Handout- 5.

Decommissioning and closure plans.

The mine closure phase may include such activities as
• re-contouring pit walls and waste dumps,
• covering of reactive tailing dumps,
• decommissioning roads,
• dismantling buildings,
• re-seeding/planting disturbed areas,
• ongoing monitoring,
• possible treatment for water quality,
• other mine reclamation activity, and
• abandoning the mine.

Mine decommissioning ultimately determines what is left behind as a benefit or legacy for future generations. If decommissioning and closure are not undertaken in a planned and effective manner, chances are that the site will continue to be hazardous and a source of pollution for many years to come. The overall objective of mine closure is to prevent or minimize adverse long-term environmental, social and economic impacts, and to create a stable landform suitable for some agreed purpose.

Issues to consider in developing a reclamation plan include:

• long-term stability of impoundments, slopes, and surface materials,
• safety issues relating to open pits, shafts, subsidence, toxic, or radiological hazards,
• the physical characteristics, nutrient status, and inherent toxicity of tailings or waste rock which may constrain re-vegetation,
• the potential for acid drainage from abandoned pits and shafts, tailings, and waste rock dumps (as a consequence of oxidation of sulfides contained in the ore or wastes),
• the potential for methane emissions from coal mines, and
• the costs of ongoing and post-decommissioning rehabilitation.

The socio-economic aspects of decommissioning are also important, particularly where the existence and economic survival of large communities may depend on a mine. Aside from loss of incomes, the provision of services – such as water, sewerage, electricity, and health care – may be directly linked to the mine. All these issues should be factored into post closure plans that are adequately costed. Planning for and progressively implementing effective mine decommissioning can produce significant benefits both during and at the end of operations. These benefits include

- continually reducing liabilities by optimizing rehabilitation works undertaken during the productive phase of mining operations rather than deferring costs to the end of the project,

Some examples on impact of mining – marine waste in Buyat Bay, Indonesia

Some examples on impact of mining. In 2004, the Newmont Minahasa Raya (NMR) gold mine began closing down its operations in North Sulawesi. It left local communities in Buyat Bay and Ratatatok with a dubious legacy: long-lasting environmental damage, economic decline, and a host of health problems. Affected communities have appealed to NMR, a subsidiary of Denver-based Newmont Mining Corporation (which owns 94 per cent of NMR), and the Indonesian government to address their concerns.

Villagers are reporting skin diseases that are believed to be the result of pollution
from the mine. Credit: JATAM NMR was the first mine in Indonesia to dump mine
waste into the ocean. Known as submarine tailings disposal (STD), the method has been banned in many countries due to its harmful environmental and health

The figure below shows the impact of mining pollution which developed skin diseases in Indonesia.

impacts. NMR pipes its mining waste approximately ten kilometers from the open-pit mine and discharges it into Buyat Bay at a depth of 82 meters. Since it opened in 1996, the mine has dumped more than 4 million tons of mine waste into the bay.

Coastal dumping of mine waste has destroyed local fisheries in Buyat Bay. Credit:

JATAMCoastal dumping of tailings is a grave ecological concern because coastal

The figure below shows how dumping of mine waste affected the local fisheries in Buyat Bay –Indonesia.

waters are biologically the richest parts of the oceans. Many open-ocean species depend on the coastal habitat for part of their life cycle. It is also a hazard to public health. In addition to facing severe coastal pollution and the destruction of local fisheries, villagers living around Buyat Bay have reported skin rashes and sores on their bodies, severe headaches, tumors and reproductive health problems. Tailings pipes are notorious for breaking and leaking tailings, both on land and in the sea. NMR's tailing pipe has broken multiple times, leaking waste into water as shallow as ten meters deep and seriously affecting coral reefs and marine life. A 2003 report by the Indonesian Forum for the Environment (WALHI) found that NMR's tailings contain four times the government-allowed level of cyanide and high levels of mercury, cadmium, and arsenic. A team of researchers led by Dr. Ir. Rizal Max Rompas, toxicologist at Sam Ratulangi University, North Sulawesi, also found similar results in 1999; the amount of toxic compounds in the area exceeded the legal threshold.

Extract were obtained from: www.nodirtygold.org/buyat_bay_indonesia.cfm