

PERSPECTIVES

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REPORT ON THE ENVIRONMENT



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The World Summit on Sustainable Development, ("Johannesburg 2002") called for a review of progress made in protecting the planet's environment in the decade since "Rio 1992".

The international oil industry, through the auspices of the International Petroleum Industry Environmental Conservation Association (IPIECA) presented its achievements in a document entitled *"The Oil and Gas Industry from Rio to Johannesburg and Beyond: Contributing to Sustainable Development"*. (It can be read on website www.iecea.org).

Some of the actions taken in South Africa by Sapia members in addressing sustainable development issues are documented in that report, for example, training and job creation through support of the Working for Water Programme, HIV/AIDS programmes, paraffin safety awareness and recycling of used lubricating oils.

The South African oil industry has worked for years towards the ideal of sustainable development (defined in the 1987 Brundtland Report as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*.)

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In producing energy for South Africa, Sapia members have also protected the environment in two ways:

- By trying to ensure that their business activities are efficiently productive, yet are conducted in a manner which does not impact negatively on the environment.
- By helping the community they serve to contribute to sustainable development.

This report is devoted to giving examples of these two initiatives.

MINIMISING ENVIRONMENTAL IMPACT

DECADES OF EFFORT

The first initiative to find ways to minimise the environmental impact of liquid fuels was taken some 20 years ago when the South African local petroleum companies combined forces and formed the South African Oil Industry Environment Committee (OIEC) to coordinate their efforts.

These anti-pollution efforts address the following areas of potential concern:

- Oil spills at sea during the transportation of crude oil and products around the coast.
- Air and water emissions and waste management at refineries.
- Spillage of product during road/rail transport to depots and service stations.
- Leaks from underground storage tanks at service stations.
- Human health aspects related to exhaust emissions from vehicles.
- Toxicity of the fuels to humans.
- Inappropriate disposal of used products such as lubricating oils.

The OIEC is affiliated to IPIECA and through this connection is able to ensure that its efforts to manage the issues identified above are on par with international best practice. Some examples are:

MARINE OIL SPILLS

Over 19,5 million tonnes of crude oil are brought into South Africa annually to feed South Africa's four oil refineries. Statistics show that the most likely time for a marine oil spill to occur is during berthing and unloading in a port. This also applies to vessels transporting fuel products around the coast. Similarly, spills can also occur when vessels are being loaded with fuel for their own use.

In order to address the risks, the oil companies have together bought oil spill response equipment, including booms to contain the oil on the water and skimmers to remove the oil from the water surface, and

positioned these in all ports and harbours. Oil spill contingency plans have been compiled for each area so that immediate action can be taken to limit the impact of spillage.

Petroleum Industry resources were mobilised during July of this period when the "Nino", a tanker carrying two Sapia members' petrol and diesel, ran aground on the Wild Coast during a storm. The Industry and the national authorities worked closely together in preventing pollution of the coast. Their success was a good example of how the industry and government regulators are co-operating to protect the environment.

REFINERY EMISSIONS

Crude oil is processed at four refineries, two of which are situated in Durban, one in Cape Town and one in Sasolburg. Additionally a liquid fuel from gas refinery is situated in Mossel Bay and a liquid fuel from coal refinery in Secunda. Oil companies are working together in actively addressing environmental issues through the Refinery Managers' Environmental Forum (RMEF). As there has been an absence of nationally regulated ambient air quality standards in South Africa, the RMEF has, over the last 18 months been involved with Government in the development of an Environmental Management Co-operation Agreement (EMCA). Together, the industry and the government planned to use the EMCA to set targets, timeframes and means of reducing emissions from refinery processes. The Industry has worked closely with environmental NGO's and community groups in this process. However, the EMCA may soon be replaced by official regulations to be based on ambient air quality controls. Sapia members welcome this approach and have committed themselves to working with the authorities in developing a sound regulatory framework to manage atmospheric emissions from the refinery industry.

ROAD AND RAIL SPILLS

Once the oil has been produced at the refineries, it needs to be transported by road and rail, and sometimes pipeline, to distribution depots and service stations around the country.

Spillages during transportation can cause contamination of valuable groundwater or surface water resources if not properly cleaned up. To deal with this, the OIEC has bought 43 oil spill response trailers, and positioned these on the major rail and road routes in South Africa and the neighbouring states. The trailers all contain equipment and materials that can be used to clean up and contain environmental contamination.

SERVICE STATION LEAKAGES

In the past, the petrol and diesel underground storage tanks at service stations and commercial sites were made from welded steel with a coal tar coating. These tanks, and particularly the pipes, tended to rust in certain areas, which resulted in leaks and contamination of groundwater.

Tanks are now coated with at least a 2,5mm layer of glass fibre and pipes are made of a type of plastic to prevent rust and leaks. A prioritised programme for tank replacements is in progress. This is resulting in a significant reduction in the number of incidents of leaking tanks.

FUEL SPECIFICATIONS AND HEALTH EFFECTS

Effects on health, such as respiratory diseases, have been associated with vehicle exhaust fumes in some of the world's highest traffic density zones, which in turn have been linked to older vehicle technology, poor engine maintenance and certain fuel compo-

nents. Although South African vehicle density is far lower than that found in Europe and the Americas, Sapia members have made major investments in refinery processes to produce fuels that facilitate changes in engine technology and a reduction in harmful vehicle emissions.

At a cost of R270 million to the petroleum industry, unleaded petrol was introduced as early as 1996. This step not only removed a potentially harmful substance from petrol but also made it possible to introduce catalytic converters on new cars. The use of catalytic converters reduces the emission of other harmful substances in exhaust fumes by up to 95%. But this was only the start of a new multi-billion rand anti-pollution campaign.

South African oil refineries changed diesel fuel from the beginning of 2002 by reducing the level of sulphur in diesel by almost 50%. At the same time, a second grade of diesel was made available in certain locations with significantly lower levels of sulphur (500 parts per million). Sulphur in fuel has been linked to health effects through the emission of particulates (black smoke) in the exhausts.

By the beginning of 2006, it is planned that all diesel and petrol will contain less than 500ppm of sulphur and all petrol will be lead-free. This is in line with the target set at the World Summit for Sustainable Development for the phasing out of lead in petrol on a worldwide basis. It is estimated that the refining industry will need to invest some R10 billion to reach these fuel specifications. Discussions are currently underway to determine the need, or otherwise, for further changes beyond 2006.

PARAFFIN DANGERS

Most fuels are potentially harmful if they are not han-

dled properly. Paraffin is widely and often carelessly used in crowded domestic circumstances, so that mishandling is prevalent. Each year, numbers of children mistakenly drink paraffin, thinking it is water or even cool-drink. Faced with this mounting social problem, the oil companies formed the Paraffin Safety Association of Southern Africa in 1995. Some R6 million is spent each year by the Association in preventative action. This includes producing safety caps and bottles for the safe storage of paraffin in the home, and ongoing national education programmes to make users aware of the potential dangers of paraffin. A big drive is also underway to reduce the number of fires in informal settlements that are linked to paraffin use.

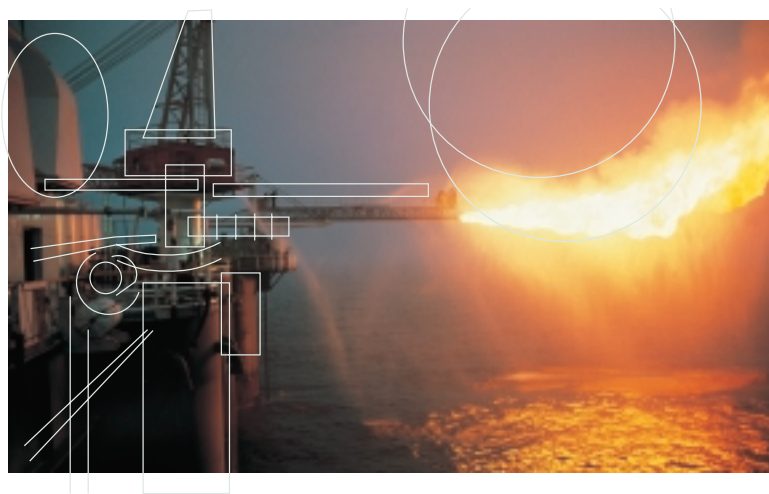
DUMPING USED OIL

Huge amounts of used lubricating oils have in the past been irresponsibly dumped by workshops and DIY mechanics, with serious environmental consequences. Lubricant companies addressed this issue by forming the ROSE Foundation which collects and recycles discarded oil.

More than 8400 used oil collection tanks have now been placed at locations around the country. The oil from these tanks is collected by specialised trucks and taken to depots from where it is dispatched to recyclers. A new depot, with a 320 000 litre capacity, has recently been opened in Port Elizabeth and will contribute to the 34 million litres of discarded oil now being collected annually. This anti-pollution programme, having cost the the industry some R117 million since 1996, has saved about 226 million litres of oil from polluting the environment.

NO COMPLACENCY

It is clear that the local petroleum Industry has made great strides in improving its environmental performance over the years. However, this should not be a reason for complacency and the challenges of continuous improvement need to be met. Issues raised at the Summit such as the greater use of renewable liquid fuels, including biodiesel and ethanol need to be rigorously addressed in an attempt to ensure the Summit slogan "Prosperity, People and Planet" remains relevant.



HOW THE INDUSTRY HELPS COMMUNITIES IN SUSTAINABLE DEVELOPMENT

The World Summit identified poverty alleviation as being a major objective in achieving sustainable development. The petroleum industry's main contribution in this regard is in creating jobs, enhancing skills, paying taxes and investing billions of rands annually. This is as it should be. But the industry also contributes strongly and directly to spurring on the efforts of local communities.

Here are some examples:

One multi-national petroleum company has helped the Flower Valley Conservation Trust to purchase 550 hectares of mostly pristine fynbos. The aim is to protect a priceless heritage – a piece of the Cape Floral Kingdom which is the most botanically rich habitat in the world – and at the same time to provide jobs. In an area of high unemployment, people are being trained to sustain the environment by using it. They harvest the fynbos flowers and market them. They engage in numbers of associated micro-industries, such as paper-making. Flower Valley is demonstrating the viability of a business model for vital resource conservation, job creation and sustainable development.

Another member has committed heavily to a poverty alleviation programme in the form of providing low cost housing for those in need. As part of the "Habitat for Humanity" project, the company has not only provided much-needed funding, but in addition, management teams from the company refinery have been involved in the actual building of the houses. In another project, the company has assisted in the building of low cost housing for some 500 people who were relocated from an unsuitable area next to a railway line in Durban.

Another community upliftment project focuses on training communities, community leaders and development workers to create and sustain food gardens in the Eastern and Western Cape. A special environmentally sustainable method of growing vegetables, involving trenching with organic materials, forms the basis of this project. The project helps communities combat poverty and malnutrition through low-cost organic gardening, as well as greening the communities and often providing a source of income.

