19 DISASTER RISK PLAN

19.1 INTRODUCTION

A Risk and Disaster Management Plan (RDMP) has been prepared for the Project (refer to Annex M). The purpose of the RDMP is to:

- Demonstrate that accident prevention policy has been provided and a safety management system has been put in place to implement the policy;
- Demonstrate that major accident hazards have been identified and that the necessary measures have been taken to prevent such accidents and to limit their consequences;
- Demonstrate that safety and reliability have been incorporated into the design & construction, operation & maintenance of those installations related to its operation, and which are linked to major accident hazards within the management plan; and
- Demonstrate that emergency plans have been drawn up and that the operator is supplying information to enable the off-site plan to be drawn up in order to take the necessary measures in the event of a major accident.

19.2 FINDINGS AND RECOMMENDATIONS

The RDMP identified and highlighted the potential risks associated with the natural gas (Fuel Gas), the risk mitigation and management techniques and the systems that are in place to control and manage the installations in the safe way. The risks of the fuel gas facilities were evaluated both qualitatively and quantitatively.

A major accident prevention policy has been provided and a safety management system has been put in place to implement the policy. As the CCGT Power Plant project is in the preliminary design stage, preliminary hazard identification has been performed on the power plant. Studies such as HAZID, HAZOP and QRA studies will be performed as the project proceeds into the EPC stage. Some measures have been put in place to minimize the risk of hazardous events; general recommendations have been made to further supplement the measures currently considered. Safety and reliability have been considered in the design, construction, operation and maintenance of the CCGT power plant. Emergency plans have been developed as detailed in project documents and some recommendations have been made to the plans.

The RDMP provides the following recommendations:

- Recommendation 1: all pipes and equipment should be suitably coated against external corrosion. Also, lagging should be provided with removable panel to facilitate routine inspection of the condition of the pipework surface.
- Recommendation 2: Area around the gas supply pipeline and valve stations should be zone-classified and access-controlled to eliminate any source of ignition.
- Recommendation 3: Consider implementing a HEMP (Hazard and Effects Management Process) to identify and manage the major accidental hazards.

- Recommendation 4: a Quantitative Risk Assessment (QRA) needs to be performed during EPC stage for the Power Plant in order to evaluate the risk due to the explosion events to the On-site, Off-site population as well as the adjacent facilities. The Emergency Response Plan needs to be updated in order to take into account these explosion events.
- Recommendation 5: a HAZID for commissioning/ start-up can be performed during EPC stage in order to identify all potential risk due to these operations.
- Recommendation 6: Layout study should be conducted to assess adequacy of separation distances from major hazard installations to sensitive equipments, buildings and emergency assembly area locations.
- Recommendation 7: Comprehensive soil investigation survey is recommended to investigate ground settlement / subsidence risk.
- Recommendation 8: The design of the Power Plant should be such that the impacts due to severe earthquakes are minimized.
- Recommendation 9: Ensure sufficient coverage of Fire & Gas Detectors. Ensure sufficient coverage of fire fighting system such as hydrants, monitors, etc.
- Recommendation 10: Primary emergency communication system should be available with emergency response teams and local authority personnel involved with emergency response. Secondary / alternative emergency communication system should also be available for emergency response.
- Recommendation 11: Safety and reliability of the CCGT power plant should be review regularly during the design, construction, and operational phases.