

“ICGB” AD

FEED & EIA for Natural Gas Interconnector Greece – Bulgaria (IGB) Project

ICGB AD Contract No.C –17–2011

Environmental Impact Assessment Study - Greek Part



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9. Environmental Management and Monitoring System (EMMS)

9.1 General considerations

According to the recent Greek Law 4014/2011 (ΦΕΚ 209/Α' - Appendix II) the EIA study should contain a Plan for Environmental Management and Monitoring that will be implemented in order to assure the effective protection of the environment and implementation of the proposed measures which will also include.

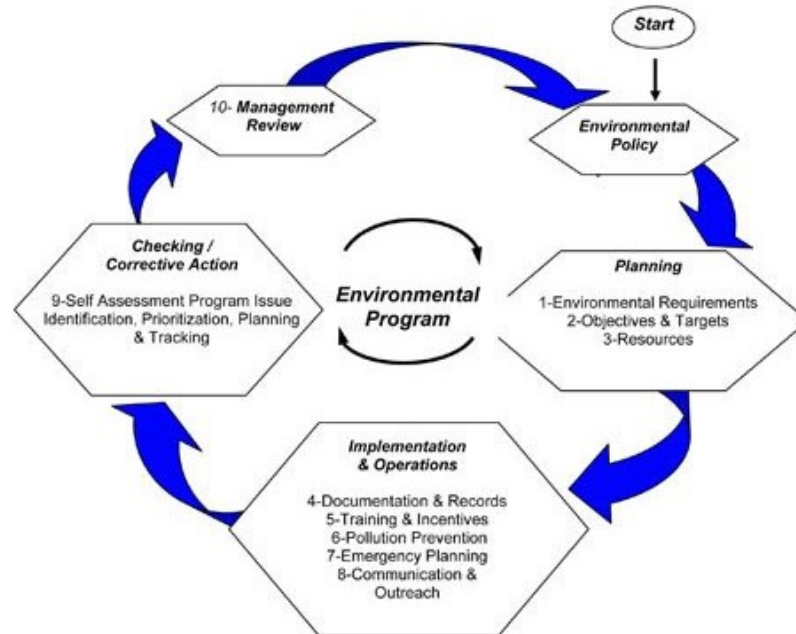
In this context, an Environmental Management and Monitoring System (EMMS) shall be employed and maintained during the whole process of the design, construction and operation of the proposed pipeline. The main elements of the system (Policy, Organization chart, Monitoring program etc). This system will include the monitoring program, will be in accordance with the abovementioned Law, and is outlined below :

It is proposed that the system shall be based on the basic principles of ISO 14001:2004 :

- Environmental Policy
- Environmental Requirements
- Environmental Aspects & Impacts
- Environmental Objectives & Targets
- Organization chart, Roles/Responsibilities -Resources
- Documentation & Records
- Environmental Personnel Training & Incentives
- Pollution Prevention and Monitoring
- Planning for Emergencies
- Communication & Outreach
- Self Assessment Program and Internal Audits
- Management Review

The System shall address ALL the requirements of the Environmental Terms Document issued for the project by the authorities and shall ensure continuous improvement of the environmental performance of the project.

Figure 9.1 Environmental Management & Monitoring Systems Structure



9.2 Environmental Policy

The Construction Contractor should prepare and communicate its environmental policy which must be approved by the project owner (in the case he is not certified according to ISO 14001 - so it has its own Environmental Policy).

9.3 Environmental Requirements

The environmental requirements of the project consist primarily of the specific demands of the Environmental terms Document and the enforcement of environmental legislation in general.

A specification of the requirements of the Environmental Management and Monitoring is listed below :

- Construct the pipeline with minimal disruption to landowners and the local community.
- Implement all environmental measures on noise, vibration, dust and lighting to minimize environmental impact.
- Effective traffic management to reduce the impact on local road users.
- Maintain cleanliness and order throughout the project.
- Minimize the impact on any affected Utility with the protection and / or replacement during the construction.

- Regular updating of residents and local authorities on the construction progress and creation of an efficient management scheme of any complaints.
- Respond to all local concerns about the construction of the Project.
- Make reports on the environmental performance of the Construction Contractor during construction of the Project.
- Minimize the impact on the natural environment during pipeline construction.
- Ensure continued protection and monitoring of flora and fauna affected by the Project
- Minimize the potential for pollution by ensuring that environmental protection measures are effectively implemented.

9.4 Environmental Aspects & Impacts

The Environmental Aspects and Impacts of the project both during construction and during operation were analyzed in the preceding chapters of this EIA study.

The developer, under the EMMS, is proposed to prepare a table of Environmental Aspects and Impacts and to identify the significant of them, and those which result from certain obligations from the Environmental Terms Document and / or legislation.

9.5 Environmental Programs - Objectives & Targets

For each of the significant environmental aspects the owner and / or the CC, under the EMMS, is proposed to set targets and prepare programs to achieve these goals.

Examples include:

- Air pollution monitoring Program.
- Noise monitoring program.
- Water Pollution Monitoring Program.
- Program for monitoring Solid waste emissions and surplus excavation material disposal.
- Program for monitoring impacts on flora and fauna and recording land reclamation / reforestation and deforestation.
- Program for Monitoring Impact in Cultural Heritage and recording of possible archaeological findings.

9.6 Organization Chart / Roles & Responsibilities - Resources

The intention of the Owner for the environmental management of the project is supported by the allocation of resources (human, material and financial) for monitoring, prevention and control of environmental impacts of the project, both during construction and during operation. These resources should be explicitly stated.

Human resources, which are the most significant should be determined by a detailed chart that defines the roles and responsibilities of persons in its staff. In particular, the chart should refer to those responsible for the implementation of the EMMS in all the levels of administration as well as the person responsible for compliance to the Environmental Terms Document.

9.7 Documentation & Records

The project Owner and the CC will develop within the EMMS a documentation and archiving system, so that all the procedures, work instructions and documents that are used to record and document the environmental performance of the project are organized and easily accessible for any internal and external audit.

9.8 Environmental Personnel Training & Incentives

The project Owner, under the EMMS is proposed to draw up an environmental education program for his staff and the staff of the Construction Contractor.

The Effective environmental education and staff awareness program should include :

- Introductory Program in Environmental Education
- Environmental Education Program for this Project
- Regular meetings of Educational Personnel
- Advanced Environmental Education.

Further training can be done when necessary.

9.9 Pollution Prevention and Monitoring

Identifying and Reducing Risk

Prevention is one of the most effective means of control of any environmental pollution. Before starting any work or activity in a specific project, an assessment of the environmental risks associated with this activity is made and appropriate measures are taken to prevent such risks. Each Procedure of the CC should include environmental risk assessment and identification of appropriate measures to avoid potential environmental impacts during the project.

Education and Awareness

The CC ensures that project staff are trained and aware of the appropriate measures to prevent pollution during construction work.

Inspections and Monitoring

Work during construction must be continuously monitored and controlled by the CC and a representative of the Owner. Continuous monitoring and control ensures that pollution prevention measures are implemented and all activities are compatible with the EMMS.

Spill prevention and control

All the necessary measures should be taken to prevent environmental incidents during construction, however, preparations should be made for the successful confrontation of an environmental incident.

In case of an emergency such as the oil spill on the ground, the staff of the Contractor is required to follow the procedure for dealing with spills.

Especially in case of use of the collection vessel for leakages, after dealing with the emergency, the contents of the container should be replaced immediately with new materials for leak control.

9.10 Planning for Emergencies

Having in mind that the requirements of the recent Hellenic No. Δ3/A/OIK. 4303 ΠΕ 26510 (ΦΕΚ 603Β' 5-3-2012) Technical Regulation “Natural Gas Transmission Systems with Maximum Operating Pressure over 19 bar” should be met, the following actions must be taken :

Until the completion of the works and before any test filling of the pipeline, even partial, the responsible operator and project management should prepare a management plan, which will detail all the activities and actions to be taken in case of failure of the pipeline, accidents, extreme weather conditions, fire, earthquake, etc. This management plan will also provide ways to restore any environmental damage. The implementation of the restoration work shall and the relevant expense are the owners responsibility.

The CC is obliged to construct a list of contacts for emergencies that will be available to all staff of the Project and included in the EMMS. The contact list will include individuals specifically trained to deal with emergency environmental incidents.

Incident management

In the event of an environmental incident in the Project the CC must ensure that the event will be recorded in the Book of environmental incidents. The record of environmental incidents include the following:

- Any malfunction of the environmental protection systems.
- Any event with possible environmental pollution.
- Any emergency.

9.11 Communication & Outreach

The proper and immediate communication is essential for the effective implementation of the EMMS. The owner, under the EMMS is proposed to prepare a communications program to determine the internal and external communications systems to be used for the effective management of environmental communication.

Internal Environmental Communication

The internal communication refers to environmental issues relevant to the Project and will be held during the meetings of the Contractor and

subcontractors with representatives of Supervision and the Owner to discuss environmental issues such as monitoring, measurement, any complaints, advancement of education and other areas of concern.

External Environmental Communication

This is the rest of communication on environmental issues (eg with authorities, NGOs and citizens).

9.12 Self Assessment Program and Internal Audits

The performance of the EMMS must be derived both from self-assessment and internal audits. It is proposed to develop procedures for Internal Environmental Inspections (Audits) by the CC and external Audits by the Owner (or Third Party) whose results are submitted to the permitting authority.

9.13 Management Review

It is proposed that the EMMS and its performance are reviewed by the management at regular time intervals.