B.2.Parcipant Notes.

- **S.1.1. Performance audit and environmental auditing-mining.**

Overview

The audits of environmental conservation for processing minerals and mining can assess the performance of government programmes/ actions to deal with threats to, and ensure the conservation of, the environment.

The learning Objective

As a result of this session, the participants will have obtained the capacity to draw a mining performance audit plan and be able to execute the environmental audit.

Basic Concepts

The three "E"s

- -**Effectiveness-** Effects compare with goals and related to the resources used to achieve these goals.
- - **Efficiency**- The relationship between the output in terms of goods, services or other results and the resources use to produce them.
- **Economy**- Minimizing the cost of resources for an activity having regard to appropriate quality.
- **What is the problem?**
  -From an auditor's perspective, situations or events in an organization or programmes where performance is not satisfactory may be defined as problems.

- **What is a pre -study?**
  - Is the basis for a decision whether to start a main study or not.
  -If the management then decides to start a main study, a work plan is prepared and decided upon.
  -The pre study memo sometimes includes a work plan for a main study, while sometimes the pre - study memo and the work plan are two different documents.
  The purposes of the pre study memo are:
  -Collection of information to increase the auditor's knowledge of the audit area;
  -Identification of possible audit problems.
  -Plan the main study (documented in the work plan)

- **What is a main study?**

  -The purpose of the main study is to assess economy, efficiency and effectiveness and there by explain the level of performance of the organization or programme audited it results in an audit report.

Key Teaching Point 1.

- Nature and main techniques of performance audit; the traditional three "E"s-effectiveness, efficiency, and economy.

  - Problems may be linked to one or more of our three concepts of economy, efficiency and effectiveness. Economy problems are defined as the use of too many resources.

  -Efficiency problems are the operations which are not well managed.

  -Effectiveness problems indicate that operations do not focus on specific recipient and do not have the required effect.

Key Teaching Point 2.

- Steps of the performance audit process;

  -The selection of the audit problem and the planning of the audit project are done during the pre – study. However, it must be noted that planning is an ongoing process and is therefore part of the main study as well.

  -Collection and analysis of data and report writing are primary activities performed during the main study but are also components of the pre – study.

  -The last step in the audit process -finalizing the project is only Relevant for the main study.

Key Teaching Point 3.

- Choosing environmental performance audit topics can be done on the following major environmental threats which are likely to be caused by the mining process at its different life cycle viz:

  -General environmental impacts, ecology and biodiversity, resources issues and social concerns. These threats to the environment are likely to be caused by destruction of natural habitat at the mining site, processing site and at waste disposal sites. Other causes include destruction of adjacent habitats as a result of emissions and discharges. Other factors include changes in river, ground water, alteration in water tables, changes in land form, land degradation due to inadequate rehabilitation after closure or luck of it.

The consequences of this state of environment include: Large- scale waste disposal operations may present a risk of catastrophic failure of tailings dams or heaps, collapse of dump heaps, such failure may lead to major loss of life at the site or near by communities i.e. loss of natural habitat.

Another threat to the environment may be in line with potential water problems/pollutants, hydrogeology and water quality these threats may be caused by: Suspended solids and sediment from runoff and processing operations. Acids from various processes. Cyanide if used in leaching processes.

The consequences of these threats to the environment if left unabated may include: oxidation of iron content adds discoloration and deoxygenating of waters due to the problem of metal toxity.

Threats to the environment may be exerted through air contaminants, and air quality. The causes for such a situation to occur are: Dust from site or from processing. Others include natural gas from underground mines. The consequences of this state are: Pollutants disease or death. Also increase potential for respiratory disorders.

Other pollution impacts, occupational and public health concerns: These threats are likely to be caused by pollution from mining operations in river beds, effluent from minerals processing operations .The consequences may be hazards from process chemicals or explosive.

Summary

Highlighting the most important points presented during the session. Preview of the contents of the session and its importance.