Cross-cutting issues

Poverty and environmental health

Prior to democratization of South Africa, the poor and most vulnerable communities were frequently located in situations which could be harmful to their health due to close proximity to industries, including chemical industries. The impact of inadequate pollution and waste management practices has thus by large been disproportionately borne by the poor, contributed to by the historic South Africa legacy of the apartheid city design. Life in close proximity to industrial and mining developments and the waste they generate can have serious implications for people’s health, including silicosis from mine dust and direct exposure to wastes that are harmful to health such as toxic and otherwise hazardous substances.

Inadequate refuse removal also detracts from the aesthetic appeal of the environment, thus impacting on peoples’ well-being and sense of place in their surroundings. Further, access to drinking water in South Africa is a concern to human health due to potential spread of disease caused by contamination of drinking water sources. The government has major initiatives underway to provide free safe drinking water to South Africa’s population by 2012.

Protecting and managing the natural resource base

Biodiversity

Biodiversity in South Africa has been negatively impacted through air, water and soil pollution including from mining and industry. Influences include acid mine drainage, siltation of rivers and water bodies. Mining has further resulted in the transformation of over 200 000 hectares of natural habitat in South Africa.

Energy and water

There has been a strong shift in focus to cleaner production and energy efficiency in South Africa and best available technology, accelerated by energy shortages. Through its Integrated Energy Plan the government promotes the diversification of energy mix and a move towards alternative energy sources such as nuclear power and natural gas, as well as various forms of renewable energy.

Looming water shortages combined with water quality issues in many of South Africa’s inland water sources has also prompted greater emphasis on production efficiency, including within the Chemical Industry Sector. A further priority in cleaner production initiatives is the management of waste, necessary since coordinated waste management is becoming an increasing necessity for the country.

South Africa is a water stressed country, and thus pollution of the limited freshwater resources is a priority concern for South Africa. The problem is compounded by activities including intensive mining which makes relatively little use of recycled water while using about 60% of the available
water in South Africa. Acid mine drainage from operational and abandoned coal and gold mines is a particular threat to surface and groundwater quality, as well as ecosystem health. Solutions to these and similar problems are a priority, given issues including the high cost of treatment of chemically polluted water, downstream impacts on marine resources as well as South Africa’s responsibilities to downstream neighbours.

Air quality and climate change

Mining and mineral beneficiation are energy demanding activities. Mineral beneficiation alone is responsible for approximately 60% of South Africa’s total industrial greenhouse gas emissions, with 97% of total fugitive methane emissions being from coal mines. With climate change at the forefront of international priorities and a shift towards low-carbon economies is taking place globally, South Africa’s dependence on coal-based power is a concern both economically and environmentally.

Cross-cutting issues and interlinkages

It was highlighted in the introductory section that social and economic development are dependent on sustainable use and protection of natural resources, and practices resulting in inefficient use of natural and manufactured resources put the attainment of sustainable development in jeopardy. This section of the report outlines the cross-cutting issues and inter-linkages of the thematic areas under review.

Socio-economic issues

Poverty and environmental health

Prior to democratization of South Africa, the poor and most vulnerable communities were frequently located in situations which could be harmful to their health due to close proximity to industries, including chemical industries. The impact of inadequate pollution and waste management practices has thus by and large been disproportionately borne by the poor, contributed to the historic South Africa legacy of the apartheid city design. Mining also historically attracted labour from far afield which resulted in the establishment of informal settlements in or adjacent to mining towns. Although mining made a contribution via the income the workers earned, the mining industry did not necessarily contribute significantly to rural development or economic benefits in the Municipal Income Grant areas. Life in close proximity to industrial and mining developments and the waste they generate can have serious implications for people’s health, including silicosis from mine dust and direct exposure to wastes that are harmful to health such as toxic and otherwise hazardous substances.

There are still major challenges to be faced in South Africa in overcoming past patterns to ensure protection of communities from pollution and exposure to harmful chemicals and pesticides. Insufficient refuse removal services in poverty stricken areas and rural
areas results in accumulation of waste, and other environmental health risks. Environmental health problems in poor communities are added to by poisonings from pesticides used to control pest infestations exacerbated by inadequate waste removal (see Section 3 which provides an outline of problems associated with pesticide poisonings). Strong policy including the Constitution and the OHS Act have put in place the framework to ensure the right of the public to an environment not harmful to health and well-being, including from industry and mining. The OHS Act also provides protection to workers in factories and mines, who are generally drawn from poor communities. Initiatives such as Responsible Care applied by the chemicals sector, and the MPRDA which sets out requirements for social and labour plans for the mining sector, go a long way to preventing environmental health risks for communities and workers. DEA is in the process of reviewing comprehensive waste policy and has reviewed air emission standards on thermal treatment facilities to ensure the protection of public health and the environment.

Section 8.1.1 above pointed to health challenges posed by overstretched waste management services. Inadequate refuse removal also detracts from the aesthetic appeal of the environment, thus impacting on peoples’ well-being and sense of place in their surroundings. Further, access to basic sanitation and drinking water in South Africa is of major concern to human health due to potential spread of disease caused by contamination of drinking water sources. The government has major initiatives underway to provide free basic sanitation and safe drinking water to South Africa’s population by 2014. However, municipalities are generally struggling to keep up with requirements. The demand for sanitation facilities dependent on water is outweighing the present infrastructural capacity, and many municipalities are faced with sewage spillages due to inadequate and insufficient wastewater treatment plants. The Department of Cooperate Governance and Traditional Affairs (COGTA) is in the process of developing socio-economic profiles of all the 283 Municipalities in the country which will give a holistic view of the full capacity, backlogs and critical areas requiring attention in each municipality. DWA has developed a compliance status report of 952 WWTP. A programme to train plant operators has been initiated

The DEA have been developing a strategy for labour-intensive solid waste collection service to assist with poverty alleviation and job creation, with recycling having been identified as an important employment-generator.

**Protection and managing the natural resource base**

**Efficient use of resources**

There has been a strong shift in focus to cleaner production and energy efficiency in South Africa and best available technology, accelerated by energy shortages. Energy efficiency is also critical since South Africa is ranked high in the world for generation of
carbon dioxide from fossil fuels per capita by country. Looming water shortages combined with water quality issues in many of South Africa’s inland water sources has also prompted greater emphasis on production efficiency, including within the Chemical Industry Sector. Furthermore, sustainable management of waste constitutes a priority for cleaner production initiatives. These areas of progress are in line with the national strategy priorities for Cleaner Production, with agencies such as the National Cleaner Production Center providing case studies to encourage best practice incorporating waste minimization, waste recycling and reuse. The chemicals industry through Responsible Care is exploring increased use of CDM to support energy efficiency investment, with six pilot projects being run through the National Cleaner Production Centre almost complete. Initiatives include innovations for energy efficiency and prevention of fugitive emissions. Three CDM projects in the chemicals industry have been registered to reduce nitrous oxide. A water conservation accord with government is being explored. For further information on Cleaner Production, see Section 7.

Water, soil and marine systems

South Africa is a water stressed country, and thus pollution of the limited freshwater resources is a priority concern for South Africa. The problem is compounded by activities including intensive mining which makes relatively little use of recycled water while using about 60% of the available water in South Africa. Acid mine drainage from operational and abandoned coal and gold mines such as in the highveld and Witwatersrand is a particular threat to surface and groundwater quality, as well as ecosystem health. Furthermore, almost 50% of South Africa's water is used for agriculture, with about 1.3-million hectares under irrigation, contributing to changes in water quality. Other influences from agriculture are from stock production and processing of products, fertilizer run- off from fields and pesticides that enter into water, air or soils. Water resources are further stressed by pollutants from dump and landfill sites, industrial effluents, domestic and commercial sewage and litter, with the leachates entering ground and surface water systems.

Solutions to these and similar problems are a priority, given issues including the high cost of treatment of chemically polluted water, downstream impacts on marine resources as well as South Africa’s responsibilities to downstream neighbours. Obligations on shared rivers are incorporated inter alia in the Protocol on Shared Watercourses in the SADC Region, concluded in 1995. The importance of understanding how pollutants interact in the environment was brought sharply into focus by events such as the recent deaths of crocodiles in the Olifants River system resulting from toxicological effects, attributed by toxicologists to result from a combination of mining pollution and pesticides. To minimize the risk of water pollution, municipal landfill sites are now constructed with measures including liners, and careful siting away from surface and groundwater sources. All the commercial hazardous waste disposal sites in South Africa are now being
controlled via permits, and a programme for the remediation of contaminated land is currently underway under the leadership of the DWA. There has been increasing collaboration in compliance and enforcement between the newly realigned DEA and DWA, especially at the provincial and local levels as well as ongoing criminal investigations.

**Air quality and climate change**

Mining and mineral beneficiation are energy demanding activities. Mineral beneficiation alone is responsible for 60% of South Africa’s total industrial greenhouse gas emissions, with 97% of total fugitive methane emissions being from coal mines. With climate change at the forefront of international priorities and a shift towards low-carbon economies taking place globally, South Africa’s dependence on coal-based power is a risk, both economically and environmentally. Most mining companies signed the Energy Efficiency Accord which is a voluntary initiative of the DMR, committing to energy savings and reduction in energy use without compromising growth. The Department of Energy is currently developing a Climate Change and Energy status quo for South Africa.

Energy supply to mines was an issue in 2008. Eskom reduced the power supply to mines to 50% for a week, which meant that many mines had to stop operations for that period due to the implications of power supply on safety of the mines. Power supply was gradually increased to 90% of the normal demand, but the power crisis had serious repercussions for an industry that is responsible for roughly 50% of South Africa’s foreign exchange earnings.

Landfill and dump sites generate greenhouse gases that contribute to global warming and climate change. These gases mainly comprise methane and carbon dioxide, with methane being a particular cause for concern due to its significant contribution to the greenhouse effect but also because of its explosive nature when mixed with oxygen at certain concentrations. Methane nevertheless can also provide a valuable source of alternative energy if the landfill is set up to collect it, and there has been some action for harnessing of energy from landfill sites. This also presents a strategic opportunity for South Africa to reduce reliance on coal resources while maximising resource use efficiency.

**Biodiversity**

Biodiversity in South Africa has been negatively impacted through air, water and soil pollution including from mining and industry. Influences include acid mine drainage, siltation of rivers and water bodies. Mining has further resulted in the transformation of over 200 000 ha of natural habitat in South Africa. SANParks is leading an initiative called the Consortium for the Restoration of the Olifants Catchment which includes representatives from DWA, DEA, universities, research organisations, independent consultants and the Water Research Commission to deal with the impact of mining and other activities on water quality. Commercially important west coast fisheries dependent
on natural fish stocks of the Benguela Current are also susceptible to disruption from off-shore mining activities including diamonds, oil and gas. The Benguela Current Commission, a trilateral agreement between South Africa, Angola and Namibia sets out to ensure the sound management of the Benguela ecosystem.

Sustainable consumption patterns

There are a number of cross-cutting issues and interlinkages that have relevance to SCP. Governance, information and financial matters are among the most important cross cutting issues as they influence initiatives aimed at SCP implementation. Given the scope of activities pertaining to SCP, it is necessary to take cognisance of linkages between resource use and patterns of production as well as societal attitudes and consumption. Consideration should also be given to the cumulative effects of unsustainable resource use. Increased urbanization is associated with greater consumption of household chemicals and industrial products, and the manufacturing and use of chemicals can contribute to climate change. One of the ways in which this can be addressed is through implementation of cleaner production guided through organisations including the ICCA through their Responsible Care programme.

At present implementation is undertaken at various levels and through various roleplayers, and agencies under the auspices of the DoT as well as other Departments. The DoT, through its Environmental Analysis unit is responsible for addressing environmental protection and has been involved in issues such as vehicle emissions, encouraging improvements in public transport, encouraging and promoting the use of pipelines for fuel transport. The DoT is in the process of establishing a Transport Committee on Environment, which will have representatives from all nine provinces as well as from the various agencies responsible for transportation implementation and will focus on improving coordination and communication with respect to environment and transport.

Conclusions

South Africa has made significant progress towards the implementation of sustainable development for all of the thematic areas under discussion at the CSD-18. This has been supported through a strong enabling framework that provides a platform for promoting sustainable development. However, significant challenges still need to be addressed to make progress. These include:

- Capacity for implementation of policy, plans and programmes through all tiers of government, to be addressed through drawing on centres of expertise and the building of public and private partnerships.
- Limited access to financial resources which restricts the implementation of strategies, as well as research and development contributing to innovation. Efficient allocation
of resources through clear definition of roles and responsibilities, as well as appropriate application of economic instruments that encourage waste avoidance and minimization and better use of raw materials can address this.

- Difficulty in ensuring inter-governmental coordination, indicating the requirement for areas of strategic intervention and action.

- The skills shortage which limits sustainable development which results in a mismatch between economic goals and human resources. This can be addressed by continued and enhanced support for skills development programmes and better accessing existing skills bases.

- Availability and reliability of indicators, information-gathering and databases, upon which to strategize and base decision-making to ensure sustainability. This points to the need for concerted effort to ensure alignment and integration of the existing initiatives.

The response to these challenges will determine the extent to which the country can substantively and conclusively shift behaviour and attitudes to more sustainable production and consumption patterns.