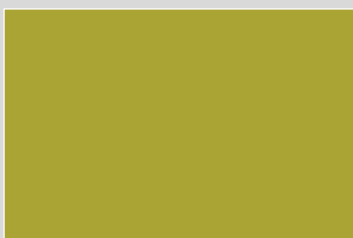
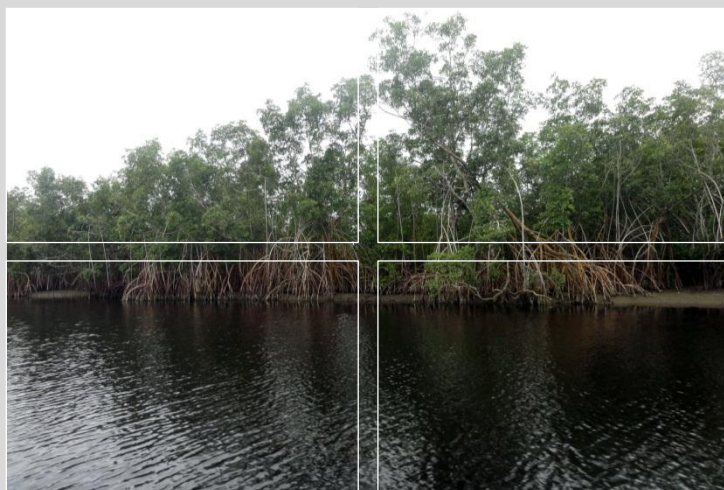
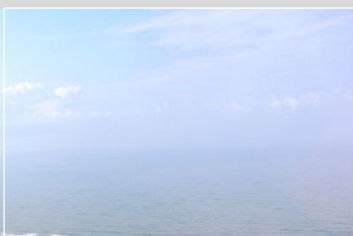
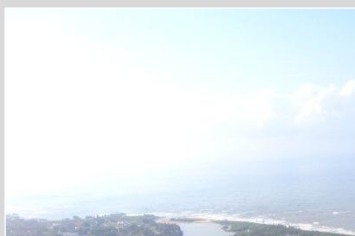
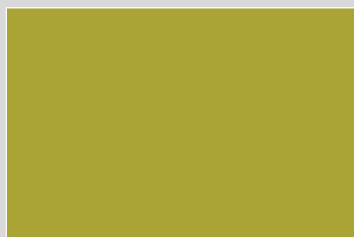


Offshore Cape Three Points (OCTP) Phase 1 Development Non-Technical Summary (NTS)



Project Ref: 0272709

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Offshore Cape Three Points Development

Non Technical Summary Purpose

The main purpose of this Non Technical Summary is to facilitate communication and public involvement, as public participation is a pillar of modern approaches to impact assessment, in a fully transparency perspective. The NTS presents, in non-technical language, the findings of a detailed Environmental, Social and Health Impact Assessment undertaken in connection with the OCTP project in Ghana and is a tool that allows consultation of stakeholders and their participation to the EIA process. Moreover ESHIA disclosure is a requirement set by Ghanaian Environmental Protection Agency (EPA). The NTS provides an overview of the Offshore Cape Three Points Development related to the oil exploitation phase (Phase 1), in order to make aware the stakeholders of the project activities and their consequences on environment, socio-economic components and health.

Introduction and Background

The Offshore Cape Three Points (OCTP) Development is a significant oil and gas initiative being led by eni Ghana. The development involves three offshore oil and gas fields - Sankofa Main, Sankofa East and Gye Nyame – all located about 60 km offshore the Western Region (see **Error! Reference source not found.**). The development is being executed in two phases:

- Phase 1: Oil Production Project
- Phase 2: Gas Production Project

The OCTP Development is a major achievement for Ghana. Production is expected to reach 45,000 barrels of oil per day (bopd) and 190 million standard cubic feet per day of gas (MMSCFD). The development has a 20-year life. Gas from the development will support the Ghana Gas Infrastructure Development Project currently under development in the Western Region. The development will also provide jobs and other economic benefits to local communities, the Western Region and to Ghana as a whole.

As required by Ghana laws and regulations Environmental Impact Assessment (EIA) are carried out for each of the development phases to identify environmental and social impacts and risks. The results of the assessments are reported in Environmental Impact Statements (EISs) submitted to the Ghana Environmental Protection Agency (EPA).

Figure1: Location Area



OCTP Joint Venture

The Offshore Cape Three Points (OCTP) oil and gas exploration and development license is held by a joint venture (JV) composed of eni Ghana Exploration and Production Limited (47%), Vitol Upstream Ghana Limited (38%) and Ghanaian National Gas Company (GNPC) (15%).

eni Ghana is the operator of the license and is leading the development. eni Ghana is a wholly owned subsidiary of the Italian oil and gas company eni S.p.A. a global integrated energy company active in 85 countries with a staff of 82,000 employees.

Economic Benefits of the Project

The development will produce oil for sale to international markets and more importantly gas that will be used for domestic power generation. At the end of 2012, Ghana generated 12 billion kilowatt-hours (kWh) of power of which 67% was from hydropower sources and the remainder from fossil-fuel powered sources. Despite this Ghanaians, particularly those in rural areas still rely on biomass sources such as firewood and waste combustion as energy for cooking and heating. Firewood still accounts for more than 40% of Ghana's total primary energy consumption.

In terms of natural gas, Ghana imported 22 Billion Cubic Feet (BCF) in 2012 via the West African Gas Pipeline (WAGP). Gas volumes through the pipeline have however decreased since 2011 and remain unreliable forcing Ghana to use heavy oil to fuel power plants.

Ghana must expand its installed electricity capacity and distribution system to provide electricity to the almost 30% of the population that does not have access to electricity. According to projections by 2017, Ghana will need more than 800 MMSCFD of natural gas for power generation and for reinjection into wells to enhance oil production.

The OCTP Development will have positive impacts in terms of jobs and the economy through increased government revenue, employment opportunities and skills enhancement, local procurement and hospitality and tourism.

The EPA, within the Ministry of Environment, Science, Technology and Innovation, is the leading public body responsible for the protection and improvement of the environment in Ghana.

The Constitution of Ghana within Article 36 of Chapter 6 states that “*The State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek co-operation with other states and bodies for purposes of protecting the wider international environment for mankind*”. Within the Article 41(k) of the same Chapter 6, it is also requires that “*it shall be the duty of every citizen [...] to protect and safeguard the environment*”.

The Ghana EPA was established under the Environmental Protection Agency Act (Act No. 490 of 1994) as the leading public body responsible for the protection and improvement of the environment in Ghana. The EPA has the authority to require an EIA, is responsible for ensuring compliance with EIA procedures and is the lead EIA decision-maker.

The petroleum exploration, development, and production activities fall under the purview of the Ministry of Energy. Petroleum operations are governed by the Petroleum Law of 1984. A Production Sharing Agreement (PSA) is the basic contract between the State, the Ghana National Petroleum Corporation (GNPC), and private companies.

Guidance regarding mitigation of impacts to environmental resources and guidelines for minimizing environmental impacts of extractive industry activities are provided in the Ghana environmental laws and regulations.

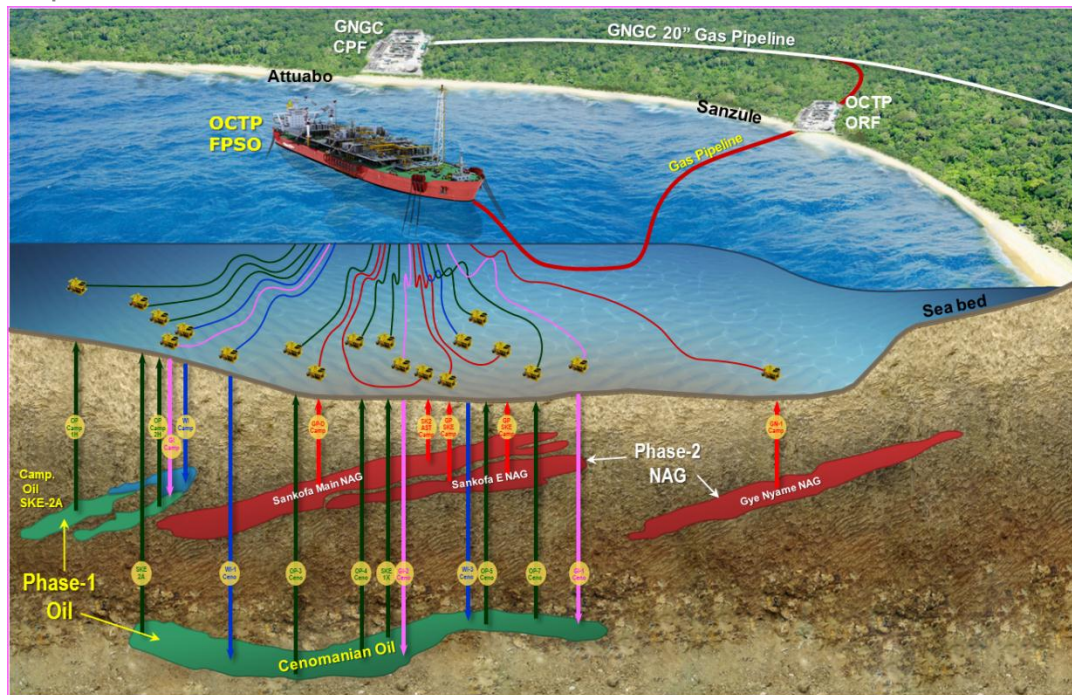
The standards applied by the Project for environmental and social components are based on MARPOL, good industry practice and IFC EHS Guidelines. Many of these standards have now been adopted in the EPA’s Guidelines for Environmental Assessment and Management in the Offshore Oil and Gas Development (2010).

Project Description

The development comprises two phases.

- Phase 1: Oil Development Project (object of this ESIA). This phase will consist of 14 subsea wells (8 oil producers, 3 water injectors and 3 associated gas injectors), subsea facilities, and a Floating Production, Storage and Offloading (FPSO) unit that would be located about 60 km offshore south of Sanzule.
- Phase 2: Gas Development Project (outside the scope of this ESIA). This phase will consist of 5 subsea wells, subsea facilities, gas treating facilities on the FPSO unit, a 63 km subsea gas pipeline, an Onshore Receiving Facility (ORF), and tie-in with the GNPC sales gas pipeline.

Figure2: OCTP Development



Implementation of the development will include the following steps:

- **Onshore Site Preparation:** equipment mobilization, material transport, site clearance and infilling for the ORF (Onshore Receiving Facility) and construction of internal roads.
- **Offshore Construction:** well drilling and completion, subsea system installation, FPSO mooring and hook up, gas export pipeline laying, pre-commissioning and commissioning activities (well testing, FPSO commissioning, pipeline hydrotesting, subsea system testing)
- **Onshore Construction** (related to the Phase 2, outside the scope of this ESIA): gas export pipeline installation (underground), Onshore Receiving Facility construction, accommodation camp and helipad construction; temporary facilities construction, installation of pipeline (underground), and commissioning activities .
- **Operation:** oil and gas extraction, reinjection of excess gas and produced water, oil stabilization and gas treatment on the FPSO, oil transportation via shuttle tankers, gas transportation via subsea pipeline, gas metering and compression at the ORF.
- **Decommissioning:** facilities will be decommissioned and abandoned in accordance with Ghana laws and regulations and international guidelines for abandonment of oil and gas facilities. A detailed program of abandonment and decommissioning will be prepared.

Well drilling is planned to start in August 2015. The FPSO will be installed in June 2017. Oil production is expected to start in 2017 and gas production in 2018. Following are the key activities related to the Phase 1 of the project.

Well drilling

Well drilling will be performed by the drilling rig Maersk Voyager (Figure 3). This rig can operate in water depths up to 3,300 m. It is an advanced drilling rig designed to minimize emissions and discharges to the environment.

Well drilling requires the use of drilling fluids which are injected in the borehole to serve various purposes: move debris from the bottom of the well and carry it up to the surface, cool and lubricate the drilling bit, contain the fluids present in the rock formations, consolidate the walls of the borehole and reduce infiltration into the formation. The drilling fluids can be water or oil based depending on the drilling conditions. Both drilling fluids will be used in this case: water based drilling mud for the shallow drilling section and non-aqueous drilling fluid system for the deep drilling section. There will be no discharges of exhaust drilling muds in the environment. Appropriately treated drilling cuttings will be discharged to the seabed near the drilling point. Collected liquids will be offloaded periodically to the supply vessel tanks and then carried to land for treatment and disposal.

Figure 3: Maersk Voyager Drilling Rig



Figure 4: Schematic of a FPSO (Floating Production, Storage and Offloading)



FPSO Operation

The FPSO unit (Figure 4) will be constructed in Singapore and will then be towed to the Ghana for installation.

The FPSO unit's processing systems will perform the following:

- separate, process to export specification, store and offload crude oil;
- separate, dehydrate, compress and re-inject associated gas;
- treat non associated gas to separate condensates and dry the gas;
- separate, treat and re-inject produced water; and
- lift and treat sea water.

The design, positioning and configuration of the FPSO considers the worst ocean conditions. The hull is designed to withstand 20 years of operation. In order to mitigate tank corrosion, a corrosion protection coating will be applied to ballast tanks and upper and bottom cargo tanks surfaces. The FPSO will provide accommodation for a total of 136 persons.

Design Choices to Reduce Environmental Impact

The Drilling Operations Environmental Philosophy shall adopt the following principles:

- Use of resources: efficient use of chemicals, material, natural resources and energy sources, aimed at resource conservation and minimization of discharges;
- Emission to air: minimization through abatement at source of gaseous emissions (no flare emissions) that have the potential for negative impact on the environment;
- Discharge to water: minimization through abatement at source of aqueous effluents which have the potential for negative impact on the environment;
- Solid waste: Correct handling, treating and disposing of solid wastes to avoid/eliminate liabilities in the future and to meet the requirements for due diligence;
- Use of Best Available Technology Not Entailing Excessive Costs (BATNEEC) and good international oil field environmental practices.
- The volume or relative toxicity of liquid or solid wastes will be reduced, to the minimum possible; the four principles of waste minimization process (recycling, reduction, reuse and recovery) shall be adopted as applicable.
- For effective implementation of proper handling and appropriate waste disposal methods, waste materials generated in the course of this work will be defined, segregated, preferably at source into clearly designated bins at strategic locations, the same shall be done during operation phase.

The Environmental Impact Assessment

The EIA Procedure

The EIA for the development was undertaken in accordance with the Ghana Environmental Assessment Regulations. The Ghana Environmental Assessment Regulations (Legal Instrument 1652 issued in 1999) define the EIA procedure. The EIA also considered the requirements of international financial institution environmental and social standards. The EIA study included also baseline definition and impacts evaluation for the Social and Health components in the Project area.

The scoping report for the Phase 1 ESIA was approved by EPA in 2014 and the draft EIS was submitted to EPA in March 2014.

Stakeholder Engagement

Stakeholders are persons or groups who are directly or indirectly affected by the development as well as those who may have interests in a project and/or the ability to influence it. Stakeholder engagement is the process of dialog between the development and stakeholders.

Figure 5: Stakeholder Engagement



Stakeholder engagement required as part of the Ghana EIA regulations. It is also required by international lenders and by eni's internal policies. Stakeholder engagement in the context of the Phase 1 EIA process included the following:

March 2012 and November 2013:

- 25 meetings with national, regional and district authorities, traditional leadership, NGOs and fishermen;
- 4 meetings with communities of Sanzule, Bakanta and Ekwe.

A Stakeholder Engagement Plan will be developed as part of this project: it has the main purpose of building and maintaining positive relationships between the Project and relevant stakeholders. It facilitates constructive engagement and continuous dialogue with affected communities throughout the entire project life.

Baseline Studies

Eni Ghana began gathering information about the environmental, social and health setting starting in 2011. This included a number of field surveys where data was gathered. Baseline surveys or the Phase 1 of the OCTP Project were focused mainly in the deepwater offshore area.

Environmental surveys included:

- Offshore physical and biological surveys on seabed sediments, geophysical studies, seawater quality, plankton, benthic communities, fish catch studies, coastal erosion data.

Social and health surveys included:

- Socio-economic surveys including meetings with community groups and members, interviews with experts on specific matters and community's or institutions' representatives.
- Fisheries studies and a Fisheries Impact Assessment.
- Community health survey through interviews with communities and direct observations.

Following is a summary of the key environmental baseline highlights.

Biophysical Environment

Sediment granulometry in the survey area is very poorly sorted and ranged from fine sand to fine silt. Silt is the dominant sediment component at the majority of stations. In general, the proportion of silt increases and the proportion of sand decreases with increasing water depth.

The benthic macrofauna are characterized by low abundance and low diversity assemblages, with numbers of individuals and species consistently low at all stations.

In the project area there is no findings of deep coral reefs, while some evidences of corals are found in nearshore areas.

Seawater quality in the offshore environment is good with low or very low levels of pollutants.

In terms of sensitive animals, the offshore environment may also host up to 18 different cetacean species. The Gulf of Guinea is also an important migration route, feeding ground, and nesting area for sea turtles with nesting activity highest between October and January.

In the marine area affected by the project operations no protected or restricted areas have been highlighted by the desktop study. Ghana has not declared any marine protected area with the exception of Ramsar sites that are all located onshore.

Baseline Highlights - Fisheries

Fisheries

The composition and distribution of fish species found in Ghanaian waters, and the wider Gulf of Guinea, is influenced by the seasonal upwelling that occurs between Nigeria and the Ivory Coast mainly in July to September and to a lesser extent in December to February. The rising of colder, dense and nutrient-rich deep waters stimulate high levels of primary production (phytoplankton) and consequently this will increase the production of zooplankton and fish.

The key small pelagic fish species found in the Ghanaian waters are sardinella, anchovy and chub mackerel. These species are commercially important and represent approximately 80% of the total catch landed in the country.

The large pelagic fish species include tuna, billfish and sharks. These species are highly migratory and occupy the surface waters of the entire tropical and sub-tropical Atlantic Ocean. There is a long tradition of both artisanal and distant-water fishing fleets.

Fishing, fish processing and fish trade are among the most important sources of livelihood not only in coastal communities of the Western Region but also in communities inland.

The fisheries sector contributes 4-5% to agricultural Gross Domestic Product (GDP) and offers employment to about 10% of the population and their dependents. It is estimated that over 65% of the economically active population in the Ellembelle District are engaged in agriculture (including fishing) and agro-processing (Ellembelle District Assembly, 2012). In Sanzule for instance, the local economy is highly dependent on fishing (CRC /FON, 2010). The Ellembelle District ranks second in the country with regard to number of marine fishing villages.

Figure 6: Fishing sites in Ellembelle District



Baseline Highlights – Social and Health

Socio-economic Environment

The offshore portion of the development will be located 63 km offshore of the community of Sanzule, in the Ellemebelle District of the Western Region. The communities considered in the Direct Area of Influence for the Phase 1 ESIA include the communities of Anwonakrom, Sanzule, Bakanta, and Eikwe. Fishermen of other communities within the Western Region can also be potentially affected by project activities, so they were consulted during the scoping phase.

The largest income-generating livelihood activity in the communities is fishing. Fish mongering is also an important livelihood activity. In addition almost every household in the towns participates in small-scale and subsistence agricultural activities.

Tourism in Ghana has become a major socio-economic activity and an important and fast growing sector of the Ghanaian economy. The tourism potential in the Western Region is related to the number and extent of tropical beaches as well as wildlife parks, forests and game reserves, inland lakes, and rivers. None are being exploited for tourism in the Direct Area of Influence.

Figure 7: Women Fishmongers Sorting a Catch in Sanzule



Health

The most common diseases in the direct area of influence are malaria, respiratory infections, anemia and diarrhea. HIV prevalence rate in the Western Region in 2013 was 2.4%.

The health facilities within the project's area of influence include: one hospital at Eikwe (St Martin de Porres hospital) and two CHPS compounds (one in Atuabo and the other in Sanzule). In addition, there are six active traditional birth attendants assisting the communities.

The provision of sanitation facilities is poor in all the communities within the project's area of influence. All the communities have access to shared toilet facilities but only a very few of households has their own improved sanitation facility.

Impacts Prediction, Evaluation and Mitigation

Predicting Impacts and Risks

The EIA considers potential **positive and negative impacts of the project** on:

- **environment** (internal and sea water, air, soil and groundwater, noise, flora and fauna, etc),
- **socio-economics** (communities, land use and land tenure, fishery and other economic activities, cultural heritage, utilities and public infrastructures),
- **health** (health infrastructures, transmission of diseases, road traffic, security).

eni's impact assessment approach is based on the following **three steps**:

1. **Impacts prediction**: impacts and risks are identified by analyzing disturbance factors and interactions of the project with the natural and social environment.
2. **Impacts evaluation**: according to eni standards requirements the significance of each impact is to be ranked according to the evaluation criteria of Table 1.
3. **Impacts mitigation design**: mitigation measures are developed to avoid or reduce negative impacts and enhance positive benefits.

Table 1: Ranking and Evaluation Criteria

Ranking	Evaluation criteria				Significance
	Duration	Extent	Importance / Resilience of Receptor/ Resource	No. of elements Involved	
Low 1	Less than 1 year / Temporary	Local scale: the proposed operating site and its immediate environs	Low value/ sensitivity of receptors or resources, able to recover or adapt to the change without interventions	Affecting small no. of individuals, households, individual enterprises and/or small no. of species	(ranging from 4 to 16)
Medium 2	Between 1 and 5 years	Regional scale: as determined by country's administrative boundaries	Moderate value/sensitivity of receptors or resources, able to adapt with some difficulty and which may require interventions	Affecting small number of individuals, communities or administrative and/or higher no. of species and habitats	
High 3	Between 5 and 10 years	National scale: Entire country	High value/ sensitivity of receptors or resources, poorly able to adapt to changes with strong interventions	Affecting great no. of individuals, households and /or medium/large enterprises and/or habitats and ecosystems	
Critical 4	Over 10 years / Irreversible	International scale: trans-boundary	Extreme value/ sensitivity of receptors or resources, resulting in permanent changes	Affecting huge no. of individuals, households and /or large enterprises and/or habitats structure and ecosystems functions	
Score	(1; 2; 3; 4)	(1; 2; 3; 4)	(1; 2; 3; 4)	(1; 2; 3; 4)	

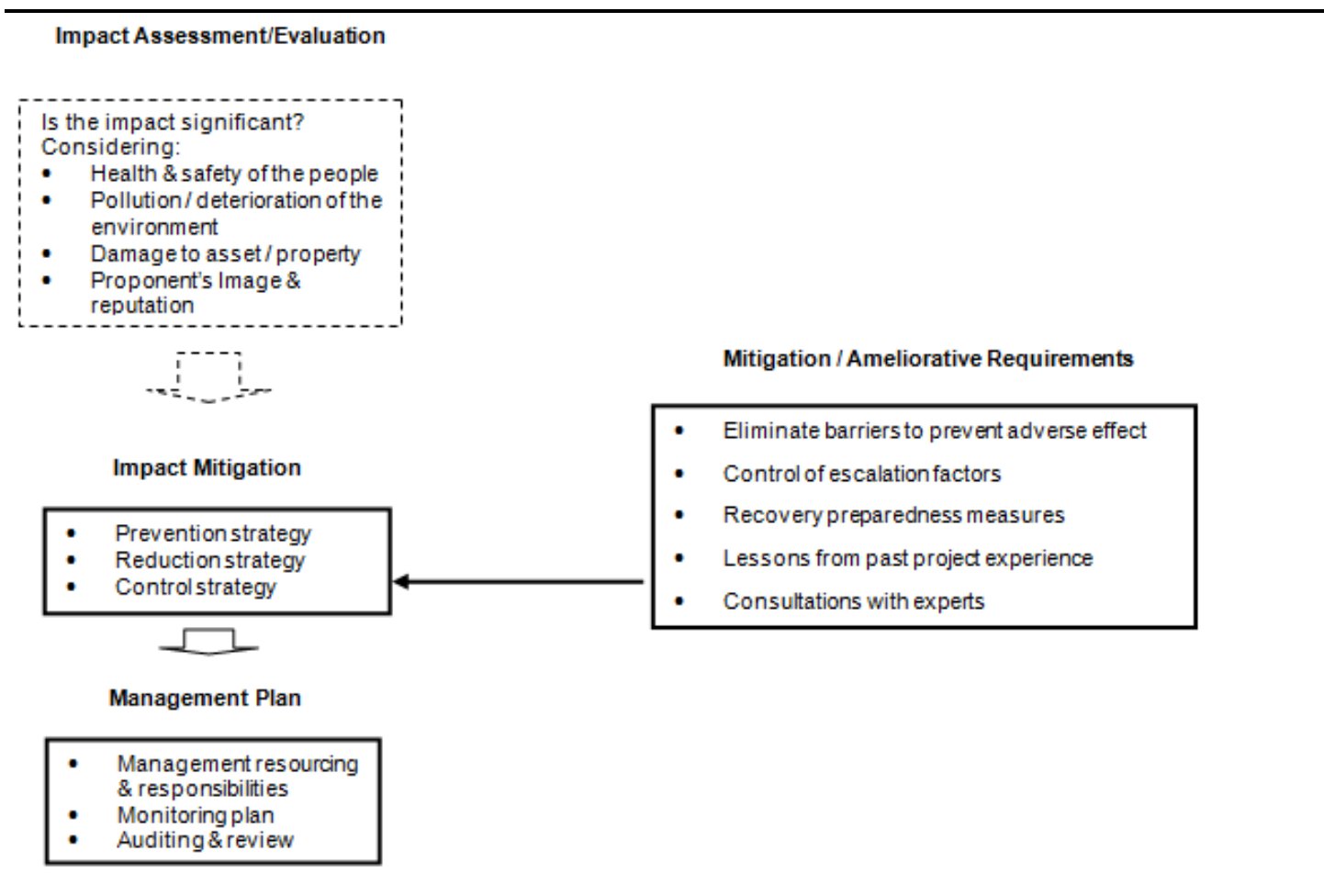
Impacts significance is assessed both before and after mitigations definition and implementation in order to reduce the significance of each residual impact to an acceptable level. For this reason, all proposed mitigation measures listed in the ESIA become a commitment for the Project and will be implemented.

Impacts Prediction, Evaluation and Mitigation

Mitigating Impacts:

eni will implement a series of mitigation measures to reduce the negative disturbance and enhance the benefits of the project realization and operation on the environment. The management procedure for potential impacts is illustrated in Figure 8.

Figure.8 Mitigation Management Procedure



Overall Impact Assessment Results

The main conclusions of the Phase 1 EIA are the following:

- The development has the potential for creating positive impacts through increased government revenue, increased procurement, employment and skills development.
- The significance of negative impacts could be reduced through design, use of control technology and operational management controls.
- There were no impacts or risks identified that could not be mitigated to an acceptable level.
- An EMP has been developed to ensure effective implementation of prescribed mitigation measures and for proactive environmental management throughout the project's life span. The EMP shall be implemented within the framework of ENI's Environmental Management System (EMS).

A summary of the significance of impacts during construction and operation is provided in the following sections.

Summary of Environmental Impacts

It is difficult to predict which species will be most vulnerable to man-made noise because of the wide range of individual and population sensitivities as well as differences in wariness or motivation. Currently, it may only be possible to make generalizations about the vulnerability of species groups based on behavioral observations of responses to manmade sounds, habits and what is known about a species' auditory sensitivity or vocal range. The potential impact of underwater noise as a result of the proposed **drilling activities** on marine mammals is therefore assessed to be a **negative impact of medium significance**,

Low significance impacts are expected during the **construction** and operation phase on other offshore components.

- **air quality:** due to the airborne emissions from FPSO, vessels and helicopters
- **seawater quality**
- **seabed** potential contamination by hazardous and non-hazardous accidental spills and sediment accumulation and/or erosion
- **seabed ecosystems and vegetation, flora and fauna;**
- **marine fauna and flora** the noise disturbance going to be continuous but its limited intensity is likely to induce only behavioral changes and avoidance patterns of a few individuals of marine mammals and turtles.

Key mitigation measures for environmental impacts:

- Minimizing noise emissions and disturbance to fauna through:
 - ensure all noise generating work equipment and vessels are maintained at optimal conditions as stated in the equipment operating manual
 - encourage the use of equipment with low noise ratings
 - encourage the use of mufflers on equipment manifold
- Minimising turbidity and release of contaminants and nutrients
- Proper mud and drilling cuttings management
- Low emission vessels and FPSO equipment;

Summary of Social and Health Impacts

Oil and gas production from the proposed OCTP Block Phase 1 project will contribute to Ghana's economy through taxes, royalties and other fees that eni Ghana and all other members of the Joint Venture would have to pay to the government of Ghana. In addition, the Government will receive further revenues through other taxation such as personal income tax and withholding duties on imported services paid by employees, contractors and supporting services to the Project. This would all contribute to Ghana's oil and gas revenue, increase Gross Domestic Product (GDP) and generally benefit the economy at a national scale. The **positive impact** of a contribution to Ghana's economy as a result of the project is assessed to be of **medium significance**.

With most large oil and gas development projects, expectations from local communities with regard to economic opportunities (employment or business opportunities) typically far exceed the actual opportunities that will be created by the project. This may lead to a negative opinion of a project proponent in the local communities along the coast. The potential **negative impact** as a result of perceptions and unmet expectations of local communities are assessed to be of **medium significance**.

Low significance impacts are expected during the construction and operation phase on other offshore components.

- Disruption of fishing activities;
- Employment opportunities;
- Procurement of goods and services;
- Increase in marine traffic;
- Community health and safety.

Key mitigation measures for social and health impacts:

- Workers management
- Development of local people skills
- Support to develop alternative economic activities
- Stakeholder consultations and grievance mechanism
- Develop and implement Corporate Social Responsibility initiatives to address the key concerns of the local communities in line with existing sectorial policies and plans
- Implement mechanisms to compensate individuals who can demonstrate loss of income due to project activities

Cumulative and Transboundary Impacts

A cumulative impact of major significance was identified on livelihoods and ecosystem services, in particular fishing livelihoods.

Moreover, the following impacts assessed as of medium significance have been identified:

- Increased pressure in social infrastructure and service delivery;
- Increased price inflation.
- Increased potential for habitat degradation / land use change.
- Physical and social sense of place.
- Economic and psychological cumulative impact resulting from post-decommissioning.
- Health community and safety.

During all the Project life, eni will collaborate with the Government of Ghana, other operators and affected stakeholders in order to identify mechanisms to monitor and manage potential cumulative effects.

No significant transboundary impacts are expected to occur as a result of normal operations. However, modelling simulations of a large oil spill into the marine environment (blow out worst case scenario) show that oil could be transported throughout the Gulf of Guinea. Due to the high sensitivity of resources, the probability of a crude oil spill due to a blow out and receptors and the prevention measures defined the impact is assessed as being of **Medium** significance during operations. However, a number of mitigation measures aiming to decrease the probability of such events have been included in the project. Moreover, in order to reduce the consequences of the residual risk, eni Ghana has developed an Oil Spill Contingency Plan.

The Government of Ghana is currently working closely with the other contracting parties of the Abidjan Convention to seek and finalize formal arrangements for dealing with transboundary oil spill incidents.

Fisheries in the Local Communities

The largest income-generating livelihood activity in the communities of the direct area of influence is fishing with both men and women involved, although they are divided by gender in their roles.

The fishing industry in Ghana consists of three main sectors namely (i) small scale (or artisanal) marine and onshore fishing, (ii) semi-industrial (or inshore) and (iii) industrial fisheries. Targeted fish species within the marine sector include pelagic, demersal and shellfish resources (Figure 9).

There are two fishing seasons, towards the end of June and peaking during August and September and towards the end of November, peaking between late January and March. April to May is a rest period for mending nets, boat repair and fishermen engage in onshore artisanal work to supplement their income.

Fish mongering is also an important livelihood activity for women who process fish by salting and drying or smoking. The women buy fish locally and transport for sale at Aiyinasie. Large catches are also sold to hotels in Axim. Income from fish mongering is reduced due to lack of cold storage such that fish prices are lowered by the high levels of supply during fishing seasons.

Fishermen reported locally declining catches over the past number of years, attributed to increased human populations and consumption, increase in fishing activities, increase in fishing canoes working the area and illegal fishing. Many community members in the Study Area believe that the offshore oil production activities have contributed to the decline in fisheries.

Figure 9 Typical large artisanal fishing canoes



OCTP Project and Fishery

The project is not expected to have any significant impact on the abundance of fish, crustaceans and cephalopods (all evaluated impacts on marine fauna are rated of Low significance).

However the following impacts have a potential to affect to some extent fisheries activities and fisheries based livelihoods:

- **Restricted access to offshore fishing:** A legally enforceable safety exclusion zone around drilling vessels will be maintained throughout construction and operation to reduce the risk of collisions at sea and to ensure personnel safety. Fishing vessels will not be able to fish within the exclusion zones for safety reasons. This restriction will result in a very small reduction in the available fishing grounds and will affect only those fishermen who fish around 60 km off shore in the project area.
- **Damage to fishing gear:** There is the potential for this gear, which is left floating in the open ocean, to enter the exclusion zone and become entangled in Project vessels and be lost to the fishermen. The exclusion zones around Project vessels are intended to reduce the likelihood of this impact occurring as far as possible.
- **Infrastructure lighting:** at night time fish may be attracted by the artificial lights on the Project vessels, where no fishing is allowed due to the exclusion zone. This could have the effect of reducing the fish catch.

There is concern amongst fishers in the area of influence that the Project will have a negative effect on fish catch due to exclusion zones. However, considering the mitigation measures put in place by eni, no high impact is expected on fishery. The potential damage to fishing gear have been assigned a significance of **medium**, while restricted access to offshore fishing grounds due to exclusion zones and the impact of infrastructure lighting are anticipated to have a **low** significance.

Eni has foreseen the following mitigation measures in order to minimize and if needed compensate any disturbance to fishery:

- The Project will limit exclusion zones around Project infrastructure as far as possible, without compromising safety measures.
- Interaction with fishermen and other users will be monitored through the Project's grievance procedure.
- A vessel transit route will be agreed with the Ghana Maritime Authority and communicated to fishermen and other marine users.
- A compensation package will be assessed for fishermen who can undisputedly prove the destruction of fishing gear as a result of drilling operations
- Eni is to develop a Corporate Social Responsibility (CSR) strategy to improve the livelihood of the fishermen. The strategy should comprise of the following sectors health, education, employment and alternative livelihood projects.
- Eni is to put in measures to enhance the local content aspect of the operations in terms of Procurement of goods and services as this will directly improve the livelihood of the fishing communities.
- Eni should establish a Community Liaison and Grievance System to be able to disseminate information to fishermen, also monitor interactions between fishermen and the project and find solution to new emerging socio-economic issues.
- Develop a human resource training scheme aimed at equipping local population with requisite skills to take full advantage of the opportunities associated with the project
- Employing of locals in a fair and transparent manner

In order to ensure that all mitigation measures and commitments are implemented, eni Ghana will prepare and put in place a number of management plans. These will define the requirements and monitoring for protection of environmental, social and health resources.

A number of management plans are already provided in the EIS:

- Waste Management Plan;
- Oil Spill Contingency Plan;
- Fisheries Management Plan.

Further plans which will be developed for construction and operations:

- Pre-commissioning disposal plan;
- Health, Safety and Environmental (HSE) Manual;
- Environmental Monitoring Plan;
- Corporate Social Responsibility Plan;
- Decommissioning Plan;
- Safety Case Document.

eni Ghana is committed to providing resources and establishing the systems and components essential to the implementation and control of the ESMP including appropriate human resources and specialised skills, training programs, communication procedures, documentation control, communications with authorities and communities as well as a procedure for the management of change.

Eni Ghana has a HSE & CI department which has responsibility for both HSE and Community Investment with dedicated staff, competent on the basis of appropriate education, training and experience.

Monitoring will be conducted to ensure compliance with regulatory requirements as well as to evaluate the effectiveness of operational controls and other measures intended to mitigate potential impacts. Beyond the routine inspection and monitoring activities conducted, audits will be carried out internally by both eni Ghana and its Partners (including the Government of Ghana) to ensure compliance with regulatory requirements as well as their own EHS standards and policies.

A number of studies have been or are being performed in the context of the Phase 2 ESHIA with the objective of closing open actions of the Phase 1 ESIA, or providing supplementary information to support the development of environmental and social management plans. These include:

- **Drill Cut Dispersion Modelling** modeling has been undertaken to quantify the transport, dispersion, and bottom deposition of discharge drill cuttings, and demonstrate that impact is not significant.
- **Integrated fisheries management plan** is being performed covering the Phase 1 and Phase 2 development projects.
- **Participatory monitoring program** is being developed to monitor local fishing operations within the Project Areas of Influence on a routine basis to monitor impacts, and compare these against those predicted. Results of monitoring will be shared with the affected communities, set in a broader context via collaboration with the Ghana EPA and Fisheries Commission, and used to focus management plan commitments. The fisheries monitoring programme will employ the methods listed below.
 - Direct monitoring of nearshore fisheries.
 - Catch analysis of offshore fisheries.
 - Satellite monitoring/tracking of fishing activity.
 - Stakeholder engagement.
 - Water quality measurements.
 - Plankton sampling.
- **Ecological Monitoring Program** will be developed, including a marine mammal observation monitoring program and a sea turtle monitoring program.
- **Environmental Monitoring Plan** will be developed including sub-plans for each topic: sea water quality, marine fauna, FPSO air emissions, seabed monitoring, routine effluent and discharge monitoring.