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Challenges and benefits of effective environmental assessment of impacts

Louise Johnson
Energy & Environment Consultant
Wave Action (www.wave-action.com)
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Introduction

Fuel poverty is a very real problem facing countries in East Africa – at the community level we see women and children fetching firewood or charcoal from dwindling forests, and capital cities suffer load-shedding where electricity supply is restricted in an attempt to meet the growing demand. There is real pressure for countries in the region to developed indigenous sources of hydrocarbons to attain some level of self-sufficiency. There has been a marked increase in international interest in sourcing, refining and distributing Africa's hydrocarbon resources, and East Africa is currently a net importer of oil.

However, environmental and social challenges need serious consideration, as although oil development (and the resulting revenue) can provide many benefits, this must not be at the detriment of community wellbeing or wildlife habitats. How much international oil interest will help to alleviate poverty or fuel poverty is yet to be determined. How transparent the fiscal regimes will be is yet to be understood. Internationally recognized fiscal distribution systems such as the Extractive Industries Transparency Initiative (EITI), are now pushing the boundaries on visibility and accountability of revenue accounting. Although environmental and social impact management processes are more mature than expectations of fiscal transparency, the implementation of these basic processes are not yet typically up to international best standards. This needs urgent improvement considering the ecological value of many areas in East Africa. The risks to biodiversity and ecosystem wellbeing need to be better quantified and understood.

Management systems are the business building blocks for oil companies wherever they operate, and these systems seek to ensure that oil development risks are minimised or eliminated. Environmental Impact Assessment (or Environmental/Social Impact Assessment) is a standard process that seeks to ensure that such risks and impacts are identified, understood and managed. Where the EIA process has been incorporated into law within the East Africa region, it is vital that oil companies not only abide by the regulatory regimes protecting the environment, but also seek to ensure that international best practice is applied. There are both challenges and benefits in using environmental assessment, and this paper presents a selection of these using Uganda as a case study.

Natural resources – geological and biological

Our understanding of oil migration and trapping mechanisms in western Uganda is growing, as does international interest in exploiting it. Millions of dollars have been spent on seismic exploration and interpretation, providing indications of the size and exploitability of a variety of hydrocarbon-based deposits under terrestrial, marine and lacustrine environments. Exploration results so far in the Albertine Graben basin of western Uganda are attractive for oil companies eagerly seeking to add to (or replace) reserves on their books. The rate at which an oil company supplements their existing reserves portfolio is crucial in a competitive global market.

However, the richness of geological resources found within the Albertine Graben is matched only by the richness of its species diversity. Ecologically, the Albertine Rift area stretches from the north of Lake Albert, right down to the southern tip of Lake Tanganyika. It is recognized for its global importance for species conservation: it overlaps with the Eastern Afromontane Conservation International "Hotspot"; contains several Worldwide Fund for Nature Global 200 "Eco-regions" (Montane Forest, Rift Valley Lakes, Sudanian Savannas, and East African Moorlands); and Birdlife International has awarded it the status of "Endemic Bird Area". The Albertine Rift is one of the most species rich areas for vertebrates within Africa, and therefore has extremely important requirements for protection from potential impacts usually associated with oil development.

This juxtaposition of natural resources makes for potentially uncomfortable headlines from a species/habitat conservation perspective. As a result, it is imperative that effective environmental protection measures are implemented and utilized.

Environmental impacts

All impacts are potential and/or significant, and through careful consideration most can be avoided altogether, mitigated against, and managed. Residual impacts will almost always remain. Effective company management systems and responsible decision-making can reduce the likelihood and significance of all impacts.

Impacts can occur from decisions taken at each stage of oilfield development: during initial risk assessment studies prior to concession acquisition; through seismic and exploration/appraisal drilling where developers seek to prove that hydrocarbon discoveries are commercial; during construction of facilities prior to oil/gas production; through the longer term operational phase involving production, maintenance and transportation; culminating at the end of the economically productive life when decommissioning occurs. The full development lifecycle should be studied to ensure that impacts from any and all stages are managed.

What is Environmental Impact Assessment? It is a process, whose main focus is on the prevention of impacts before they occur. An EIA should systematically and transparently identify, predict and evaluate impacts. It studies the nature of impacts and their inter-relationship. It should take into account not only the typical environmental impacts associated with normal day-to-day operations, but also situations that may arise through accident or emergency scenarios. To predict whether the impact may cause harm, we need to understand:

- The type of impact under consideration – for example water pollution, noise, social, etc.
- The nature of the impact i.e. whether it is positive or negative, direct or indirect, plus whether it is cumulative or synergistic.
- The extent of the impact – for example, the lateral extent an impact may have at a particular location, or how the effect of the impact may be distributed.
- The likely magnitude, or size, of the impact.
- The timing of that impact, identifying when it is likely to occur.
- The anticipated duration of the impact.
- The reversibility or irreversibility of the impact.
- The likelihood of the impact occurring.
- The level of certainty/uncertainty experienced whilst determining the impact characteristic

To determine which impacts are most likely to cause harm, we need to understand their significance; this relates the characteristics of the impact with the characteristics

of the receiving environment e.g. sensitivity, resilience, scarcity, stability, capacity for change, etc. Only by understanding the significance of any impacts likely to be associated with a development, can decision-makers act effectively. EIA does not provide the answers; it is simply a methodology to assist those seeking answers regarding environmental impacts.

A typical EIA process consists of the stages represented in Figure 1 below. Public engagement is important at every stage, and is an iterative process as more information becomes available.

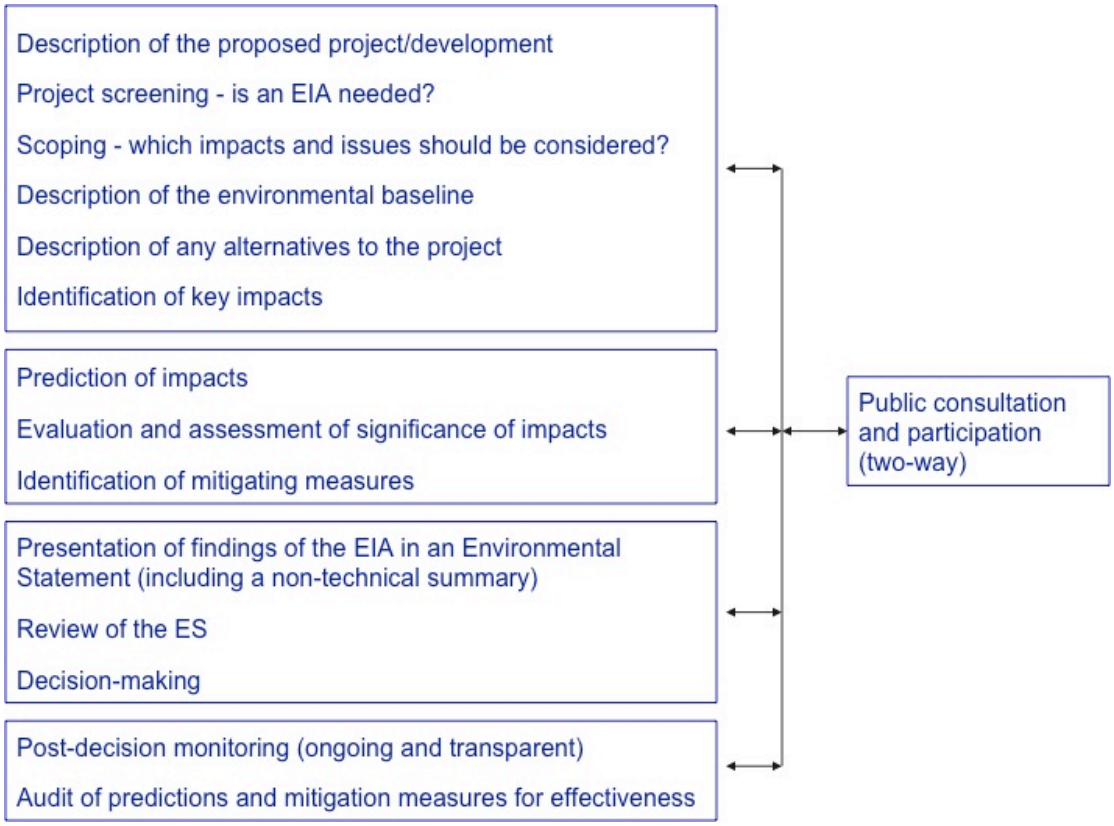

Figure 1: Important steps in the EIA process (adapted from Glasson, Therivel & Chadwick, 2005)

Typical environmental impacts associated with oil/gas development include:

- Atmospheric
  - Well-testing, flaring, venting, combustion emissions, fugitive gases, particulates and dust
- Aquatic
  - Drilling fluids, produced water, drill cuttings and well treatment chemicals, process drainage and wash water, sewerage, sanitary & domestic wastes, spills & leakages, cooling water temperatures, water use & potable water contamination
- Terrestrial
  - Physical disturbance, increased footprint/land-take (camps, facilities & roads) & subsequent erosion, spillage or leakage contamination, waste disposal (normal wastes & special), opening up new areas
- Ecosystem - all the above (biosphere inter-relationship)… plus
  - Habitats & vegetation changes, corridors cut-off
  - Disturbance from noise and light
  - Lack of access to breeding areas or migration routes

    - Predator/prey relationship changes
    - Vegetation removal can cause soil erosion or siltation e.g. nutrient balance and microbial activity can be upset

Typical social impacts include:

- Access restrictions, change to land-use/nomadic patterns, and potential exacerbation of land rights conflicts
- Noise and light
- Increased access/exit through new/better roads
- Transportation access, increase in traffic frequency and vehicle size
- Population influx looking for work
- Growth of unplanned settlement
- Wealth brought through increased employment
- Conflict from wealth inequality
- Increased detrimental and/or sexual requirements on women
- Contact with new diseases, cultural differences, conflicting pressures on community e.g. challenges to traditional decision-makers
- Reduction in access to, and quality of, traditional foods
- Increased burden on local resources e.g. fuel wood, fishing, hunting, poaching, etc

Residual impacts may also occur, where it is impossible to eliminate, avoid or fully mitigate them through changes in developmental design or project cancellation. In this situation, compensation or offset programmes may be introduced, where stakeholders deem them appropriate (for more information on biodiversity offsets, see Benefits section later).

Impacts may become inter-related and trigger impacts in other sectors. For example there could be unpredictable impacts and unknown consequences on the wildlife tourism industry, regardless of whether tourist decisions and opinions about oil development in wilderness areas are based on perception or reality. For some impacts, it may be difficult to apportion blame or accountability. For instance, sometimes problems initially considered due to oilfield development may in fact be a symptom of wider societal problems e.g. population influx seeking work. Where this is suspected, companies must collaborate with Government (and civil society organizations) on solutions.

EIA is a valuable tool when seeking to determine and manage impacts from a development project. Figure 1 below is a representation of the various stages typically undertaken during an EIA.

However when there is the likelihood for several different EIAs, then decisions need to be taken on a more strategic basis. Strategic Environmental Assessment, or SEA, was designed so that the cumulative impacts from implementing a suite of developments can be adequately and appropriately assessed. Such a suite of developments may be termed a policy, plan or programme.

In general, the major differences between EIA and SEA is the scale of decision-making, the range of alternatives that should be considered, the extent of consultation with the public and experts, and the ability to determine more accurately the cumulative impacts. Figure 2 provides a summary representation of distinctions between EIA and SEA.

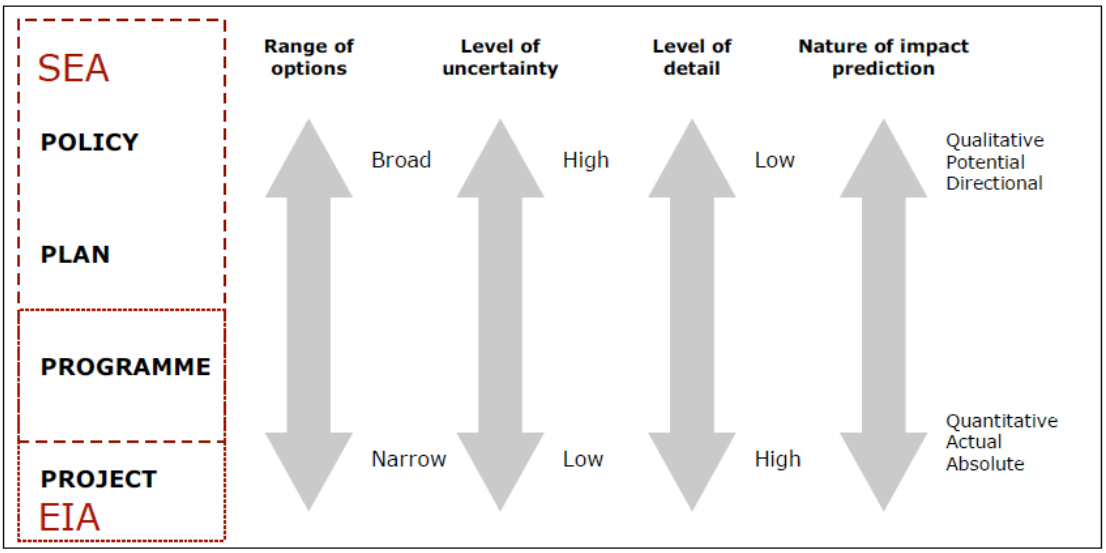

Figure 2: General distinctions between EIA and SEA (Imperial College London Consultants, 2005)

Challenges and benefits of environmental assessment

In Uganda, the National Environment Management Authority (NEMA) have developed EIA Guidelines specifically for the Energy Sector (2004), and the national Oil and Gas Policy (2008) specifies it is the "responsibility of licensed oil companies to protect the environment". There are many challenges to implementation of effective environmental assessment, but there are also many benefits. Several are highlighted here, with specific examples from Uganda.

A) CHALLENGES

SEA & EIA:

Setting the right scale for environmental assessment is crucial whether this is EIA or SEA, or both. There is the need for more strategic thinking across all development planning, and this needs to come sufficiently early in the process to influence towards a positive outcome. Often SEA is not considered until EIAs have already been submitted and development has already commenced. Once an SEA process is established, there can then be misunderstandings as to where the boundary lies between SEA and individual EIAs. For example, in Uganda, the National Environmental Management Authority (NEMA) have approved oil exploration EIAs since 2006. Development has occurred sporadically, and has resulted in a lack of clarity in what information should be decided at an EIA level, and what the benefits of SEA could be. For instance, approval of EIAs with very little site-specific development information has resulted in a spider's web network of site access roads. Secondly, hazardous wastes are currently required to be stored on-site indefinitely as there is no national waste disposal facility capable of handling volumes being produced. Consideration at a more strategic level earlier in the exploration process would have identified these issues as worthy of advanced consideration. Government discussions on the development of an SEA for the oil sector have only just commenced in earnest. In parallel to the government process, the companies are proposing lake-based or block-based SEA's. Although aiming to address some EIA deficiencies, including the limitation of only incrementally addressing project specific impacts, this company approach is also in danger of muddying the water. It may result in several parallel SEAs being undertaken for the same sector in the

same region. It is clear that much more collaborative, constructive dialogue is still required to fully maximise the potential from strategic planning and assessment.

Building capacity within the timeframe required:

It takes time to develop a mature institutional understanding of oil & gas operations and the impacts associated with such development. People involved in the development or approval of EIAs may never have been exposed to oilfield terminology or operations before. Therefore, it may be difficult for them to understand how aspects of operations may cause certain impacts, and which mitigation actions may be most appropriate to address these. Capacity needs to be built not only in the governmental departments involved in reviewing and approving EIAs, but also amongst various other key stakeholders:

- as oil companies typically contract out the writing of EIAs, the EIA Practitioners who compile the information and performing the impact analysis need to understand oil operations;
- civil society organizations with a remit for representation of local, regional or global issues in the vicinity of oil development, can only participate effectively if they understand what risks may occur;
- media, whether TV, radio, or newspaper journalism, to inform the general public in a fair, informative, yet balanced way;
- academia, to ensure that the country's universities are able to prepare the next generation of people to work in the sector.

Following the phenomenal exploration success in the Albertine Graben of western Uganda, there is widespread acceptance that professional capacity is growing to meet the demand for increased knowledge of this new sector. For instance, the Petroleum Exploration and Production Department (PEPD) has been building geological capacity in its staff for several decades in anticipation of this exploration success. However, other national/local government departments and agencies with responsibility for environmental and wildlife protection have required intensive training and fieldwork sessions. This is only to be expected as the oil industry is a new phenomenon in Uganda - however it does take time to begin to address some of the knowledge and exposure gaps. This transition period, when knowledge is being slowly built, can potentially be a hazardous time, for example:

- some early EIAs which were clearly of sub-standard quality (scope, baseline information, significance determination, etc), yet were nevertheless approved;
- some professionals involved in the EIA approval process did not have a satisfactory understanding of oil-related impacts, or which proposed mitigation measures were sufficient or appropriate;
- there have been insufficient opportunities for all concerned stakeholders to obtain information on impending developments and EIAs. This has contributed to a level of mistrust between some stakeholders and the oil companies & PEPD

Professional standards can help to ensure continuing advancement of knowledge and experience. The Ugandan Association of Impact Assessment (UAIA) has established a Code of Ethics for their members, and have developed a Duty on Practitioners to promote good practice. However, there have been alleged concerns with regard to the practices of some, where an EIA appeared to contain sections thought to be cut & pasted from another EIA, and allegations of pressure on government representatives to allow a smoother approval process for certain projects.

Infrastructure capacity also needs to be developed strategically and carefully. Proper road-planning should negate the need for unregulated construction of development site access routes. Waste storage and disposal facilities capable of managing oilfield wastes need to be put in place before they are needed.

Stakeholder engagement & transparency:
A stakeholder cannot engage if they do not understand what is at stake.
There can be unrealistic expectations, especially from local communities, on the variety of benefits from oil development and the associated wealth it can bring. Expectations on improvement in local employment opportunities, supplies from local markets, and engagement with community leaders are often not met in reality. Without active dialogue, this can lead to misunderstanding, bitterness or even resentment, and has been seen in West Africa, can sometimes result in damage to oil property or assets. A challenge is to find the right people to liaise with – this can be especially problematic when identifying the right local people or landowners. However this can be addressed through a proper stakeholder analysis, with sufficient time set aside for two-way dialogue – this is very different from simply providing information. A positive relationship built at the outset will stand the developer in good stead, as they continue to need to engage with stakeholders during the life of the project. Within Uganda, there is yet to be a widespread educational campaign to inform the public on their oil development. If this were to occur, it would allow a better understanding of both the potential positive and negative implications for the environment and local communities. A Forum has been proposed by several NGO's whereby they can meet with oil company and PEPD representatives – this has yet to be taken up.

Baseline data:
It is often very difficult to source and obtain long-term, quality data sets. Some institutions are reticent to share their data, and some charge for access. Once data is obtained, this may turn out to be old, irrelevant or of questionable quality. Where new baseline data is to be gathered, it should provide a concise record of the general situation plus be targeted at the potential impacts related to oil development. A baseline survey should not be a one-off survey, but be undertaken through changing seasons and wildlife migration periods. Some prediction should be undertaken of the course of the baseline for the future if development were not to occur.
The EIA Practitioner needs to properly understand the relevance of the baseline data, otherwise the information may not be used properly in the EIA analysis.

Potential for delays to project start-up:
Environmental assessment can sometimes be seen simply as yet another regulatory requirement to comply with, as opposed to a chance to minimise environmental or social impacts, or an opportunity to save money. Where the regulator seeks further information to supplement a submitted EIA, or needs to invite additional expert opinion, this may cause delays in granting approval for the development. If the project is controversial, there may be the need for extended consultation through a public hearing mechanism, as was required in July 2008 for the Early Production Scheme mini-refinery project in the Kaiso-Tonya area of Uganda Exploration Block 2.

Monitoring and auditing:
Professionals involved in environmental assessment need assurance that negative impacts are being avoided, and that the EIA process is working effectively. Monitoring and auditing of the development following the EIA decision is one way to achieve this. Performing an audit of operational performance provides evidence that the developer is complying with all conditions of licence placed on them at the time of project approval. It can also provide an indication that the original EIA process predicted the impacts accurately, and proposed the right mitigation measures.

However, site visits and follow up take staff time and resources; two things that are typically lacking from under-funded enforcement organisations. The developer should be undertaking their Environmental Monitoring Programme, as stipulated in the approved EIA, and monitoring their own performance. If these results (including contraventions) are shared with the regulatory enforcement team, this can provide some assurance of impacts being managed. Nevertheless, the regulator must also perform their own audit programme to ensure all conditions of approval are being complied with. This can be a challenge in countries where enforcement authorities with jurisdiction for environmental protection are not provided with sufficient resources (money, people, vehicles) to undertake these tasks. This has been the case in Uganda, where insufficient spot checks or scheduled audit visits have occurred. There is collaboration between government departments and agencies to attempt to get the right people with the correct skills on the audit team, but audits are not occurring in a prioritized or systematic manner, with a co-ordinated programme of audit follow-up.

Managing Corporate Social Responsibility (CSR)
In response to awareness of some of their negative impacts, companies may choose to undertake philanthropic projects in the countries and neighbourhoods where they operate i.e. proactively create positive impacts. These should be targeted to ensure lasting benefit, at least for the duration of the project, and hopefully even beyond. Oil price fluctuations affecting corporate project profitability should not distract away from any long-term commitments made, even if they are undertaken voluntarily. However ensuring that the proper actions occur in the best locations, with buy in from the right local people and experts, can be challenging. For example in Uganda, some stakeholders have shown frustration at the setup and provisioning of a small bee-keeping enterprise in a community that did not want that type of 'gift', in a location that was unsuitable for bee-keeping. Companies need to ensure that their CSR actions meet the objectives they are intended to achieve, and that discussions and decisions undertaken with local stakeholders are carried out in a fair and transparent manner.

Site selection and protected areas
A spectrum of opinion exists on whether or not extractive industrial development should be allowed to occur within protected areas. For example, multi-national companies such as Shell and Rio Tinto have publicly pledged they will not operate in natural World Heritage sites. They believe there are some areas, which are too special to allow development to occur, and that any area meeting the rigorous registration and monitoring criteria of the World Heritage protection process has been categorically set aside for its inherent natural value. There has also been some push within the international arena that extractive industries should be excluded from all IUCN[1] Management Category I-IV areas. Protected area terminology in general use

[1] IUCN (World Conservation Union) is a neutral forum for governments, NGOs, scientists, business and local communities to find pragmatic solutions to conservation

is not standard, but the IUCN categories would include areas typically known as National Parks, Wildlife Reserves, etc. If any kind of development restriction by IUCN category is to occur, how protected areas are defined needs some standardisation. Developers have concerns about blanket restrictions, and prefer to rely on risk-based approaches to minimizing impacts wherever they operate. However, where these risk-based approaches rely on sub-standard environmental assessments, stakeholders naturally have concerns about the process and may call for development restrictions. There are technological solutions that can assist in avoiding such site selection impacts, for instance directional drilling, but these solutions also need to be comparatively assessed to ensure they do not cause different impacts (such as a requirement for oil-based muds, etc).
In Uganda, where the oil-related EIA and SEA processes are still maturing, there has been a level of civil society reaction against developments in national parks and wildlife reserves. For instance, when Heritage Oil Corporation commenced drilling in the Murchison Falls National Park in December 2008, several national and international NGO's voiced their concerns over the lack of a public hearing. They recognized that the decision to allow drilling to proceed in a national park was controversial (an IUCN Category I park), even though the government and developer had not. In addition, the EIAs approved for their drilling operations did not recommended sufficient monitoring of wildlife in the vicinity of the drill sites (whether before, during or following operations), even though consultation with wildlife experts would have indicated that several of the proposed drill sites were in areas frequented by elephant herds.

B) BENEFITS

Societal license to operate

Where *inadequate* environmental assessment practice is prevalent, stakeholders are immediately alerted by the threat of irresponsible development. On the other hand, where an *effective* transparent environmental assessment process is apparent, this proves to stakeholders that the developer takes their responsibility for protecting the environmental seriously.
Before the developer submits an EIA, they need to ensure that the quality of impact assessment methodology is adequate and that they agree with all mitigation actions contained in the EIA. In terms of societal licence, the company is being awarded the privilege to assist the state in the extraction of resources, for the long-term benefit of the people. The regulator needs to ensure that communities and the environment are protected; by working with internal and external experts; thinking and acting sustainably; enforcing regulation fairly; and by keeping the public informed of planning and progress. The government is sanctioning development on behalf of the electorate, who deserve to have their environment protected. A robust and transparent environmental assessment process allows this to happen more easily.

Minimising operational costs

There are many business drivers pointing to the benefits that effective EIA and general environmental management can have for business. For example, by eliminating non-emergency flaring, not only is the company reducing the amount of greenhouse gases directly going into the atmosphere, the big corporate saving is that more 'product' is diverted back into the revenue stream.
By considering the potential for environmental impact early enough in the process, developers can streamline the consent process, the project design process and the future marketing programme. Practices using less (or less toxic) raw materials can

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and development challenges. In Uganda, the Ministry of Water, Lands and Environment is a Member, as is the Uganda Wildlife Authority.

be incorporated in at the design phase, lowering supply costs and eliminating the need for expensive retrofitting of alternative equipment later in the construction or operational phases. By incorporating the latest environmental technology, emissions and discharges can be minimized, and thereby waste handling, storage and disposal costs can be significantly reduced.

Clear provision of information

Environmental assessment, when done well, provides an auditable trail of the systematic consideration of impacts and mitigation actions. The analysis of impact significance in the EIA should form the basis for the Environmental Management Plan (EMP) contained within it, guiding the company on how to mitigate any impacts identified. This list of actions, with timeframes and accountabilities identified, itself should then form the basis for the Environmental Management System (EMS) – this is the long-term mechanism for the company to manage impacts through the operational life of the development.

Baseline information gathered primarily for use during the SEA or EIA defines the level from which all potential impacts can be measured. In addition, it can contribute to restoration planning prior to site decommissioning. Any baseline information used or gathered should be shared widely with government, academia, and conservation organizations.

Improved professional capacity

Companies will find that staff feel more engaged in corporate environmental policies when they see tangible evidence that their organisation is actively managing its environmental responsibilities. In Uganda, as EIA quality has improved, capacity has increased in both the professionals developing the EIA's, and those reviewing/approving them. EIA Practitioners have identified some of their own knowledge gaps, and are taking active steps towards increasing their exposure to oil field operations and management techniques. Universities in Kampala will shortly commence running courses in Petroleum Engineering.

Engagement & Transparency

Good EIA/SEA practice encourages a more positive relationship with stakeholders. In Uganda, many Civil Society Organizations are actively seeking engagement on oil sector issues, and a few are directing some of their funding towards capacity building and awareness-raising sessions. Companies are working to build better relationships with communities through their stakeholder engagement processes. They also recognize that more needs to be done, and some are seeking partnerships to collaborate on areas where specialised knowledge is required e.g. community relations, environmental footprint, etc.

When decisions are made following genuine stakeholder input, people feel that their own concerns and opinions have been taken into account. Transparency can offer a view of information that had previously been unobtainable. For example, information on fiscal regimes between central and local government may have been withheld from people considered ignorant in its detail. With regard to petroleum revenues, Uganda is implementing a new Petroleum Revenue Law, and is at the very early stages of EITI implementation – both these measures will hopefully bring clarity to the use and distribution of the forthcoming oil wealth.

Novel approaches to impact management

Oil companies might typically install boreholes and medical or schooling facilities where local needs are apparent. These are positive impacts that can be a real bonus to communities living nearby oil developments.

When professionals are engaged in a robust impact management process they are more likely to think creatively about solving these challenges. In Uganda several organisations are working together to develop a sensitivity atlas, which will be used

to highlight sites for priority protection from aspects of oil development. The process has highlighted the need to fill many data gaps, to ensure coverage of all potential sensitivities within the atlas. A novel approach is that the atlas is seeking to identify those areas vulnerable to oil development in general, not, as is most usual with sensitivity mapping, just vulnerability to oil spills.
Residual impacts, especially if seemingly ignored by the government or company, can foster disquiet amongst communities or other stakeholders affected by those impacts. Adequate mitigation can be effective, but some impacts will always remain. Offsets can be one way to compensate, or bring positive benefit, for any residual unavoidable harm, especially when designed for the purposes of conservation or societal improvement. However, offsets are not acceptable when the development should not proceed in the first place, and they are only appropriate when all other mitigation options are insufficient to eliminate the harm. Considering the unique biodiversity value within the Albertine Rift in Uganda, NEMA, in conjunction with NGO's and other stakeholders, are initially exploring the feasibility of implementing a voluntary offset scheme, with a view to potentially installing a mandatory system in the future.

Improving company practices further

There are a few simple ways in which companies operating in areas as ecologically sensitive as the Albertine Rift, can ensure improved impact management.

- EIAs are submitted to the regulator on the understanding that mitigation actions proposed will be implemented in a timely fashion. The EIA should not be submitted until the company approves of the content and quality of the EIA, and until the company is in agreement to implement all mitigatory actions contained within the Environmental Management Plan (EMP). The EMP must include appropriate timing, accountability for each action, and be measurable to more easily ascertain adequate progress/completion. Once the project is approved, the EIA and EMP become part of that licensing decision.
- Those companies now already practicing environmental management should immediately build and implement an Environmental Management System (EMS). And when the EMS is sufficiently established, consider seeking accreditation to ISO14001 (www.iso.org). This is one of a series of internationally recognized standards encouraging good environmental practice.
- Implementation of international 'best practice' technologies and equipment. Environmentally responsible technology is improving continually, and adopting environmentally cleaner practices is no longer just expected of the major oil companies. Ensuring cleaner production techniques are implemented at the outset can save companies much additional investment during the life of the project.
- By being more open with information, companies can help prevent mistrust and foster better relationships with stakeholders such as local government, wildlife agency staff, community leaders, conservation/environmental/social civil society organizations, and the media. Information provision may work both ways: by sharing quality baseline information, the companies can invite expert opinion on minimizing potential impacts or restoration planning. In addition, companies could share their baseline data globally, such as registering it with UNEP-World Conservation Monitoring Centre for centralized storage and sharing.
- Companies, and their appointed EIA practitioners, should seek improved stakeholder input specifically at the Scoping stage. By engaging with stakeholders at the initial project stages, their input can prove valuable in helping to determine what might or might not become a significant issue. This results in a more focused EIA process.

- Companies could improve their relationships with local government officials and community leaders, so that their sole contact is not solely with government representatives in the capital city. By proactively discussing challenges locally, they may be able to find local solutions and offer assistance to the communities most likely to be impacted by oil development in the vicinity. By engaging locally, implementation of corporate social responsibility can become more transparent, better directed, longer-term sustainable, and more equitable.
- There are numerous corporate global and regional initiatives completed or underway, specifically designed to help companies become more environmentally responsible in their operations and actions. The International Petroleum Industry Environment and Conservation Association (IPIECA, www.ipieca.org) is a collaboration amongst oil companies aiming to "develop and promote scientifically-sound, cost-effective, practical, socially and economically acceptable solutions to global environmental and social issues pertaining to the oil and gas industry". Organisations involved in The Energy and Biodiversity Initiative (EBI, www.theebi.org) have produced "practical guidelines, tools and models to improve the environmental performance of energy operations, minimize harm to biodiversity, and maximize opportunities for conservation wherever oil and gas resources are developed". The Business and Biodiversity Offset Programme (BBOP, http://www.forest-trends.org/biodiversityoffsetprogram/) is a collaboration between governments, companies and conservation experts looking to explore biodiversity offsets – they are developing tools and best practices, and overseeing a series of pilot projects.

Conclusions

When environmental assessment is done badly, it is unfortunately not worth the paper consent certificate it too often generates. However, environmental assessment when done well is very beneficial to a wide range of people and wildlife. Good environmental policy and practice is good for business. A good EIA will encourage responsible decision-making, will increase professional standards, makes the right information available at the right time, promotes transparency, provides an auditable trail of the elimination and mitigation of impacts, and provide the basis for ongoing monitoring and improvement of practices.

Companies operating in the region should be using and setting international best practice; not only environmental assessment but in the wider remit of environmental management. Good environmental assessment ultimately allows development to be more sustainable. Peoples' wellbeing and livelihoods rely on the ability of a healthy environment to continue to deliver ecosystems services.

Conservation and development can co-exist; but in biodiversity-valuable areas such as the Albertine Rift, hydrocarbon exploitation must ensure there is no net loss in conservation value. Governments and companies should both consider that positive impact is the only responsible, sustainable outcome. In East Africa, where both societal and energy poverty are serious issues to be tackled urgently, energy provision cannot afford to be unsustainable. By looking at environmental impact assessment afresh, all stakeholders should see their potential for loss move towards potential to gain.

References:

Birdlife International, Endemic Bird Areas. Further information from

http://www.birdlife.org/action/science/endemic_bird_areas/index.html

Conservation International, Hotspots. Further information from http://www.biodiversityhotspots.org/Pages/default.aspx

Glasson, Therivel & Chadwick, 2005. Introduction to Environmental Impact Assessment. Publ: Routledge.

Imperial College London Consultants, 2005. The Relationship between the EIA and SEA Directives, Final Report to the European Commission, Contract number ENV.G.4./ETU/2004/0020r.

ISO 14001 environmental management standard. Further information from http://www.iso.org/iso/catalogue_detail?csnumber=31807

IUCN, Guidelines for applying protected area management categories, 2008. Further information from http://iucn.org/what/issues/environmental/resources.cfm?1662/Guidelines-for-applying-protected-area-management-categories

NEMA Environmental Impact Assessment Guidelines for the Energy Sector, June 2004.

WWF Global Eco-regions. Further information from http://www.panda.org/what_we_do/where_we_work/ecoregions/ecoregion_list/