

## **8 ENVIRONMENTAL MONITORING AND AUDIT**

### **8.1 Introduction**

An environmental monitoring and audit (EM&A) programme performs three functions. It ensures that impacts from the construction and operation of the project is kept within acceptable levels; it establishes procedures for checking the application and effectiveness of mitigation measures; and it provides the means by which compliance can be checked, exceedances documented, and corrective action recorded.

Detailed monitoring schedules and audit requirements should be incorporated into the construction contract for the proposed engineering works. The clauses containing these schedules and requirements should be formulated in consultation with EPD.

It is a further requirement of the EPD that the environmental monitoring programme should be subject to environmental audit. The aim is to determine whether satisfactory compliance with the legislative requirements have been met, and to ensure that no annoyance is caused to sensitive receivers or else the remedial action plan will be initiated, if required.

The section that follows summarizes the environmental monitoring and auditing (EM&A) requirements for the proposed project. These requirements will be developed in detail in the EM&A Manual. This Manual will be produced as a stand-alone document to be submitted with the EIA Report.

### **8.2 Environmental Monitoring and Audit Requirements**

#### **8.2.1 Environmental Monitoring Requirements**

The primary objective of the EM&A programme is to provide a means to determine the efficacy of the recommended mitigatory measures developed within the EIA study for the construction of the proposed underground cables and overhead pole line. This will be achieved through the application of specified procedures and actions defined in Event and Action Plans (EAPs) to manage the Project's response to any identified unacceptable environmental impacts.

The specific objectives of the EM&A programme for the proposed project include the following:

- to provide a database which can be used to determine any short or long-term environmental impacts of the Project;
- to verify the environmental impacts predicted in the EIA study;
- to monitor the performance and effectiveness of mitigation measures employed;
- to determine project compliance with regulatory requirements, standards and Government policies;

- to provide an early indication and suggest appropriate additional or remedial measures should any of the environmental mitigation measures or controls fail to achieve acceptable standards; and
- to provide data to enable an environmental audit of the Project.

### ***Water Quality***

In view of potential increase in SS levels downstream of the works sites, a water quality monitoring programme is considered necessary during the trenching and filling works for the laying of the underground cables. Water quality monitoring and audit are essential tools to determine the scale of construction stage impacts and to proactively identify and remedy any deterioration in water quality associated with the works.

It is recommended that a baseline water quality monitoring programme be undertaken prior to the commencement of the construction works. The determined baseline levels would be used as a basis for environmental impact and compliance auditing during the implementation stage.

The location and number of water quality monitoring stations will be identified in the EM&A Manual, together with details of the monitoring parameters and frequencies and equipment to be used. It is recommended that monitoring stations be located in the vicinity of the nearest identified sensitive receivers and that control stations will be necessary to compare the water quality from potentially impacted stations with the ambient water quality. These control stations should be located within the same body of water as the impact monitoring stations but outside the area of influence of the works and, as far as practicable, not affected by any other works.

The above recommended monitoring and control requirements will be developed in detail in the EM&A Manual.

### ***Ecology***

The direct ecological impact is considered to be limited to the construction period. In order to minimise ecological impact and to protect the important habitat/plant species, the implementation of the ecological mitigation measures should be checked as part of the environmental audit procedures during the construction period by the Environmental Team (ET).

### ***Cultural Heritage***

Due to low archaeological potential of the project site, it is not recommended to implement an EM&A programme to monitor the construction works in the whole project site including the trenching work across Ho Chung Valley. However, since the chance that the trench area may contain *in situ* cultural deposits cannot be eliminated, it will be advisable to carry out a rescue excavation prior to the commencement of the construction work to salvage the cultural relics. The project proponent, CLP Power, is committed to allow sufficient time in

the Project Programme to conduct such rescue excavation. No laying of cables across Ho Chung Valley can be carried out until the rescue excavation is completed to the satisfaction of the Antiquities & Monuments Office. CLP Power will directly liaise with AMO with regard to the size and alignment of rescue excavation to accommodate the cables to be laid as far as practicable.

### ***Health***

In addition to lack of scientific evidence to prove a health hazard from power lines, the small magnitude of the predicted EMFs which may be generated from the overhead pole lines and underground cables further demonstrated that the exposure of the public to the EMFs will not result in any significant health impacts. Field measurement is still recommended to be conducted after completion of the project. CLP Power will directly make arrangement with EMSD for field measurements within 6 months after commissioning of the powerline.

### ***Landscape***

Proposed landscape and visual mitigation measures include: (a) revegetation of native shrub species at each pole location; (b) minor on-site adjustment of pole positions; (c) painting pole structures in a colour of low chromatic intensity; and (d) removal of two pairs of existing 33kV powerline from within the Ma On Shan Country Park.

According to the detailed tree survey, it has been identified that only 13 common trees (including 1 dead tree) would have to be felled over 6.5km overhead pole line and 5.5km underground cable. In view of a small scale of the proposed construction work and associated minimal impacts, no monitoring work is considered required.

## **8.2.2 Environmental Audit Requirements**

In addition to routine monitoring, environmental auditing is required to ensure that the construction of the proposed underground cables and overhead pole line is in compliance with environmental regulatory requirements and standards. The environmental auditing will test the adequacy and effectiveness of the environmental monitoring programme adopted.

These audits should be conducted on a regular basis with the following aims:

- to review and verify information available in records developed through the monitoring programme;
- to identify specific issues of non-compliance and to give recommendations to meet them; and
- to check the effectiveness of mitigation measures and to review the need for further mitigatory measures.

In addition to the above, an audit of the environmental complaints handling procedures should be conducted to verify that any complaints are properly addressed and follow up

procedures taken. The detailed environmental audit requirements will be described in the EM&A Manual.

### 8.3 Environmental Monitoring and Audit Manual

An Environmental Monitoring and Audit Manual detailing the monitoring schedules and requirements is included in a separate document. This will be the basis for carrying out relevant monitoring and auditing procedures during the construction period.

Hong Kong environmental regulations together with the HKPSG have served as environmental standards and guidelines in the preparation of the EM&A Manual. In addition, the EM&A Manual will be prepared in accordance with the requirements stipulated in Annex 21 of the *Technical Memorandum on the EIA Process*.

The EM&A Manual will include, but not be limited to, the following:

- Responsibilities of the Contractor, the Engineer or Engineer's Representative (ER), the Environmental Team (ET) Leader and the Independent Checker (Environment) (IC(E)) with respect to the environmental monitoring and audit requirements during the course of the project;
- Information on project organization and management structure and programming of construction activities for the project;
- Hypotheses of potential impacts, the basis for, and description of the broad approach underlying the environmental monitoring and audit programme;
- Full details of the methodologies to be adopted, including all field laboratory and analytical procedures, and details on quality assurance and quality control programme;
- Rationale on which the environmental monitoring data will be evaluated and interpreted and the details of the statistical procedures that will be used to interpret the data;
- Definition of Action and Limit Levels for each of recommended monitoring parameters;
- Establishment of Event and Action Plans for impact and compliance monitoring;
- Requirements of reviewing pollution sources and working procedures required in the event of non-compliance of the environmental criteria and complaints;
- Requirements of presentation of environmental monitoring and audit data and appropriate reporting procedures and frequency; and
- Requirements for review of EIA predictions and effectiveness of the environmental monitoring and audit programme.