



# **INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR**

## **The Great Step**

Abstract Topic On

**“Enviro Case Study”**

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# Abstract:

Water is used in mining for very few works. It includes mineral processing, dust suppression, slurry transport, etc. In most of the mining projects, water is sought from ground water, streams, rivers, lakes, or through commercial water suppliers. In coal industry, water is used to extract, wash and sometimes transport the coal; to cool the steam used to make the electricity in the power plant and to control pollution. With the increased mining activity the demand of water is in rise. Because, mining industry is not only the one which uses water as a resource, there are many industries which heavily depend on it. Mining can have harmful effects on surrounding surface and ground water. This is because the water left after the mining purpose is not reusable. As mining produces copious amounts of waste water, disposal methods are limited do to contaminate within the waste water. Runoff containing these chemicals can lead to the devastation of surrounding vegetation.

What specific interventions,  
framework that it should adopt to  
ensure that the project starts the  
way it is planned?

Some of the ways are:

1. An outline of the proposed mining method, together with a conceptual mine plan.
2. Quality restrictions, maximum and minimum levels for ash, sulphur, volatile matter, etc. In the case of coals that have quality problems and need to be beneficiated, the predicted yield needs to be given.
3. Depth limits, imposed by either physical or economic constraints or both.

What should be the required policies and processes that the company should adopt to ensure that operations are conducted in a manner conforming to the requirements of the regulations ?

In general, the company's environmental policy dictates that its operation go beyond simply meeting current regulatory standards. The operation must exemplify best contemporary practice for the minimization and where , feasible, elimination of adverse environmental effects. The company so does by

1. incorporating environmental matters as a basic part of short and long range planning for all projects and operations;

2. Complying with all applicable environmental laws, regulations and prescribed standards and criteria and ensuring that its contractors do likewise;
3. participating in the development of environmental legislation;
4. promoting and, where feasible, implementing new and effective practices for environmental protection, compliance and energy response;

## How should the project proponent address the concerns of the external stakeholders?

In many locations throughout the globe, conflicts between mining companies and communities are common. In some cases, stakeholder concerns have led to legal actions against mining projects. These conflicts are generally rooted in the competition between the mining industry and the community over natural resources, such as water or land, and in the adverse impacts caused by the mining operations on the environment. The concerns of external stakeholders can be addressed by :

1. Minimize adverse impact of mining activities on local community and environment.
2. Facilitate open communication with the stakeholders.

3. Citizen access to information regarding environmental compliance and performance, including the right to inspect environmental independent audit results and mine operations
4. Provide opportunities for community and external stakeholder participation in decision making
5. By the satisfying the needs of external stakeholders.

**What long term interventions it can plan to mitigate the concerns of water shortage of the community?elaborate.**

Among the challenges faced by the mining industry is the need to minimize water losses during processing while maximizing water recycling. Today, it is unusual for a mine not to have the potential to recycle process water, which is retained within the mine's closed cycle and stored either in a tailings facility or a dedicated water storage facility. Concerted efforts to save water in this way can have major benefits. For example, when BHP Billiton initiated a water savings project at its Olympic Dam mine in Australia to

reduce the volume of water used in its processes, it achieved significant savings (see case study page 18).

Another effective way to save water is by reducing evaporative losses in hot and dry areas. For example, Xstrata's Lomas Bayas mine in the water-scarce Atacama Desert in Chile, which has annual rainfall of approximately 1 millimetre (mm), took steps to reduce evaporative losses in the heap leaching process (see case study page 20).

In areas of water stress, a reduction in water usage across a mining operation benefits the local community and the site (through reducing costs and improving operational efficiencies). A concerted effort in this regard can achieve significant water use reductions. For example, at its Argyle mine in Western Australia, Rio Tinto has achieved an impressive 95% reduction in water use from the ecologically significant Lake Argyle since 2005 .