

PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE

Report No.: AB7680

Project Name	Sankofa Gas Field Project (P152670)
Region	AFRICA
Country	Ghana
Sector(s)	Oil & Gas (100%)
Theme(s)	Infrastructure services for Private Sector Development (100%)
Project ID	P152670
Borrower(s)	REPUBLIC OF GHANA
Implementing Agency	Sankofa Gas Field International JV
Environmental Category	A-Full Assessment
Date PID Prepared/Updated	02-Dec-2014
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I. Introduction and Context

Country Context

Ghana, with a population of about 25 million and GDP per capita of US\$1,730¹, has experienced strong and broadly inclusive growth over the past two decades. This is evidenced by significant improvements in poverty and social indicators and the transition to lower middle-income status. The economy has outperformed most of the developing Sub-Saharan countries by a large margin. Nevertheless, about quarter of the population lives below the poverty line, over 8 percent in extreme poverty, and 6 to 7 million jobs will need to be created in the next two decades to absorb new entrants into the labor market. Success in addressing these challenges will critically depend on complementing extractive industries with diversified private sector-led growth in labor intensive industries.

The dualistic nature of Ghana's economy, with a heavy reliance on agriculture and the informal sector for employment and a concentration of exports in three commodities (gold, cocoa, and oil) makes the country vulnerable to external shocks. The Government's strategy is to leverage the new domestic gas and oil resources to develop the manufacturing sector and higher value agriculture. This will require significant investments in infrastructure and removal of the main bottlenecks to economic growth – inadequate and unreliable electricity

¹ IMF 2014, Article IV Consultation – Staff Report. Preliminary estimates.

supply and lack of affordable bank financing for the private sector.

Ghana has recently experienced a sharp decline in economic growth, from a high of 15 percent in 2011 when commissioning of oil fields took place, to below 8 percent and 7 percent in 2013 and 2014, respectively. The deterioration is a result of large macroeconomic imbalances stemming from a combination of overruns in fiscal spending and lower world market prices for the country's main export commodities. Growth is expected to remain modest at around 4-6 percent over the near term. The trend of reduced world market prices for crude oil, gold and cocoa may have further adverse impacts on external imbalances and economic growth prospects. To address the macroeconomic situation the Government has recently engaged in a dialogue with the IMF on economic and policy reforms that could form the basis of a possible Fund-supported program.

Sectoral and Institutional Context

Although more than 20 offshore deep water discoveries have been announced in Ghana since 2007, only three commercial developments have been confirmed to-date. The Jubilee field, discovered in 2007, has total recoverable reserves of roughly 600 million barrels of oil. Since entering production in late 2010, production from Jubilee has fallen short of the 120,000 barrel per day design capacity, initially due to start-up problems with well completions and production facilities, and more recently, as a result of constraints on reinjection and flaring of associated gas. Jubilee gas infrastructure commissioning is underway, gas is already flowing and production is expected to reach design capacity. The TEN project—a consolidated development of the Tweneboa, Enyenra, and Ntomme discoveries—is under development and is expected to begin production in 2016. TEN is planned as a 76,000 barrel per day development with ultimate recovery of roughly 300 million barrels. Tullow Oil is the operator of both Jubilee and TEN. The third confirmed development is the Sankofa gas field in the Offshore Cape Three Points (OCTP) block to be operated by ENI.

Low gas availability in the past have necessitated purchases of up to US\$50 million per month of light crude oil (LCO) as fuel supply for power plants. The pipeline and processing plant needed to commercialize associated gas from the Jubilee field faced delays. While the Jubilee oil field exploration is already in production since two years, associated gas had to be flared until recently. The processing and pipeline infrastructure are now in the commissioning process and will shortly supply 100 million cubic feet per day of gas to power plants in Aboadze. The West African Gas Pipeline (WAGP) has experienced severe supply shortages and outages and has yet to approach its planned deliveries of 120 million cubic feet per day.

Institutional responsibility for managing the oil and gas sector is divided into three mandates. The Ministry of Energy and Petroleum has policy-making and oversight responsibility for the sector. The Petroleum Commission is the upstream regulator with responsibility for, inter alia, qualifying licensees, approving exploration and development plans, and implementing local content regulations. Ghana National Petroleum Corporation (GNPC) is the national oil company with responsibility for commercializing oil and gas. GNPC negotiated the petroleum agreements with International Oil Companies (IOCs) and holds the participating and carried interests under each petroleum agreement. Because of GNPC's extensive

experience, it acted in the past as de facto regulator until the establishment of the Petroleum Commission. The Ghana National Gas Company (GNGC) was established in 2012 with a mandate to implement the Jubilee gas infrastructure and to act as gas aggregator/marketer. However, Government of Ghana (GoG) has recently announced that GNGC will be merged into GNPC.

The 2011 Petroleum Revenue Management Act (PRMA) defines the methods for collection and allocation of petroleum revenues. Under the PRMA, all royalties, taxes and participating interests are deposited into a consolidated account. From the consolidated account, GNPC receives a priority distribution equal to its equity finance costs plus a portion of the revenue from carried and participating interests (CAPI). The remaining oil revenue is distributed between the current-year budget (limited to 70% of revenue), the Ghana Stabilization Fund and the Ghana Heritage Fund. The PRMA establishes governance, oversight and disclosure requirements and defines the eligible categories of investment for petroleum revenues. It prohibits using oil revenues as collateral for debts and guarantees. GoG has experience a number of start-up challenges in implementing the PRMA and plans to amend the act to address the problematic areas.

Relationship to CAS

The proposed Project is consistent with the most recent Country Partnership Strategy (CPS, FY13-FY16) for Ghana. It will contribute to Pillar 2: Improving Competitiveness and Job Creation, where Bank Group support will promote more efficient delivery of infrastructure services. The CPS is anchored on the country's current economic development plan, the "Ghana Shared Growth and Development Agenda" (GSGDA), 2010-2013, one of whose seven pillars covers increased energy supply.

II. Proposed Development Objective(s)

The Project Development Objective (PDO) is to improve the availability of natural gas for clean power generation.

Key Results

Progress toward achieving the PDO Outcomes will be measured by the following Project Outcome Indicators:

- o The quantity of gas supplied to power plants (mmscf/month);
- o Greenhouse gas emissions avoided (tons of CO2 emissions reduced per year).

The Project's intermediate indicators will relate to the commissioning of the Project on time and budget. The indicator will be discussed and defined during project preparation and may include:

- o Gas production capacity achieved by the Project (mmscf/month)
- o Commissioning of the Project completed on schedule (yes/no); and
- o Commissioning of Project according to budget (yes/no).

III. Preliminary Description

The Project supports the development of the natural gas reserves of the Offshore Cape Three Points (OCTP) block by a package of IDA Guarantees. Complementary World Bank Group support through MIGA insurance and IFC lending is also expected to be part of the final Project security and financing structure. The OCTP block will be developed by two private investors (Eni of Italy and Vitol of Switzerland/Netherlands) together with GNPC. The Sankofa Gas Field non-associated gas reserves can provide 170mmcf/d on base load gas supply for nearly 15 years. This is sufficient to supply close to 1,000MW of power generation. The Sankofa gas field will come on line in 2018, when gas from other Ghanaian gas fields, are expected to start to decline. The proposed IDA Guarantees will thus help to mobilize much needed private investment in Ghana's domestic gas production to provide affordable and relatively clean fuel to provide electricity.

The Sankofa and Gye Nyame gas fields ("Sankofa Gas Field") and the Sankofa East oil field, are located 60km offshore in the Western Region of Ghana. The Sankofa Gas Field is part of the OCTP block, together with the Sankofa East oil field. The OCTP will be developed in two phases. Phase 1 of the OCTP encompasses the development of the Sankofa oil field and Phase 2 caters for the development of non-associated gas in the Sankofa Gas Field. IDA Guarantee support proposed hereunder would only relate to the OCTP's Phase 2 development. The oil development structure under the OCTP Phase 1 will not benefit from IDA Guarantee support.

Gas will be transmitted from a Floating Processing, Storage and Offloading facility (FPSO) via a 63-km undersea pipeline that makes its landfall slightly to the west of the community of Sanzule, in the Western Region of Ghana. From the landing point, a pipeline of approximately 800 m will convey the gas to the Onshore Receiving Facility (ORF). A short pipeline will carry the gas from the ORF to the GNGC pipeline, adjacent to the ORF site to the north. Additional compression will be required to deliver the gas into the pipeline, and the necessary compression station may be constructed off-site by GNPC rather than on-site by the project sponsors. If it is constructed on the ORF site, it will be treated as part of the project. If built off-site by GNPC, it will nevertheless have to be included in the project ESIA as an associated facility and will have to meet Bank requirements. Another compression station is being considered by GNPC, to interconnect the GNGC pipeline with WAGP. It would be considered an associated facility if (a) it were determined to be essential to the achievement of SGP's development objectives and (b) would not be built if SGP did not exist.

The sources of potential environmental, health and safety impacts of most significance are associated with operation of the project. One is the possibility of a crude oil spill at the FPSO during offloading or from a ruptured flow line from an oil well to the FPSO. Spill prevention measures will include design features to reduce risk, implementation of sound operational procedures, and establishment and monitoring of a vessel exclusion area. A response plan will be in place, with procedures to be activated in the event of a spill; besides laying out the actions the operator will take, the plan will provide for ready availability of necessary materials and equipment and for assisting relevant Ghanaian responder agencies to strengthen their capacity. A second source of impact would be an act of piracy affecting tankers calling at the FPSO or an illegal, armed occupation of the FPSO. Both do occur in West Africa, most commonly in Nigeria, but piracy has occurred in other countries, Togo for example. FPSO operating staff and tanker crews would be endangered. The investors and Government will

need to work out effective measures to provide early warning and effective response. Finally, fire and explosion are always workplace risks in facilities that handle gas. The investors will apply the highest international oil and gas industry standards in design and in operating procedures to prevent accidents and will have in place an emergency response plan including evacuation procedures in case an accident occurs at either the FPSO or the ORF.

IV. PERFORMANCE STANDARDS THAT MIGHT APPLY

Performance Standards (<i>please explain why</i>)	Yes	No	TB D
PS 1: Assessment and Management of Environmental and Social Risks and Impacts	X		
<p>The project has been categorized as Category A, requiring a full ESIA, and meets the criteria in OP 4.03 for application of the Performance Standards. Ghana EPA is also requiring a full ESIA. Eni has already prepared a separate ESIA for OCTP Phase 1, including the FPSO, that is about to be submitted to EPA for review. The ESIA for Phase 2 (SPG) will also include the FPSO, since it is a shared facility, and will address the other impacts of Phase 1 as part of the cumulative assessment. One or both of the additional compressor stations GNPC may need to utilize for the gas would be covered in the ESIA as associated facilities. Drilling operations, laying of the undersea pipeline, installing the beach crossing, installing the pipeline from the beach to the ORF (which involves a river crossing and disturbance of a small amount of wet evergreen forest mixed with coconut palms), and clearing the locations for the ORF, base camp and helipad are the main sources of potential environmental impact during construction. During operation, the most significant event that could affect the marine and coastal environments is a crude oil spill from the FPSO, which handles oil and associated gas from the OCTP Phase 1 as well as non-associated gas from SGP, or from the rupture of a flow line from an oil well to the FPSO. Possible accidents involving gas leaks, fire or explosion at the FPSO or the ORF or its pipelines are also concerns. Management of drilling wastes and cuttings, solid waste and hazardous waste, air emissions and noise will be important. Aspects of the natural and human environments that could be impacted are: air quality, marine water quality, surface and groundwater quality at the ORF site, coastal erosion, noise levels at the FPSO, ORF, and drilling rigs, occupational health and safety, aquatic/benthic life disturbance (fishes, marine mammals and turtles), community health and safety, livelihoods from farming and fishing activities, and disturbance of cultural heritage.</p>			
PS 2: Labor and Working Conditions	X		
<p>Any facilities involving gas require meticulous attention to workplace safety and, in West Africa there must be arrangements with the Navy and other authorities to protect the FPSO and personnel from criminal activities that have affected offshore oil and gas operations, including piracy, attacks on and occupation of facilities, hostage-taking, and theft of oil. The ESIA will also include a review of relevant Ghanaian workplace and labor legislation (e.g., the Factories Act) as well as a review of Eni human resources management policies and procedures. The ESMP will include appropriate recommendations for incorporation into the ESMS.</p>			
PS 3: Resource Efficiency and Pollution Prevention	X		
<p>Pollution prevention and response to accidents involving pollutant releases will be central</p>			

<p>concerns in the ESIA. Spill prevention plans and emergency response plans will be prepared in association with the ESIA. Since part of the project is located in the sea, all applicable conventions addressing marine pollution will be taken into account. WBG EHS Guidelines and good international industry practices will serve as references for development of the ESMP and ESMS.</p>			
<p>PS 4: Community Health, Safety, and Security</p>	<p>X</p>		
<p>Emergency Response Plans will need to be prepared and the potentially affected communities will need to be made aware of them. Security arrangements to protect the FPSO and to keep ships and fishing boats out of the restricted area need to be carefully planned, implemented and supervised to minimize conflict with fisher folk and other users of Gulf of Guinea waters.</p>			
<p>PS 5: Land Acquisition and Involuntary Resettlement</p>	<p>X</p>		
<p>Acquisition of land for the project will affect the livelihoods about 200 persons, most of whom are farmers. There are 21 structures on the land; 13 of them are residential, most of them simple houses on the beach used by migrant fishermen with permission of the village chief. There are 264 farm plots to be acquired, and 51 aquaculture ponds. The land acquisition process is carried on by Eni under the basis of a voluntary sale after direct negotiation with owners rather than expropriation by the Authorities. In accordance with the OCTP Petroleum Agreement and the Milestones agreed with the Authorities in the Heads of Agreement], the specific support from both GNPC and the MoEP is essential for completing such land acquisition given the complexity of land ownership in Ghana. In this respect and considering the large number of farmers who are not the actual owners but use the land under various traditional arrangements with the owners, and the presence of migrant fishermen who have only informal rights to occupy homes on the beach, it is appropriate to apply PS5. The livelihoods of these vulnerable groups who live, work, or otherwise depend on the land acquired may be affected. Eni, assisted by the Authorities, has already begun drafting a Resettlement Action Plan. The RAP should document the rehabilitation measures that ENI will put into effect for all vulnerable groups during relocation and ensure that they have equal access to grievance redress procedures.</p>			
<p>PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<p>X</p>		
<p>The amount of habitat on the proposed ORF site that could be considered natural rather than already converted or, at best, modified, is small and should be avoidable in project design. The marine and coastal waters and their ecosystems provide habitat for fish of importance to local livelihoods and the economy as well as habitat for endangered sea turtle species and for marine mammals, some of which are endangered. Key issues to be addressed in the ESIA will be: prevention of pollution that could affect marine life or, via the tributary on site, the ecology of the Amansuri Estuary, and avoidance of disturbance to sea turtle nesting, which can be achieved by scheduling construction of the pipeline beach crossing outside the turtle nesting season and providing for protection of nests and turtles from poachers. Careful monitoring to assess the effectiveness of mitigation measures and detect unforeseen impacts will be important.</p>			
<p>PS 7: Indigenous Peoples</p>		<p>X</p>	

No groups that meet the definition in PS7 have been identified in the project area.			
PS 8: Cultural Heritage	X		
Preliminary investigations have determined that there are family shrines and two sacred locations on the project site that both must be avoided and protected or, if avoidance is not possible, relocated following traditional procedures and ceremonies. At this point, the team estimates that due to the magnitude of potential impacts, a cultural property management plan may not be required. However, the RAP under preparation should document all necessary efforts to protect, move, or restore cultural property of PAPs.			
OP 7.50: Projects on International Waterways	X		
The Gulf of Guinea is an international waterway. Riparian countries will need to be notified of the proposal to proceed with SGP. Notification can be most efficiently done via Ghana's representative on the Gulf of Guinea Commission.			

V. Financing (in USD Million)

Total Project Cost:	3,200.00	Total Bank Financing:	0.00
Financing Gap:	0.00		
Financing Source			Amount
BORROWER/RECIPIENT			3,200.00
Including Commercial Financing (Supported by IDA Guarantees)			700.00
International Development Association (IDA) Lending			0.00
Total			3,200.00

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