



TANZANIA MAINLAND AND ZANZIBAR ISLAND SOCIO-ECONOMIC AND ENVIRONMENT STUDY

By

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TABLE OF CONTENTS

LIST OF ACRONYMS	III
ACKNOWLEDGEMENT	IV
EXECUTIVE SUMMARY	V
1.0 INTRODUCTION	1
1.1 STUDY BACKGROUND	1
1.2 OBJECTIVES OF THE STUDY	2
2.0 APPROACH TO THE STUDY	3
3.0 SOCIO-ECONOMIC FRAMEWORK IN TANZANIA AND ZANZIBAR	4
3.1 SOCIAL AND ENVIRONMENT TARGETS	6
4.0 OVERVIEW OF OIL AND GAS DEVELOPMENT IN TANZANIA MAINLAND AND ZANZIBAR	16
4.1 THE HISTORIC DEVELOPMENT OF OIL AND GAS INDUSTRY IN TANZANIA AND ZANZIBAR	16
4.2 SOCIO-ECONOMIC ACTIVITIES IN OIL AND GAS DEVELOPMENT SITES	17
4.3 BENEFITS AND RISKS OF GAS IN TANZANIA MAINLAND AND ZANZIBAR	20
4.4 KEY INFORMANTS OPINIONS OIL AND GAS REVENUE SHARING BETWEEN TANZANIA MAINLAND AND ZANZIBAR	22
5.0 ENVIRONMENTAL IMPLICATIONS ON OIL AND GAS DEVELOPMENT IN TANZANIA MAINLAND AND ZANZIBAR	23
5.1 ENVIRONMENT AND MARINE ECOSYSTEM	23
5.2 COMMUNITIES' LIVELIHOOD AND SETTLEMENT	25
6.0 POTENTIAL CONTRIBUTION OF OIL AND GAS REVENUE TO ECONOMIC GROWTH AND POVERTY REDUCTION FRAMEWORKS	27
6.1 SECTOR'S FINANCING POTENTIAL	29
7.0 RECOMMENDATIONS AND CONCLUSION	31
7.1 MODALITIES AND EXTENT OF COMPENSATION OF THE AFFECTED ENVIRONMENT AND RESETTLEMENT	31
8.0 CONCLUSION	33
9.0 REFERENCE	34

LIST OF ACRONYMS

CSO	Civil Society Organization
DMRS	Dar es Salaam Marine Reserve System
EEZ	Exclusive Economic Zones
ESRF	Economic and Social Research Foundation
EMA	Environment Management Act
GBS	General Budget Support
GDP	Gross Domestic Product
ICM	Integrated Coastal Environment Management
JAS	Joint Assistance Strategies
MDGs	Millennium Development Goals
MEM	Ministry of Energy and Minerals
MFEA	Ministry of Finance and Economic Affairs
MoCAGG	Ministry of Constitutional Affairs and Good Governance
MPA	Marine Protected Areas
MTEF	Medium Term Expenditure Framework
NEMC	National Environmental Council
NEPAD	New Partnership for Africa's Development
NSGPR	National Strategy for Growth and Poverty Reduction
PLUM	Participatory Land Use Planning and Management
PRS	Poverty Reduction Strategies
PSA	Production Sharing Agreement
TCZCDP	Tanga Coastal Zone Conservation and Development Programme
TDV	Tanzania Development Vision 2025
TPDC	Tanzania Petroleum Development Corporation
UN	United Nation
URT	United Republic of Tanzania
ZSGPR	Zanzibar Strategy for Growth and Poverty Reduction
ZV	Zanzibar Vision 2020

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EXECUTIVE SUMMARY

Economic and social development of the country and importantly developing countries like United Republic of Tanzania depend for domestic revenues to do away with unpredictable aid from donors. With enormous prospect for hydrocarbon reserve between the two parts of the union, mainland and island, sharing mechanism to guide distribution of the revenues from the petroleum is important to avoid unnecessary misunderstanding. The study enlighten social, economic and environment issues for consideration in pursuing exploration and development of hydrocarbon reserves.

Macroeconomic frameworks, MKUKUTA and MKUZA were reviewed including the budget needed for delivering the operational targets in each cluster. Growth of important sectors in Zanzibar Island and Tanzania main land were reviewed and costed based on Millennium Development Goals (MDGs). The costing avails opportunity for injecting revenues generated from the petroleum after sharing between two parts. Environment and HIV/AIDS are cross cutting themes and therefore are being implicitly budgeted in each cluster.

Economic activities of communities near by the potential sites licensed for the exploration of petroleum were reviewed. Agriculture and fishing activities form the major source of livelihood to those poor regions with prospects of production of petroleum in the near future. Along the coast of Lindi, Mtwara, Dar es salaam, Mafia, Pemba, Tanga and coast region, fishing is back bone for their livelihood. Impact of increasing oil exploration activities could pose a restriction of fishing in some location near to the rig if constructed. The economic loss to the community should be considered. Most of the fishermen fish near the coast as they lack sophisticated vessels for deep sea fishing.

Environmental and marine ecosystem were envisaged to be from release of seismic waves which also needs clearing of farms, use of chemical for deep sea exploration, displacement, disposal of waste, and effects on fishing activities and protected areas. Considering the country as a signatory of international environment protection frameworks e.g Nairobi Convention, the Convention on Biological Diversity and UN Framework Convention on Climate Change, hydrocarbon extractive works should be carefully monitored by respective organs.

Compensation modalities for assets loss or as a result of resettlement should follow the Tanzania legal framework with the help of participatory land planning unit, chief land evaluation officer, ministry of land and human settlement development-Valuation division, and village land act. Since compensation rates are constantly renewed for all assets including crops, the victim of hydrocarbon exploration and production should be compensated based on prevailing market values of an asset at that given time.

1.0 INTRODUCTION

1.1 Study Background

The development of a nation among other things, depend on several factors. Some of these include energy in a form of hydropower, oil, gas, coal, solar and windmills to mention a few. With that understanding in 1997, the Government of the United Republic of Tanzania entered into a production sharing Agreement (PSA) with Antrim Resources of Canada to conduct petroleum exploration in the area covering onshore Pemba and Zanzibar Islands and offshore in the Pemba/ Zanzibar Channel. However, exploration was not undertaken due to pending issues between the two Governments in the United Republic of Tanzania (URT).

Following the completion of seismic surveys in the deep waters within the URT in the year 2000, the Union Government completed negotiation and initialed the PSA with Shell International Exploration and Production Company to conduct petroleum exploration in the deep waters area East of Zanzibar and Pemba (Block 9, 10, 11 and 12). The signing of PSA was pending subject to the proposed amendments to Petroleum (Exploration and Production) Act 1980 being enacted by the Union Parliament. Among other things, the proposed amendments were intended to enable the Act to operate and regulate oil and gas exploration and production activities beyond the borders of shallow water continental shelf and water depth exceeding 200 meters. Under its current form, the Act operates and regulates oil and gas exploration and production activities onshore and offshore within the shallow waters of continental shelf to water depth of less than 200 metes. When the bill for the amendments of the Act was tabled for discussion before the Union Parliament in October 2003, the Zanzibar Revolutionary Government requested the bill to be temporarily withdrawn pending the resolving of outstanding pertinent issues relating to Zanzibar.

Since 1997, there has been no exploration of oil and gas in Unguja and Pemba. Efforts including discussions among high level officials from both the Union Government and the Revolutionary Government of Zanzibar have been made to resolve the problem in order to begin exploration of oil and natural gas. A joint Committee of Permanent Secretaries and Principal Secretaries from the relevant Ministries, including those responsible for energy, were formed to recommend how to resolve the long outstanding issues of oil exploration. The committee completed the task and submitted the findings and recommendations to the two Governments.

Both the Government in the United Republic are determined to resolve the pending issues pertaining, including oil exploration in order to achieve this, the top executives of two governments decided to hold regular meetings to discuss and resolve the outstanding issues of the Union.

The top executives of the two Governments led by the Prime Minister of the Tanzania mainland and the Chief Minister of the Revolutionary Government of Zanzibar, met for the first time in Dar es Salaam in

May 2006 to discuss the various pending issues related to the Union. With regard to the issue of oil exploration, it was agreed among other things that a consultant acceptable to both Governments be commissioned to review the situation and advise on the proper mechanism of sharing costs and revenues in case of Oil and Natural gas discovery in Tanzania Mainland and Zanzibar. The Ministries responsible for Energy in the two Governments were then directed and managed to engage Aupec Limited to conduct a study into matters pertaining to Petroleum Exploration and Production in the United Republic of Tanzania.

It is anticipated that a successful undertaking of the study with proper recommendations in place will create an enabling environment to the United Republic of Tanzania to tap the most wanted resource that will fill the financial gap experienced in the implementation of poverty reduction strategies that caters for Tanzania Mainland and Zanzibar.

While a strategy for Tanzania Mainland is referred as National Strategy of Growth and Reduction of Poverty (NSGRP) or MKUKUTA (in Swahili acronym) has three areas of focus referred to as clusters which include (i) growth and income poverty reduction, (ii) improvement of quality of life and social well being and (iii) governance and accountability. On the Zanzibar side we have Zanzibar Strategy of Growth and Reduction of Poverty (ZSGRP) or (MKUZA in Swahili acronym). Just like the strategy for the mainland the Zanzibar Strategy also has three clusters of focus which are (i) growth and reduction of income poverty, (ii) social services and well-being and (iii) good governance and national unity.

The development of oil and gas in Tanzania mainland and Zanzibar will therefore subsidize activities under the strategies for reduction of poverty that are currently being underfinanced.

1.2 Objectives of the Study

Generally the objective of the assignment is to design and formulate a sharing arrangement which will ensure that petroleum exploration and production is carried out smoothly in both Mainland Tanzania and in Zanzibar. It is the aim of the study that such an arrangement or formula will ensure that costs and benefits are rationally shared by both sides of the Union.

However, specifically, the study seeks to uncover the social, economic and environmental impacts of oil and gas development in terms of costs and benefits that such development can generate.

2.0 APPROACH TO THE STUDY

Desk review and key informants interview were principal pragmatic technique used to get technical, coordination and political views of government officials from two parts to address the objectives of the study.

Government publications, report and publication from other accredited institutions were reviewed to draw social and economic information from areas that are ear marked for the exploration and potential for petroleum reserves.

Key informant interview was done to key government officials drawn from different ministries and agencies. Some of the government offices where officials were interviewed includes Tanzania Petroleum Development Agency (TPDC), Ministry of Economic Affairs and Finance (MEAF), Vice President Office-Environment Division, Ministry of Finance and Economic Affairs (ZIFA), Zanzibar Electricity Corporation, House of Representative Chief -Ministers Office, National Environmental Management Council (NEMC), Ministry of Constitutional Affairs and Good Governance (MoCAGG) and Zanzibar Director for Mineral and Energy.

3.0 SOCIO-ECONOMIC FRAMEWORK IN TANZANIA AND ZANZIBAR

The national poverty eradication strategy in both mainland and island are guided in principal by two visions, the Tanzania Development Vision (TDV) 2025, Zanzibar Vision (ZV) 2020. The visions are operationalized by the two broad poverty reduction medium strategies in both parties. The MKUKUTA 2005-2010 prominently operates in the mainland and in the Island is MKUZA 2006-2010. Both strategies have jointly guided poverty-reduction efforts in the URT.

MKUKUTA and MKUZA are second-generation strategies that emanated from the first Poverty Reduction Strategies (PRS) for mainland Tanzania and Zanzibar, respectively. The national poverty eradication strategy provides a framework to reduce poverty by 50 per cent by 2010 and to eradicate abject poverty by 2025. The TDV 2025 seeks to create, by 2025, a society characterized by high-quality livelihoods, good governance and the rule of law, and a strong, competitive economy.

MKUKUTA focuses on outcomes in three broad clusters:

- a. Growth and income poverty reduction;
- b. Improvement in the quality of life and Social well being; and
- c. Governance and Accountability (URT, 2005).

MKUZA also focuses on three clusters:

- a. Growth and reduction of income poverty;
- b. Social services and well being; and
- c. Good governance and national unity (RGoZ, 2007).

MKUKUTA and MKUZA enable more effective linkages with the MDGs at international level and focus on results-based management. They emphasize sectoral linkages and synergies; focus on mainstreaming cross-cutting issues such as HIV/AIDS and gender and sustainable management of natural resources. Environmental concerns arise not only in the productive sectors but also in the provision and utilization of economic services (e.g. energy) and human settlements and emphasize the importance of a conducive environment for growth and poverty reduction by diversifying sources of revenues to the government and reducing donors support (URT, 2005 and RGoZ, 2007).

In pursuing poverty reduction economic activities without harming the environment the government reviewed the Environment Management Act (EMA) of 1983 in 2004 to give mandate NEMC for a legal and institutional framework for sustainable management of the environment, prevention and control pollution, waste management, environmental quality standards, public participation, environmental compliance and enforcement. Furthermore, it gives NEMC mandates to undertake enforcement, compliance, review and monitoring of environmental impacts assessments, research, facilitate public participation in environmental decision-making, raise environmental awareness and collect and disseminate environmental information.

Currently the government budget is supported by 38 percent from 41 percent in 2006 in running development expenditures through General Budget Support (GBS) under Joint Assistance Strategies (JAS). The JAS is a national medium-term framework to manage development cooperation between the Government and its development partners. It operationalizes the Paris Declaration on Aid Effectiveness. The JAS spans a renewable cycle of five years, from 2006 to 2010, and has been implemented from July 2006.

The intention of the government is to continue gradually reduce dependency on donor's budget support for effective implementation of development project aiming at improving the welfare of the citizens in a sustainably managed environment. In connection with this is government effort to look for other avenues of revenues from petroleum, oil and gas. The government through TPDC has managed to collaborate with investors' in identifying potential areas for petroleum exploration in Zanzibar and the mainland. It is expected that the revenues generated will immensely support the government of both sides to meet the targets under each clusters with reliable financial sources. Up to the moment only natural gas has been providing the revenues but still there are hopes that petroleum reserve will soon be identifies among the licensed blocks for explorations.

The vision of the energy sector is to effectively contribute to the growth of the national economy and thereby improve the standard of living for the entire nation (Zanzibar and mainland) in a sustainable and environmentally sound manner. In the mainland TPDC is given mandate to manage oil, gas and petroleum development (Petroleum Act 1980) while in Zanzibar the directorate of petroleum development is the government custodian in similar issues.

Socio-economic and environment operational targets to meet the goals in each cluster are presented in the previous section in both parties are summarized in Table 1 and Table 2.

Table 1: Zanzibar social and environmental operational targets

Cluster I: Growth and Reduction of Income Poverty	
Goals	Operational Targets
Create an enabling environment for high and sustainable growth	<ul style="list-style-type: none"> • Stable macroeconomic environment promoted. • Revenue collection increased from 13.8 percent of GDP (2005) to 18.5 percent by (2010). • Conducive environment for private sector development with a focus on SMEs developed • Improved access and utilization of medium and long-term affordable credit to productive sectors. • Quality of workforce improved and population growth rate reduced. • Increased allocation of land rights. • Increased access to affordable and sustainable energy by 2010. • Enabling environment for investment created. • Sustainable and gender focused environmental management system developed. • Constructed and rehabilitated all remaining roads (266 kilometres of trunk and feeder roads) by 2010. • Zanzibar International Airport Master Plan developed and implemented and Pemba Airport services improved. <p>Access and use of ICT facilities and services promoted</p>
Promote sustainable pro-poor and broad-based growth	<ul style="list-style-type: none"> • Increased rate of economic growth from 5.6percent (2005) to 10percent by 2010 • Heritage sites preserved and maintained while eco and cultural tourism developed. • Increased growth of agricultural sector from 2.4percent (2005) to 6percent by 2010. • Improved availability and accessibility of gender responsive micro finance services. • Favorable environment for external trade created. <p>Increased high-class tourist hotels and facilities</p>
Reduce income poverty and attained overall food security	<ul style="list-style-type: none"> • Reduced overall unemployment rate from 7percent in 2005 to 4percent in 2010 • Increased gender sensitive youth training and employment. • Reduced population below basic needs poverty line from 49percent (2005) to 25percent (2010) • Reduced population below food poverty line from 13percent (2005) to 10percent (2010) • Effective food insecurity warning and response system developed.

Ensure equitable access to demand driven quality education, which is gender and environmentally responsive.

Early Childhood Care and Development.

- Increased Gross Enrolment Rate for pre-school from 15.9percent in 2005 to 35percent in 2010

B. Primary Education

- Increased Net Enrolment Rate from 77percent in 2005 to 90percent in 2010
- Increased proportion of children with disabilities, enrolled, attend and completing schools by 5percent annually

C. Secondary Education

- Increased transition rate at form two examinations from 46.9percent in 2005 to 70percent by 2010
- Increased Net Enrolment Rate from 36.1percent in 2006 to 75percent in 2010
- Increased proportion of girls who join low and higher secondary education from 46percent in 2005 to 50percent by 2010
- Increased percentage of qualified secondary school teachers
- Improve quality of secondary education and promoted acquisition of knowledge
- Increased proportion of orphans and vulnerable children and children with disabilities who join secondary education

D Science, Information and Technology

- Enhanced teaching of science, mathematics and technology in schools.
- Promoted the use of Information and Communications Technology.
- Expanded access to ICT for education development.

E Non-Formal Education

- Increased literacy rate from 75.8percent in 2005 to 100percent in 2010.
- Increased literacy rate of women from 69.8percent in 2005 to 100percent in 2010

F Vocational Education and Training

- Enhanced entrepreneurial skills among the youth.

G Tertiary Education

- Increased proportion of graduates from tertiary education institutions

H Quality education

- Improved quality of education at all levels

I Institutional Reform

- Improved efficiency in the delivery of educational services.

J Cross Cutting Issues

- Integrated cross cutting issues into education system. (Gender, environment, population, HIV, and AIDS, employment, and

women, men and vulnerable groups

- 71/1000 by 2010

B. Maternal Health and Reproductive Health

- Reduced Maternal Mortality from 377/100,000 in 1999 to 251/100,000 in 2010.
- Increased percentage of births delivered in health facilities from 49% in 2005 to 60% in 2010
- Improved contraceptive prevalence rate from 10% to 15% for modern methods and from 15% to 20% for any method by 2010

C. Communicable Diseases: -

(i) Malaria

- Increased the percentage of under-fives having prompt access to and receiving appropriate management for febrile illness within 24 hours from 13% in 2005 to 70% in 2010
- Increased the percentage of under-fives sleeping under ITNs from 37% in 2005 to 90% in 2010.
- Reduced the case-fatality rate from 2.1% in 2005 to 0.5% in 2010.

(ii) HIV and AIDS

- Reduced HIV prevalence among 15-24 years pregnant women from 1% in 2005 to 0.5% in 2010
- Increased the proportion of population with comprehensive correct knowledge of HIV and AIDS from 44% of women and 20% of men to 80% of the general population by 2010
- Increased condom use among women at last higher risk sex from 34% in 2005 to 80% in 2010
- Reduced stigma surrounding HIV and AIDS from 76% in 2005 to 60% by 2010 (measured as the inverse of the proportion of the population expressing acceptance of 4 measures as per TDHS)

(iii) TB

- Reduced the death rate from 8% to 5% in 2010
- Increased cure rates from 80% to 85% by 2010
- Increased HIV screening of patients from 20% to 100% by 2010

D. Non Communicable Diseases (NCD)

- Administered prevalence survey for key NCDs by 2010

E. Substance Abuse

- Administered prevalence survey for substance abuse by 2010
- Operationalized detoxification and rehabilitation services for substance abusers by 2010

F. Human Resource management

- 75% of primary health facilities established agreed norms for trained staff, with attention to gender balance, by 2010

Increase access to clean, safe and affordable water especially to poor men and women and

- Increased access to clean, safe and sustainable water supply in urban areas from 75% in 2004/5 to 90%, in 2010.
- Increased access to clean, safe and sustainable water supply in rural

	<ul style="list-style-type: none"> 66.8% in 2005 to 83% by 2010. Increased provision and management of sewerage facilities. Reduced environmental degradation. Zanzibar Waste Management Master Plan developed and implemented by 2010
Provide adequate and sustainable human settlement	<ul style="list-style-type: none"> Improved management of urban and rural settlements Reviewed and developed proper land use plan at local community and national levels. Increased number of women and men with decent shelter.
Improve food and nutrition security among the poorest, children and most vulnerable groups	<ul style="list-style-type: none"> Reduced level of under-nutrition amongst children under the age of five <ul style="list-style-type: none"> - Reduced the number of children under the age of five children with stunting from 23% in 2005 to 10% by 2010 - Reduced prevalence of anaemia among under five from 75% in 2005 to 50% by 2010. Reduced level of under-nutrition amongst women and mothers <ul style="list-style-type: none"> - Reduce the number of women with BMI < 18.5 (thin) from 17% in 2004 to 10% by 2010 - Reduced prevalence of anaemia among women and mothers from 63% in 2005 to 50% by 2010.
Strengthen and expand social security and safety-nets for the disadvantaged and most vulnerable groups	<p>Safety nets</p> <ul style="list-style-type: none"> Strengthened and expanded welfare support to the most vulnerable Strengthen means to exploit opportunities that Zakat, Infaq and Awqaf (Endowment) in caring for the needy and destitute Strengthened capacity of families and communities to effectively support the most vulnerable <p>Social security</p> <ul style="list-style-type: none"> Reduced backlog and ensure prompt payment of gratuity for retirees Expanded coverage of social security schemes
Promote and preserve historical, cultural and natural heritage and sports for social and economic development	<ul style="list-style-type: none"> Formulated and operationalised policies, strategies and legal framework for culture and sports by 2010 Promoted and preserved culture and historical sites by 2010 Improved sports gears, facilities and training by 2010 Participated effectively in regional and international tournaments by 2010 Promoted Kiswahili language at local and international level by 2010

Goals	Operational target
Ensure inclusiveness in the governance and in the development processes	<ul style="list-style-type: none"> • Enhanced decentralization functions at the District level • Enhanced Public Private Partnership • National heritage policy developed
Equitable allocation of public resources, improved service delivery and civil service reform	<ul style="list-style-type: none"> • Enhanced services delivery at all level
Respect for the Rule of Law and Access to Justice	<ul style="list-style-type: none"> • Enhanced working environment and capacity of the Judiciary in Zanzibar • Enhanced working environment and capacity of the Law Enforcement Agencies in Zanzibar • Strengthened Government printing capacity
Improve public safety and security	<ul style="list-style-type: none"> • Enhanced Peace and tranquillity in Zanzibar • Improved Disaster Management and early warning system. • Enhanced Consumer protection measures
Increase the capacity of Government Institutions and actors	<ul style="list-style-type: none"> • Strengthened Government institutions and actors • Strengthened central ministries coordination capacity • Mainstreamed HIV and AIDS in policies and programmes
Combat corruption and its manifestations and strengthen leadership ethics	<ul style="list-style-type: none"> • Enhanced equity and fairness in the society
Strengthen Legal framework to support economic growth	<ul style="list-style-type: none"> • Reviewed Commercial laws, Regulations, Environmental policy and legislation.
Strengthen the institutions of oversight and accountability, including improving accessing to information	<ul style="list-style-type: none"> • Enhanced transparency and accountability • Enhanced Public awareness and information sharing
Provision of timely and reliable data for monitoring and evaluating Government activities and governance initiatives	<ul style="list-style-type: none"> • Improved Monitoring and Evaluation of governance activities
Inculcate good governance practices at all levels	<ul style="list-style-type: none"> • Strengthened leadership and commitment to good governance at all levels
Promote and observe human rights	<ul style="list-style-type: none"> • Enhanced human rights awareness and observance. • Enhanced productive and decent work/employment for all. • Enhanced fair treatment for all

Table 2: Tanzania mainland Socio-Economic and environmental operational targets

Cluster I: Growth and income poverty reduction	
Goal	Operational target
Ensuring sound economic management.	<ul style="list-style-type: none"> Maintained macro-economic stability: inflation rate at maximum of 4%, maintaining official reserves of at least six months of imports, achieving debt sustainability (containing the external debt to GDP ratio at 50 percent or less); Reduced unemployment from 12.9 % in 2000/01 to 6.9% by 2010 and address underemployment in rural areas
Promoting sustainable and broad - based growth	<ul style="list-style-type: none"> Accelerated GDP growth rate to attain a growth rate of 6-8% per annum by 2010 Scaled up participation of the informal sector and SMEs (including cooperatives). Increased growth of manufacturing sector from 8.6% to 15% by 2010 Increased agricultural growth from 5% in 2002/03 to 10% by 2010. Increased growth rate for livestock sub sector from 2.7% in 2000/01 to 9% by 2010 Increased technological innovation, upgrading and use of technologies. Promoted regional equity in development and capacity for growth and infrastructure that <ul style="list-style-type: none"> enables investment and livelihoods diversification Repaired 15,000 kms of rural roads annually by 2010 from 4,500 kms in 2003. Reduced negative impacts on environment and peoples' livelihoods. Reduced land degradation and loss of biodiversity. Increased export proportion of value added minerals from the current 0.5% to 3.0% by 2010.
Improving food availability and accessibility of food	<ul style="list-style-type: none"> Increased food crops production from 9 million tons in 2003/04 to 12 million tons in 2010. Maintained Strategic Grain Reserve of at least 4 month of national food requirement.
Reducing income poverty of both men and women in rural areas	<ul style="list-style-type: none"> Reduced proportion of rural population (men and women) below the basic needs poverty line <ul style="list-style-type: none"> from 38.6% in 2000/01 to 24% in 2010 Reduced proportion of rural food poor (men and women) from 27% in 2000/01 to 14% by 2010. Increased productivity and profitability both within agriculture and outside agriculture sector. Increased sustainable off -farm income generating activities Secured and facilitated marketing of agricultural products. Increased contributions from wildlife, forestry, and fisheries, to incomes of rural communities
Reducing income poverty of both men and women in urban areas	<ul style="list-style-type: none"> Reduced proportion of the urban population (men and women) below the basic needs poverty line from 25.8% in 2000/01 to 12.9% in 2010. Reducing the proportion of the urban food poor (men and women) from 13.2% in 2000/01 to 6.6%.
Provision of reliable and affordable energy to consumers	<ul style="list-style-type: none"> Liberalization of the power sub -sector effected by 2010. At least three (3) Production Sharing Agreements (PSA) negotiated, concluded and signed by June 2010.
Cluster II: Improvement in the quality of life and Social well being	
Among men and women and expansion of higher, technical and vocational education.	<p>A. Early Childhood</p> <ul style="list-style-type: none"> Increase in the number of young children prepared for school and life <p>B. Primary Enrolment</p> <ul style="list-style-type: none"> Increased gross and net enrolment of boys and girls, including children with disabilities in primary

	<ul style="list-style-type: none"> • schools from 90.5% in 2004 to 99% in 2010 • Increased proportion of orphans and other vulnerable children enrolled, attending and completing primary education from 2% in 2000 to 30% in 2010 <p>C. Secondary Enrolment</p> <ul style="list-style-type: none"> • Increased percentage of girls and boys with disabilities and OVCs who qualify for secondary education enroll and complete secondary schools by 2010 • At least 50% of boys and girls aged 14 -17 years are enrolled in ordinary level secondary schools by 2010 • At least 60% of girls and boys pass Standard VI I examinations by 2010 • At least 25% of boys and girls are enrolled in advance level secondary schools by 2010 <p>D. Primary Achievement & Quality</p> <ul style="list-style-type: none"> • Achieving an average daily attendance in primary schools of at least 85% • At least 95% of cohort complete standard d IV • At least 90% of cohort completes standard VII. <p>E. Secondary Achievement & Quality</p> <ul style="list-style-type: none"> • At least 70% of girls and boys pass at Division I -III in Form IV examinations. • Improved learning environment for all children in all schools, with all education institutions safe, • violence free, child friendly and gender sensitive • Access to and quality of education in GoT and Non -Government schools regulated. • 90% of primary and secondary schools have adequate, competent and skilled teachers by 2010. • Primary and secondary education is of a high quality and promotes the acquisition of critical knowledge, real skills and progressive values. <p>F. Higher & Technical Education</p> <ul style="list-style-type: none"> • Increased enrolment in higher and technical education in Universities and in Technical Colleges to • 30,000 full time students, 10,000 part time, and 15,000 distance learners by 2008. • Improved knowledge on entrepreneurship skills amongst youth <p>G. HIV/AIDS</p> <ul style="list-style-type: none"> • Effective HIV and AIDS education and life skills programmes offered in all primary, secondary schools and teachers colleges. <p>H. Adult & Non-Formal Education, & Culture</p> <ul style="list-style-type: none"> • At least 80% of adults, especially women in rural areas, are literate. • Reduced number of illiterate adults from 3.8 million (2004/05) to 1.5 million (2007/08). • Reduced numbers of young Pre-Primary and secondary education is of a high quality and promotes the acquisition of critical • Knowledge, real skills and progressive values. <p>F. Higher & Technical Education</p> <ul style="list-style-type: none"> • Increased enrolment in higher and technical education in Universities and in Technical Colleges to • 30,000 full time students, 10,000 part time, and 15,000 distance learners by 2008. • Improved knowledge on entrepreneurship skills amongst youth <p>G. HIV/AIDS</p> <p>Effective HIV and AIDS education and life skills programmes offered in all primary, secondary schools and teachers colleges.</p> <p>H. Adult & Non-Formal Education, & Culture</p> <ul style="list-style-type: none"> • At least 80% of adults, especially women in rural areas, are literate. • Reduced number of illiterate adults from 3.8 million (2004/05) to 1.5 million (2007/08). • Reduced numbers of young people involved in COBET from 234,000 in 2004/5 to 70,566 in 2007/08
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	<ul style="list-style-type: none"> • Expanded and improved public participation in cultural activities. • Increased numbers of students/youth who are involved in COBET from 234,000 in 2004/5 to 70,566 in 2007/08 • Expanded and improved public participation in cultural activities. • Increased numbers of students/youth who are service orientated.
Improved survival, health and well-being of all children and women and of specially vulnerable groups	<p>A. Infant & Child Health</p> <ul style="list-style-type: none"> • Reduced infant mortality from 95 in 2002 to 50 in 2010 per 1,000 live births. • Reduced child (under five) mortality from 154 to 79 in 2010 per 1000 live births. • Reduced hospital -based malaria-related mortality amongst under -5s from 12% in 2002 to 8% in 2010 <p>B. Child Nutrition</p> <ul style="list-style-type: none"> • Reduced prevalence of stunting in under fives from 43.8 % to 20% in 2010 • Reduced prevalence of wasting in under fives from 5.4% to 2 % in 2010 <p>C. Maternal Health</p> <ul style="list-style-type: none"> • Reduced maternal mortality from 529 to 265 in 2010 per 100,000 • Increased coverage of births attended by trained personnel from 50% to 80% in 2010 <p>D. HIV/AIDS</p> <ul style="list-style-type: none"> • Reduced HIV prevalence among 15 -24 year pregnant women from 11% in 2004 to 5% in 2010 • Reduced HIV prevalence from 11% in 2004 to 10% in 2010 between the ages of 15 and 24 years. • Reduce HIV and AIDS prevalence among women and men with disabilities (aged 15 -35 years) • Increased the knowledge of HIV/AIDS transmission in the general population TACAIDS • Reduce HIV/AIDS stigmatization <p>E. Human Resources & Management</p> <ul style="list-style-type: none"> • Health Boards and Facility Committees in place and operational in all districts. • Service delivery agreements operational and effective. • Regional Health Management Teams in place and operational. • Promoted knowledge -based care among health workers for attending among others, people with disabilities and the elderly.
Access to clean, affordable and safe water, sanitation, decent shelter and a safe and sustainable	<p>A. Water</p> <ul style="list-style-type: none"> • Increased proportion of rural population with access to clean and safe water from 53% in 2003 to 65% 2009/10 within 30 minutes of time spent on collection of water. • Increased urban population with access to clean and safe water from 73% in 2003 to 90% by 2009/10. . <p>B. Sanitation & Waste Management</p> <ul style="list-style-type: none"> • Increased access to improved sewerage facilities from 17% in 2003 to 30% in 2010 in respective urban areas. • Reduced households living in slums without adequate basic essential utilities. • 100% of schools to have adequate sanitary facilities by 2010 • 95% of people with access to basic sanitation. By 2010. • Cholera out-breaks cut by half by 2010. <p>C. Pollution</p> <ul style="list-style-type: none"> • Reduced water related environmental pollution levels from 20% in 2003 to 10% in 2010 • Reduction in harmful industrial and agricultural effluents <p>D. Planning & Human Settlements</p> <ul style="list-style-type: none"> • Planned and serviced urban settlements with functioning town planning procedures in place • Increased number of people having secured tenure of land and properties that can be mortgaged, and women and men have equal rights to access, ownership and inheritance.

	<p>E. Vulnerability & Environmental Conservation</p> <ul style="list-style-type: none"> • Reduced vulnerability to environmental disasters. • Soil, forest and aquatic ecosystems that people depend upon for production and reproduction conserved. • Reduction in land degradation and loss of biodiversity
Environment and thereby, reduced vulnerability from environmental risk.	
Adequate social protection and provision of basic needs and services for the vulnerable and needy.	<p>A. Social Protection</p> <ul style="list-style-type: none"> • Increased number of orphans and most vulnerable children reached with effective social protection measures by 2010. • 20% of children and adults with disabilities reached with effective social protection measures by 2010 • 40% of eligible older people reached with effective social protection measures by 2010 • Reduced violence against women. <p>B. Support to Vulnerable Groups</p> <ul style="list-style-type: none"> • Increased support to poor households and communities to care for vulnerable groups targeting older people, orphans, other vulnerable children and people living with HIV and AIDS. <p>C. Child Protection & Rights</p> <ul style="list-style-type: none"> • Reduced proportion of children in labor country wide from 25% to less than 10% by 2010 and avail to them alternatives including enrolment in primary education, COBET and employable vocational education skills training <p>D. Access of the Rural Population to Modern Energy Services</p> <ul style="list-style-type: none"> • Institutional arrangement for rural energy development established and strengthened • Increased contribution of solar, wind and biomass and coal for electricity generation from the current 0.5% in 2003 to 3% by June 2010 • At least 10% of the population using alternative power to wood fuels for cooking by 2010
Effective systems to ensure universal access to quality and affordable public services	<p>A. Roads</p> <ul style="list-style-type: none"> • Improve passable (good/fair condition) rural roads from 50% in 2003 to at least 75% in 2010 <p>B. Schools and Health Facilities</p> <ul style="list-style-type: none"> • 90% of schools and 80% of health facilities in the urban and rural areas have the required mix of skilled and motivated workers in place. <p>C. Social and Service Sectors</p> <ul style="list-style-type: none"> • Skilled personnel in social sectors infrastructure and utilities are attending to their tasks and executing their obligations accordingly. <p>D. Access to Health Services</p> <ul style="list-style-type: none"> • Improve accessibility to health services by geographical coverage. Household to be within 5 km of health service units. • 100% of eligible older people provided with free medical care and attended by specialized medical personnel by 2010 <p>E. Partnerships and Planning</p> <ul style="list-style-type: none"> • Optimal partnerships with CSOs and the private sector in expansion and provision of quality social services are in place. • Realistic, streamlined and useful systems for planning and data analysis are in place

Cluster III: Governance and Accountability	
Structures and systems of governance as well as the rule of law are democratic, participatory, representative, accountable and inclusive	Ensure representative, inclusive (poor and vulnerable groups) and accountable governance institutions operating at all levels
Equitable allocation of public resources with corruption effectively addressed	<ul style="list-style-type: none"> • Public resources are allocated, accessible and used in an equitable, accountable and transparent manner • Institute effective regulations and mechanisms regarding petty and grand corruption
Effective public service framework in place to provide foundation for service delivery improvements and poverty reduction	<ul style="list-style-type: none"> • Administrative systems of public institutions are managed transparently and in the best interests of the people they serve. • Decentralization by devolution institutionalized and implemented to enhance public ownership of the development and poverty reduction process
Rights of the poor and vulnerable groups are protected and promoted in the justice system	<ul style="list-style-type: none"> • Ensure timely and appropriate justice for all especially the poor and vulnerable groups
Reduction of political and social exclusion and intolerance	<ul style="list-style-type: none"> • Develop political and social systems and institutions, which allow for full participation of all citizens including the poor and vulnerable groups
Improved personal and material security, reduced crime, eliminate sexual abuse and domestic violence	<ul style="list-style-type: none"> • Ensure institutions and agents of government such as the police, courts and prisons observe human rights and ensure justice and security of all citizens
National cultural identities enhanced and promoted	<ul style="list-style-type: none"> • Policies, strategies and legal frameworks for national language, cultural and moral development are in place and operational

4.0 OVERVIEW OF OIL AND GAS DEVELOPMENT IN TANZANIA MAINLAND AND ZANZIBAR

4.1 The Historic Development of Oil and Gas Industry in Tanzania and Zanzibar

The exploration of oil and gas in Tanzania traces its origin back in the colonial era. It was BP and SHELL International in the year 1952 first pioneered in venturing to explore for petroleum in the Tanzania Sedimentary basins. In as far as exploration is concerned and as per the data available with Tanzanian Petroleum Development Company TPDC the exercise can be periodized into three phases.

Exploration Phase I: 1952 - 1964

This phase which covered the onshore coastal basin including the islands of Zanzibar, Pemba and Mafia were explored by BP and SHELL in their joint concession. The two companies undertook extensive technical surveys including drilling four wildcat deep wells one in each of the islands and the fourth was drilled onshore in the mainland at Mandawa in Lindi Region. During the exercise no commercial discovery of oil or gas was made and so BP/HELL decided to close their business in Tanzania

Exploration Phase II: 1969 - 1979

During the start of the second phase of exploration in 1969 the Government established Tanzanian Petroleum Development Company (TPDC). It was in the same year AGIP was awarded a concession retaking the area earlier held by BP/SHELL. In the year 1973 AMOCO joined AGIP in the explorations. Following further geological and geophysical surveys and drilling of four deep wells at Ras Machuisi, Songosongo, Kisangire and Kisarawe the well at Songosongo in 1974 revealed availability of gas. The gas deposits were estimated at 4 Billion Standard Cubic Feet-Bscf that were uneconomical to AGIP who decided to quit.

Thereafter TPDC took over the sites and made further surveys for the Songo Songo gas reserves and found that the available gas ranged at 43Bscf. However, TPDC continued with further appraisals in Songo Songo area which confirmed more availability of gas.

Exploration Phase III: 1980 - 1991

It was during this phase that the Government developed an Act of Parliament on Petroleum (Exploration and Production) of 1980 which gave mandate to the Minister for energy to negotiate with oil companies on exploration companies rights in the country.

The exploration activities during this period increased because of high prices of oil in the international market. While SHELL was licensed to explore Ruvu, Selous, Mandawa and Mafia area; International Energy Development Corporation (IEDC) was given Tanga and Ruvu areas; ELF Mafia and Nyuni

areas; AMOCO licensed inland areas of Lakes Tanganyika and Rukwa and TEXACO given a license in Ruvuma Basin.

Despite the efforts undertaken by these companies only AGIP managed to discover gas at Mnazi Bay in 1982. Otherwise there was no commercial oil discovered during the period. The TPDC on its mandate continued with own exploration onshore and offshore in order to upgrade areas for promotion to oil companies.

Exploration and Production Phase IV: 1992 - 2008

Following relaxation of terms of the Production Sharing Agreements (PSA) and improvement in investment policy, various oil companies entered PSAs with the Government and TPDC during the referred to phase. The list of companies and country of origin are provided hereunder:

- Dublin Petroleum (Tanzania) Limited, of Canada (Mandawa Basin in Lindi)
- CANOP Tanzania Ltd, of Canada (Mafia Island, Dar es Salaam Platform and Kisangire,)
- NDOVU RESOURCES (Tanzania) LTD, of Australia (Nyuni/East Songo Songo, Kiliwani North)
- ANTRIM RESOURCES (Tanzania) LTD, of Canada (Pemba & Zanzibar but not effective)
- GULF WESTERN MINING (GWM), of Cyprus (Tanga, Ruvu and Kimbiji)
- PAN AFRICAN ENERGY (PAE), of UK (Main Songo Songo Area)
- MAUREL & PROM, of France (Bigwa, Rufiji and Mafia)
- ARTUMAS GROUP AND PARTNERS, of Calgary, Canada (Mnazi Bay)

Today Songo Songo gas is made available in Dar es Salaam for generating electrical power of about 190 MW to TANESCO the national electrical company and other gas is connected to at least 18 industries including Wazo Hill, Cement Company.

4.2 Socio-economic activities in oil and gas development sites

Agriculture is important economic activity in both Zanzibar and mainland, employing about quarter of the labor force in Zanzibar and about 76.5% of labor force in Tanzania mainland. Average household size in Zanzibar is 5.5 members and in Tanzania mainland is 5. The gini coefficient in Tanzania is 0.35 while that of Zanzibar is 0.28, the higher the value the greater the income inequality. In the southern region where Lindi, Mtwara and Ruvuma regions the average income per year is 173 USD, along the coast communities is 100 USD and in Zanzibar is 158 USD. Most household heads in the mainland and Zanzibar have average years of 30- 44.

4.2.1 Population Growth

The population growth for mainland coast and Zanzibar differ from one region to another as shown in the table below:

Table 3: Population growth in oil and gas potential sites

Coastal Region/ District	Population	Growth Rate (1988-2002)	Population Density
Tanga	1,642,015	1.8	61
Coast	889,154	2.4	27
Dar es Salaam	2,497,940	4.3	1793
Lindi	791,306	1.4	12
Mtwara	1,128,523	1.7	68
Total Mainland Coast	6,948,938	2.32	392.2
North Unguja	136,954	2.5	291
South Unguja	94,504	2.1	111
Urban West	391,002	4.5	1700
North Pemba	186,013	2.2	324
South Pemba	176,153	2.3	531
Total Zanzibar	984,625	3.1	400
Total Tanzania	34,569,232	2.9	39

Source: 2002 Population and Housing Census, National Bureau of Statistics, Government of Tanzania.

The average rates of growth on the mainland for the period 1988 to 2002 ranges from 4.3 recorded in Dar es Salaam Region to 1.4 percent in Lindi Region in Zanzibar the average rates of growth for the period 1988 to 2002 ranges from 4.5 percent recorded in Urban West to 2.1 percent recorded in South Unguja. The Regions that show the highest rate of growth are dominated by large urban areas like Dar es Salaam and Zanzibar Town (State of the Coast Report, 2003). Ruvuma being one of the regions earmarked for the exploration by the year 2002 had a population of 1,113,715 with a growth rate of 2.5 while population density standing at 17.5 per kilometer square.

Oil and gas exploration and ultimate development is anticipated to take place offshore Tanzania mainland coast and Zanzibar where the inhabitants undertake various socio economic activities to earn their living. As a fact most rural coastal communities are very poor. They are directly dependent 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 and production of hydrocarbon in those potential areas might lead positive or negative consequences to the community livelihood. Economic activities which form the major source of livelihood in those areas potentially for exploration and production are discussed in this section.

4.2.2 Economic activities

Agriculture

Most of the people in these areas engage in agriculture for source of food and business. With the nature of the soil crops are grown further inland where the land is more productive as compared to the shoreline where the soil is too sandy for agriculture except for seaweed that is tended on beach areas between the high and low water marks. Mtwara and Lindi regions grow cashew nuts for export, coconut palms trees are also grown along the coast of these regions but more are grown in Tanga and Coastal region. On the side of Zanzibar, engagement in the agricultural sector mostly concentrated in the production of cloves which in mid 70's made Zanzibar the world's exporter. However, it is said that currently it contributes around 45% of GDP. Seaweed a crop recently introduced in 1989 on the east coast of Zanzibar. Coconut products and spices are again other agricultural products that earn income to Zanzibar coastal villagers. In rural household agriculture contribute 20% of household income (HBS, 2006). The crop after being harvested and dried, it is exported to several countries in Europe and Asia where it is used as a food thickener or stabilizer. The increasing importance of seaweed is reflected in its dramatic growth, starting from barely 500 tones of dry seaweed per year in 1989 to at staggering 7,000 tones per year in 2000(State of the Coast Report, 2003).

Fishing

Fishing is another economic activity for people living along the coast of Tanzania mainland and Zanzibar which jointly includes Tanga, Mtwara, Lindi, Dar es Salaam and Coastal region. The referred fishing industry exploit amongst others fish species like sardinella, seer fishes, sharks, various demersal fishes, and seasonal quantities of migratory pelagic fishes like kingfish (Fisheries Sector Review, 2000). While the small scale fisheries employ about 42,500 to 43,000 of coastal active labor. The fish caught by local small scale fishers provides up to 90 percent of the animal protein in coastal communities (State of the Coast Report, 2003). The total annual catch of Tanzania's marine fisheries is around 70 000t. Zanzibar alone currently lands about 22 000 t. However, with tourism on a boom in Zanzibar need for fishing crab, lobster, squid and octopus is on a rise.

On the coast of Tanzania mainland profitable and productive marine fishing grounds are located between the Rufiji delta and the Mafia channel which in the year 1996 landed 58,700 tones per year that fetched the nation about Tshs 37.0 Million(Fisheries Sector Review, 2000). Nearly all fishing activities take place on the continental shelf which is quite narrow. It reaches about 4 km offshore, with the exception of the Zanzibar and Mafia channels where the shelf extends for some 60km. the area of the shelf to the 200 m depth contour for both mainland and Zanzibar combined 30 000 km². This is the area commonly used by artisanal fishermen. The high seas, or the "Exclusive Economic Zone" is so far unexploited by local fishermen because of the lack of suitable vessels to venture into the distant waters.

Farming of *Eucheuma* seaweed along the coast of Zanzibar is famous activity to the women which begun in 1989 and now has spread to other part of the coast. It is estimated that this industry employs more than 30 000 people. The increasing importance of seaweed farming is reflected in its dramatic

growth starting from barely 500 tonnes of dry seaweed in 1989 to a staggering 7 00 tonnes per year by 2000. Between 1993 and 1994 seaweed contributed 15-27% of the Zanzibar export income. Two species of *Eucheuma* are under cultivation in Tanzania, *Eucheuma cottonii* and *Eucheuma spinosum*. Initially, *spinosum* dominated farms in Unguja and Pemba and some parts of coastal mainland Tanzania. The price paid to seaweed farmers is about 400USD and 1000 USD for a metric tonne of dried *spinosum* and *cottinii*

Tourism

Sites in the mainl and with potential hydrocarbon reserve have less of tourism activities than along the Coast of Zanzibar Island. Most of international tourists for the coast prefer to visit areas like Pangani, Zanzibar Island, Mafia Island and Kilwa. Travelers are attracted to the boundaries of the Mafia Island Marine Park due to the natural environment and unchanged rural, traditional culture. The Mafia Island geographical region is said to be one of the finest complexes of estuarine, mangrove, coral reef and marine ecosystems in the world but tourism growth is limited and greater precaution from oil spills is necessary.

Currently the most popular coastal tourist destination in Tanzania is Zanzibar due to establishment of Zanzibar Commission of Tourism in 1987 for promoting the isles as tourist destinations and the creation of Zanzibar Investment Promotion Agency in 1992 provided an enabling environment in developing tourist projects. The endeavor has been registering progress in increasing number of visitors by 10% a year. From 1986 to 1996 the total number of arrivals increased from about 23,000 to 69,000(State of the Coast Report, 2003). Tourism brings income to the local economy not only through hotels and resorts, but also through island tours, boat expeditions, diving and snorkeling, gift shops, restaurants, bars and night clubs, deep sea fishing and scuba diving.

4.3 Benefits and risks of gas in Tanzania mainland and Zanzibar

In order to contribute to the growth of the national economy, TPDC and Zanzibar department of oil and gas development intends to ensure operating companies in the oil and gas industry follow safety standards to protect people, property and the environment. The exploration of hydrocarbons in Tanzania and Zanzibar under the Production Sharing Agreement (PSA) for a number of available blocks in the sedimentary basins both onshore and offshore pose prospectus for benefits and risks.

Exploration activities for hydrocarbon intimidate the environment in the meantime it's a potential benefit to the surrounding communities and revenues to the government. Exploration sites which license have been issued have good environment, rich in natural resource but are surrounded with poverty e.g. Rufiji basin, Ruvuma, Kilwa, Mtwara, Lindi, Mafia, Pemba, and Tanga. Development of the hydrocarbon in those sites will lead to improvement in infrastructure, basic social services, economic and economic activities. Benefits will result from the good cooperation between the investors and surrounding communities through Corporate Social Responsibilities (CSR) framework of the companies. Local

government authorities have to work closely with the investors for mutual benefits. The community in return will protect the investor's properties. Other benefits to the communities are:

- (i) Stabilize power generation in the country by generating the same through gas
- (ii) Additional source of income to the government through royalty.
- (iii) Could help building capacity of nationals in the area of exploration and production of oil.
- (iv) Source of Employment to nationals direct in the activities of exploration and production of oil and gas or indirectly by nationals getting opportunity to supply and provide various services.

Risks that might result from the exploration and development activities are directly linked with the environment (and protected areas) and loss of properties and economic activities which could be caused by resettlement. The risk to larger extent could be covered by the application of friendly technology in the industry which will have minimum effects to the surrounding communities. There are also government procedures to ensure environment, compensation, and if there is resettlement or destructions of crops to pave way for release of seismic wave are properly adhered. Other risks includes

- (i) Unpredictability of the oil exploration venture that require enormous funding without any assurance on whether or not oil will be obtained.
- (ii) The life of the living things in the sea might be endangered due to use of dynamites/ explosives.
- (iii) The use of chemicals in drilling exercise might cause pollution in the surrounding water which in return may kill the sea creatures.
- (iv) Mud from boreholes apart from polluting water may also hinder deep sea diving for marine eco-tourism activities.
- (v) Such investment need a well developed infrastructure like roads, jet landing strips, repair shops, homes, industrial which apart from costing our economy they also contribute a lot in degrading our environment
- (vi) Accidents on production sites may cause spills that may kill sea creatures
- (vii) Disturbance of Exclusive Economic Zone (EEZ) which since 1997, industrial long liners have caught 193 metric tons per year of tuna and other fish

4.4 Key informants opinions oil and gas revenue sharing between Tanzania mainland and Zanzibar

Key informants interviews were conducted for inclusion of government official views on the sharing of petroleum revenues. Apart from questions on how revenues should be distributed, other questions on consideration of environment, marine ecosystem and economic and non economic activities were asked. Mixed opinions were observed among officials on both aspects were availed.

Most Zanzibarian officials preferred to have the largest share of the revenues for several reasons, they believe large reserves of fossils for petroleum are located within their boundaries, Zanzibar do not get share of other minerals, or gas extracted from mainland while few others preferred equal sharing of the revenues. The favorable distribution if put into percentages is 60% to Zanzibar and 40% to the mainland. Tanzanian mainland officials preferred equal sharing and others were preferred the matter should be handled by TPDC and Zanzibar counterpart to advise on the matter. It was also known that the constitution of the union is not stated clearly how natural resource should be distributed among the two beneficiaries. Section 14 of the constitution gives power the minister in charge to negotiate the contract but not on distribution between Zanzibar and the mainland. Key observation emanated during interviews is that, not all government officials from both sides clearly understand how the PSA works, which form the basis of contract between the government and investors. Also no one government officials have the clue of availability of the petroleum reserves. The island relies on the observation of oil sip along the coasts of Mafia Island and Tundaua Pemba, the fact that according to technical explanation from TPDC is not enough indicators for justification until exploration studies were done.

All official show concern for the environment and economic activities both offshore and inshore were there are potential sites for exploration. They advise TPDC and Zanzibar department for petroleum development should make sure environment and land policies are observed by potential investors. Also if there is damage, the citizens should be sufficiently compensated under the existing laws and regulations. Protected areas and marine ecosystem should also be considered during exploration and production of hydrocarbons.

5.0 ENVIRONMENTAL IMPLICATIONS ON OIL AND GAS DEVELOPMENT IN TANZANIA MAINLAND AND ZANZIBAR

5.1 Environment and Marine Ecosystem

This highlights issues and threats to the coastal and marine environment which can be either directly or indirect caused by oil and gas exploration and development activities along mainland coast and Zanzibar Island.

The 1424 km coast of Tanzania mainland and Zanzibar Island is endowed with abundance of natural resources and globally important ecosystems. The National Integrated Coastal Environment Management (ICM) Strategy that was adopted by the government in 2002 and its focus is on using coastal resources in a sustainable manner to alleviate poverty to 7, 933, 563 population to both main land and Zanzibar Island. The ICM strategy despite promoting and management of local coastal programs its also acknowledge and work to meet regional and international commitments such as the Nairobi Convention, the Convention on Biological Diversity and UN Framework Convention on Climate Change. It also involves local stakeholders in the management of coastal resources. Oil and gas activities have therefore need to take necessary precaution to the coastal resources.

The coast supports marine parks such as mafia and Mnazi bay, and several marines Reserves, which attracts a burgeoning number of tourists. Additionally the sea provides resources for ports, maritime commerce and offshore gas extraction. Protecting the coastal from oil and gas activities is important as the coast contributes about one-third of the country's GDP. Mangroves which support coral reefs are found in Bagamoyo, Kilwa, Tanga, Mtwara and Mafia which are potential areas for oil and gas exploration activities. Some of the issued licensed blocks for explorations are in those areas with larger coverage of coral reefs. If necessary measures were not taken in advance about 70% of artisal fish production will be affected. This is due to the ecological significance of coral reefs in supporting fish production and Ecological tourism.

In 2001 there were relatively pristine reefs in some parts of the country, many had been degraded, particularly in the shallower depths of 1-10 m. Reefs near urban centers such as Dar es salaam, and Tanga, Zanzibar and Mtwara were almost degraded. As such oil and gas development activities should be closely monitored to prevent further degradation. Coral mining which devastated many reefs in Mtwara has been, to larger extent, controlled in that district, though it still goes on in a few other parts of the country such as Mafia.

Exploration activities should also consider implementation of intervention programmes in all potential areas for exploration. Example in Tanga there is Tanga Coastal Zone Conservation and Development Programme (TCZCDP), in Bagamoyo special care should be taken to prevent community-based monitoring programme at Mwakambani, which is only large patch reef and is the main fishing ground for

most of the villages in the area. Most of the fringing reef in the Dar es Salaam Marine Reserve System (DMRS) consists of coral rubble, largely covered with algae, dead coral, sea grass and the good Live hard Coral on the Northeast and Southwest sides of Pangavini Island. Degradation of these marine resources is important while an exploration activity continues. In Kilwa reef there is good abundance of and diversity of fish particularly Msanagla, Mwanamkaya and Amana. The high percentage of rubble and dead coral on many of these reefs should be protected to ensure communities get income from the sales of fish. In Zanzibar the protected areas include Chumbe,

If coral reef in Tanzania mainland and Zanzibar Island are not well restored from exploration and development activities, this could have a great negative impact on the economy of coastal communities, due to both lack of fisheries and destruction of eco-tourism sites.

Similar to coral reefs, mangrove forests are also considered critical habitats with great ecological and socio-economic value. They are also keystone ecosystems in that they have high productivity, producing large quantities of organic matter that serve as food for many organisms including fish. Mangrove forests are located in Tanga, Lindi, Bagamoyo (Chengeni and Bwanakozzi), Kilwa, Dar es Salaam and Mtwara.

Exploration of oil and gas should take considerable measures in protecting coastal conservation initiatives and marine protected areas (MPA) to meet the restoration of fisheries resources to sustainable levels recommended at World Summit on Sustainable Development and the New Partnership for Africa's Development (NEPAD). Protected areas include Chole Bay and Tutia Reef in Mafia Island marine Park, Mnazi Bay marine Park, Menai Bay Conservation off the south coast of Zanzibar, Misali Island Marine Conservation Area located 10 km off the west coast of Pemba. The Jozani-Chwaka bay Conservation Area located 35 km south east of Zanzibar town. There are community-based marine protection areas that should be considered in exploration and development of oil and gas in Tanga, Muheza, Pangani district under the direction of Tanga Coastal Zone Conservation and Development Programme (TCZCDP). Others include Rufiji Environment Management project. In Zanzibar Chumbe Island Coral Sanctuary which is a private nature reserve and Mnemba Island marine Reserve, managed by conservation corporation Africa.

The Zanzibar environmental policy of 1992 currently under review in understanding the importance of coastal to the livelihood of nearby communities has called for the development of integrated coastal zone management plan within the framework of overall land use plan. It extends to include the marine ecosystem and special key components such as coral reefs and sea grass beds. Apart from vulnerability from hydrocarbon searching activities, the coastal has been in danger from fisheries, urban expansion, tourism, navigation, waste disposal, conservation of biological diversity and construction. The policy also calls for improvement of rural land management within the framework of overall land use plan.

5.2 Communities' Livelihood and Settlement

The mainland and island coasts houses nearly three-quarters of the united republic of Tanzania's industries and is home to over a quarter of the population. The coastal area is where majority of the oil blocks for exploration are located. Hydrocarbon exploration activities are threat to people's means of livelihood not only along the coast but to the dry land. Most of coastal peoples occupation include artisanal and commercial fishing, seaweed farming, terrestrial crop farming, industrial production, livestock farming and gleaming for wild seaweed, sales of sea cucumbers, cowries, cockles and other molluscus.

In offshore areas the means of livelihood to the communities is crop production and livestock keeping. In Ruvuma and Mtwara region famous crops cultivated is maize and in Tanga is sisal production and coconut tree planting. The region is also famous in production of fruits like pineapple and oranges. Kilwa and Zanzibar artisan fishing forms important economic activities. In most cases release of seissimic waves require clearing of land in the potential areas which are licensed for searching hydrocarbon reserves. If clearing of land will be necessary, the investors in consultation with TPDC will have to cooperate with respective district land and settlement officers for compensating the communalities properties. Compensation will have to ensure villagers economic activities and settlements are restored to their normal functioning.

These hydrocarbon exploration activities may also give rise to production systems being dismantled, people facing impoverishment when their productive assets or income sources are lost, people being relocated to environments where their productive skills may be less applicable and the competition for resources increases; community institutions and social networks being weakened; kin groups being dispersed; and cultural identity, traditional authority, and the potential for mutual help being diminished or lost. The resettlement policy may be triggered because the project activity causes land acquisition, namely: a physical piece of land is needed and people may be affected because they are cultivating that land, they may have buildings on the land, they will use the land for watering and grazing of animals or they may otherwise access the land economically, spiritually or in any other way which may not be possible during and after the project is implemented.

Therefore people should appropriately be compensated for their loss (of land, property or access) either in kind or in cash, of which the former is preferred. The Land Act No.4 and Village Land Act No.5 of 1999 have set clear procedures for full, fair and prompt compensation while acquiring land from citizens,. These procedures should be adhered to, especially the Land (assessment of the value of compensation) Regulations – made under S.179 of Land Act No. 4 of 1999. GN 78 published on 4/5/2001. In principle despite the economic value of investment contribution to the local economy and at national level it's important that the investors to understand

- (i) Involuntary resettlement and land acquisition should be avoided where feasible, or minimized, exploring all viable alternatives during projects design.

- (ii) Where involuntary resettlement and land acquisition is unavoidable, resettlement and compensation activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to give the persons displaced by the project the opportunity to share in project benefits. Displaced and compensated persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.

- (iii) Before resettlement construction NEMC or Zanzibar Commission for land and environment offices should be consulted for conducting socio-economic and environment impact assessment study

- (iv) Displaced and compensated persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

6.0 POTENTIAL CONTRIBUTION OF OIL AND GAS REVENUE TO ECONOMIC GROWTH AND POVERTY REDUCTION FRAMEWORKS

The financing framework for MKUZA and MKUKUTA is guided by Zanzibar Vision 2020 and Tanzania Development Vision 2025 on increasing domestic financial resource base to support the three clusters (Growth and Reduction of Income Poverty, Social Services and Well-being, and Good Governance and National Unity) in order to enhance employment creation, boost economic sectors and support other development programmes for poverty reduction and improvement of peoples' welfare.

One of the domestic sources for financing both macroeconomic framework of poverty reduction is prospects from petroleum production. Though up to the moment there is no any petroleum production or sharing arrangement in place to both parties. Using financing strategy for both frameworks will show indication where petroleum or how petroleum revenues can could contribute.

The full financial requirements for implementing MKUZA and MKUKUTA have not yet been determined because scientific and realistic costing of the interventions to support implementation has not been completed. In addition, since both macroeconomic frameworks for achieving socio-economic and environment is not a static Strategy, search for information about financial implications for its implementation will have to be an ongoing exercise as new realities unfold. In this regard, in order to inform estimation of petroleum revenues a realistic resource for contributing in financing activities, MDAs for both parts will have to cost their activities along the thematic areas of the Strategy and review such costs annually. However this framework forms an important basis to estimate which component of cost can be covered in both Zanzibar and the mainland (see table).

Table 4: MKUKUTA and MKUZA Budgets

	Zanzibar Island		Tanzania Mainland	
	2006/07	2007/08	2006/07	2007/08
	Ceiling	Projections	Projections	Ceiling
I. TOTAL RESOURCES	214,800	223,464	4,355,669	4,561,157
Domestic revenue	83,187	90,498	2,261,168	2,580,582
Programme grants	29,196	28,375	834,392	846,603
o/w 4.5 budget support Tshs 21,196mill				
MDRI Tshs 8,000mill				
Basket Support Loans			66,801	2,799
Basket Support Grants			197,024	164,680
HIPC relief IDA, IMF and ADB			98,669	103,454
Project loans and grants	95,587	100,366	819,840	831,837
Non Bank Borrowing	6,830	4,224	0	0
Bank Borrowing	-	-	77,774	31,201
Adjustment to cash	0	0	0	0
Privatization funds			0	0
II. TOTAL EXPENDITURE	214,800	223,464	4,355,669	4,561,157
RECURRENT EXPENDITURE	110,355	113,515	2,932,829	3,174,753
CFS	31,811	32,680	564,805	605,760
Debt service	19,074	15,125	309,048	329,780
Interest	2,500	2,625	177,261	184,006
Amortization	16,574	12,500	131,787	145,774
Other CFS	12,737	17,555	255,757	275,980
Recurrent Exp.(excl. CFS)	78,544	80,836	2,368,024	2,568,993
o/w Salaries & wages	50,626	52,506	759,344	845,980
Other Charges	27,918	28,329	1,565,291	1,667,141
Designated Items 1/			43,390	55,872
CONTINGENCY 2/			0	0
DEVELOPMENT EXPENDITURE	104,445	109,949	1,422,840	1,386,404
Local	8,858	9,583	339,175	387,087
Foreign	95,587	100,366	1,083,665	999,317

sector based MKUKUTA and MKUZA costing to meet MDGs, they form a financing plan that estimates and mobilizes the resources needed to achieve the operational targets stipulated in the strategies. The costing studies were not done in all sectors but were done in important sectors of economy needed for accelerating economic growth in order to achieve MDG's goals. Environment is among cross cutting themes and therefore each sector has an implicit budget allocated for environment management for sustainable utilization of resources for a sustained economic growth.

In both Island and the mainland sector based costing and projection is calculated based on the projects and interventions mainstreamed in the Medium Term Expenditure Framework (MTEF) and annual plans are costed in the standard format guided by the MTEF documents under the Activity Costing (sheets) Forms. The MTEF Objectives are broken down to MTEF Targets, then down to Activities, and then to Inputs, which are then costed. This is the most straightforward approach and the one used throughout by the government in planning and budgeting. This will avail the potential financing strategy that can develop to finance sector's activities to reach MDGs. Seven sectors in the mainland were calculated and cost based on MDG's goals and MKUKUTA clusters.

Table 5: MKUKUTA/MDG costing (values in USD)

SECTOR	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Agriculture	275,446.00	302,261.00	319,782.00	331,437.00	343,659.00	353,064.00	350,185.00	362,969.00	372,611.00
Education	759.10	1,249.70	1,375.40	1,629.20	1,938.10	2,320.40	2,788.80	3,348.00	4,141.60
Water	15,651.00	16,579.00	15,004.00	15,024.00	15,045.00	14,657.00	14,677.00	14,697.00	19,658.00
Health	334,955.00	358,880.00	398,758.00	438,631.00	334,955.00	510,408.00	566,233.00	638,009.00	669,910.00
Water	84,393.00	49,003.00	53,977.00	42,567.00	40,333.00	21,050.00	20,270.00	20,270.00	20,270.00
Energy	716,000.00	897,900.00	1,123,500.00	906,600.00	871,700.00	687,200.00	926,400.00	945,400.00	718,100.00
Road	932,494.00	951,416.00	965,461.00	801,844.00	794,623.00	867,347.00	876,750.00	923,626.00	933,693.00

Assumptions

1USD=1259.3

minimizes the resources required to achieve the operational targets stipulated in MKUZA and therefore the MDGs. To meet these targets domestic revenues is part of financing strategy. With great expectation of petroleum production, it is believed will enormously reduce external finance dependency. The table gives a platform for strategizing how petroleum revenues can finance sectors activities.

Table 6: MKUZA/MDG costing

SECTOR/ YEAR	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Agriculture	15970.56	15356.32	17002.64	16599.67	17626.75	18856.85	20818.56	22096.93	20985.52
Tourism	119.84	57.65	6236.12	10111.52	9673.97	7826.88	3389.04	3325.52	3212.15
Trade	138.97	130.97	10471.51	1668.68	1690.16	1286.03	1304.97	1297.29	1300.32
Manufacturing	11.27	38.74	4094.74	3764.71	8498.93	8007.75	1199.95	1310.26	1347.02
Energy	57997.05	69120.68	88586.88	86650.8	87526.71	62134	71	63963.08	64816.32
Roads	10497.08	10527.16	15626.61	14953.7	15803.78	13921.95	13205.68	11113.82	11149.36
Airports	1908.47	2504.04	34816.95	20224.86	19033.72	1940.9	2037.94	2139.84	2246.83
Marine Transport	285.92	297.83	7920.8	25887.05	25892.53	24563.93	4632.14	4201.22	4294.45

Assumption

1USD=1259.3

7.0 RECOMMENDATIONS AND CONCLUSION

7.1 Modalities and extent of compensation of the affected environment and resettlement

Tanzania's average population density is relatively low at about 32 people /km², and therefore population pressure on scarce land resources is not a major problem theoretically, but it is important in some localities, particularly semi-arid areas in the mainland and along the Coast of Mafia Island to consider with special care. Nonetheless, efforts should be made in the design and screening stages of the oil, projects to avoid negative impacts on people, land, and property, including people's access to natural and other economic resources, as far as possible.

It should also be known that along the coast 80% of the population depends on fishing activities and 80% of population in the mainland rely on agriculture for livelihood. It is possible hydrocarbon extractive activities may have indirect or direct effects which will automatically trigger the Government of Tanzania's relevant policies and acts especially Land Acquisition Act of 1967 will be triggered and its related compensation procedures. TPDC, investors and Zanzibar commission for land and environment have to be in consultation for the preparation of compensation or resettlement framework if any. Also according to national environmental policy before on set of any project Socio-Environmental Impact Assessment studies needs to be done and there after, regular monitoring schedules be done by NEMC.

In accordance with provisions of the Tanzanian legal framework, a process for preparing and approving resettlement plans should be based on Participatory Land Use Planning and Management (PLUM) (with technical assistance of relevant district functional officers) and NEMC. The Village government should therefore be able to:

- (i) Review the proposal to prepare a resettlement plan
- (ii) Discuss the proposal in its village organs
- (iii) Prepare and agree on proposals of the resettlement plan
- (iv) Approve the resettlement plan subject to national legislations esp. Land Act no. 4 of 1999 and Land Acquisition Act of 1967.

The valuation of affected assets will be carried out by estimation of the market value, when it is known, and/or by estimation of the replacement cost. Graves are valued separately – under the Graveyard Removal Act of 1968. Valuations methods for affected land and assets would depend on the type of asset. The land asset types identified under Tanzania law in this policy framework are;

- (i) State Land not within the jurisdiction of a village
- (ii) Village Land, including customary rights of villagers

State owned land would be allocated free (perhaps except for surveying and registration fees), and the sub project would be expected to pay to acquire land in this category in cases where the state-owned land is being used by individual farmers. This is because, although state owned, the land may be used by individuals and/or household farmers. The guiding principle is that whoever was using the land to be acquired by the project, would be provided other land of equal size and quality. Assets held under customary rights on state owned land would have to be valued according to the following method and compensation paid for. The sub projects would value and duly compensate for assets and investments, including land, crops, buildings, and other improvements, according to the provisions of the resettlement plan. Compensation rates would be market rates as of the date and time that the replacement is to be provided. The current prices for cash crops would have to be determined. Compensation would be based on valuation at or before the entitlement cut off date in compliance with this policy.

It should be pointed out the Valuation Division in the Ministry of Lands and Human Settlements Development has developed crop compensation rates. These rates are usually reviewed every year. Compensation assessment must be approved by Chief Government Valuer. Displaced people have to be issued with land form 59 and 70 which allows them to indicate what they expect to be compensated. The compensation schedule is based on providing a combination of new grafted and local trees to farmers, as well as cash payments to offset lost yearly income

The petroleum

Apart from the modalities and compensation procedures to be followed is the distribution of revenues among the two parts. According to the PSA there are two categories of revenues which can be distributed upon negotiation, since in the union constitution its no vividly indicated on percentage distribution. One of the sources is royalties which investors pay the government and profit after investors deduct his share. The amount obtained can be used to implement social development project in Zanzibar and Tanzania mainland in accordance with the macroeconomic framework. The revenue can also be used to increase domestic revenues collection to decrease donor budget support. Other recommendations /cause of actions as a result of oil and gas exploration

8.0 CONCLUSION

The prospectus for generating revenues from petroleum in the united republic of Tanzania poses both economic, environment and distribution challenges for both parts of the union. Advantage is that both parts have institutions and policies to mitigate the challenges.

Environmental impact assessment studies before and after project implementations are crucial to ensure sustainable utilization of the resources to achieve poverty alleviation strategies. NEMC and Environment department in the Ministry of Agriculture and Food Security in mainland and Zanzibar respectively are responsible institution to ensure petroleum projects are implemented in accordance to safety standards. If there will be a need for clearing the farms, or resettlement, resettlement policies and procedures stipulated by the ministry of land, settlement development from both parties have to be followed. Compensations values should be based on market price and as advised by district land evaluation officer. Special consideration should be taken during design of exploration of hydrocarbons in the sea to protect the lives of marine creatures and marine eco tourism scenic view.

Economic gains or Revenue from the petroleum are governed under PSA framework and TPDC is representative of the government to ensure, the government rights in profit sharing with investor are not lost for the case of the mainland and in Zanzibar department for petroleum is responsible for defending the revolutionary government rights over revenues from the same resource. Distribution among two parties can be in the form of royalties and after profit sharing with investor. Percentage allocation between the two parties can be reached if properly negotiated.

9.0 REFERENCE

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