DEVELOPING countries face the enormous challenge of striking a healthy balance between exploiting natural resources on the one hand, and protecting the environment on the other. It is essential that these countries adopt realistic and practical environmental policies and legislation.
Intensive mining began in Namibia within 20 years of the arrival of the first European settlers. Today the mining industry is cosmopolitan and varied. It includes large private companies capable of processing millions of tons of material per year, small family businesses working claims, and individuals who search for precious and semi precious stones in the wastes of the desert. Most of the big companies are members of the Namibian Chamber of Mines, while the Small Miners Association represents the individuals and groups which make up the informal sector.

**NAMIBIA'S "ORPHANS"**

When Namibia gained its Independence in 1990, it inherited a plethora of abandoned, unrehabilitated mines. In most instances, the miners left having made vast fortunes, or they were forced into bankruptcy due to high operational costs and low prices received for their products. The end result is the same: trenches, pits and mountains of overburden, together with metal scrap, old tyres and dilapidated houses, scattered throughout Namibia. Besides scarring otherwise beautiful landscapes, abandoned mines threaten the safety of humans, livestock and wildlife.

There is, however, another side to this tarnished coin. This country has a number of well established responsible mining houses, most of which are conscientious when it comes to minimising environmental impacts. Long before the government developed environmental impact assessment policies and legislation, these companies engaged the ser-
ties which have not been rehabili-
tated and are now suffering the conse-
quencies of the damage they have in-
curred. In many cases, the Ministry of
Mineral Resources and Energy is
asked to help, but it cannot meet the
costs of cleanup operations.

In recent years, numerous mecha-
nisms have been established to ensure
that no new "orphans" are added to the
list. Both the Foreign Investment Act
and the new Mining Act state clearly
that new ventures must be environ-
mentally acceptable. Namibia's
Environmental Assessment Policy
provides additional safeguards.

All stakeholders in the mining in-
dustry should be aware of their en-
vironmental obligations and that they
in turn should educate all their
employees. Running a "clean"
mine is more than simply filling
up the hole when you leave. It includes
good housekeeping, recycling of
waste, saving water and main-
taining a healthy working
environment for employees.

Namibia's coastal salt mines
harvest a renewable resource
and exist in relative harmony
with their surroundings. In most
cases, the evaporation ponds
excavated by the mine attract
thousands of birds, which
thrive in this artificially created
environment.
THE NATURE OF MINING
Long before minerals are discovered, teams of prospectors roam the landscape searching for deposits in likely locations. These investigations often require off-road (4x4) vehicles, large trucks, base camps and teams of workers. Bulldozers sometimes open trenches. For each success story, there are many others which yield nothing, but the scars of the search remain, often for decades.

Mining is by nature a destructive process, especially open cast mines, quarries, and massive earthmoving operations in sensitive and ecosystems. Although these activities result in highly visible scars on the landscape, they can usually be localised, and impacts can be reduced. There are other, less obvious impacts which are potentially far more serious and far reaching. Excessive water use and the gradual pollution of underground aquifers are two of these.

While the basic technology for mineral ore beneficiation hasn’t changed much in the past few decades, new methods have replaced older practices such as using acid to leach copper ore, and cyanide to leach gold bearing rock. Most of the larger mines have upgraded their operations to keep pace with these developments, but even so, there are still installations which are highly polluting, and systems which are wasteful and inefficient.

RECYCLING IN THE MINING INDUSTRY
There are a number of recycling opportunities within the mining industry. Displaced earth and rock, known as overburden, is a form of waste which should be earmarked as an essential resource for future rehabilitation programmes. Scrap metal, old vehicles and disused structures should be contained at specific sites and dispatched to scrap metal dealers only after all useful items have been re-used in routine maintenance and secondary construction. This practice not only reduces environmental impacts, but can save money for the company.

Household and office waste can be easily separated into specific categories and containers, such as glass, cans, paper and plastic could be bulk-stored and transported to collection depots at regular intervals.

Similarly, old vehicle oil should be collected and returned to petroleum retailers, where it can be re-used for a variety of purposes or sent to South Africa for recycling.

These good deeds may seem insignificant compared to the harm caused by many mining operations, but their impact could be important in the long term. Good housekeeping raises the environmental awareness of employees, and encourages the whole operation to adopt high profile environmental ethics.

ECO-MINING
Most mines exploit deposits of non-renewable resources and must close down once the deposits are exhausted. By definition, this means that an individual mining operation can never be sustainable, and that the earth’s minerals will disappear sometime in the future. When this happens, nations will have to find other resources to sustain economies and maintain their people. In the long term, it will be our renewable resources such as water, vegetation, and animals such as fish and wildlife, which will have to support us on earth.

Salt mining, however, is an exception to this rule, and Namibia is a leading producer of sea salt in Africa. Because salt is derived from evaporated sea water, a salt mine can carry on indefinitely, as long as the sea is not polluted by other activities such as industry or oil. Namibia’s salt mines are environmentally friendly, since they offer suitable habitats for many species of waders and water-birds. The salt mine near Swakopmund is a registered private nature reserve.

Although there is no doubt that prospecting and mining can cause serious damage to the environment, it is possible to reduce impacts to acceptable levels. The Ministry of Mines and Energy is committed to encouraging all mining operations in Namibia to adopt the highest standards of environmental protection. To this end, it has incorporated environmental considerations into the new Mining Act, and it actively promotes Namibia’s Environmental Assessment policy.

Some years ago, the Ministry established the Standing Committee for Mineral and Mining Rights, which includes representatives from a number of other ministries, including Environment and Tourism. This committee discusses all new prospecting and mining applications before they are approved, and the environment remains an important issue on the agenda.

For the foreseeable future, mining will continue to anchor Namibia’s economy, provide employment, and support a variety of secondary industries. But in the long term, it will be tourism, fisheries and agriculture which we will have to rely on to ensure the life of its mines are maximised, but that their impact on the environment is kept to a minimum. This is the fine balance we need to maintain in this fragile country.

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<th>Some mining statistics (1993)</th>
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<td>Number of active claims</td>
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<tr>
<td>Number of active mines</td>
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<td>Mining’s contribution to GDP</td>
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<td>Closed mines and quarries</td>
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Source: Ministry of Mines and Energy
1995