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ENVIRONMENTAL IMPACT ASSESSEMENTS IN THE OIL AND GAS SECTOR: HOW PREPARED IS UGANDA?

ABSTRACT

Recognising the need for environmental protection during the oil and gas operations, environmental management and control mechanisms have been evolving over time in various countries. Among which are the Environmental Impact Assessments (EIAs) that also incorporate the social and cultural aspect. Uganda having discovered its commercially viable Oil deposits in a complex and eco sensitive area is faced with the dilemma of developing the resource whilst protecting the environment. This paper therefore assesses the preparedness of Uganda to handle EIAs in the oil and gas sector basing on the legal and institutional framework, public participation and quality of the EIAs and implementation. It concludes that Uganda is not fully prepared to take up EIAs in the sector and this has created room for Oil Companies to exploit the loopholes identified to their advantage. Nonetheless it is possible to improve on the EIA system if National Environment Management Authority (NEMA) realises the power it has through its legal mandate and also continues engagement of the public.

Presented to Professor Christopher Spray

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LIST OF ABBREVIATION

Albertine Graben	AG
Convention on Biological Diversity	CBD
District Local Government	DLG
China National Offshore Oil Corporation	CNOOC
Environmental Audits	EAs
Environmental Audit practitioners	EAP
Environmental Impact Assessments	EIAs
European Union	EU
International Petroleum Industry Environmental Conservation Association	IPIECA
Ministry of Energy and Mineral Development	MEMD
Ministry of Water and Environment	MWE
National Environmental Management Authority	NEMA
Office of the Auditor General Uganda	OAG
Oil and Gas	O&G
Total E&P Uganda	TEP
Petroleum Sharing Agreement	PSA
Tullow Uganda Operations Pty	TUOP
Waste Consolidation Area	WCA
Southern Africa Development Cooperation	SADC
Uganda Wild Life Authority	UWA

1.0 INTRODUCTION

The Energy Sector has become a key sector as the driver of an economy. As the sector grows and demand increases, diversified issues have also merged in this sector including macro-economic driven issues, geo- political, and environmental concerns (Bhattacharyya, 2011).The environmental concerns/impacts have recently been an issue in the sector particularly in the oil and gas sector. This is due to the complexity and sensitivity of the area and the surrounding environment where these operations take place (Borthwick et al., 1997).

Previously in the petroleum sector, traditional notions such as good oil practice, sound technical and engineering principles formed a basis in the national legislations and contractual arrangements for environmental protection. However, these have gradually been replaced with environmental management and control mechanisms. It entails the use of Environmental tools among which are the Environmental Impact Assessments (EIAs) (Vinogradov, undated)

EIAs have gained acceptance all over the world and the definition of the same has evolved over time. They have been in place since 1970s and despite their increased spread, they are still new in some countries and they are not uniformly implemented (Abaza et al., 2004).The International Impact Assessment defines EIA as ‘a process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of proposed development proposals prior to major decision being taken and commitment made (Glasson J et al., 2013).

This process involves screening of projects, scoping, consideration of alternatives, description of the project actions, description of the environmental baseline, identification of main impacts, prediction of impacts, evaluation and assessment of the impacts, mitigation, public consultation, Issuance of Environmental Impact Statements, review, decision making , post-decision monitoring and auditing. Glasson J et al (2013) further identifies four purposes of the EIAs as explained which include;

a) *An aid to decision making.*

This way EIAs manifest as better technics than the Cost-Benefit Analysis since they give a systematic examination of the implications to the environment as a result of a proposed outcome. In the end EIAs strike a balance between the interest of the development action and the environment.

b) *An aid to the formulation of development actions*

Much as developers may look at the EIA process as a stumbling block to their development due to the costs and time involved; it actually helps them to identify the potential environmental impacts at an early stage and if wise they can take it as an opportunity to negotiate for environmental gain solutions.

c) *A vehicle for stakeholder consultation and participation.*

This has been evolving over time and it entails consultation of key stakeholders and the public as a whole. This gives an opportunity to everyone in decision making. Reed et al (2009) also emphasised the issue of public participation and the need to understand the powers of all participants in the decision making.

d) *An instrument for sustainability development*

The rationale is prevention is better than cure. For the future generation to gain from the environment, it is essential to identify the potential impacts in the planning stage and see how they can be mitigated. This issue has been transformed to environmental sustainability as is defined as ‘*as meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them.*’ (Morelli, 2013).

Further, EIAs have moved away from considering only the natural environment but rather incorporate the social - economic environment, cultural environment and health (Norwegian Environmental Agency, 2015). And as a tool for sustainability, it involves the optimisation of positive effects while minimising the negative effects (Ibid). This may imply integrating local content into the EIA system.

Also in carrying out EIAs, Wilbanks and Kates (1999) emphasised the issue of geographical scaling. They argue that focusing alone on the local scale can lead to explanations in relations to the local causes yet the most important factors in the process may be at regional and global scale. On the contrary focussing on large scales may lead to over generalization. Taking a look at the appendix 1, the map clearly shows the need of regional scale while carrying out EIAs.

From that brief this paper seeks to assess the preparedness of Uganda to deal with EIAs in the Oil and Gas Sector. The paper relies on three aspects i.e. legislation and institutional frame work, Stakeholder participation and quality of EIAs and implementation to draw conclusions.

This paper takes a qualitative approach by reviewing scholarly and Government publications, and other stakeholder websites to assess the adequacy and effectiveness of the EIAs. The rest of the paper is organised as follows; Chapter 2 gives an overview of oil and gas sector and its potential impacts in Uganda, chapter 3 looks at the global out look of EIAs in the petroleum sector, chapter 4 discusses the aspects mentioned in the previous paragraph and chapter 5 gives the conclusion and recommendations. Chapter 6 lists the references

2.0 THE OIL AND GAS SECTOR AND THE ENVIRONMENT OF UGANDA

2.1 Over view of the petroleum industry

Uganda is one of the emerging natural resource-rich countries endowed with a range of natural resources. In 2006, she confirmed commercially viable oil deposits from the Albertine Graben in the Western arm of the East African Rift Valley (Ministry of Energy and Mineral Development (MEMD), 2008). Since then, Oil related activities have been going on in the Albertine Graben under the operation of three Joint Venture Partners, Tullow Uganda Operations Pty (TUOP), Total E&P Uganda (TEP) and China National Offshore Oil Corporation (CNOOC). The blocks operated by each company are indicated in Appendix 1.

Currently, Seventeen (17) discoveries have been appraised out of the twenty one (21), but only the Kingfisher Field under the operation of CNOOC has been issued a production licence while other fields are still under negotiations. Also the Government of Uganda has entered into a Memorandum of Understanding with the licensed companies to commercialise the discovered resources expecting commercial production in 2018. Further, plans for the construction of a refinery have been concluded and a Russian company RT Global Resource is to lead the project (MEMD, 2015).

Whereas all these portray advancement in the sector, environmental protection for sustainable development generally remains a key concern to policy makers. This is evidenced in the Strategic Development Goals where environmental protection for

sustainable development is a key target (Ministry of Finance, Planning & Economic Development, 2015). It is even more unique in the petroleum sector due to the sensitivity of the Albertine Graben (AG).

The AG is sensitive due to the great value attached to it in terms of ecological and biodiversity significance yet at the same time it holds the biggest percentage of the oil and gas resources (MEMD, 2013)

2.2 Key potential Environmental impacts related to the Oil and gas activities

The Oil and Gas (O&G) industry, by its nature, is potentially destructive to the environment. In identifying Environmental impacts, it is vital to predict the magnitude of the Impact, extent of the impact, duration of the impact, the significance of the impact and, critically to what extent it might be reversible or capable of mitigation. Such predictions are to be based on the available environmental baseline of the project area (Ogola, 2007). The NEMA's Environmental Sensitivity Atlas of the Albertine Graben of 2010 clearly brings out a broad view of the potential Environmental impacts in the Albertine Graben. This shows a positive recognition of the need to develop the resource whilst protecting the environment.

Each stage of the petroleum cycle is associated with potential environmental impacts, but notably at the stages of Exploration, production and transportation (Vinogradov, undated). The sources of the potential impacts include site selection and preparations, access (constructing access roads and vegetation removal), camps and operations, decommissioning and restoration/after care among other (Borthwick et al, 1997).

Table 1 below shows details of activities under each stage of the industry life cycle, right from Project Development to Termination, as well as a summary of the potential impacts associated with each stage.

Table 1: Stages, Activities and Potential impacts in the Petroleum cycle

Stage	Activities	Potential impacts
Exploration	• Seismic	• Vegetation loss and destruction

	<ul style="list-style-type: none"> • Exploration drilling • Construction and maintenance of camps 	<ul style="list-style-type: none"> • of habitats • Migration of animals/ disturbance of reproductive and mating cycles due to vibrations, noise pollution, etc • Ecosystem destruction due to Land/ water pollution
Project development	<ul style="list-style-type: none"> • Processing facilities • Production drilling • Pipeline construction • Commissioning • Infrastructure • Construction and maintenance of camps 	<ul style="list-style-type: none"> • Increased strain/pressure on social amenities such as electricity, waste disposal facilities, and water supply • Discharge of liquid waste especially in the production and refining stages. Examples of the liquid waste include: produced water, waste water, sanitary waste, and sewage • Contribution to climate change and global warming due to Air pollution From power and process plant (air, noise, light emissions, vibration flaring), global warming • Migration/ displacement of wildlife • Destruction of habitats due to vegetation loss • Changes in land, water and air quality due to solid waste, effluent and fumes • Displacement of people • Socio-cultural impacts e.g. change in settlement patterns, Demographic changes as people migrate from other areas to benefit from opportunities from the sector, risk of increased land wrangles
Production	<ul style="list-style-type: none"> • Process Operations • Well monitoring • Maintenance • Enhanced Recovery • Infrastructure • Construction and maintenance of camps 	
Termination	<ul style="list-style-type: none"> • De-commissioning • Reinstatement 	<ul style="list-style-type: none"> • Nuisance caused by vehicles and other machinery due to noise pollution, vibrations, light, air emissions may affect locals and

		wildlife <ul style="list-style-type: none"> • More vehicles on site increase the risk of accidents
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Source: Presentation by Arne Winther under Norwegian Petroleum Academy and the Strategic Environmental Assessment (SEA) for the Albertine Graben (pg. 155-156)

From table 1 above, it is evident that the potential impacts at all stages of the petroleum cycle are similar. They are distinguished by the intensity of activity at each stage. Also what will be very different is the extent to which each can be avoided, mitigated or reversed, and whether the impacts are local, regional or global and who is impacted by them. For instance, impacts at the project development stage will be more serious than at the exploration phase, since the amount and duration of activity is amplified.

Kasimbazi, (2012), in analysing the Environmental regulations in the Oil and Gas sector in Uganda, summarised these impacts into: Impacts on wild life and ecosystem, Aquatic impacts, Atmospheric impacts, Terrestrial impacts, Human, socio-economic and cultural implications.

Impacts on wild life and ecosystem

The Albertine Rift is considered as one of the richest biodiversity areas in Africa and at the same time a home to very many sensitive ecosystems. It houses more Vertebrate species than any other area on the continent (Plumptre et al 2007).The same authors in their analysis found out that this area contains about 402 (40%) mammals, 175 (14%) reptile species, 1061 (50%) birds, 119 (19%) amphibians found on Africa’s mainland. However this range of biodiversity is found in vast protected areas including Forest reserves, Wildlife reserves and National parks.

Surprisingly areas such as Murchison Falls National park, Bugungu, Kabwoya and Semliki Wildlife reserves are all found within the oil blocks and have already or will continue to suffer impacts as the oil activities go on (Kityo, 2011). Also the recently concluded exploration bidding round for the new oil blocks on offer includes Ngagi block- half of which falls within Lake Edward and part of Queen Elizabeth National Park. Lake Edward extends to Virunga National park which is a UNESCO world heritage site for mountain gorillas. Even before actual activities take place in this area,

there have been concerns on the grave environmental impacts in this area (Offshore technology.com, 2016).

Kasimbazi (2012) added that this Albertine Rift area generally provides ecosystem services such as tourism and aesthetic values. However as the oil and gas related activities increase, there is a likelihood of the disruption of tourism activities as much as the disruption of wild life.

Aquatic impacts

Aquatic impacts can occur at any stage especially during exploration and production. It is also known that water bodies contain various wildlife such reptiles, mammals, amphibians and even birds that live with in or near the water bodies. Also other invisible species like insects and other invertebrates that are vital in the ecosystem exist in these water bodies. These can be affected by the oil waste in the category of aqueous waste stream from the activities of exploration and production i.e. produced water, cutting and well treatment chemicals, drilling fluids, domestic water, sewage among others (Borthwick et al, 1997).

The issue for Uganda is even more complex due to the complex water system. The AG houses rift valley lakes which include Lake Albert, Lake Edward and Lake George. There is also the Kazinga Channel which connects Lake George and Lake Edward. Also the area is navigated by the River Nile through Lake Albert and River Kafu and drains into other lakes Kasimbazi (2012). Lakes Albert and Edward are shared by Uganda and Democratic Republic of Congo (see map in Appendix 1). This also practically raises the whole question of how best to implement EIAs for the effective management of these international waters and the role of the UN watercourses convention.

Atmospheric impacts

Oil and gas developments have caused great atmospheric impacts especially in the surrounding areas and such often extend a long way for the site of production-across national boundaries as well (Thompson et al, 2014). These impacts depend on the stage of development and it is more intense in the production stage than other stages. Emission gases include Carbon dioxide, nitrogen dioxide, volatile organic carbons, methane and carbon monoxide and these come from various sources such flaring, combustion among others (Kasimbazi, 2012).

Terrestrial impacts

There are three basic sources of territorial impacts namely; Possible physical disturbance due to construction; contamination as a result of spillage and leakage or solid waste disposal; and indirect impact arising from opening access and social change (Borthwick et al,1997) This kind of impact is likely to be grave in Uganda since the oil operations are onshore. Management of drilling waste is already a problem as waste is stored before being treated and this is most likely to increase during production. Already, the potential for contamination of the soil due to erosion has been cited at the Kisinja Waste Consolidation Area (WCA) operated by TUOP and Bugungu WCA operated by TEP (Office of the Auditor General (OAG), 2014).

Human, socio-economic and cultural implications

Oil and gas operations induce economic and social changes. These include change in the land use patterns; Change in the population; Social-economic and cultural systems and their impacts; and the dilemma of developing the resource as well as maintaining the existing natural environment, an important factor for balancing development with environmental protection (Borthwick et al, 1997). The same authors argued that these impacts can be turned into positive if proper consultation of the locals is considered. However on another note, Kuteesa, (2014) has already highlighted issues related land acquisition for the oil and gas activities and that these are to increase as more exploration and production begins. She further added that the reality of food insecurity is setting in with many including immigrants abandoning agriculture and hoping to get employment from the oil and gas sector; if this issue is not curbed the potential of poaching from the nearby parks will not be ruled out. The peak of this is how to manage the expectations. People from Bunyoro, the oil rich region, are too expectant from the resource and so are other nationals who also believe they have rights to the resource (Bategeka et al., 2009). If this is not curbed environmental issues will crop up especially related to oil spills in the future due to attacks on pipelines as is the case in Nigeria. This will not only impact on the locals but also incur a lot of losses to the government.

3.0 GLOBAL OUT LOOK OF EIAs IN THE PETROLEUM SECTOR

The adoption of the EIA Culture has risen progressively over the years. The Espoo convention of 1991 and the 1992 Convention on Biological Diversity (CBD) put obligations on states to promote EIAs. Whereas the latter puts emphasis on Trans boundary projects that would cause impacts on marine environment the former puts obligation to states to promote EIAs and strategic EIAs(SEA) (Kong, 2011).

In addition the 1992 Rio-Declaration on environment and development principle 17(soft law) clarifies on the need for EIAs as a national instrument for projects proposed activities that have adverse impacts on the environment. It goes further to suggest for a competent authority to take charge. This confirms that now EIAs are required by the general international law.

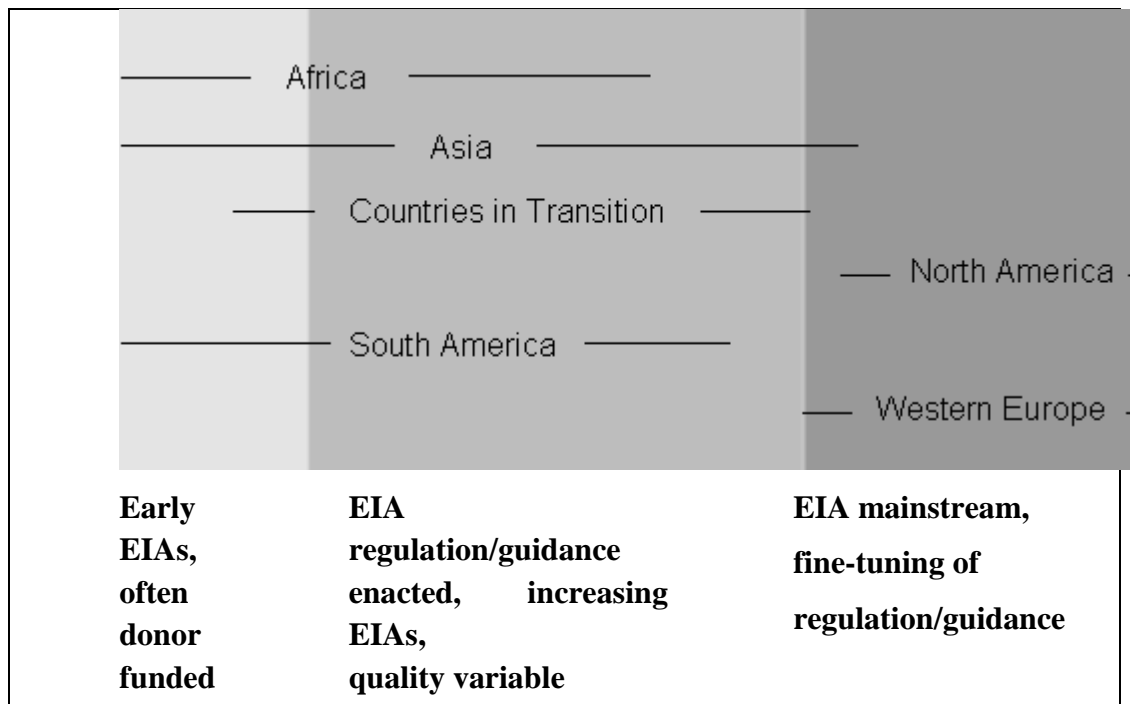
Looking at the European Union, the European parliamentary council issued directives on the 13th of December 2011 to all member states that detailed the need for EIAs and emphasised the concept of public participation. Also the International Petroleum Industry Environmental Conservation Association (IPIECA) has issued guidelines related to biodiversity and ecosystems in the O&G industry.

Further, in many developed countries, the legal requirements for the process as well as levels of compliance are significantly higher than in the developing world. Countries with longer experience and more advanced EIA practices tend to include a standard set of components in their EIAs, while EIAs in developing countries often fail to include certain elements (Li, 2008).

The main gaps in the legal framework as well as conducting EIAs relate to regulating and enforcing a major problem area among which include; the level of public participation and measurement of cumulative impacts (ibid.)

According to Glasson et al. (2005), by 2005 more than 100 countries had some form of EIA regulation, although EIA practices varied widely across countries. The same authors illustrated the status of EIA systems in different parts of the world at the time, as shown below:

Figure 1: Status of EIA Systems Worldwide as at 2005



Source: Glasson et al. 2005.

Figure 1 above shows that EIA systems are generally most advanced in North America and Western Europe, and still taking root in Africa, Asia and South America. Justice and Environment, 2008, cites examples of good EIA practice in 6 European countries, namely Austria, Czech Republic, Estonia, Hungary, Poland and Slovakia. Some highlights include the provision of adequate time for public participation in Hungary, and the interesting case in Czech Republic where the government agreed that the project Alternative suggested by the public was better than that initially done by the government.

However, Li (2008) states that even those countries implementing EIA best practices still have a long way to go with regard to the incorporation of indirect impacts, the interaction of impacts, and the uncertainty of predicted impacts.

In Africa, weaknesses begin right from the legal framework, and extend to inadequate skills by practitioners and regulators, as well as lack of required equipment for collecting and analysing EIA data. A study of the EIA regimes of countries that are members of the Southern Africa Development Cooperation (SADC)¹ reveals that the legislation for EIA is structured differently in the member countries.

In Angola, Madagascar and Swaziland, for instance, the developer comes up with the Terms of Reference for the EIA, and these are not reviewed by the Regulator (SADC, 2012). This may result in poor EIA reports leading to rejection by the regulator, or project delays as more information is requested by the regulator before approval. In Tanzania, Malawi and Mauritius, the Terms of Reference are developed by the regulator. In the rest of the countries, the developer (project proponent) draws up the Terms of Reference, but must have them reviewed and approved by the regulator before the EIA can commence (ibid).

When it comes to public participation in the EIA process, most of the SADC countries require public consultation to take place at scoping, during the actual EIA and also during review of the EIA/ Public Hearings. However, in, Lesotho, Angola Mauritius and Madagascar, the public only makes an input unto the EIA during review/ public hearing. According to Walmsley & Patel, (2011), this is a major weakness in the process since the affected persons are usually the poor and marginalised, who cannot access libraries and the internet to obtain a copy of the EIA report, travel for the public hearing, let alone interpret the (usually) complex EIA report.

Perhaps by far the biggest weakness noted by the same authors in the paragraph above is that most countries in SADC do not require developers to come up with Environmental Management Plans (EMPs). Only four do. The Democratic Republic

¹ SADC comprises of 14 member countries, namely: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe

of Congo and Swaziland require the EMP to be submitted for review together with the EIA. In Lesotho and South Africa, however, development of the EMP is merely included in the permit as one of the conditions of approval. This denies the public the chance to comment on the adequacy of the EMP (Ibid).

Apart from deficiencies in the legal framework for EIAs, other weaknesses reported include: lack of post-EIA follow-up, compliance monitoring and auditing by the authorities (ibid), due to inadequate finances and technical resources (e.g. vehicles) to traverse entire countries. The EIA practitioners are also generally unregulated and lacking in required competence.

In the context of O&G operations, the Oil Companies can take advantage of those loopholes especially legislative gaps to advance their interests as further highlighted in the proceeding chapter.

4.0 DISCUSSION AND ANALYSIS

4.1 Legal and institutional framework

Uganda is no different from other countries; it has incorporated the idea of EIAs in its domestic laws. The constitution of the republic of Uganda of 1995 under Article 27 section (3) identifies the need to utilise and manage the natural resources in a way that meets the development and environmental needs of the present and future generations of Uganda. The state is to take up all possible measures to prevent or minimise the damage and destruction of land, air and water resources as a result of pollution or other causes.

The National Environmental Management Authority (NEMA) further is mandated under the 1995 National Environmental Act, Chapter 153, to promote and ensure compliance with sound management practices as the competent authority. Expounding on the mandate, is the requirement under Part V of the same Act, Section 19, for NEMA to ensure that all projects which may have, are likely to have or have significant impacts on the environment undergo the process of EIA. A detailed list of the projects to be considered is found Schedule 3 of the same Act and includes oil and gas related projects i.e. exploration for the production of petroleum, oil refineries and petrochemical works.

Also to enable the smooth implementation of the EIAs, NEMA came up with the Environmental Impact Assessment Regulations, 1998, that cover requirements that must be satisfied in the entire process of conducting, reviewing and approving EIAs as illustrated in figure 2 below.

To enable smooth Implementation of approved EIAs by the developer, mitigation measures are identified with the help of other applicable laws. Other applicable laws that are related to EIAs and applicable in the areas of operation of oil and gas activities include; the Uganda wildlife Act Cap 200, sections 16 and 17; The National forestry and tree planting Act, section 38; The Mining Act 2003; Investment code,

section 19. All these send a signal for EIAs to be carried out before any oil exploration or production activities (Kasimbazi, 2012).

Surprisingly, the National Oil and Gas policy of 2008 that sets out all operations of the petroleum activities in Uganda does not explicitly talk about EIAs but it gives an over view of the need to protect the environment and conserve biodiversity under principle 5.1-5. On the same note, the Petroleum (Exploration, Development and Production) Act, 2013 Section 3 gives a wealth of environmental principles to be complied with by the licensee or anyone responsible for any petroleum activities. This is to be in accordance with NEMA act and other applicable laws.

Although both the Policy and Act do not particularly talk about EIAs but rather environmental requirements, the 1999 Model Petroleum Sharing Agreement (PSA) does under Article 22 which requires the licensee to carry out Environmental Impact studies putting into consideration all aspects such as the marine life, wildlife, impacts on human life and also the potential impacts on the neighbouring areas. Environmental impact statements are also required to be submitted in the work programmes and budgets of the licensee indicating how they have progressed with the proposed mitigation measures and how they hope to proceed in upcoming programs.

The possible controversy of the EIAs is most likely to arise from Article 30 and 33 of the same PSA. Much as Article 30 of the model agreement requires PSAs to be governed and interpreted according to other applicable laws, Article 33 of the same emphasises confidentiality of the agreement and information; this may hinder NEMA from its smooth operations since the EIA exercise entails public participation. This risk may further be heightened by the failure to define the word “applicable law” in both the Petroleum (EDP) Act and in the model PSA.

Further, NEMA embarked on revision of its existing laws since 2012 to incorporate emerging issues and amongst are environmental issues related to oil and gas. Much as it has made significant progress in this regard, the revision has taken a long period than planned and this has impacted on the EIA process (OAG, 2015). The notable gaps that needed to be addressed so as to act as a guide in the EIAs mitigation included absence of air quality standards, comprehensive waste management guidelines for the petroleum sector, and guidelines for monitoring ground water quality which are key for proper impact mitigation (Borthwick et al, 1997, OAG,

2015). This delay of review has been felt gravely during EIA reviews and Environmental Audits (EAs) since there are no standards to measure it up to.

4.2 Stakeholder participation

Stakeholder participation is vital for the sustainable management and development of natural resources/water and environment (NEMA, 2012). A Stakeholder to a project is a person or group of persons who need to be considered in achieving project goals and whose participation and support are crucial for the success of a project. This may include a person who is positively or negatively impacted by the project. To appreciate stakeholder participation, stakeholder analysis is vital. Stakeholder analysis is key because it helps in understanding the system and also assessing the impact of change to that system through identifying the key actors/players or stakeholders and their level of interest in the system (Grimble & Wellard, 1997)

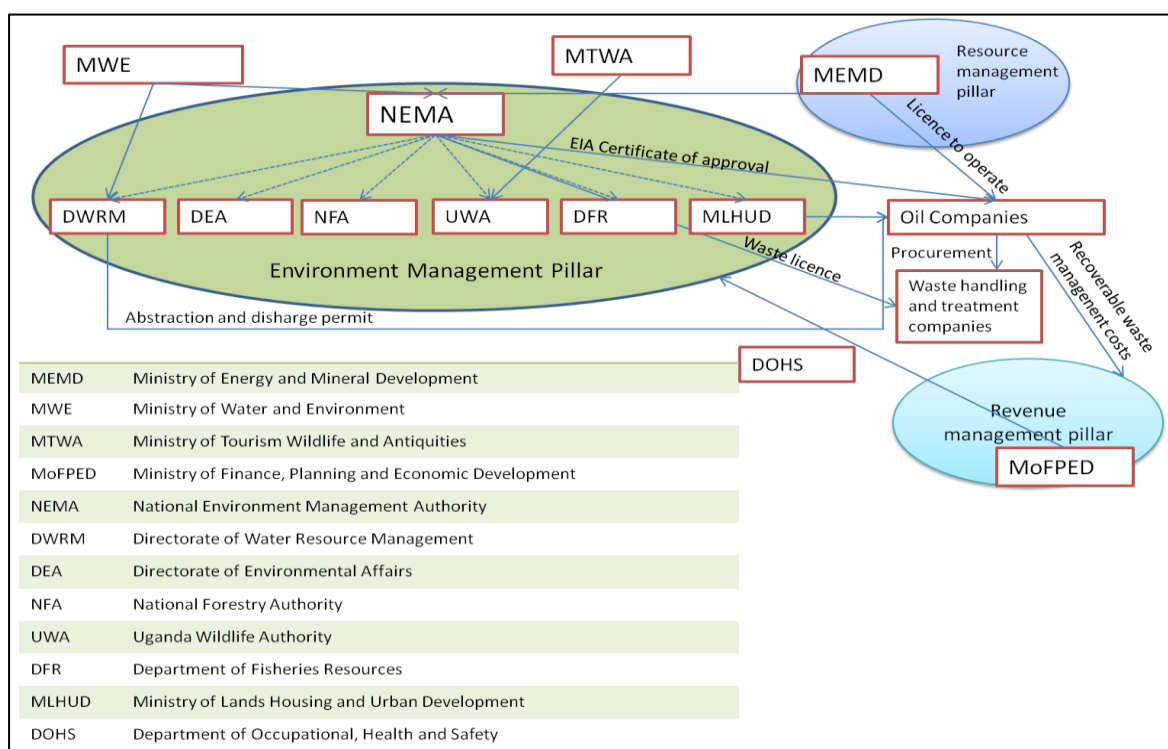
Three phases and six steps are summarised by Reed, M et al (2009) in which stakeholder analysis may proceed.

In Phase 1, the context for stakeholder analysis is defined by stating the issue, intervention or organisation for which the analysis will be conducted, as well as the boundaries of the same. The second phase involves identifying stakeholders, differentiating between and categorising the stakeholders, and investigating relationships between them. After doing this, it becomes easier to determine the required action (Phase 3). Actions may include future activities and deciding which stakeholders to engage, and extent of engagement required.

In Uganda, the stakeholders in the EIA process comprise of Government Agencies, the Oil Companies, NGOs and Civil Society Organisations, and the public.

In Uganda, an environmental management pillar, led by NEMA as part of the three pillars formulated in the management of oil and gas in Uganda was established. This pillar involves key players/institutions who are mandated to manage any impacts related to O&G activities on the environment and biodiversity as shown in the figure 2 below;

Figure 2: The environmental pillar of the oil and Gas Sector of Uganda



Source: Auditor General Uganda, 2014

Whereas the figure above shows the overall relationship of different institutions and key players in the environmental context, table 2 shows the specific key players and their roles in EIAs in the O&G Sector.

Table 2

Table 2: Key players and roles in the EIA process

Key players	Role
NEMA	NEMA's roles are to: Develop legislation to govern EIAs; Guide the process of EIA review, implementation and monitoring to ensure that appropriate action is taken after identifying potential impacts; Spearhead collaboration with Lead Agencies (MEMD, MTWA, UWA, MWE, MGLSD and districts)
MEMD	As one of the Lead Agencies in charge of overseeing all petroleum activities from the upstream to downstream, it is required to monitor and ensure that all the oil companies are in compliance with the existing laws, regulation and agreements on the environment. MEMD also gives feedback to NEMA when consulted regarding Project Briefs, Scoping Reports, Terms of Reference, EISs and

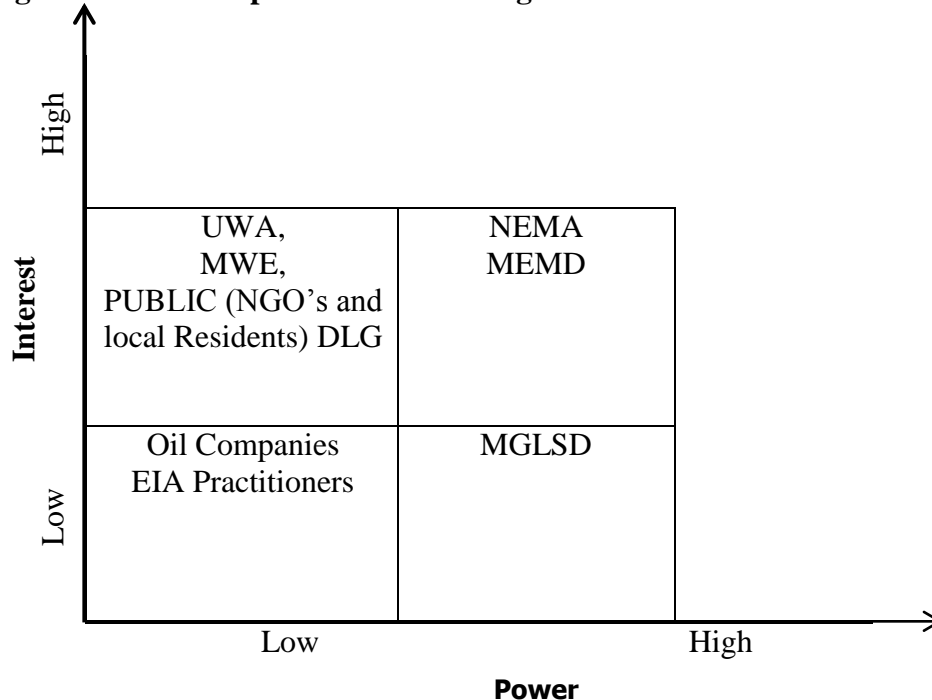
	Environmental Audits (EAs). They are also required to coordinate with other Lead Agencies such as UWA
Oil Companies	The Oil Companies are required to hire certified Environmental practitioners to carry out EIAs on their behalf before commencing any project and they are supposed to comply with all legislation governing EIAs. They are also required to do self-monitoring basing on existing legislation and best environmental practices.
Uganda Wild Life Authority(UWA)	UWA is required to guide on any oil operations to take place in the National parks or reserves. As also a lead agency it is required to give feedback during EIA screening when contacted by NEMA and MEMD.
Ministry of Water and Environment (MWE)	MWE reviews projects located in wetlands for their impacts and assesses the proposed mitigation measures. It also reviews EIAs for water needs/measures to treat effluent and issues on abstraction/discharge permits and mitigations measures proposed.
Ministry of Gender Labour and Social Development (MGLSD)	MGLSD is supposed to assess the adequacy of Occupational Health and safety measures proposed in the EIAs.
District Local Government(DLG) (where projects are located)	These carry out day-to-day monitoring of projects in the petroleum sector so as to identify if there is any impact on the environment. Under here the District Environment Officers (DEOs), as long as they are gazetted as Environmental Inspectors by NEMA, have the powers to discontinue any project that has potential to distract the environment. They also provide review comments on EIAs and Environmental Audits to NEMA for their districts, and are required to conduct site-verification inspections to inform their reviews.
Environmental Audit practitioners(EAP)	These are private consultants certified by Environmental Practitioners of Uganda. They are contracted by the developer to conduct EIAs and Environmental Audits on their behalf.
The public (NGOs, Local residents)	These should be consulted during the scoping, EIA, and during public hearings- if any are held

Source: NEA, Cap. 153

The table above sets out the different stakeholders and their roles in the EIA process. However, the level and effectiveness of their involvement in the EIA process, as well as their ability to play their assigned roles differs markedly. This is because their level of interest and the power they wield is different.

Before giving an opinion on the interest-power matrix below, the argument advanced by Reed, M et al (2009) that there is little guidance in literature on how to evaluate influence and interest within the stakeholder analysis tool was put forth. Power and interest can be understood in different ways (ibid). From the roles spelt out in the table above and the justification that will be explained later on, power is referred to the legal mandate to facilitate the EIA process in the oil and gas sector and the actual reality of doing so even with the legislative powers. While interest is considered as the importance/priority attached to environmental protection/sustainable development. Below is an elaborative matrix

Figure 3: Interest –power matrix for Uganda



Source: Author's view from document review.

From the matrix it is clear that NEMA and MEMD have high interest and power because they have the primary mandate on the Environment and the oil and gas activities respectively. UWA, MWE, DLG, MGLSD are Lead Agencies; the public, oil companies and EIA practitioners form part of the stakeholders.

The Oil companies, which are required to abide by the EIA conditions of approval, have not shown enough commitment to abiding by best environmental practice, for example regarding self-monitoring and self-reporting (OAG, 2014). Also, concerns have been raised about the independence of EIA Practitioners from the Oil companies

who give them work, and the quality of work done (OAG, 2015), an issue further discussed in the next section.

On the other hand, government agencies like UWA, MWE, and the DLG show much interest in ensuring that the oil and gas impacts are mitigated, but their influence is limited to providing review comments on EIAs submitted to NEMA, and conducting routine monitoring following project approval. Just like in other African countries, however, their ability to do effective reviews or monitoring through site visits/inspections is curtailed by limited financing (Schwarte, 2008), lack of testing equipment, and inadequate skills to determine impacts in the sector (OAG, 2015). As a result, these Lead Agencies take long or even do not submit their review comments when consulted by NEMA and therefore NEMA goes ahead with the process without their input (Ibid). This implies that in some cases, NEMA approves EIAs without corroborating information submitted by the developers in the EIAs. This is a glaring inefficiency.

Similar to the SADC countries discussed earlier, the Public in Uganda is given a chance in the law to comment on EIAs during Scoping and in the process of the actual EIA. The law also requires NEMA to call for comments from the general public on all projects (EIA Regulations, 1998, Section 19), as well as from the communities immediately surrounding the project (ibid; Section 20). Further to this, the Authority may also hold a public hearing, if the Executive Director deems it necessary (Sections 21 and 22).

In spite of the above imperatives, NEMA in fact rarely does such detailed consultation, preferring to “only do it if the stakeholder consultation by the developer is deemed inadequate, or to verify the authenticity of any complaints from concerned stakeholders concerning a certain project” (OAG, 2015).

However, it is not clear when consultation would be “deemed inadequate” by NEMA, since the law regarding public participation in EIAs does not provide for measures on assessing the quality of involvement or participation (Schwarte, 2008). The same Author further observes that whereas the public especially NGOs and local residents have great interest in the environment, they are constrained by accessibility of information and participation in decision making. The experiences by International Alert (2013), agree with this assessment consultation during the EIA process is

limited and not participatory. Also the EIA reports are not availed to the public for comments, and the results are not simplified to enable local leaders and communities understand them and monitor implementation of mitigation measures. The general lack of knowledge on knowledge about environmental related impacts in oil and gas also makes it quite a challenge for local communities to follow the proceedings during public hearings and hence hard to challenge the developers (Schwarte, 2008).

To top it up, Schwarte reports that even when oil companies try to engage the NGOs and local communities on EIA requirements, they are obstructed by local politicians who feed locals with false expectations from oil activities; these politicians' statements water down efforts by other government officials to educate the affected communities, leaving a great information gap (Ibid).

4.3 Quality of EIAs and implementation

Section 14 of the Environmental Impact Assessment Regulations, 1998 spells out areas that should be incorporated in the EIS. As part of implementation, the developer is required to do regular self-monitoring, and an Environmental Audit as frequently as stipulated in the EIA Certificate of Approval (normally 1 year from the date of approval or immediately the project is completed (OAG, 2015)).

Generally the quality of EIAs conducted in the Oil and Gas Sector and their implementation has not been adequate, just like in the SADC countries as discussed in chapter 3, though there has been an improvement over the years.

The main gaps noted relate to inadequate analysis of baseline characteristics due to limited data; lack of detailed analysis of project alternatives since most EIAs are conducted after the work programmes for the year have already been approved by MEMD- as such, a particular project alternative (preferred by the Oil company) has already been approved, and procurement of inputs initiated without considering other options that would be suggested by the EIA; failure to assess cumulative impacts is due to the absence of the of consolidated information of planned and on-going activities for the different areas where the oil related operations are to be implemented; And lastly the during impact prediction, there is reliance on qualitative description that are subjective, rather than using scientific models (OAG,2015).

Also the Environmental Practitioners have some capacity gaps as echoed by oil companies and their work does not meet ‘international standards’ for the sector. The Environmental Practitioners acknowledge the quality gaps and attribute them to the novelty of the sector, and the fact that there is no obligation for them to continuously improve their services (ibid). However, the Practitioners state that they are improving the quality of their work by adopting international standards. Also, NEMA states that is set to introduce more stringent measures to ensure higher quality practitioners are certified (ibid.)

On the side of monitoring, the Oil Companies normally conduct Environmental Audits long after the activities have ceased. Also, the practitioners only look at practice at the time of Audit, and do not review the self-monitoring reports produced by the Oil companies. Besides there is hardly any guidance on the parameters to be followed by Oil Companies during self- monitoring (Ibid). This means that the performance throughout most of the project life is not assessed. Furthermore, the Lead Agencies and NEMA do not adequately conduct inspections of the Oil companies to ensure compliance with EIA conditions of approval. Even where the monitoring is done, feedback is rarely given to the oil companies, and where it is done, it’s not timely (ibid.).All the above present the missed opportunities for improvement. Just like in the SADC countries already discussed, the above gaps are attributed to limited skills, as well as resource constraints. However, the actual problem may well be failure to prioritise areas for inspection, since according to OAG (2015), NEMA does not rank areas to monitor according to associated risk. Therefore, it cannot determine where to concentrate its resources.

5.0 CONCLUSION AND RECOMMENDATIONS

This paper concludes that Uganda is not yet fully prepared to effectively manage EIAs in the Oil and Gas sector. Although the legal framework is generally in place, some supporting legislation to enable effective operationalization is lacking. In addition, the decision by NEMA to undertake public consultation only at their discretion is contrary to the law, and limits meaningful public participation in the EIA process. Other constraints include inadequate finances, and knowledge gaps on the part of Practitioners and Lead Agencies.

To improve the EIA process it is recommended that government takes measures to increase the influence of the dis-empowered stakeholders in the matrix, such as the public and the Lead Agencies. For the public, this can be done if NEMA and other government agencies ensure adequate public participation in the EIA process as required by the law; for Lead Agencies, it will be necessary to equip them with adequate skills and resources to enable them execute their functions.

Also, NEMA should enforce penalties for non-compliance, and push for greater regulation of environmental practitioners. This will increase the interest of the Oil companies and Lead Agencies in ensuring proper environmental management.

Finally, NEMA should expedite formulation of adequate regulations and guidelines to operationalize the framework environmental laws; it should prioritise EIAs and monitor the most risky; and give regular and timely feedback to developers following monitoring.

It should be emphasized that a number of the above recommendations can be implemented without using extra funding, and these can be done first to improve the EIA process, as funding is sought for the others.

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APPENDIX 1

