

Air and water quality standards and acceptable limits for effluent discharges mainly correspond to international standards, particularly to American legislation. There are numerous regulations with fairly extensive lists of acceptable levels of pollutants in water and air. Disposal methods for solid residues, such as mine waste rock and mineral processing tailings are also subject to controls.

#### 4. MINING COMPANIES AND ENVIRONMENTAL MEASURES

In view of the growing national and international concern about the environment and of governmental action to restrict potentially harmful activities, mining companies in Brazil have started to invest in environmental control.

This study gathers information about environmental action in the mineral sector, obtained through a research based on a sample among the main companies in each of the sub-sectors listed below:

- mining companies (sample of 48 companies)
- manufacturers and representatives of environmental control equipment (sample of 56 companies)
- consulting and engineering companies (sample of 40 companies).

The environmental control equipment and products were classified as follows:

1. atmospheric effluent treatment
2. water and liquid effluent treatment
3. solid residue treatment
4. noise pollution control
5. control **garimpos** impacts.

The study shows that around 70% of the mining companies have been engaged in environmental control for at least five years. Most efforts were directed towards tailings disposal, effluents containment, and reclamation of impacted areas.

Increased action towards environmental preservation and recuperation was a result of the 1988 Constitution, which raised the environmental standards for the mineral sector. Besides having to present environmental impact studies in order to obtain preliminary licences for mining activities, companies are required to prepare projects for reclamation of impacted areas for all mines in operation. As a consequence, the market for consulting companies expanded.

In recent years, the number of companies actively adopting some form of environmental protection grew considerably. Their main tendency has been to direct action towards the most immediate problems. In this context, a demand for equipment to control water and air pollution appeared.

Most companies polled estimate that this market is expanding, even after considering the present crisis and uncertainties of both the Brazilian economy and the mineral sector. The analysis of the information obtained indicates that, despite the existence of well