



Workshop Working Paper
**Managing Environmental and
Social Impacts of the Petroleum
Sector: Using Environmental and
Social Assessment Towards More
Sustainable Development**

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Fernando D. Rodriguez, April 2015

This paper serves as one of the background papers for the World Bank Energy and Extractives Global Practice workshops on “Building Knowledge on Petroleum Resources Management” and specifically for the ½-day session on “Environmental and Social Dimensions of Petroleum Development.” It is structured as follows:

1. Introduction
2. Oil and Gas: Sector and Individual Project Developments
3. Typical Environmental and Social Impacts of Oil and Gas Development
4. Environmental and Social Impact Assessment: Core Components
5. Strategic Environmental and Social Assessment: An Opportunity
6. Key Institutional and Legislative Requirements – and Contracts
7. Public Participation, Transparency, Mutual Accountability and Data
8. Somali Peninsula: Examples of Existing Social and Environmental Challenges
9. Summary and Key Recommendations

1. Introduction

In 2014, 20 African States were included in the list of fragile states¹. The list of fragile states changes each year. Many of these states are resource rich and a number of these (e.g.: Chad, Congo, Côte d'Ivoire, the DRC, Guinea, Sierra Leone, South Sudan, Sudan, and Zimbabwe) already include oil and gas as some of their key exports – and companies are currently exploring for new reserves in six more countries. Poor natural resource management practices, weak governance and trans-boundary issues can exacerbate tensions, deepen inequities and contribute to conflict and fragility. Somali Peninsula ranks second most fragile state, an improvement from being considered the most fragile state in prior years.

In its 2014-2019 Strategy, the African Development Bank laid out a framework to contribute to building more resilience in fragile states, including a focus on supporting inclusive growth through strengthening State Capacity, Promoting inclusiveness and policy and good governance, while attending to gender inequities and food security (Figure 1).

Figure 1: Contributing to Strengthening Fragile States

¹ Fund for Peace, 2014 Fragile States Index. <http://library.fundforpeace.org/library/cfsir1423-fragilestatesindex2014-06d.pdf>



Source: African Development Bank, 2014-2019 Strategy.

Presence of the private sector can be a resilient and stabilizing force that is able to manage risks and take advantage of pockets of stability and create jobs.

Governments that have the necessary vision, commitment, legal and institutional framework and enforcement capacity to attract private sector investment to transform natural resources, including oil and gas reserves, into sustained more equitable economic growth, employment opportunities and local content, and improved livelihoods for their citizens, can contribute to greater cohesion and resilience of their States.

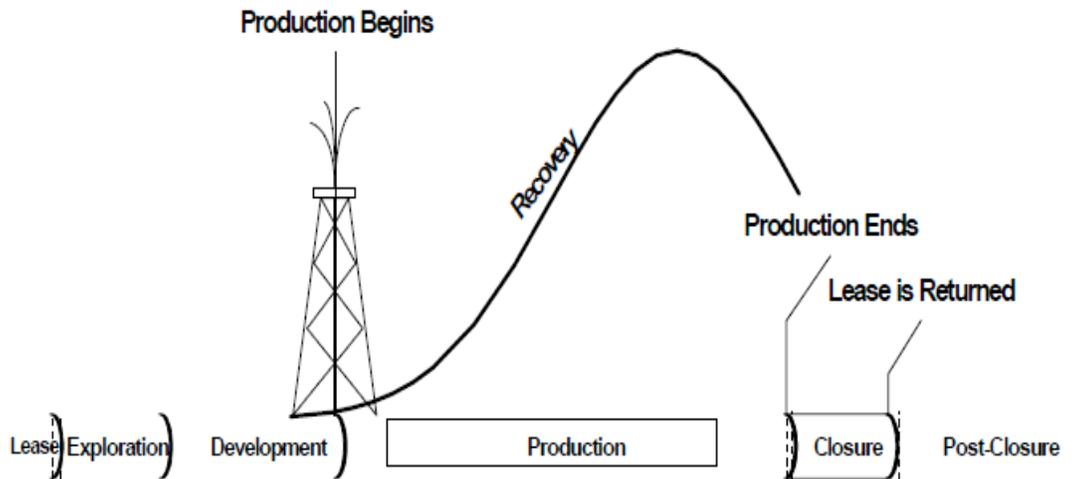
At the individual project level, the environmental and social impact assessment (ESIA) process can help to mitigate potential impacts of proposed oil and gas sector projects – and contribute to project-specific environmental and social management. However, at a regional and/or country level, strategic social and environmental assessments (SESAs) can, over time, be used to proactively inform and optimize the opportunity afforded by the oil and gas sector-wide development thereby laying the foundation for broad sustainable and inclusive development, peace and State-building in African fragile states.

2. Oil and Gas: Sector and Individual Project Developments

Oil and Gas sector projects include a number of different phases, complex activities and infrastructure as well as technology-intensive investments spread over a wide geospatial and temporal scale. Broadly speaking, the oil and gas sector is comprised of “Upstream” (exploration and production) and “Downstream” (refining, retail, liquefied natural gas, light petroleum gas, chemical and lubricant plants) components. In some cases, when production is significant, the sector may also include costly “Midstream” investments (pipelines) to transport oil from areas of production to export locations and/or to downstream refineries and plants, if this is determined to be technically feasible and economically viable.

Whether resources to be developed involve offshore or onshore fields, oil and/or gas, an individual hydrocarbon development project life cycle can take upwards of 30 years, or the equivalent of one generation, from the initial award of a lease / concession by the host country through the different phases including lease negotiation, exploration, development, production, and decommissioning and closure (Figure 2).

Figure 2: Typical Oil and Gas Project Cycle



The specific types of equipment and installation (e.g. terrestrial drilling pad vs. an offshore drilling platform, onshore crude or gas processing and storage vs. Floating Production and Storage Offloading) will vary depending on the resource extracted, location of resources, and technical and economical feasibilities.

Progress to each successive stage of the oil and gas development cycle is contingent on technical feasibility, resource development costs, market conditions (economics of development) -- and sustained favorable conditions (e.g.: peace, stability, contractual terms, clear institutional and legal framework and manageable socio-environmental conditions).

Sector development and maturation can take decades. Non-producing States will naturally begin with investments in Upstream developments, with "Downstream" and "Midstream" developments beginning only when/if there are sufficient commercial finds, as the industry sector matures and when there is sufficient capacity and know how to support an even more complex supply chain to produce, export and/or use petroleum refined and petroleum based products.

3. Typical Environmental and Social Impacts of Oil and Gas Development

There have been significant technological advances in the oil and gas industry and use of good international industry practices in recent decades. However, there is still a great deal of variance in the standards applied to similar activities and stages of oil and gas exploration and development depending on the company implementing it and the requirements established by the host country governments. Consequently, individual oil and gas sector projects at different phases of the oil and gas development cycle – and the synergistic and/or cumulative effects of such development can inherently cause direct and indirect, positive and potentially adverse changes to the physical, natural and socio-cultural landscape in which they take place and increase fragility.

Activities pertaining to the "Exploratory Phase" are shorter term and may/may not result in longer term "Development and Operations." Below is an overview of key select successive potential stages of typical oil and gas sector projects as well as the nature of impacts, which they have the potential to cause.

- Exploration – Seismic Surveys. This activity, which can last from a few to several months depending on the type, extent and location of the survey(s), is designed to

provide information and develop a picture of geologic structures below the surface. This helps identify the likelihood of an area containing hydrocarbons. The information is also used for deciding location of prospective exploratory drilling targets. Depending on the specific location (terrestrial or offshore and socio-environmental context), seismic surveys involve potential short term impacts to habitats from clearing and/or opening access to conduct the surveys and setting base camps, atmospheric emissions from vehicular traffic and operation of machinery, disturbance from vessel operations (or shore base establishment / operations), impacts to nearby communities (noise, dust, vehicular traffic), effects on the existing infrastructure, risk of communicable diseases from the interaction between the workforce with local communities, and potential impacts on cultural or archeological resources. However, given the comparatively short-term nature of these activities – and the fact that the latter is not necessarily followed by permanent infrastructure or presence, seismic surveys can be completed in such a way as to minimize these effects and/or allow it to restore to pre survey conditions.

- Exploration – Drilling. Exploration wells are drilled to determine or confirm whether oil or gas is present. This phase can be accompanied by a step-change in activity and visibility as drilling can involve drilling rigs, supply trucks or vessels, vehicles and helicopters for transporting personnel. Exploration drilling may take a few to months or longer (contractually, exploration generally takes on the order of 3 years) and does require the installation of some infrastructure (logistic bases, wells, testing equipment), the establishment of a longer-term workforce (base camps) and supporting facilities and logistics. In addition to the risks during seismic surveys, impacts during this phase depend on the choices made relative to factors such as the selection of specific sites for the facilities, mode of access, proper storage and handling of wastes, procedures related to the disposal of drill cuttings, the need for flaring, and socioeconomic impacts related the supply chain, presence and/or contracting of a workforce, including interactions with nearby communities, including effects on existing land or marine space use. However, again this stage has a distinct beginning and in some cases does not result in reservoir development, but rather in decommissioning of the temporary facilities, abandoning of exploratory wells and restoration of the sites.
- Appraisal Drilling. If promising amounts of oil and gas are confirmed during the exploration phase, field appraisal is used to establish the size and characteristics of the discovery and to provide technical information to determine the optimum method for recovery of the oil and gas. The potential social and environmental impacts associated with appraisal drilling are comparable to exploration drilling
- Development and Production. If appraisal wells show technically and commercially viable quantities of oil and gas, a development plan is prepared and submitted to the relevant authorities for approval. A variety of options are available for the production of oil and gas. Depending on the size of the reservoir, this phase can last on the order of decades (20-30 years), until such time as the resource is depleted and the production areas are decommissioned. Development and Production requires a longer term, larger scale and more complex set of infrastructure, sophisticated systems, permanent workforce, training and programs. All potential effects related to the exploratory and appraisal drilling phase also apply in the development and production phase, but could results in additional implications, the potential for more permanent changes and/or synergistic, cumulative impacts. Consequently, additional focus on waste streams, emissions, reliance on existing infrastructure, etc. is needed. Potential effects on socio-cultural parameters are also more significant during this phase, given the need to secure land or access to particular areas for longer periods of time (e.g.: in some cases requiring land acquisition, occasional involuntary resettlement, restricted access or economic displacement), the increased length of time for nearby communities to become exposed to operational activities, the establishment of a supply chain / service industry around the core project activities and greater potential pressures on previous land use and socio-cultural

conditions. Furthermore, during operations risks of malfunction can materialize (e.g. accidental spill, explosion, safety incident) and contribute to potential impacts. Finally, during this stage, revenues from resource development begin to cycle back into the country economy and will also contribute to potential changes, many of which can be positive resulting in economic growth and better social well-being, but, if not appropriately – and equitably - managed, can result in economic distortion, inflation, and unimproved living standards,

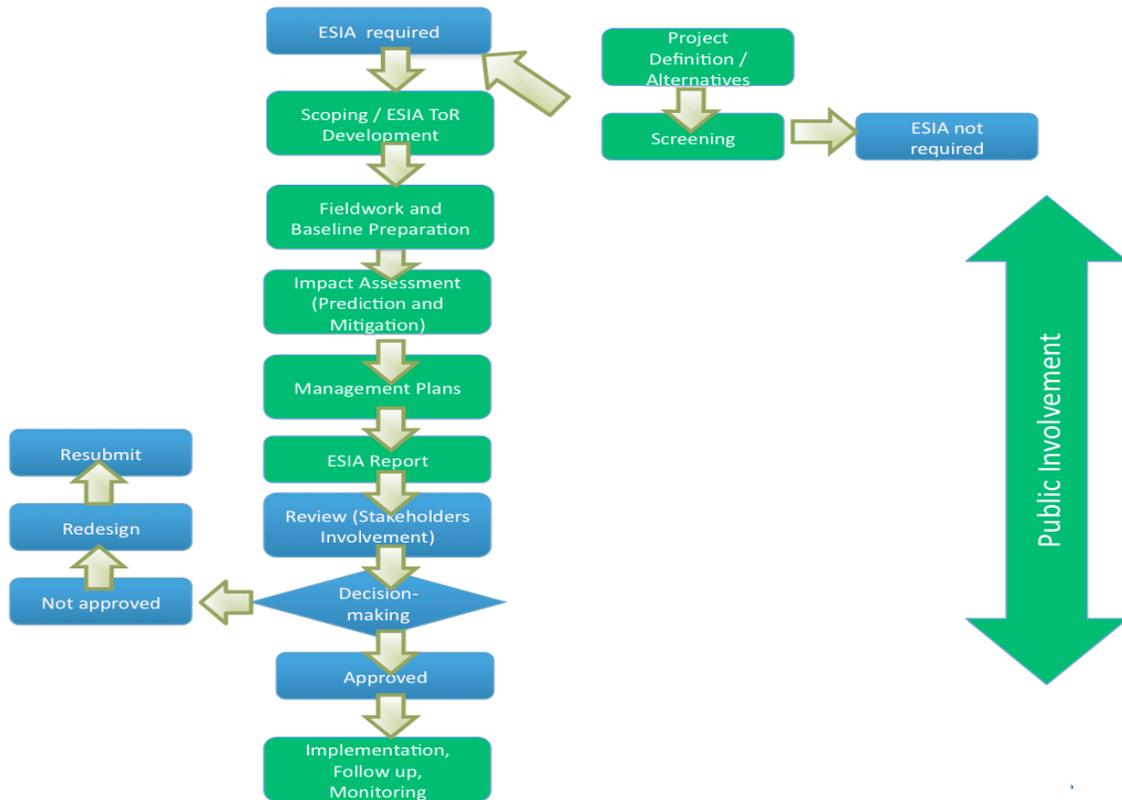
- Decommissioning and Closure. Oil and gas reserves are nonrenewable. Their exploitation has a beginning and an end: over time recovery becomes less cost effective, and eventually results in the decision to cease operations and closure. This phase occurs when hydrocarbons can no longer be extracted safely or economically at the end of any field life cycle. Decommissioning consists of closing operations in a manner that protects people and the environment and to avoid unacceptable legacy issues for local stakeholders, governments and companies. This phase can also have some significant impacts, if provisions for decommissioning have not been made at the outset of development (e.g.: decommissioning and rehabilitation plan and proper financial assurance commensurate with the scale, anticipated impacts and needs for rehabilitation as well as socioeconomic measures to economic downturns related to the end of production and revenue generation).

The specific and comprehensive potential impacts of individual oil and gas development projects will vary based on the particularities of the project and the socio-environmental context – and are well documented and known. Industry associations such as the International Oil and Gas Producers Association (IOGP), the Global Oil and Gas Industry Association for Environmental and Social issues (IPIECA), the Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean (ARPEL); donors such as the World Bank Group, the United Nations Environmental Program (UNEP) and the International Union for the Conservation of Nature (IUCN); and organizations such as the International Maritime Organization (IMO), the American Petroleum Institute (API), and the European Commission – Energy, amongst others, have developed and promulgated many best practice guidelines and standards specific to hydrocarbon development. Standards and guidelines endorsed by these organizations should be leveraged, adopted by individual companies and required by host country governments to help to avoid many of the impacts and control others.

4. Environmental and Social Impact Assessment: Core Components

The ESIA is a formal iterative, cross cutting and multidisciplinary process used to predict the impacts (positive or negative) of a proposed project or broader development prior to the decision to move forward with it – and in such a way as to optimize its ultimate design. An impact assessment may propose location and technological solutions to adjust the design so as to avoid the impact on biophysical, social, health, safety and economic parameters altogether or mitigate impacts to acceptable levels, including when appropriate adequate compensation. In other words, the ESIA is *not* a document to be produced by a company and a consultant, and approved by the regulatory authority solely to obtain a permit and then placed on a shelf. By valuing potential direct, indirect, short or longer term effects of proposed projects, the ESIA framework, if correctly applied and integrated with the engineering phases of projects, can enhance the outcome resulting in more sustainable projects. The specific legislative, institutional, administrative and permitting provisions for ESIA's vary from country to country, but generally consists of the steps shown on Figure 3 and briefly outlined further below:

Figure 3: Typical ESIA Steps (in Green)



1. **Project/Development Definition** - The ESIA process can begin when initial information is available on the nature, scale and location of the proposed development (conceptual or basic engineering stage); Alternatives considered; Key operational facts applicable to the phase(s) of the project considered and schedule and timing. Best practice recommends that the project definition consider the entire project including its ancillary components; the entire project cycle from its construction, operation and through decommissioning; and upfront efforts to optimize it (i.e. alternatives under consideration). It is especially important to note that the project definition should continue to evolve iteratively on the basis of the findings and recommendations of an ESIA process.
2. **Initial Screening** – This step, which depends on in-country requirements but also on a company’s own operating standards, involves determining the need for and level of the ESIA process required. It may also involve checking against country specific exclusions.
3. **Scoping** – This is an important step of the ESIA Framework and serves to focus subsequent efforts and studies on the areas of greatest importance. Scoping helps to preliminarily outline envisaged types of environmental, social, health and safety impacts or risks, defines the geographic extent of the studies and methodologies, sometimes usefully consults with different categories of stakeholders to ensure their input is incorporated into the design of the ESIA process and results in the preparation of a terms of reference (ToR) that outlines the process.
4. **Baselines** – As the name indicates baselines provide a snapshot in time of conditions before the project is implemented and creates a reference against which to measure future project-induced changes. It often involves studies to collect or complement data, which in many cases is incomplete and/or outdated. Best practice requires that baselines consider environmental and social parameters that it integrate (or create) updated information, where relevant that it consider seasonality and quantify findings. Also

important is the incorporation through participatory engagement of local knowledge that may not otherwise be considered in the baseline.

5. **Impact Assessment and Mitigation** – This step is at the heart of the impact assessment. Baseline information is used to predict the future post project (or particular project phase) conditions – and proposes measures to reduce the negative effects (or enhance positive ones). This is the step of the ESIA management process that involves for example, comparison of anticipated emissions to particular standards, or potential land use requirements to the present use or availability of land – and helps decision makers to either further optimize the project (e.g.: use a technology that lowers emissions, reduce the project footprint or change the design to avoid particular areas of concern). The impact assessment step is iterative, considers the magnitude of an impact, its extent, and duration – and seeks to quantify or visualize it to the extent that this is feasible. Fundamental principles of this step are that: impacts should be avoided where at all possible. If an impact cannot be avoided, it should be managed through mitigation measures – and if a decision is made to create an unavoidable impact, the latter should be compensated for. The impact assessment and mitigation process is also a stage of the process where there is the greatest need for project design engineers to interact with the impact assessment team and collaborate on a “Project Definition” that not only achieves business needs but does so in harmony with the socio-environmental context in which the latter is proposed. This is also an exercise in costing, trade-off and economic valuation, where it is important to consider the long term cost of impacts (e.g.: increased operational costs and pressure on external waste treatment systems) if an anticipated impact is not mitigated upfront with a marginal increase in the project capital cost (e.g.: improved waste reduction technology).
6. **Management Plans and Monitoring**– Management Plans are the operational outputs of the ESIA framework. Management plans spell out the operational policies, human and financial requirements and organization needed to implement recommended mitigation measures to comply with specific indicators, targets and/or standards. Management Plans should not be created in a vacuum and ideally are integrated into the operating company management systems. Concurrently, plans contemplate a monitoring and supervision program (often required by the host country permits) that help to verify that the anticipated impacts are in fact consistent with predictions – and the mitigation measures effective in assuring compliance with agreed-upon standards. Best practice also encourages close coordination with nearby communities who are often best placed to understand the degree to which plans are being adhered.
7. **Emergency Response and Contingency Planning** – The Impact Assessment and Management Plans outline anticipated conditions and management strategies associated with routine operations. However, in the oil and gas sector as in any other development, there are unanticipated events resulting from either a failure and/or an event outside of the control of the company / operator or even host country government. This is particularly important in fragile states where natural disaster response may not be sufficient and/or exogenous factors can contribute to risks. The type of possible risks should be considered and plans proposed – and response drills tested. For example a key such measure pertains to the potential for oil spills. Processes and procedures should be put in plans – and training provided – to ensure that there is the capacity to rapidly control spills (and other unplanned events) and reduce their impact to a minimum.
8. **Public Involvement** – The ESIA is also an invaluable opportunity for participatory engagement, increased transparency and combining of local knowhow with outside expertise, augmenting buy-in and cohesion vis-à-vis potential development. Consulting with different categories of stakeholders and especially those whose lives and livelihoods are closest to the potential development can contribute to either establishing a positive relationship between the development or one of mistrust and opposition. Best practice

calls for public involvement throughout the ESIA process, and during operations when environmental and social impacts are managed; however, it is especially important at the following stages: during screening and scoping, once preliminary potential effects have been identified and during implementation and monitoring, where again, stakeholders are often more aware of the degree to which performance is following agreed upon plans and standards.

As part of the process, it is important to consider vulnerable and nomadic groups and gender, paying particular attention to integrating a gender perspective as gender equality and women's empowerment in particular play a strategic role in peace - and state-building processes

5. Strategic Environmental and Social Assessment: An Opportunity

The SESAs can be conducted to provide recommendations for policies, plans, and programs that will guide oil and gas sector development in context of existing environmental and socio-economic conditions – and consistent with broader strategic plans and/or goals. When conducted timely and in an integrated way, SESAs help to account for externalities and factor in costs associated with managing the interaction between the hydrocarbon sector development and the social, environmental and economic context in which it will be operationalized.

SESAs are different from individual project EIAs in that specific projects plans are not under consideration, rather regional and/or national sector development choices need to be made and sector-wide, institutional and/or policy level management strategies are proposed as outcomes. In the case of fragile states, a SESA could for example seek to promote interdependency across regions, equitable and inclusive growth opportunities, and investment in preserving natural and augmenting social capital – and transparency across the different areas within the Federation. In addition, SESAs can result in recommendations for specific environmental, social, occupational health and safety requirements/ standards that need to be included in the Oil and Gas contracts between the country government and the Oil and Gas Companies, thereby contributing to an overall enhancement of sector-wide performance. In other cases, SESAs will recommend institutional reform to strengthen the role of the environmental authority to enforce specific standards.

If applied correctly, SESAs then can shape the growth trajectory of a particular country to where there is not additional pressure on resources and increased fragility through the adoption of good international industry practices (e.g. IPIECA, WB/IFC EHS guidelines, IFC Performance Standards) to reduce environmental releases and enhance social well-being throughout the different project life cycles. Figure 4 highlights key differences between the individual project ESIA and SESAs as drivers of stronger socio-environmental performance.

Figure 4: ESIA vs. Strategic Environmental and Social Impact Assessment

Environment and Social Impact Assessment (ESIA)	Strategic Environmental and Social Assessment (SESA)
Is typically prepared by the project proponent and reviewed/approved by Government authorities.	Is typically led by the government and used to inform the process of national priority setting, institutional / policy reform needs.
Is reactive to a development proposal.	Is pro-active and informs development proposals.
Is used to assess the effect of a proposed development on the environment and socio-economic conditions.	Is used to assess the effect of the existing environmental and socio-economic conditions on development opportunities and constraints
Relates to a specific program/project.	Relates to areas, regions or sectors of development.
Enables the identification of program/project-specific impacts.	Enables the development of a broader framework against which typical positive and negative impacts can be managed across a region or sector.

Environment and Social Impact Assessment (ESIA)	Strategic Environmental and Social Assessment (SESA)
Has a well-defined beginning and an end and focuses on informing a specific decision at a particular point in time.	Is a process aimed at the development of a <u>sustainability framework to inform continuous decision-making over a period of time</u>
Is focused on the mitigation of negative impacts and the enhancement of positive impacts.	Is focused on <u>maintaining a chosen level of environmental quality and socio-economic conditions</u> (e.g. through the identification of sustainability objectives and limits of acceptable change).
Has a narrow perspective and includes a high level of detail.	Has a <u>wide perspective and includes a low level of details to provide a vision and overall framework.</u>
Limited review of cumulative impacts, often limited to phases of a specific program project.	Inherently incorporates consideration of synergistic and cumulative impacts.

(Source: Adapted from DEAT, 2004 and OECD, 2006)

6. Key Institutional and Legislative Requirements – and Contracts

Fragile states are particularly vulnerable to poor environmental and social management practice – and as noted previously oil and gas development has the potential to aggravate the situation in those. The absence of specific environmental and social regulation, insufficient institutional capacity and authority to require specific contractual terms can contribute to poor contracts and decision-making, and other negative impacts. Inconsistency across the Federation regions can also contribute to conflicts over resources that span across regional boundaries.

Fragile States cannot afford to leave environmental and social performance “up to the individual company.” They need to prioritize setting a robust and clear legal and regulatory framework that is consistent across its Federation region. Legislation governing hydrocarbon development (the petroleum law) needs to stipulate the need to safeguard natural -- and social – capital. Specific standards of performance should be included in concession contracts. For example, Fragile States should adopt the requirement for a social and environmental assessment or impact study to be carried out prior to the commencement of petroleum activities.

Fragile States also needs to establish an independent, competent authority charged with approving and monitoring environmental and social impact assessments and operational management plans and enforcing compliance. Such an authority would grant permits, enforce regulations in coordination with other government authorities, facilitate resolution of conflicts and possible environmental or social impacts, and ensure that adequate provisions (financial and contractual) are in place for decommissioning and closure. Particular attention should be paid to elevate the importance of the Ministries charged with environmental and social aspects (i.e. Ministry of the Environment, Ministry of Social Well-Being, Ministry of Labor and Health), or the creation of an agency or agencies tasked with environmental, social and health and safety matters for the hydrocarbon sector (i.e. Environmental and Social Protection Agency, Health, Safety and Environmental Agency), so that the latter is truly independent and not subservient to the Petroleum Sector Ministry.

Finally the Ministry or Agency should not only focus its efforts on responding to permit applications and managing the ESIA process, but rather it should be supported in the completion of a SESA for oil and gas development across the Federation – and in Partnership with the Federation Regions – to inform Somali Peninsula’s national strategy vis-à-vis oil and gas development options, including timing, priorities, and contribution to inclusive and sustainable growth.

7. Public Participation, Transparency, Mutual Accountability and Data

Promoting accountable, transparent and inclusive governance is fundamental to building resilience. As noted in section 4, participatory engagement and consultation is a crucial component of the ESIA framework, from the earliest stages of a project. This process not only helps to minimize environmental and social impacts by incorporating local perceptions and knowledge but also contribute to a dialogue that helps focus the development in areas that contribute to enhanced livelihood. Communities' understanding of, and support for, and sometimes participation in (e.g.: employment) the project reduce conflicts and increases operational security. Public participation also contributes to greater transparency and mutual accountability.

The collection, management, and communication of natural resource–related information is essential to resource governance in fragile states because these processes empower decision makers, stakeholders, and the public to make sound decisions on how best to leverage natural resources for resilience. However, in many fragile states critical information is either nonexistent or out of date. As the global digitalization continues, fragile states have the opportunity to harness technology and connectivity to leapfrog their next generation towards greater transparency regarding the use of their natural resources. Despite the instability, about 18 percent of Somalis have cellular phones, and a fiber optic cable installed in 2014 established high speed Internet in Mogadishu. While, Somali Peninsula is ranked last on the 2014 UN Global eGovt survey (193 of 193)², the Govt has the potential to make significant strides in this area towards greater transparency. For example, there is an opportunity for the Government to establish an open data portal and to use this platform to drive consistency and transparency related to oil and gas sector projects, including regularly updated information on prospective bidding rounds, location of proposed facilities – but also more granular data related to budget, revenue management and regional budget allocations.

Strengthening Fragile States open data system would eventually also contribute to greater Government – civil society dialogue and accountability relative to the use of oil revenues as one of the measures for ensuring good governance in the sector.

8. Somali Peninsula: Examples of Existing Environmental and Social Challenges

The Somali Peninsula long-lasting civil strife, unrest for the last 20 years has all contributed to environmental degradation and significant social challenges. In addition, the absence of proper governance and a regulatory and legislative framework and its enforcement and control over access to and use of natural and environmental resources have had consequences. Below, in no particular order, are some of the challenges, which would need to be further assessed, considered and actively managed in context of potential interactions with oil and gas development projects.

Socio-economic:

- More than 1 million refugees (about 10% of the population).
- Poor security situation, poor infrastructure and limited financial resources.
- Economy dependent on foreign aid and remittances.
- Significant (>50%) youth unemployment.
- Poor services (education and health, and building sustainable livelihoods).
- Low capacity and skills.
- Acute malnutrition among hundreds of thousands of children.
- Land grabbing and insecure rights to land and natural resources.
- Overexploitation of land and natural resources.
- Expansion of land for cultivation into areas inappropriate for cultivation.

² http://www.unpan.org/egovkb/global_reports/08report.htm

- Traditional agricultural practices such as slash and burn.
- Uncontrolled use of pesticides and fertilizers.
- Illegal fishing activities.

Environmental:

- Deforestation and desertification and disappearance of natural forests.
- Soil erosion and potential for irreversible damage to ecosystems.
- Wildlife migration and extinction.
- No attempt to preserve and manage the natural habitat and native wildlife.
- Marine life and of coastal areas significantly affected.
- Significant damage from constant uncontrolled and unreported oil spills.
- Oil-related damage to mangrove, sea grasses beds or coral reefs.
- Improper waste management (plastic, human sewage, industrial and domestic).
- Illegal dumping (oil, waste, some of which toxic) by international fleet.
- Illegal and unregulated fishing by international fleet (especially trawlers from Asia and Europe), also at artisanal level.
- Biodiversity and conservation not seen as important.
- Trade on life plant and animal species.
- Air pollution through urban and/or energy emissions.

9. Summary and Key Recommendations

In summary, fragile states that are resource rich are at an important crossroads of their own future. With support and their own leadership and commitment that have the potential to use the opportunity afforded by the oil and gas sector to lay the foundation for more sustainable resource management and inclusive development, peace and State-building. To achieve this, it would be important to:

- Conduct a strategic environmental and social assessment to establish key parameters for sustained oil and gas sector development and inform the needed sector and institution reforms, including eventual decommissioning and closure requirements and provisions.
- Establish legally binding environmental and social standards (internationally accepted good practice) that carry over into contracts, licenses, and concessions.
- Establish a robust natural and social resource management policy framework, including an explicit requirement to conduct project-specific ESIAs prior to the commencement of activities that must be approved by the Authority.
- Ensure alignment and equivalency of environmental and social legislative requirements across all regions of the Federation.
- Establish a robust and capable regulator (e.g. Ministry of Environment or Environmental Protection Agency) charged with safeguarding natural and social capital, promulgating standards and regulatory enforcement. Ensure it is properly staffed and resourced to fulfill its mission.
- Leverage inclusive consultative processes to evaluate and revise social and environmental assessment processes and sector-specific laws and regulations governing extractive industries.
- Gradually incorporate local content provisions into contracts to ensure that companies and operators contribute to training and building workforce and supply chain capacity.

- Establish a government open data portal and actively focus on sharing information pertaining to concession allocations, standards, government budgets and eventually revenue management apportionments.
- Use revenue from sector development to build social capital through investments in services (i.e. education, health), productive sectors that translate into employment opportunities and opportunities to improve livelihoods, enable inclusive and equitable growth – and gender considerations.
- Explicitly connect national development strategy – and donor support – to achieving the above milestones – as well as to build resilience through progress on United Nations post-2015 sustainable development goals (SDGs).

Sources

Country Environmental Profile for Somali Peninsula, from 1st March 2006 to 31 August 2006:
IUCN Eastern Africa Regional Office, Nairobi, Kenya.

[http://www.eeas.europa.eu/delegations/Somali Peninsula/documents/more_info/country_environmental_profile_Somali_Peninsula_en.pdf](http://www.eeas.europa.eu/delegations/Somali_Peninsula/documents/more_info/country_environmental_profile_Somali_Peninsula_en.pdf)

African Development Bank: Addressing Fragility and Building Resilience in Africa: The African Development Bank Group Strategy 2014–2019.

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/Addressing_Fragility_and_Building_Resilience_in_Africa-The_AfDB_Group_Strategy_2014-2019.pdf

African Development Bank, From Fragility to Resilience
Managing Natural Resources in Fragile States in Africa, 2014

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/From_Fragility_to_Resilience_-_Managing_Natural_Resources_in_Fragile_States_in_Africa_-_Summary_Report.pdf

African Development Bank, Somali Peninsula Addendum to Country Brief: 2013-2015.

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/2013-2015_-_Somali_Peninsula_-_Addendum_to_Country_Brief.pdf

International Finance Corporation – World Bank Group Environmental and Social Performance Standards and Guidance Notes

http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/performance+standards/environmental+and+social+performance+standards+and+guidance+notes

Pollution prevention and abatement handbook 1998 : toward cleaner production

<http://documents.worldbank.org/curated/en/1999/04/442160/pollution-prevention-abatement-handbook-1998-toward-cleaner-production>

International Finance Corporation – World Bank Group Environmental, Health and Safety Guidelines

http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines

World Bank Group, Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies

http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1258667423902/decommission_toolkit3_full.pdf

The global oil and gas industry association for environmental and social issues (IPIECA)

<http://www.ipieca.org>

International Association of Oil and Gas Producers (IOGP)

<http://www.iogp.org/#>

European Commission - Energy

<http://ec.europa.eu/energy/en/topics/oil-gas-and-coal>

American Petroleum Institute (API)

<http://www.api.org>

Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean (ARPEL)
<https://arpeel.org>

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