



Netherlands Commission for
Environmental Assessment

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SEA for the oil and gas sector – 3 country cases

Introduction

The continuing expansion of extractive industries and their effect on the environment throughout the world has made the need for sound environmental assessment more pressing than ever. The NCEA provides advice on the scoping and quality review of environmental and social impact assessments (ESIA) for over 25 years. In the last ten years, the focus of our work has shifted from ESIA towards Strategic Environmental Assessment (SEA), thereby integrating the environment more into planning and decision making. In the following pages, we would like to share some observations and experiences with SEAs in this sector, using examples from Ghana, Mauritania and Bolivia.

Environmental, social and economic issues in the oil and gas sector

In the diverse projects and plans we've been involved with in the past 25 years (see the box on the right), several recurrent issues have emerged:

- **High impact projects demand hi-tech expertise**
Although oil and gas exploitation has far-reaching impacts on interconnected ecosystems and local and national economy, specific technical knowledge for assessing the impacts of oil and gas projects is often not available locally.
- **Investment projects often take place prior to policy development**
National sector strategies tend to lag behind private sector projects, and governments often have limited capacity to appraise projects, grant licences and enforce licence conditions.
- **Equity issues unaddressed**
Commonly, benefits are only reaped by a small

NCEA advisory work on ESIA in the oil and gas sector

- Georgia The Baku–Tbilisi–Ceyhan oil pipeline and the South Caucasus gas pipeline
- Peru hydrocarbon appraisal and development
- Chad / Cameroon Chad oil export project
- Ghana Ankroba petrochemical plant
- Ghana West African gas pipeline
- Suriname Tout Lui Faut oil refinery
- Ecuador Heavy Crude oil pipeline
- Mozambique Offshore oil exploitation
- Mozambique Sasol Petroleum Temane gas project
- Mauritania Offshore oil exploitation
- Rwanda methane harvesting in Lake Kivu
- Ghana Jubilee Field oil exploration
- Uganda East African crude oil pipeline
- Uganda Tilenga oil exploitation project

NCEA advisory work on SEA in the oil and gas sector

- Mauritania oil and gas developments and coastal zone management
- Bolivia oil and gas development in protected areas
- Ghana oil and gas sector (offshore and onshore)
- Uganda oil and gas development in Lake Albert
- Senegal oil and gas sector plan

NCEA training on ESIA and SEA in the oil and gas sector

- Senegal and The Gambia regional workshops on SEA
- SEA workshop Zanzibar
- ESIA workshop Myanmar
- SEA and ESIA workshops in Lebanon, Cuba, Uganda, Suriname and Guyana
- ESIA review workshop in Uganda

group, while many people are exposed to adverse effects of the projects. Compensation for individuals and communities is therefore often an issue.

- **Source of conflict and controversy**
Exploitation can generate large revenues to foster growth and reduce poverty. However, when governance is weak and regulatory capacity inadequate, the result may be poverty, corruption and conflict.
- **Oil and gas sector decency**
If conditions are clear from the outset, the sector is willing and able to apply advanced and best available technologies to minimise risks and impacts.
- **Multi-sector involvement**
Taking the interests and development potential of other sectors such as coastal management, tourism and fisheries into account at an early stage increases the chances of identifying new opportunities and balancing short- and long-term interests. This is particularly important because oil and gas exploitation usually generates short-term benefits with long-lasting effects on the social and natural environment and the economy.

Role of ESIA and SEA

ESIA and SEA can address most of the issues mentioned above. They guarantee:

- a solid assessment of environmental and social issues
- a well-structured public and government debate on these issues
- a mechanism for taking the results of assessment and debate into account in decision making.

The sector can therefore benefit greatly from applying ESIA and SEA because they can enhance the legitimacy of the sector's investments, which are usually considerable. Whereas ESIA is limited to the scope of a single project, SEA aims at nationwide development programmes, plans and policies. SEA in the oil and gas sector can help reduce risks and ensure preparedness by:

- developing different scenarios for slow, medium or high pace exploitation, e.g. over 10, 20 or 30 years, in combination with different programmes for revenue management
- including alternatives in pacing concession rounds and awarding production licences
- assessing the probability of and related impacts of, for example:
 - development of LNG production in the future

Example of issues explored in an SEA for oil and gas development

From 2010 until 2013 an SEA was carried out for the Albertine Graben area (Uganda). Its objective was to inform decision makers on sustainable use of the oil and gas resources. The exploration and exploitation was to be carried out in a way that maintains the structure, functioning and productivity of the ecosystems of the area and provides a basis for long-term value creation and sustained livelihoods.

The SEA explored:

- how best to pace future exploration and development stages: for example, a stepwise approach starting from the least vulnerable areas and gradually expanding into more vulnerable areas, armed with the experience acquired;
- ways to deal with conservation of biodiversity and the most valuable and sensitive areas;
- sustainable coexistence with other sectors, such as tourism, agriculture and fisheries;
- options for dealing with pollution and waste;
- developing proposals for improving the institutional capacity of different stakeholders to enforce law and deal with negative consequences of oil and gas development;
- developing compensation mechanisms;

The SEA was approved by Cabinet in 2015 and its recommendations are currently being implemented.

- the port developments necessary to accommodate such activities and their effects
 - the need for oil/gas related waste treatment and disposal
 - developing guidance on assessing the environmental pros and cons of technological methods for:
 - gathering seismic data (air guns, dynamite)
 - drilling and testing wells (horizontally or vertically)
 - developing a newly discovered gas or oil field
- At project level too, this guidance can be used for choosing the most suitable alternatives for each set of environmental conditions (e.g. open water, near shore, near protected areas).

These and other functions of SEA are illustrated on the following pages with cases from Ghana, Mauritania and Bolivia.

Case 1: SEAs for the offshore oil and gas sector and for onshore oil and gas in the Voltaian Basin – Ghana

In 2007, commercial quantities of oil and gas were discovered at the Jubilee field off the coast in Ghana. An EIA was done for this field. Since the discovery resulted in 13 offshore licences being granted for exploration and over 20 companies submitting applications, the governmental realised more strategic decisions were needed on future development. For example on:

- the fields adjacent to the Jubilee field
- the other offshore oil and gas sector developments
- onshore oil and gas areas.



Why SEA?

In line with the commitment to ensure sustainable national development in Ghana, the Ministry of Energy (MoEn), in collaboration with the Environmental Protection Agency (EPA) and the National Development Planning Commission (NDPC) took the initiative for an SEA for the offshore oil and gas sector. The objective of this SEA was to ensure that environmental issues are considered in all decisions concerning the oil and gas sector at the conceptual stage in order to:

- protect and enhance the natural resources (flora and fauna, wetlands, etc.) on which people depend for their livelihoods
- improve health and well-being by eliminating pollution and reducing accidents
- reduce risks associated with the industry, including user conflicts
- enhance opportunities for the vulnerable and excluded
- create institutional systems that allow broad participation in decision-making processes.

The SEA was supported by the Norwegian Oil for Development programme and a donor-supported Natural



Resources Environmental Governance budget.

The SEA process

The SEA was undertaken between 2009 and 2013 by a team of the NDPC, the Ministry of Energy, the Ministry of Environment, Science and Technology, the EPA and the Ghana National Petroleum Corporation, with the help of two consultants from Ghana and Norway. The NCEA was requested to act as a facilitator and coach for the SEA process. This entailed providing technical input in the process and commenting on draft reports.

The first step in the SEA was to identify the key issues requiring attention in the SEA. This was done through:

1. desktop review of existing information on the oil and gas sector
 2. development of three scenarios ('lost opportunities', 'so far so good' and 'full speed ahead'), which led to an estimation of consequences and opportunities
 3. determination of stakeholder opinions and interests.
- In total, 24 key issues were identified.

The second step was to use the 'issues response matrix' to:

- provide a list of all relevant Policies, Plans and Programmes already in operation or being prepared
- list all the 24 key SEA issues
- evaluate the PPPs and determine how they respond to these key SEA issues (what kinds of alternatives they have, gap analysis, monitoring, etc).

The evaluation revealed that the PPPs already in operation – dating from before Ghana's oil and gas discovery in 2007 – did understandably not address the relevant key issues. However, the group of PPPs which were still under preparation could (and should) consider the 24 key issues before their finalisation. The SEA also provided

recommendations on how to integrate the key issues. For example:

Issue:

Need to ensure transparency and fairness in the operations of the oil and gas industry

- Recommendation 3.21

The government should intensify implementation of the EITI to ensure transparency in the oil and gas sector. The role of CSOs should be promoted in this regard.

SEA results and links to decision making



The findings of the SEA team during the SEA assessment phase were validated on two occasions.

1. In a sector and thematic group meeting with around 60 participants drawn from selected ministries, NGOs and exploration and production companies. All sector participants were requested to return to their ministries and ensure that the issues and responses relevant to their sector/thematic group were incorporated in their sector PPPs and the budget process.
2. In a working session with staff from the policy planning, monitoring and evaluation/budget divisions, to follow up on the earlier meetings and ascertain whether the key issues had been incorporated into sector PPPs.

Thus, one of the main results of the SEA were the adopted sector PPPs relating to oil and gas issues. Furthermore, the assessment of the PPPs also revealed which SEA information should be integrated into which PPP at what time

in order to influence decision-making. The SEA also raised awareness of social and environmental issues related to oil and gas, as well as of the SEA process itself. The SEA was conducted with full involvement of stakeholders: there were national, regional and district level consultations (workshops, questionnaires, public hearings and interviews with key persons). Details about the information were appropriately documented and made available.

See our website for more information on our advice on the [approach](#) and for the [draft reports](#).

SEA for onshore oil and gas – ongoing

A similar process is taking place for the Voltaian Basin. The first step was to draw attention to the lessons learnt from the offshore SEA. Positive results were highlighted but issues to be improved were also mentioned: for example, the need to pay more attention to implementing the recommendations. The SEA was formally launched early in 2016 and the NCEA was again invited to be a facilitator/coach for this. The SEA team produced a report on the launch and pre-scoping workshop. Thereafter the SEA team (16 persons) continued with the following activities in 2016:

- regional stakeholders' consultation in five regions
- a desktop review of the existing information on oil and gas
- SEA team meetings to analyse the results of consultations, baseline information, scenarios etc. and to compile a draft scoping report. This was the first formal product of the SEA.

The next steps in the SEA were delayed by the general elections in December 2017 but were resumed in April/May 2017, when the SEA team started the assessment part, which included:

- identifying the lessons learnt from the offshore SEA
- visiting Uganda, where NEMA Uganda shared their onshore experiences with the Ghanaian SEA team
- translating 85 key issues identified during scoping into medium- or long-term recommendations
- including the medium-term recommendations in the Medium-Term Development Planning process (MTDP).

Issues not covered in the MTDP were addressed in the SEA implementation plan. The SEA is planned to be finalised at the end of 2018.

Case 2: SEA for the oil and gas sector – Mauritania

Mauritania first discovered oil in 2001, in the offshore Chinguetti field. Although Mauritania has great oil and gas potential it has fragile institutional structures and inadequate local expertise to competently manage its oil resources. The government therefore decided that in addition to the ESIA for the Chinguetti oil field, an SEA was needed to ensure that oil and gas development proceeds sustainably. The SEA was supported by the World Bank and the Norwegian Oil for Development programme.



Why SEA?

Mauritania has a very rich fauna, particularly bird species. Some mammalian species are critically endangered. The possible risk that oil and gas development poses to nature conservation areas, particularly in Banc d'Arguin and the Diawling National Park, was one of the reasons the government embarked on an SEA. Other considerations were that oil and gas developments may affect or cause trade-offs with fishery (ocean fishery is a major contributor to GDP and local employment), port activities, population migration trends, tourism and coastal defence. The main objectives of the SEA were to:

- identify the social and environmental impacts related to increased oil and gas development, and evaluate their scope and probability
- put forward recommendations for avoiding, managing and/or reducing these impacts
- facilitate the integration of these measures into a coherent policy and ensure it is applied
- support capacity building for the government in the management of sector impacts, e.g. in the ministries of Environment and Petroleum, Energy and Mines.

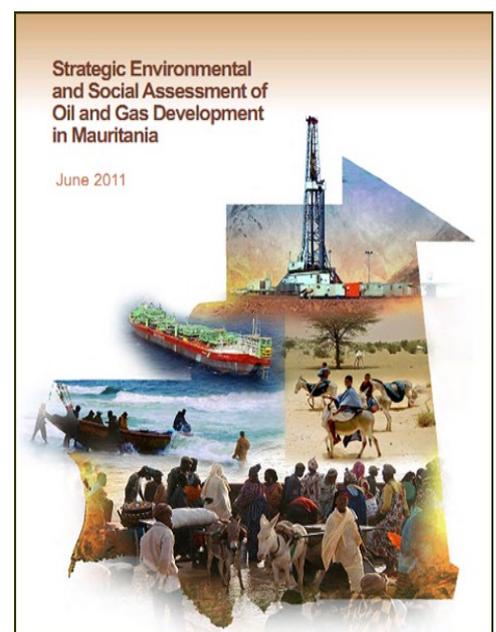
The SEA process

- At the request of the former President of Mauritania and facilitated by the Netherlands Embassy in Dakar, the NCEA visited Mauritania in 2006 to review the ESIA report of the Chinguetti oil field and the draft scoping report for an SEA for oil and gas development and coastal management.
- The Mauritanian government and the newly elected president in office, together with the World Bank, established the final scoping report for the SEA in 2007.
- Two companies – an Italian and a Canadian – carried out the SEA. In 2008 the SEA was put on hold because of a change in government. In 2009, the Mauritanian authorities decided to resume work and a meeting was held to discuss the finalisation of the key SEA findings and its recommendations, the action plan and budget. In June 2011, the final report was ready.

The SEA results

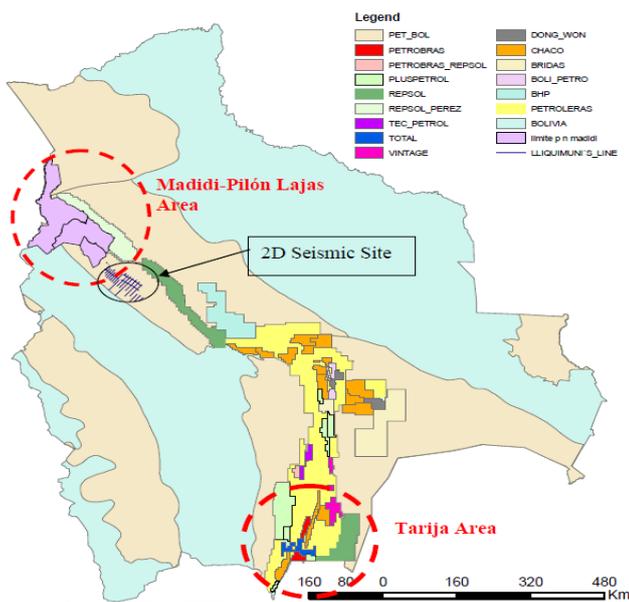
The SEA guided the development of recommendations plus an action plan (and budget) to facilitate their implementation. Priorities were structured according to urgency: immediate action (2011–2012), short-term action (2012–2013) and medium to long-term action (2012–2015). For example, the recommendation to develop higher education curricula in oil and gas management has led to an MSc being offered since 2014.

For more information see the [NCEA advisory reports](#) on our website.



Case 3: SEA for the oil and gas sector – Bolivia

In Bolivia, oil and gas accounts for more than 30 percent of total government income. The state-owned oil company controls, oversees and executes all activities in the country's oil and gas sector. The Ministry of Hydrocarbons and Energy (MHE) formulates and enforces development policies and the resulting activities in the hydrocarbon and energy sector. Hydrocarbon activities are already ongoing or may start in the future in two protected areas: Aguara-güe national park and Madidi/Pilón Lajas.



Why SEA?

MHE decided to carry out an SEA in these two areas to address the challenge of balancing the need for hydrocarbon exploitation (higher energy demand) with the use of forest goods and services, biodiversity conservation and ecotourism, especially in the future. The main objectives of the SEA were to:

- identify vulnerabilities of the ecosystems and determine the maximum capacity for hydrocarbon exploitation and in which areas and in which modality the hydrocarbon activities could take place
- develop a methodology for working with local people
- generate conditions and general guidelines for subsequent individual EIAs
- elaborate a clear methodology applicable to the entire hydrocarbon sector.

The SEA process

- MHE ran the SEA process. At the start in 2008, numerous meetings were held with representatives of the Ministry of Environment and Water, National Service for Protected Areas and the state oil company. These were important first steps to ensure good practice SEA.
- The MHE requested NCEA's advice on the scope of the SEA.
- The NCEA visited Bolivia in 2009 with a working group of experts to advise on the scoping, with the aim of agreeing on the scope, objective and approach of the SEA.
- It was decided that the final SEA would consist of two separate parts: an SEA for the Aguara-güe national park and one for the Madidi/Pilón Lajas area.
- A Bolivian SEA team worked on the SEA report for the Aguara-güe area and a first draft was published at the end of 2011.
- In 2012 the NCEA reviewed the quality of the draft SEA report for the Aguara-güe area.

Review of the SEA report

The NCEA found that in general the SEA report was well written. It contained a wealth of information on environmental, socio-cultural, economic and political/institutional aspects. However, there were some important shortcomings relating to matters essential for decision making. For example:

- The link with the planning process was weak and thus the SEA was not using its full potential.
- The report lacked focus because the SEA for the hydrocarbon sector (commissioned by one authority) had been merged with the SEA for regional development (commissioned by another authority) and because the document was a mix between SEA report and SEA guidelines.
- Although the report described problems and their alternative solutions, it did not assess the impacts of different alternatives, nor did it compare the impacts of alternative options.
- The acceptance of and consensus on proposed oil and gas exploration plans and projects largely depend on how stakeholders have been involved. The SEA did not pay sufficient attention to this issue.

The SEA results

Although the Vice Ministry for Energy has been unable to authorise a follow-up to the SEA and the SEA only included the exploratory phase, two of its main objectives have largely been met:

- the SEA revealed that the national policies to explore and exploit hydrocarbons jeopardise the social and environmental conditions of the local indigenous population.
- As a result of a recommendation in the SEA, guidelines have been drawn for implementing SEA in the hydrocarbon sector in Bolivia.

Furthermore, on the basis of the first phase of the SEA, the local indigenous population, who oppose the economic development plans, have lobbied for more respect for social rights and environmental protection. And lastly, as this was the first SEA carried out by MHE, it contributed to further SEA development in Bolivia.



For more information see the [NCEA advisory reports](#) on our website.



Other country activities

ESIA and SEA workshops – Suriname/Guyana

Suriname and Guyana aim to improve their ESIA and SEA systems. IUCN–NL, WWF and their local partners wish to contribute to this, in the framework of the 'Shared Resources, Joint Solutions' programme. The NCEA was requested in 2017 to give the workshop 'Making SEA and ESIA work for oil and gas development' in both countries. The 3-day workshop in Suriname and 2-day workshop in Guyana were both well attended by representatives of the government, private sector and NGOs. The priorities



identified were discussed in follow-up meetings in both countries to plan future activities related to ESIA or SEA. Comparable workshops for NGOs and civil society organisations with a focus on oil and gas have been given in Uganda, Ghana and are planned for Mozambique.

On-the-job training on ESIA – Uganda

East Africa Crude Oil export Pipeline (EACOP) – 2017

The Ugandan environmental authority (NEMA) reviewed the scoping report for a complex ESIA that concerns the development of the East Africa Crude Oil export Pipeline (EACOP), which is intended to transport oil from the Lake



Albert basin in Uganda to the Chongoleani peninsula in Tanzania. The EACOP, for which the governments of Uganda and Tanzania have signed an Inter-Governmental Agreement, is 1445 km long. Because the oil is very viscous, the pipeline needs to be heated along the entire route, making the EACOP the longest electrically heated pipeline in the world. The pipeline will be buried, which in some cases will require drilling under waterways and roads.

To make sure that its review addressed all relevant aspects, NEMA asked the NCEA to assist them. During a visit to the NCEA, NEMA was able to discuss the issues in depth and simultaneously improved its capacity to review ESIA.

An NCEA working group of experts was assembled for the joint review. It contributed to the five-day working session with the NEMA. The findings of the joint review have been published in a joint [advisory report](#).

The review process included a site visit to Schoonebeek Oilfield to get an insight into similar onshore installations and operations including an oil-processing facility, pipeline infrastructure and production wells, and their co-existence with communities (settlements, farming).



Tilenga project – 2018

Since the discovery of oil and gas resources in the Albertine Graben in the early 2000's, the Tilenga project will be one of the first initiatives to produce, process and transport oil in the northern part of the Albert Lake. NEMA asked the NCEA to assist in reviewing the ESIA. The Tilenga initiative is planned in the Murchison Falls National Park, a protected area known for its outstanding biodiversity and ecosystem values. During a 4-day site visit, both Ugandan and Dutch members of the review team



discussed the potential impacts and the measures needed to prevent harm to people and nature.

Oil and gas related ESIA training in Uganda

Projects in the petroleum sector often have a variety of environmental and social effects, which are addressed in ESIA's. To judge whether all effects have been sufficiently taken into account in the ESIA, the ESIA reviewers need specific expertise. For this reason, the NCEA organised a workshop for representatives of environmental institutions in Uganda.

The workshop aimed to develop their capacity in the technical review of ESIA's for petroleum projects. Presentations were given by the NCEA and the National Environmental Agency of Norway, and participants reviewed example ESIA reports from the petroleum sector.

The NCEA

The Netherlands Commission for Environmental Assessment is an independent body of experts. It gives advice to national and international governments on the quality of environmental assessment reports in order to contribute to sound decision making. In addition, the NCEA supports the strengthening of EA systems in low- and middle-income countries. NCEA's knowledge products on environmental assessment are online available.

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