EIA AS A TOOL FOR FACILITATING SUSTAINABLE DEVELOPMENT IN A GROWING ECONOMY

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ABSTRACT

The hydrocarbon exploration project in offshore Mozambique is located adjacent to the Bazaruto Archipelago National Park and to key tourism destinations of Vilankulos and the Bazaruto Archipelago. The project and subsequent EIA have drawn the attention of regional and international stakeholder groups who have challenged the decision of allowing hydrocarbon exploration activities in such a sensitive marine environment.

The authors argue that the EIA conducted for this project is a good example of how the application of EIA can support decision making required to facilitate sustainable development. The EIA recommendations adopted a precautionary approach, and recommended that exploration activities be postponed in a third of the offshore concession area until more detailed information was obtained. A series of additional studies were commissioned to assist with improving the understanding of the affected environment before proceeding with exploration activities. The EIA and the additional studies were scrutinized by members of a stakeholder forum (constituted as part of the EIA) as well as by independent international reviewers. This paper will explore the best practice process and elements of this EIA and will argue that EIA remains an effective tool to support decision making required to facilitate sustainable development in a growing economy.

INTRODUCTION

Mozambique, until recently one of the poorest economies in the world, possesses an abundance of natural resources. The country also has a number of social and economic challenges to overcome if it wants to meet the aspirations of current and future generations, the majority of which subsist off the natural environment. Consequently, it has embarked on a concerted growth strategy which includes policies to exploit its mineral resources and hydrocarbon exploration concessions have been defined along strategic lengths of the country's coastline.

Prior to promulgating the Petroleum Operations Regulations (2004), the Government of Mozambique recognized the need to facilitate development in a sustainable manner. The Framework Environmental Law (1997) defines the legal basis for the sound use and management of the environment as a means to promote sustainable development. The Ministry for the Coordination of Environmental Affairs (MICOA) established in the mid nineties has been mandated to implement the Environmental Impact Assessment (EIA) Regulations first promulgated in 1998 and later revoked by the 2004 Regulations.

The formidable challenge of facilitating sustainable development in a country with an extremely low socioeconomic base, rich biological diversity, newly formed policies, legislation and institutions with

regard to exploitation of mineral resources and environmental protection and a wealth of mineral resources, is no more evident than in a country like Mozambique. This challenge is further heightened when one considers exploration for hydrocarbon resources in one of the most unspoiled marine environments in the world that supports extensive subsistence livelihoods and alternative economic activities such as tourism, which form a cornerstone of the present day economy.

This case study aims to demonstrate that it is possible to facilitate sustainable development under the above conditions by using EIA as a tool for decision making and by applying the principles of sustainable development throughout the EIA process.

CONTEXT

An Exploration and Production Concession Contract (EPCC) was signed between the Mozambique Government, Sasol Petroleum Sofala Ltd (Sasol) and Empresa Nacional de Hidrocarbonetos, E.P. (ENH) in respect of offshore Blocks 16 & 19, (Figure 1). In terms of the EIA Regulations, Sasol appointed Consultores Associados Lda (Consultec), in partnership with Environmental Resources Management Southern Africa (ERM), to undertake the EIA for conducting exploration activities in Blocks 16 & 19.

Blocks 16 & 19 are located adjacent to the Bazaruto Archipelago which forms part of a larger bioregion, the Western Indian Ocean region. The area contains ecologically important coastal and marine habitats including beaches and coastal mud flats, extensive mangrove forests, coral reefs and open waters. These habitats provide important breeding, nesting and foraging grounds for various species of marine turtles and marine mammals such as whales, dolphins and dugongs. The largest remaining viable population of dugongs in the Western Indian Ocean Region is believed to occur in the Bazaruto Archipelago.

The Bazaruto National Park (BANP) was established in 1971. Tourism in and around the park has developed into an important component of the local economy and the Bazaruto area has been identified as a priority area for tourism investment in Mozambique.

The coastal and marine environment supports the livelihood of impoverished inhabitants. A large proportion of the local population is either directly or indirectly involved in fishing activities with many of the inhabitants relying on marine resources as a food source. In addition, semi-industrial and industrial fisheries also frequent shallow and deep waters within the project area.

PROJECT OVERVIEW AND POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The exploration project consists of conducting 2-Dimensional and 3-Dimensional seismic surveys followed by exploration drilling and well testing activities in an area totalling approximately 10,000 km^2 (Figure 1).

Environmental and Social Impact Assessments (ESIAs) of this nature are generally conducted in respect of single activities, either seismic surveys or drilling activities. Similarly, they are conducted in respect of well defined geographical areas. The current ESIA posed a challenge in that it combined the assessment of two different exploration activities, the impacts of which had to be assessed for two different environments, namely the shallow and deep water areas.

Environmental and social impacts associated with hydrocarbon exploration activities include: noise effects on marine fauna (including whales, dolphins and dugongs); effects on the fishing industry, including temporary effects on fish behaviour, fish catches and cessation or displacement of fishing activities; interference with marine transport routes; effects on water quality as a result of drilling mud and cuttings disposal; effects of potential oil spills on marine fauna and flora and on economic activities such as subsistence fishing and tourism.

IMPLEMENTING PRINCIPLES OF SUSTAINABLE DEVELOPMENT

The internationally accepted key steps of EIA (screen, scope, assess, decide and implement, with stakeholder engagement) are followed in most African countries including Mozambique. The weaknesses of project specific EIAs have been widely debated, while EIA as a tool for facilitating sustainable

development has been acknowledged (Weaver *et al*, 2003, Sadler, 1996). Its is important to recognize that EIA is not just intended to ensure legal or donor compliance, but, more importantly, to ensure that projects are approved and implemented in alignment with sustainable development principles.

To test whether this project supported the principles of sustainable development, a discussion under the heading of recognized sustainable development principles is provided below. This analysis will assist in testing whether this EIA has been effectively used as a tool to facilitate sustainable development in a developing economy such as Mozambique.

Precautionary Principle (uncertainty)
During the Scoping phase the EIA team identified key information gaps which included information on the threatened resident dugong population, the sensitive artisanal fishery and the extent and importance of the local tourism sector. The EIA team recommended that exploration activities in the shallow water be abandoned until additional information could be sourced. This recommendation was accepted and before the EIA report was completed, the proponent committed to postpone shallow water seismic exploration activities until additional information had been obtained. Furthermore, the proponent agreed to undertake extensive effects monitoring (fish catch surveys, noise monitoring, coral reef monitoring, tourism surveys and turtle monitoring) during the implementation phase of the deep water 3D seismic survey to better understand the actual impacts and how these may relate to the impacts of shallow water seismic exploration should this proceed. The proponent also funded a year long study on the local dugong population to better understand dugong distribution, habitat and population dynamics.

The results of the fish catch monitoring and the dugong research concluded that the shallow water area formed critical habitat that supported the sensitive artisanal fishery and the threatened dugong population. The studies recommended that no exploration activities be undertaken in the shallow water area. The proponent is presently evaluating these recommendations and a decision on whether to proceed or not is expected to be communicated shortly.

Ecological Limits
They key ecological limits considered in this EIA were related to the seismic noise limits that would either interfere with marine mammal communication, result in a startle response of mobile marine fauna or result in physical damage or injury to marine fauna in general. Results from international research were considered and noise limits for various marine fauna were defined. Recommendations included the spatial mitigation (buffer zones for coral reefs) and temporal mitigation (avoidance of peak migration and breeding seasons) to ensure ecological limits were not exceeded. These recommendations were followed up with monitoring activities during the implementation phase. Monitoring included the use of Marine Mammal Observers on board seismic vessels during the implementation phase and noise monitoring at sensitive marine sites.

Intergenerational Equity (future)
Through applying the Precautionary Principle associated with the threatened dugong population and sensitive artisanal fisheries, potential threats to these components of the biophysical and social environment were removed. This will allow opportunities for future generations to experience the dugong population and to have access to a sustained food supply. It will also afford future generations the option of exploiting possible hydrocarbon resources as new technology may allow for less intrusive exploration techniques.

Intragenerational Equity (present)
During the implementation phase of the deep water 3D seismic survey, compensation was paid to stakeholders that were directly affected by the exploration activities. While compensation was paid to all stakeholders that lodged claims, the compensation procedures could have been more adequately explained to all potentially affected stakeholders. A lack of understanding of the procedures, an expectation that all potentially affected parties should be compensated and limited communication during the implementation phase resulted in a general unhappiness amongst artisanal fishermen.

While it is difficult to realize direct benefits to local communities as a result of offshore oil and gas exploration activities, the proponent acknowledged the need to ensure that local communities benefit from revenue generated from the exploitation of natural resources should viable resources be discovered in

the area. Due to the hi-tech nature of the oil and gas sector and the low educational and economic base of the affected communities, the EIA recommended that local benefits are derived from appropriate social investment projects. The proponent continues to investigate appropriate social investment projects in the area.

Partnerships and Participation (acceptable to stakeholders)
The EIA project management team was a partnership between Mozambican and South African companies and the EIA involved specialists from both countries. Mozambican institutions were engaged and supported to assist with effects monitoring during the implementation phase, including data gathering on artisanal fish catch (Fisheries Research Institute), turtle nesting sites (Endangered Wildlife Trust and Bazaruto Archipelago National Parks) and tourism activities. Local experts from Eduardo Mondlane University were contracted, together with South African experts, to undertake the dugong research.

Participation of affected stakeholders was a core component of the EIA process. Stakeholder engagement started early on in the EIA process and continued into the implementation phase and included the following aspects:

Background Information Document (BID): A brief non-technical document was distributed to all stakeholders in the Scoping phase, aimed at sharing information with stakeholders ahead of the public meetings. The BID 1) introduced the purpose and need for the proposed project, 2) described the EIA process and 3) described the proposed project and potential associated environmental and social impacts.

Public meetings during the EIA and implementation phase: 15 public meetings were held in various locations affected by the project throughout the EIA and project implementation phases. Meetings were advertised in the local media (print, radio) and simultaneous translation was used at all meetings. All documents were distributed in English and Portuguese and were lodged on an English/Portuguese website (www.erm.com/sasoleia).

Stakeholder Forum: During the Scoping Phase, stakeholders requested that they be allowed to engage more closely with the EIA team. A stakeholder forum was constituted and included representatives from sectors such as government, fisheries, tourism and environmental and development NGOs. A total of 14 meetings were held throughout the EIA and project implementation phases.

Accountability and transparency
A core success factor to the EIA was the willingness of the proponent to allow the EIA process to address areas of uncertainty without undue pressure on timeframes. Access to information and review of information remained an important component of the process throughout.

During the Scoping phase stakeholders requested technical support in terms of reviewing the Draft Environmental Impact Report. To this end, an independent peer reviewer was appointed and all costs associated with this were covered by the proponent. Peer review comments were submitted to the Stakeholder Forum prior to being released to the proponent and the EIA team.

Information was made available at various stages of the process allowing for comment by all stakeholders. Peer review, transparency and availability of information allowed for accountable decision making throughout the process.

Addressing strategic issues and long term cumulative impacts
While the EIA document addressed the impacts associated with oil and gas *exploration* activities, stakeholders raised concern related to the potential long term cumulative impacts associated with oil and gas *production*, should economically viable gas reserves be found. The core concerns focused on the perceived incompatibility between the tourism sector, conservation and artisanal fishing and the oil and gas sector. The oil and gas sector was perceived as a direct threat to marine conservation and as a result a threat to tourism and the artisanal fishery. While the importance of the oil and gas sector to the development of the national economy of Mozambique was recognized, limited local benefits were likely to be realized. In contrast, research showed that the tourism sector was well established in the area,

generating significant local benefits, while the artisanal fishery supported the livelihood of the most vulnerable members of the community.

The EIA is not an appropriate tool to address conflicting issues between future oil and gas development and the perceived threats to tourism, artisanal fishing and conservation. Consequently, the EIA team recommended that a Strategic Environmental Assessment (SEA) be undertaken to address these issues and that it be completed prior to the approval of oil and gas production activities in the area. The EIA recommended that the SEA assess the costs and benefits of protecting the marine environment and thereby supporting tourism development and artisanal fishing, while promoting the oil and gas sector.

The recommendation to undertake an SEA prior to the approval of oil and gas production activities in the area was supported by the proponent, MICOA and the affected stakeholders. The Mozambican Government is presently discussing options for conducting the SEA.

CONCLUSION

The challenge of exploiting a country's mineral wealth to generate jobs and foreign exchange while at the same time protecting natural systems and those that subsist off of them is significant.

The EIA under review demonstrates that EIAs provide a framework for information analysis and decision making, which when supported by stakeholder engagement processes and consideration of the value of economic, social and environmental systems, deliver sustainable outcomes.

Whereas a decision is expected to be issued by the proponent shortly on whether it will pursue shallow water exploration activities, the precautionary and consultative approach adopted during the decision-making process demonstrates that EIAs are effective tools for facilitating sustainable development in a growing economy such as Mozambique.

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Figure 1: Offshore Blocks 16&19 Concession Area, Mozambique