

# Training Module Mining



# **SESSION 1**

**Performance audit and environmental auditing on mining.**

## **Objective**

- The main goal is to build capacity in auditing mining issues into the SAIs community and at the end of this session participants can be able to undertake auditing of mining issues.

- **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.

- **Nature and main techniques cont...**

- 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 outcome and do not have the required effect.

- **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 stage.
- However, it must be noted that planning is an ongoing process and is therefore part of the main study as well.

- **Steps of the performance audit process cont....**

- 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

- **Choosing environmental performance audit topics basing on the major environmental threats**
- 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.

- **Choosing environmental performance audit topics cont....**
- 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 lack of it.

- **Choosing environmental performance audit topics cont....**
- The consequences of this state of environment includes: 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 nearby communities i.e. loss of natural habitat.

- **Choosing environmental performance audit topics cont....**
- 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 sediments from runoff and processing operations. Acids from various processes. Cyanide if used in leaching processes.

- **Choosing environmental performance audit topics cont....**
- 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 toxicity.

- **Choosing environmental performance audit topics cont....**

- Threats to the environment may be exerted through air contaminants, air quality. And the causes for such a situation to occur are: Dust from site or from processing. Others include natural gas from underground mines.

- **Choosing environmental performance audit topics cont....**
- The consequences of this state are:  
Pollutants disease or death. Also increase potential for respiratory disorders.

- **Choosing environmental performance audit topics cont....**
- 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

- **Choosing environmental performance audit topics cont....**
- The consequences may be hazards from process chemicals or explosive.