

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN SUMMARY

Project Title:	TAKARODI 2 Expansion Project	Project Number: PGH FDO 002
Country:	Ghana	
Department:	Private Sector Department	Division: OPSM.3

a) Brief description of the project and key environmental and social components

The proposed project will involve the capacity expansion of the existing Takoradi Thermal Power Plant (TTPP). TTPP is located on the southwest coast of Ghana approximately 15 km north west of the towns of Sekondi and Takoradi. The nearest settlement, located 1-2 km east is Aboadze. The TTPP consists of 2 units – T1 and T2.

The first unit at Takoradi (T1) has been in full, 330 MWe, combined-cycle operation since April 1999 with two combustion turbines. The T1 steam turbine uses a cooling tower fed with seawater to cool the steam turbine condenser cooling.

The T2 unit is currently a 220 MW plant, consisting of two combustion turbines exhausting directly to atmosphere.

The existing T2 Unit is to be expanded to its final capacity of 330 MWe, by the addition of a steam turbine to convert it to combined-cycle operation. It is proposed that the expanded T2 plant will be cooled by a new once through cooling water system from the sea. The once-through cooling system is also proposed to replace the existing seawater fed cooling tower system of steam turbine generator unit at T1. It should be noted that the above mentioned expansion of the power plant of Unit T2 to its final capacity is proposed to be implemented in parallel to the change in cooling water system.

b) Major environmental and social impacts

The proposed expansion would have economic, environmental and social impacts both at the construction and operating phases. The notable impacts include:

- The overall positive impact on the national economic activity, due to increased energy output and employment opportunities during the construction and operational phases of the project.
- Minimal negative impacts on noise levels, air quality and water during the construction phase.
- Savings of up to 110 000 tonnes per year CO₂ emission due to increased energy production while displacing new thermal generation capacity. This constitutes an important and direct benefit due to the mitigation of climate change impacts.
- The construction and operation of water supply and treatment facilities for cooling the plants would have impacts which can be mitigated to levels within the limits of the regulations of the Government of Ghana.

- Other negative impacts which are not significant can be readily mitigated. These include noise, impact on air quality, water and wastewater effluents etc.

c) Enhancement and mitigation program

From the review of the full Environmental and Social Management Plan, it is concluded that the construction and operation of T2 to its full extent, including the proposed T2 expansion, would have a relatively minor adverse effect on the surrounding environment.

Standard construction best practice would be applied to mitigate adverse impacts during the construction phases.

Overall, and with the planned continued implementation of appropriate management policies and procedures during T2 operation, relating to environmental quality monitoring, pollution prevention and response procedures, and health and safety frameworks, it is expected that any residual environmental effects will be kept to a minimum, under normal operating conditions.

d) Monitoring program and complementary initiatives

A monitoring program has been designed and was approved by the Ghanaian authorities. The monitoring program covers relevant aspects of the project including: impact on water quality, air quality, noise, dust, fish impingement etc.

e) Institutional arrangements and capacity building requirements

TICO's Project Team will fulfil a principal role in the ESMP implementation by monitoring the EPC contractor's activities to ensure compliance with the ESMP which is built upon the commitments set forth in the EIS.

TICO's Environment Department headed by the Environment Manager will be the responsible department, among others, for the pre- and post- project environmental-related activities of TICO. The Environment Manager will work closely with the EPC contractor, its supervisors and the authorities.

The Environment Manager will be responsible for reporting to the Ghanaian EPA implementation and results of the ESMP at regular intervals. The EPA and TICO will work together to ensure National guidelines are met.

f) Public consultations and disclosure requirements

Extensive consultation regarding the development of T2 has been undertaken since 1998, including a Public Consultation and Disclosure Plan (PCDP) which was developed in 2000 for the T2 expansion project. A wide range of stakeholders have been identified and worked with over the years, as summarised below.

Local

- Chief, landowners, fishermen, and general public of Aboadze and Aboesi;
- Sekondi public;
- Takoradi public;

- Sekondi-Takoradi Metropolitan Assembly
- Shama Canoe Fishing Council.

Regional

- Regional Environmental Protection Council and Agency;
- Regional Economic and Planning Group (Sekondi-Takoradi);
- Regional Agriculture Office (Sekondi -Takoradi);
- Regional Fisheries Officer (Sekondi-Takoradi);
- Regional Health Office;
- Shama Ahanta District Fisheries Officers;
- Shama-Ahanta East Metropolitan Authority;
- Western Region, Chief Minister;
- Western Naval Command - Sekondi Naval Base; and
- Tourist Board.

National

- Derby Company;
- Council for Scientific and Industrial Research;
- Chevron Oil / AQL Mercantile;
- EHS International;
- Electricity Corporation of Ghana;
- Environmental Protection Council and Agency;
- Department of Game and Wildlife;
- Fisheries Department;
- Factories Inspectorate Division;
- Ghana Energy Commission;
- Ghana Highway Authority;
- Ghana Ports and Harbour Authority;
- Ghana National Fire Service;
- Giant International;
- Green Earth;
- Institute of Aquatic Biology;
- Itochu Corporation;
- Kanematsu Corporation;
- Maritime Authority;
- Ministry of Agriculture;
- Ministry of Environment,
- Ministry of Energy and Mines;
- Ministry of Transportation and Communications;
- Sumitomo Corporation;
- University of Ghana;
- University of Cape Coast;
- University of Science and Technology;
- Water and Sewerage Corporation;

g) Estimated costs

The overall cost of implementing the ESMP during the 27-month construction phase is estimated at \$264,100. The cost includes capital expenditure (\$30k) for monitoring equipment and the production of management plans, procedures and delivery over a 27-month programme (\$234,100).

On-going monitoring into the operational phase is required (see Section 6 for details). This fee is estimated at \$81,000 per year (summarised in Table 10.1). The duration of this monitoring has not been

specified and cessation is expected once mitigation measures put in place have been proven to be satisfactory.

h) Implementation schedule and reporting

TICO will report to the Bank on the implementation of the Environmental and Social Management Plan (ESMP) in the regular quarterly reports submitted to the Bank. Results achieved shall be clearly identified.

Whenever non-compliance to agreed requirements or unexpected impacts are noted, the Bank shall request that the Borrower review the ESMP in collaboration with relevant stakeholders, as appropriate. The Bank shall clear the proposed changes.

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