to meet the requirements of Section 32 (2) of the Act.
 - (ii) Pending submission of the proposals referred to in Article 8(f)(i) of this Addendum, provide to TPDC such information as is available to it from time to time in relation to the chemical composition and physical qualities of the Petroleum discovered.
 - (iii) TPDC may within ninety (90) days of receipt of the Contractor's Appraisal programme, make proposals or amendments on the Contractor's Appraisal programme to the extent that the Appraisal programme does not meet the requirements of Section 32 (2) of the Act.
 - (iv) Where the Advisory Committee has agreed on an Appraisal programme submitted by Contractor as aforesaid or on a revision thereof, and a Location has been declared, the Minister will, to the extent necessary, extend the period within which an application may be made by TPDC for a Development Licence, when TPDC at the request of the Contractor applies in that behalf, for a period not more than eight (8) years in the case of a Natural Gas Location, so as to ensure that the Appraisal programme can be carried out and the results thereof assessed before the said period expires.
 - (v) During the conduct of the Appraisal programme, the Contractor shall provide TPDC with all information enabling it to make a detailed examination of the data relating to the discovery so as to make an ongoing assessment in full understanding of the facts as to whether or not the discovery is likely to be capable of being commercially exploited. This information shall be provided promptly following it being obtained by the Contractor
- (g) Where Contractor has requested TPDC to make an application for a Development Licence, TPDC shall make such application provided that the proposals accompanying such application pursuant to paragraph (a) of Section 36 of the Act shall:
- (i) be drawn up by Contractor after consultation with TPDC;

- (ii) be designed to ensure the recovery from the Development Area of the maximum quantity of Petroleum which the economics of the development shall justify;
 - (iii) be in compliance with Good Oilfield Practice; and include:
 - A. a copy of the environmental impact assessment certificate, issued by the ministry responsible for the environment, together with any approved terms and conditions attached thereto; and
 - B. all proposed project and financing arrangements for Natural Gas operations.
- (h) When an application for a Development Licence in respect of a Natural Gas Location is made in accordance with Article 8(g) of this Addendum and the Act then, unless the Contractor is In Default at the time of such application, the Minister shall grant pursuant to Section 37 (1)(a) of the Act, on such conditions as are necessary to give effect to the application for the Development Licence, the Development Licence applied for. The Development Licence so granted shall, in full satisfaction of the requirements of Section 40(2) of the Act, incorporate by reference the obligations of the Contractor as set out in Article 16 (“**Lifting, Marketing and Domestic Supply Obligation**”) of the PSA. The provisions of Article 16 of the PSA shall also apply to both Crude Oil and Natural Gas.

In circumstances where the Parties determine to undertake the gas commercialization project in accordance with the terms and conditions set out in this Agreement, the Contractor shall, in respect of the domestic market obligation employ a suitably qualified international independent consultant(s) to prepare a reserve assessment report to determine the:

- (i) proven and certified reserved gas reserves in the Block (“**Proven Reserves**”), and
- (ii) the minimum amount of gas required for a gas commercialization project.

Following receipt of such report, the Contractor shall notify GOT/TPDC in writing of the Proven Reserves that are to be dedicated for supply to the gas commercialization project from the Block (the “**Accessible Proven Reserves**”).

The amount of Proven Reserves available for the domestic market shall then be determined by the parties.

- (i) Contractor. shall respectively provide TPDC with at least 60 days prior written notice before dedicating to a third party available capacity in the Pipeline or Gas Plant that would have the effect of excluding TPDC’s ability to transport and process all or any portion of the DMQ volume through the Pipeline and the Gas Plant.
- (j) Natural Gas Quantity comprised in the domestic market and Natural Gas for the gas commercialization project shall be lifted at the Delivery Point proportionately, subject to normal operational requirements, it being understood that lifting shall be consistent with the Natural Gas lifting schedule for the gas commercialization project and shall take into account the delivery obligations of the gas commercialization project.

- (k) Where a Location has been declared, the Minister will not, without the prior agreement of Contractor, give any direction to TPDC pursuant to Section 34(1) of the Act; provided however that if an application is made for a Development Licence in respect of any Block nothing in this Article 8(k) shall be construed as limiting the scope of any notice which the Minister may give to TPDC pursuant to Section 37(2) of the Act.
- (l) Where the Exploration Licence is due to expire during the above mentioned period allowed by the Minister for application for a Development Licence under Article 8(f)(iv) of this Addendum, then the Minister shall prior to the expiry of the Exploration Licence grant to TPDC for such period, a new Exploration Licence on the requisite terms as may be appropriate to enable TPDC to apply, upon request of Contractor, for a Development Licence related to the Blocks forming the previous Location as per Article 7(f)(iv) of this Addendum.
- (m) When TPDC, upon request of Contractor, makes an application for a Development Licence as per Article 8(l) of this Addendum, in respect of a Block or Blocks forming the Location as per Article 8(f)(iv) of this Addendum, then the Minister shall grant, on such conditions as are necessary to give effect to the application for the Licence, the Development Licence applied for. "

Article 9 Joint Operations

9.1 The provisions of Article 9(b) (**Joint Operations**) of the PSA shall be replaced entirely by the following provision:

- (b) "TPDC (or its assignee (Assignment by TPDC) may at any time, by notice in writing to Contractor, elect to participate in Petroleum Operations to be carried out under the terms and conditions of this Agreement for a ----- per cent (...%) participating interest. TPDC shall bear its proportionate share of all Contract Expenses related to Development Operations (not to include Exploration and Appraisal expenses). TPDC's per cent (...%) participating interest shall be taken proportionately from Contractor's interest, including a proportionate share of Profit Oil/Profit Gas and Cost Oil/Cost Gas to which Contractor is entitled as hereinafter provided in Article 11 (**Recovery of Costs and Expenses and Production Sharing**) of the PSA in respect of Crude Oil and Article 11 of this Addendum in respect of Natural Gas."

9.2 The provisions of Article 9(b) of the PSA as amended above shall apply to both Crude Oil and Natural Gas.

Article 11 Recovery of Costs and Expenses and Production Sharing

11.1 In respect of Natural Gas and Natural Gas Operations, recovery of costs and expenses and production sharing shall be governed by the following provisions.

- (a) Subject to sub-article (c) of this Article 9.1, all Contract Expenses incurred by the Contractor and where Joint Operations have been established by TPDC, shall be recovered for Natural Gas, from a quantity of Natural Gas produced and saved from the Contract Area less any Natural Gas used for Production Operations (the "**Adjusted Gas Quantity**") (hereinafter referred to as "**Cost Gas**") and shall in any Calendar Year be equal to the lesser of (i) seventy per cent (70%) of the total Adjusted Gas Quantity produced from the Contract Area and (ii) the quantity of Cost Gas with a value equal to the remaining outstanding Recoverable Contract Expenses.
- (b) Contract Expenses which pursuant to the provision of Annex D of the PSA (as amended herein) may be recovered from Cost Gas are hereinafter referred to as "**Recoverable Contract Expenses**". Such expenses may be recovered as from the date they have been incurred. To the extent that in any Calendar Year the Recoverable Contract Expenses exceed the Cost Gas available under Article 9.1 (a) of this Addendum, the unrecovered excess shall be carried forward for recovery in the next succeeding Calendar Year and, to the extent not then recovered in the subsequent Calendar Year or Years.
- (c) Where, additionally, Joint Operations have been established:
- (i) No Contract Expenses incurred by TPDC pursuant to Article 8.1 of this PSA Addendum shall be recovered from the Cost Gas unless there is production from a Development Area in respect of which there are Joint Operations;
 - (ii) The available Cost Gas shall be applied to the Contractor (which for the avoidance of doubt includes TPDC once it has exercised its rights pursuant to Article 8.1 of this PSA Addendum):
 - A. first to recover Operating Expenses;
 - B. after recovery of Operating Expenses any excess Cost Gas available for distribution shall be applied to recover Exploration Expenses;
 - C. after recovery of Exploration Expenses and Operating Expenses any excess Cost Gas available for distribution shall be applied to recover Development Expenses;
 - D. any unrecovered Contract Expenses shall be recovered out of the Cost Gas available in the next succeeding Calendar Year or Years in the same manner as set out herein; and
 - E. any remaining Cost Gas once all recoverable Natural Gas costs have been paid will be put into the Profit Gas pool and distributed to the Contractor (which for the avoidance of doubt includes TPDC once it has exercised its rights pursuant to Article 11.1 of this PSA Addendum) and TPDC (as the recipient of the Profit Gas) via the Profit Gas system as described in Articles 11.1 (e) and (f) of this Addendum.

- (d) Subject to the limitations set out in Article 11.1(a) of this Addendum, the quantity of Cost Gas which the Contractor and, if Joint Operations have been established, TPDC actually require and shall be entitled to in any Calendar Quarter will be established with respect to Cost Gas on the basis of the fair market price agreed by the Parties (which for the avoidance of doubt is determined, for any Gas Commercialization Project.
- (e) **Profit Gas**
- (i) For the purpose of sharing Profit Gas between the Contractor and TPDC, the balance of Natural Gas available in any Calendar Quarter shall be divided based on tranches of daily total production rates (MMscf per Day) in all producing fields in the Contract Area.
 - (ii) The tranches of production referred to in Article 11.1 (f) of this Addendum shall be specified in terms of average daily production rates. The average daily production rates shall be determined for each Calendar Quarter and shall be calculated by dividing the total Adjusted Gas Quantity produced and saved from the Contract Area during any Quarter by the total number of days during which Natural Gas was produced in such Quarter.
 - (iii) The quantity of Cost Gas required to satisfy Recoverable Contract Expenses in any Calendar Quarter shall be allocated to each of the applicable tranches of production in the same proportion as the total production in each tranche of production bears to total production from the Contract Area.
- (f) After allocation of Cost Gas for the recovery of Recoverable Contract Expenses in accordance with Article 11.1 (e) of this Addendum, for any gas commercialization project, the resulting Profit Gas shall be shared in accordance with the tranches set out in the table below in accordance with the ratio of the quantity of Natural Gas per MMscf:

Tranches of daily total Production rates in each of the Contract Areas (MMscf per Day)		TPDC Share of Profit Gas	Contractor Share of Profit Gas
0	249.999	50.0%*	50.0%*
250	499.999	55.0%*	45.0%*
500	749.999	60.0%*	40.0%*
750	999.999	65.0%*	35.0%*
1000	1249.999	70.0%*	30.0%*
1250	1499.999	75.0%*	25.0%*
1500	Above 1500	80.0%*	20.0%*

XX%* ; is subject to negotiations

- (g) With respect to this Article 11.1, Cost Gas and Profit Gas calculations shall be done for each Calendar Quarter and the Natural Gas provisionally shared accordingly. To the extent that actual quantities, expenses and prices are not known, provisional estimates of such data based on the approved Annual Work Programme, Budget and any other relevant documentation or information shall be used. Within sixty (60) days of the end of each Calendar Year a final calculation of

Cost Gas and Profit Gas based on actual Natural Gas quantities, prices and recoverable costs and expenses in respect of that Calendar Quarter shall be prepared and any necessary adjustments to the Natural Gas sharing shall be agreed upon between the Contractor and TPDC and made as soon as is practicable.

- (h) Subject to the provisions relating to Domestic Market Obligation of the Contractor, the Contractor will be free to commercialize any Natural Gas received by the Contractor pursuant to Article 11.1 of this Addendum and to retain the proceeds of the sale of such Natural Gas outside the United Republic of Tanzania.
- (i) All liquids, including Well Head Liquids and Gas Plant Liquids, shall for the purposes of cost recovery and allocation of profit hydrocarbons be classified as oil and the cost oil and profit oil splits set out in the PSA shall be applicable to such liquids. Such liquids shall not be taken into account when calculating the Price Class Threshold.

Article 12. Valuation of Natural Gas

The provisions of Article 12 (**Valuation of Crude Oil**) of the PSA shall also apply to Natural Gas operations and for the purposes of this Clause all references to "Crude Oil" therein shall be read as including "Natural Gas".

Article 14. Taxation and Royalty

Article 14(c) of the PSA shall be replaced entirely by the following provision: "TPDC shall discharge its obligation to pay royalty under Section 81 of the Act, in respect of Natural Gas obtained from the Contract Area, to the Government in an amount equal to the minimum share of Profit Gas received by TPDC pursuant to Article 11.1 (f) of this Addendum in respect of Profit Gas, being equivalent at all times to five per cent (5%) of total Adjusted Gas Quantity, by payment of a cash equivalent of such quantity, based upon the Gas Price."

Article 19. Title to Assets

The provisions of Article 19 of the PSA relating to title to assets shall also apply to Natural Gas Operations and for the purposes of this Clause all references to "Cost Oil" therein shall be read as including "Cost Gas".

Article 21. Site Cleaning and Abandonment

The provisions in Article 21 of the PSA relating to site cleaning and abandonment of assets and facilities shall also apply to all Natural Gas Operations except that for the purposes of this Clause all reference to "Cost Oil" therein shall be read as "Cost Gas".

Article 26. Force Majeure

The provisions in Article 26 of the PSA relating to site cleaning and abandonment of assets and facilities shall also apply to all Natural Gas Operations except that for the purposes of this Clause all reference to "Cost Oil" therein shall be read as "Cost Gas".

Article 28. Consultation and Arbitration

The provisions in Article 28 of the PSA relating to site cleaning and abandonment of assets and facilities shall also apply to all Natural Gas Operations except that for the purposes of this Clause all reference to "Cost Oil" therein shall be read as "Cost Gas".

Annex D: Accounting Procedure

Annex D of the PSA shall be amended as follows:

For the purposes of this Clause all references in Annex D to "Profit Oil/" shall be read as "Profit Gas" and all references to "Cost Oil" therein shall be read as including "Cost Gas"

The second sentence of paragraph 1.4(a) of the existing Annex D of the PSA shall be amended to read as follows: "Metric units, Barrels and standard cubic feet (scf) shall be employed for measurements required under the PSA and this Annex D."

The references to "Cost Oil" in paragraph 11.3 of Annex D shall be replaced with "Cost Petroleum".

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