



Department of Environmental Affairs and Tourism

South African National Profile

2002-2005

A comprehensive assessment of the national infrastructure relating to the legal, administrative and technical aspects of chemicals management in South Africa

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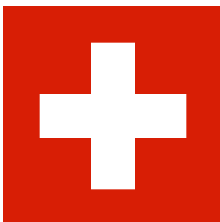
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We have endeavoured to ensure that the factual material that has been incorporated is accurate, however, would invite comment on any errors or inaccuracies.



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INTRODUCTION

BACKGROUND ON NATIONAL PROFILE

A National Profile is a comprehensive and systematic assessment of a country's existing infrastructure and capabilities that are in place for the sound management of chemicals. National Profile will highlight the national priorities, identify existing gaps and weaknesses in the chemicals infrastructure.

The development of a National profile is in pursuance of the requirements of Chapter 19 of Agenda 21. Agenda 21 is a programme of action for sustainable development. This programme of action was adopted at the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. South African Government's commitment to Agenda 21 is enshrined in the National Environmental Management Act (Act No. 107 of 1998).

The information in the National Profile will assist the Government to develop a national action plan with an integrated approach for chemicals management. Execution of this national action plan will contribute to the sound management of chemicals in South Africa.

The National Profile will achieve the following:

- Provide an understanding of chemicals produced, imported, exported, used, handled or disposed of in the country, and the population and environmental resources that are potentially affected by such chemicals.
- Give information on ongoing and planned activities at a national level (activities related to the implementation of the Agenda 21 programme).
- Document the existing national infrastructure both for general aspects of chemicals (e.g. information on existing legislation, ministerial responsibilities) and for specific aspects of chemical management such as pesticides registration, occupational health, transport of dangerous substances.
- Initiate a process by which the Gwill be able to identify gaps and weaknesses in the existing legal, institutional, administrative and technical infrastructure related to chemicals management and safety.
- Provide a basis for cost-effective allocation of resources by including information on the resources available for management of chemicals, including financial resources and human skills /capabilities, as well as an indication of resources needed for undertaking priority actions.

The process of compiling the National Profile report will involve the participation of all concerned stakeholders (national and provincial State departments, NGO, labour, business, interested and affected parties) who are directly involved with the various aspects of chemicals management and safety.

National action plans that will be developed from the National Profile will assist the Government to address the following:

- ❖ Adequate chemicals management legislation.
- ❖ Information generation, gathering, use and dissemination.
- ❖ Capacity for hazard and risk assessment, interpretation and communication.
- ❖ Establishment of risk management policy, including evaluation of safer chemical alternatives and non-chemical options.

- ❖ Effective education programmes.
- ❖ Capacity to respond to emergencies.
- ❖ Strengthening regulatory enforcement and compliance.
- ❖ Promoting pollution prevention and industry action programs.
- ❖ Promoting the safe use of pesticides and other agricultural chemicals.
- ❖ Industry action programs such as “Responsible Care”.

The national Profile is also relevant to other global projects linked to the Johannesburg Plan of Implementation (JPOI) which was adopted at the World Summit on Sustainable Development (WSSD) held in Johannesburg, in 2002. These projects include the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), projects that seek to reduce the negative effects of chemicals on humans and the environment, such as the African Stockpile Program (ASP), which seek to remove obsolete stocks of pesticides from the environment in African countries.

The National Profile will form a basis for the development of national priority actions in line with the concrete measures articulated in the Strategic Approach to Chemicals Management (SAICM).

EXECUTIVE SUMMARY

The National Chemical Profile has been compiled for South Africa. It consists of a study of all the chemicals that are used in the country, the problems associated with their use, and the organisations and the legal and management instruments in place to manage those chemicals.

The profile is broken down into twelve chapters and the summaries of those chapters are below.

Chapter 1: National Background Information

Country Location

South Africa is situated on the southernmost part of the African continent (latitude 22° to 35° S and longitude 17° to 33° E). Its surface area comprises 1 219 090 km²

The country has common boundaries with the republics of Namibia, Botswana and Zimbabwe, Mozambique, and Swaziland. Lesotho is completely enclosed by South African territory. South Africa annexed Prince Edward and the Marion islands, 1 920 km Southeast of Cape Town in the Atlantic Ocean, in 1947.

Historical base

The South African chemical industry is dominated by local companies, which grew from the industry's historical base in explosives for the mining industry, followed by the development of nitrogen-based fertilizers and sulphuric acid. The strategic decision in the 1950s to derive oil from coal on a large scale resulted in the foundation of a significant polymer industry.

Regulatory framework

The Constitution of South Africa provides the overarching legislative framework, which assigns responsibility for the three spheres of government – national, provincial and local. The complex requirements of a chemicals management system have resulted in legislation that distinguishes between three main types of chemicals – industrial and consumer chemicals, agrochemicals and pharmaceuticals – and responsibility for their management is spread over a number of Government departments.

Department of Health: Administers legislation dealing with medicines and hazardous substances. *Department of Agriculture:* Administers legislation controlling the use of pesticides as part of its resource conservation and quality control and food safety function.

Department of Environmental Affairs and Tourism: Coordinates matters relating to the management of chemicals in support of national sustainable development goals.

Department of Labour: Has the responsibility for addressing occupational health and safety issues especially at the workplace.

Department of Trade and Industry: Administers legislation to manage national, regional and foreign trade relations; promote specific industrial sectors, including the chemical industry; consumer protection, and to manage technology policies and strategy.

Department of Transport: Administers legislation on freight transport, including transportation of dangerous goods.

The fragmented nature of the regulatory framework for chemicals management poses one of the greatest challenges to safe management of chemicals.

South Africa is Party to many Multilateral Environmental Agreements (MEAs) that seek to manage chemicals safely. The other major challenge is to participate meaningfully in international programmes, initiate national implementation of the MEAs and develop effective enforcement mechanisms within the country in order to comply with the provisions of these MEAs.

Chapter 2: Chemical Production, Import, Export and Use

Although relatively small by international standards, the chemical industry is a significant part of the South African economy, contributing around 5 per cent of gross domestic product, and approximately 25% of its manufacturing sales and employing approximately 200,000 people. Annual production of primary and secondary process chemicals is of the order of 13 million tonnes with a value of around \$650 million (2002). The industry is the largest of its kind in Africa.

Chapter 3: Overview of the Issues and Concerns Related to Chemical Production, Import, Export and Use

South Africa's re-entry into the global community and its participation in the global economy since 1994 has posed a number of challenges in all areas of environmental management. The international management of chemicals is of particular interest for the Government because of the significance of the industry to the national economy. The Department of Environmental Affairs and Tourism, as the focal point for many multilateral environmental agreements, continues to participate actively in the international instruments that deal with chemicals management. Furthermore, it hosts the Basel Convention Regional Training Centre for English-speaking African Countries, which could host training programmes for the implementation of other chemicals conventions.

Areas of concern include all aspects of pesticide handling and use and disposal of pesticide containers. What is more evident is the negative impact of chemicals in public health and in the environment. Air pollution, surface and underground water contamination with effluents, and spillage of chemicals from road vehicles are a challenge in the face of adequate legislation with weak enforcement mechanisms. Other issues of concern are the illegal possession and trafficking of ozone depleting substances and hazardous wastes.

Industry is often the custodian of information on chemical risks to human health and the environment. However, there is overall lack of easily accessible, user-friendly information on chemical hazards, production, and use. Small and medium chemical industries have capacity constraints with regard to safe management of chemicals from 'cradle-to-grave'. The general lack of product stewardship is rife as these companies do not subscribe to Responsible Care Initiatives. Worker safety and awareness in relation to the risks associated with hazardous chemicals is also cited as a challenge to small and medium enterprises.

There are still significant obstacles to overcoming these challenges, most importantly co-ordination between the different groups, additional financial resources and a substantial improvement in the information and data on chemicals management.

A wide range of programmes has been initiated not only to align legislation with the new Constitution but also to participate in global activities relating to chemicals management.

Chapter 4: Legal Instruments and Non-Regulatory Mechanisms for Managing Chemicals

South African legislation pertaining to chemicals and the management thereof is fragmented resulting in difficulties for many stakeholders and interested and affected parties to ascertain which legislation is specifically relevant to their specific field of operation. This is true for governmental and non-governmental parties. Chapter 4 contains most of the legal instruments relevant to chemicals management.

There are overlaps between the Hazardous Substances Act, the Occupational Health and Safety Act (in particular the Regulations for Hazardous Chemical Substances) and the Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act particular with regards to management of hazardous substances, packaging and labelling and wear of personal protective equipment. Where there are overlaps, there needs to be a coordinating mechanism to ensure effective implementation of the regulations.

South Africa has succeeded in reviewing its outdated air pollution legislation by enacting a new Air Quality Act. However, South Africa has no soil and groundwater remediation guidelines.

South Africa has in the past ratified number of international legislative mechanisms, some of which are included in national legislation. There are however certain such mechanisms that are presently in a process of being ratified or requirements in terms of the mechanisms have not yet been incorporated into national legislation. These including e.g.:

- The ILO Conventions covering Occupational Safety and Health and the Working Environment, The Prevention of Major Industrial Accidents and Tripartite Consultation - ***In Progress***
- Although national occupational health and safety legislation is probably sufficiently covering the requirements of the country should consider to ratify ILO170, the chemicals convention of 1990 – ***Not Ratified***

Chapter 5: Government Departments and Agencies Managing Chemicals

Being a country with significant chemical trade and industry sector, it is important that the South African Government ensure that chemicals are effectively managed throughout their 'life-cycle'. To achieve this, responsibility in dealing with chemicals management needs to be adequately assigned to various government departments.

(a) Fragmented Approach

The summary of government departments' responsibilities and mandates as provided in Table 5A clearly indicates a fragmented approach. This was highlighted by Mr Mohammed Valli Moosa, Past Minister of Environmental Affairs and Tourism (see Chapter 3, Box 3.7).

(b) Overlapping Mandates

Contrary to government's basic constitutional principles, certain overlaps in mandates exist. The legislative reform programme referred to in Chapter 4 will address some of these overlaps.

Some overlaps were established through Department's different roles in protecting of people in certain exposure groups and of environmental resources. The following are examples:

Use and handling of chemicals are dealt with by the DOH primarily for the protection of the general citizens, whilst DOL, NDA and DME deal with these aspects in relevant workplaces. This causes some practical problems (eg, pesticides require registration at both the DOH and NDA).

Both DEAT and DWAF deal with waste management as provided for by the Environmental Conservation Act. However, DEAT and its provincial counterparts deal with all aspects of waste management besides for disposal of liquid and solid waste. Disposal issues like waste disposal site registration and disposal site management falls under the authoritative responsibility of DWAF due to the risks passed to the water environment. An exception of this rule is the disposal of dredged material which is dealt with by DEAT. Although there is some co-ordination concerning waste management between the two lead agents, it is clear that problems exist due to dual function (e.g. lack of planning for future needs and insufficient record keeping of waste).

There is no lead agent when dealing with chemical spills. Significant spills have to be reported to the local authority, DEAT, DWAF and in the case of a spill occurring on the public transport network also to DOT. This causes confusion and lack of 'ownership' amongst government departments. An example is, again, insufficient record keeping.

(c) Cleaner Production

As indicated in Chapter 4, there is no clearly defined government policy on cleaner products and technologies. DEAT and the provincial Environmental departments however, play an important role in ensuring that cleaner productions are introduced in new developments and facility expansions of scheduled processes through the EIA process. The EIA process includes the requirement of public participation process to be undertaken. The independent environmental consultants who conduct the public participation process are required to invite participation from all key authoritative stakeholders. In addition, DEAT consults with other government departments during the decision making process as it sees fit.

The Pollution Control of DEAT and DWAF deal with regulating air and water resource pollution. In doing so, they are authorised to issue notices and directives for cleaner production. They can also order discontinuation of discharge. There is however reportedly a lack of resources and in some areas and fields of expertise, a lack of capacity in these departments to allow for effective monitoring enforcement of permitted limits and dealing with relevant issues of concern. This has invariably led to uncontrolled pollution and contamination.

(d) Interdepartmental Co-ordination and International Linkages

DEAT, being the lead agent with the international communities on issues, guidelines and strategies regarding chemicals management aspects, has recently made some progress in ratification of international legislation and acceding to conventions. Certain co-ordinating mechanisms are in place or

being established to co-ordinate the efforts of various government departments and other stakeholders. These are dealt with in Chapters 7 and 10.

(e) Registration and Control of Chemicals

The department of Agriculture hosts the Registrar of pesticides in South Africa. However, the department of Health also registers pesticides often used for public health, for example, for lice control. There is duplication in the registration of pesticides which complicates control of these chemicals. There is insufficient consultation with the Registrar at the department of Agriculture when other departments procure pesticides through the tender process, thus complicating the import of pesticides. Furthermore, the capacity of Customs and Excise staff is not adequate to detect illegal chemical trade.

(f) Emergency Response

The legislative requirements for an emergency response plan are adequate but there is limited capacity for their implementation, monitoring and enforcement. In addition, capacity may be available in the main urban centres but outside of these areas available capacity is limited. The current legal framework (NEMA) requires that reports on the incident or accident should be sent to the Director-General at DEAT. There is, however, a need to keep a database of these incidences, share information with relevant departments and make follow up actions on remediation of contaminated areas.

Chapter 6: Relevant Activities of Industry, Public Interest Groups and the Research Sector

South Africa has a relatively large research fraternity that provides for research in numerous aspects of chemicals management. Research projects are initiated and funded by government and private organisations as well through funding from international interest groups.

A number of Research Units at Research Centres and Universities are well established and deal with topics that are relevant to chemicals management. Chapter 6 lists the different areas of research relevant to chemicals management.

South Africa has numerous universities and technikons as well as a number of higher education institutions that offer a wide range of courses, modules and qualifications relevant to chemicals management. Most of these offer a high level of education in keeping with international standards.

Industrial sectors also provide valuable in-house training to bursary holders and employees. South Africa hosts a number of well organised institutions that support, organise and structure professions like:

Industrial associations fulfil an important role in addressing the common need of various industries. South African industries is organised in a number of chambers and business organisations. These organisations play an active and important role in the South African economic, industrial and economic arena.

The South African workforce is well represented by a number of trade unions whose membership bases continue to grow. South African Unions play a key role in providing information to workers and are often involved in the education and training of workers. Acting as representatives of the workers, the unions also play an important role in presenting the case of workers to industries and the government with regards to occupational health and safety issues.

Collectively, there appear to be only a handful of local organisations dedicated to protecting the environmental and social rights of South African citizens, with particular emphasis on those from disadvantaged and impoverished backgrounds.

Consultants play an important role in terms of various aspects of managing chemicals. Specific roles are strengthened through legislative specifications to the effect that independent consultants are to be employed for certain functions, such as environmental impact assessment, determining occupational exposure risk to specified substances and conducting major hazardous installation risk assessment.

iINFOSOURCE, Chemsources maintains a database for Chemical Service Providers, who pay a fee to enlist on the database on a voluntary basis.

South Africa, has receives significant technical and financial assistance from the other countries or their agencies through bilateral agreements with those countries in many aspects of chemicals management.

Despite the numerous organisations that exist in the country that have some involvement or relevance to managing chemicals, there is a lack of co-ordinating efforts to achieve common goals. It is important that non-governmental organisations are involved in the co-ordination and assist with the strategic planning of chemicals management, information sharing and analysis.

Chapter 7: Commissions and Coordinating Mechanisms

South Africa has a number of statutory mechanisms in place which are instrumental in bringing effect to requirements of national legislation relevant for managing chemicals which invariably was introduced or adapted to give effect to the countries international agreements. As new international requirements are negotiated, the relevant organisational structures, being either a specific department or statutory body, are tasked with the responsibility of advising on the ratification and implementation of relevant mechanisms.

Of concern is that there is no overarching mechanism to manage hazardous chemical substances in the country. This leads to a fragmented approach in dealing with such substances, which in turns increases the risk of certain chemical management aspects "falling through the cracks." To be noted is that although the title for Committee for the Protection of Man Against Poisons (INDAC) suggests such an overarching mechanism, this is not the case as the mechanism specifically deals with chemical remedies applied in the Agricultural and related sector.

South Africa is currently considering the introduction of a mechanism with the responsibility to coordinate all of South Africa's responsibilities regarding chemicals management. This will consider discussions already taking place under the SAICM process.

DEAT as a focal point of most Multilateral Environmental Agreements (MEAs) will be hosting a Secretariat for the implementation of MEAs, including coordination of the Strategic Approach to International Chemicals Management (SAICM).

Chapter 8: Data Access, Database Custodianship and Use

Whilst in the process of compiling the National Chemical Profile the project team had great difficulty in obtaining the information against which the status and efficiency of chemical management of the country could be measured. In numerous occasions information was found to be not readily available, outdated, inconsistent, contained gaps and/or in an inadequate format. Often it was difficult to establish the appropriate source of information and custodianship.

It should be noted that not all the sources indicated in the tables of this chapter were confirmed and it was not established to what extent the information was indeed available and/or useful to the public. Therefore, the objective of this chapter was not achieved, namely, to analyse how this information is used for national and local chemical risk reduction due to gaps in information.

Although the availability and adequacy of information required to effectively manage chemicals has not been analysed in detail, the following observations were made following the compilation of Chapter 8:

- No tracking or audit system exists in the country where chemicals are tracked from production or import to secondary use and final disposal. This limits the effectiveness of the current controls.
- A lack of information and discrepancies in information regarding disposal of chemical wastes exist. Of particular concern, is the lack of information regarding industrial waste disposed of on site (see Chapter 2, Section 2.3.1).
- No coherent approach to the rehabilitation and registration of contaminated sites has been established. A national inventory of the location of contaminated sites has not been undertaken, however, with the African Stockpile Program and project under the Stockholm Convention, sites contaminated with pesticides will be documented in an inventory.
- Emissions inventories are presently outdated and inadequate, with limited or insufficient data currently available. Reportedly, DEAT plans to update the inventory in the near future under the new NEM: Air Quality Act, 2004 (see Chapter 2, Section 2.3.2).
- As already highlighted in Chapter 3, Section 3.4, the lack of sufficient, accessible and user-friendly information on chemical production, import, export and use is perhaps one of the most significant obstacles to establish an integrated chemical safety management system.

Chapter 9: Technical Infrastructure

In SANAS South Africa has an accreditation system that is recognised by the South African Government as the single National Accreditation Body for laboratories, certification bodies, inspection bodies and proficiency testing scheme providers and Good Laboratory Practice test facilities. Furthermore SANAS is a member of Multi-Lateral Recognition Arrangements of the international community through IAF and ILAC.

SANAS thus is instrumental in achieving a coordinated approach in managing laboratory and similar facilities in the country. Increasingly legislation and facility clients insist on the use of accredited facilities. It is encouraging that increasingly facilities apply for SANAS accreditation.

It is of concern that the information currently available on the SANAS facility database does not lend itself to detailed evaluation and assessment of whether South Africa has the capacity to analyse and test for hazardous or banned substances. It is also difficult to establish which laboratories test for specific chemicals and could provide other relevant services e.g. sample collection. No other database is known to collate South Africa's laboratory data.

Strength and weaknesses of the laboratory infrastructure for management of chemicals should be assessed once SANAS has included accreditation schedules into their database. This would allow for establishing capacity for analysis of specific substances

South Africa is self sufficient for analysis of a wide range of chemicals however relies on overseas laboratories for testing of specific chemicals such as dioxins and most POPs.

It is encouraging that most national, provincial and local government departments have access to E-mail and the Internet connected nationally and internationally and that generally governmental computer networks are compatible.

Pooling of information technology resources and expertise leads to effectively outsourcing these functions to organisational structures such GCIS and SITA. This could provide the basis for a more integrated approach and for improved access to information.

Whether the available infrastructure is sufficient to adequately cater for the needs of improved database establishment has not been established.

South Africa's many universities, technikons and other training facilities offer a host of degrees and courses relevant to chemicals management throughout the chemicals life cycle. Over the years courses were increasingly supplemented with modules on topics such as cleaner production, environmental impact assessment, occupational health science, legislation relevant to occupational and environmental health management.

Professional Institutes render support to the training centres and play an important role in ensuring a high quality in education and training. However there is a general problem of illiteracy and lack of education amongst some population groups which affects the level of training amongst workers and consumers. Although the South African Government is investing heavily in increasing the level of education in the population, especially at the workplace, it will take a number of years to achieve levels of developed countries.

Chapter 10: International Linkages

The role and responsibility of Focal points to these conventions is to coordinate multistakeholders and ensure their effective participation on relevant issues relating to those conventions. For most MEAs, a national position is developed following discussions and agreement with stakeholders. However, the limitation to participation in this process is related to financial and personnel constraints as some NGOs and government departments have to travel long distances to make input in this process. There are, however, opportunities of using other media, like e-mails.

While officials at the provincial level participate in these MEAs discussions, actual implementation at provincial level is a challenge. There is general lack of follow-through due to personnel constraints at provincial level

There is little progress in developing sub elements of programmes. This is in the area of making them self-funding, or by seeking synergy with other programmes and activities.

While most programmes seek to implement government policies and strategies, some of the donor procedures are stringent and give no room for national policy implementation (for example, procurement procedure of the World Bank does not allow implementation of BEE policy).

South Africa is in a position to welcome the donor countries, focusing largely on the alignment of the country's needs and priorities. To do this requires capacity building to reduce our technical dependence. In this way the specific projects can move towards assistance programmes, where South Africa has more control.

Opportunities

Discussions on issues on MEAs is a multi-stakeholder process that allows information sharing and consensus, therefore there is buy-in on issues discussed and this makes implementation easier;

Most donor-funded projects include capacity- building activities and communication and awareness raising, therefore making safe management of chemicals easier. There is scope to increase the coordination and communication between Government Departments. A strategy to implement MEAs in a cluster is being developed and synergies among MEAs have been documented for further action.

Chapter 11: Awareness / Understanding of Workers and the Public

Although worker and community awareness and understanding of matters related to chemicals is promoted through a number of legislative and voluntary mechanism, the effectiveness of these initiatives in reaching the majority of civil society still remains a concern. In Chapter 11, several issues have been identified. These include the lack of knowledge of chemicals management amongst employers in particular of smaller industries and operation like small production facilities and dry cleaners. This occurs mainly due to low literacy levels and lack of understanding of the MSDS contents. MSDSs are designed for skilled and semi-skilled people in industry and are not user-friendly for the general public.

Although education and training programmes have been developed (e.g. at the workplace), these are not extended to communities using the chemical products. Educational programmes for workers are considered to be organised training for workers aimed at compliance by industry rather than awareness of chemical risk. Emergency response plans do not always include clearly defined strategy for dealing with the public in the events of emergencies.

Chapter 12: Chemical Management Resources

An analysis of the different governmental institutions and departments shows that the legal framework (Acts and Statutory Instruments) necessary for the effective management of chemicals has been adequately developed. However, there is minimal enforcement resulting from inadequate human and financial resources. Further, there currently, are no formalised structures for national co-ordination of chemical production, import, export and

use. Various governmental departments and institutions administer the different aspects of chemicals management and there is no overarching agency to oversee the industry.

Chapter 12 gives the assessment of chemical management resources and cite the fact that there is currently no systematic tracking or audit system for chemicals produced, used, imported or exported, while inadequate capacity in Customs and Excise to detect illegal chemical trade further limits the effectiveness of current controls.

The process of banning and de-registration of banned chemicals (e.g. certain pesticides) is slow and inadequate because information on poisonings and related incidences are not in an easily accessible database to facilitate discussion and make a decision to ban. There are currently only two poison centres in South Africa, and these are inadequate for diagnosis and treatment of all chemical poisoning. In addition an emergency reference centre is also required.

Whilst the legislative requirements for an emergency response plan are adequate, there is however, limited capacity for implementation, monitoring and enforcement, particularly in the peri-urban areas.

Air pollution monitoring and enforcement is limited at a local government level. Only 131 of the 284 municipalities carry out any form of air monitoring, of these 131 only 97 have taken steps to ensure compliance.

It is, therefore, evident that the greatest threat to effective management of chemicals in South Africa is the lack co-ordination, funds and resources. It is thus important for South Africa to invest in setting up a national co-ordination structure and make available adequate funds and resources for enforcement of legislation pertaining to chemicals management throughout the chemical's life cycle.

Follow up actions:

Follow up actions would include the development of the National Profile for South Africa will assist the country in developing its national strategy for sound management of chemicals thus enabling it to reduce the adverse effects to health and the environment. Activities performed in South Africa will include a comprehensive assessment of the national infrastructure relating to the legal, administrative and technical aspects of chemical management (already covered in the national profile) and a priority setting exercise to address gaps and overlaps, recognizing synergies and strengthening those systems that are already in place; and the identification of suitable management options for chemicals.

South Africa will also prepare elements of a prioritized and action plan for management and remediation actions.

CHAPTER 1

NATIONAL BACKGROUND INFORMATION

This Chapter provides general background information about the Republic of South Africa as a broad context in which the National Chemicals Profile is manifested.

CHAPTER 1

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1 NATIONAL BACKGROUND INFORMATION

1.1 Introduction to South Africa

1.1.1 Position

South Africa is situated on the southernmost part of the African continent (latitude 22° to 35° S and longitude 17° to 33° E). Its surface area comprises 1 219 090 km²

The country has common boundaries with the republics of Namibia, Botswana and Zimbabwe, Mozambique, and Swaziland. Lesotho is completely enclosed by South African territory. South Africa annexed Prince Edward and the Marion islands, 1 920 km Southeast of Cape Town in the Atlantic Ocean, in 1947.



Table 1.1 Area of each province in square kilometres

Source : Department of Land Affairs

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
Square km	169 580	129 480	17 010	92 100	123 910	79 490	361 830	116 320	129 370	1 219 090

1.1.2 Languages

South Africa is a multi-cultural nation speaking many languages of which 11 have been constituted as official languages: Afrikaans, English, Ndebele, North Sotho, South Sotho, Swati,

Tsonga, Tswana, Venda, Xhosa and Zulu. However, most do speak English to a greater or lesser degree.

Table 1.2 Home Language Within Provinces (percentages) Population of 44 819 778.

Home language	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
Afrikaans	9,3	11,9	14,4	1,5	2,3	6,2	68,0	7,5	55,3	13,3
English	3,6	1,2	12,5	13,6	0,5	1,7	2,5	1,2	19,3	8,2
IsiNdebele	0,1	0,4	1,9	0,2	1,5	12,1	0,1	1,3	0,0	1,6
IsiXhosa	83,4	9,1	7,6	2,3	0,3	1,5	6,2	5,8	23,7	17,6
IsiZulu	0,8	5,1	21,5	80,9	0,7	26,4	0,3	2,5	0,2	23,8
Sepedi	0,0	0,3	10,7	0,1	52,1	10,8	0,1	4,2	0,0	9,4
Sesotho	2,4	64,4	13,1	0,7	1,3	3,7	1,1	5,7	0,7	7,9
Setswana	0,0	6,8	8,4	0,1	1,6	2,7	20,8	65,4	0,1	8,2
SiSwati	0,1	0,3	1,4	0,1	1,1	30,8	0,1	0,6	0,0	2,7
Tshivenda	0,0	0,1	1,7	0,0	15,9	0,2	0,0	0,5	0,0	2,3
Xitsonga	0,0	0,3	5,7	0,0	22,4	3,8	0,0	4,7	0,0	4,4
Other	0,2	0,2	1,0	0,4	0,3	0,3	0,7	0,6	0,4	0,5
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Note: This table shows the breakdown of the population of each province by home language. The percentages total 100% down the columns, for each province separately.

1.1.3 The Population

Table 1.3 Population by province and gender

Sex	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
Male	2 975 512	1 297 605	4 444 679	4 409 091	2 394 785	1 497 333	401 168	1 821 547	2 192 321	21 434 040
Female	3 461 251	1 409 170	4 392 499	5 016 925	2 878 857	1 625 658	421 559	1 847 803	2 332 014	23 385 737
Total	6 436 763	2 706 775	8 837 178	9 426 017	5 273 642	3 122 990	822 727	3 669 349	4 524 335	44 819 778

The South African population is made up of the following groups:

the Nguni people (including the Zulu, Xhosa and Swazi), who account for two-thirds of the population.

The remainder of the population is made up of Sotho-Tswana people, who include the Southern, Northern and Western Sotho (Tswana), the Tsonga, the Venda, Afrikaners, English, Coloureds, Indians

For more information on South Africa refer to the following:

- <http://satourweb.satour>
- <http://www.odci.gov/cia/publications/factbook/geos/sf/html>
- Institute of Natural Resources, 'Estuaries Management Handbook', <http://www.inr.unp.ac.za/emb/index.html>

1.1.4 Education

South Africa still has serious problems with illiteracy and general education of its population. 14 million thousand out of the 25 million of its population, that are greater than twenty years old, have only received part secondary education or less. (75%) 3 million of the population are illiterate.

The chemical industry with its wide variety of hazards and corresponding data sheets, regulations and procedures needs to have its employees with at least the secondary education to understand these hazards of its operation.

The chemical industry would also prefer to have the general public with secondary education to understand the hazards of the factory in the event of an emergency that could have an impact on the community at large.

Such education is also necessary for employees such as agricultural workers handling such chemicals as pesticides which are invariably toxic, and most importantly for the proper disposal of the containers.

1.1.5 Background History

The history of South Africa is in large one of increasing racial divisiveness; today it can also be seen as the story of - eventually - a journey through massive obstacles towards the creation, from tremendous diversity, of a single nation, whose dream of unity and common purpose is now capable of realization. For more go to the following reference:

http://www.southafrica.info/ess_info/sa_glance/history/history.htm

1.1.6 History of South African Chemical Industry

During its 100 years of existence, the development of the chemical industry has been dominated by three factors: the demand for explosives by the mining industry, the abundance of relatively cheap coal, and the political and regulatory environment in which it operated between 1948 and 1994.

South Africa has no proven oil reserves, until recently little natural gas but abundant coal resources. The gasification of coal became a major factor in the development of the industry.

For a developing country, South Africa has an unusually large chemical industry and it is of substantial economic significance. See Economics paragraph for contribution to the GDP.

The chemical industry in South Africa came into being in 1896. The discovery of diamonds near Kimberley in 1868, gold on the Witwatersrand in 1886, and coalfields around Witbank and Vryheid, led to a burgeoning mining industry and a rapidly growing demand for explosives.

In this report the development of the chemical industry is discussed around three major companies, AECl, SASOL and Sentrachem.

African Explosives and Chemical Industries (AECl)

With the growth of mining, increasingly large quantities of explosives were imported into South Africa in the early 1890s.

In 1896, "The Dynamite Company", was opened at Modderfontein, east of Johannesburg manufacturing nitro glycerine based explosives.

In 1903 the Cape Explosives Works, at Somerset West near Cape Town, started producing dynamite, principally for the De Beers diamond mines around Kimberley.

In 1909 a third dynamite factory was built at Umbogintwini, south of Durban,

In the 1920's Somerset West and Umbogintwini diversified into fertilizer manufacture.

In 1923 Modderfontein company, Kynoch's at Umbogintwini and the Cape Explosives Works, at Somerset West merged forming African Explosives and Industries.

In 1926 ICI was formed in the UK, and established a partnership African Explosives and Industries which lasted until 1998.

In 1932 a synthetic ammonia plant went into full production at Modderfontein with an associated nitric acid plant for ammonium nitrate, an economic substitute for nitro-glycerine.

Diversification from explosives followed into Fertilizers, paints, veterinary preparations, calcium cyanide and the name of the company was changed to African Explosives and Chemical Industries in 1944.

A second ammonia plant and a urea plant were commissioned at Modderfontein.

In 1955 Umbogintwini started the production of polyvinyl chloride (PVC), the first commodity plastic to be made in South Africa. The associated chlor-alkali plant also marketed chlorine and caustic.

Methanol, formaldehyde and urea-formaldehyde resins were produced at Modderfontein.

In 1963 interests in SA Titan Products (now Huntsman-Tioxide SA) and SA Nylon Spinners were acquired.

In 1964 the Midland Factory at Sasolburg producing initially calcium cyanide and then polyethylene PVC, CFCs and chlorinated solvents

In 1974, a 300 000 ton per annum coal-based ammonia plant was commissioned at Modderfontein.

In 1978 the Coalplex project was built at Sasolburg to manufacture PVC. A joint venture with Sentrachem, Coalplex consisted of five linked plants: carbide, acetylene, chlorine, VCM and PVC. Coalplex also produced caustic soda and lime hydrate.

During the early 1980s AECI Acquisition of Chemical Services, expanding and diversifying its product range into speciality chemicals.

In 1991 a soda ash plant was commissioned in Botswana.

In 1993 AECI Bioproducts and AECI Aroma and Fine Chemicals was announced with plants at Umbogintwini and Richards Bay.

In 1993 AECI and SASOL formed a joint industry called Polyfin producing monomers, polymers, chlor-alkali products, cyanide and peroxides. SASOL took full control of Polyfin in 1999.

SASOL

In 1950, the Government sponsored South African Coal, Oil and Gas Corporation Ltd., called SASOL. Sasol started producing oil from coal in 1955

Feedstock for the manufacture of synthetic rubber, fertilizers and secondary chemicals followed.

In 1960 together with Total SA and the National Iranian Oil Company, a refinery (NATREF) was established in Sasolburg. Naphtha was cracked to produce ethylene for plastics, and pipeline gas was supplied in increasing quantities to industry.

In 1982 following the first oil crisis, SASOL then established the second oil-from-coal plant at the end of 1980 at Secunda a site about 100 km east of Sasolburg and later Sasol 3.

Today the SASOL 1 plant no longer produces fuels but instead a wide range of chemicals including high purity ethanol, n-butanol and ethyl acetate.

Sentrachem/Dow Chemical Company

National Chemical Products (NCP) was the founding manufacturing company of Sentrachem.

In 1940, a synthetic acetone/butyl alcohol plant was built to for a war-related effort. The plant design and process were provided by the UK-based Distillers Company.

In 1944 NCP acquired Umgeni Distilleries in Durban which led to the manufacture of better grades of alcohol.

In 1950s NCP acquired Poly-Resin Products (East London - 1956) and two yeast companies, Natal Organic Industries (Durban - 1959) and Free State Yeast (Welkom - 1959). Meanwhile the Germiston factory produced by 1960, alcohols, ketones, acids, esters, CO₂ gas, mining froth-flotation reagents, phthalate plasticisers, synthetic resins, and animal feed supplements.

In 1959 NCP formed a joint venture Kolchem with SASOL, to manufacture diacetone alcohol, hexylene glycol, pentaerythritol and detergent alkylate. Kolchem joined with Shell Chemical to form Styrochem, for the manufacture of polystyrene.

During World War II, Klipfontein Organic Products (KOP a chlor-alkali facility at Chloorkop, was built between Johannesburg and Pretoria to produce phosgene and mustard gas although they were never used. After the war production was focused on DDT and other insecticides.

In 1965 KOP was taken over by a consortium of companies led by the Industrial Development Corporation (IDC) and FVB.

In 1960 the IDC promoted the Synthetic Rubber Development Company and in 1964 the Synthetic Rubber Company (SRC) was established for the manufacture of a range of styrene-butadiene rubbers.

In 1967 Sentrachem was formed consisting of four constituents, namely, NCP, Kolchem, KOP and SRC. It produced alcohol, as a fuel additive, and methylated and rectified spirits, absolute alcohol, vinegar and dry ice.

In 1992 a joint venture with Uniroyal called Karbochem was formed to produce rubber chemicals water-based lubricants; and carbide, acetylene and carbon black.

In 1969 Safripol, a joint project with Hoechst SA was formed to produce high-density polyethylene and polypropylene.

In 1974, a joint venture with the Olin Corporation, ultimately formed Agrihold, which produced chlorine-based water sanitizers, crop protection products, animal feeds and a range of veterinary products.

In 1997, the Dow Chemical Company successfully acquired control of Sentrachem, and is currently developing plans to establish a regional hub in Johannesburg for its African and Middle East interests.

Other Companies

A large number of smaller companies are involved with manufacturing a wide range of specialities and in formulating and converting. Many multi-national companies operate in South Africa as manufacturers and/or distributors. Amongst these companies are Hoechst, Bayer, BASF, Shell, Unilever, Ciba Speciality Chemicals, du Pont, ICI, CH Chemicals, Cookson, Union Carbide, Monsanto and Rohm and Haas.

The Chemical and Allied Industries' Association (CAIA), which grew out of the 50 year old Transvaal Chemical Manufacturers' Association, was founded in 1994.

Conclusion

Now that South Africa is once again part of the international community, the chemical industry is focusing on the need to be internationally competitive and the industry is reshaping itself accordingly. Exports have increased annually for the past few years, and in 1996 the industry became a nett exporter of products. Rationalisation in some sectors of the industry has been drastic and the process is not yet complete. The industries however envisage emerging leaner and more competitive.

1.2 Political/Geographical Structure

1.2.1 The Political Structure

Government

Government is constituted as national, provincial and local spheres, which are distinctive, interdependent and interrelated. The powers of the law-makers (legislative authorities), governments (executive authorities) and courts (judicial authorities) are separate from one another.

Parliament

Parliament is the legislative authority of South Africa and has the power to make laws for the country in accordance with the Constitution. It consists of the National Assembly and the National Council of Provinces (NCOP).

The National Assembly consists of no fewer than 350 and no more than 400 members elected through a system of proportional representation. The African National Congress (ANC) has been the ruling party since the first democratic election held in 1994. In the last National Election held in 1999, the African National Congress (ANC) gained 266 (66.5%) of the 400 seats in the National Assembly.

The NCOP consists of 54 permanent members and 36 special delegates, and aims to represent provincial interests in the national sphere of government. Delegations from each province consist of 10 representatives.

The NCOP gets a mandate from the provinces before it can make certain decisions. It cannot, however, initiate a Bill concerning money, which is the prerogative of the Minister of Finance.

Any Bill may be introduced in the National Assembly. A Bill passed by the National Assembly must be referred to the NCOP for consideration.

The President

The President is the Head of State and leads the Cabinet. He or she is elected by the National Assembly from among its members, and leads the country in the interest of national unity, in accordance with the Constitution and the law. The President heads Cabinet which consists, the Deputy President and Ministers.

Provincial Government

In accordance with the Constitution, each of the nine provinces has its own legislature consisting of between 30 and 80 members which are elected in terms of proportional representation and led by an elected Premier.

Besides being able to make provincial laws, a provincial legislature may also adopt a constitution for its province.

Local Government - Municipalities

The recognition of local government in the Constitution as a sphere of government has enhanced the status of local government as a whole and of municipalities in particular, and has given them a new dynamic role as instruments of delivery. The relationship between the three spheres of government is outlined in Chapter Three of the Constitution, which, among other things, requires Parliament to establish structures and institutions to promote and facilitate intergovernmental relations and cooperative governance.

The Constitution

The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996), was approved by the Constitutional Court (CC) on 4 December 1996 and took effect on 4 February 1997. The Constitution is the supreme law of the land. No other law or government action can supersede the provisions of the Constitution. South Africa's Constitution is one of the most progressive in the world, and enjoys high acclaim internationally.

1.2.2 Geographical Structure

South Africa is divided into nine provinces (see map on page 1-2). These provinces have been newly instituted after the change of government in 1994.

1.3 The Economic Context

South Africa is a middle-income, developing country with an abundant supply of abundant mineral and energy resources, well-developed financial, legal, communications, energy, and transport sectors, a large and effective stock exchange, and a modern infrastructure supporting an efficient distribution of goods to major urban centres throughout the region. However, growth has not been strong enough to cut into the 30% unemployment rate. Other problems that the country is grappling with are crime, corruption and HIV/AIDS.

The new government demonstrated its commitment to open markets, privatisation, and investment with the release in 1996 of its macroeconomic strategy called "Growth, Employment and Redistribution," (GEAR). The supporting economic infrastructure consists of the major economic centres, well organised metropolitan cities, modern highways that connect the main centres, international airport, harbour, airports etc.

1.3.1 Industrial Sectors

South African industrial sector contributes about 30 % to the GDP with a labour force of about 25%.

Mining

South Africa has a wealth of natural resources which include gold, chromium, antimony, coal, iron ore, manganese, nickel, phosphates, tin, uranium, gem diamonds, platinum, copper, vanadium, salt, natural gas. Asbestos mines closed in 2000 due to the negative effects on workers. Mining contributes to about 25% to the GDP of the country.

South Africa's 'heavyweight' mineral exports, 2002*

Commodity	Export mass in kt
Aluminium	522
Alumino-silicates	90
Chrome ore	651
Chrome alloys	2 189
Coal	69 200
Dimension stone	677
Fluorspar	197
Iron ore	24 304
Manganese ore	1 539
Manganese products	690
Phosphate rock	197
Silicon products	103
Titanium products	270
Vermiculite	170
Zirconium products	486

*Preliminary data

Source: Minerals Bureau

South Africa's mineral reserves, 2002

Commodity	Unit	Reserves	%	World ranking
Alumino-silicates	Mt	51	37,4	1
Antimony	kt	250	6,4	4
Asbestos	Mt	Moderate		
Chrome ore	Mt	5 500	77,5	1
Coal	Mt	55 333	10,7	5
Copper	Mt	13	2	13
Diamonds*	kcar			
Fluorspar	Mt	80	18,2	3
Gold	t	36 000	40,4	1
Iron ore	Mt	2 300	3,4	10
Lead	Mt	3,0	2,1	7
Manganese ore	Mt	4 000	80	1
Phosphate rock	Mt	2 500	5,3	4
Platinum-group metals	t	70 000	70,0	1
Silver	kt	10	*	
Titanium minerals	Mt	220	30	2
Uranium	kt	284	9,1	4
Vanadium	kt	12 000	31,6	2
Vermiculite	Mt	80	40	2
Zinc	Mt	15	3,5	5
Zirconium minerals	Mt	14	19,4	2

Mt = megaton, kt = kiloton, t = ton, car = carats
* Confidential information, kcar = kilocarats

Source: Minerals Bureau

Table 1.4 South Africa Mineral Exports.

Table 1.5 South Africa Mineral Reserves.

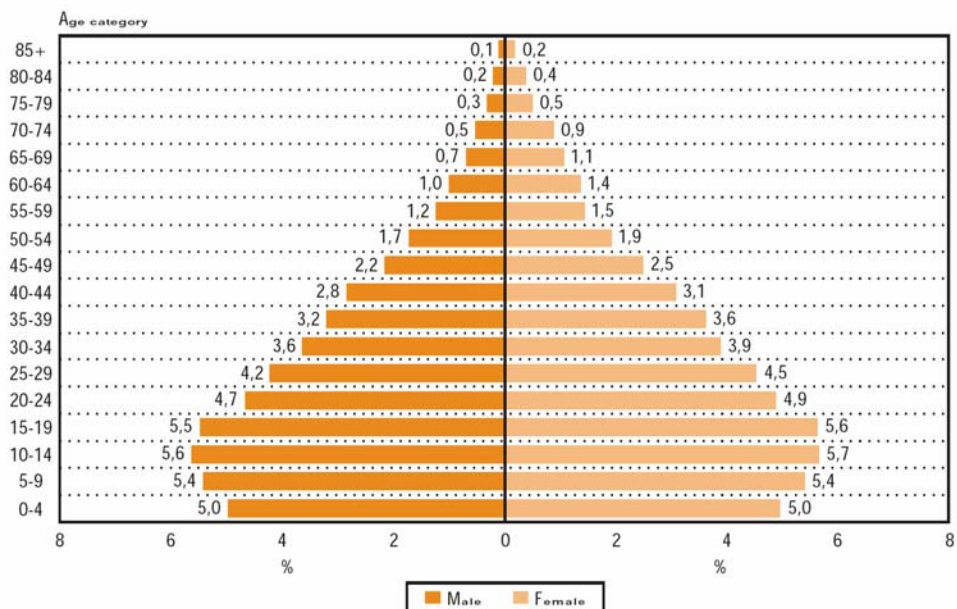


Table 1.6 Distribution of the Total Population by Age Group and Gender.

Table 1.7 Population of Working Age (15-65) by Province and Labour Market Status

Labour market status	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
LFS, September 2001										
Employed	31,4	42,9	50,4	35,2	27,4	38,6	40,8	36,0	53,6	39,6
Unemployed*	14,8	17,6	19,9	17,7	15,5	16,5	14,4	15,3	12,1	16,5
Not economically active	53,8	39,5	29,7	47,1	57,1	45,0	44,7	48,7	34,3	43,9
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
CENSUS 2001										
Employed	20,4	33,7	45,0	27,8	22,7	33,0	39,4	31,8	48,5	33,7
Unemployed*	24,6	25,5	25,8	21,6	21,6	23,0	19,7	24,8	17,1	24,0
Not economically active	55,0	40,8	29,2	45,7	55,7	43,9	40,9	43,4	34,4	42,3
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

* Official or strict definition

Sources: Labour Force Survey, September 2001 and Census 2001

The LFS figures are the official labour market figures – please refer to the labour market data section in the introduction.

Note: In this table, the percentage unemployed is not the unemployment rate. It is the percentage unemployed of the entire working age population.

See Figures 21 and 22 for the unemployment rates.

Industries

Beside the mining industry, automobile assembly, metalworking, machinery, textile, iron and steel, chemicals, fertiliser and foodstuff are included in the list of South African key industries.

South Africa's chemical industry is of substantial economic significance to the country, contributing around 5% to GDP and approximately 25% of its manufacturing sales. The industry is the largest of its kind in Africa. It is highly complex and widely diversified, with end products often being composed of a number of chemicals which have been combined in some way to provide the required properties and characteristics. It can be divided into four broad categories:

Base chemicals

Intermediate chemicals

Chemical end-products

Speciality end-products

Chemicals

Although relatively small by international standards, the chemical industry is a significant player in the South African economy, contributing about 5% to GDP and providing employment to about 200 000 people. See GDP Table below.

The industry produces 1 301 t of primary and secondary process chemicals annually, making it the largest of its kind in Africa. Several steps have been taken to align current legislation with the Constitution, 1996 (Act 108 of 1996), and with global chemicals management:

- A special unit has been set up in the Department of Environmental Affairs and Tourism to implement a system aimed at preventing major industrial accidents, as well as systems for emergency preparedness and response in consultation with the Department of Provincial and Local Government.
- The Minister has initiated an integrated safety, health and environment approach for the management of chemicals in South Africa in line with the Strategic Approach to International Chemicals Management (SAICM).

The Department of Environment and Tourism embarked on a process to develop the South African National Chemicals Profile (this document). The Profile is intended to contribute to a better understanding of the problems relating to the management and impact of chemicals. It will also help to identify important gaps and weaknesses in the existing chemicals management system, as a first step in defining whether further efforts may be required. The development of the Profile was motivated by the recommendations of the International Programme on Chemical Safety (IPCS), as a follow-up to the Rio Declaration on Environment and Development in 1992. South Africa has signed the Stockholm Convention on Persistent Organic Pollutants and the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Table 1 .8- Quarterly gross domestic product by industry at constant 1995 prices (R million)
StatsSA P0441

Industry	Year	
	2002	2003
Agriculture, forestry and fishing	26212	24656
Mining and quarrying	33356	34201
Manufacturing	123873	122579
Electricity and water	21526	22023
Construction	18435	19345
Wholesale and retail trade; hotels and restaurants	82407	84784
Transport and communication	71472	75871
Finance, realestate and business services	118200	121642
Community, social and personal services	16284	17027
General government services	81194	81737
Other producers	15668	15926
Total value added at basic prices	608627	619791
GDP at market prices	664075	676384

Food Industry

The food industry in South Africa is partly a reflection of the country's major agricultural activities and partly a reflection of the existence of a sophisticated small market capitalisation of 24 food manufacturing companies quoted on the Johannesburg Stock Exchange being of the order of R30 billion as at mid-2000.

Reference: <http://www.mbendi.co.za>

1.3.2 Agricultural Sectors

Until fairly recently, agriculture was a highly regulated industry with large subsidies available to farmers. Almost all commercial farmers were white. All this has now fallen away and marketing of agricultural produce is deregulated and prices are market driven. Provincial governments have begun implementing training and support programmes for emerging farmers.

The agriculture industry is strong; as a result, the country is self sufficient in almost all main agricultural crops and is usually a net exporter of food. The industry entered a slump in 1998 with tractor sales down 30% from the previous year. Wheat production for 98/99 was also down around one third from the 97/98 season.

Reference: <http://www.mbendi.co.za>

Exports						
	1998	1999	2000	2001	2002	Average: five years
Total South African products ('000 000)	147 547	165 143	210 022	245 448	308 054	215 243
Total agricultural products ('000 000)	13 699	14 774	15 820	20 075	25 460	17 966
Agriculture as % of total exports	9,3	8,9	7,5	8,2	8,3	8,3

Source: Directorate: Agricultural Statistics, Department of Agriculture

Table 1.9 Exports

Gross value of agricultural production, 2002 ('000 t)	
Field crops	
Maize	13 906
Wheat	4 213
Hay	1 778
Grain sorghum	382
Sugar cane	3 284
Ground-nuts	322
Tobacco	529
Sunflower seed	2 160
Cotton	155
Other	1237
Total	27 966
Horticulture	
Viticulture	2 088
Citrus	2 915
Subtropical fruit	941
Deciduous and other fruit	4 396
Vegetables	3 522
Potatoes	2 438
Other	1 124
Total	17 424
Animal products	
Wool	1 269
Poultry and poultry products	10 767
Cattle and cattle slaughtered	5 289
Sheep and goats slaughtered	1 413
Pigs slaughtered	1 090
Fresh milk	2 794
Milk for dairy products	1 391
Other	1 558
Total	25 571
Grand total	70 961

Preliminary Source: Agricultural Statistics, Department of Agriculture

70

Table 1.10 Gross Value of Agricultural Production

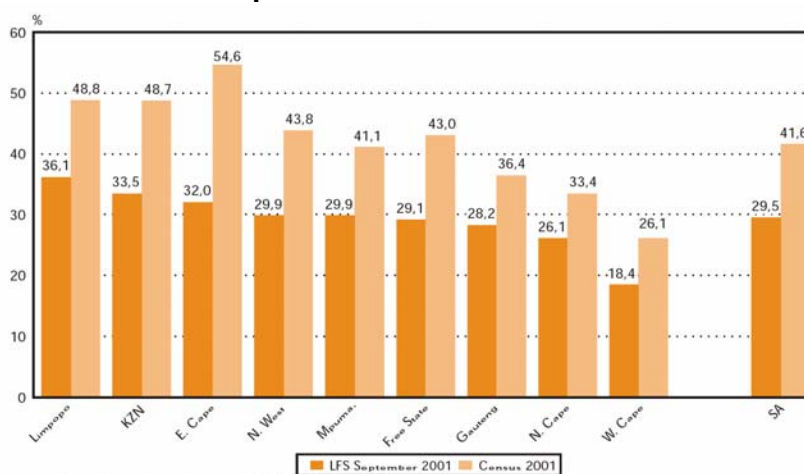
Table 1.11 Industrial Employment by Major Economic Sector

ISIC Code ¹	Description	Total Employment (Census 96)
A. 01 & 02 & B. 05	Agriculture, hunting, forestry and fishing	814 350
C.10 - 14	Mining and quarrying	541 546
D. 15 – 37	Manufacturing	1 119 973
E. 40 & 41	Electricity, gas and water supply	109 334
E. 45	Construction	555 129
F. 50 -52	Wholesale and retail trade	1 098 051
I. 60 - 64	Transport, storage and communication	483 652
J. 65 -67 K. 70 -74	Financial insurance, real estate and business services	680 156
O. 90 – 93	Community social and personal services	1 580 684
P. 95	Private households	1 053 103
	Unspecified	1 077 868
Unemployed		4 671 647

¹ ISIC : International Standard Industrial Classification of all Economic Activities, OECD. (Rev 3)

The purpose of Table 1.E is to identify the relative importance of different industries that may have implications for the safe management of chemicals.

Table 1.12 Unemployment rate among those aged 15-65 in each province – labour force survey and census data compared



Sources: Labour Force Survey, September 2001 and Census 2001
 The LFS figures are the official labour market figures – please refer to the labour market data section in the introduction.
 According to the LFS, the unemployment rate was 29,5% for the country as a whole in September 2001. These calculations do not include the not economically active, hence the larger proportions of unemployed than shown in Figure 20.

1.4 Additional South African Information – Internet Site

The South African government has made a web site available on the internet, which is open to the public. The web page provides links to various topics relevant to the country.

The web address is:

http://www.gov.za/sa_overview/sa_webs.htm

Topics on the page are divided into the following categories:

Advertising and Marketing

Arts and Culture

Business/Finance/Economy

Constitutional and Legal Affairs

Development

Education and Training

Environment Sport

Government and Politics

Health

Housing

Human and Social Issues

Labour

Library & Information Services/Issues

News and Media

Mining and Minerals

Research, Science & Technology

Transport

Travel and Tourism

Census

StatsSA

Much of the Information for this chapter was SA Year Book obtained from the Government Communication and Information System (GCIS) website.

<http://www.gcis.gov.za/docs/publications/yearbook.htm>

The 2001 Census obtainable from the StatsSA website

<http://www.statssa.gov.za>

The NCOP website, (<http://www.parliament.gov.za/ncop>), links Parliament to the provincial legislatures and local government associations.

CHAPTER 2

CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

This Chapter provides information on the production, import, export, use and waste disposal of chemicals.

CHAPTER 2

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2 CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

2.1 Chemical Production, Import and Export

2.1.1 Overview on the Chemical Industry

The chemicals industry in South Africa has a long history, having been founded in the latter part of the nineteenth century as a result of the demand for explosives and chemicals to support the mining industry. The country has no significant upstream oil reserves and until recently little natural gas, the chemical industry has primarily developed around the gasification of coal. (See a more detailed summary of the history of South African Chemical Industry in Chapter 1)

The establishment of a petrochemicals industry can be traced back to the 1950's when the first oil from coal plant was built at Sasolburg. It was, however, only in the sixties and seventies when the possibility of a chemicals industry based on local raw materials rather than imported feedstocks became possible. This followed the establishment of two large synthetic oil-from-coal plants by Sasol at Secunda during the early 1980's to provide strategic self-sufficiency in fuels. The synfuel sector, while serving the South African oil industry as a source of fuels, is now also the major source of chemical feedstocks and intermediates in South Africa.

The chemical industry has been shaped by the political and regulatory environment, which created a philosophy of isolationism and protectionism during the apartheid years. This tended to foster an inward approach and a focus on import replacement in the local market. It also encouraged the building of small-scale plants with capacities geared to local demand, which tended to be uneconomic. Through isolation of the industry from international competition and high raw material prices as a result of import tariffs, locally processed goods have generally been less than competitive in export markets. Now that South Africa is once more fully part of the global community, South African chemical companies are focusing on the need to be internationally competitive and the industry is reshaping itself accordingly.

Another consequence of the focus on import replacement has been the building of chemical plants at inland locations close to the coal-based synthetic fuels plants, which provide feedstock. This strategy was attractive at the time due to the additional benefit of being sited close to the heavily populated Gauteng area, which is the largest domestic market. These plants are generally smaller than world scale and their cost structures are not highly competitive in export markets, partly because of the high transport costs to coastal ports. They are nevertheless, well placed for exports to neighbouring African countries such as Zimbabwe, Namibia and Botswana.

There is evidence that there is currently a concerted effort to make the chemical industry more competitive amongst the South African Department of Trade and Industry as well as other stakeholders targeting certain market niches.

Since the mid 1980s South Africa's leading chemicals manufacturers have been involved in developing and marketing higher-value chemicals for a range of markets. Companies have moved into a number of new chemical and related fields, including acrylonitrile and acrylic fibres, polypropylene, higher-value phenolics alpha olefins, alkylamines, as well as higher-value ketones, krypton gas and many others. These developments have resulted in the synfuels production and bulk ammonia production facilities being discontinued in favour of the more lucrative production of higher-value chemicals.

Industry Structure

South Africa's chemical industry is of substantial economic significance to the country, contributing around 5% to GDP and approximately 25% of its manufacturing sales. The industry is the largest of its kind in Africa. It is highly complex and widely diversified, with end products often being composed of a number of chemicals which have been combined in some way to provide the required properties and characteristics. It can be divided into three broad categories:

- Base chemicals – feedstocks and commodity chemicals (Primary products)
- Intermediate chemicals (Secondary products)
- Chemical end-products and Speciality end-products (Tertiary products)

Base Chemicals

Base chemicals including the petrochemical building blocks, ethylene, propylene, butadiene, benzene, toluene, xylenes, and methanol, which are all important chemical building blocks sourced from the petrochemical industry. Inorganic chemicals such as ammonia, caustic soda, sulphuric acid, chlorine, sulphur, soda ash, bromine, fluorine and phosphorus, to name but a few, are also base chemicals.

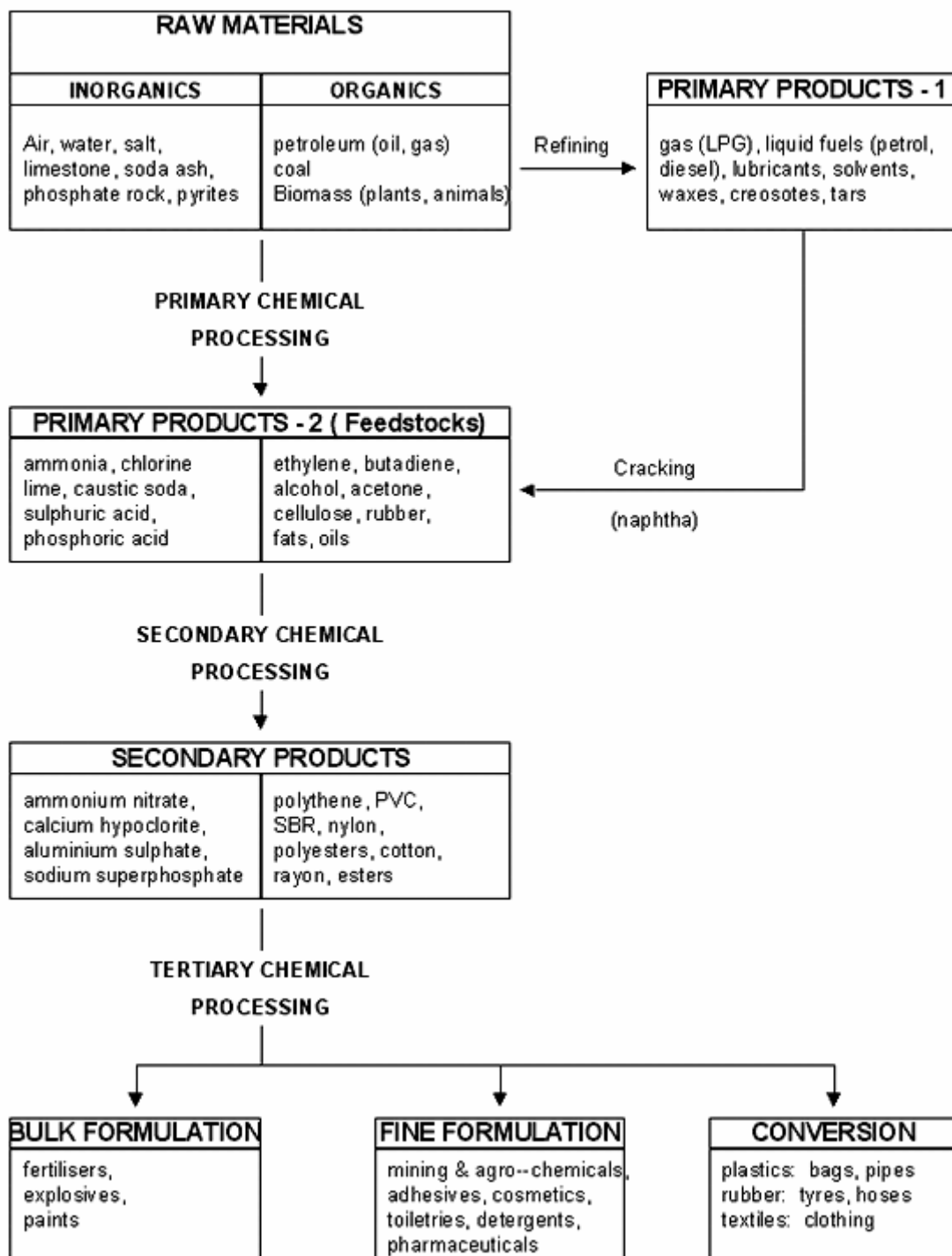
Petrochemicals production in South Africa is largely centred on the Sasol 2 and Sasol 3 plants at Secunda and the NATREF refinery at Sasolburg where Sasol generates various feedstocks and olefins which facilitate the downstream manufacture of polymers and other products. Using the Fischer Tropsch process, Sasol produces about two million tonnes per annum of a range of various olefins for the petrochemical industry. About 0.6 million tonnes of olefins are used by the chemical industry and the remaining 1.4 million tonnes is used in fuels. A small proportion (about 25,000 tons) is recovered from crude oil refineries. When compared with international petrochemicals plants based on natural gas or ethane, the local synfuels plants tend to be less competitive and reinvestment in the synthetic coal-based technologies would currently be difficult to justify.

Some benzene and other aromatics are produced by the Engen refinery in Durban. A modest amount of propylene is produced at the SAPREF refinery in Durban where a splitter owned by Safripol is in operation. The Mosref plant generates mixed alcohol and ketone streams which are currently exported. Phosphoric acid is sourced from phosphate rock mined at Phalaborwa by Foskor.

Locally manufactured inorganic primary products include sulphuric and phosphoric acids, as well as chlorine, sodium hydroxide and calcium oxide. Manufacture of ammonia using the Haber-Bosch process, which was first started in South Africa by AECI in 1931, was phased out during 2000. Ammonia will be sourced from Sasol as a co-product of coal gasification and from the Slurry Phase Distillate process.

From the above it is clear that Sasol, through Sasol Chemical Industries (Sasol 1) and Sasol Synthetic Fuels (Sasol 2 and 3), dominates the production of primary products.

Figure 1 Pipeline Model of Chemical Industry



Intermediate Chemicals

Intermediate chemicals is a term which can be used to describe a plethora of products such as ammonia, waxes, solvents, phenols, tars, plastics, and rubbers.

Major organic secondary products include polyethylene (LDPE, LLDPE, and HDPE), polypropylene and polyvinyl chloride together with polyester, nylon, and acrylic fibres.

Hydrochloric and nitric acids, ammonium nitrate, sodium and calcium cyanides, sodium sulphate, calcium hypochlorite, aluminium sulphate and chrome chemicals are relatively large tonnage inorganic secondary products produced.

Chemical and Speciality End-products

Chemical end-products include processible plastics, paints, explosives, and fertilisers.

Speciality chemicals tend to be lower volume, higher value-added chemicals. Together with processed goods, they can be classified as the result of:

- bulk formulation, e.g. fertilizers, explosives, paints.
- fine formulation, e.g. mining and agro-chemicals, adhesives, food-, fuel- and plastics-additives, pharmaceuticals, bio-chemicals, cleaning and paper chemicals.
- conversion and, fabrication e.g. plastics (packaging, piping), rubbers (tyres, hoses), fibres (textiles, clothing).

Companies

The base, intermediate chemicals and, to a lesser extent, chemical end-products categories are mainly dominated by three large companies and their subsidiaries. Their various joint venture partners enable them to have strong positions in the chemical industry. Of the other players, which are active in these categories, some are connected to international companies. Traders and agents are also active in this market.

There are a number of companies involved in local production or importation of speciality and performance chemicals. There is also an active trading sector comprising traders and agents who handle the importation and marketing of speciality and fine chemicals.

A South African company is active in the supply of key products to the oil refining, lubricant and fuel markets. Products include catalysts, process chemicals, performance additives and specialised dyestuffs. The company's Fine Chemicals Division is active in the supply of materials to the personal care and health care manufacturing sectors. Another small South African company focuses on the import of plastics raw materials for the processing industry across the southern African sub-continent.

2.1.2 Statistics of Chemicals Production, Import and Export

The Definition of Chemicals.

The definition of chemicals is based on the international standard industrial codes. Added on are those substances that were wanted in terms of impact and the effect on the environment, the spectrum is quite broad in terms of this definition.

Statistics were obtained from Stats SA and Customs and Excise. Stats SA use Standard Industrial Classification (SIC) codes and an Industry Code. Customs and excise use the

Harmonised Tariff System. The SIC codes are compiled in the 1993 edition of the Standard Industrial Classification of All Economic Activities (SIC), fifth Edition, Report No. 09-90-02.

The SIC is based on the 1990 International Standard Industrial Classification of All Economic Activities, (ISIC) with suitable adaptations for local conditions.

Standard classification of economic activities is arranged so that entities can be classified according to the activity they carry out. The categories of ISIC at the most detailed level (group) are delineated according to what is in most countries the customary combination of activities described in statistical units. The major groups and divisions, the successively broader levels of classification, combine the statistical units according to the character, technology, organisation and financing of production e.g. agriculture, fishing, mining, manufacturing, construction, hotels and restaurants, financial intermediation etc. The United Nations Statistics Division deals with the establishment and co-ordination of the ISIC system.

For the purpose of this Chapter chemicals have been defined as those products that are included in the statistical indices under the 'Manufacturing divisions and major groups' for the following categories:

- Coke and refined petroleum products
- Basic Chemicals
- Other chemical products
- Plastic Products

For more information regarding the chemical industry, please refer to <http://www.mbendi.co.za>.

2.2 Chemical Use

2.2.1 Chemical User Sectors

Chemicals are widely applied in various economic, public health and consumer sectors with the key sectors being:

- **Industrial** – South Africa's diverse industrial and manufacturing sector require the input of an equally diverse and extensive variety of chemical raw materials of which the bulk is produced locally and the remainder imported.
- **Mining** – The South African mining sector uses large quantities of chemicals mainly as explosives and for the various mineral extraction processes.
- **Transport** – Fuels and lubrication is used in the countries sophisticated transport system that supports South Africa's active industrial and trade sector. South Africa's strategic location, its geographical expanse and the position of major cities and industrial areas in the interior of the country all add to the need for large quantities of fuels and oils being used.
- **Agriculture** – South Africa's large-scale agricultural sector relies heavily on the application of fertilisers and pesticides to ensure cost effectiveness of agricultural production. Most South African crop does not originate locally with the result that pest control is essential.
- **Consumer:** - There are many chemicals classified as consumer products which the South African public use as detergents, cosmetics, air fresheners, insecticides and others.
- **Public Health** – Chemicals that are used for public health include antiseptics, antibacterial, lotions for lice treatment, and others have to be registered with the Department of Health before they can be approved for public health purposes.

Table 2.A 1: Chemical Production and Trade. -

SIC Code	Man Div Major grp	Tariff Chapter	Chemical Grouping	Ref a	Ref b	Ref b	Ref b	Ref b
				2001	2001	2001	2001	2001
				Production t1000	Import Qty t1000	Import Value R1000 000	Export Qty t1000	Export Value R1000 000
332	13.1-2	27	Fuels and synthetic fuels and fuel products (3)	21 381	24 349	32 180	77 874	26 129
3341	11.2	28	Inorganic chemicals.	6 242	1 963	3 826	2 511	5 113
	11.2	29	Organic chemicals.	861	641	5 219	1 211	3 093
3342	11.3	31	Fertilisers.	1 634	807	807	739	1 069
3343	11.2	39	Polymers and plastics.	793	427	5 758	458	2 777
3352	12.1	32	Paints varnishes, inks and putties. (3)	158	55	1 650	102	840
3353	12.2	30	Pharmaceuticals.	14	10	5 389	9	582
33541	12.3	34	Soaps, detergents, polishes and waxes. (2)	565	45	650	81	601
33542	12.4	33	Cosmetics and toiletries.	83	15	1 142	37	744
33592		36	Explosives		4	135	33	261
33593	12.5	35	Glues, modified starches and abuminoids.	201	40	538	6	121
		37	Photographic film and materials.		89	658	5	116
3351	11.4	38	Pesticides and miscellaneous chemical products. (3)	73	244	3 415	300	2 313
		Total :		32 005	28 894	66 119	83 873	46 307

(2) Production Includes Polish value of 26t from 12.5

(3) Production figures are in kl

Ref a Manufacturing Stats Chemicals Petroleum and others. Stats SA release P3051.3 Feb 2002

Ref b Import and Export Data SARS Customs and Excise.

Table 2.A 2: Chemical Production Value.

Production Value				Ref c 2001	Ref a 2001	calc
SIC Code	Man Div Major grp	Tariff Chapter	Chemical Grouping	Production R000 000	Production t000	Cost (1) Factor R/t
332	13.1-2	27	Fuels and synthetic fuels and fuel products	37 699	21 381	1 763
334	11.2	28	Basic chemicals.	25 095	9 530	2 633
335	12.2	30	Other Chemicals	29 166	1 094	(1)
		Total :		91 960	32 005	2 873

Ref a Manufacturing Stats Chemicals Petroleum and others. Stats SA release P3051.3 Feb 2002

Ref b Import and Export Data SARS Customs and Excise.

Ref c Manufacturing production and sales. February 2002. Stats SA release P3041.2

Ref d Census of Manufacturing 1996. Report No. 30-01-01 (1996)

(1) Cost factors provide a useful way of calculating costs for fuels and basic chemicals. It is however very inaccurate, and not appropriate to use for Other Chemicals(SIC Code 335).

Table 2.B: Chemical Use by Categories
Use of products at purchasers' price

Type of Chemical	Stats SA No.	Quantity used per year in the Country		Factor R/t
		R1000 000	t 1000	
Petroleum	132	18 893	7 130	2 650
Basic Chemicals	133	5 572	2 116	2 633
Fertilisers	134	4 315		
Primary Plastics	135	8 015		
Pesticides	136	1 601		
Paints	137	4 044		
Pharmaceuticals	138	6 695		
Soap	139	6 971		
Other Chemicals	140	4 567		
Total		60 673		

Ref: Final supply and use tables Stats SA 1999 Report No. 04-04-01 (1999)

2.3 Chemical Waste Generation, Disposal and Trade

2.3.1 Waste

For the purpose of this Chapter 'waste' is defined and categorised as described in the Department of Water Affairs and Forestry's "Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste", Second Edition, 1998. (A summarised description is provided in Chapter 4, Section 4.4.13 of the NCP)

The Department of Water Affairs and Forestry document "Baseline studies – Waste Generation in South Africa", W30 1998, highlights a lack of information regarding Industrial waste that is disposed of on site. This results in discrepancies in waste data as shown in table 2E.

The Integrated Pollution and Waste Management Policy and The National Waste Management Strategy have been developed but the implementation process has not yet been initiated full scale in the country. Goals and objectives have been generated for the Waste Information System (WIS). Pilot projects on the WIS have been initiated and the WIS is scheduled to be fully implemented by 2010.

Summaries of the generated wastes are presented in Tables 2.C to 2.G.

Table 2.C: Summary of Waste Generated

Waste Stream	Generation Million t/a
Mining	468.2
Industrial	16.3
Power Generation	20.6
Agriculture and Forestry	20
Domestic and Trade	8.2
Sewage Sludge	0.3
TOTAL	533.6

Table 2.D: Permits Handled for Import and Export of Waste in Terms of the Basel Convention

(January 2002 to December 2002).

Permit Status	Import to/ Export from South Africa	Waste Material	Quantity (tons)	Country of Import from/ Export to	Comments
Granted	Import	Scrap batteries	6000	Nigeria	Permit expiry date: 31/12/2002
		Brass fines in metallic, oxidic and carbonated form containing 25% Cu and 40 % Zn	22	Germany	No comment
		Residues of Pyrometallurgical processing of gold, silver and platinum	100	Germany	Permit expiry date: 31/12/2002
		Automotive battery scrap	200	Not reported	Permit expiry date: 31/12/2002
		Metallurgical plant residue	12000	Zimbabwe	Permit expiry date: 31/07/2003
		Lead acid automotive batteries	500	Namibia, Botswana, Lesotho	Permit expiry date: 31/01/2003
		Scrap of precious metals and granulated mixed metal scrap	250	Taiwan	Permit expiry date: 31/10/2003
	Export	Lead containing battery plates, cables, sheets and pipes	300	Zambia, Zimbabwe & Mozambique	Permit expiry date: 31/12/2002
		Brass fines in metallic, oxidic and carbonated. Containing 45% Cu, 10% Zn, 4% Sn.	22	Germany	Permit expiry date: 31/12/2002
		PCB contaminated: - Capacitors - Oils/Dielectric Fluids - Transformers - Soil - Containers, clothing and handling materials	800	England	Valid until: 31/12/2003
Brass dros, brass fines, gunmetal dros free of harmful impurities		720	Germany, Transit Belgium	Permit expiry date: 30/06/2003	
Pending	Import	Metals bearing scrap such as Cu and Pd.	800 /year	Taiwan	Awaiting permit from Taiwan EPA.
		Lead, Chrome(6+) containing solvents	36	Botswana	Awaiting movement document
	Export	Iron Oxide	7200 /year	Namibia	Awaiting consent from Namibia.
		Rhodium spent catalyst	140	Germany	Awaiting liability insurance and consent from transit country.
Not granted or withdrawn	Import	Used Lubricating oil	Not provided	Not provided	No forms filled in – thus application was withdrawn till further notice.
	Export	PCB oil	Not provided	Angola	Angola is not signatory to the Basel Convention

Reference: Directorate Chemicals and Hazardous Material, DEAT, 29th May 2002

Table 2.E: Overall Waste Generated

Province	General Waste Generated (Est)	General Waste to Landfills	Hazardous Waste Generated (Est)	Hazardous Waste to Landfills	Hazardous Waste Other	Total Waste to Haz Waste Sites
	t/a	t/a	t/a	m ³ /a (4)	m ³ /a (4)	t/a
Eastern Cape	665 300	571 000	37 588	19 719	17 869	81 000
Free State	402 200	782 000	30 530	14 707	15 823	
Gauteng	2 889 900	4 297 000	1 788 643	168 758	1 619 885	232 000
KwaZulu-Natal	1 102 500	1 811 000	1 680 934	43 896	1 637 038	115 000
Mpumalanga	727 400	481 000	3 416 873	2 923	3 413 950	
Northern Cape	150 500	262 000	1 149	937	212	
Northern Province	474 800	153 000	5 814	1 491	4 323	
North West	399 500	354 000	3 384	1 889	1 495	
Western Cape	1 403 400	1 487 000	279 887	76 786	203 101	131 000
TOTALS	8 215 500	10 198 000	7 244 802	331 106	6 913 696	559 000

(4) Density conversion factors 150kg/m³ to 450kg/m³

Table 2.F: Summary of Hazardous Waste by Region (m3/annum)

	E Cape	Free State	Gauteng	KZN	Mpuma	N Cape	N Prov	N West	W Cape	TOTAL
Class 3: Flammable liquids	16 413	5 532	37 427	18 024	7 989	859	1 303	1 622	36 002	125 171
Onsite/other disposal	82	55	1 307	467	6 297	10	20	27	276	8 541
To Hazwaste site	16 331	5 477	36 120	17 557	1 692	849	1 283	1 595	35 726	116 630
Class 4: Flammable Solids	505	2 075	15 665	1 164						19 409
Onsite/other disposal		1 175								1 175
To Hazwaste site	505	900	15 665	1 164	0	0	0	0	0	18 234
Class 5: Oxidising Substances			3 632	186						3 818
Onsite/other disposal			40							40
To Hazwaste site	0	0	3 592	186	0	0	0	0	0	3 778
Class 6: Poisonous and infectious	16 395	2 913	28 216	159 751	1 203	217	4 326	1 485	24 754	239 260
Onsite/other disposal	15 672	1 210	14 926	140 240	1 159	202	4 303	1 468	7 435	186 615
To Hazwaste site	723	1 703	13 290	19 511	44	15	23	17	17 319	52 645
Class 8: Corrosives	2 676	3 582	29 576	6 254					4 020	46 108
Onsite/other disposal	1 338		11 391	3 190					2 007	17 926
To Hazwaste site	1 338	3 582	18 185	3 064	0	0	0	0	2 013	28 182
Class 9: Misc Dangerous	1 599	16 428	1 674 127	1 495 555	3 407 681	73	185	277	215 111	6 811 036
Onsite/other disposal	777	13 383	1 592 221	1 493 141	3 406 494				193 383	6 699 399
To Hazwaste site	822	3 045	81 906	2 414	1 187	73	185	277	21 728	111 637
ALL CLASSES	37 588	30 530	1 788 643	1 680 934	3 416 873	1 149	5 814	3 384	279 887	7 244 802
Onsite/other disposal	17 869	15 823	1 619 885	1 637 038	3 413 950	212	4 323	1 495	203 101	6 913 696
To Hazwaste site	19 719	14 707	168 758	43 896	2 923	937	1 491	1 889	76 786	331 106
Medical Waste (Part of Class 6)										
No of Hospital Beds	20 880	9 467	34 864	30 922	5 332	3 102	13 139	9 405	17 893	145 004
% Occupancy	80	70	80	80	80	70	80	70	80	
Waste Generated	11 853	4 702	19 790	17 553	3 026	1 547	7 458	4 671	10 167	80 767

Note: Classification is in accordance with the *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste*, Department of Water Affairs and Forestry, Second Edition 1998.

2.3.2 Emissions Data

The Directorate of Air Quality Management within DEAT started the 'Source Emission Inventory' for all scheduled processes in the early 90's. This database was however only kept updated until 1993. Table 2.G presents a summary of the 1993 data. With the enactment of the National Environmental Management: Air Quality Act, an electronic database will be used to capture emissions data accurately.

Reportedly, the directorate plans to again update the inventory in future. Plans are to integrate the emission inventory into the national waste management inventory, but the extent and particulars of this waste management inventory is still to be finalised.

Table 2.G: Summary of Source Emission Inventory

Particulates t/a	Sulphur Dioxide SO2 t/a	Oxides of Nitrogen NOX t/a	Carbon Dioxide CO2 t/a	Carbon Monoxide CO t/a	Hydro- Carbons CH * t/a	Other Pollutants t/a	Gas Volume NM3/sec (t/a)
363 135	2 154 275	1 018 018	290 660 602	3 666 007	781 931		2.5129E+12 (2 512 925 424)

*Other than Methane.

Reference: Directorate of Air Pollution, DEAT, January 2003

Note: The emissions data is for all scheduled processes and reflects the situation at about 1993.

CHAPTER 3

OVERVIEW OF THE ISSUES AND CONCERNS RELATED TO CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

This Chapter provides an overview of the issues and concerns related to chemical production, import, export and use

CHAPTER 3

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3 OVERVIEW OF THE ISSUES AND CONCERNS RELATED TO CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

3.1 Introduction

This chapter provides an overview of the issues and concerns related to chemical production, import, export and use. The objective of the chapter is to provide an overview of the nature of the problems associated with chemicals management in South Africa. The sources of information for this chapter included:

- Personal interviews with key organisations (e.g. Government Departments);
- Feedback from the Stakeholder Workshop held on the 26th June 2002;
- Internet and newspaper clipping searches; and
- A report entitled, "Assessment of Current Activities on Capacity Building in the Field of Safe Management of Chemicals" completed on behalf of CAIA in February 2002.

It was agreed amongst the stakeholders who assisted in the compilation of this report, that it was important for this report to be compiled through a transparent process involving a wide stakeholder base. It was also agreed that the process of identification of issues and problems was not to be a 'witch hunt' but to identify gaps and weaknesses to ultimately strengthen and improve the management of chemicals in South Africa.

The information that is currently available on the issues of concern in chemicals management does not lend itself to specific categorisation under the headings, "production", "export", "import" and "use". Many of the issues and problems are in fact overarching and relate to each of these four topics. Therefore, in line with the CAIA report, the following broad categories have been used in the description of the issues and concerns:

- Legislation and Regulatory Framework;
- Information Gathering and Dissemination;
- Capacity for Risk Assessment;
- Risk Management;
- Implementation and Enforcement;
- Rehabilitation of Contaminated Sites and Treatment of Poisoned People;
- Education and Community Awareness; and
- Emergency Response.

The discussion on the broad-based issues and problems related to chemicals management is followed by a description of a few key case studies that provide insights into some of the problems facing the country.

3.2 Issues and Concerns Related to Chemical Production, Import, Export and Use

Table 3A overleaf provides an overview of some of the broad-based issues and problems related to chemical production, import, export and use.

TABLE 3A: ROAD-BASED ISSUES AND PROBLEMS RELATED TO CHEMICAL PRODUCTION, IMPORT EXPORT, AND USE.

No	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
1. LEGISLATION AND REGULATORY FRAMEWORK				
1.1	Policies and legislative instruments	National	The legislative framework relating to chemical management in the workplace is adequate but there is limited enforcement.	CAIA Report (Feb 2002); * Report by Minister of Env. Affairs and Tourism IOL website, 21 September 2001
			Policies to control waste disposal are inadequate (see Box 3.1 for proposals to address this).	
			Current fragmentation and duplication of legislative responsibilities results in an uncoordinated approach to dealing with incidents. There is no clear directive of who should act as the lead agent for immediate response, investigation and remedial activity.	
			Legislation relating to exposure limits from chemical production is outdated and in need of review *. The national guidelines for air pollutant emissions are inadequate e.g. dioxins and furans.	
			Current legislation with regard to air emissions is standards-driven rather than specifying emission limits. Industry is expected to be self-regulating with regard to air emissions which tends to be reactive rather than proactive (see Box 3.3).	Stakeholder workshop (June 2002)
			Air pollution monitoring and enforcement is limited at a local government level. Only 131 of the 284 municipalities carry out any form of air monitoring, of which only 97 have taken steps to ensure compliance.	Report by Minister of Env. Affairs and Tourism, DEAT website, 26 June 2001
1.2	Transboundary movement of chemicals	International	Control mechanisms to regulate transboundary movement of chemicals or chemical wastes are inadequate. Current legislation does not cover all chemicals for import and export regulated by international instruments. Enforcements of bans on banned chemicals exported to neighbouring countries are not always carried out.	CAIA Report (Feb 2002)
			There is no tracking or audit system for chemicals, which limits the effectiveness of the current controls. The capacity of Customs and Excise staff is not adequate to detect illegal chemical trade.	
1.3	Legislative gaps	National	Legislation administered by different departments should be reviewed with a view to streamlining and aligning the requirements of the different departments.	CAIA Report (Feb 2002)
			There needs to be a clear and co-ordinated set of requirements for both producers and users of chemicals and the establishment of a co-ordinating body for all relevant legislation.	
			Insufficient monitoring and enforcement of legislation needs to be addressed e.g. through the implementation of the APELL system	
			Emergency response plans must include a clearly defined strategy for the dealing with the public in the events of emergencies.	

No	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
2. INFORMATION GATHERING				
2.1	Actions of toxic chemicals	National	Material Safety Data Sheets are designed for people in industry and are not user-friendly for the general public.	CAIA Report (Feb 2002)
			The incompatibility of chemicals is not considered and the synergistic effect of chemicals are not thoroughly investigated and reflected in MSDSs.	
2.2	Research into alternatives	National	Research into safer alternatives to specific types of chemicals is limited. The relatively low cost of disposal of chemical waste does not promote the use of safer alternatives by industry.	
2.3	Information exchange on toxic chemicals	National	Information collected through research and investigations may not necessarily be applied or disseminated unless it is a sector in the export zone that may be sensitive to international trends. Information exchange needs to be co-ordinated.	
2.4	Management of trade in chemicals	National	The principle of sustainable management of chemicals is not fully addressed in the trading chemicals, particularly with respect to environmental protection.	
2.5	Disposal practices	National	Infrastructure for appropriate disposal of toxic chemicals is not necessarily sufficient in South Africa, which has resulted in stockpiling of waste. There is a general lack of management of hazardous chemical wastes and segregation of hazardous and non-hazardous wastes.	Stakeholder workshop (June 2002)
			A legislative gap exists when dealing with disposal requirements. The pricing for pesticides and chemicals does not include the cost of cradle-to-grave product stewardship and the cost of their disposal is externalised i.e. costs are borne by society (see Box 3.4 for an example).	CAIA (Feb 2002)
2.6	Polychlorinated Biphenyls (PCB's)	National	There is no legislation that controls PCBs other than the occupational exposure limits (TLV) laid out in the OSH Act. There is ignorance about PCBs. Industry, railways, mines and municipalities have equipment that contains PCBs. Amongst some of the relevant organisations there is ignorance about dangers and methods of phasing out PCBs.	Interview (Eskom).
3. RISK ASSESSMENT				
3.1	Capacity for risk assessment	National	The practice of risk assessment applied to the production and use of chemicals has been generally lacking in SA. Toxicity testing also does not take into account the synergistic effects of combining chemicals.	CAIA Report (Feb 2002)
			There is a lack of laboratory skills in South Africa with only a few accredited laboratories. A skills audit on laboratories is lacking in SA.	
3.2	Life-cycle approach to chemicals	National	Some larger companies adopt a life-cycle approach to chemical management but this is generally lacking in the industry. This often relates to a lack of stewardship of chemicals.	
3.3	Review of pesticides	National	The banning and de-registration of banned chemicals (e.g. certain pesticides) is slow and inadequate. There is still a reliance on chemicals rather than an integrated pest control approach (see Box 3.5).	CAIA Report (Feb 2002); Stakeholder Workshop (June 2002)

No	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
4. RISK MANAGEMENT POLICY				
4.1	Exposure limits for chemicals in food	National	The Department of Health's legislation on chemical residues in food and exposure limits for food is outdated and needs to be reviewed. The limited standards that have been set are not health based. The cumulative effects of exposure and the synergistic effects of a combination of chemicals are seldom taken into account.	CAIA Report (Feb 2002); Stakeholder Workshop (June 2002)
4.2	Priority concerns for chemicals	National	The effectiveness of the mechanisms to set priority chemicals of global concern with respect to risk assessment requires review. Mechanisms for effective enforcement must be implemented.	
4.3	Hazard communication	National	The hazard communication system is currently being reviewed internationally to develop a system that is universally acceptable to different cultures. The system in use is not user-friendly for the majority of people due to language and illiteracy levels.	
4.4	Road transport	National	Road accidents involving chemicals continue to pose an unacceptable risk to the environment. *	
4.5	Policy measures	National	There is no clearly defined government policy on cleaner products and technologies. Currently, companies are considering cleaner production technologies and using responsible care to emphasise this approach, however, there is no legislated requirement for this.	CAIA Report (Feb 2002)
4.6	Emissions inventory	National	Emissions inventories are presently inadequate, with limited or insufficient data currently available.	
4.7	Product labelling	National	There is currently no universal labelling system for chemicals. Specific legislative requirements exist for pharmaceuticals and agrochemicals and all chemicals have to be marked for their hazard classification. New products that enter the market do not always comply with the requirements.	
4.8	Alternative farming practices	National	Chemicals are still predominantly used by the agricultural sector. Research into alternative products needs to be promoted in order to increase the number of alternative biological products that are registered.	
4.9	Storage of obsolete chemicals (particularly agrochemicals)	National	The necessary controls are in place for large stockpiles of obsolete pesticides, but the problem arises with small quantities stored by individuals on farms. The problem of empty containers is considered to be more of a problem than obsolete chemicals and requires intervention, such as the introduction of economic incentives for container return/disposal. Situations involving the illegal dumping of chemicals continue to occur.	

No	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
5. CAPACITY FOR IMPLEMENTATION AND ENFORCEMENT				
5.1	Application for Prior Informed Consent (PIC)	National	There is currently no legislation for PIC. The procedures are implemented voluntarily.	CAIA Report (Feb 2002)
5.2	Integration	National	There are no formalised structures for the national co-ordination of chemical production, import, export and use. Institutional mechanisms are fragmented due to their administration by various government departments. There is also a general lack of enforcement due to a shortage of resources, both manpower and financial. There is no overarching agency to oversee the industry.	
5.3	Illegal importation of toxic and dangerous chemicals	International/ National	Import control does not cover all chemicals controlled by international conventions. The requirements of the Basel convention still need to be incorporated into SA legislation. Greater clarity is required on the definition of hazardous and toxic chemicals.	
6. CAPACITY FOR REHABILITATION OF CONTAMINATED SITES AND POISON TREATMENT				
6.1	National Poisons Centre and Capacity for Diagnosis	National	The funding and capacity is inadequate to develop additional poison centres (currently there are only two in SA). In addition, an emergency reference centre is required. There is inadequate capacity for the diagnosis and treatment of chemical poisoning.	CAIA Report (Feb 2002)
6.2	Rehabilitation of Contaminated Sites	National	There is no coherent approach to the rehabilitation and registration of contaminated sites. A national inventory of the location of contaminated sites has not been undertaken. There is currently no fund (national or private) for the closure and rehabilitation of industrial sites.	
7. EDUCATION AND COMMUNITY AWARENESS				
7.1	Training and educational programmes	National	Educational and training programmes have been developed (e.g. in the workplace) but these are not extended to communities with regard to the risks. Educational programmes for workers are considered to be organised training for workers aimed at compliance rather than awareness of chemical risks	CAIA Report (Feb 2002); Stakeholder Workshop (June 2002); Dept. of Labour (200/1)
7.2	Chemical classification and labelling	National	The classification and labelling of chemicals have been addressed in respect of occupational health and safety but not with regard to environmental protection. There is limited training to ensure that chemical classification and labelling are understood.	
8. EMERGENCY RESPONSE				
8.1	Emergency response procedures	National	The legislative requirements for an emergency response plan are adequate but there is limited capacity for their implementation, monitoring and enforcement. In addition, capacity may be available in the main urban centres but outside of these areas available capacity is limited.	CAIA Report (Feb 2002)

3.3 Examples of the Types of Problems in Chemical Production, Import, Export and Use

Table 3B overleaf provides a few key examples of the type of problems that are experienced in chemical production, import, export and use in South Africa.

It is important to note that these examples have been selected to illustrate the range of problems that have been experienced in the chemical industry and are not necessarily representative of the environmental performance of the entire industry. The key sources of information in Table 3B are media reports and internet searches.

TABLE 3B: TYPES OF PROBLEMS IN CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

No.	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
1. IMPORTS AND EXPORTS				
1.1	Chemical spillages to the sea	Western Cape Province and KwaZulu-Natal	Tons of chemicals were spilled into the ocean from a stricken tanker in the Western Cape. The tanker contained about 169 000 litres of oil, 9000 litres of lubricating oil and more than 39 500 litres of engine-room oil which have been taken to land. The Department of Environmental Affairs issued a permit to the salvors, to dump the ship's cargo of fertiliser chemicals containing thousands of tons of potassium sulphate and potassium chloride and boronate that remained on board, overboard. Residents claimed that this threatened and impacted on sea life.	Sunday Times (Cape Metro (01) ed.), 3 September 2001 Page 1.
1.2	Oil spillages to the sea	Western Cape	It is reported that large ships sinking were not the only oil pollution threat to SA's coastline. Local ships often released oil into the ocean. A possible solution was not to have large ships come close to the coastline. Oil pollution is a continuing concern and should not only be addressed when a large ship went under.	Business Day (News view ed.), Published 29 June 2000, page 2
1.3	150-tons of oil spilled into Cape Town harbour	Western Cape	<p>A heavy object falling and cracking a pipeline on the quayside near a dry dock allegedly caused the spill. About 650 tons of oil leaked from the pipe, but about 500 tons had remained in the service channel. At least 120 tons escaped into the water.</p> <p>Most of the oil has been contained in the harbour, but some marine birds and seals have been affected – these were collected or caught and taken to rehabilitation centres. The heavy bunker fuel, was physically, rather than chemically, damaging to marine life.</p>	Business Day (News view ed.), 29 May 1998, page 1
1.4	Environmental concerns regarding oil and gas exploration and production.	National	Concerns about the environment are a major issue in oil and gas exploration and production. According to the oil industry resources are not adequate in SA to enforce many of the environmental laws and regulations.	Business Day (News viewed), 28 August 1997, Page 29
1.5	Anti-fouling paints are poisoning marine life.	National & International	The pollution regulator of the shipping industry is at the centre of an intense propaganda battle over proposals to ban tin-based paints, used to prevent marine organisms attaching themselves to ships hulls. For years environmentalists have been arguing that paints based on tributyl-tin cause widespread damage to marine life and should cease to be used as an anti-foulant. Members of the United Nations (UN) International Maritime Organisation are due to meet on Monday to consider a proposal to phase out tributyl-tin- based paints. When tributyl-tin is painted on a ships hull and immersed in water a chemical reaction occurs causing the tributyl-tin to be released slowly, forming a thin layer of biocide over the hull and preventing colonisation by fouling organisms.	Business Day (News view ed.), 12 November 1999, page 10.

No.	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
1.6	Importation of hazardous material	KwaZulu-Natal	The importation of hazardous material was mishandled by allowing a chemicals company to import toxic mercury while failing to ensure that the company was adequately held accountable for its activities. The commission, set up to probe the mercury recycling operations, said it had found that both the company and the previous government were to blame for the stockpiling of more than 3000 tons of toxic waste in the country. The commission said that the company concerned had exploited loopholes in SA's fragmented legislation to bring in toxic waste it could not handle.	Business Day (News view ed.), 14 May 1997, page 2
1.7	Sale and disposal of radioactive waste.	National	<p>The sale of 2 000 tons of partially depleted uranium to a US company for re-enrichment in Russia has raised questions of transparency in decisions on the use and disposal of radioactive waste.</p> <p>A spokesperson explained that the indefinite storage of depleted uranium was "undesirable" because of its corrosive nature. The product, sold in the form of uranium hexafluoride, left SA under circumstances whereby all international regulations had been adhered to. The ship, which transported the depleted uranium, was "checked by a US expert for seaworthiness before it arrived in SA".</p> <p>The spokesperson said she did not understand environmentalists' concerns because in its current form UF6 was "harmless if stored properly and international rules and regulations were strictly followed to ensure not only the safety of the product during transportation but also the sale of the re-enriched product". She also explained that UF6 was more chemically toxic than radioactive, and dangerous if inhaled.</p>	Business Day (News view ed.), 04 May 1998, page 4
2. PRODUCTION				
2.1	A large oil company moved to process sulphur at a refinery, allegedly without the required environmental authorisation.	Western Cape	The company has previously sent its sulphur to a plant in Somerset West for processing, but this plant has closed down, leaving the oil company with no short-term method for disposal. An EIA was undertaken for the construction of a pastillation plant, which will convert molten sulphur, removed from crude oil during the refining process, into hard sulphur pellets. DEAT asked for additional information about this process but the pastillation plant had already been built without the required authorisation.	Cape Argus, 13 November 2001
2.2	Contamination of workers.	Mpumalanga	A Department of Mineral and Energy Affairs Report found major problems at a vanadium mine and processing plant. The Department noted that 83 workers were laid off due to ill health in just over two years (25% of the firm's average workforce). The DME report recorded concentrations of toxic vanadium pentoxide at the plant of up to 31 times the permissible level.	<p>Business Day (News view ed.), 13 November 1997, page 2</p> <p>Sunday Times (Africa Edition (01) ed.), 07 October 2001 Page 5</p>
2.3	Mercury poisoning.	KwaZulu- Natal	Workers claim they sustained mercury poisoning at a plant that processed mercury waste for mercury recycling.	Business Day (News view ed.), 01 August, 2000, page 3.

No.	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
2.4	Greenhouse gas production	National	South Africa would be in deep trouble if developing countries were called upon to reduce greenhouse gas emissions. About 80% of local emissions of the major greenhouse gases contributing to climate change, are related to energy use. National Assembly's Minerals and Energy and Environmental Affairs Committee were addressed by an expert in the field., Mr Harald Winkler who said: " We cannot afford to wait until we are pressurised into commitment, we need to become proactive on climate change."	News24 website, 29 August 2001
2.5	High levels of air pollution	Kwazulu-Natal	Residents in the south Durban basin claim their health has been adversely affected by chemical pollution due to emissions from industries in the area. Years of pressure from surrounding communities and environmental lobby groups have prompted the government to commit R13 million towards a clean-up of the Durban southern industrial basin. A health risk analysis was to be conducted by Dec. 2001 and epidemiological and respiratory studies to determine the impact of pollutants on people's health to be completed by Dec. 2002. The plan also entails the phasing out of the use of dirty fuels. Monitoring of the pollutants will also be improved.	Sunday Business Report, 20 May 2001. Business & Finance Publication - Sunday Times (Natal Metro (01) ed.) , 24 February 2002
2.6	Accidental leakages of hazardous gases	KwaZulu-Natal	Accidental leakage of sulphuric acid fumes occurred at a manufacturing plant and affected neighbouring residents. Two people were admitted to hospital as a result of the escape.	
2.7	Dust emissions	Gauteng	At certain mines in Gauteng, the mine dumps are being grassed and sprayed with 'bonding' chemical substances to control dust.	BD (News view ed.), 06 November 1997, page 7
2.8	Contamination of groundwater affecting surrounding communities	Gauteng	<p>Subsistence farmers with ailments lay the blame for their health problems on a steelworks. They allege the steel works has poisoned their water — harming their health and that of their livestock by pumping harmful industrial effluent into the environment. The also claim that the company has in the past misled the Department of Water Affairs and Forestry and has never implemented its own rehabilitation plans.</p> <p>The farmers' lawyers argue that the primary cause of the pollution lies in the plant's vast "evaporation" and furnace sludge dams that cover an area of about 140ha. The dam closest to the applicants' properties receives dangerous contaminants including benzene, toluene and xylene. The borehole water has at times given off a strong smell of naphthalene, which is toxic and can cause cancer, respiratory depression and lung tumours. In the US and Europe, naphthalene is treated as a hazardous substance.</p>	Sunday Times (MainBody (01) ed.) ed.), 18 November 2001

No.	Nature of Problem/Issue	City/Region	Brief Description of Problem	Reference
3.	USE			
3.1	Transportation of hazardous substances by road.	National	Law enforcement on the roads with regard to the transportation of hazardous substances is inadequate resulting in the inappropriate and unlawful transportation of such material. Also hazardous chemicals are transported by drivers who had no training to do so. It is estimated that 90% of the trucks on South African roads carry hazardous chemicals, mixed with more conventional loads like furniture. Operators do this to avoid the bureaucratic rigmarole involved with transporting hazardous materials.	Sunday Times (News view ed.), published 18 July 1999, page 17
		Gauteng	Three drums of granulated dichlorophenol fell off an truck when the driver swerved to avoid an accident. According to the report "the accidental chemical spill has highlighted the urgent need for improved, co-ordinated waste management and transport regulations, say industry, government and environmental sources."	Business Day (News view ed.), March 1998, page 6
		On route Gauteng to Natal	Two barrels of toxic chemicals (carbolic acid) were reported to have gone missing. They were reported to have fallen out of a container travelling by rail. The council warned that the silver drums, marked with a triangle and the word "toxic", can have harmful results if inhaled, touched or ingested.	ST (Reef Metro (01) ed.), 03 June 2001
3.2	Pesticide use	National	Continued use of pesticides and poisons by farmers and government agencies could seriously damage fish and wildlife resources as well as pose a health hazard to man. In 1985, organophosphate poisonings were the second most common reason for Tygerberg Hospital's ICU admissions. Modern insecticides are usually not toxic to mammals, but are extremely toxic to birds. The use of poisons to kill 'problem animals' such as jackal, caracal, cheetah and leopard is causing serious declines in scavenging animals, threatening some with extinction.	Enviro Facts, http://www.botany.uwc.ac.za (01 Feb 2001)

Box 3.1

INTEGRATED POLLUTION AND WASTE MANAGEMENT

Reference

*White Paper on Integrated Pollution and Waste Management for South Africa
No 227 17th of March 2000.*

South Africa is emerging from a period of unsustainable and inequitable development, one outcome of which was environmental degradation which has significant economic and social impacts. Integrated Pollution and Waste Management (IP&WM.) is the government's new thinking in relation to pollution and waste management and is aimed at tackling these shortfalls.

The **vision** of government is to develop, implement and maintain an integrated pollution and waste management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective prevention, minimisation and control of pollution and waste.

The **key issues** are:

- Water pollution.
- Air pollution.
- Land pollution.
- Pollution and waste.

Shift to Prevention

The objective of IP&WM reflects a major shift in emphasis from control to prevention. Pollution prevention is one of the most effective means of eliminating unnecessary waste and promoting sustainable development. A shift from impact prevention and remediation to a management approach combining pollution prevention and waste prevention and minimisation at source, followed by impact management and as a last resort, remediation.

The national objective for efficient and effective management of our nation's resources, where unlike previous policies that focused predominantly on so-called end of pipe treatment, the IP&WM focuses on preventing pollution and waste and avoiding environmental degradation.

IP&WM is a holistic and integrated system and process of management, aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste on the receiving environment and remediating damaged environments.

IP&WM is a subsidiary policy of the National Environmental Management Act NEMA (No 107 of 1998).

To implement the IP&WM Policy a National Waste Management Strategy has been formulated containing detailed procedures and time frames.

Achieving Policy Goals and Objectives

In order to ensure that this IP&WM policy is achieved the National Waste Management Strategy (NWMS) has been developed together with a priority action plan for the following key elements:

	<u>target date</u>
• Integrated Waste Management Planning.	2010
• Waste Information Systems (WIS).	2010
• Waste Minimisation	2008
• Recycling	2008
• Waste Collection and Transportation	2005
• Waste Treatment	2006
• Disposal.	2006

In addition implementing instruments were included in the priority action plan. These include Capacity Building, Education, Awareness, and Communication.

Box 3.2

POLOKWANE DECLARATION ON WASTE MANAGEMENT

Reference

Department of Environmental Affairs and Tourism

This particular declaration was adopted at the National Waste Summit, hosted by the Department of Environmental Affairs and Tourism in Polokwane, 26 – 28 September 2001. Excerpts from the declaration are as set out below:

“Vision

To implement a waste management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective reduction of waste.

Goal

Reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for ZERO WASTE by 2022.”

The declaration further stipulates the following actions as being necessary in order to achieve the abovementioned goals:

- “(1) Prioritization of Waste Management.
- (2) Implementation of the National Waste Management Strategy.
- (3) Development and implementation of a Legislative and Regulatory Framework to promote waste avoidance, prevention, reduction, re-use and recycle.
- (4) Provision of efficient and effective collection and disposal facilities.
- (5) Establishment and enforcement of targets for waste reduction and recycling.
- (6) Setting benchmarks towards achieving the 2012 target.
- (7) Disseminate information on the status and trends on waste reduction in the country.
- (8) Introduce mandatory waste audit processes.
- (9) Explore the use of economic instruments to support waste management initiatives.
- (10) Develop and provide the public with educative resources necessary to allow participation in the waste elimination process on an informed basis.
- (11) Develop Intergovernmental Capacity.
- (12) Develop Waste Information and Monitoring Systems.
- (13) Establish systems that ensure that physical and financial responsibility for waste is borne by the product producers.
- (14) Effectively manage waste disposal/reprocessing facilities, thereby avoiding the need to establish new, or expand existing facilities.
- (15) Promote employment and economic empowerment opportunities, in particular in Small, Medium and Micro Enterprises, through increased product reuse and material recycling.
- (16) Promote clean technology and clean production.”

Box 3.3

AIR POLLUTION ASSESSMENT PROGRAMME

Reference

Publication FM (Newsview ed.)

Published 25 August 2000

A scientific experiment is unfolding in the skies above southern Africa that will provide scientists with their first detailed understanding of atmospheric pollution over the region.

The Southern African Regional Science Initiative (Safari 2000) aims to understand the sources of the dozens of emissions in the atmosphere (like sulphur dioxide, carbon monoxide, methane and ozone), how they are dispersed and chemically transformed in the air, where they are deposited and how they affect regional ecosystems.

This is one of the largest regional scientific experiments ever undertaken in the world. It involves about 200 scientists from 18 countries across more than 12 disciplines and pulls together 60 research projects to provide the most comprehensive environmental picture of the region to date.

It's an opportunity to be at the cutting edge of technology and to stay at the forefront of international scientific research, says SAs principal investigator, Bob Scholes. He explains that because of a strong atmospheric circulation pattern over southern Africa called a gyre, airborne emissions are transported hundreds of kilometres from one part of the region to another.

We know pollutants from the big industrial complexes in Middelburg, Witbank and Secunda circulate within the gyre, he says. They first go east over Swaziland and out over the Indian Ocean, then in around Beira, travelling across Malawi and Zambia, where they will pick up a lot of stuff from the copper belt smelters as well as smoke from fires, before moving out over the Atlantic off Namibia. The gyre then comes back in over southern Namibia, picking up dust over the arid areas of the Kalahari. So a lot of the muck we see over Johannesburg is not industrial pollution, its dust and smoke.

The gases and aerosols lofted into the air can affect vegetation and ecosystems once they return to the surface. For instance, sulphur compounds can produce acidic rain, nitrogen compounds can act as a fertiliser and high ozone levels in the air can reduce crop yields.

Trans-boundary air pollution is a sensitive political issue and is on the agenda of the Southern African Development Community.

We must be able to provide quantitative scientific answers to the question of whether emissions from our industries are damaging our neighbours so that we can devise sound regional air pollution policies, says Prof Harold Annegarn. We need to start understanding how the regions integrated ecosystem works. This will provide us with new tools for sustainable environmental management on the continent.

The three-year project is supported by R6m from the Department of Arts, Culture, Science & Technology, Eskom, the National Research Foundation, the CSIR and others. More than 10 US universities are participating, as are the universities of the Witwatersrand, Zululand, Vista and Potchefstroom, the SA Weather Bureau and the National Botanical Institute.

NASA has contributed about R30m as well as the services of NASAs flagship earth-observing satellite, Terra, and its high-altitude aeroplane, ER-2.

The project allows SA to piggyback on technology it could not otherwise afford. It will also boost remote-sensing and geographic information system technology in SA, says Annegarn. The scientists will spend a year taking measurements and expect the first flow of results in about two years.

Box 3.4

HAZARDOUS WASTE MANAGEMENT IN SOUTH AFRICAN MINING – A CGE ANALYSIS OF THE ECONOMIC IMPACTS

Abstract from Paper by Manfred Wiebelt, Kiel Institute of World Economics

Source: <http://netec.mcc.ac.uk/BibEc/data/Papers/wobkieliw953.html>

Oct 1999

There is no doubt that an improved hazardous waste management in mining and mineral processing will reduce environmental and health risks in South Africa. However, skeptics fear that waste reduction, appropriate treatment and disposal are not affordable within the current economic circumstances, neither from an economic nor from a social point of view.

This paper mainly deals with the first aspect and touches upon the second. It investigates the short-run and long-run sectoral impacts of an environmental tax on hazardous waste in South African mining using an open-economy multi-sectoral general equilibrium model. The results bear out the expectation that the possibilities for shifting higher production costs are limited in an open economy. Moreover, the results show that the brunt of adjustment of an isolated approach towards hazardous waste management has to be borne by black workers.

Box 3.5

PESTICIDE USE

Reference

<http://www.botany.uwc.ac.za/Envfacts/facts/farming.htm>

Feb 2001

Agricultural use of chemicals such as pesticides and poisons poses extremely serious threats to wildlife and people.

Farmers use a wide range of chemicals to protect crops from insects and disease, to control ticks and other parasites, and to kill predators such as jackal and caracal. Government agencies use pesticides to combat locusts, malaria-carrying mosquitoes, tsetse flies and queleas.

Organochlorines

Of all the pesticides ever used, the organochlorines have done the most harm to wildlife. These include DDT, aldrin, dieldrin, endrin, endosulphan and gamma-BHC. Besides being toxic, organochlorines have various properties, which make them harmful to wildlife. For example, they are extremely stable and remain unchanged in the environment for many years. In addition, they are stored and accumulate in the fat of animals, and thus pass from prey to predator, concentrating at successive steps in a food chain. Animals at the end of food chains, such as birds of prey, are especially likely to accumulate large amounts of poison.

As the side effects of organochlorines became known in the 1960s, most nations placed restrictions on their use. In South Africa and Namibia, DDT, widely applied from 1946, was prohibited in agriculture and is now used only by government for malaria mosquito control. Manufacture of these chemicals continues, however, and the main market has shifted from developed to developing countries. Zimbabwe, for example, imported 1000 tonnes of DDT in 1982.

Arsenic is no longer used in stock dips. The yellowbilled oxpecker, formerly widespread in South Africa, had died out by 1910, mainly as a result of the introduction of arsenical dipping for livestock in 1902.

Organophosphates

These have largely replaced organochlorines in agricultural pest control. They are thought to be safer than organochlorines as they break down more rapidly.

Organophosphates are however responsible for most acute pesticide related poisonings amongst humans. In 1985, organophosphate poisonings were the second most common reason for Cape Town's Tygerberg Hospital's ICU admissions.

Carbamates and Pyrethroids

These modern insecticides are usually not toxic to mammals, but are extremely toxic to birds. Carbamates are used in termite control and this can result in the secondary poisoning of birds that have eaten poisoned termites.

Environmental Impact

Pesticides play an important role in the control of human and animal diseases, and crop pests. However, the continued use of organochlorines, for example, could seriously damage fish and wildlife resources as well as pose a health hazard to man. The challenge is to find ever safer and more specific chemicals that have little or no effect on non-target organisms.

Box 3.7

ACHIEVING THE VISION

Reference

Mohammed Valli Moosa, Minister for Environmental Affairs and Tourism

The Minister of Environmental Affairs, Mr Valli Moosa, during the occasion of hosting the World Summit on Sustainable Development (WSSD), made the following statement.

The sound management of chemicals is based primarily on the principles espoused by Chapter 19 of [Agenda 21](#). The specific emphasis of this chapter has allowed both international and national organizations responsible for chemicals management to develop targeted programmes in accordance with the goals of sustainable development. Although good progress has been made, much remains to be done, particularly in giving effect to the consumer right-to-know principle and ensuring the safe use of all chemicals. The South African situation provides an example of the challenges facing governments and other stakeholders worldwide in the further implementation of Chapter 19.

Historical Base

The South African chemical industry is dominated by local companies which grew from the industry's historical base in explosives for the mining industry, followed by the development of nitrogen-based fertilizers and sulphuric acid. The strategic decision in the 1950s to derive oil from coal on a large scale resulted in the foundation of a significant polymer industry.

Although relatively small by international standards, the chemical industry is a significant part of the South African economy, contributing around 5 per cent of gross domestic product and employing approximately 200,000 people. Annual production of primary and secondary process chemicals is of the order of 13 million tonnes with a value of around \$650 million. The industry is the largest of its kind in Africa.

Regulatory Framework

The Constitution of South Africa provides the overarching legislative framework which assigns responsibility for the three spheres of government – national, provincial and local. The complex requirements of a chemicals management system have resulted in legislation that distinguishes between three main types of chemicals – industrial and consumer chemicals, agrochemicals and pharmaceuticals – and responsibility for their management is spread over a number of Government departments:

- *Department of Health:* Administers legislation dealing with medicines and hazardous substances. One of the three departments that have responsibility for addressing occupational health issues.
- *Department of Agriculture:* Administers legislation controlling the use of pesticides as part of its resource conservation and quality control function.
- *Department of Environmental Affairs and Tourism:* Coordinates matters relating to the safe management of chemicals in support of national sustainable development goals. Responsible for legislation dealing with environmental pollution, excluding water.
- *Department of Labour:* One of the three departments that have responsibility for addressing occupational health issues.
- *Department of Trade and Industry:* Administers legislation to protect consumers; manage foreign trade relations; promote specific industrial sectors, including the chemical industry; and to manage technology policies and strategy.
- *Department of Transport:* Administers legislation on freight transport.

The fragmented nature of the regulatory framework for chemicals management poses one of the greatest challenges to implementing Agenda 21. The other major challenge is to participate meaningfully in international programmes.

Challenges and Actions

South Africa's re-entry into the international community and the opening up of the economy since 1994 have posed a number of challenges in all areas of environmental management. The international management of chemicals is of particular interest for the Government because of the significance of the industry to the national economy. The Department of Environmental Affairs and Tourism, as the focal point for multilateral environmental agreements, continues to participate actively in the international instruments that deal with chemicals management. Furthermore, it hosts the Basel Convention Regional Training Centre for English-speaking African Countries, which could host training programmes for the implementation of other chemicals conventions.

A wide range of programmes has been initiated not only to align legislation with the new Constitution but also to participate in global activities relating to chemicals management.

- The parliamentary process required to ratify the [Rotterdam](#) and [Stockholm Conventions](#) has been initiated with a view to completion prior to the [World Summit on Sustainable Development](#). The South African Government would like to see enough countries ratify both these conventions so that entry into force can be announced at the Summit.
- A preliminary national plan will be reviewed and refined as part of the preparation of a National Profile on chemicals management, which is planned for completion by June 2002 and will form the basis of a system of national coordination.
- A special unit has been set up in the Department of Environmental Affairs and Tourism to implement a system aimed at preventing major industrial accidents as well as systems for emergency preparedness and response.
- It is intended to seek international assistance to implement the Globally Harmonized System for the Classification and Labelling of Chemicals.
- Formulation of national strategies to deal with the following targets from the [Bahia Declaration on Chemical Safety](#) will commence after the completion of the National Profile:
 - Prevention of illegal traffic in toxic and dangerous products.
 - Dissemination of international information on chemicals.
 - Integrated and ecologically sound pest and vector management.
 - Exchange of information on chemicals.
- In addition the following activities will follow the completion of the National Profile:
 - Contribution to the international report on the problem of acutely toxic pesticides and severely hazardous pesticide formulations and recommendations for sound management options.
 - Identification of chemicals of major concern as part of the report on risk reduction initiatives.
 - Recommendations to establish common principles and harmonized approaches for risk methodologies on specific toxicological endpoints.
 - Procedures in place to ensure that hazardous materials carry appropriate and reliable safety information.
 - Investigation of improvements to hazard communication systems.
 - Action plans for safe management of obsolete stocks of pesticides and other chemicals.
 - Development of a Waste Information System as a forerunner to a Release and Transfer Register or emissions inventory.

Unique Opportunity

The World Summit on Sustainable Development provides a unique opportunity not only to review the activities that have been launched to give effect to Agenda 21 and in particular Chapter 19, but also for all nations to reaffirm commitment to the comprehensive plan that is Agenda 21 and to move beyond commitment to more concrete action plans for implementation.

As the South African Government has stated on many occasions, to be successful this Summit must address the challenge of globalization in a meaningful way. Implementation of Chapter 19 must ensure that the benefits of chemicals are available to all and that the trend to shift manufacture to the developing world must be accompanied by world-class health, safety and environmental performance standards. The South African Government calls for a Global Partnership and Johannesburg Programme of Action as outcomes of the Summit.

The South African Government recognizes the need to build on the progress already made in a number of international instruments and conventions for dealing with chemicals management. In particular, the successful partnership between UNEP and the Intergovernmental Forum on Chemical Safety in implementing Chapter 19 of Agenda 21 needs to be continued as part of the move towards more streamlined international environmental governance.

The Summit will also provide a platform for the endorsement of the Bahia Declaration as the framework for action on chemicals to be incorporated into the Johannesburg Programme of Action.

The South African Government calls on all stakeholders to join with their governments in ensuring that the vision of the Summit – People, Planet and Prosperity – is achieved through real partnerships and practical action.

3.4 General Comments

Based on the information collected through personal interviews, assessment of available information and stakeholder participation, a number of common problem areas in chemicals management have emerged. These include (but are not limited to) the following:

- The lack of a nationally co-ordinated, integrated approach to chemicals management;
- Fragmentation and duplication of legislative responsibilities amongst Government Departments;
- The general lack of monitoring and enforcement of regulations governing chemical production, use, emissions and disposal;
- Outdated legislation e.g. air pollution legislation;
- The lack of a lead agency to 'champion' chemicals management in South Africa;
- The overall lack of easily accessible, user-friendly information on chemical, production, use, incidents/fatalities, emissions and disposal;
- Worker safety and awareness in relation to the risks associated with hazardous chemicals;
- The general lack of product stewardship, which is not conducive to a 'cradle-to-grave' approach to chemicals management;
- The general lack of awareness and education amongst the general public regarding the hazards associated with chemicals;
- Waste management policies and strategies that still have to be implemented; and
- The use, storage and disposal of obsolete pesticides.

The lack of sufficient, accessible and user-friendly information on chemical production, import, export and use is perhaps one of the most significant obstacles to establishing the relative priorities in the industry. This includes industry disclosing the full details of their processes, chemical use, disposal (and problems related to these) and Government Departments reporting information in a co-ordinated and integrated manner. Perhaps a significant problem in the latter is the fragmentation of the roles of the different departments.

Another challenge to the industry is the fact that there is a regional concentration of chemical-related problems in South Africa e.g. in the Vaal Triangle and Durban South. These are two key centres of chemical use and production. In the case of the latter, the Safari 2000 study is indicating that this area has air quality impacts over a far wider geographical area of the Southern African Sub-Region. Therefore, 'local' chemicals management strategies must take account of the needs of our neighbours.

There appears to be significant agreement amongst the role-players in the industry about the problems and issues but the prioritisation of these issues is more problematic. There are still significant obstacles to overcoming these challenges, most importantly co-ordination between the different groups, additional financial resources and a substantial improvement in the information and data on chemicals management.

CHAPTER 4

LEGAL INSTRUMENTS AND NON-REGULATORY MECHANISMS FOR MANAGING CHEMICALS

This Chapter provides an overview of legislation, South African standard codes of practice and voluntary mechanisms for various aspects of managing chemicals.

CHAPTER 4

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4 LEGAL INSTRUMENTS AND NON-REGULATORY MECHANISMS FOR MANAGING CHEMICALS

4.1 Introduction to South African Legislation

According to *Environmental Law for All* (1999), Duard Barnard; legislation comprises the laws, ordinances, rules and regulations passed by elected political representatives acting as legislative authorities at different levels of government.

It is typical for legislation to change constantly to accommodate the needs that result from changes in circumstances, values, priorities, fashions and threats. In South Africa some of the changes in legislation were, and still are, caused by a change in the needs of the South African community and the circumstances and threats that confront the community.

Over the past three centuries several legal systems were brought to South Africa. The community that came from Europe brought the Roman Dutch law with them. Other communities that migrated southward in Africa brought their customary law with them. The legal challenges of Southern Africa were different from what many communities were used to. Through interaction between the communities, a more complex society was created. Roman Dutch and English law principles were adopted and combined with customary law guidelines, while refining the latter through constant changes to address legal challenges in the country.

The Bill of Rights contained in the Constitution of the Republic of South Africa Act 108 of 1996 "...enshrines the rights of all people in our country and affirms the democratic values of human dignity, equality and freedom". The government endorses this right in principle following a democratic route when bringing about changes in policy and legislation.

4.2 Legislative Change Process

When a change in policy is being made, the government often first puts forward its proposals in a Green Paper, which is a discussion document on policy options. It originates in the department of the Ministry concerned and is then published for comment and ideas. A submission date is usually given for input from civil society. This document forms the basis for a White Paper, which is a broad statement of government policy. Comment may again be invited from interested parties.

Once these inputs have been taken into account, the Minister and officials within the State department concerned may draft Legislative Proposals. At this stage, the Cabinet also considers the proposals. Occasionally this document may be gazetted as a Draft Bill, for comment by a defined date, or given to certain organisations for comment. Once all comments have been considered the document is taken to the State Law Advisers who check the proposals in detail and their consistency with existing legislation. These proposals are then printed by Parliament, given a number and go to be tabled or introduced in either the National Assembly or the National Council of Provinces. The document is now no longer a Draft Bill. It is a Bill and the introduction or tabling is called the first reading. After the reading it is put on the Order Paper and it goes to a Committee for consideration.

The committee consists of members of the different parties represented in Parliament who discuss the Bill. They sometimes call expert witnesses or invite submissions to help refine it, after which they may amend it. When the committee has approved the Bill, it goes for Debate in the

House in which it was tabled. Once that House has agreed to the Bill, it is transmitted to the other House and the same procedure is followed.

When both Houses have passed the Bill it is allocated an Act number and then goes to the State President to be signed. It is then published in the Government Gazette as an Act and it then becomes a law of the land.

Sometimes there are no Green and White Papers and the process begins with the legislative proposals originating in the Ministry or Department.

Please refer to <http://www.polity.org.za/govdocs/legislation/process.html> for further information.

4.3 Overview of National Legal Instruments which Address the Management of Chemicals

In South Africa the key legislation explicitly dealing with chemicals management are the following:

- Hazardous Substances Act No. 15 of 1973
- Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act
- Hazardous Chemical Substances Regulations (1995) of the Occupational Health and Safety Act No 85 of 1993
- Explosives Act of 1956
- Drugs and Drug Trafficking Act No 140 of 1992
- The Non-Proliferation of Weapons of Mass Destruction Act No 87 of 1993

One of the main aspects of managing chemicals however concerns the actual and potential environmental impacts of chemicals. South Africa shares the problem with the rest of the world in that many legislative measures that manage environmental impacts tend to be fragmented and falls under the control of a variety of enforcement agencies.

Historically two acts concerned with the management of environmental impacts are the following:

- National Environmental Management: Air Quality Act, Act No.39 of 2004 (To replace the Atmospheric Pollution Prevention Act, Act No. 45 of 1965); and
- Environmental Conservation Act No 73 of 1989

The promulgation of the Constitution of South Africa Act 108 in 1996 (hereafter 'the Constitution') however included the provision of the underlying principles for environmental management in the country. The promulgation introduced a Law Reform Program that led to the review and rationalisation of environmental legislation and the development of a framework for new environmental laws. A number of new environmental laws have already been promulgated and others are to follow in the near future. Recent environmental policies, legislation and guidelines include:

- The White Paper on Environmental Management Policy for South Africa (GNR749, GG18894 of 15 May 1998)
- National Environmental Management Act 107 of 1998 (NEMA)
- National Waste Management Strategy (1999)
- The White Paper on Integrated Pollution and Waste Management for South Africa (Notice No. 227 of 17 March 2000)

- Minimum Requirements for:
- the Handling, Classification and Disposal of Hazardous Waste
- Waste Disposal by Landfill
- for Monitoring at Waste Management Facilities

(2nd edition, produced by the Department of Water Affairs and Forestry in 1998)

Certain chemicals or aspects of chemicals management are addressed in a range of old and new legislation. Table 4.A provides a fairly comprehensive list of these legal instruments and a summary of the scope and objective of each instrument. The government departments responsible for the implementation and enforcement and specific regulations or sections, which address issues of chemicals management, are also indicated. A summary description of the most important instruments relevant to chemicals management is described in Section 4.4.

Table 4.A: Alphabetic References to Existing National Legal Instruments, which Address the Management of Chemicals

Legal Instrument	Responsible Department	Objective of Legislation
Constitution for the Republic of South Africa Act 108 of 1996	Parliament	The Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid, and the obligations imposed by it must be fulfilled. The Constitution includes a Bill of Rights as a cornerstone of democracy. It enshrines the rights of all people in our country and affirms the democratic values of human dignity, equality and freedom.
National Environmental Management: Air Quality Act, Act No.39 of 2004 (Repealed Atmospheric Pollution Prevention Act, Act No. 45 of 1965)	Department of Environmental Affairs and Tourism (DEAT); Chief Air Pollution Control Officer	To provide reasonable measures for the prevention of the pollution and ecological degradation. Develop standards for emission control and pollution abatement. Provides for management of alternative fuels and pollution reduction.
Compensation for Occupational Injuries and Disease Act No 130 of 1993	Department of Labour	<ul style="list-style-type: none"> To provide for compensation for disablement caused by occupational injuries or disease sustained or contracted by employees in the course of their employment, or death resulting from injuries or disease; and to provide for matters connected therewith.
Conservation of Agricultural Resources, Act No 43 of 1983	Agricultural Research Council (NDA)	Prevent degradation of the land and water resources on agricultural properties
Dumping at Sea Control Act 73 of 1980	Department of Environmental Affairs and Tourism (DEAT).	To prevent the unlawful dumping of certain substances into the sea from any type of vessel, that may cross the oceans whether it be a boat, platform or aircraft. The objective of this legislation is to prevent pollution, nutrification as well as the accumulation of non-bio-degradable substances within the marine system.
Drug and Drug Trafficking Act 140 Of 1992	South African Police Services (SAPS)	
Environment Conservation Act No. 73 of 1989 and: <ul style="list-style-type: none"> Section 20 Regulation 1182 and 1183 of 1997 promulgated in terms of the Environmental Conservation Act No. 73 of 1989 	Department of Environmental Affairs and Tourism	Environmental conservation <ul style="list-style-type: none"> Control of Environmental Pollution – Waste Management The EIA Regulations declares requirements for environmental impact assessments & reports
Explosives Act No 26 of 1956	South African National Defence Force, SAPS	To consolidate the laws relating to the manufacture, storage, sale, transport, importation, exportation and the use of explosives.
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of	National Department of Agriculture and Provincial Departments	Legislation in place to: <ul style="list-style-type: none"> Register fertilisers farm feeds, seeds, agricultural remedies and stock remedies.

Legal Instrument	Responsible Department	Objective of Legislation
1947		<ul style="list-style-type: none"> Prohibit the importation, sale, acquisition, disposal or use of fertilisers farm feeds, seeds, agricultural remedies and stock remedies. Provision of technical advisors and analysts
Fire Brigade Services Act 99 of 1987	Department of Provincial and Local Government	<p>Emergency response to natural disasters, industrial incidences such as fires, and other anthropogenic disasters.</p> <p>To regulate the storage, handling and transport of flammable gases, flammable liquids and flammable solids through local by-laws. Typical specifications in by-laws include specification as to the requirements in terms of flammable gas storage facilities and flammable liquid and chemical spill control and clean-up.</p>
Foodstuffs, Cosmetic and Disinfectant Act 54 of 1972 and relevant Regulations e.g.: <ul style="list-style-type: none"> Preservatives and antioxidants (R.965/1977) Metals in Foodstuffs of 1994 (R.1518/1994) Pesticide Residues that may be Present in Foodstuffs of 1994 (R.246/1994) Certain solvents in foodstuff (R.911/2001) 	Department of Health	<p>Protection of consumers against harmful effects of chemicals in consumer products.</p> <p>Protection from residual pesticides found in agricultural products and other foodstuffs</p> <p>Setting standards for acceptable levels of residual concentrations in line with the World Health organization.</p>
Hazardous Substances Act No. 15 of 1973	National Health and Population Development	<p>To provide for the prohibition and control throughout the life cycle of such substances, which may cause injury or ill health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances.</p> <p>The Act makes provision for the classification of certain substances according to their hazardous rating by the health department.</p>
Health Act No 63 of 1977	Health Department	Regulate the distribution and administration of medicines. Also regulates chemical content (organic/inorganic) sanitary conditions of potable water
Marine Living Resources Act, Act 18 of 1998	DEAT	To conserve the marine ecosystem and taking into account the long-term sustainable utilisation of the marine living resources.
Marine Pollution (Control and Civil Liability) Act 6 of 1981	Department of Transportation and Department of Environmental Affairs and Tourism	Legislation regulates the discharge of any harmful substance from any shipping vessel or offshore installation into any part of the sea where such a practice is prohibited. The term discharge includes the actions of; dumping escape, disposal, spilling, pumping or leaking
Marine Pollution (Intervention) Act 64 of 1981	South African Maritime Safety Authority	This Act gives effect to the International Convention relating to Intervention on the High Seas in the Cases of Pollution Casualties as well as to the Protocol Relating to the Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil.

Legal Instrument	Responsible Department	Objective of Legislation
Marine Pollution (Prevention of Pollution from Ships) Act 2 of 1986	Department of Transportation and Department of Environmental Affairs and Tourism	Provide protection of the seas and oceans from pollution by oil or other harmful substances that are discharged from ships
Medicines and Related substances Control Act, No 101 of 1965	Health Department	Regulate the use, distribution and the manufacture of medicines and other pharmaceutical agents.
Mine Health and Safety Act of 1998	Department of Minerals and Energy	<ul style="list-style-type: none"> To provide for the protection of the health and safety of employees and other persons at mines and ... To regulate employers' and employees' duties to identify hazards and eliminate, control and minimise risk to health and safety.
Minerals Act 50 of 1991	Department of Minerals and Energy	<ul style="list-style-type: none"> Regulate prospecting, optimal exploitation, processing and utilisation of minerals Regulate the orderly utilisation and rehabilitation of the surface of the land This legislation is currently under review and the DME is to be consulted to establish when the new legislation will be promulgated.
Minimum Requirement for Water Monitoring at Waste Management Facilities. (See note 2)	Department of Water Affairs	To ensure that groundwater quality is managed in an integrated and sustainable manner that provides adequate protection to the resources and secures the resources and secures the supply of acceptable quality for all recognised users.
Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste. (See note 1)	Department of Water Affairs	<ul style="list-style-type: none"> To set out minimum procedures, actions and information required from a permit applicant during the landfill site permitting process To provide a point of departure against which environmentally acceptable waste disposal practices can be distinguished from environmentally unacceptable waste disposal practices To provide the applicable standards or specifications that must be followed in the absence of any valid motivation to the contrary.
National Environmental Management Act No. 107 of 1998 (NEMA)	Department of Environmental Affairs and Tourism	<ul style="list-style-type: none"> To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state To provide for matters connected therewith.
National Nuclear Regulator of 1999	Department of Minerals and Energy	<ul style="list-style-type: none"> To provide for the establishment of a National Nuclear Regulator in order to regulate nuclear activities, for its objects and functions, for the manner in which it is to be managed and for staff matters To provide for safety standards and regulatory practices for protection of persons, property and the environment against nuclear damage To provide for matters connected therewith.
National Water Act No.36 of 1998	Department of Water Affairs and Forestry	Recognising that water is a scarce and unevenly distributed national resource the purpose of the Act is to:

Legal Instrument	Responsible Department	Objective of Legislation
		<ul style="list-style-type: none"> To provide for fundamental reform of the law relating to water resources To repeal certain laws To provide for matters connected therewith.
Non-Proliferation of Weapons of Mass Destruction Act, Act of 1993	Department of Trade and Industry	This Act provides for control over weapons of mass destruction and matters connected therewith.
Nuclear Energy Act of 1999		<ul style="list-style-type: none"> To provide for the establishment of the South African Nuclear Energy Corporation Limited..... To provide for responsibilities for the implementation and application of the Safeguards Agreement...entered into by the Republic and the International Atomic Energy Agency.....
<p>Occupational Health and Safety Act No. 85 of 1993 and relevant Regulations:</p> <ul style="list-style-type: none"> General Administrative Regulations of 1996 Major Hazard Installation (MHI) Regulations of 1998 (as amended) Regulations for Hazardous Chemical Substances (HCS) of 1995 Asbestos Regulations of 1987 Lead Regulations of 1991 General Safety Regulations of 1986 	Department of Manpower, Chief Inspector	<ul style="list-style-type: none"> To provide for the health and safety of persons at work and for the health and safety of persons in connection with use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work To establish an advisory council for occupational health and safety; and to provide for matters connected herewith. <p>The MHI Regulations are applicable to employers, self employed persons and users who have on their premises:</p> <ul style="list-style-type: none"> Either permanently or temporary, an installation or a quantity of a substance which holds a risk of resulting in a major incident; and Who have on their premises any substance that could result in an incident of such magnitude that the health and safety of persons outside the premises, including the public, may be affected. <p>The HCS Regulations apply to an employer or a self-employed person who carries out work at a workplace which may expose any person to the intake of an hazardous chemical substance, i.e. any toxic, harmful, corrosive, irritant or asphyxiant substance (except where the Lead and Asbestos Regulations are applicable</p> <p>The Asbestos Regulations apply to all employers who use asbestos in raw mineral form, and to all employers who process materials containing asbestos.</p> <p>The Lead Regulations apply to every employer at a workplace where lead is produced, processed, used handled or stored in a form in which it can be inhaled, ingested or absorbed by an employee.</p>

Notes: 1 Guidelines unless it becomes part of a Water Use-, Water Services- or Waste Disposal Site Permit issued respectively in terms of the National Water Act of 1956, the Water Services Act of 1997 or the Environmental Conservation Act of 1998.

4.4 Summary Description of Key National Legal Instruments Relating to Chemicals

4.4.1 Constitution of the Republic of South Africa Act 108 of 1996

“The process of drafting the Constitution involved many South Africans in the largest public participation programme ever carried out in South Africa”. The Constitution was formulated by “an integration of ideas from ordinary citizens, civil society and political parties represented in and outside the Constitutional Assembly.”

This sub-section describes the Constitution and its significance in terms of environmental management, which, for obvious reasons, addresses certain aspects relevant to management of chemicals.

The Constitution is the supreme law of South Africa. Any law or conduct inconsistent with it is invalid and obligations imposed by it must be fulfilled (Section 2 of the Act). It is the cornerstone of all legislation in South Africa. The Constitution includes the South African Bill of Rights.

The Bill of Rights contains an environmental right which recognises that all people in South Africa have a right to an environment that is not harmful to their health or wellbeing. The section referring to the environmental right also recognises and entrenches the notion of sustainable development and its supporting principles (Section 24 of the Act). As such all people have the right to have the environment protected for the benefit of present and future generations, through reasonable legislation and other measures that, inter alia, prevent pollution and ecological degradation; promote conservation; and secure ecological sustainable development and use of natural resources while promoting justifiable economic and social development (Section 24(b) of the Act).

The Constitution thus places a duty on the government to act and this resulted in the promulgation of the recent new environmental policies, legislation and guidelines.

The Constitution empowers the community as part of the phenomenon of the devolution of effective power. A community need not wait for or rely on government to act and can initiate steps that it deems necessary. The affected communities now make the decisions whilst the government officials play a facilitation role. The officials however remain responsible to ensure that a decision is made and that adequate measures are enforced.

The Constitution introduces several subsidiary measures that facilitate the enforcement of environmental right, including:

- The drastic extension of ***locus standi*** (the standing in law) of people who wish to approach a court (Section 38 of the Act).
- **Transparency** and **access to “any information** held by the state” as well as” any information that is held by another person and that is required for the exercise or protection of any rights.” (Section 32 of the Act) - This allows access to the available research and detailed information necessary to substantiate demands for improved environmental performance. This includes information emanating from bodies causing environmental degradation, which facilitates acceptance of the correctness thereof.
- **Administrative justice** i.e. “just administrative action” that is “lawful, reasonable and procedurally fair” (Section 33 of the Act).
- **Internationally established environmental law principles** i.e. of the values that underlie an open and democratic society must be promoted, international law must be considered and foreign law may be considered.
- The right to progressive realisation of basic human rights (Section 7).

Further information pertaining to environmental law can be obtained from:
Constitution of the Republic of South Africa Act 108 of 1996.
<http://www.polity.org.za/govdocs/constitution/saconst.html>
Ian Sampson (2000). *A Legal Framework to Pollution Management in the Durban Metropolitan Area*. Commissioned by Durban Metro Water Services in conjunction with Deloitte & Touche
Duard Barnard. (1999). *Environmental Law for All*. Impacts Books CC, Pretoria, RSA

4.4.2 Hazardous Substances Act No 15 of 1973

The Department of Health is planning to revise the Hazardous Substances Act in collaboration with DEAT. Application to the International Programme on Chemical Safety (IPCS) for funding has been made in this regard. (See Chapter 10, Section 10.1.4)

The Hazardous Substances Act provides for the control of substances, which may cause injury or ill health to, or death of human beings by reason of their nature being one of the following:

- Toxic
- Corrosive
- Irritant
- Strongly Sensitising
- Flammable
- Such that it could generate pressure in certain circumstances.

The Act provides for the prohibition and control of handling such hazardous substances by any of the following actions:

- Importation
- Manufacture
- Sale
- Use
- Operation
- Application
- Modification
- Disposal
- Dumping.

The Act is administered by the Minister of Health, who exercises control over the various products by declaring them to be in any one of four specified groups of hazardous substances. Once a group is declared, the Minister can promulgate regulations controlling various aspects of their handling (Ref 1).

Group I and II consists of hazardous chemical substances or mixtures of such substances, "which in the course of customary or reasonable handling or use, including ingestion, might, by reason" of its nature or effect cause harm to human beings and is declared as such by notice in the Government Gazette.

Group III consists of hazardous electronic products declared as such by notice in the Government Gazette. (This group is not further discussed in this document.)

Group IV are defined by the act to be “radioactive material which is outside a nuclear installation as defined in the Nuclear Energy Act of 1993, and is not a material which forms part of or is used or intended to be used in nuclear fuel cycle, and

- (a) has an activity concentration of more than 100 becquerels per gram and a total activity of more than 4000 becquerels; or
- (b) has an activity concentration of 100 becquerels or less per gram or a total activity of 4000 becquerels or less and which the Minister has by notice in the Gazette declared to be a Group IV hazardous substance,

and which is used or intended to be used for medical, scientific, agricultural, commercial or industrial purpose, and any radioactive waste arising from such radioactive material.”

Group I Hazardous Substances (Hazardous Chemical Substances)

The Act specifies that once a substance has been declared as a Group I hazardous substance, no person may sell the substance unless he or she has obtained a licence from the Department and subject to any conditions prescribed or determined by the Director-General in the licence (Ref 1).

“**Sell**” is defined broadly to include offer, advertise, keep, transmit, consign, convey or deliver for sale, or exchange, or disposal of, to any person, in any manner, whether for consideration or otherwise, or manufacture or import for use in the Republic (Ref 1).

The Group I Hazardous Substances Regulations regulates the management of the relevant chemicals in terms of

- Licensing procedures
- Persons to who a licence may be granted
- Conditions of sale or supply
- Records to be kept
- Prohibition of sale to persons under 16 years of age
- Labelling
- Duties of inspectors and analysts
- Disposal of empty containers
- Fines.

The list of hazardous substances declared as Group I hazardous substances can be found in Government Notice R. 452 of 25 March 1977. The list includes substances such as arsenic, cyanides; lead acetate, thallium and zinc phosphide as well as substances contained in SANS 0228 Code of Practice, Appendices E and F, Class 6.1 (Ref 1).

The Minister may publish a notice in the Government Gazette exempting any Group I hazardous substance from the above provisions. He or she may also exempt any person or category of persons from the provisions. Exemptions have been granted in respect of certain users, although only under specific circumstances (Ref 1).

Group II Hazardous Substances (Hazardous Chemical Substances)

No licensing requirements or other control measures exist in respect of Group II hazardous substances besides for the ‘Regulations Relating to Aerial Application of

Agricultural Remedies' (see 4.4.2 (b) below) and for relevant new and expansions of facilities the EIA Regulations (see 4.4.11 (a)). Should such requirements be imposed in future, it will apply to all substances declared in Government Notice R. 1382 of 1994. The substances include all those listed in SANS 0228 with exception of Class 1 (Explosives) and Class 7 (Radioactive substances). The Code is periodically updated (Ref 1).

Group IV Hazardous Substances (Radioactive Material)

Written authority from the Director-General is required to produce or otherwise acquire, dispose of, import or export, be in possession of, use, convey or cause to be conveyed, a Group IV hazardous substance. The permission granted extends to any employee of the holder of the authorisation and may be granted subject to prescribed conditions and any further conditions that the Director-General may determine (Ref 1).

The following additional regulations have been promulgated under the Act:

- Regulations Governing the Conveyance of Hazardous Substances by Road Tanker. These have since been substituted by the Regulations relating to the transportation of dangerous goods and substances by road, in terms of the National Road Traffic Act, 1996 (GNR 103 of 12 October 2001) (See section 4.4.2 (a) for more detail).
- Regulations relating to the Aerial Application of Agricultural Remedies (See section 4.4.2 (b) for more detail).
- Regulations relating to the Control and Sale of Cyanide for use in a Cyanide Poison-Firing Apparatus -
- According to these regulations nobody shall sell cyanide for loading of cartridges to any person unless such a person is the holder of written approval or authorisation from the head of the health authority of a province or a provincial conservation institution respectively. Written authorisation is not transferable.
- Regulations relating to the Control over Fluoroacetic Acid (Mono), its Salts and Derivatives -
- According to these regulations no person shall import, sell, keep, apply or use fluoroacetic acid (mono), its salts and derivatives, unless they are sealed in a poison collar or a licence has written approval from the Director-General. Sale of such collars are prohibited unless the person who sells is the holder of a licence and the buyer is a holder of written authorisation from the director of provincial conservation. Further specifications relate to the procedures of keeping such collars.
- Declaration of Carbon Tetrachloride as a Group I Category A Hazardous Substance –
The substance is declared a prohibited substance subject to the exemption of an importer or manufacturer for the supply for mining or industrial purposes or to a *bona fide* laboratory, researches institution or teaching institution. The importer or manufacturer shall adhere to the Group I Category A hazardous substance regulations.

(a) Regulations Relating to the Aerial Application of Agricultural Remedies

These regulations are also declared under the Hazardous Substances Act 15 of 1973. The regulations declare that SANS Code of Practice 0118, entitled '*The aerial application of agricultural remedies*' shall be adhered to for such application of any Group II hazardous substances and substances specified in SANS Code of Practice 0228, entitled '*The identification and classification of dangerous substances and goods*'.

SANS Code of Practice covers the training of pilots, the aircraft and landing places, the protection of pilots and ground personnel and health precautions, directives for agrochemical companies, sponsors and aerial application companies, and first-aid treatment in case of suspected poisoning

The regulations specify that any employer who carries out or causes to be carried out such aerial application must furnish the inspector with specific detail information on the application on the inspectors' request. The detail information relates to the business that conducted the application, the date of application, remedy, supplier of the remedy, employees involved and protective clothing used during the application.

The employer must ensure that any employee who has run the risk of exposure to the remedy undergoes medical surveillance as defined in the Occupational Health and Safety Act.

For further reading, refer to www.doh.gov.za and www.labour.gov.za.

4.4.3 National Road Traffic Act No 93 of 1996

(a) Regulations Relating to the Transportation of Dangerous Goods and Substances by Road

According to a column written by Kate Farina in the IAIAAs Newsletter April 2002 entitled 'Legal Update'; the regulations governing the 'Conveyance of Hazardous Substances by Road Tanker' previously published in terms of the Hazardous Substances Act 15 of 1973, have officially been repealed and replaced by the "Regulations relating to the transportation of dangerous goods and substances by road" in terms of the National Road Traffic Act, 1996 (GNR 103 of 12 October 2001).

The United Nations recommendations on the transport of dangerous goods have been used to produce the 1996 act. In addition, and in terms of other regulations published under the National Road Traffic Act, 1996, certain South African Bureau of Standards (SANS) Codes of Practice have been incorporated as standard specifications into the National Road Traffic Regulation (GNR 1249 of 13 November 2001). These codes have been based on the UN recommendations, also known as "The Orange Book" and the associated European ADR regulations.

The codes of practice so incorporated are the following:

- SANS 1398 "Road tank vehicles for petroleum-based flammable liquids"
- SANS 1518 "Transportation of dangerous goods – Design requirements for road tankers"
- SANS 0228 "The identification and classification of dangerous substances and goods"
- SANS 0229 "Packaging of dangerous goods for road and rail transportation in South Africa"
- SANS 0230 "Transportation of dangerous goods – Inspection requirements for road vehicles"
- SANS 0231 "Transportation of dangerous goods – Operational requirements for road vehicles"
- SANS 0232-1 "Transportation of dangerous goods – Emergency Information Systems", Part 1: "Emergency information system for road transportation"
- SANS 0232-3 "Transportation of dangerous goods – Emergency information systems", Part 3: "Emergency action codes"
- SANS 0233 "Intermediate bulk containers for dangerous substances".

4.4.4 Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947 ('Fertiliser Act') (Ref 1)

The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act replaced and improved the Fertilizers, Farm Foods, Seeds and Pest Remedies Act No 21 of 1917. In its original form, this Act's primary focus was on agricultural efficiency and consumer protection. However, it has been amended several times and may now be viewed as also incorporating a concern for the protection of the environment and the public.

The Act is administered by the Department of Agriculture and has the following three significant objectives for the purposes of this chapter, namely:

- To provide for the appointment of a Registrar;
- The registration (and cancellation of registration) of fertilisers, farm feeds and agricultural and stock remedies, and
- Regulation or prohibition of the importation, sale, acquisition, disposal and use of fertilisers, farm feeds and agricultural and stock remedies.

Banned and Restricted Substances

A list of the banning and restrictions of substances is available from the National Department of Agriculture. The list provided in Table 4.B has been downloaded from the NDA website, <http://www.nda.agric.za/>.

Table 4.B Substances banned and restricted by the National Department of Agriculture

Substance	Status
Aldrin (HHDN)	Withdrawn in 1992.
Arsenic.	All uses of any inorganic arsenic containing compound on plant material (except on citrus) were banned in 1983. In 1983 it was also totally prohibited as a stock remedy.
Atrazine.	Withdrawn from use on heavy clay soils (Springbok Flats) in 1977. The industrial use withdrawn on 31 March 1995.
Azinphos-ethyl.	Withdrawn as an agricultural remedy in 1997.
BHC (mixture of various isomers).	Banned in 1983.
Binapacryl.	All registrations expired in 1988.
Camphechlor (CLC).	Withdrawn as an agricultural remedy in 1970 and as a stock remedy in 1985.
Chlordane.	In 1993 use restricted to stem treatment of citrus and vineyards and the treatment of structures by pest control operators. Withdrawn as an agricultural remedy in 2000.
Chlordimeform.	Withdrawn as an agricultural remedy in 1978.
Chlorobenzilate.	Withdrawn as an agricultural remedy in 1978.
2,4-D (dimethylamine salt).	In 1991 aerial application in Natal was banned and it has been totally prohibited in parts of the magisterial districts of Camperdown, Pietermaritzburg and Richmond.
2,4-D esters.	In 1980 it was withdrawn from all agricultural uses in the Western Cape and prohibited in 1991 in Natal.
2,4-DB (sodium salt).	In 1991 aerial application in Natal was banned and it has been totally prohibited in parts of the magisterial districts of Camperdown, Pietermaritzburg and Richmond.
Dicamba.	In 1991, aerial application in Natal was banned and it has been totally prohibited in parts of the magisterial districts of Camperdown, Pietermaritzburg and Richmond.
DDT.	Banned in 1983 except for the control of malaria by the Government.
Dibromochloropropane.	Withdrawn in 1984.
Dieldrin.	Banned in 1983.
Dinoseb.	All registrations as an agricultural remedy expired in March 1995.
DNOC	Withdrawn as an agricultural remedy in 2001
Endosulfan.	Registration on fodder crops was suspended in 1970.
Endrin (Nendrin).	Withdrawn in 1980.
Gamma-BHC (lindane).	All stock remedy registrations were withdrawn in 1971.
Heptachlor.	Registration was withdrawn in 1976.
Kepone.	In 1971 a decision was taken not to allow this product in South Africa.
Leptophos.	Registration was suspended in 1980.
MCPA (dimethylamine salt).	In 1991 aerial application in Natal was banned and it has been totally prohibited in parts of the magisterial districts of Camperdown, Pietermaritzburg and Richmond.
MCPA (potassium salt).	In 1991 aerial application in Natal was banned.
MCPB (sodium salt).	In 1991 aerial application in Natal was banned.
Mercury compounds.	It was withdrawn from all agricultural uses in 1974. In 1983 the use of all mercury compounds on seed, bulbs, tubers, stems or any other plant material was banned.
Methyl bromide.	All small packages (680 g) were withdrawn in December 1995.
Monocrotophos.	The use as leaf application on citrus, cutworm control in carrots and use on tomatoes were withdrawn in 1997.
Nicotine.	It was withdrawn from use as a stock remedy in 1971.
Parathion.	Only certain uses allowed from June 1993.
Phosphorus containing formulations.	In 1979 all formulations containing phosphorus were withdrawn.
Propham.	Withdrawn as an agricultural remedy in 1997.
2,4,5-T.	All registrations expired in 1989.
Triclopyr.	In 1991 aerial application in Natal was banned.
TDE.	Withdrawn as an agricultural remedy in 1970.

Definitions

Definitions of fertilisers, farm feeds and agricultural and stock remedies (hereafter referred to as “products”) are set out in the Act as follows:

“**agricultural remedy**’ means any chemical substance or biological remedy, or any mixture of combination of any substance or remedy intended or offered to be used –

- (a) for the destruction, control, repelling, attraction or prevention of any undesirable microbe, alga, nematode, fungus, insect, plant, vertebrate, invertebrate, or any product thereof, but excluding any chemical substance, biological remedy or other remedy in so far as it is controlled under the Medicines and Related Substances Control Act, 1965 (Act 101 of 1965), or the Hazardous Substances Act, 1973 (Act 15 of 1973); or
- (b) plant growth regulator, defoliant desiccant or legume inoculant, and anything else which the Minister has by notice in the Gazette declared as an agricultural remedy for the purposes of this Act”

“**farm feed**’ means –

- (a)(i) any substance obtained by a process of crushing, grist or grinding, or by the addition to any substance or the removal there from of any ingredients; or any condimental foods, vitamin or mineral substance or other substance which possesses or is alleged to possess nutritive properties;
- (b) any stocklick or substance which can be and is used as a stocklick, whether or not such stocklick or substance possess medicinal properties,

but does not include straw, chaff, ungrounded hay, silage, any cereal in the grain or any substance which would otherwise be a farm feed but has been ground, crushed, grist or prepared for any person, in accordance with his directions for his own use, unless the Minister has by notice in the Gazette declared such substance a farm feed for the purposes of this Act”

“**Fertiliser**’ means any substance which is intended or offered to be used for improving or maintaining the growth of plants or productivity of the soil”

“**stock remedy**’ means “a substance intended or offered to be in connection with domestic animals, livestock, poultry, fish or wild animals (including wild birds), for the diagnosis, prevention, treatment or cure of any disease, infection or other unhealthy condition, or for the maintenance or improvement of health, growth, production or work or working capacity, but excluding any substance insofar as it is controlled under the Medicines and Related Substances Control Act, 1965 (Act No 101 of 1965),”

For the purposes of this discussion these four substances are jointly referred to as “a product” or “products”.

Registrar

In terms of section 2, the Minister must designate an official in the Department to be the Registrar of fertilisers, farm feeds, agricultural and stock remedies. The Registrar must perform the duties and functions set out in the Act, subject to any instructions issued by the Minister.

These functions include:

- the registration of products or cancellation of such registrations,

- the right of entry and examination of premises, the seizure of substances, and
- taking of samples.

Technical Advisors

The Registrar may be supported in the carrying out of his functions by technical advisors and analysts who have been designated as such by the Minister.

Registration of a Product

Application must be made to the Registrar for the registration of a product, sterilizing plant or pest control operator in the prescribed manner. The Registrar must register the product, sterilizing plant or operator if he or she is satisfied that certain requirements have been met. These requirements include the fact that the registration will not be contrary to the public interest, the establishment is suitable for the manufacture of the product and that the person is sufficiently skilled.

The implication of this section is that the Registrar may refuse to register a product where such registration would be contrary to the public interest. However, the Act does not specify what would be contrary to the public interest.

All registrations are made subject to any conditions that the Registrar determines. They will also be valid for a time period stipulated by the Registrar. (Application may be made for renewal of registration).

Once a product has been registered, the Registrar may cancel the registration for a number of reasons.

Provision is made for appeal against the Minister's decisions.

Order of Discontinuation of Use of Certain Pest Control Equipment

The Registrar's powers and functions extend to the equipment of a pest control operator. The Registrar may order the pest control operator to discontinue the use of such equipment if he or she is of the opinion that the equipment is so unsuitable for administration of the product that the purpose for which the product is being administered may be defeated.

Prohibition

Other restrictions imposed by the Act include the prohibition of the acquisition, disposal, sale of any product controlled by the Act unless:

- it is registered under the Act (provided that where validity of the registration has expired or the certificate cancelled, and the product was not in the control of the person to whom the certificate was granted at the date of that lapsing or cancellation, the product may be sold subject to certain provisions);
- it is packed in the manner that may be prescribed;
- the container in which it is sold complies with prescribed requirements and it is labelled in a prescribed manner or, if it is sold in a container, it is accompanied by an invoice setting out particulars that may be prescribed; and
- it is of the composition specified in the registration.

No person may recommend a product controlled by the Act to be used for any other purpose than what is specified on the label and/or use a product unless he or she is a registered pest control operator, or is supervised by a pest control operator. (This does not apply to registered vets in respect of stock remedies).

The Minister may prohibit the acquisition, disposal, sale or use of products or stipulate conditions and permit requirements in terms of which products may be acquired, disposed of, sold or used, by notice in the *Government Gazette*. The Minister may make this notice applicable to the entire country, to a person or category of persons or in respect of one or more classes or kinds of products.

For example a regulation passed in 1981, stipulated a total prohibition in respect of the whole of the country on the acquisition, disposal or sale of a remedy which contains the following prohibited substances (see 4.4.4 (a) below for further regulations):

- a mixture of different isomers of BHC, excluding gamma – BHC with a purity grade of at least 99% (lindane);
- DDT; and
- Dieldrin or Aldrin (with the exception of Aldrin for use beneath buildings for the control of wood destroying termites).

Where any person is administering a product and will be receiving a fee for that administration, he or she must notify the person on behalf of whom he or she is administering the product for the purpose of:

- the administration,
- the registered name and number of the product,
- precautions to be taken before, during and after such administration, and
- the number of his certificate of registration if he is a pest control operator.

The Minister may by notice in the *Government Gazette* exclude any product from the provisions of the Act.

Importation

No person may import a product into the Republic unless the product is registered in terms of the Act and complies with all the conditions of registration. However, the Registrar may in his or her discretion and on such conditions as he or she may determine, permit the import of any product in writing, which does not comply with these requirements. All imported products may only be imported through a prescribed port or place. They may also not be removed from the port until samples have been taken or examined if the Registrar requires this.

If a product is imported contrary to this Act, the importer may have to remove the product from the Republic within a period specified by the Registrar at his or her own expense or may forfeit the product to the State to be destroyed or otherwise disposed of. Any costs incurred by the State in connection with this forfeiture may be recovered from the importer.

Offences

The Act creates a long list of offences, which include:

- obstructing or hindering the Registrar, technical advisor or analyst in the exercise of their powers or performance of duties under the Act;
- failure to comply with an order issued under the Act;
- use of a product or certificate which is no longer valid;
- the making of false or misleading statements in connection with the application for registration, invoice, advertisement or in the cause of sale

(a) Regulations Promulgated under the ‘Fertiliser Act’

Section 23 of the Act empowers the Minister to make regulations regarding various matters, including:

- registration procedures;
- appeals;
- details to be set out in invoices;
- prescribing the composition, efficacy, chemical, physical or other property required in respect of any substance in order that it may be imported, sold or registered;
- packaging and labelling;
- sterilisation;
- the requirements of operations and information to be kept;
- prohibiting the disposal, acquisition or use of any farm feed as a fertilizer; and
- generally any regulations that are necessary for the efficient carrying out of the objects and purposes of the Act.

The Minister has exercised this power on various occasions. In addition to those already mentioned, the following regulations have been passed:

GN. R. 1375 (GG3629) 11 August 1972: Regulations Pertaining to the Registration and Sale of Agricultural Remedies

GN. R. 1061 (GG10739) 15 May 1987: Prohibition on the acquisition, disposal, sale and use of the following agricultural remedies and stock remedies:

1. an agricultural remedy which contains:
 - (a) chlorobenzilate; and
2. a stock remedy which contains:
 - (a) camphechlor; or
gamma-BHC (Lindane)

GN. R. 1359 (GG7105) 27 June 1980: Regulation relating to farm feeds.

GN. R. 2561 (GG7934) 27 November 1981: Regulations relating to agricultural remedies

GN. R. 2370 (GG13536) 27 September 1991: Prohibition on the acquisition and use of the following agricultural remedies in certain areas:

- (1) (a) 2,4-D (dimethylamine salt);
- (b) 2,4DB (sodium salt);
- (c) MCPA (dimethylamine salt);
- (d) dicamba (dimethylamine salt); and

- (e) any other salts or esters of 2,4D (except APM salt) in the areas defined in the Schedule;
- (2) prohibit the aerial application of any agricultural remedy referred to in paragraph (1) in the Province of Natal;
- (3) prohibit the aerial application of an agricultural remedy containing MCPA (potassium salt), MCPB (sodium salt), any salt or esters of triclopyr as well as any salts or dicamba, in the Province of Natal;
- (4) prohibit the application of any agricultural remedy containing 2,4-D (iso-octyl ester), in the Province of Natal.

GN. R. 799 (GG5552) 20 May 1977: Regulations regarding fertilizers

GN. R. 1449 (GG8783) 31 July 1983: Regulations relating to the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators, appeals and imports and amendments to and repeal of certain regulations.

GN. R. 384 (GG8561) 25 February 1983:
Prohibition on-

- (a) the acquisition, disposal, sale and use of agricultural remedies and stock remedies which contains-
 - (i) a mixture of different isomers of BHC, excluding gamma-BHC with a purity grade of at least 99 per cent (Lindane);
 - (ii) dichlor-diphenyl-trichloroethane (DDT); or
 - (iii) dieldrin or aldrin, with the exception of aldrin for use underneath buildings for the control of wood destructing termites;
- (a) the use of any agricultural remedy which contains-
 - (i) any inorganic arsenic compound on vegetative material, except material derived from citrus; and
 - (ii) any mercury compound on seed, bulbs, tubers, stalks or other vegetative matter; and
- (a) the use of any agricultural remedy or stock remedy which is not registered in terms of the said Act, for the treatment of a plant, vegetative material or animal.

GN. R. 857 (GG3121) 28 May 1971: Regulations relating to the registration and sale of stock remedies.

GN. R. 949 (GG10723) 30 April 1987: Prohibition on the acquisition and use of the following agricultural remedies in certain areas:

- (1) an agricultural remedy which contains-
 - (a) 2,4-D (dimethylamine salt); or
 - (b) 2,4-D (iso-octyl ester); or
 - (c) 2,4-DB (sodium salt); or
 - (d) MCPA (potassium and dimethylamine salt); or
 - (e) MCPB (sodium salt); or
 - (f) dicamba (dimethylamine salt); or
 - (g) picloram (tri-isopropanolamine and potassium salt); or
 - (h) trichlopyr (butoxyethyl ester); or
 - (i) 2,4,5-T (butyl ester); or
 - (j) any other salts or esters of 2,4-D, picloram or 2,4,5-T in the area defined in the Schedule.

GN. R. 383 (GG8561) 25 February 1983:

Declaration of any adjuvant consisting of any chemical substance or biological remedy, or any mixture or combination of such substance or remedy and which, when it is added to an agricultural remedy which is prepared for application in accordance with the approved instructions for use of that agricultural remedy, will enhance the efficiency of such agricultural remedy, to be an agricultural remedy for the purposes of the Act.

Overlaps with Other Legislation

In certain aspects the 'Fertiliser Act' overlaps with other legislation in particular the Hazardous Substances Act and The Occupational Health and Safety Act. Respective examples are regulations pertaining to certain chemicals, packaging and labelling and wear of personal protective clothing.

4.4.5 Drug and Drug Trafficking Act No. 140 of 1992 (as amended)

The Act provides for the prohibition of the use or possession of or dealing in drugs and of certain acts relating the manufacture or supply of certain substances or the acquisition or conversion of the proceeds of certain crimes. The Act applies in addition to the Medicines and Related Substances Control Act, 1965 (Act No. 101).

'Drug' is defined as any dependence-producing substance and any such substances that are defined as dangerous or undesirable. Substances include plants from which substances can be manufactured. The Act includes two schedules listing substances useful for the manufacture of drugs and the various categories of dependence-producing substances.

The act prohibits manufacture and supply of any scheduled substance to anybody knowing or suspecting that it is to be used for the unlawful manufacture of any drug.

Nobody shall be in possession of a dependence-producing substance unless he has received it from a medical practitioner or pharmacist that are providing it whilst adhering to other legal requirements or else if he is legally permitted to possess it under the Medicines and Related Substances Control Act or in another lawful manner.

Nobody may deal in drugs unless he is lawfully permitted to do so.

Further information can be obtained from www.saps.org.za.

4.4.6 The Fire Brigade Services Act 99 of 1987

The Fire Brigade Services Act regulates the storage, handling and transport of flammable gases, flammable liquids and flammable solids through local by-laws.

Typical specifications in by-laws include specification as to the requirements in terms of flammable gas storage facilities and flammable liquid and chemical spill control and clean-up.

Box 4.1

Important Role of the Municipal Fire Departments

Source: ARCUS GIBB

It is important to note that the municipal Fire Departments play an important role in managing chemicals in most cities and towns. Not only do they assist with the specification and inspection of flammable stores, various safety systems and emergency procedures but they often also keep record and control of the trafficking and storage of hazardous substances in the municipalities' jurisdiction. At some municipalities, the Fire Department maintains a database of MSDSs for chemicals relevant in their area.

4.4.7 Disaster Management Bill No 21 of 2002

The purpose of the Disaster Management Bill is to provide for:

- An integrated and co-ordinated disaster management policy that focuses on preventing or reducing the risk of disasters, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery
- The establishment of national, provincial and municipal disaster management centres
- Disaster management volunteers.

“Disaster” is defined by the Bill as a progressive or sudden, widespread or localised, natural or human-caused occurrence which

(a) causes or threatens to cause

(i) death, injury or disease

damage to property, infrastructure or the environment; or
disruption of the life of a community; and

(b) is of a magnitude that exceeds the ability of those affected by the disaster to cope with its effects using only their own resources.

By definition, disasters involving chemicals would thus be covered by the Bill.

In terms of the Bill, a National Disaster Management Centre has been established within the Department of Provincial and Local Government.

The general powers and duties of the National Disaster Management Centre include:

- Establishing effective communication links with role-players who either are or should be involved in disaster management in southern Africa
- Establishing communication links with foreign disaster management agencies in order to exchange information and have access to international assistance and expertise
- The collection, processing, analysis and dissemination of information on all aspects of disasters, impending disasters and disaster management
- Maintenance of a register for all disaster management volunteer units
- Developing guidelines for and providing assistance with the preparation, review and updating of disaster management plans and strategies for organs of state and other relevant institutional role-players
- Providing assistance in co-ordinating the implementation of disaster management plans and strategies by the respective organs of state and other role-players

- Developing guidelines for and providing assistance with the integration of disaster management principles into national, provincial and municipal development plans, programmes and initiatives
- Providing guidance to organs of state, the private sector, non-governmental organisations, communities and individuals on the development and implementation of appropriate prevention and mitigation methodologies, including the management of high-risk developments
- Measuring performance and evaluating progress on disaster management plans as well as prevention, mitigation and response initiatives
- Assessing the magnitude and severity of a disaster, whether real or potential
- Classification of disasters as either being local, provincial or national in order to designate primary responsibility for management of the disaster
- Assisting in the implementation of legislation
- Providing recommendations regarding the funding of disaster management as well as initiating and facilitating efforts to make such funding available.

In addition, the Bill requires that each province and each metropolitan and district municipality establish a disaster management centre for their area of jurisdiction. These provincial and municipal centres are required to notify the National Disaster Management Centre of the magnitude and severity of every disaster (current or impending).

Similarly, the National Disaster Management Centre is required to liaise and co-ordinate its activities with provincial and municipal disaster management centres at all times.

Additional information can be obtained from <http://sandmc.pwv.gov.za>.

4.4.8 Explosive Act No. 26 of 1956 (Ref 1)

The Explosives Act aims to consolidate the laws relating to the manufacture, storage, sale, transport, importation and the use of explosives. It falls within the responsibility of the Minister of Safety and Security.

“Explosives” means-

- Gunpowder, nitro-glycerine, dynamite, guncotton, blasting powders, fulminate of mercury or of other metals, coloured fires and every other substance which is used or manufactured with a view to produce a practical effect by explosion or a pyrotechnic effect;
- Any fuse, rocket, detonator, cartridge, and every adaptation or preparation of an explosive; and
- Any other substance which the State President may from time to time declare to be an explosive.

The Act imposes, *inter alia*, the following prohibitions in respect of explosives:

- Manufacture of unauthorised explosives;
- Manufacture of authorised explosives except in licensed factories;
- Storage or possession of unauthorised explosives save in accordance with certain provisions;
- Storage of authorised explosives except in licensed premises;
- Unlicensed dealing in explosives;

- Unlicensed importation or exportation of explosives; and
- Use of blasting materials.

The Minister may make regulations in connection with almost every activity relating to explosives, including the construction of explosive factories and the packing, transportation, importation and exportation of explosives.

The Act does not apply to-

- The South African National Defence Force or the police service;
- Ammunition regulated by any other law;
- The transfer, transport, use, storage and distribution of explosives in so far these activities are governed by any regulation made under paragraph (f) of sub-section (1) of section 12 of the Mines and Works Act, 1956; and
- The possession or conveyance of any explosive taken as a sample for the purpose of the Act by an inspector or other authorised person, provided the person so authorised handles the explosive with all due precaution.

(a) Explosive Act Regulations

The Regulation of 3 July 1981 (GNR 1412 in GG 7648) deals with the classification of explosives:

Classification of Explosives

Explosives are divided into eight classes, as follows:

Class 1 -	Gunpowder
Class 2 -	Nitrate mixture
Class 3 -	Nitro-compound e.g. TNT, dynamite, cordite
Class 4 -	Chlorite mixture
Class 5 -	Fulminate e.g. percussion agents
Class 6 -	Ammunition
Class 7 -	Fireworks
Class 8 -	Miscellaneous e.g. matches

Categories of Explosives

For the purpose of Safety Distances in connection with the issue of licences for factories and magazines, all authorised explosives shall be categorised viz.:

Category X	-	Explosives having fire or slight explosion risk or both, with only local effect.
Category Y	-	Explosives having mass fire risk, or moderate explosion risk, but not mass explosion risk.
Category Z	-	Explosives having mass explosion risk with serious missile effect.
Category ZZ	-	Explosives having mass explosion risk with minor missile effect.

4.4.9 Non-Proliferation of Weapons of Mass Destruction Act of 1993 (as amended) (Ref 1)

This Act provides for control over weapons of mass destruction and matters connected therewith and are administered by the Department of Trade and Industry.

“*Weapon of Mass Destruction*” means any weapon designed to kill, harm or infect people, animals and plants through the effects of a nuclear explosion or the toxic properties of a biological warfare agent, and includes a delivery system exclusively designed, adapted or intended to deliver such system. The inclusion of animals and plants in the definition coupled with the declaration of a number of chemicals as “*controlled goods*” under the Act render the Act relevant for purposes of this manual.

The Minister of Trade and Industry may, by notice in the *Government Gazette* declare goods that may contribute to the design, development, production, deployment, maintenance or use of weapons of mass destruction, to be controlled goods. A number of chemicals and their precursors have been declared by GN R 704 of 23 May 1997. The Minister may also impose licensing requirements for certain activities including transportation, disposal, use, and operation in respect of these substances.

The Minister may make regulations regarding *inter alia*:

- The procedure to be followed when applying for a permit and the disclosure of information related thereto;
- The conditions under which a permit shall be issued;
- The issue and application of a code of conduct; and
- The keeping of records by any person subject to a permit or registration under the Act.

Important is that the Act provides for the establishment of The South African Council for the Non-Proliferation of Weapons of Mass Destruction (in Section 4 of the Act) to act on behalf of the State in protecting the interest, carrying out the responsibilities and fulfilling the obligations of the Republic with regards to non-proliferation.

(a) Regulations promulgated under the 'Non-Proliferation' Act

The Non-Proliferation of Weapons of Mass Destruction Act, 1993 (Act 87 of 1993) as amended, is supported by the following regulations and notices:

- The Missile Technology Control Regime Equipment and Technology are declared as controlled goods in terms of Section 13 of the Non-Proliferation Act under Regulation R1789, dated 14 October 1994 replaced by Government Notice No. 429 dated 10 April 2002;
- The Nuclear Dual-use Goods and related items of the Nuclear Suppliers Group are declared as controlled goods in terms of Section 13 of the Non-Proliferation Act under Regulation R1790, dated 14 October 1994 replaced by Government Notice No. 430 dated 10 April 2002;
- Regulation R705, dated 23 May 1997 – relates to controlled chemicals;
- The various schedules of the Chemical Weapons Convention (See Chapter 10, Section 10.1.23) controlled in terms of Section 13 of the Non-Proliferation Act are declared under Notice 704, dated 23 May 1997;
- Government Notice 754, dated 2 May 1997 – made the Chemical Weapons Convention part of the South African legislation;
- Government Notice No. R. 1025, dated 9 October 2001 – enables the Council to declare goods, that are mentioned in the controlled lists but do not comply fully with the specifications mentioned, to be controlled;
- Presidential Proclamation No. R. 16 dated 26 February 2002 made the Biological Weapons Convention part of South African legislation;
- Biological goods and technology are declared as controlled goods in terms of Section 13 of the Non-Proliferation Act under Government Notice No. 428 dated 10 April 2002.

For further information, refer to 'Guidelines to Industry relating to the process of the Authentication of Foreign end user certificates (EUCs) for Goods Exported from South Africa to Foreign Countries', South African Council for the Non-Proliferation of Weapons of Mass Destruction, 22 April 2002, Doc No NPC 03_001, Issue 1.

Box 4.2

South Africa's Policy with regards to Non-Proliferation

Source: South African Council for the Non-Proliferation of Weapons of Mass Destruction, Non-Proliferation Council - Procedures and Information, 22 April 2002

The South African policy on Non-Proliferation adopted at a Cabinet Meeting in August 1994 inter alia states that:

- South Africa continues to implement a policy of non-proliferation and arms control and be an active participant in the various non-proliferation regimes and suppliers groups
- South Africa adopts positions supporting the non-proliferation of weapons of mass destruction with the goal of promoting international peace and security
- South Africa utilises its position as a member of the suppliers regimes and of the African Group / NAM to promote the importance of non-proliferation and to ensure that these controls do not become the means whereby the developing countries are prevented from obtaining access to the advanced technologies which they require for their development
- South Africa continues in its objective of becoming a member of all of the non-proliferation regimes and suppliers groups
- The best interests of South Africa with regard to the use of technology in nuclear, chemical, biological and missile spheres for civil and peaceful purposes must be effectively protected at all times.

4.4.10 Occupational Health and Safety Act No. 85 of 1993 (OHS Act)

The Occupational Health and Safety Act of 1993 is South Africa's principle legislation concerning health and safety of employees. It also aims to protect persons who are not at work against hazard to health and safety arising out of or in connection with the activities of a person at work. The Act places the responsibility on the employer to ensure a safe and healthy working environment and to cause every employee to be made conversant with health and safety requirements relevant to their work. At the same time the Act places the responsibility on the employee to follow its employer's health and safety procedures and instructions.

The Act establishes certain legal requirements to which the government, employers and employees must adhere. A number of Regulations have been promulgated under the Act.

The Act is administered by the Department of Labour directly under the control of the Chief Directorate of Occupational Health and Safety (see Chapter 5, Section 5.2.5).

The Act deals with the following topics:

- Establishment of an Advisory Committee and technical committees for Occupational Health and Safety
- Health and safety policy
- General duties of employers to employees
- General duties of employers to persons other than their employees
- General duties of manufacturers regarding articles and substances for use at work
- Listed work and general duties regarding these

- Duty of employer to inform employees and health and safety representatives
- General duties of employees at work
- Duties of chief executive officers
- Institution of health and safety representative at workplaces and their duties
- Institution of health and safety committees at workplaces and their duties
- General prohibitions
- Sale of certain articles, substances, plant, machinery or health and safety equipment
- Report to inspector regarding certain incidents and occupational diseases
- Designation, functions and powers of the chief inspector and inspectors
- Investigations and inquiries

Regulations that were promulgated under the Act and have some relevance to management of chemicals are the following:

- General Administrative Regulations, 1994
- Asbestos Regulations, 1997
- Regulations for Hazardous Chemical Substances, 1995
- Lead Regulations, 1991
- General Safety Regulations, 1986
- Vessels under Pressure Regulation, 1996
- Major Hazard Installation Regulations, 1998.
- Regulations on Explosives are in a process of being prepared, according the Manager of Occupational Health and Safety for the Department of Labour. (Meeting 06 August 2002).

The following paragraphs briefly outlines the various sections of the Act highlighting those topics dealing directly or indirectly with the management of chemicals at workplaces.

Application of the Act

The Act does not apply to mines and mining areas or any work as defined in the Minerals Act. The Act also does not apply to ships and the like.

Advisory Council and Technical Committees

The Act establishes an Advisory Council for Occupational Health and Safety, consisting of 20 members, that advises the Minister on policies and any matter related to the Act and occupational health and safety in the country and performs functions assigned to it by the Minister.

The Council may do research, conduct investigations, advise on the formulation and publication of standards, specifications or guidance documents to support safe practices, promote education and training and collection of disseminating information on occupational health and safety. The Council may also, with the approval of the Minister, establish technical committees to advise the council.

Employers Written Health and Safety Policy

The chief inspector may direct employers “to prepare a written policy concerning the protection of the health and safety of his employees at work” of which a copy is to be prominently displayed in the workplace.

General Duties of Employers

The Act establishes the general duties of employers to their employees in Section 8 (1) by stating: "Every employer shall provide and maintain, as far as reasonably practicable, a working environment that is safe and without risk to the health of his employees."

Sub-section 8 (2) lists such duties that are required e.g.:

- Maintenance of systems of work, plant and machinery
- Taking steps to eliminate or mitigate hazards
- Ensuring absence of risks to health in connection with production, processing, use, handling, storage or transport of articles or substances
- Establish what hazards to persons are attached to any work which is performed
- Providing information, instruction, training and supervision to employees
- Not permitting any employee to do any work unless the relevant precautionary measures have been taken
- Ensure that the requirements of the Act are complied with
- Enforcing such measures as may be necessary in the interest of health and safety
- Ensure that work is performed under supervision of a person trained to understand the associated hazard
- Causing all employees to be informed regarding the scope of their authority.

General Duties of Employers and Self-employed Persons to Persons Other Than Their Employees

The Act establishes such duties by stating that: "Every employer shall conduct his undertaking in such a manner as to ensure, as far as reasonable practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health and safety."

General Duties of Manufacturers and Others Regarding Articles and Substances for Use at Work

Section 10(3) and (4) requires of manufacturers of substances to see to it that the substance is safe and without risks to health when properly used, and that sufficient information is available with regard to the use of the substance at work, to ensure that the substance can be used safely.

Sale of Certain Articles Prohibited

Section 22 establishes that:

"Subject to the provisions of section 10 (4), if any requirement (including any health and safety standard) in respect of any article, substance, plant, machinery or health and safety equipment or for the use or application thereof has been prescribed, no person shall sell or market in any manner whatsoever such article, substance, plant, machinery or health and safety equipment unless it complies with that requirement".

Listed Work

The Minister may, subject to certain provisions, declare any work as listed work. General duties of employers regarding listed work are also declared in the Act, relating to:

- Identification of the hazards and evaluation of risks
- Prevention and minimisation of exposure

- Carrying out an occupational hygiene program, biological monitoring and medical surveillance of employees
- Keeping health and safety representatives informed

Duty to Inform

Section 13 deals with the employer's duty to inform every employee on the hazards relevant to his/her work, any article or substance he/she has to produce, process, use, handle, store or transport and plant and machinery he/she is to use. The employer also has to inform a health and safety representative of any incident in the representative's designated workplace.

General Duties of Employees at Work

These are declared in Section 14 to include the following:

"Every employee shall at work-

- (a) take reasonable care for the health and safety of himself and for other persons who may be affected by his acts or omissions;
- (b) as regards any duty or requirement imposed on his employer or any other person by this Act, co-operate with such employer or person to enable that duty or requirement to be performed or complied with;
- (c) carry out any lawful order given to him, and obey the health and safety rules and procedures laid down by his employer...;
- (d) if any such situation which is unsafe or unhealthy comes to his attention, as soon as practicable report such situation to his employer or to the health and safety representative.....; and
- (e) if he is involved in any incident which may affect his health or which has caused injury to himself, report such incident to his employer or to anyone authorized thereto by the employer, or to his health and safety representative, as soon as practicable....."

Duties of Chief Executive Officers

The Act lays the onus on the chief executive officer to ensure that the duties of his employer as contemplated in the Act, are properly discharged.

Health and Safety Representatives

The Act makes provisions in Section 17 for every employer who has more than 20 employees to designate health and safety representatives. The section puts down some ground rules regarding safety representation, which includes the required number of representation per number of employees.

The functions of the health and safety representatives are described in Section 18 and include identifying potential hazards and major incidents at the workplace, examining the causes of incidents at the workplace in collaboration with his employer, and making representations to the employer or a health and safety committee.

He is also entitled to visit incident sites, attend investigations and formal inquiries, inspect documents, accompany the inspector on any inspection and participate in internal audits relevant to the health and safety of employees.

Health and Safety Committees

"An employer shall in respect of each workplace where two or more health and safety representatives have been designated, establish one or more health and safety committees"

according to Section 19. This section also lays down the ground rules for the establishment of such committees.

The functions of the committees are specified in Section 20 and include:

- Making “recommendations to the employer or, where the recommendations fail to resolve the matter, to an inspector regarding any matter affecting the health and safety of persons at the workplace.”
- Keep records of its recommendations.

General Prohibitions

The Minister may declare by notice in the Gazette that no employer may allow all, or certain employees to perform work on any premises on or in which an activity, process, article or substance in the opinion of the Minister and as specified in the notice, threatens the health and safety of an employee or unless the work or process is carried out under certain conditions specified in the notice.

Incident Reports

Each incident occurring at work or arising out of work related activities, or in connection of which any person dies, is seriously injured or disabled, or the health or safety of any person was endangered and/or where dangerous substances was spilled or uncontrolled release of any substance under pressure took place is to be reported to the inspector. The Act specifies the relevant incidents to be reported in more detail. Requirements in terms of the reporting and investigations of such incidents are detailed in sections 6, 8 and 9 of ‘General Administrative Regulations’, 1994 promulgated under the Act

Occupational Disease Reporting

The Act declares that “Any medical practitioner who examines or treats a person for a disease described in the Second Schedule to the Workmen’s Compensation Act, 1941, or any other diseases which he believes arose out of that person’s employment, shall within the prescribed period and in the prescribed manner report the case to the person’s employer and to the chief inspector, and inform that person accordingly.”

Chief Inspector and Inspectors

“The Minister shall designate an officer serving in the Department as Chief Inspector for the purpose of this Act.” according to Section 27. The Chief Inspector may delegate certain of his powers.

“The Minister may designate any person as an inspector to perform, subject to the control of the Chief Inspector, any or all of the functions assigned to an inspector by this Act.” Section 29 describes the functions of inspectors for the purpose of this Act with regard to:

- Entering premises
- Question any person on the premises
- Demand and examine documentation
- Demand explanation of any entry in documentation
- Inspect any article, substance, plant or machinery
- Seize any documentation, article, substance, plant or machinery as evidence
- Direct any past or present employer or employee to appear before him for questioning.

Prohibition Notices

An inspector may issue a written prohibition notice to prohibit an employer to perform an act, or operate a plant, machinery or process that in his/her opinion threatens the health or safety of any person. He may also prohibit certain categories of employees to conduct certain work. An inspector may revoke a prohibition notice whenever he is satisfied that the threat has been satisfactorily disposed of.

Inspections and Formal Inquiries

An inspector may investigate any occupational health and safety incident.

The Chief Inspector may, and he shall when so requested by a person producing prima facie evidence of an offence, direct an inspector to conduct a formal inquiry into any occupational health and safety incident

Offences

Any person shall be guilty of an offence when he e.g. fails to comply with the Act, or hinders or obstructs an inspector from performing his duties.

Regulations and Standards

- (a) **The Minister may make regulations and prescribe standards as to any matter in terms of the Act or which in the opinion of the Minister is necessary in the interest of health and safety of employees or in connection with any work or workplace.**
- (b) **General Administrative Regulations, 1994 (OHS Act) (GN 1449 in GG 17403 of 6/9/96)**

The General Administrative Regulations have been promulgated under the OSH Act.

MSDS Requirement

According to J Glazewski, Environmental Law in South Africa, Butterworths, Durban, 2000, Section 7 deals with the use and handling of hazardous chemical substances in the workplace. These provide that any person who manufactures, supplies or sells any hazardous chemical substance (HCS) for use at work must, as far as is reasonable practicable, provide the party receiving the substance with a material safety data sheet (MSDS) containing information, inter alia, with regard to accidental release measures, handling and storage, and physical and chemical properties. The regulation provides specifications as to the requirements for the MSDS format and the information it should display.

- (c) **Regulations for Hazardous Chemical Substances (OHS Act) (GNR 1179 in GG 16596 of 25/8/1995)**

According to Glazewski, these regulations apply to an employer or a self-employed person who carries out work at a workplace which may expose any person to a Hazardous Chemical Substance (HCS). The regulations define hazardous chemical substances (HCS) and deal with the aspect of such exposure of employees in an occupational environment and the assessment and control of such exposure.

HCS means any toxic, harmful, corrosive, irritant or asphyxiant substance for which an occupational exposure limit (OEL) is prescribed, or for which an OEL is not prescribed, but which creates a hazard to health (Reg 1).

A further regulation deals with the labelling, packaging, transportation and storage of HCS and provides that an employer shall take reasonably practical steps to ensure the following:

- That HCS in storage or distributed are properly dealt with in accordance with SANS 072 and 0228;
- That a container or vehicle in which HCS is transported, is clearly identified, classified and packed in accordance with SANS 0228 and 0229; and
- That any container into which an HCS is decanted is clearly labelled with the contents thereof (Reg 14).

Other requirements, which are contained in this regulation (R 1179), are:

- An employer must inform and train an employee about the hazardous chemicals before an employee is exposed to hazardous chemicals;
- A person who is exposed to hazardous chemical substances, shall obey lawful instructions given by or on behalf of the employer;
- An employer must assess on a regular basis – preferably less than every two year - whether an employee is exposed to a hazardous chemical substance by any route or intake;
- Any air monitoring programme must be carried out according to this regulation, and by an approved inspection authority;
- If the employee could be exposed to HCS which are listed in Table 3 of annexure 1, the employer must ensure that the employee is under medical surveillance;
- An employer must keep records of the results of all assessments, air monitoring, and medical surveillance reports;
- The employer must control an employee's exposure to HCS, by either limiting the amount of HCS used, or limiting the number of employees, or limiting the period of exposure, or using a substitute for an HCS, or by introducing engineering control measures, or by introducing appropriate work procedures;
- Personal protective equipment must be worn where stated.

The Act provides a set of guidelines that includes various procedures for medical surveillance and application of OELs. Three tables provide OELs both for control limits and recommended limits.

(d) General Safety Regulations, OHS Act (GNR 1031 in GG 11443 of 30 May 1986)

Promulgated under the OHS Act these regulations contain several important provisions, of which the most relevant are the following:

Personal Safety Equipment and Facilities

Depending on the nature of the hazard that may be met, suitable protective clothing and equipment must be provided by the "Employer"/"User".

Use and Storage of Flammable Liquids

"Flammable liquid" means any liquid which produces a vapour that forms an explosive mixture with air, and includes any liquid with a closed cup flash point of less than 55°C.

- **[4(10)]:** An employer shall cause every flammable liquid store to be:

- (a) separated by means of fire resisting materials;
- (b) constructed of fire resisting material with a fire resistance of two hours;

- (c) constructed in such a way that, in case of spillage, a volume of the flammable liquid in question equal to the quantity of flammable liquid ordinarily kept in store plus 10% of that quantity can be contained;
- (d) ventilated to the open air in such a manner that vapour cannot accumulate inside the store; and
- (e) clearly marked with a sign indicating that it is such a store and also indicating the amount of flammable liquid which may be stored therein.

- **[4(11)]** : An employer shall install an adequate amount of fire fighting equipment in suitable locations in and around every building in which such substances are used, handled or stored, or as may be recommended by the fire chief of the local authority concerned.

Work in Confined Spaces

“Confined space” means an enclosed, restricted, or limited space in which, because of its construction, location or contents, or any work activity carried on therein, a hazardous substance may accumulate or an oxygen deficient atmosphere may occur, and includes any chamber, tunnel, pipe, pit, sewer container, valve, pump or similar construction equipment, machinery or object in which a dangerous liquid or a dangerous concentration of gas, vapour, dust or fumes may be present.

- **[5(1),(2),(a),(b)]** : Where a confined space exists or may be created and persons may be required to enter it, provision must be made to ensure that the space **remains** free of hazardous gas vapour, dust or fumes and the oxygen content is not less than 20%. This is achieved through positive isolation (slip plate or physical disconnection) and ventilation of the space. Locking of valves is not acceptable and is only allowed in cases of non-hazardous substances e.g. air, water.

(e) Major Hazardous Installation Regulations, 1998 (as amended) (OHS Act)

According to the CSIR, Department of Labour Environmental Management Plan, First Edition, October 2001; during the nineties, South Africa recognised the need for legislation to manage chemicals, which could pose a major risk to the public in particular and in 1998 introduced what is known as the Major Hazard Installation regulations under the OHS Act. These are similar to what is in place in other countries, mainly European and British e.g. CIMAH (Control of Industrial Major Accident Hazards) replaced by COMAH (Control of Major Accident Hazards) both based on the Seveso Directives.

However, instead of as overseas using threshold quantities and toxicity of chemicals as a basis for implementation of the legislation, South Africa decided to leave it to the owner or operator of a chemical installation to assess whether they operate an installation with the potential to have a major effect on the public. This requires a consequence analysis to be carried out as part of a risk assessment. Another important legislative requirement of the risk assessment is a review of the adequacy of the emergency plan for the chemical installation.

The components which the risk assessment should include are:

- general process description of the major hazard installation;
- description of the major incidents associated with this type of installation and the consequences of such incidents, which shall include potential incidents;
- an estimation of the probability of a major incident;
- a copy of the on site emergency plan
- in the case of toxic release, an estimation of concentration effects of such release;

- the potential effect of a major incident on any other installation, members of the public, which includes all persons outside the premises of the major hazard installation and on residential areas;
- the suitability of existing emergency procedures, for the risks identified;
- any requirements as laid down in terms of the Environmental Conservation Act (Act 73 of 1989).

The composite of the above activities and the resultant documentation is submitted to the authorities for registration of the chemical installation as a "Major Hazard Installation" and is then available to the public and any other interested parties for comment or objection.

Registration enables local governmental emergency services with the aid of the risk assessment to evaluate the adequacy of their emergency preparedness to protect the public in the event of a chemical accident e.g. rescue, evacuation, fire fighting. The regulations require that an on site emergency plan is compiled and readily available for implementation at all times.

In the case where a new chemical installation is to be erected that may pose a major hazard, the same procedure as described above will have to be followed, and construction and erection may only commence once the public and other interested parties concerns have been addressed and approval from the authorities has been granted.

Where a new community development is to be implemented e.g. residential, shopping, airport, recreation, approval may only be granted once the implications of a near by major hazard chemical installation have been assessed.

Note that nuclear installations are excluded from this regulation as it is covered by other legislation. Similarly, transportation of chemicals is excluded, except where such mobile containers are stationary at a site for an extended period.

Existing or proposed major hazard chemical installations must be advertised in a local newspaper and by way of notices placed within the community areas in the vicinity of the installation site.

In July 2001 the Major Hazard Installation regulations were updated and the significant changes were the following:

- A Major Hazard Installation in addition to the public outside also applies to the employees.
- The Health and Safety Committee constituting Management and the Health and Safety Representatives must be consulted about initiating a Major Hazard Installation risk assessment, be involved in providing inputs to the assessment and review the findings
- Risk assessment must be repeated or revised every 5 years.
- Health and Safety Representatives must be involved in setting up the emergency plan and the plan must be signed by the chief executive officer in the presence of witnesses to demonstrate his or her commitment to the plan.
- Any incident or accident on a major hazard chemical installation must be reported to the authorities, investigated and a report submitted.
- A supplier of any chemical to a Major Hazard Installation must provide a 24-hour emergency advice service.
- The off-site emergency plan and procedure is the responsibility of the local government emergency services.
- Risk assessments for Major Hazard Installations may only be carried out by Approved Inspection (Assessor) Authorities i.e. organisations that have been accredited by SANAS (South African National Accreditation System).

Box 4.3

Implementation of the Major Hazard Installation Regulations

Source: Daniel Rademeyer, ISHECON

The Major Hazard Installation regulations have been implemented on an on going basis since promulgation in 1998. Initially it was the large chemical companies that took the lead with initiating the risk assessments and registering with the authorities. Later followed smaller businesses and governmental organisations.

Because legislation did not define what exactly constitutes a Major Hazard Installation, and left it to the owners or operators to decide, a lot of confusion and uncertainty resulted. Large flammable and toxic processing, handling and storage installations were obviously Major Hazard Installations and could be dealt with easily. Smaller installations like for example chlorine cylinders at public swimming pools or water works, LPG cylinders at restaurants for cooking, petrol stations, and combustible rather than flammable e.g. lubrication and vegetable oil installations involved some uncertainty. The problem is then that either all installations handling some chemical are classified as Major Hazard Installations with associated increased safety protection costs, or installations that should be addressed as Major Hazard Installations are omitted.

Another problem with respect to the classification of installations is that some operators may not regard an installation as a Major Hazard because suitable preventative and protective measures are in place reducing the risk to very low levels. These measures may fail and then a major hazard may still result. Thus it is important that classification is based on the hazard potential (consequences) rather than risk.

Benefits of this legislation have been that in the first place operators of chemical installations have been forced to assess their risks and emergency preparedness, thus making the management of chemicals safer.

Secondly, the authorities are benefiting because through the notifications they are becoming aware of the chemical installations, which could possibly be responsible for major incidents affecting the communities. This also enables them to assess their community emergency response preparedness. It also allows them to decide on the suitability and approval of community developments near a Major Hazard Installation.

In addition the information may be used by the authorities to set up a nationwide database of Major Hazard Installations.

A third benefit, especially from the requirement for consultation with Health and Safety Committees, and allowing the public to make representations about the acceptability of an installation, is the increased awareness of the authorities, the workers and the public about the manner in which owners and operators of Major Hazard Installations manage the risk of the chemicals.

The requirement that a risk assessment may only be carried out by an Approved Inspection (Assessment) Authority raises the issue of accreditation of such organisations. This is at present been addressed by a Working Party consisting of various stakeholders (industry, government, labour) who are in the process of drafting a criteria document, which will eventually form the basis for accreditation. Other inputs will be the South African Qualification Authority (SAQA) for accreditation of the training or risk assessors, and the South African Bureau of Standards (SANS) for the setting of risk assessment standards and codes of practice.

For further information refer to 'Department of Labour Environmental Management Plan, First Edition, October 2001 compiled by the CSIR.

Problems Relating to the MHI Regulations

These regulations place the onus on the owner or operator of the installation to determine whether the installation should be classified as a MH, without a more detailed definition of what constitutes a MHI, creates confusion.

Further confusion results due to the inadequate definition of how the risk assessment is to be conducted and what risks are to be considered e.g. risk if safety precaution fail.

Although the regulations specify that the risk assessor is to be an Approved Inspection Authority, due to the present lack of accreditation criteria, certain insufficiently qualified individuals are conducting the risk assessments, which determine whether an installation is an MHI.

Due to these problems certain installations that are in fact MHI, have been defined as installations that do not pose a major risk and the required procedures are thus not adhered to.

(f) Asbestos Regulations, 1987 (Machinery and Occupational Safety Act of 1983) (GNR 773 in GG 10700 of 10/4/87)

Source: CSIR. Department of Labour Environmental Management Plan. First Edition. October 2001

The Asbestos Regulations were promulgated in April 1987 under the Machinery and Occupational Safety Act (Act 6 of 1983), which since has been replaced by the OHSA. They are currently under revision. The aim of the current Asbestos Regulations is to protect workers, who fall under the jurisdiction of the OHSA, against health risks posed by exposure to asbestos.

The general scope of these regulations applies to all employers who use or process asbestos in raw mineral form, and to all employers who process materials containing asbestos. The regulations put forward the minimum permissible exposure level to asbestos and the provision by the employer of proper respiratory equipment for employees. In addition, there is provision that the employees should abide by instructions given by the employer regarding the prevention of the release of asbestos dust into the environment.

In the case of an accidental release of asbestos into the workplace, these regulations make provision for remedial measures to be followed. These include cleaning-up procedures in such a manner that asbestos dust neither escapes nor is discharged into the air to an extent that it contaminates the workplace or the environment.

The regulations also provide cautionary principles with regard to the packaging, transport and storage of asbestos so as to prevent or minimize accidental release. With regard to the disposal of asbestos, steps are in place to ensure that all waste is disposed of only on sites specifically designated for this purpose in terms of the Environmental Conservation Act, (Act 73 of 1989), and in such a manner that it does not cause a hazard inside or outside the industry and will not cause a hazard in the future. With regard to the transport of asbestos waste, provision is made with regard to written instructions and training on the action to be taken for cleaning up in the event of accidental spillage, which has to be given to the drivers of vehicles carrying such waste.

The regulations stipulated "asbestos" as meaning any of the following fibrous mineral silicates:

- Actinolite
- Amosite
- Anthophyllite
- Chrysotile
- Crocidolite
- Tremolite;

In summary the regulations contain the following main requirements:

- The divisional inspector must be notified if any person wishes to use raw asbestos or to process it or to process materials containing asbestos;
- An employee may not be allowed to work in an environment in which he would be exposed to an equivalent eight hour exposure value (as defined in the regulations) of regulated asbestos fibres in excess of the exposure limit for asbestos;
- Every employee must be trained at the commencement of his employment and periodically thereafter, on aspects regarding use of the asbestos, dangers and risks associated with asbestos and the precautions to be taken;
- The employee must abide instructions given by his employer;
- The employer must measure the concentrations of asbestos fibres in the air, using an approved inspection authority;
- The employer has record keeping and information provision duties;
- The employer must keep the asbestos dust to a minimum in all ways possible, also during packaging, transport and storage.

(g) Lead Regulations 1991 (Machinery and Occupational Safety Act of 1983) (GN R. 586 in GG 13082 of 22 March 1991)

Source: CSIR. *Department of Labour Environmental Management Plan*. First Edition. October 2001

The Lead Regulations, originally promulgated in 1991, are currently under revision. These regulations apply to every employer at a workplace where lead is produced, processed, used, handled or stored in a form in which it can be inhaled, ingested or absorbed by an employee. The regulations provide a prescribed level of lead exposure above which no employee should be exposed to.

It provides that no employer should permit work in an environment that exceeds the prescribed exposure limits for lead. It is the duty of every employer to ensure that every employee exposed to lead is adequately and comprehensively informed and trained at the commencement of their employment and periodically thereafter at intervals as may be recommended by the safety committees.

In addition, the regulations make provision for the supply of protective equipment by the employer and the employees abiding by such instructions for the wearing of the protective equipment and the undertaking of medical examinations. Provision is also made that the employee should also abide by operation procedures for the prevention of lead being released into the environment. Instructions regarding the disposal of waste material containing lead and the cleaning of any site at which lead or material containing lead has been used, handled or processed should be followed. The adherence to instructions regarding environmental, housekeeping and personal hygiene practices should also be followed as provided by the regulations.

Monitoring procedures with regard to airborne lead must be carried out in accordance with these regulations, and should be done by an approved inspection authority. Every employer is responsible for controlling the exposure of persons to lead in the working environment by applying the following measures where appropriate:

- Lead and materials containing lead used at the workplace which are liable to release airborne lead, shall be limited; and
- Emissions to atmosphere shall comply with the provisions of the Atmospheric Pollution Prevention Act (Act 45 of 1965).

In addition, it is the responsibility of the employer to ensure that all workplaces are kept in a clean state and free of lead waste and, when lead is accidentally spilled or airborne lead is accidentally released into the workplace, corrective measures must be taken immediately before any work is continued. The cleaning of such accidental release must be carried out by vacuum cleaning or by some other means that ensures that lead dust neither escapes nor is released into the air in such a manner that it contaminates any workplace or the environment.

In respect of the packaging, transport and storage of lead, employers should ensure that all lead materials are properly contained and are controlled to prevent the spread of contamination by lead from the place where work is being carried out, and that the containers or the vehicles in which such materials are transported are clearly marked, identifying the contents as lead.

With regard to the disposal of lead the employer should:

- as far as possible, recycle all waste which contains lead, but not into non-lead production processes;
- ensure that all collected lead dust, and other waste is placed into containers that will prevent the escape of lead dust during handling;
- ensure that all lead sludge, not for recycling, is placed in properly sealed containers to prevent spillage;
- ensure that all such waste is disposed of only on sites specifically designated for this purpose in terms of the Environmental Conservation Act, (Act 73 of 1989), in such a manner that it does not cause a hazard inside or outside the premises; and
- give written instructions and appropriate training to the drivers of vehicles carrying such waste, on the action to be taken in the event of accidental spillage of lead waste.

More Detailed Information on the OHS Act

The Act covers all substances and materials manufactured and stored in the workplace including:

- Pesticides (agricultural, public health and consumer use). Production and used only. (NDA registers pesticides)
- Fertilizers.
- Industrial chemicals (used in manufacturing/processing facilities).
- Petroleum products.
- Consumer chemicals.
- Chemical wastes. (The Manufacture and handling only)

The workplace includes the following:

- Import. as the chemicals leave the ship DOL
- Production. - DOL
- Storage. - At any stage DOL.
- Transport. - With DOT. Within the Workplace DOL.

- Distribution/marketing. - With DOT. Within the Workplace DOL.
- Use/handling. - Within the Workplace DOL.
- Disposal. - The Manufacture and handling only.

Mines and plant within the mine premises is not covered.

The merging of the OHS Act and the Mine Health and Safety Act is being considered.

The Act and its Regulations are made publicly known by the following processes:

- Adverts in the press, and work places
- Blitz inspections of an industrial area
- Pamphlet campaigns
- Regular inspections
- Advocacy function of the Provincial Departments, which provides workshops and training.
- It is presently available in English and Afrikaans only, considering to have them available in other languages.

Administrative procedures that are included under the Act:

- Risk assessment (RA) required for all users of all chemicals.
- Labelling of Chemicals according to SANS 100229, and 100265
- Records
- Risk assessments carried out
- Exposures
- MSDS issued
- Training
- Biological Monitoring
- Air monitoring
- Information on hazards

The Mechanisms that are included to monitor implementation, of the Act are:

- Inspections, accident investigations.
 - Proactive inspections and reactive inspections (follow-up of incident or complaint).
- Section 31 (informal)/32 (formal) investigations
- Boilers
- Hazardous chemical substances
- Lifts
- Actions taken for non-compliance.
- Issue notice
 - *Prohibition – stop activity*
 - *Contravention – 60 days to fix*
 - *Improvement – 60 days to fix.*
 - Prosecution-recommended if:
 - Any three notices are not complied with.
 - Negligence established.
 - Employee or employer of contravention of regulations.

The Act requires an employer to provide photos and documents relevant to incident required by an inspector. The employer must not disturb the scene and until he is given permission by an inspector.

OHS Act Databases.

LESEDI Database being developed encompasses the original IOSS data base and will form the database for the Department of Labour.

Other Approaches and Procedures for Control of Chemicals

- Labelling – special hazards e.g. asbestos, the DOL provides the label. Otherwise DOL uses SABS 072 and 0265 1999 and for transport 0229
- Waste disposal: liaise with DWAF and DEAT.
- Public pictograms from DOH.
- Inspection of workplaces where chemicals are used.
- Asbestos disposal policy compiled with DEAT.
- Information by training and MSDS.
- Chemicals for sale to public have MSDS on the label (in part)
- Transportation involve DEAT; DWAF, DOH, DTI and DOL. To cover all events. Local Authority to cover the route, and must be involved.
- Registration of products, permits, licenses to operate, reporting not required for chemicals within DOL and OHS Act.

Conclusion

The DOL states that it may be inward looking to some extent but it is working on improving this. It is concerned with overlaps in the legislation but that is not generating any serious problems.

The enforcement of the legislation is stated to be fairly effective. The OHS Act is appropriate, and will be effective if the employers do their part.

An important requirement is knowledge of the chemicals and their adverse effect, especially regarding chronic problems. A classic case is the Cape PLC Asbestos problem.

The department is moving to an integrated inspection service, there are some problems with the change, especially in the more technical areas such as pressure vessels.

The OHS Act does match with the national priorities indicated in chapter 3. And in addition to this the DOL is developing a Memorandum of Understanding with bodies such as DME to share expertise on specialized areas, for example, tunneling and railways.

The OHS Act provides a mechanism that will cater for the health and safety of persons in the workplace and this is provided by OSH Act and its regulations. It is comprehensive and developing.

The Act and its regulations are maintained as technology changes by:

- Amending the regulations
- Training inspectors
- Keeping the Public informed

There is concern over lead and asbestos and Mechanisms have been given.

Main concern however is that “harm” occurs when the regulations are contravened. This is because of one or more of the following:

- It is easy to contravene the regulations, low culture of compliance.
- Inadequate penalties.
- No detection. (This includes ignorance by the doer).
- Allowed to.
 - Lack of capacity to enforce

4.4.11 Mine Health and Safety Act of 1998

This Act is similar to the Occupational Health and Safety Act, 1993, in that it requires the employer to ensure safety at work (specifically at the mine that is being worked), to establish a health and safety policy and codes of practice, to provide health and safety training, and to

assess and respond to risk. In addition, the employer must conduct occupational hygiene measurements and a system of medical surveillance.

Very important for the management of chemicals is section 21 of the Act, which states:

Duties of Manufacturers and Suppliers for Health and Safety

- 21** (4) Every person who manufactures, imports or supplies any hazardous substance for use at a mine must -
- (a) ensure that the substance is safe and without risk to health and safety when used, handled, processed, stored or transported at a mine in accordance with information provided in paragraph (b);
 - (b) provide adequate information about -
 - (i) the use of the substance;
 - (ii) the risks to health and safety associated with the substance;
 - (iii) any restriction or control of its use, including exposure limits;
 - (iv) safety precautions to ensure substance is without risk to health and safety;
 - (v) the procedure to be followed in case of an accident involving excessive exposure, or any other emergency; and
 - (vi) disposal of used containers in which the substance has been stored and any waste involving the substance; and
 - (c) ensure information provided in terms of paragraph (b) complies with the provisions of the Hazardous Substances Act of 1973.

Merging of Occupational Legislation

Due to similarities between the Occupational Health and Safety Act and the Mine Health and Safety Act debates have been initiated regarding the possibility of integrating the two acts. The Manager of Occupational Health and Safety for the Department of Labour has confirmed this.

Box 4.4

Merging of Occupational Legislation

Source: The Mercury 'SA mines face safety crackdown', Monday, July 1, 2002, Page 1

South Africa's mining industry has become the focus of the Department of Labour, which plans to use the International Labour Organisation's benchmarking and safety standards to fine tune new safety laws.

The Chamber of Mines said that the government was planning to integrate safety and occupational health legislation and structures into a national system.

Mr Mike Gouws, safety advisor to the Chamber of Mines, envisioned a merging of the Mine Health and Safety Act with the Occupation Health and Safety Act.

Box 4.5

COSATU and Government Share Common Vision of Workplace Health and Safety 28 June 2000

Source: <http://www.polity.org.za/govdocs/pr/2000/pr0628.html>

The organised labour, business and government constituencies at Nedlac will in the next few weeks nominate representatives to a steering committee which will be tasked with formulating a new occupational health and safety policy for the country.

The Department of Labour last week tabled a request for Nedlac to oversee the establishment of the committee. The tripartite structure will play a key role in the implementation of a cabinet decision to integrate and harmonise occupational health and safety (OHS) competencies across government, announced by the Minister of Labour recently.

Different aspects of occupational health and safety are currently administered by the Departments of Labour, Minerals and Energy, and Health. Department of Labour Director General, Advocate Rams Ramashia, was appointed to chair a committee of Directors General from the three Departments to give effect to the decision.

A recent meeting between Ramashia and a Cosatu delegation concluded that government and the union federation share a common vision of an integrated occupational health and safety policy and administration in South Africa and the process to give effect to this vision.

Ramashia met the Cosatu delegation, which was led by Cosatu deputy general secretary Tony Ehrenreich and included representatives of the federation's affiliates NUM, Numsa and Ceppawu, on behalf of the Minister of Labour, to discuss government's approach to the harmonization of OHS policy.

An earlier meeting between the Department of Labour and a National Union of Mineworkers delegation led by general secretary Gwede Mantashe also reached consensus on a common approach to OHS.

The government and Cosatu representatives agreed that current workplace health and safety standards and high accident rates were unacceptable and that all stakeholders needed to work together to protect the health and safety of workers.

Cosatu agreed with government that the current fragmentation of occupational health and safety competencies across different government departments was not in the interests of workers or the country as a whole. It was agreed that a comprehensive OHS policy framework and strategy was needed which would be applicable to all the country's workplaces. Cosatu said this vision was in line with the federation's own policy on OHS and would contribute to the maximum utilization of resources and the improvement of workers' health and safety.

Cosatu welcomed government's commitment to involve key stakeholders in the process of developing a new OHS policy, including through the establishment of a tripartite structure involving representatives of Nedlac's government, business and labour constituencies. Government was of the view that labour and business had considerable experience in the area of OHS and that their involvement would enrich and enhance the outcome of the policy development process. Further meetings with other key stakeholders would be held to discuss the process.

A new OHS policy framework would lay the basis for any new legislative initiatives and institutional arrangements. The conclusion of the policy process would therefore precede any institutional restructuring across the different government departments arising from the new integrated approach. In the interim, government remained committed to continue its efforts to ensure healthy and safe workplaces in the context of the common vision of integration and harmonization.

The parties agreed that the new integrated approach would draw on the best practice and expertise developed within the different Departments in the administration and enforcement of OHS.

Internal transformation

Cosatu has also expressed support for the Department's efforts to transform its inspection services to

provide an integrated one-stop inspection service. The integrated inspection service includes generalist and specialist inspections and will ensure greater levels of efficiency and efficacy in the enforcement of OHS and other labour legislation. Cosatu said this approach was in line with the approach which unions themselves had adopted in addressing workers' concerns.

The federation expressed concern that individuals opposed to the Department's transformation efforts had attempted to falsely claim Cosatu support for their attempts to block the transformation process.

Issued by The Director General of the Department of Labour, Advocate Rams Ramashia
The Deputy General Secretary of Cosatu, Tony Ehrenreich
For more information contact: DOL at 082 903 0120 and Cosatu at 082 821 7456

Refer to the Department of Minerals and Energy's website on www.dme.gov.za for further information.

4.4.12 Environment Conservation Act 73 of 1989

The objectives of this Act are to provide for the effective protection and controlled utilisation of the environment. Following the enactment of NEMA, a number of the powers of the Act have either been repealed or may be repealed or assigned to the provinces.

The sections of the Act that have survived and that are of particular relevance to environmental management (and thus aspects of chemicals management) include waste management provisions (Sections 20, 24 – See WASTE MANAGEMENT below), and various provisions relating to offences, penalties and general provisions (Section 29-31, 31A, 32, 37, 40, 41, 41A, 42 and 46). Sections 21, 22 and 26 deal with Environmental Impact Assessments (relevant regulations are outlined in 4.4.22 below).

(a) EIA Regulations 1183, 1997 (Environmental Conservation Act, 1989)

In September 1997, a List of Activities and Regulations for EIAs was published under Sections 21, 22 & 26 of the Environmental Conservation Act. Scheduled activities, which are defined as having a potentially significant impact on the environment, have been identified in the regulations. Scheduled activities require EIAs.

On 10 May 2002, in Government Notice R 670, the scheduled activities were extended, by the insertion of additional requirements into the original text of the 1997 regulations. The comment period is presently in progress. The insertions that are relevant to the text below will be added in bold:

The activities with relevance to chemicals management include:

The construction, **erection** or upgrading of:

- With regard to any substance which is dangerous or hazardous and is controlled by national legislation –
 - infrastructure, **excluding road and rails**, for the transportation of any such substance, and
 - manufacturing, storage, handling, **treatment** or processing facilities for any such substance;
- Facilities for commercial electricity generation with an output of at least 10 megawatts and infrastructure for bulk supply;
- Nuclear reactors and facilities for the production, enrichment, **processing**, reprocessing and disposal of nuclear fuels and wastes
- And the change of land use from agricultural or **zoned** undetermined use or an **equivalent zoning** to any other use;
- The cultivation or any other use of virgin ground;
- The disposal of waste in terms of section 20 of the Act, excluding domestic waste, but including the establishment, expansion, upgrading or closure of facilities for all waste, ashes and building rubble;

- Scheduled processes listed in the Second Schedule to the Atmospheric Pollution Prevention Act (Act No 45 of 1965 – see below)

Box 4.6

Amendments to environmental impact assessment regulations

Source: <http://www.environment.gov.co.za>

WEDNESDAY, 8 MAY 2002: The amendments to the current environmental impact assessment (EIA) regulations will be published on 10 May 2002 in the Government Gazette.

The national environmental impact assessment regulations, published in terms of the Environment Conservation Act of 1989, have been implemented and administered since 5 September 1997 by the national Department of Environmental Affairs and Tourism and the nine provincial environmental departments. Certain amendments of specific regulations and the schedule regarding listed activities have become necessary. The amendments address certain shortcomings of the 1997 regulations.

These amendments, however, are not aimed at replacing the 1997 regulations. The current amendments are intended to provide an interim measure pending the publication of new EIA regulations under the National Environmental Management Act of 1998.

The amendments are primarily terminological, attempting to address inconsistencies and ambiguities that have emerged in the interpretation of the regulations, in particular to the list of activities identified in Schedule 1 (Government Notice No. R.1182 of 5 September 1997).

Copies of the amended regulations can be obtained from the Government Printer's office in Pretoria or from Mr Johan Benade at tel. (012) 310-3670; fax (012) 310-3688; e-mail: jbenade@ozone.pwv.gov.za.

Issued by the Ministry of Environmental Affairs and Tourism

(b) Waste Management

Waste management is regulated by the Environmental Conservation Act of 1989. The Act defines waste as any matter, whether gaseous, liquid or solid (or a combination thereof) which is designated by the Minister to be an undesirable or superfluous by-product, emission, residue or remainder of any process or activity.

The Department of Environmental Affairs and Tourism (DEAT) is authorised to manage all aspects of waste other than its disposal. The Department of Water Affairs and Forestry (DWAF) administer the waste management provisions regarding disposal by means of a permit system.

According to the Act, it is unlawful for any person to establish, provide or operate any disposal site without the appropriate permits from DWAF. If any person wishes to establish or operate a waste disposal facility, they are required to follow a formal permit application procedure governed by the Act.

Waste disposal sites are also classified as a schedule activity under Sections 21, 22 and 26 of the Act and, as such, require an Environmental Impact Assessment as part of the permit application procedure.

4.4.13 Minimum Requirement for Waste Management (DWAF Guidelines)

In terms of Section 20 of the Environmental Conservation Act (see 4.4.12(a)), DWAF developed a set of management guidelines providing step-by-step procedures for waste disposal, as well as the selection, design, operation, closing and monitoring of landfills. The guidelines have the following titles:

- "Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste" – this volume is especially important for the management of chemicals, as hazardous waste

often consists of chemicals. this volume describes the classification method, pre-treatment method and hazard-rating of hazardous wastes.

- “Minimum Requirements for Waste Disposal by Landfill”
- “Minimum Requirements for Monitoring at Waste Management Facilities”.

The Minimum Requirements are not legally binding but are used by DWAF as an administrative guideline document and in the permitting process. The Minimum Requirements are generally included in new permits for Landfill Sites. Once forming part of a Permit, the Minimum Requirements become mandatory.

Definition of Waste

Important for the management of chemicals are the definitions that are used in the Guidelines. The classification system is based on the concept of risk and defined as follows:

General Waste

“General Waste” refers to any waste that does not fall within the definition of Hazardous Waste.

It is a generic term applied to waste that does not pose a significant threat to public health or the environment if properly managed. Examples would include domestic, commercial, certain industrial wastes and builder's rubble. General Waste may be disposed of on any landfill that is permitted in terms of the Environment Conservation Act.

Domestic waste is classified as “General Waste” even though it may contain hazardous components. This is because the quantities and qualities of hazardous substances in domestic waste are sufficiently small to be disregarded as a potential risk. In addition, the *Minimum Requirements for Waste Disposal by Landfill* requires leachate control at certain General Waste disposal sites where the risk of leachate generation exists.

Hazardous Waste

“Hazardous Waste” is waste that has the potential, even in low concentrations, to have a significant adverse effect on public health and the environment because of its inherent toxicological, chemical and physical characteristics.

Hazardous Waste requires stringent control and management, to prevent harm or damage and hence liabilities. It may only be disposed of on a Hazardous Waste landfill (see Section 3, *Minimum Requirements for Waste Disposal by Landfill*).

Since the Precautionary Principle is applied, a waste must always be regarded as Hazardous where there is any doubt about the potential danger of the waste stream to man or to the environment.

Hazardous waste is classified into the classes as adopted from SANS Code 0228: “The Identification and Classification of Dangerous Goods and Substances”. The Code provides for a system for classifying hazardous substances for transport purposes. In the Code, hazardous substances are given in identification number and divided into nine classes:

- Class 1 Explosives
- Class 2 Gases
- Class 3 Flammable liquids
- Class 4 Flammable solids
- Class 5 Oxidising substances and organic peroxides
- Class 6 Toxic and infectious substances
- Class 7 Radioactive substances
- Class 8 Corrosives
- Class 9 Other miscellaneous substances

The waste must be tested against the nine classes, to see into which class it falls (it may fall into more than one class). The Minimum Requirements for that class must then be complied with.

4.4.14 National Environmental Management Act 107 of 1998 (NEMA)

The objective of NEMA is to provide co-operative governance by establishing principles for decision makers on matters affecting the environment, institutions that promote co-operative governance and procedures for co-ordinating environmental functions exercised by the organs of state.

The Act defines environment as “the surroundings within which humans exist and that are made up of -

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plant and animal life;
- (iii) any part or combination of (i) and (ii) and interrelation among and between them; and;
- (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.”

Environment is thus defined in broad context, which not only includes the natural environment, but includes the social and economic environment in which South Africans find themselves.

Chapter 1 of the Act establishes a number of principles related to the environment in South Africa. These principles are designed to provide a general framework for environmental planning and guidelines for the interpretation, administration and implementation of the Act.

The principles include a number of internationally recognised environmental law norms and some principles peculiar to South Africa, i.e. the:

- Preventive principle;
- Precautionary principle;
- Polluter pays principle; and,
- Equitable access for the previously disadvantaged to ensure human well being.

Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably.

Development must be socially, environmentally and economically sustainable.

Sustainable development requires the consideration of all relevant factors including the following:

- That the disturbance of ecosystems and loss of biological diversity are avoided, or, minimised and remedied;
- That pollution and degradation of the environment are avoided, or, minimised and remedied;
- That the disturbance of landscapes and sites that constitute the nation’s cultural heritage is avoided, or, minimised and remedied;
- That waste is avoided, or, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
- That the use and exploitation of non-renewable natural resources is responsible and equitable;
- That the development, use and exploitation of renewable resources and the ecosystem of which they are part of do not exceed the level beyond which their integrity is jeopardised;
- That a risk-averse and cautious approach is applied; and
- That negative impacts on the environment and on the people’s environmental rights be anticipated and prevented, and where they can not be altogether prevented, are minimised and remedied.

Many of the following principles are applicable; namely that:

- Environmental management must be integrated;
- Environmental justice must be pursued;
- Equitable access to environmental resources benefits and services to meet basic human needs and ensure human well-being must be pursued;
- Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exist throughout its life cycle;
- The participation of Interested and Affected Parties (I&APs) in environmental governance must be promoted;
- Decisions must take into account the interest, needs and values of I&APs including traditional and ordinary knowledge;
- Community well-being and empowerment must be promoted;
- The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, addressed and evaluated;
- Decisions must be taken in an open and transparent manner;
- There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures;
- Global and international responsibilities relating to the environment must be discharged in the national interest;
- The environment is held in public trust for the people;
- The cost of remedying pollution and consequent adverse effects must be paid for by those responsible for harming the environment;
- The vital role of women and youth in environmental management and development must be recognised; and
- Sensitive, vulnerable, highly dynamic or stressed ecosystem, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resources usage and development pressure.

Polluter Pays Principle

Polluter pays principle is defined in Section 28 under Duty of care and remediation of environmental damage. On occasion where the polluter does not pay for or implement the remediation process once significant pollution has taken place the Director General of that Province can implement a remediation process as he sees as appropriate and the costs of the clean-up will be charged to the account of the polluter.

Control of Emergency Incidents

All reasonable measures must be taken to contain the 'incident' and the responsible person must undertake the clean-up procedures and remedy the effects of the incident. The incident must be reported to the Director-General, provincial head of department and municipality. The responsible person can be directed to undertake specific actions. The relevant authority may claim reimbursement of all reasonable costs incurred by the authority in the clean-up process.

Private Prosecution

According to the Act a person may in the public interest or in the interest of the protection of the environment institute and conduct a prosecution as a result of a breach of duty but this does not exclude organs of state.

Box 4.7

A Change in Legislative Environmental Control

Extracted from Duard Barnard's Environmental Law for All, 1999

The “old” command-and-control approach

The protection of the environment was previously focused on the prevention of environmental degradation. Departments identified activities detrimental to the environment and passed legislation prohibiting such activities. The Environment Conservation Act 73 of 1989 prohibits littering under pain of punishment (section 19). This is typical of many similar so-called command-and-control measures also found in legislation dealing with other forms of pollution.

In developing command-and-control measures, little regard was given to the nature of the processes that produced offensive material or the ability of organisations to avoid pollution. Legislation in general and the sections describing contraventions in particular were usually prepared with little or no reference to the parties that would be subjected thereto. Law enforcement was mainly done by warning or prosecuting organisations that were caught contravening legislative requirements. The focus in law enforcement was on the polluting or degrading action. This is typical end-of-line strategy. Environmental considerations were ignored at all stages of a typical production process. They were not even considered at the planning stage.

The “new environmental management approach

The focus of environmental protection has changed considerably. The first component of the new management strategy is an attempt to create a project that, through good planning and design, is less likely to cause environmental degradation. This means that pollution is avoided before it can be caused. Legislation requires such planning in the preparation of environmental impact assessments amongst others, according to Regulation 1183, and for obtaining permission in principle for mining in terms of section 9 of the Minerals Act 50 of 1991.

A second component of the new approach is that the organisation concerned is required to draft and maintain a detailed management programme that, if put into practice, will effectively prevent environmental degradation. Environmental management programmes as prescribed in section 39 of the Minerals Act are increasingly required for new developments.

A third component is the judicious use of the time honoured carrot-and-stick method. The “carrot” in this case is the increase in profits that actually results because of the establishment of a good environmental management system. Environmental legislation increasingly reflects the reality that good long-term business planning and management usually equal good environmental planning and management. This is generally accepted. The “stick” is the law enforcement measures that can almost be described as draconian. They include the measures dealing with extended corporate liability, minimal fault liability and life-cycle responsibility. The result is that potential polluters are herded into environmental rectitude.

A fourth component is the use of fiscal measures and economic incentives. The basis of this approach is to price the use of resources such as water, air and the soil to such monetary value that the user will find it cheaper to apply the environmentally preferable option. An example is the National Water Act 39 of 1998 that, in certain respects, will allow the market mechanism of supply and demand to determine the price of water. Purification and re-use of water, rather than releasing polluted water into a river to the detriment of downstream water users, might prove to be the cheaper option.

A fifth component is the way in which parties that might be affected by proposed developments are involved in decision-making processes. Organisations increasingly find that they should rather make sure that their planning is acceptable to their neighbours than to the responsible g

overnment departments when planning the environmental component of their activities. The community must in effect by law form part of the project team doing the planning, commissioning and implementation. Growing community empowerment is reflected in the extension of *locus standi* and mechanisms ranging from private prosecutions to measures reducing the risk of legal costs as contained in the National Environmental Management Act 107 of 1998.

Only if an organisation, despite all these measures, still degrades the environment, will the command-and-control mechanism as a sixth component of the environmental management strategy become necessary. It is likely to be used as a back-up for what has become a fairly sophisticated environmental management strategy.

4.4.15 Atmospheric Pollution Prevention Act 45 of 1965 (to be replaced by National Environmental Management: Air Quality Act, Act 39 of 2004)

This Act controls the atmospheric emissions of noxious, hazardous and nuisance causing materials.

The administration of the Act has been assigned to the Chief Air Pollution Control (CAPCO) Department under the Department of Environmental Affairs & Tourism.

There are a total of 72 Scheduled Processes that are required to have a Certificate of Registration. Most processes concern the manufacture and application of chemicals. An example is: "Gas liquor processes: that is to say, processes in which hydrogen sulphide or any other noxious or offensive gas is evolved by the use of ammoniacal liquor, and processes in which any such liquor is desulphurized in any process connected with the purification of gas".

A Scheduled Process must adopt the best practical means to prevent or reduce to a minimum the emission of noxious or offensive gases. Any alterations or extensions of the scheduled process require application to the chief officer for provisional registration. Section 9 of APPA stipulates that no person shall within a controlled area carry out a Scheduled Process on any premises without a current registration certificate authorising him to carry out the process. Any person contravening this shall be guilty of an offence.

Section 12 of the Act stipulates that a registration certificate shall be subject to the condition that all plant equipment used for the scheduled process and for preventing or minimising the escape into the atmosphere of noxious or offensive gasses, shall at all times be properly maintained and operated. The holder of the certificate shall ensure that all the necessary measures are taken to prevent the escape into the atmosphere of noxious or offensive gasses. Due allowance shall also be made for the unavoidable escape of gasses during start-up.

Realising that the old Act was inadequate in providing effective control of South Africa's air pollution and that it requires alignment with international legislation, the government embarked on a process to replace the old Act. The new legislation is likely to strengthen the role of local authorities in the control of air pollution.

4.4.16 National Water Act 36 of 1998

The National Water Act 36 of 1998 ensures that water resources are adequately protected, used, developed, conserved and controlled.

The Act deals with the development of strategies to facilitate the proper management of water resources, provides for the protection of the water resource, the regulation of the use of water, for financial provision, catchment management agencies, water use associations, advisory committees, international water management, government waterworks, dam safety, access to and rights over water, monitoring and assessment and information, appeals and dispute resolution.

Under the Act, a facility manufacturing or processing chemicals is required to obtain the necessary permits for water usage and the disposal of wastewater from the authority responsible

for the administration of the Act, namely the local catchment management agency or the Department of Water Affairs and Forestry (DWAF).

The Act stipulates that if an industry or organisation is acquiring water from a municipality or other local supplier it is the responsibility of that supplier to obtain the necessary permits. Any private well or borehole sunk for the abstraction of groundwater has to be reported to the regulatory authority.

The National Water Act is the principal piece of South African legislation governing wastewater management. Under the Act there are several important issues to note:

- Industrial and sanitary wastewater cannot be directly or indirectly discharged to storm water drainage systems, surface or groundwater;
- Persons storing chemicals and oils must take the necessary precautions to prevent leakage into storm water drains or water courses, unless specifically authorised by the regulatory authority;
- It is generally prohibited to allow storm water to enter sewer systems;
- Industrial effluents may be discharged to sewer only with the permission of the regulatory authority. There are site effluent discharge limits that if exceeded can result in a fineable offence;
- It is an offence to wilfully or negligently pollute surface water or groundwater;
- In the event of a pollution incident, the offending party is obliged to report the incident to the regulatory authority; and
- The regulatory authority can take the necessary steps to prevent the pollution of water resources and can recover the costs of clean up from the polluter.

Local by-laws can also require a facility that stores or handle environmentally hazardous materials that could pollute storm water runoff, rivers, water courses etc. to take 'adequate precautions' to prevent the spillage or seepage of such materials into the environment.

Section 19 of the National Water Act deals with pollution prevention and remedying effects, and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land.

The party who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. If these measures are not taken, the catchment management agency concerned may do whatever is necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs from the persons responsible for the pollution.

GN R991 GG 9225 of 18 May 1984 contains the requirements for the purification of waste water or effluent. This is the water that is produced by or as a result of the use of water for industrial purposes. Among the substances listed are fluorines, oil and grease, nitrogen and phosphorous, for which there is dedicated a special "phosphate standard", which is applicable to certain sensitive catchments.

According to Gladzewski, a general effluent standard is applied universally, and a specialised standard is applied for specified streams.

Section 31A of the Environmental Conservation Act empowers the regulatory authority to undertake action if a person or company carries out any activity that results in significant damage to the environment e.g. surface and groundwater pollution. The costs of remedial work can be recovered from the polluter. The National Water Act for obvious reasons also deals with groundwater.

Currently there are no soil and groundwater clean-up guidelines. For groundwater, DWAF uses a range of standards depending on the final use of the water. These standards include the following:

- Drinking Water Standards;
- Crop Irrigation Standards;
- Food Washing Standards.

For the clean up of soil the Department has accepted the use of risk assessments as the basis for establishing remediation criteria. As there are no South Africa clean-up standards, the Dutch Guidelines are often used as an initial screening tool to establish whether there is likely to be a remediation requirement.

4.4.17 Marine Pollution (Intervention) Act No 64 of 1987 (Ref 1)

The Marine Pollution (Intervention) Act incorporates the International Convention Relating to Intervention on the High Seas in cases of Oil Pollution Casualties and the Protocol Relating to Intervention on the High Seas in the Cases of Marine Pollution by Substances Other than Oil into our national legislation. The Convention and Protocol are reproduced in the Act as Schedule 1 and Schedule 2 to the Act respectively. The South African Maritime Safety Authority is responsible for South Africa's compliance with the Convention and Protocol, the most important aspects of which are summarised below.

The main objective of the Convention is to enable countries to take action on the high seas in cases of marine casualty resulting in danger of oil pollution of the sea coastlines and to confirm that such action would not affect the principle of freedom of the high seas.

Article I enables parties to take such measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat of pollution of the sea by oil. ("Oil" means crude oil, fuel oil, diesel oil and lubricating oil.)

Article III places an obligation on a coastal State to consult with other States affected by the maritime casualty, particularly the flag State, independent experts and to notify any person whose interests may be reasonably expected to be affected by such action before taking action. In cases of extreme urgency measures may be taken immediately without prior notification or consultation. Article IV stipulates that such measures may not go beyond what is reasonable necessary to achieve the objective mentioned in Article I and must be proportionate to the damage, actual or threatened.

In terms of Article VI any party which has taken measures in contravention of the Convention which causes damage to others, will be obliged to pay compensation to the extent of the damage caused by the measures which exceed those reasonably necessary to achieve the end mentioned in Article I.

In order to extend similar provisions to prevent danger to their coastline or related interests from pollution by substances other than oil, the parties to the Convention signed the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil. The provisions of the Protocol are essentially the same as the Convention and are not repeated here. It covers approximately 500 substances, a list of which is included in an Annex to the Convention.

4.5 Summary Description of Key International Legal Instruments Relating to Chemicals

4.5.1 International Trade in Hazardous Chemicals and Pesticides

The Convention on Prior Informed Consent for Certain Hazardous Chemicals and Pesticides in International Trade (Ref 1) (Rotterdam Convention) deals with exchange of information among Parties involved in international trade of hazardous chemicals and pesticides.

The growth in world trade in chemicals during the 1960's and 1970's led to increasing concerns that many developing countries lack the infrastructure to ensure the safe use of hazardous chemicals and pesticides. These risks of use include devastating problems when such substances are released into the environment where they may poison water resources, animal and plant life as well as people.

These concerns led, among others, to the development of two voluntary procedures related to information exchange, namely:

- The FAO's (Food and Agricultural Organisation) International Code of conduct for the Distribution and Use of Pesticides, and
- The UNEP's (United Nations Environment Programme) London Guidelines for the Exchange of Information on Chemicals in International Trade.

The UNEP and FAO agreed to work jointly on the text of a legally binding instrument. The aim of the Prior Informed Consent (PIC) convention is to share information regarding hazardous chemicals as well as to facilitate government decisions regarding the importation of these chemicals.

In this regard the convention states that:

“the objective is to promote shared responsibility and co-operative efforts among parties in the international trade of certain hazardous chemicals in order to protect human health in the environment..... and to contribute to the environmentally sound use, by facilitating information exchanged....”

The Convention established procedures for, *inter alia*:

- Banned or severely restricted chemicals,
- Severely hazardous pesticide formulation,
- The listing of chemicals in Annexure 3,
- The addition and removal of chemicals from Annexure 3, and
- Export and import procedures or bans.

Certain issues regarding the content of the convention remain controversial. These include:

- Funding the convention,
- Dispute resolution mechanisms, and
- The additions of chemicals to Annexure 3.

South Africa, through the Department of Environmental Affairs and Tourism, has acceded to this Convention as of 4 September 2002.

The Convention will enable the world to monitor and control the trade in very dangerous substances. It will give importing countries the power to decide which chemicals they want to receive and to exclude those they cannot manage safely. If trade does take place, requirements for labelling and provision of information on potential health and environmental effects will promote the safe use of these chemicals. In terms of the Convention, export of a chemical can only take place with the prior informed consent of the importing party.

The Convention contains provisions for the exchange of information among Parties about potentially hazardous chemicals that may be exported and imported and provides for a national decision-making process regarding import and compliance by exporters with these decisions.

The provisions regarding information exchange include:

- The requirement for a Party to inform other Parties of each ban or severe restriction on a chemical it implements nationally;
- The possibility for a developing country Party or a Party with an economy in transition to inform other Parties that it is experiencing problems caused by a severely hazardous pesticide formulation under conditions of use in its territory;
- The requirement in respect of a Party that plans to export a chemical that is banned or severely restricted for use within its own territory, to inform the state of import that such export will take place, before the first shipment and annually thereafter;
- The requirements that an exporting Party, when exporting chemicals that are to be used for occupational purposes, shall ensure that a safety data sheet that follows an internationally recognised format, setting out the most up-to-date information available, is sent to the importer;
- The requirement that exports of chemicals included in the PIC procedure and other chemicals that are banned or severely restricted domestically, when exported, are subject to labelling requirements that ensure adequate availability of information with regard to risks and/or hazards to human health or the environment.

Decisions taken by the importing Party must be trade neutral. In other words, if the Party decides that it does not consent to the import of a specific chemical, it must also stop domestic production of the chemical for domestic use or imports from any non-party. The provision means that the Convention does not only affect the import and export of specified hazardous chemicals, but also the manufacturing of such chemicals.

The Convention covers pesticides and industrial chemicals that have been banned or severely restricted for health to environmental reasons by participating Parties, and which have been subject to notification by Parties for inclusion in the PIC procedure. Severely hazardous pesticide formulations that present a hazard under the conditions of use in developing country Parties or Parties with economies in transition may also be nominated. The inclusion of chemicals in the PIC procedure is decided by the Conference of Parties. The Convention will initially include at least 27 chemicals carried forward from the present voluntary PIC procedure and hundreds more are likely to be added as the provisions of the Convention are implemented.

The initial 27 chemicals are:

Pesticides	Industrial chemicals
2, 4, 5 –T	Crocidolite
aldrin	polybrominated biphenyls (PBB)
captafol	polychlorinated byphenyls (PCB)
chlorobenzilate	polychlorinated terphenyls (PCT)
chlordane	tris (2, 3 dibromopropyl) phosphate
chlirdimeform	
DDT	
Dieldrin	
Dinoseb	
1,2-dibromoethane (EDB)	
fluoroacetamide	
HCH	
heptachlor	
hexachlorobenzene	
lindane	
mercury compounds	
pentachlorophrnl	
certain formulations of methyl- parathion, methamidophos, monocrotophos, parathion and phosphamidon	

Certain specific chemicals are excluded from the scope of the Convention. These include:

- Narcotic drugs and psychotropic substances; radioactive materials;
- Wastes;
- Chemicals weapons;
- Pharmaceuticals;
- Food and food additives; and
- Chemicals in quantities not likely to affect human health or the environment provided they are imported for research or analysis purposes or by an individual for personal use in quantities reasonable for such use.

Each Party must designate one or more national authorities authorised to act on its behalf in the performance of the administrative functions required by the Convention. In South Africa, the Department of Environmental Affairs and Tourism is the National Designated Authority.

The chemical and agrochemical industries will be affected by the information exchange obligations as well as a possible increase in demand for chemicals that are covered by the Convention.

4.5.2 Persistent Organic Pollutants (POPs)

Presently, POPs are managed by the Stockholm Convention on Persistent Organic Pollutants (POPs).

In 1997, UNEP established an international negotiating committee to prepare a legally binding instrument aimed at reducing or eliminating environmental problems caused by persistent organic pollutants (POPs).

The Stockholm Convention aims to prohibit the production and use (including import and export) of twelve identified POP substances. These 12 substances are all persistent in the environment; transported long-distance as far from their source, and bioaccumulate in the majority of living organisms.

The 12 POPs that had been identified for global initiative under the convention are: aldrin, chlordane, dieldrin, DDT, endrin, HCB, heptachlor, mirex, PCB, toxaphene, dioxins, and furans. Of the aforementioned substances, DDT is still used in South Africa today for malaria vector control, although its use is restricted under the 'Fertiliser Act' as administered by the Department of Agriculture (see Section 4.4.3 (a)). South Africa has embarked on a vigorous research programme to develop alternatives to DDT, which is currently the most effective and inexpensive measure available to control malaria.

National Implementation Plan

In addition, DEAT as a Focal Point of the Stockholm Convention, is co-ordinating a project (launched in January 2003) to develop a National Implementation Plan (NIP) on POPs.

Project objectives include:

- Enabling South Africa to meet its reporting obligations under the Stockholm Convention POPs
- Preparing the groundwork for implementation of the POPs Convention in South Africa
- Strengthening national capacity to manage POPs and chemicals management capacity in general.

Project deliverables include:

- A National Implementation Plan (NIP) for implementation of the POPs Convention in accordance with Article 7 of the Convention
- Specific Action Plans that identify effective national responses, processes and measures that would reduce the release of POPs
- A specific action plan to control the use of DDT for malaria vector control
- Strengthened POPs institutional arrangements
- Enhanced knowledge and understanding amongst government departments, decision-makers, industry, environmental managers, and the general public.

Major stakeholders who have been identified to participate through the National Co-ordination Committee include:

- Department of Environmental Affairs and Tourism
- Department of Agriculture
- Department of Health
- Department of Water Affairs and Forestry
- Department of Trade and Industry
- Department of Labour
- Provincial Government Departments
- Chemical, Energy, Paper, Printing, Wood and Allied Workers Union
- Chemical and Allied Industries' Association
- Crop Protection and Animal Health Association
- Earthlife Africa
- Groundwork
- Environmental Justice Network Forum
- Habitat Council
- Academic and Research Institutions

It is anticipated that the NIP will be finalised and endorsed for implementation by all relevant stakeholders in 2006.

Box 4.8

UNEP bans persistent organic pollutants

Extracted from Chemical & Industry, 18 December 2000

Delegates from 122 governments have finalised a legally binding treaty for the minimisation and eventual elimination of some of the world's most dangerous chemicals.

Initially, 12 environmentally persistent organic pollutants (POPs) will be covered by the treaty. At the United Nations Environment Programme's fifth POPs meeting in Johannesburg, South Africa, the text of the treaty was finalised, and it will be officially signed in Stockholm, in May 2001.

The aim is to control the production, import, export, disposal and use of these chemicals. Governments are also encouraged to promote the best available technologies and practices for replacing existing POPs, while preventing the development of new ones.

'Persistent organic pollutants threaten the health and well-being of humans and wildlife in every region of the world,' said John Buccini, a Canadian government official and chair of the talks. 'This new treaty will protect present and future generations from the cancers, birth defects and other tragedies caused by POPs.'

Highly toxic and stable, POPs can persist in the environment for many decades. They bioaccumulate in animals, insects, and birds as a result of their high solubility in fatty tissues. This spreads their effect up the food chain and also means they are carried, via birds, insects and fish, over huge geographical distances. This is clear from the fact that indigenous people and animals from the Arctic region are badly affected by POPs – even though they are thousands of kilometres away from any major POP source.

Of the 12 chemicals covered by the treaty, eight are pesticides, two are industrial chemicals and the rest are unwanted by-products of combustion and industrial processes. The majority are the subject of an immediate ban.

However, the pesticide dichlorodiphenyl-trichloroethane (DDT) is exempted, because it is essential in many tropical countries to kill malarial mosquitoes. Similarly, industrial polychlorinated biphenyls (PCBs), found in old electrical equipment, will be tolerated until 2025, after which all electrical equipment must be PCB-free. Governments signing the treaty also agree to reduce the emission of furans and dioxides, by-products of combustion processes.

4.5.3 Transboundary Movement of Hazardous Waste

The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1989 (Ref 1) came into effect during May 1992 after ratification by the prerequisite number of countries. South Africa ratified the Convention in 1994.

The preamble to the Convention contextualises the background against which the Convention was drafted. This includes the recognition of growing threat to human health and the environment posed by the increased generation in complexity, and transboundary movement of hazardous waste; and also that the most effective way of protecting human health and the environment from the dangers posed by such waste is a reduction of generation to a minimum in terms of quantity and/or hazard potential.

Goals of the Convention

In view of this the Convention has stipulated three interdependent goals namely:

- Transboundary movement of hazardous waste should be reduced to a minimum consistent with environmentally sound management principles;
- Hazardous waste should be treated and disposed of as close as possible to the source of their generation; and
- Hazardous waste should be reduced and minimised at source.

Developing Countries

In addition to the above, the Convention also recognises that developing countries often lack the technical know-how and expertise which may be required to give effect to these goals and accordingly makes provision for assistance and exchange of information to facilitate the developing countries adherence to the goals and objectives of the Convention.

Toxic Waste Ban on Certain Exports and Imports

The most significant provisions of the Convention relate to the ban on certain importations and exportations; illegal traffic, bilateral, multilateral and regional agreements and the control system of the Convention.

When the Convention initially came into effect it restricted very few categories of transboundary movement. These restrictions pertained to:

- Waste being exported to the Antarctica;
- Waste being exported or imported to states that are not party to the Convention and who do not have a bilateral agreement (based on the standards of the Basel Convention); and
- State/s that have exercised their sovereign right to ban, whether partially or completely, the transboundary movements of hazardous wastes.

Many of the developing countries lobbied for a complete ban on toxic waste trade. At the third conference of the parties held in 1995, it was decided to amend the Convention to ban certain exports and imports. In terms of the ban, which was adopted at the third Conference of the Parties, no country listed in Annex VII (developed countries) may export waste to a non-Annex VII country.

Transboundary movement of hazardous waste will still be permitted between OECD states or between developing states where it presents the best solution for the environment, or if it takes place in conformance with the Convention. Accordingly, exportation may occur if the state of export does not have the technical capacity or facilities to dispose of hazardous waste in an environmentally sound manner, or possibly if the waste is required as raw material for recycling in the state of import or in accordance with additional criteria to be determined by the states, provided that such exportation does not occur from an Annex VII country to a non-Annex VII country.

Control, Monitoring and Remedial Action

The ban does not apply in respect of waste being exported between Annex VII countries.

The Convention places emphasis on the control, monitoring and remedial actions to be undertaken concerning illegal traffic or hazardous waste. It prescribes certain actions to be taken in order to remedy a situation where illegal traffic has occurred, for example where the illegal traffic has occurred as a result of conduct on the part of the exporter or generator, the state of export must ensure that the waste in question is taken back by the exporter or generator, or if

necessary, by the state of export or if this is impossible or impracticable the wastes are to be otherwise disposed of in accordance with the provisions of the Basel Convention.

The Basel Convention provides that parties may enter into bilateral, multilateral or regional agreements or arrangements regarding transboundary movements of hazardous wastes with non-parties regarding the transboundary movement of hazardous waste. However, these agreements must contain the same environmentally sound management conditions of disposal as are required by the Basel Convention. In other words, before a company wishing to import or export hazardous waste to or from a company situated in another country which is not a party to the Basel Convention a bilateral agreement must be in place between the countries before any such transaction commences.

Where transboundary movements are still permitted the Basel Convention has set up a control system for such movements which is co-ordinated by the Basel Secretariat. The core of this system involves stipulated notification procedures between the states of export, import and transit whereby the consent of such states is obtained. This is known as the Prior Informed Consent procedure (PIC procedure). All such information must be transmitted to the Secretariat before the end of each calendar year.

Liabilities and Compensation Provisions

Further aspects of the control procedures include liability and compensation provisions. These include obligations on contracting parties to co-operate with a view to adopting a protocol setting out rules and procedures in respect of liability and compensation for damage arising from transboundary movement and disposal of hazardous waste. The Convention also provides that the parties must consider the establishment of an emergency fund to assist on an interim basis in the case of emergency situations to minimise damage from accidents arising out of transboundary movements of hazardous waste and the disposal of such waste.

Categories of Waste

Article 1 of the Convention provides that wastes which fall within any category contained in Annexure 1 will be deemed to be hazardous for the purpose of the Convention unless they do not possess any of the characteristics contained in Annexure 3. These annexures contain wastes that are listed comprehensively, either as waste streams originating from specific sources/processes or as wastes having specific constituents. Examples of waste streams include chemical wastes from hospitals. Examples of specific constituents of waste include both inorganic and organic chemical compounds.

Hazardous characteristics are also recognised, for example, flammable liquids or soils, oxidising corrosive substances and toxic gases. These Annexes have been complemented by the adoption of Annexes VIII and IX.

Summary of Obligations

In addition to the Annexure, the Convention also recognises that wastes will be hazardous when not included in the Annexures, but is considered to be hazardous if the party of export, import or transit has legislation which specifies it as being hazardous.

The main obligations imposed by the Convention may be summarised as follows:

- Transboundary movement of hazardous waste will not be permitted to parties that have prohibited the import of such waste.
- Hazardous waste and other waste shall not be exported unless the state of import provides consent in writing for the specific import. Underpinning this obligation is the requirement that the country of import must have adequate and proper facilities, technologies and control measures in place and that the exporting country must be satisfied in this respect.

- Parties must take appropriate measures to ensure that the generation of hazardous waste and other waste is reduced to a minimum, taking into account, inter alia, technological and economic aspects.
- Parties must also ensure the availability of adequate disposal facilities that shall be located, to the extent possible, within its territory.
- Each party must take appropriate legal, administrative and other measures to implement and enforce the provisions of the Convention, including measures to prevent and punish conduct in contravention of the Convention.
- Parties may not permit hazardous waste or other waste to be exported to a non-party to be imported from a non-party without an agreement.
- Each party shall require that hazardous waste and other waste that is to be subject to transboundary movement is packaged, labelled and transported in conformity with generally accepted and recognised international rules and standards in the field of packaging, labelling and transport, and that due account is taken of relevant internationally recognised practices.
- Hazardous waste and other waste must be managed in an environmentally sound manner and this obligation may under no circumstances be transferred to other states of import or transit.

The Convention is implemented by the Department of Environmental Affairs and Tourism. The DTI's Directorate of Import and Export Control, however, administers the provisions relating to the import and export of waste regulated by the Convention in conjunction with the Department of Environmental Affairs and Tourism.

South Africa has not passed legislation pertaining to the transboundary movement of hazardous waste as is required in terms of the Basel Convention although the Convention itself has been published in the Government Gazette. However, it should be noted that the draft White Paper on Integrated Pollution and Waste Management articulates the intention of giving effect to obligations imposed by the Convention.

4.5.4 Substances that Deplete the Ozone Layer

The Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 (Ref 1) was adopted in 1987. The Parties to the Vienna Convention (discussed below) negotiated the Montreal Protocol to give effect to their obligation under the Vienna Convention to take "appropriate measures" to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. Owing to the inclusion of specific actions, measures and goals relating to specific activities and substances, the Protocol is of more practical importance to business and industry than the Vienna Convention itself. It must be emphasised though that the Protocol is merely an extension of the Vienna Convention and cannot stand on its own.

In terms of the Protocol, parties are obliged to control the consumption of listed CFCs whilst refraining from importing CFCs from states which are not parties to the Protocol.

The major substances regulated under the Protocol are:

- CFCs;
- Halons;
- Methyl chloroform;
- Carbon tetrachloride;
- HCFCs; and
- Methyl bromide.

The Montreal Protocol is based on the precautionary principle. Control measures are introduced as new scientific evidence points to the need for further action. This allows an effective integration of scientific and technical knowledge into the international decision-making process. It also demonstrates the use of trade measures as a means of enforcement to get non-parties to comply and to ensure that parties to the Protocol comply with their obligations. This includes a ban on trade in ozone depleting substances between certain groups of countries and the possibility of declaring parties who do not comply as “non-parties” under the Protocol.

Developed countries were given the most stringent obligations under the Protocol and were also tasked to make annual contributions to the Multilateral Fund of the Protocol, which finances the transfer of substitute technologies to developing countries. An allowance for delayed compliance with the obligations imposed under the protocol was granted to developing countries consuming less than 0.3 kg per capita of the controlled substances.

At the time of its accession to the Montreal Protocol in 1990, South Africa was classified as a developing country under the Protocol. South Africa’s request to be reclassified under the Protocol as a developing country was granted in September 1997 at the 9th meeting of the parties that was held in Montreal. South Africa will retain its commitments as a developed country, but more flexibility may be allowed when additional regulations are introduced.

The Department of Environmental Affairs and Tourism has indicated that no specific legislation aimed at restricting the use of controlled substances is envisaged. Compliance with the obligations incurred under the Protocol is achieved through permit requirements for the import of controlled substances and by prohibiting the manufacture of the substances locally. The eventual unavailability of the controlled substances may affect end-users.

4.5.5 United Nations Framework Convention on Climate Change (FCCC), 1992

The FCCC was signed by 154 governments in Rio de Janeiro during the United Nations Conference on Environment and Development (UNCED) in June 1992. The convention addresses the threat of global climate change by urging governments to reduce the sources of greenhouse gases. The ultimate objective of the convention is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system of the world.

South Africa ratified the UNFCCC on 29 August 1997 (after having signed it on 15 June 1994).

The commitments of Parties to the FCCC include:

- the publication of national inventories of anthropogenic emissions;
- the duty to provide stipulated information to the Conference of the Parties (COP) e.g. on removals by sinks of all greenhouse gases not controlled by the Montreal Protocol as well as steps taken to implement the FCCC.

The Kyoto Protocol to the FCCC (1997):

South Africa is in the process of ratifying the Protocol. For purposes of this Protocol, South Africa is a “developing country”. This Protocol – just like the Montreal Protocol in relation to the Vienna Convention – contains practical steps for the implementation of the goals of the FCCC.

The Kyoto Protocol addresses the issue of the reduction commitments for the so-called Annexure I Parties (developed countries). The conference resulted in a consensus decision to adopt a protocol under which industrialised countries will reduce their combined greenhouse gas emissions by at least 5% compared to 1990 levels in the period 2008 to 2012. This legally binding commitment promises to produce a historical reversal of the upward trend in emissions that started some 150 years ago. It also lists which gases should be covered. They are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.

Presently 106 countries have signed the Kyoto Protocol, accounting for 49% of emissions. For the protocol to go into force, 55 countries accounting to 55% of emissions should ratify the protocol.

South Africa acceded to the Kyoto Protocol on 31 July 2002.

4.5.6 Pollution of the Marine Environment

South Africa is a party to a number of multilateral environmental agreements aimed at the prevention of pollution of the seas from ships and land based sources as well as the prevention of exploitation of marine living resources. The following has relevance to chemical management.

(a) Civil Liability for Oil Pollution Damage

South Africa acceded to the International Convention on Civil Liability for Oil Pollution Damage, as amended (Ref1) during March 1976. The objectives of the Convention are to ensure that adequate compensation is available to persons who suffer damage caused by pollution from the escape or discharge of oil from ships and to standardise international rules and procedures for determining questions of liability and adequate compensation in such cases.

The most significant provisions of the Convention are summarised below.

In terms of Article III, the owner of a ship at the time of an incident causing oil pollution damage is liable for any damage so caused, unless the incident is caused by an act of war, exceptional natural phenomenon, malicious act of a third party or negligence of a Government or other authority in maintaining navigational aids.

The "owner" of a ship means the person or persons registered as the owners of the ship or, in the absence of registration, the person or persons owning the ship. In the case of a ship being owned by a State and operated by a company which is registered in that State as the ship's operator, such company will be regarded as the owner.

"Oil" means any persistent oil such as crude oil, fuel oil, heavy diesel oil, lubricating oil and whale oil, whether carried on board a ship as cargo or in the bunkers of such a ship.

"Pollution damage" means loss or damage caused outside the ship carrying oil by contamination resulting from the escape or discharge of oil from the ship, wherever such escape may occur, and includes the costs of preventive measures and further loss or damage caused by preventive measures.

Contributory liability on the part of the plaintiff may be established under certain circumstances. Where two or more ships have caused the damage in question, the owners are jointly and severally liable (Article IV).

In terms of Article VII, the owner of a ship registered in a Contracting State and carrying more than 2 000 tons of oil in bulk as cargo must be insured or must maintain other financial security such as the guarantee of a bank or a certificate delivered by an international compensation fund for the limited liability prescribed in Article V to cover his liability for pollution damage under the Convention. A Contracting State may not permit a ship under its flag to trade unless the required certificates have been issued in accordance with the Convention. In addition Contracting States must ensure that the required insurance or other security is in force in respect of any ship, wherever registered, entering or leaving a port in its territory, or arriving at or leaving an offshore terminal in its territorial sea, if the ship actually carries more than 2 000 tons of oil in bulk as cargo.

An action for compensation under the Convention must be brought within three years from the date when the damage occurred and within six years of the incident (Article VIII).

The Convention does not apply to warships or other ships owned or operated by a State and used only on Government non-commercial service.

(b) Prevention of Marine Pollution by Dumping of Waste and Other Matter

South Africa is party to the London Convention on the Prevention of Marine Pollution by Dumping of Waste and other matter, 1972 and a contracting party to the 1996 Protocol.

This convention and the 1996 Protocol concerns the dumping at sea of wastes such as industrial wastes, sewage sludge, dredged material and radioactive waste as well as incineration at sea.

Dumping at sea of waste generated on land and loaded on board specialised dumping vessels had been carried out for several years by industrialised countries before international rules to prevent marine pollution from this practice entered into force in 1974: the Oslo Convention for the Northeast Atlantic and in 1975 the London Convention 1972 for marine waters world-wide other than the internal waters of States. At present, there are 78 Parties to the London Convention.

These were followed by several, similar, regional agreements. Unregulated dumping has largely been halted since then. Most of these conventions share a so-called 'black- and grey-list' approach. The blacklist contains substances, the dumping of which is prohibited. The grey-list contains substances the dumping of which is only permitted under strict control and provided certain conditions are met.

In early 1991, incineration at sea operations came to a halt, ahead of the agreed global deadline of 31 December 1992. In 1991, Parties also agreed to apply the so-called "precautionary approach in environmental protection" within the framework of the London Convention (resolution LDC.44 (14)). In 1990, Parties to the London Convention 1972 agreed to phase-out sea disposal of industrial waste effective by 1 January 1996 (Resolution LDC.43 (13)).

In 1992, Agenda 21 encouraged Parties to complete this new orientation. In 1993, Parties started a detailed review of the London Convention, leading to the adoption of a few crucial amendments to Annexes I and II to the London Convention as a first step. These amendments consolidated in a legally binding manner the prohibition to dump all radioactive wastes or other radioactive matter and of industrial wastes, the latter as per 1 January 1996 as well as the prohibition of incineration at sea of industrial wastes and of sewage sludge. In 1996, this review was completed with the adoption of the 1996 Protocol to the London Convention 1972, which, when entered into force, replaces the London Convention. Implementation of the London Convention 1972 and of the 1996 Protocol thereto is very much connected with finding solutions for land-based sources of marine pollution and proper waste management in general. Nowadays, when a regulatory authority is confronted with a waste problem, seeking an overall net-benefit involving all environmental compartments is preferred over a sectoral approach. With regard to an industrial activity, the industry concerned will benefit from this approach in many cases through reduced use of raw materials leading to lower costs, or even through the marketing of the technologies or processes it developed to solve an environmental problem.

Provisions set out in Article VII of the Convention cover a wide range of measures for its enforcement. However, the basic thrust of these provisions is that each coastal State has a duty to enforce the Convention within its jurisdiction. Responsibility for enforcement on the high seas lies primarily with the State where the dumping vessel is registered (i.e., the flag State). In this context enforcement means verification that no illegal dumping operations are carried out and that conditions set out in dumping permits are met, including that the waste is dumped at the selected site and not somewhere else.

Benefits to the parties of the convention include the following:

- Enhanced protection of its coastal zone and marine environment
- Access to technical assistance to aid marine environmental protection

Control of marine pollution from disposal at sea activities
Improved management of dredged material and other material disposed of at sea
A forum to address scientific issues arising from disposal at sea activities
A forum for consideration of disputes between Contracting Parties arising from their disposal at sea activities
Review of national waste management policies and practices
A generic Waste Assessment Guidance is available and waste-specific guidance documents have been prepared to assist Parties to the Convention assess several classes of material. These documents and further information are provided in <http://www.londonconvention.org/>

This convention and its various protocols were incorporated into the following South African legislation:

Prevention of Pollution from Ships Act (No.2 of 1986)), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).
The Dumping at Sea Control Act.

The primary responsible agency is the DEAT Sub Directorate of Marine and Coastal Pollution Management. Most of its work is occupied by issuing permits for dredge spoils and sinking of old vessels. It occasionally issues permits for ships in trouble, typically grounded, to release their cargo into the sea.

4.5.7 Illicit Trafficking of Drugs

The relevant legislation is the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.

The parties to this convention:

- Share a deep concern for the magnitude of and rising trend in the illicit production, demand for and traffic in narcotic drugs and psychotropic substances.
- Share a deep concern that children are being targeted not only as a consumer market but also for the purposes of illicit production, distribution and trade in narcotic drugs and psychotropic substances, which entails a danger of incalculable gravity.
- Recognise illicit traffic as being an international criminal activity with links to other related organised criminal activities which undermine legitimate economies and threaten the stability, security and sovereignty of States.
- Consider that measures are necessary to monitor certain substances, including precursors, chemicals and solvents, which are used in the manufacture of narcotic drugs and psychotropic substances, the ready availability of which has led to an increase in the clandestine manufacture of such drugs and substances.
- Recognise the need to reinforce and supplement the measures provided in the Single Convention on Narcotic Drugs, 1961, that Convention as amended by the 1972 Protocol Amending the Single Convention on Narcotic Drugs, 1961 and the 1971 Convention on Psychotropic Substances, in order to counter the magnitude and extent of illicit traffic and its grave consequences.

The articles of this Convention focus on the co-operation of all Parties towards achieving the goal of suppressing the international production and trade of illicit narcotic drugs and psychotropic substances within the boundaries of each Parties domestic law.

4.5.8 Labour Conventions

South Africa has a long history of firm international relationships that have been founded on the grounds of the principles of tripartism.

The DOL has, on behalf of the country, been active in International Labour Organisation's (ILO) activities in the region and at the ILO conventions in Geneva, in fulfilment of the ILO Constitution, reporting obligations and interaction on policy developments regarding ILO standards.

ILO legislation and standards have been incorporated into South African legislation since early this century.

South Africa has however not ratified the ILO in terms of ILO 170, the chemicals convention of 1990 and ILO 174. Being a major international chemicals producer South Africa has however probably appropriate legislation in the form of the OHS Act and others.

Earlier ILO Conventions ratified by South Africa directly relevant to the management of chemicals:

Convention No.	Subject	Ratification Registered
C.42	Workmen's Compensation (Occupational Diseases) Convention (Revised, 1934)	26/02/1952
C.176	Safety and Health in Mines, 1995	09/06/2000

Other conventions that are presently being process for ratification are:

- C. No 155 concerning Occupational Safety and Health and the Working Environment, 1983
- C. No 174 concerning The Prevention of Major Industrial Accidents, 1993
- C. No 144, 1976: Tripartite Consultation

4.5.9 Biological Diversity

The Convention on Biological Diversity: Biosafety Protocol (Ref 1) concerns itself with biological diversity.

Article 19 of the Convention on Biological Diversity provides for parties to consider the need for and modalities of a protocol addressing concerns about the potential risks to biological diversity and human health posed by living modified organisms. The Conference of the Parties to the Convention on Biological Diversity (including South Africa) decided to, pursuant to Article 19, establish an open-ended ad hoc group of experts to consider the need for an modalities of a protocol setting out appropriate procedures in the field of the safe transfer, handling and use of any living modified organism resulting from modern biotechnology that might have adverse effects on the conservation and sustainable use of biological diversity.

The Open-ended Ad Hoc Working Group on Biosafety held six meetings between July 1996 and February 1999. At the conclusion of its sixth meeting, the Working Group has still been unable to present a consensus text for adoption. However, a number of draft articles and annexes have been adopted during the sixth meeting, including:

- Article 16 on component national authorities and national focus points;
- Article 19 on capacity building;
- Article 26 on financial mechanism and resources;
- Article 27 on the Conference of the Parties serving as the meeting of the Parties;

- Article 28 on subsidiary bodies and mechanisms;
- Article 29 on the secretariat;
- Article 30 on the relationship with the Convention;
- Article 32 on monitoring and reporting;
- Article 33 on compliance;
- Article 34 on assessment and review;
- Article 35 on signature;
- Article 36 on entry into force;
- Article 38 on withdrawal;
- Article 39 on authentic texts; and
- Article 3 on the use of terms, the definitions of the terms “exporter”, “importer”, “living modified organism”, “modern biotechnology”, and “regional economic integration organization” as well as annexes I and II.

The first extraordinary meeting of the Conference of the Parties was convened for the purpose of adopting a Protocol on Biosafety. The core issues and related issues that remain before this meeting were Articles 4, 5, 6, 15, 21, 22, 23, 24 and 31. It was agreed by all the negotiating groups at the meeting that the essential core issues among those identified above were Articles 4, 5 and 31 addressing the following aspects:

- Article 4 : Scope
- Article 5 : Application of the advance informed agreement procedure
- Article 31 : Relationship with other international agreements

The meeting was suspended with a view to reconvening at a date to be advised. The biosafety protocol is thus still being negotiated and will hopefully be finalised during the reconvened session of the suspended meeting.

4.6 Existing Legislation by Use Category Addressing Various Stages of Chemicals from Production/Import through Disposal

Table 4.C: Overview of Legal Instruments to Manage Chemicals by Use Category¹

Category of Chemical	Import	Production	Storage ³	Transport	Distribution / Marketing	Use / Handling	Disposal
Pesticides (agricultural)	X	X	X	X	X	X	X
Pesticides (public health and consumer use)	X	X	X	X	X		
Fertilisers	X	X	X	X	X	X	X
Ind. Chemicals (used in manufacturing / processing facilities)	L	X	X	X	L	X	L
Petroleum Products		X	X	X	L		L
Consumer Chemicals	L	X	X	X	L		L
Chemical Wastes				X	L		L
Medicines		X			X	X	
Drugs			X			X	
Flammable Liquids			X			X	
Explosives	X	X	X	X	X	X	X
Weapons of Mass Destruction	X	X	X	X	X	X	X

- 1 'X' indicates where a specific stage is adequately addressed through national legislation.
- 2 'L' indicates where national legislation exists but is inadequate in addressing a specific stage.
- 3 It should be recognised that transportation and storage can occur at various stages of the chemicals' life-cycle from production through disposal.
- 4 Through the EIA Regulations (Environmental Conservation Act) and the Major Hazardous Installation Regulations (OSH Act)

4.7 Summary Description of Key Approaches and Procedures for Control of Chemicals

Banned substances are listed in Table 4.B.

4.8 South African Bureau of Standards

Codes of Practice, Certification and Accreditation

4.8.1 SANS Standards and Code of Practices

South African Bureau of Standards (SABS) is the national standards organisation of South Africa. Its technical departments publish the work of its technical committees as South African National Standards (SANS). The technical committees are active members of technological associations, consumer associations, manufacturers, industrialists, government officials, educators and others. It is also the SABS's policy to adopt International and European standards when these are found to be applicable to the South African situation.

A full list of all South African national standards and related Standards South Africa publications is given in the Standards South Africa Catalogue, which is issued annually and is updated monthly by the Standards South Africa Official Information. Complete and up-to-date information about these publications can be obtained from the Standards Search facility on the Standards South Africa Web Site.

During the development of South African national standards, documents are circulated for study within the technical committees or subcommittees. These documents have to pass through a number of stages before they can be approved as South African national standards. This procedure is designed to ensure that the final result is acceptable to as many interest groups as possible.

The Standards South Africa information centre provides over 500 000 standards, specifications, codes of practice and test methods for reference purposes. Many of these standards are not regulatory, however the Standards South Africa administers approximately 70 legal compulsory specifications across a wide spectrum of areas, some of which relate to chemicals. These compulsory specifications are legal measures and requirements to ensure that products locally manufactured or imported into South Africa or exported from South Africa meet the minimum requirements for health and safety as set out in the relevant South African National Standards.

Dangerous Goods Standards

A group of standards known as the 'Dangerous Goods Standards' are relevant to anyone involved in the fields of classification, handling–packaging, distribution, sale of, storage, testing, transport - in bulk in smaller quantities by road or rail on land, by sea by air of all relevant substances or staff with a responsibility for handling safety responses to hazardous situations. Of these standards Table 4.D represents those that are relevant to chemicals management.

Standards South Africa co-operated with Infosource, an information management and publishing company in Cape Town, to produce a single CD-ROM of all the Dangerous Goods standards.

The Standards South Africa information centre also maintains sets of international (ISO, IEC, CISPR, etc.), European (CEN, CENELEC) and national standards from foreign countries (BSI, DIN, AFNOR, SAI, etc) and advises exporters about regulatory requirements of the countries to which they export. The centre also supplies the chemical composition and physical properties of materials where the material codes are specified.

Further information can be sourced from <http://www.SABS.co.za/3.html>.

4.9 Table 4.D : List of Dangerous Goods Standards

	Standard Type	Title	Abstract/Description	Regulatory
<u>SANS 100118:1990</u>	Code of practice	The aerial application of agricultural remedies	Covers the training of pilots, the aircraft and landing places, the protection of pilots and ground personnel and health precautions, directives for agrochemical companies, sponsors and aerial application companies, and first-aid treatment in case of suspected poisoning.	<u>Hazardous Substances Act:</u> Regulations Relating to the Aerial Application of Agricultural Remedies.
<u>SANS 10072:1993</u>	Code of practice	The safe handling of pesticides.	Gives guidance on the precautions to be taken when pesticides are handled, gives directives for the application of pesticides and describes the action to be taken in the event of contamination or poisoning.	<u>OHS Act:</u> Regulations for Hazardous Chemical Substance
<u>SANS 10087:</u>		The handling, storage, and distribution of liquefied petroleum gas in domestic, commercial and industrial installations.	<i>As per Title</i>	<i>No sub-reference</i>
SANS 10087-1:1999	Code of practice	<u>Part 1:</u> Liquefied petroleum gas installations involving gas storage containers of individual water capacity not exceeding 500 l and a c	Gives recommendations for the materials, the methods of construction and the installation of equipment used in the handling, storage or distribution of liquefied petroleum gas in domestic, commercial and industrial installations that involve gas storage containers of individual water capacity not exceeding 500 l and of a combined water capacity not exceeding 3 000 l	<i>No sub-reference</i>
SANS 10087-2:1977	Code of practice	<u>Part 2:</u> Installations in mobile units and small non-permanent building	Abstract Contains recommendations for the materials and methods of construction and assembly of installations for the storage and distribution of liquefied petroleum gas in mobile units and small non-permanent buildings. Also contains recommendations for containers, appliances, piping, fittings and other components, and for the maintenance, inspection and testing of installations.	<i>No sub-reference</i>
SANS 10087-3:2000	Code of practice	<u>Part 3:</u> Liquefied petroleum gas installations involving storage vessels of individual water capacity exceeding 500 l	Covers recommendations for the layout, design and installation of butane, propane and liquefied petroleum gas equipment and of storage vessels of individual water capacity exceeding 500 l. International relatedness	<i>No sub-reference</i>
SANS 10087-4:1979	Code of practice	<u>Part 4:</u> Transportation of LPG in bulk by road	Contains recommendations for the design, construction, inspection, fittings and filling ratio of tanks used in the transport of LPG in bulk by road, the design of vehicles and ancillary equipment and operating practice. Fire precautions are also	<i>No sub-reference</i>

	Standard Type	Title	Abstract/Description	Regulatory
			covered	
SANS 10087-6:2000	Code of practice	<u>Part 6:</u> The application of liquefied petroleum gas as an engine fuel for internal combustion engines	Covers recommendations for the safe use of liquefied petroleum gas as a fuel for internal combustion engines and for the safe operation of equipment built for or converted to the use of LP gas. Basic recommendations for the use of LP gas in stationary or portable engines are included. A diagram that shows a typical installation for an LP gas-operated vehicle is included for information	<i>No sub-reference</i>
SANS 10087-7:2000	Code of practice	<u>Part 7:</u> Storage and filling sites for refillable liquefied petroleum gas (LPG) containers of capacity not exceeding 9 kg	Gives recommendations in respect of the location and installation of and operations at storage and filling sites for refillable liquefied petroleum gas (LPG) containers of capacity not exceeding 9 kg.	<i>No sub-reference</i>
SANS 100087-8:1976	Code of practice	<u>Part 8:</u> The fuelling of fork lift trucks and other LP gas operated vehicles	Covers recommendations for the equipment used in filling LP gas containers on forklift trucks and other LP gas-fuelled vehicles from fixed storage, and for the siting and maintenance of the equipment. Also covers safety precautions and fuelling procedure and is intended to supplement SANS 10087-6.	<i>No sub-reference</i>
<u>SANS 10089:</u>		The petroleum industry		<i>No sub-reference</i>
SANS 10089-1:2003	Code of practice	<u>Part 1:</u> Storage and distribution of petroleum products in above-ground bulk installations	Covers the layout and design of petroleum bulk depots, and the installation of equipment of the types normally used for the handling, storage and distribution of petroleum products and their derivatives, other than equipment that is used for storage and dispensing on consumer premises (including service stations) and for which relevant standards exist.	<i>No sub-reference</i>
SANS 10089-2:2001	Code of practice	<u>Part 2:</u> Electrical installations in the distribution and marketing sector	Covers the recommended safe practice in the design, construction, installation and maintenance of electrical and earthing and bonding systems intended to be used in flammable and combustible liquid storage, pumping, distribution and marketing facilities.	<i>No sub-reference</i>
SANS 10089-3:1999	Code of practice	<u>Part 3:</u> The installation of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations	Covers provisions for the installation of underground storage tanks of individual capacity not exceeding 85 000 l, pumps/dispensers and pipework at service stations and consumer installations.	<i>No sub-reference</i>
<u>SANS 100189:1983</u>	Code of practice	The operation, handling, and maintenance of road	Covers recommendations for the safe operation, handling and maintenance of road tank vehicles for the conveyance of	<i>No sub-reference</i>

	Standard Type	Title	Abstract/Description	Regulatory
		tank vehicles for flammable liquids	flammable liquids and is complementary to the specifications for such vehicles.	
<u>SANS 100228:2003</u>	Code of practice	The identification and classification of dangerous substances and goods	Covers the identification of dangerous substances and goods that are capable of posing a significant risk to health and safety or to property and the environment. Covers requirements for all modes of transportation. International relatedness	<u>Hazardous Substances Act</u> and Regulations <u>OHS Act:</u> Regulations for Hazardous Chemical Substance, <u>DWAF Min. Requirement for Waste*</u>
<u>SANS 100229:1996</u>	Code of practice	Packaging of dangerous goods for road and rail transportation in South Africa	Identifies various methods of packaging that are suitable for prescribed maximum quantities of dangerous goods that may be offered for transportation by road or by rail in South Africa. Describes minimum performance requirements for the packaging, the procedures to be followed to obtain approval from testing or certification authorities and gives details of the labels and marking to be displayed on the packaging.	<u>National Road Traffic Act:</u> Regulations Relating to the Transportation of Dangerous Goods and Substances by Road, <u>OHS Act:</u> Regulations for Hazardous Chemical Substance
<u>SANS 100230:1997</u>	Code of practice	Transportation of dangerous goods - Inspection requirements for road vehicles	Contains provisions for the routine inspection and testing of road vehicles that carry dangerous goods and of the goods containment area of every vehicle, to ensure the safe transportation of dangerous goods by road	<u>National Road Traffic Act::</u> Regulations Relating to the Transportation of Dangerous Goods and Substances by Road
<u>SANS 100231:2003</u>	Code of practice	Transportation of dangerous goods - Operations requirements for road vehicles	Establishes rules and procedures for the safe operation and handling of road vehicles that are used for the conveyance of dangerous goods, in excess of the exempt quantities, on any road (public or private).	<u>National Road Traffic Act::</u> Regulations Relating to the Transportation of Dangerous Goods and Substances by Road
<u>SANS 100232:</u>		Transportation of dangerous goods - Emergency information systems	<i>As per Title</i>	
SANS 100232-1: 2000	Code of practice	<u>Part 1:</u> Emergency information system for road transportation	Covers the requirements for emergency information systems, such as requirements for hazard-class diamonds, placards and emergency information documents, and also load constraints for the transportation of dangerous goods by road.	<u>National Road Traffic Act::</u> Regulations Relating to the Transportation of Dangerous Goods and Substances by Road
SANS 100232-2: 2000	Code of practice	<u>Part 2:</u> Emergency information system for rail transportation	Covers the rules and procedures that govern the implementation of an emergency information system for rail transportation of dangerous goods, in quantities that exceed the exempt quantity.	

	Standard Type	Title	Abstract/Description	Regulatory
			International relatedness	
SANS 100232-3: 2000	Code of practice	Part 3: Emergency response guides	Covers a standard procedure of initial response, in the form of emergency response guides (ERGs), that is to be followed by a first responder upon arrival at the scene of an incident that involves the transportation of materials that are classified as dangerous goods in accordance with SANS 100228. ERGs facilitate the early assessment of the potential hazards and indicate a response that should be taken to mitigate the incident.	<u>National Road Traffic Act:: Regulations Relating to the Transportation of Dangerous Goods and Substances by Road</u>
SANS 100232-3: Annex A 2000	Code of practice	Emergency response handbook	A guidebook for first responders during the initial phase of a dangerous goods incident. International relatedness	
<u>SANS 100233:2001</u>	Code of practice	Transportation of dangerous goods - Intermediate bulk containers	Establishes the requirements for various types of intermediate bulk container (IBC) that are specified for the containment of dangerous substances for road and rail transportation in South Africa, other than radioactive material of class 7 and most of the explosives of class 1.	<u>National Road Traffic Act:: Regulations Relating to the Transportation of Dangerous Goods and Substances by Road</u>
<u>SANS 100263:1997</u>		The warehousing of dangerous goods	The warehousing of dangerous goods - Enclosed storage areas and covered and uncovered outdoor storage yards	
<u>SANS 100265-1999</u> [published in 2000]		The classification and labelling of dangerous substances and preparations for sale and handling	Abstract Covers the classification of dangerous substances and preparations on the basis of their toxicological, physicochemical and ecotoxicological properties that might constitute a risk during normal sale and handling and use, the packaging requirements necessary to provide reasonable protection from exposure to dangerous substances and preparations during normal handling and storage, or if transported in an overpack, the labelling of dangerous substances and preparations to indicate the main hazards and precautions associated with them in order to protect the user, the general public, property and the environment, and the information supplemented by means of material data sheets to industrial users of dangerous substances and preparations.	
<u>SANS 100304:2002</u>	Code of practice	The classification of stock remedies for sale and handling	Covers the classification of stock remedies for sale and handling. Each stock remedy has been allocated to one of five danger groups, in accordance with the degree of its intrinsic toxic properties. The allocation is based on the WHO guidelines, as amended in accordance with South African demands.	
SANS10 0304-1: 2002	Code of practice	The classification of pesticides and stock remedies for sale and	Covers the classification of pesticides for sale and handling in South Africa. Each pesticide has been allocated to one of five danger groups in accordance with the degree of its intrinsic toxic	

	Standard Type	Title	Abstract/Description	Regulatory
		handling in South Africa. <u>Part 1</u> : Classification of pesticides	properties.	
<u>SANS 1518:2002</u>	Specification	Transportation of dangerous goods - Design requirements for road tankers	Specifies the requirements for road tankers intended for use on public roads for the transportation, at ambient temperature, of normally stable dangerous substances.	
<u>SANS 1560:1992</u>	Mark specification	Corrugated fibreboard boxes for dangerous goods	Specifies requirements for corrugated fibreboard boxes intended for the packaging of dangerous goods.	

* DWAF Minimum Requirement for the Handling, Classification and Disposal of Hazardous Waste

4.10 Voluntary Mechanisms

4.10.1 Accreditation and Certification Schemes

An important mechanism for management of chemicals is conducted through the accreditation and certification schemes. Certification is the process whereby an independent and accredited organisation certifies that a third party complies with specific requirements.

Certification is:

- accredited by SANAS for ISO 9001 / 9002 and EN 14001 (See Chapter 9, Section 9.1)
- accredited by RVA for ISO 9001 / 9002 , EN 14001 and QS 9000
- accredited by KBA for ISO and Road Traffic Law
- authorisation for VDA 6.1 and ISO / TS 16949
- NOSA

The three main certification schemes are:

- System Certification
- Product Certification
- Consignment Inspection

System Certification

In South Africa the most well known System Certification schemes are the SANS ISO 9001/2 for Quality Systems and SANS ISO 14000 Environmental Management System. These System Certification Schemes involve the assessment/audit of a company's Quality or Environmental overall Management system to verify compliance with the ISO requirements.

Value is added to a Company by these Certification Schemes in two ways:

- In an improvement in the ability of a company to consistently supply a product to the customers' specification.
- In the recognition of the company as a Quality or Environmentally well managed entity.

Product Certification

Product Certification includes many of the aspects of System Certification and, in addition, includes the requirement that the product is tested to ensure compliance with a product specification, which may include additional (optional) quality and durability requirements. This product compliance testing is an ongoing activity ensuring continued performance for the purchaser.

Consignment Inspection

Consignment inspection involves the inspection of batches of products for compliance with the Purchaser's requirements.

Please refer to <http://www.SANS.co.za/4.html> for further information.

4.10.2 Responsible Care

Responsible Care was initiated in Canada in 1984 and has grown to become an international initiative, as by 1999, companies in 42 countries were members.

Responsible Care reflects an ethic, an attitude, and a method of thinking about the way in which chemical companies do business and their role in society. It addresses the reality that corporate values must emphasise a long-term public commitment to community and occupational health and safety and to environmental protection and indicates the chemical industry's commitment to sustainable development and to introducing cleaner technologies.

In 1994, the Chemical and Allied Industries' Association (CAIA) launched Responsible Care in South Africa to respond to public concerns about the manufacture, storage, transport, use, and disposal of chemicals.

By the end of 1999, CAIA had 180 members of whom 125 are signatories to Responsible Care. Membership is open to chemical manufacturers as well as to service providers such as storage companies, hauliers, and consultants. CAIA submits bi-annual reports on the South African status to the International Council of Chemical Associations (ICCA).

During 1997 and 1998 ninety-seven sites, embracing thirty-six companies, supplied information for the report responded to self-assessment questionnaires on the implementation of the six management practice standards, which are:

- Health and Safety of Persons
- Storage and Distribution of Chemicals
- Transportation of Chemicals
- Waste Management and Pollution Control
- Community Awareness and Emergency Response
- Product Stewardship

Responses are used to evaluate improvements in performance. The responses compare well with international experiences, indicating a strong commitment from local companies.

Responsible Care is not a programme, which has a beginning and an end, but rather an initiative, which necessitates continuous improvement in performance in an environment of changing knowledge and legislation.

For this reason targets have been set in accordance with international requirements to increase the levels of implementation of the management practice standards. A target has been set for better than 50% and 90% average compliance of management practice standards required by 2000 and 2004 respectively.

Also introduction of quantitative indicators of performance has commenced and development of mechanisms for external verification is in progress. Measurement of activities such as energy and water consumption, effluent discharges, and atmospheric emissions have commenced in a pilot study. Recruitment of storage and transport companies has yielded new members.

A Voluntary Advisory Forum was established in 1998. The Forum is to report on public concerns about the chemical industry and on ways in which the industry can provide the public with the information needed for informed decision-making.

Further information can be obtained from <http://www.mbendi.co.za/caia/rescare.htm>.

4.10.3 Responsible Container Management Association of Southern Africa (RCMASA)

RCMASA was formed in South Africa in 2001 for industry to take a pro-active approach to becoming self-regulatory and make a positive contribution to protect the health and safety of persons, and the environment in our region.

RCMASA has adopted the international Principles of *Responsible Container Management*, together with its Key Elements and Codes of Operating Practice, to help us achieve better practices and our objectives.

It is the Association's intention to work closely with existing national and international reconditions associations. At the appropriate time RCMASA plans to submit a membership application to the International Confederation of Container Reconditioning (ICCR).

The purpose of the RCMASA is:

- To provide a focal point for all organisations involved in the life cycle of industrial drums and containers (steel and plastic up to 1000 litres).
- To promote Responsible Container Management.
- To encourage partnerships along the value chain together with government and interested parties.
- To encourage industry's commitment to the public to continuously improve its health, safety and environmental practice and performance.

RMASA is focussing on the responsibilities of the manufacturer, the filler, the user, the drum recycler and/ or reconditioner, and the user/emptier to final disposal as well as service providers to achieve these aims.

4.11 Summary of Comments

Upon compilation of this chapter, the following observations have been made:

- South African legislation pertaining to chemicals and the management thereof is fragmented resulting in difficulties for many stakeholders and interested and affected parties to ascertain which legislation is specifically relevant to their specific field of operation. This is true for governmental and non-governmental parties.
- There are overlaps between the Hazardous Substances Act, the Occupational Health and Safety Act (in particular the Regulations for Hazardous Chemical Substances) and the Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act particular with regards to management of hazardous substances, packaging and labelling and wear of personal protective equipment. Such overlaps can result in confusion.

- There are strong similarities between the Occupational Health and Safety Act and the Mine Health and Safety Act. Debates have however been initiated on the merging of these acts.
- The following problems were identified with the OHS Acts Major Hazardous Installation Regulations:
 - Placing the onus on the owner or operator of the installation to determine whether the installation should be classified as an MHI, without a more detailed definition of what constitutes a MHI, creates poor management and compliance with the regulations.
 - The regulations do not adequately define how the risk assessment is to be conducted and what risks are to be considered e.g. risk if safety precaution fail.
 - Although the regulations specify that the risk assessor is to be an Approved Inspection Authority, due to the present lack of accreditation criteria, certain insufficiently qualified individuals are conducting the risk assessments, which determine whether an installation is an MHI.
 - Due to these problems certain installations that are in fact MHI, have been defined as installations that do not pose a major risk and the required procedures are thus not adhered to.
- South Africa has succeeded in reviewing its outdated air pollution legislation by enacting a new Air Quality Act.
- South Africa has no soil and groundwater remediation guidelines.
- South Africa has in the past ratified number of international legislative mechanisms, some of which are included these in national legislation. There are however certain such mechanisms that are presently either outstanding, in a process of being ratified or requirements in terms of the mechanisms have not yet been incorporated into national legislation. These including e.g.:
 - The ILO Conventions covering Occupational Safety and Health and the Working Environment, The Prevention of Major Industrial Accidents and Tripartite Consultation - ***In Progress***
 - Although national occupational health and safety legislation is probably sufficiently covering the requirements of the country should consider to ratify ILO170, the chemicals convention of 1990 – ***Not Ratified***
- Certain chemicals are not adequately covered by existing legislation. For example, many hazardous chemicals are listed in the Hazardous Substances Act under Schedule 2. However, the only reference to these chemicals is through the EIA Regulation with no other guidelines provided when dealing with such chemicals. There are no regulated guidelines for dealing with PCBs. The Hazardous Substance Act is currently under review.

CHAPTER 5

**GOVERNMENT DEPARTMENTS
AND AGENCIES MANAGING CHEMICALS**

This Chapter describes the mandates and programmes of the governmental departments and institutions responsible for and concerned with various aspects of chemicals management.

CHAPTER 5

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5 GOVERNMENT DEPARTMENTS AND AGENCIES MANAGING CHEMICALS

South Africa is one of a few countries in the southern hemisphere that has a diverse and thriving chemical trade and industry sector due to its rich mineral resources, extensive agricultural and manufacturing activities and strategic location.

Management of chemicals in the country thus requires a sophisticated and integrated approach amongst the various relevant governmental departments, agencies and other institutions. The various roles in terms of responsibilities for the administration of relevant legislation have already been indicated in Chapter 4. This chapter provides a summarised overview of the specific roles the relevant departments, agencies and other institutions play, the activities they undertake and the support they provide to manage chemicals at various stages of the chemical 'life cycle'.

Section 5.1, i.e. Table 5.A, provides an overview of the mandates and functions of government departments with regards to management of chemicals whilst Section 5.2 provides an overview of the key departments and their relevant supporting structures and activities.

Some of the influences, activities and support of the South African Government and its organisations, in terms of managing chemicals, extend to outside the borders of the country through its involvement in the Southern African Development Community (SADC) and other International Agreements.

The South African Government considers itself part of the global families of countries that thrives for and support sustainable development which includes sound management of chemicals. The government therefor has enshrined the concepts of sustainable development in its constitution to demonstrate its commitments to these concepts. The functions of the relevant governmental departments, agencies and other institutions, in terms of international networking to manage chemicals, is indicated below.


5.1 Responsibilities of Different Government Departments and Agencies

6

Table 5.A : Responsibilities of Government Departments, Agencies and Other Institutions¹

Stage of Life-Cycle / Department Concerned	Importation	Production	Storage	Transport	Distribution / Marketing	Use / Handling	Disposal	Hazard Management
Environmental Affairs & Tourism (DEAT)	A, P, I, C	A, P, I, C					(A, P, I, C) ⁵	A, P, I, C
Water Affairs and Forestry (DWAF)			A, P, I, C				(A, P, I, C) ⁶	A, P, I, C
Minerals and Energy (DME)		I (relevant to mining)				① (relevant to mining) ³		
Health (DOH)²	(A, P, I, C)	(A, P, I, C)	(A, P, I, C)	(A, P, I, C)	(A, P, I, C)	(A, P, I, C)	(A, P, I, C)	A, P, I, C
Agriculture (NDA)	A	A	A	A	A	Ⓐ		
Labour (DOL)		A, P, I, C	A, P, I, C	A, P, I, C		A, (P) ① ⁴ , C		
Trade & Industry (DTI)	(A, P, I, C)	(A, P, I, C)						
Transport				(A, P, I, C)		A, P, I, C		
Social Services (DSD)						A, P, I, C		
Provincial and Local Government (DPLG)	A, P, I, C	A, P, I, C	(A, P, I, C)	A, P, I, C	A, P, I, C	A, P, I, C	A, P, I, C	(A, P, I, C)
Safety and Security	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)
Foreign Affairs	A, P, I, C							
South African Defence Force	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)	I (explosives)

- 1 For each positive response concerning a broad group of chemicals, one of the following letters are indicated:
A – Pesticides
P – Petroleum Products
I – Industrial
C – Consumer Chemicals

 Mandates in terms of legislation is indicated by circles

- 2 All hazardous chemicals
3 Management of hazardous chemicals used in the mines
4 Management of chemicals used in all work places except mines and the shipping industry
5 Management of All disposal besides for disposal sites
6 Disposal of wastes (Disposal sites)
7 Management of explosives besides for those handled by the Defence force, the Mines and Works Act and ammunition regulated by any law other than the Explosive Act of 1956

6.1 Description of Key Departments and Agencies and their role in Managing Chemicals

6.1.1 Department of Environmental Affairs and Tourism (DEAT)

The Department of Environmental Affairs and Tourism (DEAT) leads environmental management and tourism in the interests of sustainable development with the vision to contribute to the improvement of the quality of life of all South Africans. Effectively DEAT is acting as the custodian of the South African environment on behalf of its people.

Legislative Framework

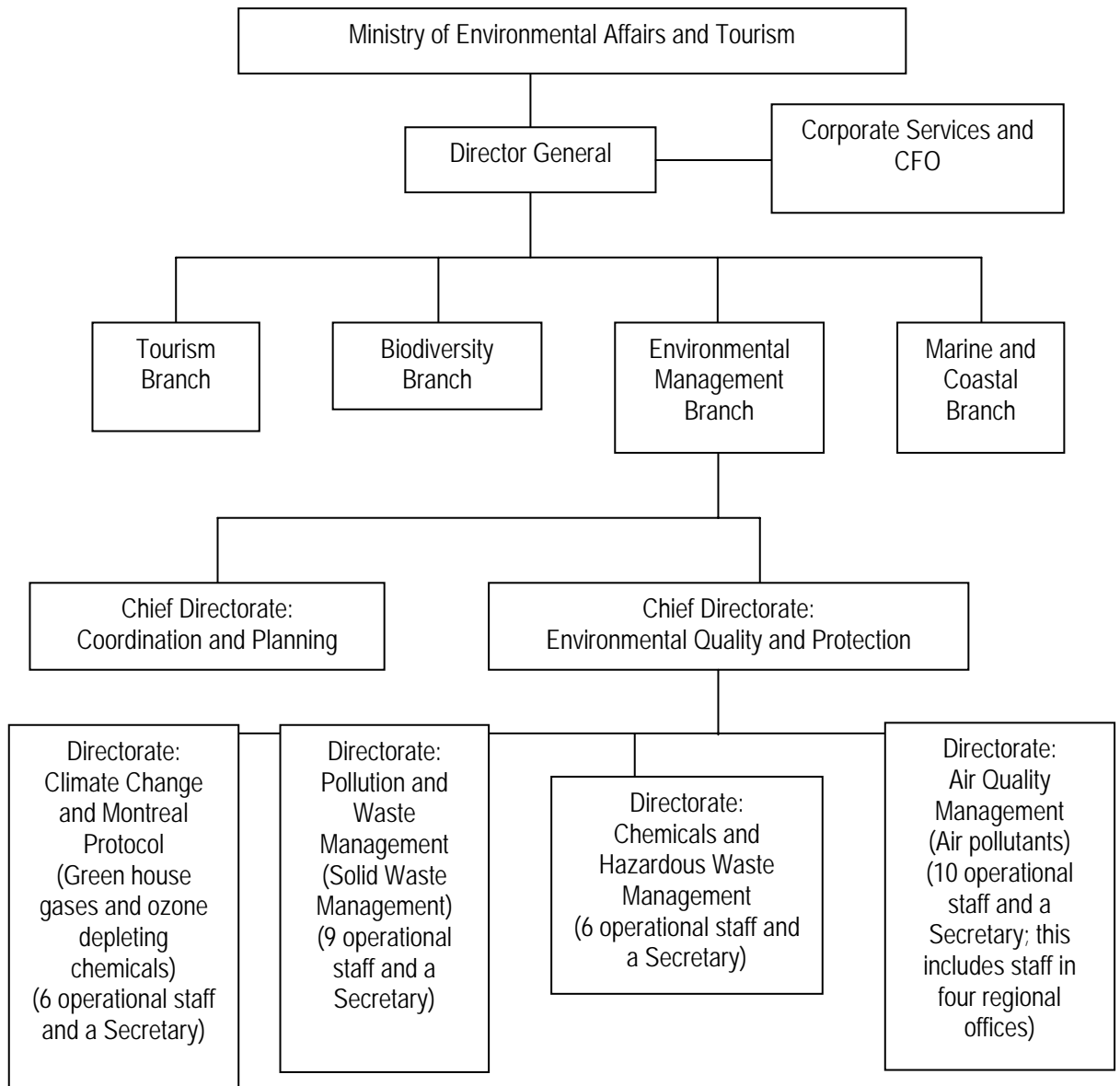
DEAT thus has an important role to play in ensuring that chemicals are managed such that its impact on the environment is properly controlled. The following important national legislative provides for the framework in which DEAT operates:

- **National Environmental Management Act, 1998:** To give effect to the 'National Environmental Principles', as defined in the Act and to provide for cooperate environmental governance by organs of state.
- **Environmental Conservation Act, 1989:** Environmental Impact Assessments (EIAs) are required for all Scheduled Processes (including any process that concerns chemicals) as per EIA Regulations 1183 1997, (see 4.4.12 (a)) through the various provincial environmental departments. All aspects of waste is managed, besides for its disposal which is administered by the Department of Water Affairs and Forestry, as authorised in the Act. Waste is defined in the Act as any matter whether gaseous, liquid or solid or combination thereof that the Minister designates as an undesirable, superfluous waste.
- **Atmospheric Pollution Prevention Act, 1965:** Air pollution control is managed through the system of Certificates of Registration for Scheduled Process and employment of the Chief Air Pollution Control Officer and his officers in terms of the Atmospheric Pollution Prevention Act. (See 4.4.14)

Structure

DEAT is organised into four branches namely:

- Tourism
- Biodiversity
- Environmental Management
- Marine and Coastal



Environmental Management Branch

Two directorates resort under the Environmental Management Branch.

The Chief Directorate: Environmental Planning and Coordination runs the programme with the purpose to “Create a framework for integrated environmental planning and management, and ensure coordination within government and with outside stakeholders to:

- Build a system of environmental monitoring and reporting
- Promote environmental management through effective environmental planning
- Environmental education and capacity building
- Review environmental legislation in terms of simplicity and accessibility; propose amendments and manage implementation
- Environmental conflict management and conciliation”

Resorting under the Chief Directorate: Environmental Quality and Protection are the following Directorates (also known as operational units):

- Chemical and Hazardous Waste Management
- Climate Change and Montreal Protocol
- Air Quality
- Pollution and Waste Management

(a) Directorate: Chemicals and Hazardous Waste Management

The Directorate Chemicals and Hazardous Waste Management in the Department of Environmental Affairs and Tourism is the focal point of activities or programmes associated with Chapter 19 and 20 of Agenda 21, which are focused on the management of chemicals. This Directorate is located in the Chief Directorate Environmental Quality and Protection, which in turn locates in the Environmental management branch of DEAT. The Structure below indicates where this Directorate is located in DEAT.

1. Rationale and Problem Statement

To develop programmes that contributes towards the reduction of polluting and negative impact of chemicals and hazardous waste on the environment, and to further promote the environmentally sound and safe management of such materials in a sustainable manner through effective coordination, both nationally and internationally. The basis of these activities are found in Chapters 19 and 20 of “Agenda 21”, the United Nation’s Action Plan that followed the Rio de Janeiro Earth Summit in 1992, and, is linked to the fundamental rights relating to the Environment as entrenched in Section 24 of the South African constitution.

The environmentally safe management of Chemicals and Hazardous Waste is a complex field involving numerous stakeholders ranging from government departments at all levels, industry, labour movements, nongovernmental organisations (NGOs) and the community. It is essential that activities are coordinated and integrated with other initiatives and programmes to avoid duplication and overlapping. Extensive legislation on hazardous materials exists, mostly administered by other government departments and these need to be coordinated in terms of the government’s macro-economic programme and GEAR. The current law reform process that is initiated in the department will address the observed fragmentation, and further address the DEAT lead agent concept.

South Africa's participation in international activities places a number of obligations, which cannot be escaped. These obligations include:

- The **Basel Convention** (see Chapter 4, Section 4.5.3) of which South Africa is a signatory,
- The legally binding **Rotterdam Convention** (see Section 4.5.1) on Prior Informed Consent (PIC) for certain hazardous chemicals and pesticides in international trade, which South Africa has acceded to in September 2002.
- The legally binding **Stockholm Convention** (see Section 4.5.2) that will protect human health and the environment through measures which will reduce and/or eliminate emissions and discharges of persistent organic pollutants (POP's). South Africa has signed the convention in May 2001.
- Formal participation in the **International Programme on Chemical Safety (IPCS)** (see Chapter 10, Section 10.1.4), a joint programme established in 1980 by the WHO (World Health Organisation), ILO (International Labour Organisation) and UNEP (United Nations Environment Programme), and
- Taking part in the activities of the **Intergovernmental Forum on Chemical Safety (IFCS)** (see Section 10.1.1). The IFCS was established in 1994 in response to the request of governments at the Earth Summit to develop and promote through a consensus building process international strategies and partnerships among national governments, intergovernmental organisations, and NGOs for the sound management of chemicals.

2. Themes and Management Objectives

The following themes have been identified for further actions:

- Development of a national policy on the environmentally safe management of dangerous materials.

This theme addresses the objective to protect the environment and human health from the harmful effects of dangerous materials, by managing these dangerous materials in such a way that it supports and promotes the sustainable development of the environment and its resources to the long-term advantage of the people of South Africa.

- Fulfilling our obligations with respect to legally binding international conventions (Basel Convention, Rotterdam Convention on PIC and Stockholm Convention on POPs.)

Specific legislation is required to implement the requirements of the Basel Convention. Another obligation associated with this Convention is the establishment of a Regional Training Centre for English speaking African countries as a follow up from a Decision of the Conference of the Parties. The Centre is now established and is hosted by Vista University. Specific legislation is also required to implement Rotterdam and Stockholm Conventions. Also included in this theme is the evaluation of other regional Conventions (for example the Bamako Convention), SADC environmental programmes and South Africa's need to participate in them.

- Taking part in other (non-legally binding) international programmes on chemical safety (IPCS and IFCS).

National activities within this theme will be centred on the following programme areas, identified from Chapter 19 of Agenda 21:

- (a) Expanding and accelerating international assessment of chemical risks;
- (b) Harmonisation of classification and labelling of chemicals;

- (c) Information exchange on toxic chemicals and chemical risks;
- (d) Establishment of risk reduction programmes;
- (e) Strengthening of national capabilities and capacities for management of chemicals;
- (f) Prevention of illegal international traffic in toxic and dangerous products.

3. Personnel in the Directorate

- Director
- Office Administrator
- Deputy Director
- Assistant Director
- Assistant Director
- Senior Environmental Officer
- Environmental Officer
- Environmental Officer

4. Areas of Responsibility

4.1 Hazardous Waste Management

- Development of legislation and Standards
- Development of Hazardous Waste Management guidelines
- Radio Active Waste (Coordination)
- Mining Waste (Coordination)
- Transportation of Hazardous Waste (Coordination)
- Treatment of Hazardous Waste (Coordination)
- Health Care Waste (Co-function and Coordination).

4.2 PRTR (Pollutants and Release Transfer Registers)

- Waste Information System
- Development of the Manifest system
- Air pollutants data management
- Water pollutants data management

4.3 Environmental Injustice

- THOR Chemicals (Risk Reduction Programme)
- Asbestos Secondary Pollution (Risk Reduction Programme)

4.4 Chemicals Management

- National Profile
- Development and Management of SAPTCR (South African Potential Toxic Chemicals Register)
- Implementation of Chapter 19 of Agenda 21

- Development of legislation and standards

4.5 International Convention

4.5.1 Basel Convention

- Transboundary movement of hazardous waste permits
- Liaison with Industry, labour, NGOs, State Departments and the International Community
- Development of technical guidelines and standards on management of other hazardous waste streams
- Coordination of the operation of the Regional Basel training centre for English speaking African countries
- Compliance with the Convention
 - Reporting in accordance with Articles 6 & 13 in the Convention
 - Implementation of decisions of the Convention

4.5.2 Rotterdam Convention

Obligations under this Convention include:

- Development of Inventories
- Local and International liaison
- Import and Export permits authorisation

4.5.3 Stockholm Convention (POPs)

Obligations under this Convention include:

- (a) Development of an action plan for the implementation of the POPs treaty
- (b) Development and implementation of regulatory controls
- (c) Enforcement of regulatory controls
- (d) Development of local knowledge base and initiation of tech transfer
- (e) Development of local commerce infrastructure for distribution of new technologies
- (f) Development of an outreach/information dissemination program
- (g) POPs Inventory Preparation

5. Disaster Management (Section 28 and 29 of NEMA)

- APELL (Awareness for Preparedness for Emergencies at Local Level)
- Coordination of management of Anthropogenic disasters
- Monitoring of emergency response strategies

The other Directorates in the Chief Directorate Environmental Quality and Protection are involved in the following functions related to chemicals:

(b) Directorate: Climate Change and Montreal Protocol (Green house gases and ozone depleting chemicals)

The operational unit is the focal point to the Vienna Convention for the protection of the ozone layer and Montreal Protocol on substances that deplete the ozone layer. They are also the focal point of UNFCCC and Kyoto protocol. Chemicals within their scope, which are mostly gases, include:

- CFCs
- Halons
- Carbon tetrachloride
- Methyl chloroform
- Hydro chlorofluorocarbons
- Hydrbromoflouorocarbons
- Methyl bromide
- Bromochloromethane
- Carbon Dioxide
- Methane
- Nitrous Oxide
- CFCs

(c) Directorate: Air Quality Management

The operational unit manages all air quality emissions that are both toxic and non-toxic. As mentioned air pollution control is managed through the system of Certificates of Registration for Scheduled Process and employment of the Chief Air Pollution Control Officer and his officers in terms of the Atmospheric Pollution Prevention Act. The directorate is presently involved in revising this Act.

(d) Directorate: Pollution and Waste Management (Solid Waste Management)

All aspects of waste is managed, besides for its disposal which is administered by the Department of Water Affairs and Forestry. The various provincial environmental departments also play an important role regarding waste management in each of the provinces.

A Waste Management Programme was launched which has a strong poverty-relief focus. It comprises a number of projects that have created more than 700 jobs in eight provinces.

Further information can be obtained from <http://www.environment.gov.za>.

6.1.2 Department of Water Affairs (DWAF)

Mandate

The Department of Water Affairs and Forestry (DWAF) is the custodian of South Africa's water and forestry resources. It is primarily responsible for the formulation and implementation of policy governing these two sectors. It also has overriding responsibility for water services provided by local government.

Additionally DWAF has the mandate to manage South Africa's waste disposal. This arrangement originated from the understanding that 'Waste' was defined to include liquid wastes and that inadequately managed waste disposal sites impacted on the water resources.

While striving to ensure that all South Africans gain access to clean water and safe sanitation, the water sector also promotes effective and efficient water resources management to ensure sustainable economic and social development.

The forestry programme promotes the sustainable management of the country's natural forest resources and commercial forestry for the lasting benefit of the nation.

Organisational Structure

DWAF is organised in the following branches:

- Policy & Regulation
- Operations Sanitation Management
- Corporate Services
- Financial Management

Water Quality Management

Water quality management in South Africa has evolved as society developed with the expansion of agriculture, mining and industry as well as with population increase and urbanisation. The Public Health Act of the Union of South Africa in 1919 controlled sewage effluent. This Act was replaced by the Water Act (Act 54 of 1956), which was based on a pollution control approach. Today the National Water Act (Act 36 of 1998) is based on an integrated approach to manage the whole water system of the country.

All water users require water that is fit for their specific use, and to their benefit. Ensuring fitness for use is central to water quality management.

The realities of South Africa's past have put it in a position today where the country's growth and societal stability depend heavily on social and economic development, as well as poverty eradication through job creation and by other means.

These imperatives place tremendous strain on the country's water resources, in terms of both water supply and fitness for use.

The Department of Water Affairs and Forestry, as the public trustee of South Africa's water resources, ensures that planning and management take place to supplement water in areas of scarcity and around water quality. This includes the management of huge water transfer scheme to supplement water supply to major economic centres and for irrigation schemes.

Apart from such water transfers, many management and regulatory measures are used by the Department to manage water quality.

Impacts on Water Quality

Everyone, including individual domestic users, can impact on water quality. Even the geology impacts on water quality, e.g. salts leaching from rock formations into surface or groundwater. However, simply through the nature of their business, the biggest impactors on water resources are large-scale water and land users. These include agriculture, mining, industry, urban areas and settlements. Impacts are often related to the use and the production of chemicals.

All large-scale water users inevitably generate waste or waste water. This results in two broad kinds of impacts on water quality:

- **Point source impacts** such as discharging water containing waste through the end of the pipe, and
- **Diffuse source** impacts such as fertilisers or pesticides from agricultural areas finding their way into water courses, or soil erosion due to rural settlements in catchments.

The National Water Act (Act 36 of 1998) recognises that it is neither practical nor realistic to expect that all impacts on water quality can be avoided. Without impacts there could be no socio-economic growth.

The challenge is to marry development for socio-economic growth such as agriculture, mining, industry, power generation and urban settlement with maintaining water that is fit for use by other users, and protection of the aquatic ecosystem.

This is the principle of sustainability which is the basic foundation of Agenda 21, of South Africa's Constitution and Bill of Rights and of the National Water Act (Act 36 of 1998).

Legal Foundation

Water quality management has a firm legal foundation.

Agenda 21, the international blue print for sustainable development, specifically addresses water quality. And South Africa's Constitution guarantees everyone's right to an environment that is not harmful to their health or well-being.

The National Water Act is based on the principles of sustainability, efficiency, and equity, meaning that protection of water resources must be balanced with their development and use. The Act requires that water quality be managed in an integrated manner at national level in terms of the National Water Resource Strategy, and at regional or catchment level in terms of Catchment Management Strategies. (See Chapter 4, Section 4.4.16)

Furthermore, the Act classifies water uses according to potential for impact they may have on water resources, and provides the regulatory framework for managing these risks as follows:

- **Schedule 1** uses are mainly domestic use with little or no potential for impact.
- **Generally authorised uses** are those with a low potential for unacceptable impacts. No licence need be applied for such uses, unless compulsory licensing calls for it.
- **Licensed uses** are those activities that, if not controlled, would have a high potential for unacceptable impact, such as discharging waste into a watercourse. Such users must apply for a licence to use water. Licences are subject to stringent conditions, including conditions that specify the quality of water containing waste being discharged or disposed of in order to maintain the requirements of the resource.

All eleven water uses listed in section 21 of the Act could have impact on water quality, but the following have to be directly authorised by the Department's water quality management function before they may continue.

- 21e Controlled activities, eg irrigating with waste water or recharging underground water with waste water.
- 21f Discharging waste, eg releasing water containing waste into a river.
- 21g Waste disposal, in a manner which may detrimentally impact on a water resource.
- 21h Disposal of wastewater or heated water, from industries and power stations.

- 21j Removal of underground water, for example, to ensure safety in underground mining.

The Department considers applications for water use licences – accounting also for the NEMA principles, and in particular the principle of transparent and cooperative management – by involving other government departments and interested and affected parties.

Instruments to Govern

Water quality is managed through a range of instruments, which are supported by DWAF:

- **Regulatory management instruments** eg licensing of water use with a high potential for impact in terms of section 40 of the National Water Act (Act 36 of 1998), or permits required for waste disposal sites in terms of section 20 of the Environment Conservation Act (Act 73 of 1989).
- **Market based management instruments** eg the Department's pricing strategy, which includes charges for waste discharges and provides for incentives for introducing new technologies and management practices for the conservation and economically efficient use of water, as well as for removing certain elements from waste streams.
- **Self-regulatory management instruments** eg the ISO 14001 environmental management system of the International Organisation for Standardisation, audited by the South African Bureau of Standards and already achieved by many major industries and mines. The Responsible Care Initiative of the Chemical and Allied Industries Association is a further example.
- **Civil society management instruments**, eg public participation, participative management such as Water User Associations and the involvement of the public in catchment management, e.g. serving on catchment forums.

Catchment Water Quality Management

The Department manages water quality in a regional or catchment context.

In particular, catchment assessment studies are undertaken to:

- determine the causes and impacts of water pollution,
- then to develop strategies to manage water quality so that it remains fit for all users, or
- to remediate past problems.

Such studies consider both the quantity and quality of water in a catchment. Their results are used to evaluate applications for water use licences, and feed into Catchment Management Strategies and Water Allocation Plans. These plans allocate water for socio-economic development, while keeping sufficient water in the resource for other users and to handle such waste as may inevitably have to be disposed of.

Catchment Forums are used as a platform to involve and consult the public in the management of water resources. About 200 of such forums are already active across the country.

Guidelines Available

DWAF supports water quality management through the provision of the following guidelines:

- Catchment water quality management
- South African water quality guidelines for fresh water -

Developed in the early 1990s to determine the water quality requirements of all users (domestic, recreation, agriculture, industry, and importantly, the aquatic ecosystem itself), to ensure the fitness for use for all users. The 2nd edition of these guidelines was published in 1996.

- Waste management
- Policy and strategy for groundwater quality management in South Africa
- Marine water quality (1995)
- South African water quality guidelines for coastal marine water

Decision Making

Decisions with regard to water quality management are made in terms of a hierarchy of principles outlined below, and are specifically aimed at marrying the protection and use of water resources.

1. Prevention of pollution
2. Minimisation of pollution at source
3. Disposal of waste and/or discharge of water containing waste according to the precautionary principle
4. Disposal of waste and/or discharge of water containing waste according to the differentiated approach.

Assessing Performance

The Department monitors water quality in the country on an ongoing basis, for both surface and groundwater.

There are several thousand water quality monitoring points all across the country.

Local monitoring is conducted by the Regional Quality Studies and the Directorates Hydrology and Geohydrology. In addition, the National River Health Programme provides biomonitoring data, which is used to manage the health of rivers.

Monitoring has two legs. The first monitors the compliance of individual water users with their licence conditions. The second monitors the actual quality of the water resource itself and compares it to the resource quality objectives. Corrective measures are then taken, including prosecutions where necessary.

Information Systems

The Department has two major information systems in place in order to assess water quality performance, and to provide information for management and decision-making. These systems are:

- The Water Use Authorisation and Registration Management System (WARMS) which shows where water is used in the country, by whom and how.
- The Water Management System (WMS) which contains information on monitoring sites, boreholes, pipelines, dams etc, standards and objectives at the various monitoring sites and monitoring results, as well as information on stakeholders and institutional arrangements.

It is not only the Department that monitors water quality. Mining and industry are required to monitor and submit their results to the Department, which audits the results and takes audit samples where necessary. Local authorities, water boards, provincial government departments and others also monitor water quality.

The information in the Department's information systems is publicly available. Users will soon be able to access the information via the Internet, and to contribute their own information.

Box 1

Safeguarding Water Quality

Department of Water Affairs and Forestry 'National Water Act News', April 2002

Agriculture

The agricultural sector can impact on water quality in many ways.

For example, farmers may spray their crops with non-biodegradable pesticides that contain toxic organic compounds. These are washed away from the land by rain and irrigation water and pollute the soil, groundwater and water in rivers and affect fish and other aquatic organisms, as well as humans drinking the water.

Irrigation with polluted water could, over time, cause a build-up of salts in soils, thus reducing agricultural yields.

Fertilisers that enter the water resource encourage algal growth and cause smell and taste problems that increase the cost of water treatment.

The Department's water quality strategy for groundwater management addresses both urban and agricultural impacts.

Urban Development and Dense Settlements

Point sources such as industrial waste are discharged into municipal sewers release organic compounds and nutrients, bacteria or heavy metals into water, causing health problems and increased treatment costs.

Diffuse sources of pollution include uncontrolled sewage sludge disposal, dirty wash water, contaminated stormwater and solid waste and sanitation from informal and dense settlements entering water courses.

Studies by Rand Water, Magalies Water and Umgeni Water estimate that the increased water treatment costs associated with pollution from settlements may be as high as R64 million per annum.

Mining and Industry

The Department has hands-on involvement in the management of water quality in mining and industry.

Mines, for example, require approved Environmental Management Programmes (EMPs) in terms of the Minerals Act (Act 50 of 1991) in order to commence mining. The Department makes recommendations for approvals and monitors performance.

Water use licences are issued in accordance with Resource Quality Objectives that include the water quality requirements of water users as well as that of the Reserve.

The Department has already completed catchment assessment studies for several catchments dominated by mining and industry, for example the Olifants, Mooi and Ngagane Catchments.

Mine owners can no longer walk away from worked-out mines, i.e. the responsibility to rehabilitate is that of the mine owners, not the State.

Joining Forces

There are many examples where groups of users such as mining, industry, agriculture and local authorities have joined forces with the Department to improve water quality in an area, or to prevent pollution, e.g. clean up a hazardous waste site. The Department also joins forces with other government departments (cooperative governance) to address issues.

Additional information can be obtained from the National Department's official website www.dwaf.gov.za.

6.1.3 Department of Health (DOH)

Considering the present status of the lack of primary health care in certain communities and the serious epidemics that impact South Africa (i.e. tuberculosis, cholera, HIV/AIDS), it is not surprising that the Department of Health has its main focus on solving these problems.

Vision and Mission

The Department's vision is for a caring and humane society in which all South Africans have access to affordable, good quality health care.

The Department's mission is to consolidate and build on the achievements of the past five years in improving access to health care for all and reducing inequity, and to focus on working in partnership with other stakeholders to improve the quality of care of all levels of the health system, especially preventive and promotive health, and to improve the overall efficiency of the health care delivery system.

Hazardous Substances Management

In terms of managing chemicals the department has the role of consumer protection. It is in this regard that the department administers the Hazardous Chemical Substances Act of 1973 and its regulations. The Minister of Health exercises control over the various products by declaring them to be in any one of four specified groups of hazardous substances. The Minister has promulgated regulations controlling various aspects of the handling of these groups of chemicals. (See Chapter 4, Sections 4.4.2, 4.4.3 and 4.4.4)

The Department brings effect to the Act by authorising licenses through the Director-General: National Health Department for either:

- Operating a business as a supplier of Group I Hazardous Substances;
- The selling, letting, use, operation, or application of any Group III Hazardous Substances; and
- The installation of any Group III hazardous substance on any premises.

According to the Act, [Hazardous Substances Act, 1973 (Act 15 of 1973)], the licence is issued to one owner and is not transferable to another owner. However, the licence is renewable annually to the same owner at a fee of R20 per annum.

For the licence to be approved the following procedure is typically followed by the applicant:

- The licence application documentation must be completed and then submitted to either the Environmental Health Officers at a regional Department of Health office. A R20 revenue stamp must be affixed to the application and the applicant must sign on the stamp for the application to be valid;
- On receiving the application the Environmental Health Officers are required to conduct a thorough site inspections, to assess:
 - The storage facilities of the hazardous substances
 - The storage area
 - The disposal area
 - Access to substances

- Records of purchases and disposal
- Manner of disposal
- Disposal of containers associated with these substances.
- Once the licence has been approved by Environmental Health Officers the documentation is sent to the Director General's office, where the application is certified prior to the licence being issued.

Further information can be found on the National Department's official website <http://www.doh.gov.za>.

6.1.4 National Department of Agriculture (NDA)

Background

The history of the Department of Agriculture dates back to before the Union of South Africa and developed through various stages according to the developments and management needs of the agricultural sector.

The service potential of the Department was stabilised in the thirties and forties by four Acts: the Marketing Act of 1937, the Weed Act of 1937 and Amendments (Repealed), the consolidated Co-operative Societies Act of 1939 and the Soil Conservation Act of 1969 (Repealed). Together these three Acts at the time helped create a more economically stable agricultural population and soil use in harmony with the natural environmental factors. These Acts have been superseded by the Conservation of Agricultural Resources Act (Act 43 of 1983).

Most relevant to managing chemicals is however the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1947 which replaced and improved the Fertilizers, Farm Feeds, Seeds and Pest Remedies Act No 21 of 1917. This Act is still in place today. In its original form, this Act's primary focus was on agricultural efficiency and consumer protection. However, it has been amended several times and may now be viewed as also incorporating a concern for the protection of the environment and the public. (See below and Chapter 4, Section 4.4.5).

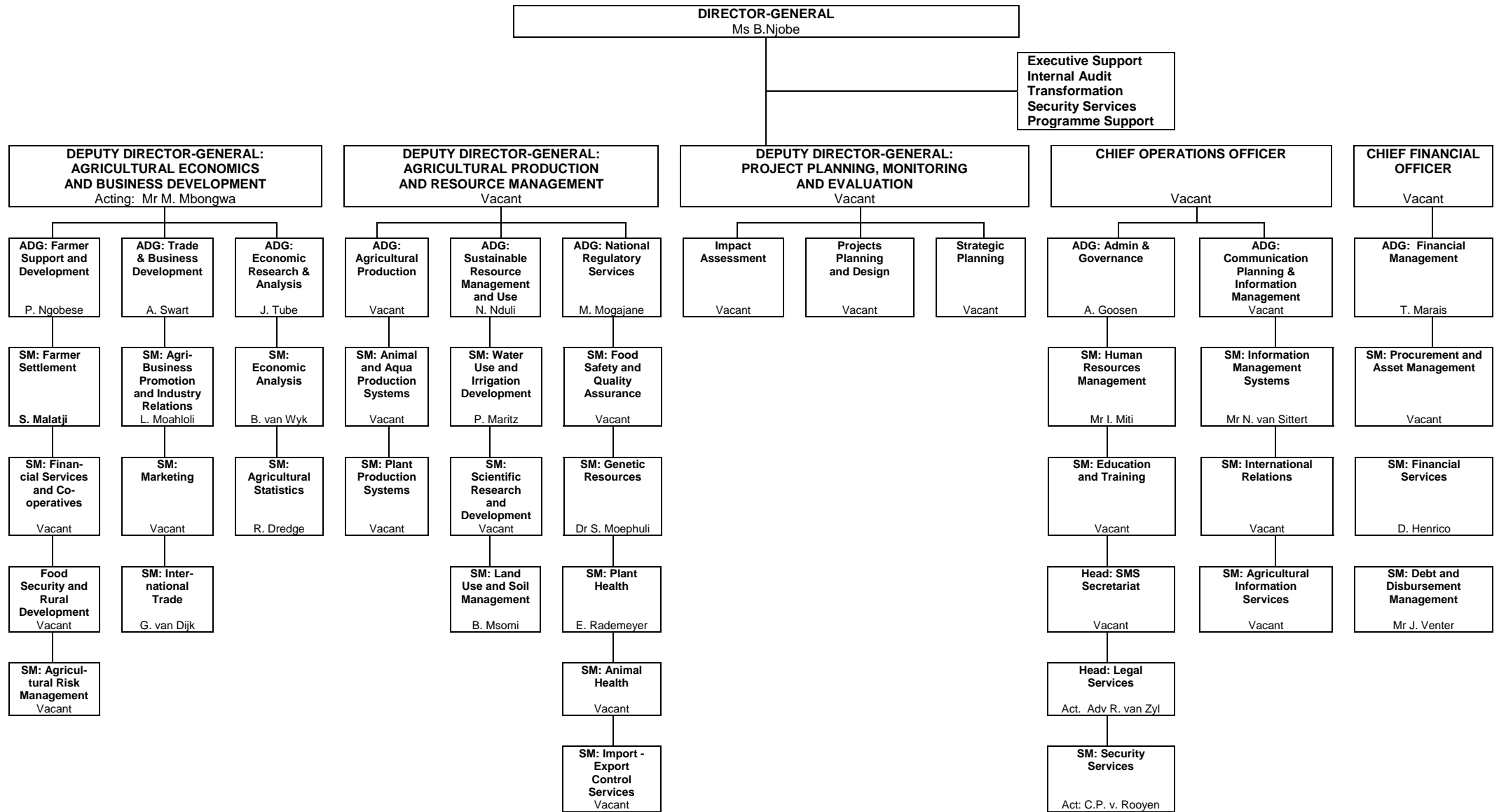
Mandate

The department's mandate is to guide and support capacity building, sustainable resource use, production, trade and research in agriculture in order to maximise the contribution of the agricultural sector to economic growth, equity and social development in a sustainable manner.

Structure

The Department is divided into three branches, Agricultural Development, Agricultural Resources Management, and Agricultural Trade and Policy, supported by the Chief Directorates Financial Management and Management Support Services. It is to be noted that the Department is presently undergoing a restructuring program. The latest organogram is provided hereafter.

Table 5.1: National Department of Agriculture



Agricultural Resource Management

The main function in terms of managing chemicals (e.g. fertilisers and pesticides) resorts under the Agricultural Resources Management branch. The branch aims to:

- Develop, promote, coordinate and support the national policy regarding sustainable agricultural resource utilisation
- Develop, promote, coordinate and support the national policy for veterinary services
- Promote the effectiveness and evaluate the impact of agricultural economic and marketing policies and instruments
- To conserve our natural resources and put in place policies and institutions for sustainable resource use:
- To create an efficient and internationally competitive agricultural sector.

To this end, two programmes are run: Sustainable Resource Use and Management, and Agricultural Production.

Sustainable Resource Use and Management

As part of the Sustainable Resource Use and Management program the Directorate Agricultural and Land Resource Management promotes and coordinates the conservation of natural agricultural resources. This is done by providing conservation information, promoting conservation awareness, monitoring and taking action against offenders who allow weeds or invader plants to establish on their property and undertakes combating of pests such as locusts and blackflies etc.

Another directorates under this program is e.g. Agricultural Water Use Management.

Agricultural Production Program

As part of the Agricultural Production Program the Directorate Agricultural Production Inputs is responsible for the registration of fertilisers, farm feeds, agricultural and stock remedies, as well as sterilising plants and pest control operators. It renders a technical advisory service to the Registrar of Act No. 36 of 1947.

The main objectives of the Directorate Plant Health and Quality are to control certain agricultural pests and diseases, to standardise the quality of various agricultural products and to enforce prescribed legislation. In pursuing these aims, the Directorate administers various Acts. It maintains close ties with many local agricultural industries and is an active member of various international organisations. The Directorate is divided into three subdirectorates namely Quality Control, Plant Health, and Plant and Quality Services.

Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Management

The Department administers this Act and its minister designates the required duties in terms of registration of relevant products and its management to the Registrar of these products.

The registrar of the Act is typically one person, appointed by the Minister of Agriculture as administrator of this Act. The registrar is assisted by administrative personnel in the sub directorate Administration and inspectors in the sub directorate Inspectorate. There exist technical advisors for each component of the Act, who are in the sub directorate Technical Advice and are responsible for advising the registrar on the technical issues of a registration.

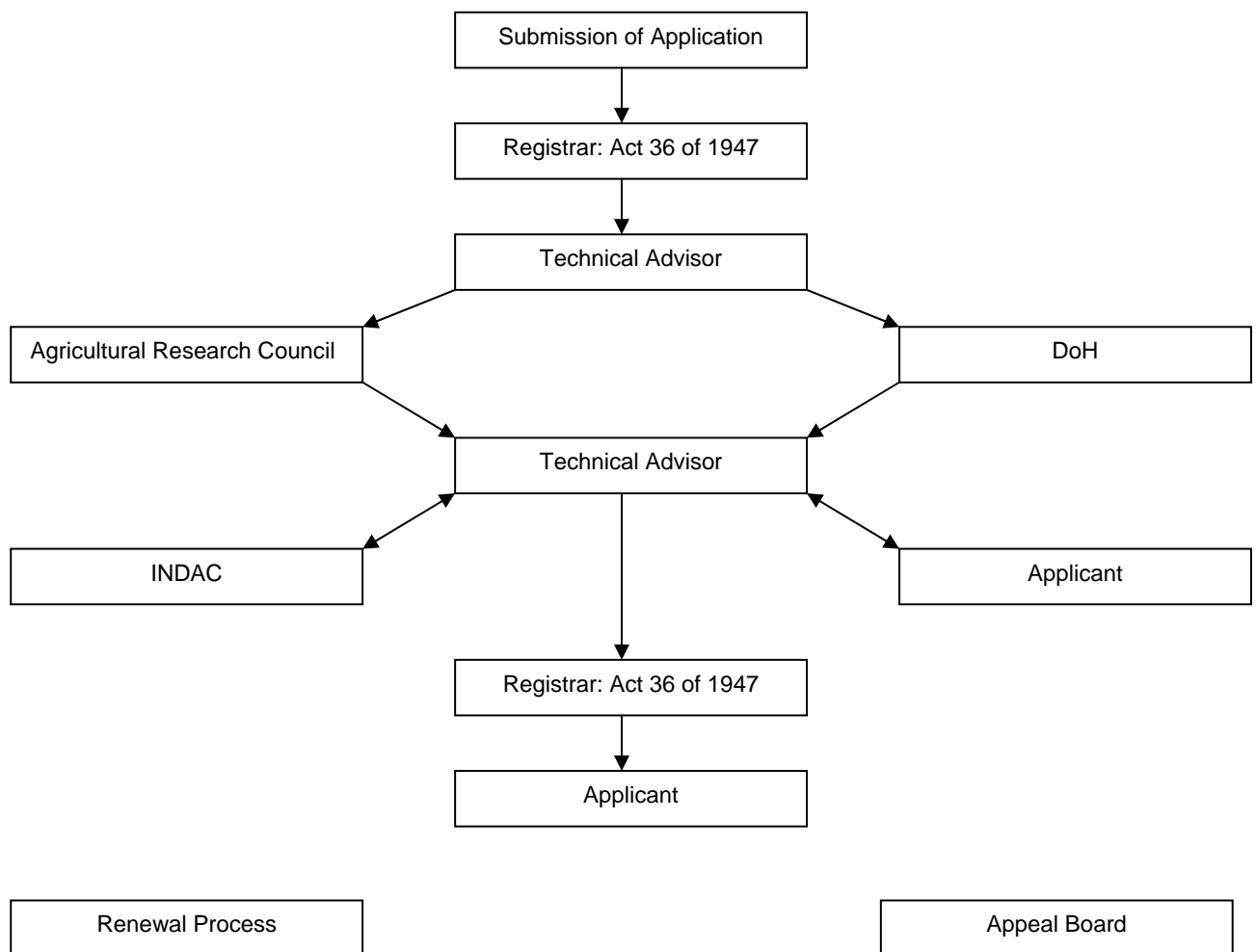
The registrar also receives recommendations from the Interdepartmental Advisory Committee for the Protection of Humans Against Poisonous Substances (INDAC). Such recommendations are made in respect of applications submitted for the registration of agricultural and stock remedies in respect of the Act, amendments to the Act as the need may

arise and other matters relating to the protection of man and his environment against pollution by poisonous substances. (See Chapter 7, Section 7.2.4)

Banned and Restricted Substances in the Republic of South Africa

A list of banned and restricted substances e.g. aldrin, chlordane and DNOC are provided in Chapter 4, Section 4.4.4.

The following procedure is typical of a new application to the registrar’s office:



Additional information can be sourced from the National Department’s official website www.nda.agric.za.

6.1.5 Department of Labour (DOL)

Vision

The Department of Labour will strive for a Labour Market which is conducive to economic growth, investment and employment creation and is characterised by rising skills, equity, sound labour relations, respect for employment standards and worker rights.

Mission

The Department of Labour will play a significant role in reducing unemployment, poverty and inequality through a set of policies and programmes developed in consultation with social partners, which are aimed at:

- Improved economic efficiency and productivity
- Skills development and employment creation
- Sound labour relations
- Eliminating inequality and discrimination in the workplace
- Alleviating poverty in employment

The framework and structures relevant to managing chemicals is described below.

Legal Framework

The Department administers the Occupational Health and Safety Act (Act 85 of 1993) (OHSA) (See Chapter 4, Section 4.4.9). The Department responsibility regarding chemicals relates to all substances and materials used in the workplace. These responsibilities relate to exposure, material safety & data sheets (MSDSs), training, biological monitoring, air monitoring and information on hazards. The department also deals with risk assessments required under the Major Hazardous Installation Regulations and labelling of chemicals according to the relevant SABS Codes.

Occupational Health and Safety Management

The Directorate Occupational Health and Safety Management's existence and functions are derived from the OHSA. The Directorate aims to protect the health and safety of workers in workplaces other than at mines or ships at sea, and to safeguard others who may be exposed to risks from industrial activities.

The predominant functions of the Chief Directorate of Occupational Health and Safety are the:

- provision of protection of persons from dangerous activities at work;
- promotion of the safe use of electrical and mechanical plants and machinery;
- promotion of health and hygiene at places of work; and
- key environmental management functions of the DOL.

The Chief Directorate consists of the directorate of explosives and civil engineering, directorate of electrical and mechanical engineering and the directorate of occupational health and hygiene.

Box 2

Occupational Health And Safety Turnaround Strategy: 2001 - 2004

*Extracted from the Department of Labours webpage.
http://www.labour.gov.za/docs/legislation/ohsa/Turnaround_Strategy.htm*

The strategy will focus on the following key elements:

- policy and legislation
- advocacy/communication
- human resource development
- inspectorate operations

The strategic objectives are as follows:

- to raise the profile of occupational health and safety (OHS)
- to provide support to stakeholders and provincial offices
- to ensure an effective and efficient OHS inspection service delivery
- to ensure the restructuring of OHS competencies
- to develop effective OHS legislation and policies aligned to changes in the labour market and OHS environment.

The Programme of Action will address the following issues:

OHS advocacy and awareness campaign

- Distribute pamphlets and posters
- Advertise in newspapers
- Target specific industries
- Publish an enforcement report annually

Establishing of partnerships

- Organise health and safety representative seminars
- Publish an OHS Accord
- Establish regional and national OHS forums
- Develop training guidelines

Addressing internal human resources issues

- Training of inspectors
- Developing career paths for OHS inspectors
- Providing the necessary equipment for inspectors to perform their duties

Operational strategies to be executed

- Establish an OHS incident support team
- Develop an OHS national plan
- Develop an inspectorate audit plan

Legislative/policy matters

- Review OHS Act
- Address limited scope for inspectors
- Develop compliance assistance and enforcement policy

More information on the abovementioned will become available on the website as and when the various actions steps have been completed and approved.

Inspections

The Department conducts inspections of workplaces through the inspectorates in the Provinces. Inspections are usually planned on the basis of accident statistics, the presence of hazardous substances, such as the use of benzene in laundries, or the use of dangerous machinery in the workplace. Unplanned inspections, on the other hand, usually arise from requests or complaints by workers, employers, or members of the public. These complaints or requests are treated confidentially.

Functions of Inspectors

If an Occupational Health and Safety Inspector finds unhealthy or unsafe conditions at the workplace, he or she may set requirements to the employer in the following ways:

- ***Prohibition Notice***

In the case of threatening danger, an inspector may prohibit a particular action, process, or the use of a machine or equipment, by means of a prohibition notice. No person may disregard the contents of such a notice and compliance must take place with immediate effect.

- ***Contravention Notice***

If a provision of a regulation is contravened, the inspector may serve a contravention notice on the workers or the employer. A contravention of the Act can result in immediate prosecution, but in the case of a contravention of a regulation; the employer may be given the opportunity to correct the contravention within a time limit specified in the notice, which is usually 60 days.

- ***Improvement Notice***

Where the health and safety measures which the employer has instituted, do not satisfactorily protect the health and safety of the workers, the inspector may require the employer to bring about more effective measures. An improvement notice, which prescribes the corrective measures, is then served on the employer.

- ***Other Powers***

To enable the inspector to carry out his or her duties, he or she may enter any workplace or premises where machinery or hazardous substances are being used and question or serve a summons on persons to appear before him or her. The inspector may request that any documents be submitted to him or her, investigate and make copies of the documents, and demand an explanation about any entries in such documents. The inspector may also inspect any condition or article and take samples of it, and seize any article that may serve as evidence.

It is to be noted that the above mentioned powers of inspectors are not absolute. Any person who disagrees with any decision taken by an inspector, may appeal against that decision by writing to the Chief Inspector, Occupational Health and Safety, Department of Labour, Private Bag X117, Pretoria, 0001.

Databases

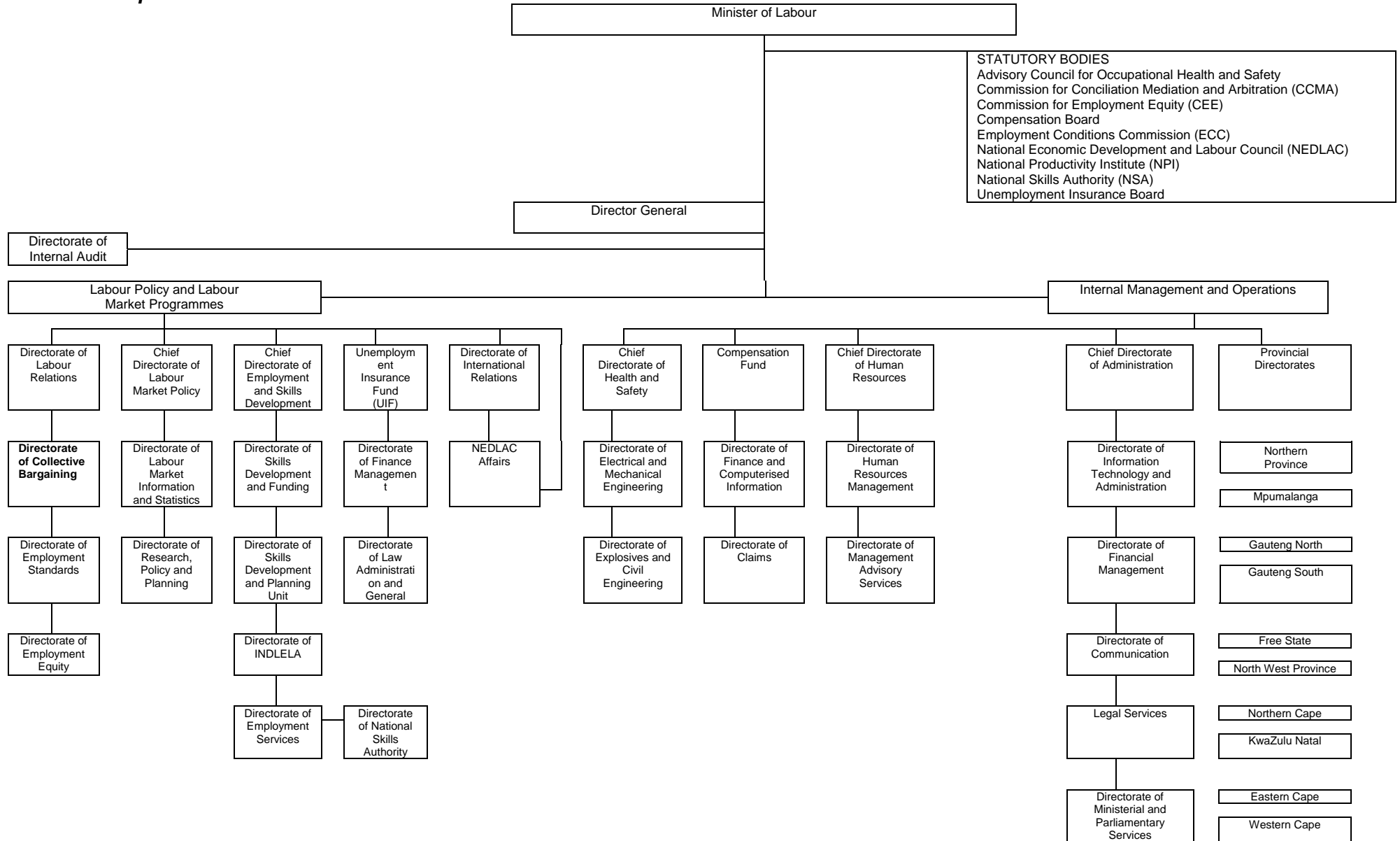
The IOSS Databases was created as a result of the Department's inspection activities. The database provides details of all inspections. The database is however unmodified since 1999. It was reported that the database would be replaced a modern network system, IRIS, which would link the DOL Head Office with the provinces.

Statutory Bodies

The Statutory Bodies of the Department of Labour are:

- Advisory Council for Occupational Health and Safety (see Chapter 7, Section 7.2.9)
- Commission for Conciliation Mediation and Arbitration (CCMA)
- Commission for Employment Equity (CEE)
- Compensation Board
- Employment Conditions Commission (ECC)
- National Economic Development and Labour Council (NEDLAC)
- National Productivity Institute (NPI)
- National Skills Authority (NSA)
- Unemployment Insurance Board

Table 5.2 Department Of Labour



Further information can be referenced from www.labour.gov.za and the Departmental Annual Report 2000.

6.1.6 Department of Trade and Industry

Vision and Mission

The minister also said that as a result of this review, the Department's primary role during the next five years would be to facilitate access to sustainable economic activity and employment for all South Africans. The processes to achieve this vision would involve attracting higher levels of domestic and foreign investment; increasing market access for South African products domestically and internationally, and achieving a fair, efficient and competitive market place for domestic and foreign businesses and consumers.

Responsibilities

The DTI is thus not responsible for any legislation associated with environmental aspects but rather functions to provide strategic direction for industry. In this role the department amongst others deals with importation and production of chemicals. The storage, transportation, distribution/marketing, use/handling and disposal of chemicals is not the responsibility of the DTI but is dealt with in other departments.

Restructuring

Assisted by experienced national and international advisors, the Task Team under the Director General constructed a new design for the structure of the Department based on best practice corporate governance and organisational development principles. The new DTI, approved by cabinet, will comprise the following six functionally distinct organisational units:

- **Executive Management Unit**

The unit will provide policy direction and coordination to the Department and its associated institutions. It will include a Chief Economist and the managers of several critical programmes. It will also provide strategic and logistical support to the Minister, the Deputy Minister and the Director-General.

- **International Trade & Investment Development Division**

This unit is responsible for policy formulation and programme management. Its work will be largely at the level of policy and strategy development, programme development, monitoring and evaluation, negotiations and relationship building in bilateral and multilateral trade relations and investment.

- **Enterprise, Commerce & Industry Development Division**

The unit will be responsible for policy and strategy development, programme development, monitoring and evaluation, consultation and relationship building in the areas of Black economic empowerment & enterprise development, SMMEs, cooperatives, business regulation, consumer protection and sector development.

Trade & Investment South Africa

This will be a service delivery agency, which would incorporate the current functions and staff of Investment South Africa, a Section 21 company. This would be a combined trade and investment promotion agency and its premise is the increasing interrelatedness of trade and investment. This would allow for the rationalisation of these activities, which are performed separately at present. Independent trade and investment promotion offices, outside the ambit of embassies, are envisaged in some instances.

- **The Enterprise Organisation**

This is a service delivery agency, which would be the key delivery vehicle for supply-side incentive measures to business, with particular emphasis on black economic empowerment and SMMEs.

- **Group Support Services Division**

The division will provide corporate services to all units in the Department and set standards for administration and governance. It will offer a comprehensive range of corporate services, set standards for the group in corporate governance and administration, as well as monitor and evaluate the performance of the functionally independent operating units and associated institutions.

Institutions

Two regulatory and administrative institutions will also be established. These institutions will administer functions currently performed by the Department. These institutions are:

The **Commission for International Trade Administration (CITA)** which will be responsible for the administration of tariffs and trade remedies, a function currently performed by the Board on Tariffs and Trade. These functions would further be linked to structures in the South African Customs Union. It would derive its legal status from a founding Act, which will be the subject of a future Cabinet Memorandum.

The **Companies and Intellectual Property Registration Office (CIPRO)** which will be responsible for the registration of companies, closed corporations, patents, designs, copyright and trademarks. This would combine the South African Companies Registration Office and the South African Patents and Trademarks Office currently two organisationally separate directorates within the Department into a single, client-focused service deliver unit constituted as a trading entity.

The establishment of a **new autonomous mandated institution** in the field of export credit provision is being contemplated in consultation with other relevant government departments. This will be the subject of a future Cabinet Memo.

Company Registration

The South African Companies Regulatory Office (SACRO) is a sub-directorate of the Department of Trade and Industry with one of its primary functions is to deal with matters related to the registration of companies and close corporations.

Import and Export Forms

The Minister of Trade and Industry may, whenever he deems it necessary or expedient in the public interest, by notice in the Government Gazette, prescribe that no goods of a specified class or kind or no goods other than goods of a specified class or kind-

- (a) shall be imported into the Republic;
- (b) shall be imported into the Republic; except under the authority of and in accordance with the conditions stated in a permit issued by him or by a person authorised by him;
- (c) shall be exported from the Republic; or
- (d) shall be exported from the Republic except under the authority of and in accordance with the conditions stated in a permit issued by him or by a person authorised by him.
- (e) For goods currently subject to import control measures, proposed importers must apply for import permits prior to the importation thereof, utilising the application forms referred to hereunder.

The following Import Export forms relevant to chemicals are available and can be obtained from... or through the SACRO website...

- Form IE 230: Application to Register as an Importer or change of current information

This form is applicable to proposed new entrant importers of goods subject to import control measures in terms of the Import and Export Control Act, 1963 (Act 45 of 1963 as amended.) (This form must be accompanied by form H461, H463 (with H463-1) or H464 (with H464-1)).

Form IE 230 is also applicable to existing importers desirous to alter or amend existing information.

- Form H464: Application for Importation of Chemicals listed in terms of the 1988 United Nations Convention (Annexure: Import Authorization Form) against the use of chemicals in the illegal manufacture of drugs and Psychotropic substances.

This form must in all instances be accompanied by the annexure (annexure to form H464-1 Annexure to Application for Importation of Chemicals).

- Form H461: Application for Import Facilities. This form is applicable to registered importers, desirous to apply for additional or further import facilities.

Form annexure H461-1 must also be completed in the event of a new entrant, applying to register as an importer and be submitted as an annexure to form IE 230 (application to register as an importer).

- Form H91: Application for Export Facilities.

This form is applicable to exporters desirous to apply for export facilities. It may also be required that form H91 be recommended by other Departments such as the Department of Minerals and Energy in the event of the intended export of, for example fuel and oil. It is therefore strongly advised that you consult with Import and Export Control at (012) 428-7795 prior to submitting the forms for processing. (Form H91-B)

Control of Weapons of Mass Destruction

Control of weapons of mass destruction and the facilities that can potentially produce such weapons is an important aspect of chemicals management. The Department administers the Non-Proliferation of Weapons of Mass Destruction Act of 1993 (see Chapter 4, Section 4.4.9). The Department plays a crucial role in supporting the South African Council for the Non-Proliferation of Weapons of Mass Destruction and its committees (for more details see Chapter 7, Section 7.2.8).

6.1.7 South African Bureau of Standards

The South African Bureau of Standards (SABS) is the national standards organisation of the Republic of South Africa. The SABS is supported by government departments like the DTI.

SABS is structured into two divisions; the commercial division and non-commercial division. The commercial division, is the certification and consultancy and training. It has to fund itself.

The standards body is government funded and are now called Standards South Africa. So, they go under the name of STANSA and they have changed the standards numbering system.

Mission

The SABS's mission statement reads as follows: "To provide conformity assessment products and related services that will improve competitiveness of South African Industry."

Commercialisation

The SABS has recently undergone a commercialisation process and is now in the situation where the commercial activities of the organisation are being discharged through a holding company, with various subsidiaries, businesslike organisations, that are completely divorced from the core function of standardisation.

Technical Standards Committees

The technical standards work of the SABS is carried out by technical committees grouped under technical departments. The members of the national technical committees are active members of technological associations and consumer associations, manufacturers, industrialists, government officials, educators, etc. The results of the South African technical standards work are published as South African national standards. It is the policy to adopt International and European standards when these are found to be applicable to the South African situation.

A full list of all South African national standards and related SABS publications is given in the SABS Catalogue, which is issued annually and is updated monthly by the SABS Official Information. Complete and up-to-date information about these publications can be obtained from the Standards Search facility on the SABS Web Site.

During the development of South African national standards, documents are circulated for study within the technical committees or subcommittees. These documents have to pass through a number of stages before they can be approved as South African national standards. This procedure is designed to ensure that the final result is acceptable to as many interest groups as possible.

SABS Technical Programme & Information Centre

The SABS Technical Programme provides information about all the standards projects that are in progress, and about South African national standards already approved during the previous six-month period. The SABS Technical Programme is published bi-annually, in April and in October, in accordance with the requirements of the World Trade Organization Agreement on Technical Barriers to Trade. The information, regularly updated, is also available from the Standards Search facility on the SABS Web Site.

The SABS Information Centre of the South African Bureau of Standards (SABS) was appointed as WTO/TBT Enquiry Point by the Department of Trade and Industry (DTI) during 1996. The SABS Technical Programme in hard copy is available, free of charge, from the SABS Information Centre:

Telephone: + 27 12 428 6835

Fax: + 27 12 428 6928

Telex: 311308(SA)

Electronic mail: X.400: c=ZA; a=TELKOM400; o=SABS; s=SABS

E-mail: info@sabs.co.za

Certification Strategic Business Unit (SBU)

The SBU of the SABS is one of the commercial SBU's of the SABS, offering certification services to industry and the consumer.

The SABS' primary responsibility is the development and publication of standards for products and services and this is handled by the Standards SBU.

The Certification SBU of the SABS runs a product certification scheme, several quality system certification schemes like the SABS ISO 9000 Quality Management Certification Scheme and SABS ISO 14001 Environmental Management Certification Scheme, and a consignment inspection service.

The SABS operates more than 60 laboratories connected to the Test House SBU. Goods are tested and analysed in terms of private or national voluntary or compulsory standards. Precision instruments and measuring and scientific equipment are tested and calibrated for various customers and reference materials are supplied for test purposes.

The SABS is a founder member of the independent South African Quality Institute (SAQI), which was established in 1991. The main objective of SAQI is the promotion of quality in South Africa.

By means of its focused training programmes, the SABS actively assists industry in creating an overall awareness of quality and the environment. It provides a countrywide service in training quality system environmental auditors.

SABS Design Institute

The SABS is also involved in the promotion of design in South Africa through the SABS Design Institute, which is established as a centre of Design Promotion in Southern Africa. It focuses on Industry, Education and Information.

Physical Address: 1 Dr Lategan Road, Groenkloof, PRETORIA
Postal address: Private Bag X191, PRETORIA, 0001
Telephone: (012) 428 7911
Facsimile: (012) 344 1568
E-mail: info@sabs.co.za

Regulatory Affairs and Consumer Protection

The SABS administers approximately 70 legal compulsory specifications across a wide spectrum of areas. These compulsory specifications are legal measures and requirements to ensure that products locally manufactured or imported into South Africa or exported from South Africa meet the minimum requirements for health and safety as set out in the relevant South African National Standards. (See Chapter 4, Section 4.8.1)

Products must be tested and then certified ie ready for use against specific technical health standards.

In the SABS there are 5 areas of Regulatory Management:

- Food & Fisheries Products (Food Safety);
- Automotive;
- Human, health and the Environment;
- Electrotechnical, Electrical and Gaming; and
- Management of the Trade Metrology Act (weights & measure).

These areas have as their prime focus, consumer protection and adherence/ compliance by Industry to the Law.

To carry out this function:

- Close relationships are managed and maintained with Government, on whose behalf many of the functions are carried out
- Continual Benchmarking is carried out to ensure relevance and appropriateness of Technical Regulations
- Continuous Stakeholder consultation to ensure industry needs are met.
- A Conformity Assessment regime is in place.
- Appropriate SANCTIONS are carried out.
- Skills and competencies are maintained.

The extensive state-of-the-art testing capability of the SABS forms the backbone of the organisation's commercial activities and contributes a significant portion of turnover. Goods can be inspected, tested and analysed against private, voluntary or compulsory standards while precision-measuring and scientific equipment can be tested and calibrated for clients both in the public and private sectors.

Most of the 66 testing laboratories within the SABS are accredited by the South African National Accreditation System (SANAS) for the competent performance of test in accordance with ISO/IEC Guide 25, the general requirements for the competence of calibration and testing laboratories. In addition, certain laboratories involved in health aspects in relation to 'man and the environment' also hold compliance recognition to the OECD requirements for Good Laboratory Practice (GLP).

Regionally, as a member of several South African Development Community (SADC) structures, the SABS plays leadership roles in developing the SADC free trade protocol by participating in:

- The Southern African Development Community Standardisation Co-operation (SADCSTAN)
- The Southern African Development Community Legal Metrology Co-operation (SADCMELE)

Harmonisation of standards, trade metrology and certification are important building blocks, required to give effect to Free Trade protocol.

Strategic alliance with bodies such as OIML, Codex Alimentarius and the FAO (Food and Agriculture Organisation) are already in place. Technical agreements with trading partners of South Africa are in different stages of development.

On a global level, the SABS is a founder member of, and plays prominent roles in, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). The SABS is retained as an advisor for the South African government with expert advice provided at trade negotiations at the World Trade Organization.

Further information can be obtained from the National Department's official website www.dti.gov.za. In addition, more detailed information pertaining to SACRO can be found at the following address <http://www3.dti.gov.za/sacro/Main.asp>.

6.1.8 Department Mineral Affairs and Energy

Vision and Mission

The Department's vision is Sustainable Development and growth through minerals and energy resources for the benefit of all South Africans.

Its mission is to ensure responsible exploration, development, processing, utilisation and management of minerals and energy resources.

Mandate

The department's mandate is the provision of services for effective governance of minerals and energy industries for economic growth and development, thereby improving the quality of life.

Key Strategic Objectives

- To position the minerals and energy industry for global competitiveness.
- To contribute towards effectual and sustainable development of minerals and energy resources.
- To govern these industries to be safe and healthy working environments.
- To address past imbalances to promote equitable redistribution of benefits from exploitation of minerals and energy resources.
- To formulate and implement an overall minerals and energy policy to ensure optimum utilisation of mineral and energy resources.

Environmental Management

Since the advent of mining in South Africa, there have been some regulatory measures in existence to ensure that the mining industry protects and conserve the environment that it impacts.

Legislation dating from 1903 placed responsibilities in this regard on the owner of the mine until such time as the owner had been issued with a certificate releasing him from his responsibilities. Currently the Minerals Act (Act 50 of 1991) is the most applicable legislation.

In section 12 of this Act provision is made in the event that a prospecting/mining authorisation is suspended/cancelled/abandoned/lapses that the owner or holder of such an authorisation shall remain liable for complying with the relevant provisions of the Act until the Director: Mineral Development issues a certificate to the effect that such provisions had been complied with.

The management tool typically used, and that has some relevance for the management of chemicals, is Environmental Management Programme Reports (EMPR). The Department of Minerals and Energy (DME) have produced an Aide Memoire to assist with the preparation of Environmental Management Programme Reports. Sections of the EMPR where chemicals are likely to be managed are in the description of the proposed project and of:

- Solid waste management facilities,
- Water pollution management facilities, and
- The operation Phase (i.e. mineral processing and plant residue disposal).

The Environmental Impact Assessment (EIA) Phase of the EMPR describes the significance of the impacts that could be caused by the mining operation, whilst the Environmental Management Plan (EMP-Also part of the EMPR) provides mitigatory mechanisms by which negative impacts (including impacts through the use and exposure of chemicals). Technical data concerning the mining process is typically provided in the EMPR report.

Mine Occupational Management

The Department administers the Mine Health and Safety Act of 1998 (see Chapter 4, Section 4.4.10).

Further information can be obtained from www.dme.gov.za.

6.1.9 National Treasury – Statistics South Africa

Introduction

The function in the National Treasury that has some relevance to management of chemicals concerns information gathering. Statistics South Africa (Stats SA) is a national government department accountable to the Minister of Finance. Its task is to collect, process, analyse and disseminate official statistics in support of economic growth, socio-economic development, and in promotion of democracy and good governance.

Legislative Mandate

In the Statistics Act (6 of 1999), the role of the agency is defined as informing organs of state, businesses, other organisations and the general public in planning, decision making, monitoring and assessment of policies.

Roles of Stats SA

Further roles of Stats SA is to:

- Promote co-ordination among statistical producers in South Africa in order to advance the quality, consistency, comparability and optimum use of official statistics and thereby avoid unnecessary duplication
- Provide statistical advice to government departments
- Liaise with statistics agencies of other countries, and other international agencies.

Core Activities

In accordance with its mandate Stats SA; produces analyses of the demographic, social and economic data that have been gathered.

Strategic Objectives

Presently there is no systematic framework for the compilation or dissemination of indicators in South Africa. Discussions are already underway amongst a number of departments and a document is being compiled to establish a basic set of indicators that will be required by the country. This report is scheduled for completion in September 2002.

6.1.10 The Department of Transport (DOT)

Vision and Mission

According to its vision the Department aims to provide safe, reliable, effective, efficient and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable.

The mission statement states that the department will work in a transparent, accountable and responsible manner with the provinces and the other countries in the Southern African Region, to provide an affordable, safe and sustainable national and international transport system.

Structure

The structure of the Department consists of two main branches:

- Branch: Policy, Strategy and Implementation, and

- Branch: Regulation and Safety

Policy, Strategy and Implementation

The Branch Policy, Strategy and Implementation (BPSI) is a combination of the former Chief Directorate Land Transport and the Directorate Research and Development, but has been launched with a new mandate closely aligned to the key thrusts of the White Paper. It is divided into four Divisions and two Policy Clusters. This is the only part of the DOT's re-organised structure which is based on a combination of the functional and matrix type approaches. The Branch is headed by a Senior General Manager supported by a Personal Assistant.

The BPSI focuses on policy formulation, monitoring and revision, ensuring the implementation of national guidelines, requirements and standards, and facilitating integrated and coordinated strategic implementation of policy across the range of contributing government agencies and industry players. Key focal points are the creation of passenger and freight transport policy frameworks for all the major spheres of transport (land, sea and air-based).

Taking its cue from the Moving South Africa Project, the Branch works continuously with other key role-players in transport to develop the detailed strategies - and the critical mass of consensus to sustain them - which will be required to deliver transport systems sensitively adjusted both to national policy goals for social and economic development and to the real needs of customers in the new millennium. As an integral part of this developmental perspective, the Department will continue to play a significant role in the definition, scoping and implementation of both regional and metropolitan Spatial Development Initiatives (SDIs), in close partnership with the other lead Departments involved in these ventures. Finally, special attention is being given to the development of human resource capacity in both freight and passenger transport.

Regulation and Safety

The Branch Regulation and Safety is responsible for ensuring unbiased regulation of safety and quality in the transport environment, controlling market access for transport operators where this is necessary and prohibiting excessive tariffs in the case of monopolies. The guiding thread for all these activities is the development of streamlined, strategically targeted transport systems to move passengers and freight efficiently and at low cost - thereby promoting competition in internal markets and building a dynamic export platform for South African goods and services - while at the same time ensuring safety and security in transport operations and the maintenance of proper environmental safeguards in the design of transport-related development initiatives. The time and energy required to perform this proactive regulatory role has been created by a much-reduced direct involvement by the Department in transport operations, infrastructure and service provision.

The BRS is organisationally divided into two Divisions: Road Traffic Management and Aviation and Maritime Regulation. Built into this structure is a substantial investment in high-skilled human resources capable of effectively regulating complex relationships with operators. These relationships have decisive effects all levels of the industry, both nationally and internationally.

A Senior General Manager is responsible for the overall management and control of this Branch, with a Personal Assistant to help in the execution of his responsibilities. The establishment of the Branch Regulation and Safety consists of 98 posts.

Transport Agencies

The Agencies have been designed to perform functions and services previously provided by the National Department of Transport in a fully commercial environment and in line with best practice in the private sector. Created by national legislation, they have been assigned clearly defined responsibilities and functions, and each Agency has entered into a formal performance agreement and Memorandum of Understanding with the Minister as shareholder.

The Memorandum of Understanding articulates a more detailed set of operational parameters and deliverables for each institution. It is reinforced by a Performance Contract between the Agency CEO and the Minister containing short- and medium-term targets which will be monitored and reviewed on an ongoing basis. The Board of each Agency is required to submit its Business Plan and Budget to the Minister for approval. The Department of Transport is the representative of, and advisor to, the Minister in this relationship, and will manage the Performance Contract, while also acting as the regulatory authority over the Agencies.

- Airports Company South Africa (ACSA)
- National Roads Agency (NRA)
- South African Maritime Safety Authority (SAMSA)
- Cross-Border Road Traffic Authority (CBRTA)
- South African Civil Aviation Safety Authority (CAA)

SAMSA

This particular Department deals with ocean going vessels that are of local and international origin, as a result SAMSA do enforce the International Conventions.

The following conventions and legislation enforced by the South African Maritime Safety Authority pertain to the management of chemical and hazardous substances:

- Annex II of MARPOL 73/78 - Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (AS AMENDED);
- SOLAS, 1974 (Safety of life - Carriage of dangerous goods in package at Sea, and its Protocol form or in solid form in bulk of 1988);and IMDG CODE (International Maritime Dangerous Goods Code)(only available in SAMSA"s intranet)
- National Oil/chemical and other substances - SAMSA and DEA&T are still in the process of developing a spill Contingency Plan (Departments are still consulting with interested parties

The South African Maritime Legislation is based on the above International Conventions. The National Legislation is as follows:

- Marine Pollution (Control and Civil Liability),1989 (Act No.6 of 1989)
- Marine Pollution (Prevention of Pollution from ships),1986 (Act No. 2 of 1986)
- Marine Pollution (Intervention) Act, 1987 (Act No. 64 of 1987)
etc

Transportation of Dangerous Goods

The department administers the National Road Traffic Act of 1996 with specific reference to transportation of dangerous goods (for more detail see Chapter 4, Section 4.4.3 (a)).

Further information can be obtained from the National Department's official website www.transport.gov.za.

6.1.11 South African Police Service – South African Narcotics Bureau (SANAB)

The following information was provided by Captain Murugen from SANAB Head Office, reference: 'Chemical Monitoring Programme',

Chemical Monitoring Programme

In 1994 the SANAB: Chemical Monitoring Programme (CMP) was established. The objectives of the programme are to restrict the availability of illicitly manufactured drugs through the identification and prosecution of the illicit drug laboratories and to reduce the traffic in the diversion of chemicals for the illicit use by monitoring the import, manufacture and distribution of such chemicals.

The programme has functioned on the principle that the local chemical industry complies on a voluntary basis, until April 1999, when new legislation was promulgated. These regulations came into force to control the importation of twenty three chemicals scheduled in the United Nations Convention Against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1998 (1998 Convention). The promulgation of this legislation made it a criminal offence to import/export any of the referred to chemicals without a certified permit, that has been issued by the Department of Trade and Industry. This permit has to be approved by the Chemical Monitoring Programme (CMP): SANAB.

Legislation:

Applicable Legislation is as follows:

- Drugs and Trafficking Act, 1992 (Act 140 of 1992, Section 3),
- Import and Export Control Act, 1963 (Act 45 of 1963, Section 2),
- Article 12 of the 1998 United Nations Convention.

Since 1998 the United Nations Convention Against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1998 (1998 Convention) has been altered and the tables listing the drugs were amended by the Commission on Narcotic Drugs as of 8 December 2001.

6.2 General Comments

Being a country with significant chemical trade and industry sector, it is important that the South African government ensure that chemicals are effectively managed throughout their 'life-cycle'. To achieve this, responsibility in dealing with chemicals management needs to be adequately assigned to various government departments.

(a) Fragmented Approach

The summary of government departments' responsibilities and mandates as provided in Table 5A clearly indicates a fragmented approach. This was highlighted by Mr Mohammed Valli Moosa, Minister of Environmental Affairs and Tourism (see Chapter 3, Box 3.7).

(b) Overlapping Mandates

Contrary to government's basic constitutional principles, certain overlaps in mandates exist. The legislative reform programme referred to in Chapter 4 will address some of these overlaps.

Some overlaps were established through Department's different roles in protecting of people in certain exposure groups and of environmental resources. The following are examples:

- Use and handling of chemicals are dealt with by the DOH primarily for the protection of the general citizens, whilst DOL, NDA and DME deal with these aspects in relevant workplaces. This causes some practical problems (eg, pesticides require registration at both the DOH and NDA).

- Both DEAT and DWAF deal with waste management as provided for by the Environmental Conservation Act. However, DEAT and its provincial counterparts deal with all aspects of waste management besides for disposal of liquid and solid waste. Disposal issues like waste disposal site registration and disposal site management falls under the authoritative responsibility of DWAF due to the risks passed to the water environment. An exception of this rule is the disposal of dredged material which is dealt with by DEAT. Although there is some co-ordination concerning waste management between the two lead agents, it is clear that problems exist due to dual function (eg lack of planning for future needs and insufficient record keeping of waste).
- There is no lead agent when dealing with chemical spills. Significant spills have to be reported to the local authority, DEAT, DWAF and in the case of a spill occurring on the public transport network also to DOT. This causes confusion and lack of 'ownership' amongst government departments. An example is, again, insufficient record keeping.

(c) Cleaner Production

As indicated in Chapter 4, there is no clearly defined government policy on cleaner products and technologies. DEAT and the provincial Environmental departments however, play an important role in ensuring that cleaner productions are introduced in new developments and facility expansions of scheduled processes through the EIA processes. The EIA process includes the requirement of public participation process to be undertaken. The independent environmental consultants who conduct the public participation process are required to invite participation from all key authoritative stakeholders. In addition, DEAT consults with other government departments during the decision making process as it sees fit.

The Pollution Control of DEAT and DWAF deal with regulating air and water resource pollution. In doing so, they are authorised to issue notices and directives for cleaner production. They can also order discontinuation of discharge. There is however reportedly a lack of resources and in some areas and fields of expertise, a lack of capacity in these departments to allow for effective monitoring enforcement of permitted limits and dealing with relevant issues of concern. This has invariably led to uncontrolled pollution and contamination.

(d) Interdepartmental Co-ordination and International Linkages

DEAT, being the lead agent with the international communities on issues, guidelines and strategies regarding chemicals management aspects, has recently made some progress in ratification of international legislation and acceding to conventions. Certain co-ordinating mechanisms are in place or being established to co-ordinate the efforts of various government departments and other stakeholders. These are dealt with in Chapters 7 and 10.

(e) Lack of Lead Agent

Of concern however, is that there is no specific lead agent dealing with overall chemicals management in the country. This enhances fragmentation. It is recommended that a concerted effort is undertaken to establish such a lead agent. It is important that such a lead agent ensure:

- Responsibilities within the various departments cover all aspects of chemicals management throughout the chemical life-cycle
- That overlapping mandates and responsibilities are minimised
- That a seamless approach is followed when dealing all chemicals management aspects such as data collection reporting, setting of limits, monitoring, legislation reform, establishment of standards and guidelines, compilation or dissemination of indicators as based on a 'cradle to grave' principle.

(f) Registration and control of Chemicals

- Pesticides require registration at both DOH and NDA which causes duplication of efforts and data capturing
- The capacity of Customs and Excise staff is not adequate to detect illegal chemical trade

(g) Emergency Response

The legislative requirements for an emergency response plan are adequate but there is limited capacity for their implementation, monitoring and enforcement. In addition, capacity may be available in the main urban centres but outside of these areas available capacity is limited.

CHAPTER 6

RELEVANT ACTIVITIES OF INDUSTRY, PUBLIC INTEREST GROUPS AND THE RESEARCH SECTOR

The purpose of this Chapter is to describe and review activities of parastatal and non-governmental bodies and entities, which support national efforts to manage chemicals.

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6 RELEVANT ACTIVITIES OF INDUSTRY, PUBLIC INTEREST GROUPS AND THE RESEARCH SECTOR

The responsibility of managing chemicals does not lie solely on the shoulders of the government departments. A palette of organisations that are either parastatal or independent from the state carries out various functions in terms of managing chemicals.

The following sections provide a brief description of the private and parastatal organisations that support national efforts to manage chemicals in one way or another and the role they play therein.

The organisations are presented under the following headings:

- Research institutions
 - Universities and training centres
 - Professional organisations
 - Industries and industrial associations
 - Chamber of businesses/commerce
 - Trade unions
 - Environmental and consumer organisations
 - Consultants
 - Services and suppliers (Chemical, health care, occupational health, waste)
 - Supporting international organisations
-

6.1 Research Institutions

This section provides an overview of some of the most important organisations that play a role in the South African Research fraternity, which has some relevance in terms of management of chemicals.

6.1.1 National Research Foundation (NRF)

Background

The objective of the National Research Foundation (NRF) is to support and promote research through funding, human resource development and the provision of the necessary research facilities, in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology. The organisation is consulting widely and getting input from its clients, partners and sponsors throughout the structuring process.

The NRF, in one institution, combines the functions that were previously performed separately for each of the natural sciences, human sciences, health sciences and environmental and agricultural sciences by the former Foundation for Research Development and the Centre for Science Development (at the HSRC) respectively.

The NRF is presently undergoing a transformation and the new structure is taking shape. The NRF Research Support Agency (RSA) has launched an entirely new suite

of programmes and activities that are in line with South Africa's priorities and needs. These priorities feature in the NRF's focus areas are as follows:

Focus Areas

- Unlocking the Future
- Distinct SA Research Opportunities
- Ecosystems and Biodiversity
- Sustainable Livelihoods
- Economic Growth and Competitiveness
- ICT and the Information Society
- The Globalisation Challenge
- Indigenous Knowledge Systems
- Education and the Challenges for Change

Strategic Advice Unit

Sound and relevant science and technology policy depends on a foundation of accurate, timely information. Through its activities, the Strategic Advice Unit ensures that the necessary data and recommendations are available when required for internal decision making at the NRF or by national decision makers. The Unit assists the NRF in positioning itself in the dynamic arena of global science and technology policy.

In fulfilment of its mission, the Strategic Advice Unit:

- provides well-researched information and advice on S&T policy to the board, executive and management of the NRF, government departments, ministers, and others for the general benefit of science, engineering and technology (SET) in South Africa;
- determines priority areas in SET for research development and management;
- draws up frameworks and benchmarks for NRF programme development and management;
- establishes and maintains information databases in areas such as human resources, innovation, research equipment, secondary and tertiary education, and research institutions, and subscribes to international databases; and
- develops and publishes science and technology indicators.

The Unit is responsible for a wide range of activities, which include investigations initiated by the NRF executive and programme managers, commissioned studies for government departments, contracts with international organisations, and self-initiated projects.

The results of investigations by the Unit are disseminated through publications such as the triennial SA Science and Technology Indicators and Science and Technology Data Overview, publications in the S&T policy series, articles in scientific journals, and reports.

The Unit maintains a well-stocked resource centre for science policy research and for the many other information requirements of the NRF. The Staff of the Strategic Advice Unit network with a wide variety of individuals and organisations, both in South

Africa and abroad, in order to exchange information and data on developments in innovation and SET.

In the interests of providing a forum for discussion of critical issues in S&T development in South Africa, the Unit regularly hosts special workshops, seminars and conferences.

The NRF also represents South Africa in International Science Liaison (See Chapter 10, Section 10.1.14)

NRF Research Units

The NRF Units are positioned in the focus areas. Research units at eight South African universities are funded by the NRF to conduct research in the social sciences and humanities. As groupings of scholars in specialised fields, and directed by renowned authorities, these units focus on research productivity and train new generations of researchers through internships. They represent the most prestigious grant category in the social sciences and humanities.

Contact details for the units are:

- Agricultural Policy Research Unit (at the University of Natal, Pietermaritzburg)
- Centre for Socio-Legal Research (at the University of Cape Town)
- Child Development Research Unit (at the University of Natal, Pietermaritzburg)
- Health Behaviour Research Unit (HBRU) (at the University of the North)
- Health Psychology Research Unit (at the University of South Africa - UNISA)
- Religion and Social Change Unit (RESCU) (at the University of Cape Town)
- Research Unit for Experimental Phonology (at the University of Stellenbosch)
- Research Unit for Legal and Constitutional Interpretation (at the Universities of Stellenbosch and Western Cape)
- Research Unit for the Archaeology of Cape Town (RESUNACT) (at the University of Cape Town)
- Rock Art Research Institute (at the University of the Witwatersrand)
- Sociology of Work Unit (SWOP) (at the University of the Witwatersrand)
- Unit for Research into Higher Education (URHE) (at the University of the Free State)

NRF Services and Initiatives

The NRF runs a number of services and support schemes eg Innovation Fund, Institutional Support and research information databases. Databases e.g. the NEXUS however mainly provides information on humanities and social sciences, generally with little relevance to management of chemicals.

However certain initiatives the organisation has launched has some indirect relevance to chemicals and chemicals impact management, including:

- Technology & Human Resource for Industry Programme (THRIP) – see Chapter 9, Section 9.4.4
- The Hartebeesthoek Radio Astronomy Observatory
- The South African Institute for Aquatic Biodiversity

Conservation and Management of Ecosystems and Biodiversity

One of the focus areas identified by the NRF concerns the 'Conservation and Management of Ecosystems and Biodiversity' (see also Box 6.1) with the aim to:

- Develop a more comprehensive and scaled understanding of the way that ecosystems are structured and function in South Africa
- Describe, understand and conserve the biodiversity resources in South Africa at landscape, ecosystem, habitat, community, population, species and gene levels.
- Monitor, interpret and predict environmental change
- To analyse the environmental potentials for and constraints on human development
- Expand and increase the representivity of South Africa's human capacity to conserve biological diversity through environmental awareness and education, as well as develop skills, expertise and research infrastructure
- Contribute, through fundamental research, to the objectives set out in various international conventions to which South Africa is a signatory (for example, the Convention on Biological Diversity)
- Whenever research products are management related, also develop the appropriate adaptive management protocols.

Within various natural systems (namely atmospheric, terrestrial, marine, estuarine and freshwater), the following aspects will form the focus of attention, as applicable:

- **Research issue 1:** Management of species, populations and ecosystems and decision support
- **Research issue 2:** Society, the natural environment and ecosystem services
- **Research issue 3:** Long-term monitoring and research

The above three research issues are covered in the Sea and Coast Programme II - which is a subset of the focus area and is a joint venture between the NRF and the Branch: Marine and Coastal Management Coordination of the DEAT. This joint venture provides financial and administrative support for the South African Network for Coastal and Oceanic Research (SANCOR) - which was responsible for the development of the Sea and the Coast Programme II. The programme is managed by the NRF according to standard NRF policies and procedures in consultation with a joint venture advisory committee on an annual basis. This committee consists of policy level representatives of SANCOR, the Branch: Marine and Coastal Management Coordination of the DEAT and the NRF. Special conditions apply to the programme, which is jointly funded by the NRF and the Branch: Marine and Coastal Management Coordination. It consists of seven thrusts as follows:

- Coastal processes
- Ocean dynamics
- Biodiversity
- Mariculture
- Innovative technologies
- Resources for the future
- Coastal development and tourism.

Funding Application

Application for funding is made to the Institute by researchers and their organisations.

Additional information can be referenced from www.nrf.ac.za.

Box 6.1

Conservation And Management Of Ecosystems And Biodiversity

*Extracted from one of the links to the 'Focus Areas' of the NRF
<http://www.nrf.ac.za/focusareas/conserve/>*

South Africa has a unique natural environment and biological diversity, for which there is no blueprint for conservation and sustainable use. As a nation, we need to recognise and protect this natural heritage. Similarly, good management of these renewable natural resources is essential. It is fundamental for sustained development in South Africa to understand, care for, manage the use of and develop resources and processes within the life-supporting atmospheric, terrestrial, marine estuarine and freshwater ecosystems. This focus area is a direct response to the White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity and the outcomes of the National Research and Technology Foresight Project. There are a number of other players and partners in this arena, for example, the Department of Environmental Affairs and Tourism (DEAT), the Department of Water Affairs and Forestry, the Water Research Commission and South African National Parks, as well as industry. Each has a separate mandate. This focus area and its structure must maximise collaboration and complementary research. The focus area lends itself readily to national and trans-national partnerships.

This focus area presents opportunities for fundamental and applied, disciplinary and trans-disciplinary, as well as trans-national research that will be cognisant of the interaction of the human race with our natural systems, as well as our inevitable impact on our natural heritage. Furthermore, natural and human-driven environmental changes need to be monitored, modelled and interpreted to inform the environmental aspects of policy and governance at all levels for rural and urban development. In the process, it would be crucial to improve our ability to create awareness and to transfer knowledge and skills through environmental education.

We have to improve our long-term ability to manage and use our biological diversity and to reduce the negative impact of industrial and cultural activities on environmental systems. Ideally, the structures and systems that we impose on the natural environment will mimic and complement nature. The wise use of resources requires a good understanding of the ecological processes that maintain the resource base. We must develop and improve our knowledge, technology, designs, systems, approaches and strategies to contribute to a safer and healthier environment for all. The complex relationships between society and the natural environment must be well understood.

Long-term environmental research is required - which will further unravel the dynamics and trends of complex biological, chemical and physical processes in terms of major driving forces (both forced and natural) and ecosystem response mechanisms. Our information about and understanding of our natural heritage must be enhanced to ensure that future generations will have at least the same opportunities and quality of life as we do. One important outcome of research must be sector-based guidelines for sustainable development. These guidelines must be composed to inform policy on economic and social development as they relate to the consumptive and non-consumptive use of natural resources and to community development. In particular, the harvesting, cultivation, production and improvement of natural products require investigation for ecological sustainability and socio-economic meaning. In the process, the value of biological diversity to society has to be explored.

The country's research infrastructure supporting 'biodiversity-related' and 'ecosystem structure and function' research is a noteworthy strength. In this, South Africa is ahead of many developing countries and is often competitive with developed countries with regard to intellectual content. However, it remains a requirement to develop and maintain sufficient and representative human resources, people who are able to play a meaningful involvement in research, education, innovation and development within the scope of the focus area. This capacity will make an important contribution to sustainable development within South Africa, as well as the rest of sub-Saharan Africa.

6.1.2 Council for Scientific and Industrial Research (CSIR)

Background

The CSIR is the largest community and industry directed scientific and technological research, development and implementation organisation in Africa and currently undertakes approximately 10 per cent of all research and development work on the continent.

The CSIR is a statutory scientific research council established in 1945 and controlled by an Act of Parliament. Its aims, mission, basic research policies and priorities are set by the CSIR Board. The board members are appointed from the private sector by the Minister responsible for administering the Scientific Research Council Act no 46 of 1988 (as amended by Act 71 of 1990).

The organisation operates under the following mandate: "In the national interest, the CSIR, through directed and multi-disciplinary research and technological innovation, should foster industrial and scientific development, either by itself, or in partnership with public and private sector institutions, to contribute to the improvement of the quality of life of the people of South Africa".

As a key provider of information and technology solutions, the CSIR plays an integral part in the development of South Africa as a nation and the Southern African Development Community (SADC). It undertakes market-driven research and development and technology transfer:

- in support of its clients in both the public and private sectors
- to meet community needs and
- improve the quality of life of all South Africans in a cost-effective and ethical manner.

Less than a decade ago, the CSIR set out to transform itself in the technology partner of the people of South Africa. From being almost completely dependant on government funding before the restructuring of the organisation in 1987, when its Parliamentary Grant income represented 70 per cent of total income, the CSIR has demonstrated its ability over the past eight years to steadily grow its external income as a contract research organisation and now derives close to 60% of external revenue from the private sector. It has a turnover of R562 million (1996).

Executive responsibility for the organisation rests with its Executive Management Board, consisting of a President and Executive Vice Presidents responsible for the Finance and Marketing Services, Human Resources, Technology for Development and Technology and Policy portfolios.

Divisions/ Business Units

The CSIR's eight operational divisions are responsible for its research, development and implementation activities that provide technology solutions and information across a broad range of technologies, such as aeronautical systems, building, communication, development, food, information, infrastructure, manufacturing, materials, mining, textiles and the environment.

The CSIR Business Units and technology focus areas are as follows:

- Building Technology (Boutek)
- Defence Technology (Defencetek)
- Food, Biological and Chemical Technologies (Bio/Chemtek)

- Information and Communications Technology (icomtek)
- Manufacturing & Materials Technology (M&Mtek)
- Mining Technology (Miningtek)
- Roads and Transport Technology (Transportek)
- Water, Environment and Forestry Technology (Environmentek)

Nature of Activities

The CSIR delivers:

- research and development, and implementation (RDI)
- specialised consulting, technical and information services
- prototyping and pilot-scale manufacturing (industrialisation/ commercialisation)
- systems engineering, technical surveys and audits
- software and decision support
- education and training
- policy development and support

Clients and Stakeholders

The CSIR has the following client base:

- private sector (micro, small, medium and large enterprise; formal and informal)
- public sector (national; provincial; local government)
- public enterprises and institutions
- national safety and security establishments
- development structures (CBOs; NGOs; Civics)
- funding agencies (national; international)
- communities
- labour
- international clients

CSIR operates in Technology Partnership (with a focus on building relationships and strategic alliances) with a global perspective according to the client/contractor principle (external income; parliamentary grant) by investing to build competence and capacity and to develop innovative product and service offerings by providing independence and objectivity as an "honest broker" through technology acquisition and transfer ("funnel and bridge concept") by "focus and integration" and through teamwork.

Staff

The CSIR's staff complement of over 3 300 include scientists, engineers, technologists, technicians, sociologists and support staff and are at the forefront of research and implementation as part of the global scientific and technological community.

Objectives

Constituted as a Science Council by an Act of Parliament, the CSIR operates as a market-oriented contract and consortium research partner to its clients and stakeholders.

- Promoting Competitiveness and Employment Creation
- Enhancing Quality of Life
- Developing Human Resources
- Working towards Environmental Sustainability
- Promoting an Information Society
- Committed to Knowledge Generation

The CSIR is committed to supporting innovation in South Africa to improve national competitiveness in the global economy. Technology services and solutions are provided in support of various stakeholders, and opportunities are identified where new technologies can be further developed and exploited in the private and public sector.

In so doing the CSIR is involved in various research and data collection concerned with aspects of chemicals management.

(a) Centre for Integrated Waste Management (CIWM)

The CSIR's Centre for Integrated Waste Management (CIWM) brings together specialists within the organisation with various fields of expertise, including engineering, science, economics and sociology. In so doing the CSIR aims to offer its clients the most practical, cost effective and innovative approach to dealing with waste.

The aim of the Centre is to provide organisations with appropriate, innovative and integrated solutions to waste management, including options for waste avoidance, minimisation, re-use, recycling, collection, storage, transportation, treatment, disposal and mitigation of environmental impacts.

Expertise

CSIR Waste Management Expertise Offerings include:

- Decision support systems
- Environmental management
- Incineration
- Integrated waste management
 - Domestic waste
 - Hazardous waste
 - Health care risk waste

- Industrial waste
- Legislation and Policy
- Risk assessment
- Process technology
- Sanitation waste
- Support services (pilot plants, laboratories)
- Waste classification
- Waste facility siting
- Waste minimisation
- Waste and Wastewater treatment
- Waste utilisation

(b) Environmentek

Environmentek was established by the CSIR to support sustainable development and economic growth within the context of national priorities and social responsibilities.

Environmentek's contribution focuses on three biophysical aspects:

- Coast
- Water
- Terrestrial

Within these fields of research, services relevant to chemicals management include:

Coast

- Marine water quality and hydrodynamics
 - Water quality assessment of bathing beaches, marine outfalls and industrial effluent
 - Design and implementation of monitoring programmes
 - Effluent disposal design support
 - Oil spill modelling
- Environmental management
- Coastal sediments
 - Decision support for coastal / offshore mineral exploration and mining operations
- Environmental data bases and information systems, including data analysis and interpretation
- Estuary dynamics
 - Decision support for integrated management of estuaries
 - Environmental baseline surveys and monitoring
 - Estuarine health indicators

Water

- Groundwater pollution assessment
- Water treatment technologies
- Ecological risk assessment
- Health risk assessment
- Decision support systems for cleaner production and waste management
- Aquatic chemistry and microbiology
- Integrated environmental studies
- Analytical services
 - Water
 - Standard chemical and microbiological analysis
 - Specialist analyses including parasitology, virology and biotoxicology (eg mutagenicity, teratogenicity and carcinogenicity)

Terrestrial

- Ecosystem management
- Technologies for environmental assessment and management and environmental indicators
- Environmental economics and natural resources
- Air quality management
 - Air quality impact assessment
 - Human health risk assessment
 - Air dispersion modelling (pollutant transport and deposition)
 - Photochemical modelling
 - Air quality analysis
 - Air quality monitoring network design and evaluation
 - Emission and uptake of greenhouse gases
 - Biosphere-atmosphere interactions
- Environmental human health studies
 - Assessment of human exposure to environmental contaminants
 - Human health risk characterisation and quantification
- Isotope tracer technologies
 - Pollution tracing

Further information can be obtained from www.csir.co.za.

6.1.3 Medical Research Council (MRC)

Vision and Mission

The MRC has a vision of “Building a healthy nation through research.” Its Mission Statement says that it aims ‘to improve the nation's health status and quality of life through relevant and excellent health research aimed at promoting equity and development.’

Background

The establishment of the MRC in 1969 in terms of Acts of Parliament (No. 19 of 1969 and 58 of 1991) was a landmark in the field of scientific research in South Africa. The first board's most important functions to promote this improvement through research, development and technology transfer.

The affairs of the MRC, subject to the condition implicit in the terms of its establishment, were to be managed by a Board that would determine the Council's policy and objectives. The Board, appointed by the Minister of Health, was to consist of a Chairman; between 12 and 14 members who had distinguished themselves in medical science or a related science; two additional members and a President.

The MRC was funded solely by an annual government grant with no initial provision for the acceptance of funds from other sources, and was to co-ordinate medical research within the country and to determine the distribution of the government funding for such research. A large degree of autonomy appeared to be visualised, but in terms of the legislation, the Minister of Health could exercise direction.

Initial headquarters of the then new group were at Scientia, which was the research centre of the Council for Scientific and Industrial Research (CSIR) near Pretoria. The MRC, however, being an autonomous body, had no formal connection with the CSIR, and submitted its Annual Report to Parliament, as it does still.

South Africa's Health Status

There are still gross inequities or disparities in health between the different population groups. Cognisance has been taken of poor access to health care, and of high levels of preventable disease and premature deaths, and new strategies of intervention have been devised and implemented by the Department of Health. The main change is the shift of focus from tertiary curative care to primary preventive care, and the MRC continues to align its research to produce the greatest support within the new framework.

Health research in South Africa has been badly underfunded for many years and, even now, only six per cent of the science vote is allocated to the MRC. This is equivalent to 0,3% of the total health cost in the public sector, and contrasts sadly with the World Health Organisation and World Bank recommended level of 2% in health research. Despite the deficiency, the MRC has played an important role in improving South Africa's health.

Strategic Plan

The MRC's strategic plan for the years 1999 - 2002 acknowledges the severe but exciting challenge of demonstrating its relevance to stakeholders and society at large. South Africa is in a development phase with emphases on redistribution and equity through economic growth. In a word: transformation, which involves change in the organisation as a whole.

The focus of all aspects of research involves human beings, and research is thus informed and guided by a culture of human rights, a vital component of the strategy of transformation.

Simply expressed, these have been described as the basic components of research, always bearing in mind the needs of the greatest number of South Africans.

Structure

The MRC has structured its research into six National Programmes according to high-priority areas identified by Government and in keeping with international trends. Further focus areas have also been identified within each National Programme resulting in several Lead Programmes in the areas of Telemedicine; Crime, Violence and Injury; TB, HIV/AIDS and Malaria. Focus on these specific areas provides the basis for the MRC's resource allocation and allows for competitiveness and innovation, essential to leadership in research.

The MRC's six National Programmes are:

- Environment and Development
- Health Systems and Policy
- Non-Communicable Diseases
- Infection and Immunity
- Molecules to Disease
- Women and Child Health

The diagram in Box 6.2 represents the six National Programmes and includes the MRC's 47 research Units, Groups, Centres and Lead Programmes. Research units of particular interest in terms of chemicals management are:

- Alcohol and Drug Abuse Research Group
- Malaria Research Lead Program (includes research on use of DDT and alternatives for malaria vector control)

BOX 6.2 MRC Research – National Programmes	
<p>Environment & Development: Executive Director: Dr Tony MBewu</p>	<p>Alcohol & Drug Abuse Research Group Exercise Science and Sports Medicine Research Unit Health & Development Research Group Health Promotion Research & Development Group</p>
<p>Health Systems & Policy: Executive Director: Dr Tony MBewu</p>	<p>Burden of Disease Research Unit Biostatistics Unit Cochrane Centre Health Policy Research Group Health Systems Research Unit National Telemedicine Lead Programme</p>
<p>Non-Communicable Diseases: Executive Director: Dr Tony MBewu</p>	<p>Anxiety and Stress Disorders Research Unit Cancer Epidemiology Research Group Chronic Diseases of Lifestyle Research Unit Crime, Violence and Injury Lead Programme Dental Research Institute Diabetes Research Group Interuniversity Cape Heart Research Group Medical Imaging Research Unit PROMEC Unit</p>
<p>Infection & Immunity: Executive Director: Prof Terry Jackson</p>	<p>Amoebiasis Research Unit Clinical and Biomedical Tuberculosis Research Unit Diarrhoeal Pathogens Research Unit Genital Ulcer Disease Research Unit HIV Prevention and Vaccine Research Unit Immunology of Infectious Disease Research Unit Inflammation and Immunity Research Unit Malaria Research Lead Programme Operational and Policy Tuberculosis Research Group Pneumococcal Disease Research Unit South African Traditional Medicines Research Unit Tuberculosis Research Lead Programme</p>
<p>Molecules to Disease: Executive Director: Prof Terry Jackson</p>	<p>Bioinformatics Capacity Development Research Unit Bone Research Unit Centre for Molecular and Cellular Biology Human Genetics Research Unit Human Genomic Diversity and Disease Research Unit Liver Research Centre Molecular Hepatology Research Unit Molecular Mycobacteriology Research Unit Oesophageal Cancer Research Group SA MRC/British MRC Molecular Reproductive Endocrinology Research Group</p>
<p>Women & Child Health: Executive Director: Prof Terry Jackson</p>	<p>Gender and Health Research Group Maternal and Infant Health Care Strategies Research Unit Mineral Metabolism Research Unit Nutrition Intervention Research Unit Perinatal Mortality Research Unit Pregnancy Hypertension Research Unit</p>

Record of Medical Science, Transformation and Achievement

In focusing on the acceleration of transformation, the MRC is able to look back proudly on significant achievements during its existence. These include:

- developing and sustaining a solid health research infrastructure and a culture of quality research in a developing country
- successfully integrating public health research with basic and clinical research as a major factor in a dominantly biomedical-oriented environment;
- highlighting the need for health systems research; and,
- establishing a major research centre in a rural environment - Hlabisa - jointly with the universities of Natal and Durban-Westville (the Wellcome Africa Centre for Population Studies and Reproductive Health).

Relevant Research Projects and Papers

Recent projects and research papers that have relevance to chemicals management include the following:

- Reproductive health and DDT

DDT, a colourless, odourless insecticide, is generally used in the control of mosquitoes spreading malaria. MRC-supported researchers at the Department of Public Health, University of Cape Town and Pretoria have done extensive work into the reproductive health effects of DDT exposure in male malaria vector control workers. Very few effects of DDT were found. This has positive implications in the setting where there is considerable pressure to ban DDT globally, while it may be a necessary ingredient of a successful anti-malaria programme. This research has been presented at international conferences in Harare and Johannesburg.

- Improving the quality of city life (See Box 6.3)
- A health based policy initiative to eliminate environmental exposure to lead (and or other vehicle emissions) in South Africa - Eugene Cairncross.
- Pesticides and children's health in South Africa: Research priorities emerging from policy consultations and a local case study - Hanna-Andrea Rother.

The aim of this study was to attempt to develop an understanding of why pesticide poisonings continue to occur in a country whose legislation adheres to international laws and standards. The methodology included an evaluation of the administration, policy and legal framework, health and safety mechanisms, and structures involved in pesticide safety. The following key policy issues were identified:

- Too many Acts governed by too many departments
 - Lack of enforcement of existing legislation
 - Surveillance and monitoring mechanisms lacking
 - Public information on and participation in pesticide issues lacking
 - Limited government support exists for non-chemical initiatives
 - Pesticide information specific to South African conditions lacking
 - Accountability and responsibility for pesticide 'damage' not defined
- Overview of exposure assessment research in children in South Africa – description of the gap – Juanette John
 - Drug and substance abuse: The facts (See Box 6.4)

Box 6.3

Research on Improving the Quality of City Life

Extracted from the MRC Annual Report: 2000 - 2001
<http://www.mrs.ac.za/annualreport/environment.htm>

Poverty, rapid urbanisation and inequity are major forces playing their roles in the quality of urban environments in South Africa. In all larger South African cities, areas of severe environmental degradation are found, posing severe health threats to residents. Such threats include risks from the consumption of food in the informal sector, deteriorating living conditions in low-cost formal housing and sprawling informal and squatter settlements, the occupation of buildings such as garages, factories and warehouses for residential purposes, ambient air quality, environmental lead exposure and quality of drinking water.

The state of the urban environment and health status has received attention at the highest level with the formation of the Presidential Imperative Programme on Urban Renewal Research. Forty-five renewal research priorities were identified, e.g. the development of basic minimum environment and health standards.

The findings of more than a decade of MRC research into childhood lead exposure and its health consequences have been published as an MRC Policy Brief and distributed to policy-makers.

Researchers from the Health and Development Research Group have been invited by the National Department of Health to participate in a working group targeting the development of policy and programme to reduce environmental lead exposure in the country.

In many countries, South Africa being no exception, acute respiratory infections such as pneumonia has emerged as the leading killer of young children. Much of this burden of ill health is borne by the poor who use fuels such as coal and wood for domestic purposes, exposing them to very high levels of indoor air pollutants. Researchers from the Health and Development Research Group have been commissioned by the World Health Organisation (WHO) to conduct a study into electrification, indoor air pollution and child health. This study is being conducted with a view to South Africa being the site of a much larger study about quantifying the health benefits of a reduction in indoor air pollution on childhood pneumonia. Preliminary results indicate that despite the use of mixed fuels in electrified homes, electrification confers an overall significant reduction in levels of indoor air pollution in electrified dwellings.

To combat malnutrition, a multidisciplinary team was formed by the Health and Development Research Group to initiate and evaluate the development of a community-based nutrition programme in a very low-income peri-urban area in Cape Town. The project aims to go beyond a mere 'feeding scheme', also including several income-generating projects for mothers of malnourished children to improve long-term household food security. Data generated from this project are currently being analysed.

Box 6.4

Drug and Substance Abuse: The facts

*Extracted from the MRC Annual Report: 2000 - 2001
<http://www.mrc.ac.za/annualreport/environment.htm>*

At the beginning of 2001 the MRC's Mental Health and Substance Abuse Division separated from the Health and Development Research Group to form the new Alcohol and Drug Abuse Research Group. This Group focuses on identifying the nature and extent of substance abuse in South Africa, risk factors for substance use and its burden to the country. The Group funds the South African Community Epidemiology Network on Drug Use (SACENDU), which collects information to monitor alcohol and drug abuse trends on a 6-monthly basis in Cape Town, Port Elizabeth, Durban, Gauteng and Mpumalanga.

Alcohol is still the dominant substance of abuse across all sites. Alcohol abuse has a major impact on individuals and society - particularly in terms of violence and traffic-related trauma. Between 37% and 56% of patients seen at trauma units in Cape Town and Durban had breath alcohol concentrations of more than 0,05 g/100 ml, and between 32% and 60% of subjects tested for alcohol at mortuaries at the sites had blood alcohol concentrations of more than 0,05 g/100 ml.

Additional information can be found on mrc.ac.za.

6.1.4 Water Research Commission (WRC)

Background

Water is a scarce commodity in most of the country and the increasing demands and pollution substantially impact water resources. The Water Research Commission plays an important role in the research of the countries water resources and the impacts on them.

The WRC was established in terms of the Water Research Act in 1971 (Act 34 of 1971) and began operating on 1 September 1971.

The WRC's terms of reference are basically to promote coordination, communication and cooperation in the field of water research; to establish water research needs and priorities; to fund research on a priority basis; and to promote the effective transfer of information and technology

Funding

The Water Research Act provides for the establishment of a Water Research Fund, which derives income from levies on water consumption. The funds are collected for the WRC, on a commission basis, by the Department of Water Affairs and Forestry.

Modus Operandi

In terms of the Water Research Act, the WRC can conduct its own research. However, in accordance with an early policy decision, the WRC does not undertake in-house research, but funds research under contract with other agencies. For this reason the WRC has no vested interests in establishing research needs and priorities and in funding research and thus maintains complete objectivity in the coordination and funding of water research.

In view of the broad scope of water research, a large number of bodies are involved in WRC research contracts. They are drawn from the following categories: Universities; technikons; statutory research agencies; government departments; local authorities; NGOs; water boards; consultants; and industry.

Research Coordination

Coordination is pursued along various routes:

- Research Coordinating Committees (RCC's), each of which addresses a specific field of research, and comprising representation from the relevant research and stakeholder communities. RCC's develop strategic research plans based on needs and priorities, evaluate progress made, and formulate proposals for further research and for technology transfer.
- Steering Committees are established for research projects (with representation by specialists and interested organisations) and ipso facto, play an important coordinating role.
- Information and technology transfer initiatives, due to their essential communication dimensions, also contribute significantly towards effective coordination.
- Networking. It is foreseen that networking, inter alia making use of the Internet will, undoubtedly, become a powerful tool to promote coordination, and the WRC is committed to developing this strategy.

Research Submissions

The WRC follows a system whereby research applications are received and considered once per year according to a fixed timetable. Guidance is provided to researchers in formulating their research proposals by publishing the strategic research plans (incorporating research needs and priorities) as they emanate from the activities of the various Research Coordinating Committees. Final selection is done in-house, but might be preceded by soliciting advice from the Research Coordinating Committees or other groupings.

Technology Transfer

The implementation of positive research findings is the WRC's ultimate objective. For this reason, the WRC follows a wide range of strategies to promote the dissemination and application of research findings.

Impact of WRC Activities

At the time of the WRC's establishment in 1971, the following applied to the water research scene in South Africa:

- Water research was virtually confined to the CSIR and some government departments
- Various important research fields received little or no attention
- There was no research coordination and no strategies existed for identifying national research needs and priorities.
- No agency was responsible for initiating research in identified priority areas
- There was little driving force to achieve technology transfer
- Effective communication between researchers from different agencies, and between researchers and practitioners, was lacking

To greater or lesser extent the WRC has successfully addressed these issues. In addition to wide-ranging research successes, the WRC has achieved the mobilisation and development of research expertise over a wide range of disciplines and organisations. An important spin-off of this latter multi-disciplinary and multi-

organisational involvement has been a significant expansion and upgrading of expertise in the South African water industry. In this context, research funding at universities has been of particular importance: Large numbers of students are being trained at post-graduate level; research findings are being incorporated in courses; and various centres of expertise have been developed which are being consulted by operational agencies and serve as valuable conduits for transferring information and technology.

Projects

A number of the WRC supported projects deal with impacts on the water resources that resulted from chemical production effluents or chemical use. Example of past research projects are studies of impacts of the industrial areas known as the Vaal Triangle and the Vaalharts irrigation schemes on the highly salinated and polluted Vaal River System and groundwater respectively. There are recent publications on pesticides and persistent organic pollutants (POPs) found in water bodies.

Further information can be obtained from the website www.wrc.org.za

6.1.5 Institute of Water Management (IWR)

The Institute for Water Research (IWR) is based at the Rhodes University in Grahamstown.

Objectives

The objectives of the IWR are to contribute to the knowledge of and promote the understanding and wise use of natural water resources in southern Africa.

These objectives are achieved in a number of ways:

- Research into the structure, function and components of natural water systems
- Contract projects aimed at solving specific water-related problems
- Teaching at all levels within Rhodes University
- Dissemination of information by written articles and public lectures
- Service on research and management committees outside Rhodes University
- Capacity building and community education for the water sector

Expertise

The IWR has a unique blend of skills in water research, covering a wide range of physical, hydrological, chemical and biological aspects of water. The particular specialities of the Institute are:

- Hydrological
 - Hydrological and hydrosalinity process research
 - Applied hydrological estimation
 - Development of hydrological models and estimation techniques
 - Hydrological instrumentation and network design
 - Fluvial geomorphology
- Ecotoxicological
 - Biological and chemical water quality assessment
 - Biomonitoring
- Ecological

- River ecology
- Invertebrate biology
- Instream flow needs of rivers
- Ecological effects of river regulation
- Conservation assessment
- Assessment of development impacts on rivers
- Assessment and rehabilitation of wetlands
- Community development and land-use
- Environmental education for non-professionals and non-scientists
- Civic responsibility and revenue collection
- Water conservation strategies and water awareness

Collaboration

The IWR collaborates regularly in joint ventures with a number of other departments and research institutes at Rhodes University. In addition the Institute staff are actively involved in joint research ventures with similar institutions at other South African Universities.

The institute also collaborates with staff at Watertek, CSIR and the Department of Water Affairs and Forestry. Further afield, the Institute has been involved with collaborative projects with scientists from Botswana, Lesotho, Tanzania and Mozambique.

Future Goals

The IWR is well placed to undertake research, which is relevant to the needs of their immediate community - Grahamstown and the Eastern Province region. They are also in a position to make their expertise available further afield both in South, and southern Africa.

(a) Centre for Aquatic Toxicology (CAT-IWR)

Specifically relevant to the management of impacts from chemicals is the work of the Centre for Aquatic Toxicology (CAT-IWR), which contributes to the Institute for Water Research's objective specifically through:

- research into the effects of toxicants on aquatic biota and ecosystems
- consulting services offered to solve specific problems: using toxicology and ecotoxicology, and their application in ecological risk assessment
- training and teaching at a tertiary level, including the provision of certificated training courses in aquatic toxicology
- contributions to national policy development and implementation - putting aquatic toxicology to work

Framework for CAT

With the new Water Act (No 36 of 1998), South Africa is poised to join the developed world in its use of aquatic toxicology as a valuable water resource management tool. Given the scarcity and strategic importance of water - and the fact that deteriorating water quality threatens the use of even the water we have - efficient water resource management approaches are essential.

The IWR believes that South Africa now has the policy, the legal framework, and the technical expertise to enable the use of aquatic toxicology, particularly in the context of ecological risk assessment. However the country critically need to develop capacity, so that the managing authority in South Africa (the Department of Water Affairs and Forestry) can set regulatory measures that depend on this technology, and so that industries (which both abstract water, and dispose of effluents) have a pool of technically trained personnel on which to draw to meet the regulatory requirements.

CAT-IWR aims to meet these needs by undertaking research, and contract applications of the methodologies, as well as offering tertiary training and certificated short courses. The institute offers training and capacity building, as well as technical expertise in the field of aquatic toxicology, and its application in ecological risk assessment.

Projects

The list of current or recently completed projects includes:

- site-specific guideline for chlorine downstream of sewage disposal in KwaZulu-Natal
- site-specific guidelines for salinity in a number of South African rivers.
- metal-speciation and toxicity
- whole effluent toxicity testing
- textile effluent (Eastern Cape)
- pulp and paper effluent (Mpumalanga)
- various effluents - Vaal River
- petro-chemical effluents (Gauteng)
- development of an Ecological Risk Assessment methodology for water resource management

Protocols and Methods

The mentioned projects have led to the development of:

- a Protocol for Acute Toxicity Testing of single substances, using selected riverine invertebrates, in Artificial Stream Systems
- the development of a method for applying toxicity results in ecological Reserve determinations for water quality
- the application of toxicity results in the derivation of a new national salinity effluent standard
- an outline of draft Guidelines for WET testing

Additional information can be obtained from www.ru.ac.za/institutes/iwr.

6.1.6 Agricultural Research Council (ARC)

Global agricultural research has long been associated with higher production and most recently with more environmentally sensitive farming practices. The impact of Agricultural Research Council (ARC) research extends far beyond farming and food. In South Africa where use of fertilisers and pesticides have already impacted significantly on resources, research to assess these impacts and to derive best agricultural practices is essential to ensure sustainability of the agricultural industry and protect the environment. The ARC plays an important role in this regard.

The ARC was established in 1992. Its research provides solutions to a wide range of problems related to agriculture – problems requiring long-term commitment of resources or those problems unlikely to have solutions with quick commercial pay-off that would tempt private industry to do the research. These problems range from the ongoing battle to protect crops and livestock against costly pests and diseases to improving quality and safety of agricultural commodities and products, making the best use of agricultural natural resources and ensuring profitability for producers and processors, while keeping costs down for consumers and minimise the environmental impact of the farming practices.

To respond to these challenges and develop solutions, scientists need to carry out basic, applied and development research.

Mission

ARC has the mission "to promote the agricultural and related sectors through research, technology development and transfer in order to:

- Enhance the natural resource base and environment
- Sustain a competitive agricultural economy
- Provide new economic opportunities
- Ensure high quality and safe food
- Support an informed society
- and encourage the national growth and development of South Africa"

Programmes

The ARC programmes are:

- National Support Services
- Horticultural Crops
- Grain and Industrial Crops
- Livestock
- Sustainable rural livelihoods

The goal of the National Support Services, as detailed in Box 6.5, focuses on:

- Natural resource use and management
- Quality of life
- Competitiveness
- Informed Society

Box 6.5

Goals of the ARC National Support Services

Source: <http://www.arc.agric.za>

1. NATURAL RESOURCE USE AND MANAGEMENT

1.1 Natural Resources Inventorisation

Qualitative and quantitative description of the natural resources of South Africa as affecting agriculture and the natural environment. This involves soil, water, climate and biotic resources information required.

1.2 Natural Resources Condition

Natural resources condition is subject to change due to external influences including global change factors and utilisation practices. Monitoring and the identification of change factors are necessary for timely corrective or adaptive action

1.3 Natural Resources Use and Management

The maintenance of the productive potential of agro-ecosystems and the integrity of natural ecosystems requires that sustainable integrated research-based use, management and conservation systems be developed and implemented in support of Government policies and programmes

2. QUALITY OF LIFE

- 2.1 Realisation of the potential of natural resources through sustainable utilisation systems
- 2.2 Conservation of natural ecosystems through their protection against agriculture related impacts and biological threats
- 2.3. Development of renewable energy
- 2.4 Crime prevention
- 2.5 Protection of human health
- 2.6 Assurance of national and household food security

3. COMPETITIVENESS

- 3.1 Prevention of artificial barriers to exports based on sanitary and phytosanitary considerations
Export markets increasingly demand products produced in environmentally compatible systems and not posing a phytosanitary threat to own production systems
- 3.2 Protection of local industries against the impacts of exotic invasive species
- 3.3 Identification of alternative products and production systems
- 3.4 Realisation of the natural resource potential of underdeveloped areas
- 3.5 Effective reduction/elimination of natural risks

4. INFORMED SOCIETY

4.1 Natural resources information systems

In order to be available to and utilisable by Government agencies, public entities, private organisations and individuals, natural resource information should be packaged for multiple usage and disseminated by means of appropriate communication media, electronic networks, training programmes and extension systems

1.1 Balance Agriculture and the Environment

Promote the sustainable use of natural resources in agriculture, ensuring the resources are used within their capacity for renewal, maintaining and enhancing the ecological integrity of natural systems, and minimising or avoiding risks that will lead to irreversible damage.

1.1.4 Pollution and Natural Resources

Develop strategies aimed at amelioration and prevention of pollution and degradation of natural resources.

1.2 Risk Management

Promoting, through research and technology transfer, technologies and practices which serve to reduce risk to farm incomes.

1.2.1 Environmental and Economic Risks

Reduce economic and environmental risks through improved management of agricultural production systems.

1.3 Safe and Sustainable Production and Processing

Improve the safe production, processing, and adding of value to South Africa's agricultural resources using methods to maintain the balance between yield and environmental soundness.

1.3.1 Environmentally Safe Management

Develop environmentally safe management to prevent or control pests (insects, weeds, pathogens, etc) in plants, animals and ecosystems and to prevent negative impacts of soil nutrient and ameliorant use.

1.3.3 Waste Management and Utilisation

Develop and transfer cost-effective technologies and systems to dispose and use agricultural, urban and industrial wastes for production of food, fibre and other products.

Box 6.6

About the ARC STRATEGIC PLAN 2000 – 2005

*Extracts of the ARC presentation at the Strategy Plan Workshop, 18 October 2000
<http://www.arc.agric>*

This strategic plan is an attempt to look into the future and to prepare for anticipated changes in the political, economic, environmental and technological spheres.

The ARC, just as all other major organisations, views strategic planning as an integral part of success!

Our farming communities are faced with challenges in this new era of global competitiveness, as well as the political, economic and social challenges that require technological progress and sound scientific management techniques. Forward looking technological and scientific advances must happen now to avoid problems that could crop up at a crucial phase in the future.

Using information gathered from earlier interactive processes, the following issues were identified as those that will affect agriculture and agricultural research in future:

- Government and political agenda
- Population/demographics
- Environmental
- Economic
- Sustainability of production systems
- International/global developments
- Education and information
- Technological advancement
- Food and health
- Consumer needs

In analysing the information gathered to date, the following major roles were identified for ARC in meeting the research needs of the agricultural sector:

- Provide leadership in setting the agricultural research agenda
- Carry out and support strong relevant science
- Focus on long term high risk research
- Grow agricultural production through scientific and technological inputs
- Address environmental issues, especially where agriculture has an impact
- Promote interdisciplinary team and systems approaches, both internally and in collaboration with other research partners
- Strengthen relationships with ARC partners
- Increase regional integration and cooperation in the SADC region
- Develop and strengthen institutional and human resources
- Educate and relate to consumers and other constituencies
- Transfer information and technology
- Develop information and decision support systems”

Technology Transfer

The ARC research results are communicated to other scientists, institutions, producers, product and process developers, consumers and other end-users through publications, conferences, workshops, consultations and cooperative agreements. Products, techniques and information generated from the ARC research must be transferred to customers of the RSA to maintain its global competitive edge in agriculture.

Technology Transfer happens through written information release, research and development partnerships with industry and government agencies and commercialisation initiatives achieved through cooperation.

(a) Plant Protection Research Institute (APR-PPRI)

Specifically relevant to management of chemicals is the work conducted on pesticides by the ARCs Plant Protection Research Institute. The ARC-PPRI provides solutions to agricultural and environmental problems through research aimed at the promotion of economic and environmentally-acceptable procedures to manage pests, diseases and invasive plants.

To this end ARC-PPRI maintains centres of expertise on biosystematics, the ecology and epidemiology of invertebrate pests, fungi, useful and phytopathogenic bacteria, plant viruses as well as integrated control strategies for pests, diseases and invasive plant species (weeds).

PPRI Expertise/Divisions

- Agricultural Biodiversity
- Biosystematics
- Conservation Technology
- Insect Ecology
- Plant Pathology and Microbiology
- Weeds Research

PPRI Fields of Expertise

ARC-PPRI has scientists of international standing and we can provide you with a wide range of applied research, products and services.

Research and development teams have years of experience in the following fields:

- Alien Invasive Plants (IPM)
- Beekeeping Research And Development Migrant Pests
- Beneficial Organisms Mite Expert Centre
- Biological Control Pesticide Application And Analyses
- Biological Diversity Pest And Parasitic Organisms
- Biosystematics Plant Diseases
- Bioprospecting Pollinators
- Database on Resistance To Pesticides
- Diagnostic Techniques Soil Biology
- Electron Microscopy Stored Products
- Environmental Impact Assessment Sustainable Agriculture
- Forensic Entomology

PPRI Services

The ARC-PPRI strives to render comprehensive services and products in support of agricultural and natural resource management in southern Africa and further afield.

Services are based on long-term research of economically, agriculturally and environmentally important groups of organisms and their control. These include services such as comprehensive specimen identification, supplying of biological information, diagnostic and analytical services, feasibility studies and courses on various topics. Expertise is available to provide consulting services, multidisciplinary contract research and training in various fields of expertise.

PPRI Divisions

- Biosystematics - Arachnida (Spiders, Mites), Fungi, Insects and Nematodes and their control (including pesticides)
- Insect Ecology – Locust research, Termite research
- Weeds Research – includes:
 - Testing herbicides (mainly for registration purposes) for control of alien invasive plants
 - Developing environmentally safe application methods for chemicals
 - Designing integrated management plans for specific problem plant situations, including the rehabilitation of cleared land to prevent re-infestation and, where possible, utilisation to defray control costs
 - Providing training courses on the identification and control of invasive plants.

Box 6.7

Plant Protection Research Institute Specimen Archives

<http://www.arc.agric>

Archives

The National Collections of Insects, Arachnids, Nematodes and Fungi are among the largest and most well established collection-based institutions of their kind in South Africa. They were established within government agricultural departments at different times between 1905 and 1965 in response to pressing needs for biosystematic information on organisms associated with agriculture and forestry.

They became part of the Plant Protection Research Institute (PPRI) when it was established in 1962 through the amalgamation of the then Divisions of Entomology and Plant Pathology of the old Department of Agriculture. Finally, the four collections, which resorted under different divisions in PPRI, were consolidated into the Biosystematics Division within the Institute with the founding of the Agricultural Research Council in 1992.

As one of the most comprehensive archives of the region's biological diversity of arthropods, nematodes and fungi, the specimen collections and associated biological reference sources of the Division form an irreplaceable national asset and an invaluable research tool for scientists working in the fields of agricultural and natural resource management in southern Africa and further afield.

As an internationally recognised depository for scientific reference material, the collections are particularly rich in type specimens, as well as voucher material pertaining to both present and past applied agricultural research in South Africa. Of equal significance are the Division's substantial taxonomic and biological reference sources of literature, catalogues and specimen label data.

Research

Through the development of these biological reference sources, and its research on economically and environmentally important groups of organisms, the ARC's Biosystematics Division strives to render comprehensive biosystematic services in support of applied entomology, arachnology, nematology and mycology.

The Division is also dedicated to building biosystematic capacity in southern Africa. To this end, the Division functions as the Network Coordinating Institute of Safrinet, a SADC government owned knowledge network that functions under the ambit of BioNET-International.

The Division's biosystematic support services are essentially based on its long-term taxonomic research on economically important groups of organisms, with the emphasis on the faunas and mycota of the southern African sub-region.

At the National Collection of Insects, the study of pollinators, phytophagous pests and natural enemies of insects and invasive plants has been the focus for many years. Groups presently under scrutiny include parasitic wasps, solitary bees, termites, weevils and leaf-eating beetles, fruit flies, certain families of Neuroptera, and hemipterous insects such as scale insects, aphids and leafhoppers.

The research emphasis at the National Collection of Arachnids is on phytophagous and predacious mites, and on various spider families, especially those that are of importance as predators in agro-ecosystems.

The National Collection of Nematodes is primarily concerned with the study of plant parasitic nematode groups, such as cyst, root knot, dagger, stubby and lesion nematodes.

The research focus at the National Collection of Fungi is on groups of phytopathogenic and entomopathogenic fungi. Groups presently under investigation include hypho-, coelo- and ascomycetous pathogens of agricultural crops, wood-rotting fungi, Agaricales, rust fungi, and the Mucorales.

In addition to the Division's research endeavours in the field of pure taxonomy, it is becoming increasingly involved in multidisciplinary contract research that requires biosystematic skills and expertise. Recent contributions include inputs in the fields of forensic entomology, biological control of invasive insects and invasive plants, fungal pathogenicity, virus vector research and environmental impact assessment.

In accordance with international trends and its obligations to the Convention on Biological Diversity, the Division has embarked on a long-term strategy to computerise its holdings, thereby making its vast reference sources more readily accessible to the global community. To this end, several database projects have been implemented during the past few years, with a considerable amount of invaluable collection-based information already being accessible in electronic form.

Further information can be accessed through the website www.arc.agric.za.

6.1.7 Council for Mineral Technology (Mintek)

Mintek is one of the world's leading technology providers specialising in mineral processing, extractive metallurgy, and related fields. Working closely with industry and other research organisations, Mintek offers R&D expertise, service testwork, equipment, and novel process technologies for the precious metals, base metals, ferro-alloys, and industrial minerals sectors world-wide. Mintek's history dates back to 1934 with the establishment of the then Minerals Research Laboratory.

South Africa depends more on mineral resources than any other major trading nation. The minerals industry accounts for half of the country's total exports. It directly employs three-quarters of a million people, and indirectly supports between five and ten times that number.

The diversity and size of its mineral deposits have placed this country in a unique position as a supplier of mineral commodities. South Africa is the world's leading exporter of gold, platinum- group metals, chromium and manganese ferro-alloys, and vanadium, and is a major supplier of diamonds, titanium minerals, coal, andalusite, and other important products.

Mintek's aim is to enable the minerals industry to operate more effectively, by developing and making available the most appropriate and cost-effective technology. Mintek is engaged in the full spectrum of minerals research, from the mineralogical examination of ores to the development of extraction and refining technologies, the manufacture of end products, and feasibility and economic studies. Many of these technologies involved the use of chemicals. Much of this work is carried out in close liaison with the minerals and metallurgical industries, both locally and internationally.

Structure and Funding

In terms of the Mineral Technology Act, Mintek reports directly to the Minister of Minerals and Energy. Mintek's Board consists of a Chairman, who is appointed by the Minister, Mintek's CEO, and not fewer than six (but no more than nine) other members.

All Board members must be people who have achieved distinction in science, engineering, or industry, or who have special knowledge or experience relating to Mintek's functions and objectives.

Funding

Mintek's total annual budget is currently about R206 million (US \$17 million). The State contributes approximately 37% of this amount (R77 million), and the balance is made up of income from R&D contracts with industry, consulting investigations and joint ventures, and the marketing of Mintek's technological products.

Research and Development Projects

About half of Mintek's R&D is initiated from within the organisation, in anticipation of the longer-term opportunities and the needs of industry. Mintek also has a responsibility to provide direct assistance to industry by:

- optimising processes used in industry
- providing solutions to short-term problems in industry
- providing quality metallurgical, analytical, mineralogical, and other services
- undertaking limited R&D work on request, or when opportunities are presented.

Technical Programmes

Mintek's R&D activities are organised under the following technical programmes, which reflect the basic structure of South Africa's minerals industry:

- Gold industry
- Platinum-group metals
- Ferrous metals
- Non-ferrous metals
- Industrial minerals

Mintek's Technical Divisions

- Analytical Science
- Biotechnology - Mintek provides bioleaching technologies and process design for refractory gold and base-metal sulphide ores and concentrates.
- Extractive Metallurgy - Special strengths include the design and optimisation of milling and flotation circuits, gold process development, PGM recovery, and modern hydrometallurgical techniques such as solvent extraction, ion exchange, and electrowinning.
- Measurement and Control
- Mineralogy
- Physical Metallurgy
- Pyrometallurgy
- Techno-economics

Education and Training Support

Mintek's programmes in education, training, and opportunity enhancement are aimed at encouraging the pursuit of scientific and engineering knowledge at all levels, from pre-matric to postgraduate. Mintek currently supports more than 100 undergraduate and postgraduate students with bursaries at university and technikon.

Information Services

Mintek's Library houses the largest collection of resources in South Africa on minerals processing, extractive metallurgy, and related topics. As well as supporting Mintek's activities, the Library provides services to corporate and individual members. An online database is available to library members.

Additional information can be found on www.mintek.ac.za

6.1.8 Institute of Waste Management of Southern Africa

The Institute of Waste Management is a non-aligned body committed to protecting the environment and people of Southern Africa from adverse effects of poor waste management. It does this by promoting environmentally acceptable, cost effective waste management and by promoting the science and practice of professional waste management.

Further information can be obtained on www.iwmsa.co.za.

6.2 Universities and Training Centres

South Africa has 22 universities and 13 technikons as well as a number of other higher education institutions that offer a wide range of courses, modules and qualifications that have some relevance to managing chemicals. UNISA is the largest university in South Africa and one of the largest distance education institutions in the world. A list of all South African universities and links to their websites is provided in http://www.gov.za/sa_overview/sa_webs.htm.

Relevant courses include:

- Chemistry
- Chemical Engineering
- Environmental Science
- Environmental Law
- Occupational Health and Safety (Nurses and Hygienists)
- Toxicology

Certain universities have research centres or groups that research fields that are of relevance to the management of chemicals. Some of these have been included in the previous section.

6.2.1 Institute of Applied Materials

The Institute of Applied Materials is an interdisciplinary materials research group at the University of Pretoria with participation from Departments of Physics, Chemistry, Chemical Engineering and Materials Science and Metallurgical Engineering.

Research Focus Areas

Presently research focus areas are:

- Polymer additives
- Functional Inorganic systems & ceramics
- Nuclear grade carbon from coal

Research Sponsorships

Sponsorship is industrial with support from the National Research Foundation (NRF) and through the THRIP programme (see Chapter 9, Section 9.4.).

Additional information can be obtained from the Internet using the address www.up.ac.za/academic/chem/inst_mat.htm.

6.2.2 Pollution Research Group (PRG)

Since its formation in 1970, the Pollution Research Group (PRG) has formed an integral part of the activities of the School of Chemical Engineering at the University of Natal. The group undertakes contract research and supervision of postgraduate students in a number of fields, including Cleaner Production, Wastewater Treatment and Computational Fluid Dynamics.

The Group's mission is to promote the effective use of water through research, education and development. The Group is dedicated to the application of chemical engineering principles in the solution of environmental problems. The mainstay of their research has been directed at water and wastewater management. Special emphasis has been given to industrial effluents, clean technologies, waste minimisation, closed loop recycling and treatment of organic contaminants using sonochemistry. This has led to expertise in separation technologies and especially the application of membrane techniques. Research is conducted on the following topics:

Research Topics

- Waste Minimisation
- Granular Media Filtration in Drinking Water Treatment
- The Anaerobic Baffled Reactor (ABR)
- Life Cycle Assessment (LCA)
- Co-Digestion of Industrial Effluents in Anaerobic Digesters
- The Score System - A Cleaner Production Tool

Further information can be found on www.nu.ac.za/departments/default.asp?dept=prgund.

6.2.3 Basel Convention Regional Centre

Information pertaining to the establishment and objectives of the Basel Convention can be found in Chapter 4, Section 4.5.3.

Background to the Establishment of the Centre

Since one of the objectives of the Basel Convention is to promote capacity building in hazardous waste management, particularly in developing countries of the world, the Secretariat of the Basel Convention is currently promoting the establishment of Basel Convention Regional Centers (BCRCs) in specified regions. The role of these centres is to promote capacity building in hazardous waste management through training and technology transfer activities.

On the basis of an initial feasibility study carried out in May 1997, it was decided to establish a BCRC in Pretoria hosted by Vista University. The South African Government, in collaboration with the Danish aid agency, Danida, and in full cooperation with the Basel Convention Secretariat (SBC) launched a 4-year programme valued at DKK 24.2 million to support establishment of a centre based at Vista University in Pretoria. The region to be served comprises all English-speaking African countries. The process of establishing the centre was initiated in March 2000.

Interim Board

An interim Board of Directors has been mandated by English Speaking African Countries to oversee establishment of the Centre until it assumes a legal status. Members are derived from Zambia, South Africa, Tanzania, Nigeria, Uganda, Danida, SBC, Vista University in South Africa, and the Department of Environmental Affairs and Tourism, South Africa (DEAT).

Functions of the Basel Convention Regional Centre

The core functions of the Centre will fall under the following five areas namely:

1. Training
2. Technology Transfer
3. Information
4. Consulting
5. Awareness

The details on these core functions are as follows:

- (a) Develop and conduct training programmes, workshops, seminars and associated projects in the field of the environmentally sound management of hazardous wastes, transfer of environmentally sound technology and minimisation of the generation of hazardous wastes with specific emphasis on training the trainers;
- (b) Identify, develop and strengthen mechanisms for the transfer of technology in the field of the environmentally sound management of hazardous wastes or their minimisation in the Region;
- (c) Gather, assess and disseminate information in the field of hazardous wastes and other wastes to Parties of the Region and to the Secretariat;
- (d) Collect information on new or proven environmentally sound technologies and know-how relating to environmentally sound management and minimisation of the generation of hazardous wastes and other wastes and disseminating these Parties of the Region at their request;
- (e) Establish and maintain regular exchange of information relevant to the provisions of the Basel Convention, and networking at the national and regional levels;
- (f) Organise meetings, symposiums and missions in the field, useful for carrying out these objectives in the Region/Sub-Region
- (g) Provide assistance and advice to the Parties of the Region at their request, on matters relevant to the environmentally sound management or minimisation of hazardous and other wastes, the implementation of the provisions of the Basel Convention and other related matters;
- (h) Promote public awareness;
- (i) Encourage the best approaches, practices and methodologies for the environmentally sound management and minimisation of the generation of hazardous wastes and other wastes, e.g. through case studies and pilot projects;
- (j) Cooperate with the United Nations and its bodies, in particular UNEP and the Specialised Agencies, and with other relevant intergovernmental organisations, industry and non-governmental organisations, and, where appropriate, with any other institution, in order to coordinate activities and

- develop and implement joint projects related to the provisions of the Basel Convention;
- (k) Develop, within the general financial strategy approved by the Parties, the Centres' own strategy for financial sustainability;
 - (l) Cooperate in mobilising human, financial and material means in order to meet the urgent needs at the request of the Party (ies) of the Region faced with incidents or accidents which cannot be solved with the means of the individual Party(ies) concerned;
 - (m) Performing any other functions assigned to it by the decisions of the Conference of the Parties of the Basel Convention or by the Parties of the Region, consistent with such decisions.

Linkage Institutions

As it is not possible for the Centre to become directly involved in the hazardous waste management activities of all countries, an initiative has been undertaken to appoint linkage institutions capable of developing and mobilising networks within each stakeholder country.

Two workshops have been undertaken by the Centre so far (November 2001 and March 2002) specifically to develop this approach. Each country's focal point was invited to nominate a linkage institution with the following specifications/qualities:

- Experience in training and technology transfer
- Knowledge of environmental issues
- Current involvement in waste/hazardous waste management
- Experience in interacting with government institutions and business
- Ability to initiate and develop new activities

The nominated Linkage institutions have varied ranging from Academic Institutions, NGOs and Industrial associations each with its own characteristics in how it engages with the focal point. Soon the Centre will be revisiting the above pilot approach with a view of widening the scope of coverage of potential institutions, which might not be necessarily included through the focal point led process.

Recent Training Activities

Some workshops and courses initiated by the Centre have been undertaken based on the Training and Technology Transfer Needs Assessment (TTTNA) which was undertaken in 16 countries in the African Region, between July and August 2001.

The course contents have been determined by the nature of the target group in question.

The purpose these training sessions covers both raising awareness on Hazardous waste issues and building the necessary capacity and linkages crucial for sustainable development.

Training has targeted policymakers, focal points and Government nominated linkage institution's personnel, middle management, specific groups the Private sector and NGOs.

Courses undertaken are as follows:

- Awareness seminars on HZWM for decision makers and senior Government officials (Regional Course)
- Training in HZWM for middle management officials (Regional Course)
- Training on Medical Waste management for Health officials (country specific course)
- Training on HZWM for Transport, Customs, Port officials and law enforcement officers. (Country specific)
- Training on Project management (Regional Course)

In 2003 the following courses are to be pursued:

- Commercial courses in the area of Medical waste, General waste Management, Legal and policy issues
- Training of Trainers in General Hazardous waste Management

6.2.4 Occupational and Environmental Health Research Unit (OEHRU)

Research projects relevant to hazardous chemicals management undertaken at the University of Cape Town to date includes:

Chemical Risks

- **Project 1:** investigated neurotoxin effects of low level manganese exposure in manganese smelter workers in Gauteng (SAMANCOR/MRC¹).
- **Project 2:** investigated nervous system effects of occupational manganese exposure on mineworkers or processing plant workers at two manganese mines in the Northern Cape Province, and identified a set of the most sensitive and practicable investigative tools for detecting early effects of manganese exposure in novice mineworkers (SAMANCOR/MRC).
- **Project 3:** investigated the long term exposure to DDT and reproductive endocrine disruption in a cohort of male malaria vector control workers in the Limpopo (Northern) Province of South Africa (Faculty of Health Sciences, UCT/MRC/Fogarty).
- **Project 4:** study on the long term effects of exposure to agrichemicals on women and children in the small-scale farming sector of KwaZulu Natal (MRC).
- **Project 5:** evaluated the adverse human health impacts of low level exposure to endocrine disrupting pesticides in rural water supplies in the Western Cape (MRC/WRC).
- **Project 6:** investigated whether exposure to organophosphates play a role in the causation of suicide amongst farm workers in the Western Cape by way of a mortuary based mortality study (SANPAD/MRC/WRC).
- **Project 7:** investigated whether exposure to organophosphates play a role in the causation of suicide amongst farm workers by a community health facility based cross-sectional study in the Western Cape (SANPAD/MRC/WRC).
- **Project 8:** investigated whether exposure to organophosphates play a role in the causation of suicide amongst farm workers by a community health facility based case-control study (SANPAD/MRC/WRC).
- **Project 9:** examined the health impacts of mancozeb exposure in agricultural workers.

¹ Project funders are listed in brackets.

- **Project 10:** investigated women and children's risk perception in relation to their pesticide exposure in KwaZulu Natal (MRC/ARC).
- **Project 11:** investigated pathways of pesticide exposure for women and children on commercial apple farms in the Western Cape Province (Fogarty International Centre/NIH)
- **Project 12:** characterised the extent of water pollution by pesticides in farming environments (WRC/MRC).

Management of Chemical Risks

- **Project 13:** follow up of environmental health officer pesticide surveillance in Worcester and compare with other regions to understand whether and how they have sustained better notification rates (Dept. of Health/WHO).
 - **Project 14:** developed a chemical hazard communication comprehensibility testing methodology for global utility and harmonization of hazardous chemicals for the International Labour Office (ILO).
 - **Project 15:** assessed the effectiveness, viability and appropriateness of pesticide labels, colour codes, and pictograms in communicating warnings, dangers and precautions to farm workers and small-scale farmers for making recommendations to enhance hazard communication within South Africa (MRC).
 - **Project 16:** foster practices that improve health and safety in relation to pesticides, particularly focusing on the most vulnerable groups, through the development of practical and simple tools (DANCED).
- Project 17:** strengthened national capacities in Zambia to undertake comprehensibility testing in the area of chemical hazard communication and GHS implementation and to implement the UCT designed chemical hazard communication comprehensibility testing methodology (UNITAR).
- **Project 18:** developing cost-effective methods for monitoring pesticide pollution in water systems: technologies and procedures for field use in rural areas (WRC).
 - **Project 19:** auditing unwanted pesticides and empty containers on farms in Stellenbosch with a view to designing a disposal policy and system (MRC).
 - **Project 20:** investigating public participation in environmental risk decision-making in South Africa and to identify lessons learned from the perspective of different stakeholders (UNITAR).
 - **Project 21:** developed pesticide health and safety posters, radio program, newsletter in 3 languages distributed to small-scale farmers, farm workers, Environmental Health Officers and agricultural extension officers (DANCED).
 - **Project 22:** undertaking national comprehensibility testing in the area of chemical hazard communication and GHS implementation by implementing the UCT designed chemical hazard communication comprehensibility testing methodology in South Africa (NEDLAC/UNITAR).
 - **Project 23:** evaluated the administration, policy and legal framework, health and safety mechanisms, and structures involved in South African pesticide safety, as well as informed legislative and policy reform (DANCED).
 - **Project 24:** run and moderate a Southern African pesticides list server which has broad membership from Africa, Europe and North America (no funding).
 - **Project 25:** evaluated the role of Environmental Health Officers in following up on notified pesticide poisoning cases (MRC/WHO).
 - **Project 26:** evaluating the health and environmental consequences of pesticide usage in South Africa and Tanzania (NIH)

6.3 Professional Organisations

6.3.1 South African Chemical Institute (SACI)

Background

The birth of the Institute in 1912 happened only 26 years after the discovery of gold on the Witwatersrand in 1886. The general infrastructure for the gold mining industry was very new and still developing. The chemist population was small throughout the country and training facilities were still being established. James Gray, who is reputed to have been the driving force behind the founding of the Institute, was born in Cape Town in 1882. After studying in Glasgow, he returned to South Africa, a qualified Associate of the Institute of Chemistry from the Glasgow Technical College in 1902. After realising that there was no way the public could distinguish the unqualified practitioner from the qualified he was instrumental in establishing the Association of Analytical Chemists.

Mission

SACI's mission is to promote the development and image of Chemistry in different ways, to advise on chemical education and other Chemistry related legislative matters and issues of public and environmental concern, to play a leading role in assuring the professional competence and integrity of chemists and to foster international collaboration as part of the African chemical community.

Members

In general membership is reserved for persons who have:

- Completed a four-year course in any branch of Chemistry and been granted a degree, diploma or certificate of a University, or other examining body approved by the Council, provided that the Council is satisfied that the candidate has received satisfactory training; and
- In addition has been engaged in full time chemical work or further study in Chemistry for at least three years.

A member (person or company) can also be elected if the Council is of the opinion that the election would be in the interest of the Institute.

Members can be expelled subject to an inquiry and Council decision.

Professional Conduct

Every member is required so to order his/her conduct as to uphold the dignity of the profession of Chemistry; and in whatever capacity he/she may be engaged, to act towards his/her clients, employers, others with whom his/her work is connected, and his/her fellow-members in a manner consistent with the Mission of the Institute.

Further information can be accessed through www.saci.co.za.

6.3.2 South African Institute of Chemical Engineers (SAIChE)

SAIChE advances chemical engineering as a discipline and as a profession, and serves the interests of its members and the community at large.

SAIChE represents chemical engineers on the engineering bodies (such as the Engineering Council of South Africa (ECSA)), and arranges courses and symposiums for continuing education of its members.

SAIChE is organised into branches, with each branch serving the needs of members in a specific geographical area.

Membership is, similar to that of SACI, reserved to people who have passed a four-year course in Chemical Engineering at an accredited institution and were involved in at least three years of Chemical Engineering Work. Once engineers meet these criteria they can apply for professional status through ECSA.

Additional information can be obtained from www.saiche.co.za.

6.3.3 South Africa Society of Occupational Medicine (SASOM)

Background

The S.A. Society of Occupational Medicine (SASOM) was formed in 1948 to further Occupational Medicine. It was significantly involved with the gold mining industry, and is subsequently playing a leading role in the pursuit of health and safety in industry in general.

SASOM is a professional Society and is a special interest group of the S.A. Medical Association (SAMA) with links to the World Medical Association.

SASOM has been affiliated with the International Commission on Occupational Health (ICOH) and its 27 Scientific Committees since its inception.

Its members (400) are registered medical practitioners who work part-time or full time in occupational health or who have an interest in this area of medical practice. For many years, SASOM has been advocating that occupational medicine be recognised as a speciality.

SASOM entered a new developmental phase at the beginning of 1995 with the opening of a permanent National Office in Centurion. The National Office now employs two staff members with full electronic mail capacity and various member support services.

Through its networking capability, SASOM provides support to a variety of specialist groups in the field of Occupational Health and Environmental Medicine.

Aims

SASOM vision is to promote, protect and enhance the health, quality of life and well-being of the working population of South Africa.

The society aims:

- To protect and promote the health of workers by preventing and controlling occupational diseases and accidents and by eliminating occupational factors and conditions hazardous to health.
- Development and promotion of healthy and safe work, work environments and work organisations. Enhancement of physical, mental and social well-being of workers and support for the development and maintenance of their working capacity, as well as professional and social development at work.

- Enablement of workers to conduct socially and economically productive lives and to contribute positively to sustainable development.
- To acquire accreditation of continuing professional development activities through the various Seminars/Workshops and the Occupational Health Southern Africa Journal (official journal of SASOM).
- To develop Occupational Medicine as a distinct and recognised multi-disciplinary activity.
- To contribute to national and international occupational health strategies and policies.

Objectives

SASOM's objectives are:

- To further all aspects of occupational health in South Africa
- To improve occupational health by means of continuing education
- To promote communication between the Society, Government, Business, Labour, the medical profession as well as the Public
- To promote rational legislation

Membership

Membership is reserved for registered medical practitioners and their organisations. There are different categories of membership, which include ordinary, associate, honorary and sustaining membership.

Corporate Membership of the Society is a category of membership specially designed for medical practitioner groups, company medical officers and healthcare organisations.

Scientific Committee Membership of the Society is open to all professionals and stakeholders in the field of Occupational Health and Environmental Medicine. The Scientific Committee functions act as the scientific base for discussion groups, mainly through electronic mail, minimal meetings and telephonic contact. There is no cost involved and the main function of the Scientific Committee is the updating and expanding of SASOM guidelines and knowledge.

Services

SASOM provides the following services to all membership categories

- National and international seminars, educational workshops and conferences
- Establishment of various scientific committees based on the ICOH scientific committees.
- Input on occupational health legislation
- Guardian for the ethical and medical standards of occupational medical practitioners.
- Expanding your knowledge and practices of members with occupational health guidelines.
- Networking with other practitioners, specialising in various fields nationwide and, through the SASOM national database.

- Bi-monthly accredited journal, Occupational Health Southern Africa, which is a joint venture of South African Society of Occupational Medicine (SASOM); South African Society of Occupational Health Nurses (SASOHN) and The Southern African Institute for Occupational Hygiene (SAIOH)
- Linked with the ASOSH Website, known as one of the top 50 websites internationally.

Additional information can be obtained from www.sasom.org.za.

6.3.4 South Africa Society of Occupational Nursing Practitioners (SASOHN)

Background

The South African Society of Occupational Health Nursing Practitioners (SASOHN) originated in the 1960's when a group of industrial nurses led by Mary E. Ahlers, established an Industrial Nurses Discussion Group in the Southern Transvaal (now Gauteng).

Initially based only in the rapidly expanding industrial sector; by 1970 this group included occupational nurses working in retail stores, transportation and other commercial sectors.

Similar groups were formed in Cape Town and Natal and at the time of the formal inception of the Professional Society of Occupational Health Nurses in 1980, there were eight regional professional societies active in the country. Currently there are 12 societies under the banner of SASOHN.

Strong regional representation is still a major feature of the organisation today.

In the 1980's, the Society focused particularly on training needs and successfully introduced, with the endorsement of the South African Nursing Council, a post basic certificate course in Occupational Health which was followed by the diploma course for Occupational Health Nurses. These developments signalled an advance for the growing professionalism of the occupational nursing practitioner, and resulted in the development of the B.Tech Occupational Health Nursing Degree at the Technikons.

Goals

The goals of the organisation are:

- The promotion of the highest possible standards in occupational health practice by encouraging accreditation and upgraded professional qualifications.
- The provision of a supportive network for occupational health practitioners working in a business environment and a forum for sharing problems and experiences.
- The development of professional capacity and excellence through the presentation of workshops, conferences and training projects including specific efforts to keep members abreast of changes in technology and legislation.
- The encouragement of the cost-effective delivery of quality occupational health services in the country.
- The promotion and adherence by organisations to the legal requirements set in terms of current and future South African and International legislation

Leadership

Leadership of the Society is characterised by professional expertise and dedication, particularly to the educational needs of the South African Occupational Health Nursing Practitioners.

Members

There are currently about 1 000 members of the Society. Membership is open to all Occupational Health Nursing Practitioners and includes indemnity cover and a subscription to the journal Occupational Health Southern Africa and official notices of the Society's general meetings.

The criteria for membership are:

- Registered Nursing Practitioner with a
- Post-basic qualification in Occupational Health
- Practising in the Occupational Health field.

Those with an interest/ employment in any other health arena are eligible as affiliated members.

Further information can be accessed from www.sasohn.org.za.

6.3.5 South African Institute for Occupational Hygiene (SAIOH)

Background

SAIOH was formed in 2000 as an amalgamation of the Occupational Hygiene Association of Southern Africa (OHASA) and the Institute of Occupational Hygienists of Southern Africa (IOHSA). SAIOH is a member of the International Occupational Hygiene Association (IOHA) the international voice of the occupational hygiene profession. IOHA is officially recognised as a non-governmental organisation (NGO) by both the International Labour Organization (ILO) and the World Health Organization (WHO).

Mission

The organisation aims are:

- Advance the discipline of Occupational Hygiene
- Promote the activities of the Institute
- Uphold and promote the interests and status of members
- The recognition of qualifications and/ or experience
- A commitment to strict ethical standards
- Opportunities for professional development

Members

Individuals practising occupational hygiene can join SAIOH as a member or as a registered member in one of the following categories:

- Assistant
- Technologist
- Occupational Hygienist

Approved Inspection Authority (AIA)

To practice as an Approved Inspection Authority (AIA) for Occupational Hygiene in South Africa it is now a legal requirement to be registered as an Occupational Hygienist with SAIOH (formerly IOHSA) (1998 Department of Labour requirement).

Links

The SAIOH website provides a spectrum of useful links to information relevant dealing with occupational health and practising occupational hygiene including for chemicals:

- Analytical methods
- Measurement eg air sampling methods
- Occupational Exposure Limits (OELs) – from Department of Labour and Department of Minerals and Energy
- Biological Exposure Indices (BEIs) – from Department of Labour and international
- Risk Assessment Methodology
- General Chemical Information
- Material Safety Data Sheets (MSDS) and Labelling
- Emergency Response Emergency Response
- Mining
- Transport
- Asbestos Summit 1998

Additional information is available on www.saioh.org.

6.4 Industries and Industrial Associations

6.4.1 The Chemical and Allied Industries' Association (CAIA)

Background

CAIA was established in 1993, though its origins can be traced back to the Transvaal Chemical Manufacturers' Association (TCMA), which was formed over 50 years ago.

In 1994, CAIA launched Responsible Care in South Africa to respond to public concerns about the manufacture, storage, transport, use, and disposal of chemicals.

Goals

CAIA's primary goals are:

- to promote Responsible Care (see Chapter 4, Section 9.2) and to monitor its implementation,
- to earn public trust for the chemical industry,
- to improve the effectiveness of its advocacy initiatives with Government and NGOs,
- to support education initiatives in science, engineering and technology,

- to create maximum value for its member companies

By the end of 1999, CAIA had 180 members of whom 125 are signatories to Responsible Care. Membership is open to chemical manufacturers as well as to service providers such as storage companies, hauliers, and consultants.

CAIA operates through a board, comprised of the CEOs of a range of chemical companies, and three standing committees concerned with:

- Responsible Care,
- Trade and Industry,
- Technology and Education.

Day-to-day running of the Association is controlled by an Executive Director, who is assisted by a Director: Information and Education Resources, a Responsible Care Manager and four support staff.

Additional information can be accessed from www.mbendi.co.za/caia.

6.4.2 South African Petroleum Industry Association (SAPIA)

Background

The South African Petroleum Industry Association (SAPIA) was formed in July 1994 by six of South Africa's refining and marketing companies. The organisation was formed to represent the common interests of the petroleum refining and marketing industry in South Africa; and to promote understanding of the industry's contribution to economic and social progress with all stakeholders.

Members

Zenex Oil (Pty) Ltd, one of the founder companies, has since become a part of Engen Petroleum Ltd and is no longer a member. Sasol Ltd and TEPCO Petroleum (Pty) Ltd joined SAPIA during 2000. Mossgas (Pty) Ltd became a member of Sapia in 2001. With the formation of PetroSA (Pty) Ltd in 2002, PetroSA replaced Mossgas as member.

The present members are thus:

- BP Southern Africa (Pty) Ltd
- Caltex Oil (SA) (Pty) Ltd
- Engen Petroleum Ltd
- Shell South Africa (Pty) Ltd
- Total South Africa (Pty) Ltd
- Sasol Ltd
- PetroSA (Pty) Ltd

Mission and Main Objectives

SAPIA's mission is to do all it can to assist the industry to deliver petroleum products to the South African economy at world competitive prices. It is deeply aware of the need to make South Africa a competitive nation and of the role that liquid fuels availability and cost will play in achieving this target.

SAPIA seeks to achieve its mission by fostering amongst its members a desire to be a world class industry and by encouraging co-operation between them on matters of common concern without inhibiting competition.

SAPIA seeks to promote and encourage consultation among members, government and other organisations on matters of mutual and public interest such as health, safety and the protection of the environment.

SAPIA represents the petroleum industry in National and International forums and acts as a source of information on the industry as a whole.

6.4.3 Plastic Federation of South Africa

Over the past five to six years there has been a move to improve standards and quality in the Roto-Moulding industry and with this in mind, a group of moulders from various parts of the country and outside of South Africa have, along with the Plastic Federation of South Africa and major material suppliers, formed the Association of Roto-Moulders of South Africa in an effort to encourage a stronger relationship between the members and especially to promote Roto-Moulded products and the process in general.

"The code of ethics is accepted and signed for on an annual basis by each member and they are expected to conduct their business in the manner stated on that certificate of membership."

At this point in time we are members of the following organisations:

- Plastics Federation of South Africa (P.F.S.A)
- Plastics Converters Association of South Africa (P.C.A.S.A)
- Plastics Institute of South Africa (P.I.S.A)
- Association of Roto-Moulders of South Africa (A.R.M.S.A)

Further information can be obtained from the website www.bergroto.co.za/news.htm.

6.4.4 South African Paint Manufacturers Association (SAPMA)

Background and Members

The Association has been in existence for 60 years. Presently the Association's manufacturing members represent 75% of the volume of paints and coatings produced in South Africa. In addition the majority of companies supplying goods and services to the paint industry are Associate members of SAPMA. A highly valued and effective partnership exists between the two groups, with the common objective and commitment to promote the interests of the industry as a responsible supplier of products and services beneficial to the country.

Code of Conduct

The Code of Conduct, which is mandatory for members, reflects the value system to which all members have committed themselves. Besides for statements of ethics in dealing with customers and competitors when conducting business, of importance to managing environmental impacts of their products is that the Code states that the SAPMA members:

- recognise their responsibilities to their customers and the public and will serve them with integrity by providing products and services beneficial to them and by issuing only accurate and fair statements about our respective companies and products.
- will be lawful and environmentally responsible and will represent the Paint Industry in an efficient manner.
- commit themselves to lawful practices and environmental responsibility and to increasing the good reputation, efficiency and service capability of both our own organisations and the Industry as a whole.

Further information can be obtained from www.sapma.org.za.

6.4.5 National Institute for Explosives Technology (NIXT)

An Institute that fosters the interests of the commercial, arms manufacturing, military, mining, structural engineering, educational sectors as well as other organisations related to the South African explosives and related industries.

Background

In 1987 the explosives industry expressed a need for an organisation to further its interests. In March 1988 NIXT was founded and a Management Committee and a number of subcommittees elected. These committees addressed matters related to symposia, research and technical aspects, legislation, safety, environment and health, manufacture, users, training and other matters. The various sub-committees has since then been replaced by a single action committee, known as the Advisory Forum.

Communication on national and international levels was improved by staging workshops, lectures and also five international symposia. During the nineties the scaling down of sanctions and removal of barriers made global interaction much easier. In view of the many existing international symposia NIXT decided to rather concentrate on workshops directed at the needs of the South African industry in general, and its members in particular. Matters such as legislation and regulations, environmental issues, quality assurance, transport of explosives, research and development, tracking of vehicles, and other topics were addressed at regular intervals.

NIXT is now generally recognised by the explosives industry in South Africa and overseas. In 2000 it was elected as Associate Member of the International SAFEX organisation.

Aims

To express its mission, the Institute has a number of aims:

- To establish neutral platforms where members of industry may discuss common interests and problems and exchange opinions and ideas. These platforms may take the form of conferences, workshops, public lectures, or otherwise the normal meetings of the Institute;
- To disseminate information;
- To keep track with a changing community in order to ensure continued stability of the industry;
- To establish communication channels on national and international levels;
- To assist with the revision of regulations and legislature relevant to the industry;
- To promote activities aimed at safety, health and environment;
- To assist with training actions;
- To identify and acknowledge excellence in industry.

Operation

The affairs of the Institute are handled by a Management comprising five elected Members. An Advisory Forum resorting under the Management handles aspects related to the aims of the Institute. The infrastructure and general administration of the Institute is handled by a Secretary that is appointed on a part-time but permanent basis.

The Institute has Individual, Associate and Corporate Members representing a wide spectrum of the South African commercial and military industries, organisations and bodies rendering services tot the explosives industry. Interaction with its members and those on its extensive mailing list is largely effected through E-mails and its Website.

Membership

Apart from Individual Members, the Institute also has a number of Corporate and Associate Members representing a wide spectrum of the South African explosives and related industries, organisations and providers of services and goods.

Additional information can be obtained from www.nixt.co.za.

6.4.6 Electrical Supply Commission (ESKOM)

Today many South African households are not yet connected to an electricity supply network. As South Africa has only recently introduced piped supply of gas for limited application mainly in the industrial sector, households not linked to the electrical supply network rely on coal, paraffin, wood, handigas, petrol and diesel for their energy needs. The use of make-shift and inefficient appliances result in pollution problems, energy inefficiency, demand on limited resources (eg use of indigenous forests for wood supply) and human health problems (eg asthma due pollution from coal fires, high rate of paraffin poisoning amongst children).

South Africans would thus in many ways benefit from an increased number of households connected to the electrical supply network. Although most of South Africa's electricity is derived from burning coal, pollution from power stations can be more efficiently controlled.

Eskom is one of Africa's largest electricity producers. Eskom's undertaking to electrify 1 750 000 homes by the end of the year 2000, was achieved in November 1999.

Background

The Government Gazette of 6 March 1923 announced the establishment of The Electricity Supply Commission (Eskom), under the Smuts government. The Commission was made responsible for establishing and maintaining electricity supply undertakings on a regional basis. Electricity was to be supplied efficiently, cheaply and abundantly to government departments, railways and harbours, local authorities and industry. The Commission met for the first time in March 1923 in Cape Town and its headquarters opened in Johannesburg on 1 May 1923.

At a National Electrification Forum (NELF), the recommendation that Government replace the Electricity Control Board with a National Electricity Regulator was adopted in 1994. The National Electricity Regulator was empowered to ensure the orderly, effective generation and distribution of electricity throughout South Africa. Eskom took over the distribution responsibility in a number of municipalities. It devoted attention to improving the quality of supply, metering and billing systems. More than 800 new households were being connected every working day.

Eskom Enterprises

In 1999, Eskom Enterprises was formed to focus on non-regulated business activities in South Africa and become involved in the energy and related services business internationally. In the spirit of President Thabo Mbeki's vision of an African Renaissance, Eskom aimed to improve the provision and supply of electricity in Africa.

Additional information can be accessed on www.eskom.co.za/heritage.

6.4.7 Metal Recyclers Association of South Africa

The Metal Recyclers Association of South Africa is an association of companies all involved in the recycling of metals.

They concern themselves with issues affecting the members of the organisation. This is mainly to do with aspects affecting trade and how the individual members can benefit each other as well as themselves.

Although trade issues are their main activity may be concerned with radioactive hazards. To ensure safety from this hazard, materials containing signs of radioactivity are stopped at source. This is following the guidelines of the National Nuclear Regulator. The association provides methodology, and recommends equipment to ensure that this occurs.

For more information, telephone 011 788 9587.

6.4.8 South African Battery Manufacturing Association (SABMA)

SABMA represents 85 percent of the battery manufacturers in South Africa. Their primary objective is to obtain standards of all aspects related to battery manufacture.

Their activities that are related to the management of chemicals are as follows:

- The elimination of uncollected scrap batteries by levying battery purchasers who do not return the scrap battery.
- Recycling as far as possible all components of spent batteries, those components that cannot be recycled are neutralised, made safe and disposed of properly.
- Evaluation of legislation related to concentrations of lead in ambient air in the workplace.
- Monitoring and reporting of lead in blood levels; comparison with international statistics and benchmarking.
- Lobbying the Department of Environment Affairs and Tourism to curtail the export of scrap lead, and enforce importers of batteries to follow SABMA's code of practice.

6.4.9 Aluminium Federation of Southern Africa (AFSA)

The Aluminium Federation of Southern Africa is an active industry association and has, since 1981, been involved in increasing the awareness and use of aluminium in Southern Africa.

It offers technical information and advice, education, training and skills upgrading, a range of publications and market industry and business development support as follows:

- Facilitating, growth initiatives both regionally and internationally.
- Promoting the awareness of aluminium, its application and promoting the aluminium industry with input from the industry role players.
- Assists and participates in knowledge transfers in the areas of generic technology, product development, and information and statistics.
- Facilitates and advises in areas of education and training at appropriate levels.
- Makes mandated representations for the industry on relevant matters.

For more information see www.afsa.co.za.

6.4.10 Cement & Concrete Institute (C&CI)

Background

The Cement and Concrete Institute (C&CI), based in Midrand, Gauteng, South Africa, was established in 1938 for the purpose of 'promoting the interests and general advancement of the portland cement and construction industries as a whole'. The organisations mission is to promote the usage of cementations materials to policy makers, specifiers and 'owners' and, at the same time, protect the use of these materials in existing markets.

Today, C&CI is a more focused organisation with its prime objective being to increase the market share of concrete in the building materials sector. The Institute is a

- Non-profit organisation
- Cement and concrete information provider
- Trainer and educator in concrete technology
- Promoter of the use of concrete
- Market development partner with the cement and concrete industries
- Provider of specialist concrete testing services

Objectives

C&CI's objectives are to:

- Increase the market share of concrete
- Influence, through collective action, the total volume of concrete-related construction and maintenance activity in selected sectors
- Ensure the quality of cement and concrete meets the economic, technical and environmental needs of the construction industry
- Support the cement industry and its products to encourage decision-makers and opinion-formers to build in concrete

C&CI achieve these objectives by:

- Issuing comprehensive information on cement and concrete through their library, publications and statistical services.
- Providing education and training in concrete technology and practice.
- Offering a range of specialist technical services to cultivate an awareness of quality of cement and concrete to meet the economic, technical and environmental needs of the construction industry.
- Supporting the promotion of concrete through membership of the Concrete Manufacturers' Association, and the Concrete Society of Southern Africa
- Providing support services for the South African Cement Producers' Association - an organisation that provides a forum for the cement industry to deal with industrial relations, health, safety and environmental matters, and government lobbying.

Additional information is available from www.cnci.org.za.

6.4.11 Pharmaceutical Manufacturers Association (PMA)

The PMA represents the interests of essentially the research-based multi-national pharmaceutical manufacturers located in South Africa.

The PMA is a trade organisation with 20 members who collectively represent more than 40% of the total value of the SA market

The Association is affiliated to the International Federation of Pharmaceutical Manufacturers Associations (IFPMA) to ensure a world-class service to its members.

Mission

“To create a favourable environment for the growth of the researched-based pharmaceutical industry in a socially responsible manner for the benefit of the South African Community”

Activities

The PMA's main focus is to influence policy developments affecting the health sector and negotiates with the government, notably the Department of Health and the Department of Trade and Industry, on behalf of its members regarding common matters.

Activities include the following:

- Regulatory issues regarding product registration and the conducting of clinical trials.
- Maintaining contact with opinion leaders and Government bodies, pharmaceutical and professional trade associations as well as commercial bodies e.g. SACOB, Business SA, Freemarket Foundation, IP Action Group etc.
- Keeping members abreast of current legal, labour, scientific, technical, economic and trade issues.
- Representing the industry regarding proposed amendments to the law and on changes or proposals that might have an impact on the industry.

- Medicine registration, packaging of medicines, patient information leaflets; bio-equivalence and stability, parallel imports; good Manufacturing practices and good clinical practices.
- The Association's Marketing Committee has been deeply involved with MCC and other stakeholders in compiling a new Code of Practice for the marketing of Medicines which will apply to all suppliers and distributors of medication in South Africa. This will replace the current PMA Code of Marketing Practice.

6.4.12 Agricultural and Veterinary Chemicals Association of South Africa (AVCASA)

AVCASA, a Section 21 company, was formed in 1958 by and for its members. It represents nearly all companies involved in the crop protection and animal health products industry in South Africa - regulated in terms of the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No 36 of 1947). The company is locally and internationally recognised as the mouthpiece of this sector. AVCASA is a full member of the Global Plant Science Federation (CropLife International) and the International Federation of Animal Health (IFAH). AVCASA actively promotes the image of the industry and the interests of its members - with due concern for human and animal health, and for the environment.

They are a recognised representative body of the crop protection and animal health products industry and associated industries in South Africa and a source of advice and comment on these industries, promoting the interests of a vital economic centre, with due consideration of human health, animal health, the environment and public opinion.

Activities

- Consulting and negotiating with government and non-governmental organisations, organised agriculture and the private sector.
- Making representations regarding relevant legislation and registration procedures on their behalf.
- Providing product sales and market statistics, registration and harmonisation.
- Providing guidelines on classification, labelling, responsible handling and storage of products, occupational hazards and personal protection, and disposal of waste and empty containers.
- Appointing specialist committees and working groups to attend to current issues and problem areas.
- Presenting training courses in crop protection, animal health and aerial crop spraying - granting accreditation to successful candidates.
- Issuing informative publications and posters, and sponsoring and participating in training, educational and community upliftment projects.
- Maintaining international liaison and sound media and public relations.
- Providing guidelines on safe storage and responsible use of crop protection and animal health products on the farm, stressing personal protection of farmer and workers.
- Offering training programmes for farm workers in product handling.
- Addressing commercial farmers via a regular newsletter - featuring issues and developments in the industry affecting farming practices.
- Focusing on the needs of emerging farmers.

For more information see www.avcasa.co.za

6.4.13 Responsible Container Management Association of Southern Africa (RCMASA)

Refer to Chapter 4, Section 4.9.2.

6.4.14 Fertiliser Society of South Africa (FSSA)

The FSSA represents the interests of the fertilizer and aglime industries in South Africa. Membership currently comprises of 14 companies, of which two are operating in Zimbabwe and are Zimbabwean owned.

The MISSION of the FSSA:

- Actively promotes the agro-economic and environmentally accountable fertilizer and aglime practices;
- Develops a positive public awareness and acceptance of the need for fertilizer and aglime use in food production;
- Improves the operating environment within which its constituent industries operate in a spirit of free enterprise and fair trade;
- Assimilates, adds value to and disseminates fertilizer and aglime related information;
- Provides a discussion forum for its members and other parties on all aspects relating to fertilizer and aglime distribution, agronomic advice and product quality.

MAIN ACTIVITIES

- Provide information about its constituent industries through conferences, symposia and workshops as well as published reports on fertilizer and aglime consumption and price trends (statistics), and dissemination of conference proceedings;
- Maintain and regularly revise the Fertilizer Society's *Fertilizer Handbook* and other FSSA publications relating to soil fertility enhancement and fertilizer guidelines;
- Continue liaison with governmental institutions, organised agriculture and research organisations on fertilizer and soil fertility related matters.

6.5 Chamber of Businesses / Commerce

South African Business is organised in a number of chambers and business organisations. These organisations play an active and important role in the South African economic, industrial and economic arena.

Certain Chambers have a keen interest in coercing members to apply best practices regarding environmental, safety and health impacts, often focussing on the long-term impact on the national and local business scenario. This is sometimes achieved by including environmental best practices as criteria for business awards.

One example of Business indirect involvement with the management of chemicals in the country is the involvement of Business South Africa, an umbrella body for 19 different employer organisations, in a recent tripartite initiative by the National Economic Development and Labour Council (Nedlac). The initiative concerns the formulating of a new occupational health and safety policy for the country for which Business South Africa represents business at large.

Business organisations include South African Chamber of Business (SACOB), Chamber of Mines, the Banking Council, the Steel, Engineering and Industries Federation of South Africa (SEIFSA), National African Federated Chamber of Commerce (NAFCOC), the Johannesburg Chamber of Commerce and Industry, the Durban Chamber of Commerce and Industries, to name but a view.

6.6 Trade Unions

Similar to the business South African Unions have played a significant role in the countries economic, political and industrial developments. With the workers often being the first to be exposed to chemicals through their involvement in chemicals handling and processing in the working environment it is important that their representatives play a key role in management of these substances both national and at the coal face.

It is thus important that Unions are actively involved with the shaping of legislative policies and mechanisms that manage chemicals to ensure that the rights and health of workers are adequately protected. The inclusion of representation from South Africa's three main labour federations, ie Cosatu, Fedasu and Nactu, in the abovementioned Nedlac initiative for the formulating of a new occupational health and safety policy, is encouraging.

South African Unions play a key role in providing information to workers and are often involved in education and training of workers. In this regard they contribute to aspects of worker awareness which is important in terms of protection against the hazards posed by certain chemicals. Acting as representatives of the workers the unions also play an important role that the case of the workers are brought across to industries and the government with regards to occupational health and safety issues.

Many South African Unions continue to grow in membership. Unions that are specifically involved in the chemical and related industries include the following:

- CEPPWAWU - Chemical, Energy, Paper, Printing, Wood and Allied Workers' Union
- SACWU - South African Chemical Workers Union
- SAAPAWU - South African Agricultural Plantation and Allied Workers Union
- SATAWU - South African Transport and Allied Workers Union
- NUM - National Union of Mineworkers
- MWU - Mine Workers Union
- NUMSA – National Union of Metal Workers of South Africa

6.7 Environmental and Consumer Organisations

6.7.1 Poison Working Group

6.7.1 Poison Working Group (PWG)

The PWG is a working group of the endangered wildlife trust, with the vision of a safe and healthy environment for all.

The Mission of The Poison Working Group

The poison working group aims to address the poisoning of wildlife through data assimilation, dissemination, analysis and investigation on a scientific and interactive basis, and to take appropriate pro-active education and conservation action for the protection of wildlife and people in Southern Africa. It has the goal to protect all elements of wildlife in Southern Africa against poisoning by irresponsible and insensitive practices involving agrochemicals and environmentally incompatible products.

The Aims of the Poison Working Group

Establish the group as the recognized authority on wildlife poisoning and agrochemical impacts on wildlife in Southern Africa

Minimize the negative impact of agrochemicals on all forms of wildlife and prevent the unnecessary and deliberate poisoning of wildlife in Southern Africa

Establish a culture of responsible agrochemical use, while supporting sustainable agricultural production in harmony with nature, for the benefit of all Southern African people

The Objectives of the Poison Working Group

The PWG maintains an information database with all relevant information on wildlife poisoning in Southern Africa. It provides a support and information system for poisoning incidents and creates general public awareness about the perils of agrochemical misuse

It provides professional advice on all aspects and promotes the principles of safe and responsible use of agrochemicals.

It promotes professional management of agrochemicals amongst manufacturers, distributors, agents, sales personnel and end users of agrochemicals, and creates and maintains a network of institutions and people that have an interest in wildlife poisoning

The PWG has programmes in the following areas.

- Farmer information programme
- Public information programme
- Poisoning incidents support and investigation programme
- National and international environmental issues programme

For more information see www.ewt.org.za/poisonworkinggroup/index.html

6.7.2 Environmental Justice Networking Forum (EJNF)

Background

Environmental Justice is about social transformation directed towards meeting basic human needs and enhancing our quality of life:

- Economic quality;

- Health care;
- Housing;
- Human rights;
- Environmental protection; and
- Democracy

In linking environmental and social justice issues the environmental justice approach seeks to challenge the abuse of power which results in poor people having to suffer the effects of environmental damage caused by the greed of others.

Objectives

The network is owned and directed by its participants. Its objective is to make network participants stronger and more successful in achieving their commonly desired environmental justice goals.

EJNF is an alliance of organisations that share a common set of values and social objectives include:

- Social Justice;
- Ecologically sustainable development;
- People before profits;
- Democratic and transparent governance;

Profile and Members

EJNF is a loose alliance and network of over 266 South African non-profit community-based and non-governmental organisations united to bring about environmental justice in the world. CBOs, NGOs trade unions, civics, youth, religious, women, rural and urban organisations are jointly promoting environmental justice through this organisation.

Additional information can be accessed through www.ejnf.org.za.

6.7.3 Earthlife Africa (ELA)

Background

Earthlife Africa is a Green organisation with a vision of the future, which they offer to people as a goal. This vision informs their work and provides an agenda as a proactive group.

It is useful to place a Green organisation such as ELA within the context of the broader environmental movement, which may be defined as a continuum of philosophies roughly divided into three perspectives:

- The first is that of orthodox conservationism, which sees conservation as simply the act of identifying that which needs protection, and affording it that protection, generally by separating it from whatever is seen as being the threat - conservationists may and often do argue that their actions are apolitical or above politics.
- Recognition that conservationism is socially naive may lead to an environmentalist position that attempts to accommodate what are perceived to be the needs of people and the needs of nature. In attempting to be

realistic environmentalists do not challenge the status quo of an economic and social system. Instead the environmentalist places faith in "proper management" as the solution to the global ecological crisis. The tools of environmentalism include impact assessments and cost-benefit analyses.

- The third phase in the continuum is the truly "Green" position. Greens do not ignore the concerns voiced by conservationists and environmentalists. Many of their concerns are our concerns; however, Greens recognise that ecological stress is a logical and inevitable consequence of the economic and social status quo. Greens believe that they are a part of nature and not above nature. They must therefore transform society socially and economically to develop new patterns of action which see them working from within their place in the natural system, rather than competing against it.

Statement of Belief

Earthlife Africa (ELA) was launched at a time of social upheaval and planetary devastation. They believe that humankind is responsible for this situation and that they have an accountability that extends beyond the present. ELA is a broad-based activist group with a shared commitment. They seek to understand the complex and interdependent relations between human beings and the environment.

Environmental Objective

In recognising that all are totally dependent on the biosphere's life support systems, ELA aim to promote the careful and sustainable interaction of humans and our environment.

Process of Achieving Objective

ELA does not subscribe to any political party or organisation, but understands environmental issues to be embedded in power relations. ELA seeks to stimulate environmental awareness, to create innovative methods of practical action and to forge links with like-minded groups. In looking for viable alternatives and solutions, ELA will promote attempts to understand and research the problems facing our universe.

6.7.4 Groundwork

Groundwork is a non-profit environmental justice service and developmental organisation working primarily in South Africa but increasingly in Southern Africa.

Groundwork seeks to improve the quality of life of the people in South Africa, through assisting civil society to have a greater impact on environmental governance. Groundwork places particular emphasis on assisting vulnerable and previously disadvantaged people who are most affected by environmental injustices.

Our six project areas for the next five years are:

- Air Quality
- Health care waste and incineration
- Industrial landfill waste
- Publications
- Community Campaign Fund
- Corporate Accountability.

For more information see www.groundwork.org.za.

6.7.5 Consumer Institute of South Africa (CISA)

The Consumer Institute of South Africa (CISA) strives to improve the welfare of all consumers and enable them to assert their consumer rights. Its purpose is to conduct impartial research and analysis into the law of consumer protection in the Republic of South Africa; the standards of goods and services available to consumers; ways in which the quality, safety and prices of such goods and services may be improved and maintained, and to disseminate the results of such research for the benefit of consumers.

In pursuit of its lobbying function CISA has made oral and written submissions to the National Assembly Portfolio Committees on Trade and Industry, on Finance and on Health dealing with the Competition Bill, National Home Builders Registration Council Bill, Long Term Insurance Act 52 of 1998, Short Term Insurance Act 53 of 1998, Open Democracy Bill, Harmful Business Practice Amendment Bill, the SASRIA Bill and the White Paper on the Transformation of the Health Service. These submissions were well received and led to changes in the envisaged legislation.

In order to assist its lobbying function and to raise consumer awareness CISA maintains a high media profile and spokespersons have appeared on radio and television talk shows addressing issues of product safety, food pricing, food labelling, interest rates, insurance regulation, bank charges, computer products and health issues. CISA maintains a good relationship with the print media and is often contacted for input on consumer issues. CISA also makes press releases available to coincide with the release of consumer reports to ensure that information to raise consumer awareness reaches a national audience.

CISA receives grant funding for its activities from individual patrons and international consumer organisations in support the following activities:

- Consumer Education
- Consumer Research
- Consumer Activism

Additional information can be obtained from home.global.co.za/~cfocus/frames.html.

6.8 Consultants

Consultants play an important role in terms of various aspects of managing chemicals. Specific roles are strengthened through legislative specifications to the effect that independent consultants are to be employed for certain functions, such as environmental impact assessment, determining occupational exposure risk to specified substances and conducting major hazardous installation risk assessment.

Consultants operating in the fields with relevance to chemicals management

- Occupational Hygienists
- Independent Environmental Consultants.
- Major Hazardous Installation Risk Assessors
- Toxicologists

6.9 Services and Suppliers

Chemicals services and other services related to chemicals are provided by numerous organisations such as:

- Suppliers of chemicals
- Storage facility operators
- Various recyclers (e.g. oil recyclers)
- Transporters
- Waste disposal service providers
- Laboratories and research institutions
- Health care service providers
- Occupational health service providers
- Environmental management consultancies (e.g remediation)
- Geotechnical services (e.g remediation)

iNFOSOURCE, Chemsources maintains a database for Chemical Service Providers, who enlist on the database on a voluntary basis, available at a cost from:

iNFOSOURCE
P.O. Box 12
Observatory
7935
Southern Africa

+27 21 tel 448 0541 fax 448 7155
e-mail ross@infosource.co.za
<http://www.infosource.co.za>

Objective

The overall objective of Danish environmental assistance is to promote increased efforts to combat global environmental problems. The objective of environmental assistance to developing countries is to support environmentally sustainable development as a follow-up to the UNCED Conference and to help improve the disastrous environmental situation in many developing countries. In this regard, DANCED aims to achieve its objectives through support to the following themes:

- Urban Environmental Management
- Holistic Waste and Pollution Management
- Sustainable Energy
- Integrated Natural Resource Management:
- Biological Diversity
- Forest and Wood Resources
- Water Resources

For the years 2000 - 2002 an annual budget of Rand 70 million has been allocated to support activities in South Africa.

6.10 Summary of Expertise Available Outside of Government

See Tables 6.A.1 – 3 below.

Table 6.A1: Summary of Expertise Available Outside Government Departments: Agricultural Chemicals

Field of Expertise	Research Institutes	Universities	Industry	Environment / Consumer Groups	Labour Unions	Professional Org.	National Standards Authority
Data Collection	ARC MRC WRC	IWR	AVCASA CAIA	ELA GW WESSA PWG			SABS
Testing of Chemicals	ARC		Companies				SABS
Risk Assessment	ARC MRC		Companies				SABS
Risk Reduction	ARC		AVCASA CAIA SAPIA				
Policy Analysis	ARC WRC		AVCASA CAIA SAPIA	ELA GW WESSA PWG			
Training and Education	NRF	IWR	AVCASA CAIA SAPIA	ELA GW WESSA PWG		SACI SAICH SASOM SASOHN	
Research on Alternatives	ARC		Companies				
Monitoring	ARC WRC	IWR	Companies		CEPPWAWU SACWU MWU		SABS
Enforcement							SABS
Information to Workers	ARC	UCT	Companies AVCASA CAIA SAPIA		CEPPWAWU SACWU MWU		
Information to Public	ARC	UCT	Companies AVCASA CAIA SAPIA	ELA GW WESSA PWG			
Waste Management	WRC		Companies AVCASA CAIA, SAPIA			IWM	

Table 6.A2: Summary of Expertise Available Outside Government Departments: Industrial Chemicals

Field of Expertise	Research Institutes	Universities	Industry	Environment / Consumer Groups	Labour Unions	Professional Org.	National Standards Authority
Data Collection	NRF CSIR WRC	IWR	AVCASA CAIA	ELA GW WESSA			SABS
Testing of Chemicals	NRF CSIR		Companies				SABS
Risk Assessment	CSIR WRC	IWR	Companies				SABS
Risk Reduction	NRF CSIR		AVCASA CAIA SAPIA	ELA GW WESSA			
Policy Analysis			AVCASA CAIA SAPIA	ELA GW WESSA			
Training and Education	NRF	IWR	AVCASA CAIA SAPIA	ELA GW WESSA		SACI SAICH SASOM SASOHN	
Research on Alternatives	NRF CSIR WRC		Companies				
Monitoring	CSIR WRC		Companies	ELA GW WESSA	CEPPWAWU SACWU MWU		SABS
Enforcement							SABS
Information to Workers			Companies AVCASA CAIA SAPIA		CEPPWAWU SACWU MWU		
Information to Public			Companies AVCASA CAIA SAPIA	ELA GW WESSA			
Waste Management	WRC		Companies AVCASA CAIA SAPIA	ELA GW WESSA		IWM	

Table 6.A3: Summary of Expertise Available Outside Government: Consumer Chemicals

Field of Expertise	Research Institutes	Universities	Industry	Environment / Consumer Groups	Labour Unions	Professional Org.	National Standards Authority
Data Collection			CAIA PMA NAPM SAPMA				
Testing of Chemicals							SABS
Risk Assessment			CAIA PMA NAPM SAPMA				SABS
Risk Reduction			CAIA PMA NAPM SAPMA				
Policy Analysis			CAIA PMA NAPM SAPMA				
Training and Education			CAIA PMA NAPM SAPMA				
Research on Alternatives							
Monitoring			CAIA PMA NAPM SAPMA				
Enforcement							SABS
Information to Workers			CAIA PMA NAPM SAPMA				
Information to Public			CAIA PMA NAPM SAPMA				
Other (specify)							

Table 6.A4: Summary of Expertise Available Outside Government: Chemicals in Transport

Field of Expertise	Research Institutes	Universities	Industry	Environment / Consumer Groups	Labour Unions	Professional Org.	National Authority
Data Collection			CAIA RFA SAPIA Companies				SAMSA
Testing of Chemicals							SABS
Risk Assessment			CAIA RFA SAPIA Companies				SAMSA
Risk Reduction			CAIA RFA SAPIA Companies				
Policy Analysis			CAIA RFA SAPIA Companies				
Training and Education			CAIA RFA SAPIA Companies				SAMSA
Research on Alternatives							
Monitoring			CAIA RFA SAPIA Companies				SAMSA
Enforcement							SABS
Information to Workers			CAIA RFA SAPIA Companies				
Information to Public			CAIA, RFA SAPIA Companies				
Clean-up			CAIA, RFA SAPIA Companies				SAMSA

6.11 General Comments

(a) Research

South Africa has a relatively large research fraternity that provides for research in numerous aspects of chemicals management. Research projects are initiated and funded by government and private organisations as well through funding from international interest groups.

A number of Research Units at Research Centres and Universities are well established and deal with topics that are relevant to chemicals management. These include the following:

- Food, Biology and Chemical Technologies (CSIR Business Unit)
- Manufacturing of Materials Technology (CSIR Business Unit)
- Water, Environment and Forestry Technology (CSIR Business Unit)
- Water Research Commission
- Medical Research Council
- Institute of Water Management (Rhodes University)
- Centre for Aquatic Toxicology
- Plant Protection Research Institute (ARC)
- Institute of Applied Material
- Pollution Research Group (University of Natal)
- Institute of Waste Management
- Basel Convention Regional Centre

(b) Training

South Africa has numerous universities and technikons as well as a number of higher education institutions that offer a wide range of courses, modules and qualifications relevant to chemicals management. Most of these offer a high level of education in keeping with international standards.

Industrial sectors also provide valuable in-house training to bursary holders and employees.

(c) Professional Organisations

South Africa hosts a number of well organised institutions that support, organise and structure professions like:

- Chemical Scientists
- Chemical Engineers
- Occupational Medicine fraternity
- Occupational Nursing Practitioners

- Occupation Hygienists

(d) Industrial Associations

Industrial associations fulfil an important role in addressing the common need of various industries. The following associations are established:

- The Chemical and Allied Industries' Association (CAIA)
- South African Petroleum Industry Association (SAPIA)
- Plastic Federation of South Africa
- South African Paint Manufacturers Association (SAPMA)
- National Institute for Explosives Technology (NIXT)
- Electrical Supply Commission (ESKOM)
- Metal Recyclers Association of South Africa
- South African Battery Manufacturing Association (SABMA)
- Aluminium Federation of South Africa (AFSA)
- Cement & Concrete Institute (C&CI)
- Pharmaceutical Manufacturers Association (PMA)
- Agricultural and Veterinary Chemicals Association of South Africa (AVCASA)
- Responsible Container Management Association of Southern Africa (RCMASA)
- Fertiliser Society of South Africa

(e) Business / Commerce

South African Business is organised in a number of chambers and business organisations. These organisations play an active and important role in the South African economic, industrial and economic arena.

(f) Trade Unions

The South African workforce is well represented by a number of trade unions whose membership bases continue to grow. South African Unions play a key role in providing information to workers and are often involved in the education and training of workers. Acting as representatives of the workers, the unions also play an important role in presenting the case of workers to industries and the government with regards to occupational health and safety issues.

(g) Environmental and Consumer Organisations

Collectively, there appear to be only a handful of local organisations dedicated to protecting the environmental and social rights of South African citizens, with particular emphasis on those from disadvantaged and impoverished backgrounds. Such organisations include:

- Poison Working Group
- Environmental Justice Networking Forum (EJNF)

- Earthlife Africa (ELA)
- Groundwork
- Consumer Institute of South Africa (CISA)

(h) Consultants

Consultants play an important role in terms of various aspects of managing chemicals. Specific roles are strengthened through legislative specifications to the effect that independent consultants are to be employed for certain functions, such as environmental impact assessment, determining occupational exposure risk to specified substances and conducting major hazardous installation risk assessment.

(i) Services and Suppliers

iNFOSOURCE, Chemsourc maintains a database for Chemical Service Providers, who pay a fee to enlist on the database on a voluntary basis.

(j) Supportive International Organisations

South African has recently received significant financial assistance from the Danish Ministry, through Danced, to assist in combating global environmental problems such as:

- Urban Environmental Management
- Holistic Waste and Pollution Management
- Sustainable Energy
- Integrated Natural Resource Management
- Biological Diversity
- Forestry and Wood Resources
- Water Resources

(k) Involvement Co-ordination

Despite the numerous organisations that exist in the country that have some involvement or relevance to managing chemicals, there is a lack of co-ordinating efforts to achieve common goals. It is important that non-governmental organisations are involved in the co-ordination and assist with the strategic planning of chemicals management, information sharing and analysis.

CHAPTER 7

COMMISSIONS AND COORDINATING MECHANISMS

The purpose of this Chapter is to describe mechanisms, which facilitate coordination and cooperation amongst departments, agencies and other relevant governmental, and non-government bodies in particular areas of chemicals management. It also serves to provide a basis for future analysis of the comprehensiveness and efficiencies of these mechanisms to manage chemicals in the country.

CHAPTER 7

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7 COMMISSIONS AND COORDINATING MECHANISMS

This chapter provides an overview of the inter-departmental and other governmental mechanisms as well as mechanism between governmental and non-governmental organisations that serve the purpose to facilitate coordination of South Africa's international and national responsibilities in managing of chemicals. The sources of information for this chapter included:

- Personal Interviews with representatives of key organisations (e.g. Government Departments, chemicals association like CAIA and the Agricultural and Veterinary Chemicals Association of South Africa (AVCASA))
- Feedback from the Stakeholder Workshop held on 26th June 2002, September 2004; and
- Department of Labour Environmental Management Plan, October 2001, prepared by the CSIR

Section 7.1, i.e. Table 7.A, provides a summary of these mechanisms. Statutory, inter-departmental, tripartite accords and NGO-driven mechanisms have been combined into one table. An increasing trend of establishing mechanisms that function on a tripartite basis is emerging. Further descriptions on the mechanisms are provided in Section 7.2.

7.1 Summary of Commissions and Coordinating Mechanisms

Table 7.A: Overview of Commissions and Coordinating Mechanisms

Acronym/ Short form	Name of Mechanism	Responsibilities	Secretariat	Members	Legislative Mandate / Objective	Comment on Effectiveness	Reference
CESMHM <i>(in the process of being established)</i>	Committee for Environmentally Sound Management of Hazardous Materials	Sound management of hazardous materials	DEAT	Relevant Departments	No information provided	Not yet implemented	7.2.1
	Cooperating Mechanism for Transport of Chemicals	Transport of chemicals	DOT	DOL	No information provided	No information provided	7.2.2
INDAC	Interdepartmental Advisory Committee for the Protection of Humans Against Poisonous Substances	Advisory service to Registrar of FFAS Act	NDA	Relevant Government Departments and Organs of State	FFAS Act	Not functional	7.2.3
Pesticide Board	Pesticide Control Service Industries Board	Considers pesticides for registration, controls training of pest control operator.	NDA	DOL	No information provided	No information provided	7.2.4
	Ministerial Locust Policy Committee for Managing the Locust Problem	Locust control	Nat Dept of Agriculture	Multisectoral	Agricultural Pests Act, 1983 (Act No 36 of 1983)	No information provided	
CDA	AVCASA Standing Liaison Committee Central Drug Authority	Liaison between Registrar of FFAS Act, AVCASA Implementation of the National Drug Master Plan of 1999	AVCASA DSD	NDA and Members of AVCASA Inter-sectoral	Information exchange between registrar and AVCASA No information provided	No information provided No information provided	 7.2.5

Acronym/ Short form	Name of Mechanism	Responsibilities	Secretariat	Members	Legislative Mandate / Objective	Comment on Effectiveness	Reference
Non-Proliferation Council	South African Council for the Non-Proliferation of Weapons of Mass Destruction & Committees	Prevention of the proliferation of weapons of mass destruction	State: Non-Proliferation Council	DTI	Non-Proliferation of Weapons of Mass Destruction Act	Functions well (Ref. Mr A Boetcher, DTI)	7.2.6
ACOHS	Advisory Council for Occupational Health and Safety	Advise on occupational health diseases and incidences for appropriate action to be taken by relevant department	ACOHS	Tripartite: <ul style="list-style-type: none"> • DOH, DOL, DME • Employer organisations • Trade unions 	OHS Act	No information provided	7.2.7
	Interdepartmental OHS Meetings	Coordination of workings and operations around OHS issues	DOL	DME	Coordination of workings and operations around OHS issues	No information provided	7.2.8
CEC	Committee for Environmental Coordination	Promote integration and coordination of environmental functions by the organs of state.	DEAT	Relevant national departments	NEMA	Functions reasonably well (Ref. DEAT)	7.2.9
IDMC	Interdepartmental Disaster Management Center	Establishment of a national disaster plan for the Department of Provincial and Local Government	Department of Provincial and Local Government	Relevant Departments	National Disaster Management Act	Major work on natural disasters than anthropogenic disasters	7.2.10
MINMEC	Ministers and MEC coordination committee	Final decision-making for certain environmental issues.	DEAT	Provincial MECs and DEAT senior managers	Non-statutory	Good decision making process for environmental management (Ref. B.	7.2.11

Acronym/ Short form	Name of Mechanism	Responsibilities	Secretariat	Members	Legislative Mandate / Objective	Comment on Effectiveness	Reference
						Mathebula)	
		Law Reform Program	DEAT			More extensive cooperation between departments is required. (Ref. B. Mathebula)	7.2.12
NEDLAC	National Economic Development and Labour Council	Seeking tripartite consensus on major economic, social and development policies	DOL	Tripartite: • DTI, FPW & others • Organised business • Organised Labour		No information provided	7.2.13
SA ICSU Secretariat	South African International Council of Science Secretariat	Promote international scientific research	NRF			No information provided	7.2.14
SAICM	Strategic Approach to International Chemicals Management	To manage chemicals safely using the lifecycle approach	DEAT	DoH, DoL, DTI, DoT, DEAT, Industry, civil society, NGOs	Its an international initiative	Effective as a national discussion forum, future implementation envisaged	7.2.15

Key:

- FFAS Act - Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, Act 36 of 1947
- OHS Act - Occupational Health and Safety Act, Act No 85 of 1993
- DEAT - Department of Environmental Affairs and Tourism
- DOL - Department of Labour
- DOH - Department of Health
- NDA - National Department of Agriculture
- DTI - Department of Trade and Industry
- DSD - Department of Social Services
- FPW - Finance and Public Works

7.2 Summary Description of Commissions and Coordinating Mechanisms

7.2.1 Committee for Environmentally Sound Management of Hazardous Materials (CESMHM)

DEAT is in a process of establishing the Committee for Environmentally Sound Management of Hazardous Materials (CESMHM).

7.2.2 Cooperative Mechanisms for Transport of Chemicals

Cooperative mechanisms have been set up between the Department of Transport (DOT) and the in particular with reference to the transport of chemicals and development of relevant regulations. Regulations for railways and rail transport will be developed by DOT, with assistance of the DOL.

A Memorandum of Agreement is also currently being developed between DOT and DOL to ensure no duplication of functions occurs and to clarify the roles of the two departments where discrepancies may occur as it pertains to the provisions of the Rail Safety Regulator.

7.2.3 Interdepartmental Advisory Committee for the Protection of Humans Against Poisonous Substances (INDAC)

The responsible party for this committee is the National Department of Agriculture (NDA). The other departments involved are the Department of Health (DOH), Department of Water Affairs and Forestry (DWAF), Department of Environmental Affairs and Tourism as well as The Agricultural Research Council.

The role of INDAC is to approve pesticide formulations before they are released for use in agriculture. INDAC makes recommendations to the Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947), who has been appointed by the Minister of Agriculture as administrator of this Act. Such recommendations are made in respect of:

- applications submitted for the registration of agricultural and stock remedies in respect of the Act;
- amendments to the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947) as the need may arise;
- sharing information on human, wildlife and domestic animal pesticide poisonings and other such incidences; and
- other matters relating to the protection of man and his environment against pollution by poisonous substances.

INDAC has been inactive for some time, and its role is presently being evaluated. INDAC is seen as an important forum for sharing information on poisonings and advising the Registrar at NDA and relevant Ministries on registration, control and prohibition of certain toxic chemicals.

7.2.4 Pesticides Control Service Industries Board

Administered by the NDA, the Pesticides Control Service Industries Board considers pesticides for registration and also controls training of pest control operators. The DOL has representation on the board and considers the pesticides from a workers health and safety perspective.

7.2.5 Central Drug Authority (CDA)

The Central Drug Authority is an entity that reports to the Minister of Social Development. Funds are transferred from the Department of Social Development to this entity on the basis of strategic plans approved by the Minister of Social Development.

Dr Zola Skweyiya, Minister of Social Development describes and outlines the role of the Authority as follows: "Addressing the challenging reality of drug abuse is part of our national project of reconstruction and development."

Comprehensive data on the reality of drug abuse in our country are hard to come by and there are significant region differences. Because of our history and globalisation, we have for some time now been experiencing a growing problem of substance abuse. In response to this situation the government in 1999 published a Drug Master Plan that set out our policies, define priorities and assigned responsibilities for various drug control efforts.

In line with this plan, a representative Central Drug Authority has been appointed to play a leadership role in the implementation of the National Drug Master Plan. A focus on the youth is a key feature of the plan and the Central Drug Authority will report to parliament on progress in this regard."

Additional information is available from the following resources:

- <http://www.welfare.gov.za/>
- <http://www.welfare.gov.za/Speeches%20Statements/2001/June/drugs.htm>,
Dr Zola Skweyiya, Minister of Social Development, "Addressing the Challenging Reality of Drug Abuse", A feature article to be printed in a half-page advert sponsored by the Department of Social Development in the City Press on Sunday 24th June 2001

Box 7.1

Extracts from the Speech by the Minister for Social Development at the First Meeting of the Central Drug Authority September 2000

Source: <http://www.welfare.gov.za/Statements/2000/September/0109.htm>

It has taken too long for us to arrive at the point when the Central Drug Authority finally begins its work. The task of working together to build a drug-free society is an immense and vital undertaking. It underpins and underwrites the building of the caring society of which our President speaks.

This first meeting of the Central Drug Authority has been more than two years in the making. After extensive consultations, the National Drug Master Plan was finalised and approved by Cabinet in October 1998. The government and people of our country therefore all welcome this first meeting of the Central Drug Authority. There is much work to be done and the task and mandate of the Authority is clear. Building a better life for all our people requires that the areas of greatest need and risk receive immediate attention. These areas of greatest need and risk are detailed in the National Drug Master Plan.

The media continue to report ever increasing seizures of mandrax, dagga, cocaine and other illegal drugs. The size of these seizures is an indication of the extent of the market. The work of the Central Drug Authority in collaboration with other partners in government and civil society must lead to steady reductions in supply and demand.

There is broad and inter-sectoral representation on the Authority. The people in this room represent and can draw on the best available expertise in our country. Concerns about continuity between the old Board and the new Authority have been addressed.

I want to use this opportunity to thank all the members of the Authority for their willingness to serve on the Authority. I am confident that you have the ability and the skills needed to support and empower our people. I assure you of my full support. I am not one whose is afraid to put his shoulder to the wheel. All of us have to be part of the solution in the fight against alcoholism and drug dependence.

I would like to single out the South African National Council on Alcoholism and Drug Dependency. Its has done stellar work in this area for decades. Its work in the areas of treatment and prevention has led to a commitment to assist in the areas of poverty eradication and HIV/Aids. Income-generating and skill development programmes are necessary dimensions to the services provided at its centres.

The United Nations Office for Drug Control and Crime Prevention has provided valuable assistance in this regard. There is a convergence between the community-based programmes it is developing in South Africa, and the government's poverty reduction priorities. This creates a basis for pooling our resources.

It is common cause that a country cannot prosper whilst substance abuse destroys the social fabric of its society. Substance abuse is a strong contributing factor to the high incidence of violence and crime. Its consequences and ramifications are extensive and difficult to quantify.

One of the keys to the success of the Central Drug Authority will therefore be the extent to which it involves and energises interest groups outside its immediate environment. Ownership of the Central Drug Authority resides with all the people of this land. The accountability of the Central Drug Authority is to the people of this land, through their elected representatives.

Key to success will be the utilisation and mobilisation of all available resources: scientific, financial, social and cultural. The mobilisation of the research community is just as important as the mobilisation of the religious sector. The involvement of organised labour is just as vital as the involvement of the business sector.

The people's expectations of the Central Drug Authority are detailed in legislation. You have to give effect to the National Drug Master Plan. We expect you to co-ordinate and promote the prevention and combating of substance abuse. We expect relevant research programmes and research findings.

Some of our expectations are more immediate. For instance, the drawing up of a focused business plan, the strengthening of provincial substance abuse forums, and the implementation of the action plans of various government departments.

7.2.6 South African Council for the Non-Proliferation of Weapons of Mass Destruction & Committees (Non-Proliferation Council)

The South African Council for the Non-Proliferation of Weapons of Mass Destruction aims to prevent the proliferation of weapons of mass destruction by acting on behalf of South Africa in protecting the interests, carrying out the responsibilities and fulfilling the obligations of the Republic with regards to non-proliferation. That is, the Council controls any nuclear, chemical or biological related item that can be used in the development and production of weapons of mass destruction, and their delivery systems.

Establishment of the Council

The South African Council for the Non-proliferation of Weapons of Mass Destruction was established in terms of Section 4 of the Non-Proliferation of Weapons of Mass Destruction Act (the Act), to act on behalf of the State in protecting the interests, carrying out the responsibilities and fulfilling the obligations of the Republic with regards to non-proliferation. The establishment of the Council stems from the Republic's non-proliferation policy, whereby it acknowledges the threat to international peace and security posed by the existence of weapons of mass destruction, and therefore supports bilateral and multilateral initiatives to prevent the proliferation and development of such weapons.

The Mission of the Council is, therefore, to protect the interests and fulfil the obligations of the Republic in accordance with the national policy on non-proliferation.

In order to fulfil its mission the Council must:

- Advise the Minister of Trade and Industry on the declaration of certain items as controlled goods
- Introduce the necessary internationally acceptable and transparent measures in order to control, register and inspect controlled goods
- Verify the import, export, re-export, transit and end use of controlled goods in terms of the Act.

Nuclear Weapons

South Africa terminated its nuclear weapons programme and acceded to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) on 10 July 1991. Shortly afterwards, South Africa concluded a Comprehensive Safeguards Agreement with the International Atomic Energy Agency (IAEA). These actions underlined the South African Government's firm commitment to disarmament and the non-proliferation of nuclear weapons.

The Nuclear Suppliers Group (NSG) was established in 1975 to control the transfer of items and technology that can contribute to the proliferation of nuclear weapons. South Africa was granted full membership of the NSG in Helsinki in April 1995. The NSG complements the work of the Zangger Committee (ZC), of which South Africa became a member in 1993. The ZC defines and monitors trade in goods specially designed for nuclear weapons and maintains a list of items that require IAEA safeguards as a condition of supply. The NSG maintains two control lists covering Nuclear materials and equipment and Nuclear-related Dual-use items.

Chemical Weapons

Before the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention or CWC) came into being, the major international agreement addressing chemical weapons was the Geneva Protocol of 1925 – “Prohibition of use in war of asphyxiating, poisonous or other gases and of bacteriological methods of warfare”, which was ratified by South Africa in 1930. This agreement was flawed by its lack of attention to verification. It also did not seek to totally eliminate chemical weapons. The United Nations Ad Hoc Committee on Chemical Disarmament (Conference on Disarmament) in Geneva concluded many years of negotiations later in 1992 and produced a consensus text for a new Chemical Weapons Convention, which opened for signature in January 1993. South Africa signed the CWC on 14 January 1993 and ratified on 13 September 1995. The CWC entered into force on 29 April 1997, after 65 countries had signed and ratified it. (See Chapter 4, Section 4.4.8)

Biological Weapons

The Geneva Protocol on the “Prohibition of the Use in War of Asphyxiating, Poisonous and Other Gases, and of Bacteriological Methods of Warfare” was ratified by South Africa in 1930. As the Geneva Protocol banned the use of chemical and biological weapons in warfare only, a more comprehensive convention was called for.

This resulted in the “Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction”, which entered into force on 26 March 1975. South Africa has been a State Party to the Biological and Toxin Weapons Convention (BTWC) since 1975.

Specific Delivery Systems for Weapons of Mass Destruction and the Related Dual-use Technologies, Facilities, Materials and Equipment

Seven countries founded the MTCR in April 1987, in an effort to control missile proliferation goods and technology capable of producing missiles with a range of 300 kilometres or greater and a payload of 500 kg or more.

As a result of international negotiations, South Africa decided to adhere to the guidelines of the MTCR even before its admission as a member of the MTCR. Regulations declaring the MTCR control list to be controlled goods in terms of the Act were published in October 1994. South Africa was admitted as a full member of the MTCR on 13 September 1995.

Mandate

The mandate of the Non-Proliferation Council is to implement national measures in line with South Africa’s undertaking regarding the non-proliferation of weapons of mass destruction, by:

- Setting up the necessary national systems and measures to implement the guidelines of:
 - The Missile Technology Control Regime (MTCR) regarding certain missiles, missile systems, technology and components
 - The Nuclear Suppliers Group (NSG) regarding nuclear-related dual-use equipment, materials and related technology items

- The provisions of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (CWC)
- The provisions of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BTWC)
- Implementing control structures and mechanisms to demonstrate national compliance with international guidelines and undertakings
- Ensuring that the activities of the Council, including the evaluation criteria applied to control measures, are transparent
- Ensuring that the integrity of the Council is beyond reproach, inter alia by adopting specific measures regarding the confidentiality of information obtained by the Council
- Encouraging understanding, acceptance and support from industry to comply to regulations in this regard
- Introducing optimised control measures, in order to:
 - Streamline processes
 - Limit detrimental effects on commerce
 - Ensure cost effectiveness
- Protecting the right of South Africa to develop, maintain and promote, subject to its non-proliferation commitments:
 - Conventional defence capability
 - Conventional military capabilities not dependent on any toxic, infective or nuclear effects as a means of warfare
 - Capabilities necessary for domestic law enforcement and domestic riot control
 - Capabilities in respect of industrial, agricultural, medical, pharmaceutical or other peaceful research, development or production purposes
- Appointing knowledgeable persons from industry and other institutions to committees to assist and advise the Council in its duties
- Formulating and implementing policies on any of its duties and functions, as may be necessary, regarding the manner in which such duties and functions will be performed.

Committees of the Council

There are three working committees appointed by the Council:

- Biological Weapons Working Committee
- Chemical Weapons Working Committee
- Nuclear and Missile Dual-Use Committee.

(a) Biological Weapons Working Committee (BWWC)

On 25 February 1991, before promulgation of the Act, a Biological Weapons Working Group was formed at the request of the Department of Foreign Affairs. This working group was chaired by the Surgeon-General of the SANDF and had the task to advise the Department on issues relating to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (the BTWC). Once the Act was promulgated, the Group became a Committee of the Council and was subsequently called the Biological Weapons Working Committee (BWWC).

In order to strengthen the effectiveness and to improve the implementation of the BTWC, an Ad Hoc Group of the States Parties to the BTWC was formed to establish effective verification measures. The Biological Weapons Working Committee also prepared working papers for use by the South African delegation to these Ad Hoc Group negotiations.

The BWWC is comprised of representatives from research institutes, Government Departments and other bodies involved with virology, plant pathology, veterinary and other medical research institutes as well as representatives from the Surgeon-General's office, the Department of Foreign Affairs, the Non-Proliferation Secretariat and the biotechnological industry. The Chairperson, as appointed by the Council, is from the Surgeon-General's office.

(b) Chemical Weapons Working Committee (CWWC)

The South African Council for the Non-Proliferation of Weapons of Mass Destruction (the Council) re-established the former Chemical Weapons Convention Implementation Working Group as a Chemical Weapons Working Committee (CWWC) under the auspices of the Council.

The task of the Committee is to advise the Council on issues relating to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (the CWC).

The CWWC is comprised of representatives from the chemical industry, research institutes, government departments (including the South African Military Health Services and the Department of Foreign Affairs) and the Non-Proliferation Secretariat. The Chairperson, as appointed by the Council, is a representative from the Surgeon-General's office.

(c) Nuclear and Missile Dual-Use Committee (NMDUC)

The South African Council for the Non-Proliferation of Weapons of Mass Destruction (the Council) established the NMDUC under the auspices of the Council.

The task of the NMDUC is to advise the Council on issues related to missile and nuclear related dual-use goods.

The NMDUC is comprised of representatives from the Aerospace, Nuclear industry, government departments and the Non-Proliferation Secretariat. The Council appoints the Chairperson.

Permits and Inspections

The South African Council of Non-Proliferation of Weapons of Mass Destruction, issues permits for the above chemicals and sometimes organises inspections of chemical producing factories. Most inspections however are carried out by the OPCW.

Efficacy

According to Mr A Boetcher, DTI, the council functions well. Its main concern being the inadequacy of current customs control of scheduled chemicals as the current six digits Harmonised System Customs Tariffs Codes is insufficient to allow control. To provide for adequate coding a 12 or even 14 digit system is required.

7.2.7 Advisory Council for Occupational Health and Safety (ACOHS)

The Advisory Council for Occupational Health and Safety (ACOHS) is a statutory, tripartite body established under the Occupational Health and Safety Act (Act 85 of 1993) and advises the Minister on matters related to occupational health and safety and OHS legislation.

The Council meets four times each year to discuss any OHS issues. The forum is a tripartite body containing representatives from the Department of Health, Labour, Mineral and Energy, compensation commissioner, employer organisations and trade unions. In addition, three other persons are appointed based on their knowledge of occupational hygiene, occupational medicine and occupational safety. The tripartite body provides a forum for co-operation within the domain of occupational health and safety as it affects all sectors in the Labour market except mines and fishing vessels at sea.

Further information can be obtained from the CSIR, Department of Labour Environmental Management Plan, October 2001.

7.2.8 Interdepartmental Occupational Health and Safety Meetings between the Departments of Labour and Minerals and Energy

The DOL has quarterly meetings with the Department of Minerals and Energy (DME) with regard to the workings and operation around occupational health and safety issues, specifically those 'grey' areas of jurisdictional responsibility, which allow the employer to fall through the OHS legislative crack. The health and safety of mine workers is the responsibility of the DME, but the safety regarding that of other workers on the mine, e.g. contractors, falls within the jurisdiction of the DOL.

The DOL has also been involved in commenting on DME guidelines for the rehabilitation of mine dumps specific to asbestos. These guidelines are known as "Standard Protocol and Guidelines for the Rehabilitation of Derelict/ownerless asbestos mine residue deposits in SA".

The DOL is responsible for ensuring that health and safety standards, within the explosive manufacturing arena, are maintained through regular inspection of these premises. In addition, the DOL is responsible for the approval of licenses for explosive factories. The DME in turn regulates explosives on the mines. The meeting thus also serves to coordinate these roles.

A Memorandum of Agreement is also currently being developed between DME and DOL to ensure no duplication of functions occurs and to clarify the roles of two departments where possible discrepancies may occur.

Box 7.2:

Occupational Health and Safety Accord

Department of Labour

Occupational Health and Safety Accord

We, the members of the tripartite – Government, Organised Labour and Organised Business declare that

- We commit ourselves, collectively, to ensure a healthy and safe work environment.
- We embrace the principles enshrined in ILO Convention 155 *and ILO Convention 176*. In this regard we will promote

OHS awareness, prevent workplace fatalities and uphold measures to protect the lives of workers

- We will uphold the occupational health and Safety (OHS) principles as enshrined in the Bill of Rights.
- We will strive to integrate OHS into all production strategies.
- We will strive to make occupational health and safety a way of life.
- We the undersigned commit ourselves to:
 - the promotion of OHS awareness
 - the developing of enabling OHS legislation, regulations and directives
 - the developing and improving of OHS standards to an international level
 - improve the tripartite relationship to the benefit of all in our country
 - abide by the requirements of the OHS legislation
 - continuously reduce and eliminate incidents and fatalities in the work place
 - the training of workers and managers on safe working practices.

Together in partnership, we will strive to realise these ideals.

Signatories

On behalf of Government

On behalf of Organised Labour

On behalf of Organised
Business

7.2.9 Committee for Environmental Coordination (CEC)

The promulgation of NEMA has given rise to the formation of the statutory Committee for Environmental Coordination, CEC (see schedule A of NEMA). The objective of the CEC is the promotion of the integration and coordination of environmental functions by the relevant organs of state, and in particular to promote the achievement of the purpose and objectives of Environmental Implementation Plans (EIPs) and Environmental Management Plans (EMPs). As a means of promoting co-operative governance between itself and other national government departments

The committee is chaired by the Director-General of DEAT and meets every three months. It includes those government departments that have a stake in the environment including Transport, Labour, Health, Minerals and Energy, Water Affairs.

The committee has the advantage of being inclusive of all government departments nationally and provincially. It functions reasonably well and includes relevant presentations to interest the attendees.

The committee provides the opportunity of developing proper coordination at a strategic level.

The main problem is that at times the certain Director General's do not attend and junior representatives are sent as replacements. This reduces the decision-making power of this committee.

Report on Sustainable Development to the United Nations

The Department of Environmental Affairs and Tourism (DEAT), as the lead agent for the environment in South Africa, is responsible for providing the UN CSD with an annual report on sustainable development.

Many countries in the world have already developed strategies for the implementation of Agenda 21, mainly through structures such as national councils for sustainable development. Information is however, lacking for the development of a South African National Strategy for Sustainable Development (NSSD). DEAT has therefore, requested Government departments represented on the CEC, to provide additional information on sustainable indicators within their EIPs and EMPs, that will assist in the annual reporting process (refer to **Figure 7.1**) to the UN CSD on progress made with the implementation of Agenda 21.

With the development of a South African Strategy for Sustainable Development, DEAT has indicated how they intend to link the information obtained in the EIPs and EMPs to the annual reporting to the UN CSD and the development of a NSSD for South Africa.

According to Figure 7.1:

1. Information obtained in the EIPs and EMPs will be used as baseline documents for the compilation of an annual report to the UN CSD.
2. Information obtained from the EIPs, EMPs and the annual reports will be consolidated to develop a NSSD Discussion Document.
3. The NSSD Discussion Document will go through a public consultation process where a framework document and Table of Contents will be finalised for the NSSD.
- 4 & 5. A first draft NSSD Document will be produced which will go through another consultation process with authorities and other stakeholders.
6. National environmental priorities and sustainable development indicators will then be refined.
- 7 & 8. A final version of the NSSD will be produced, which must be implemented. Through the submission of EIPs and EMPs, DOL will also be monitored for compliance to the NSSD and performance in this regard.

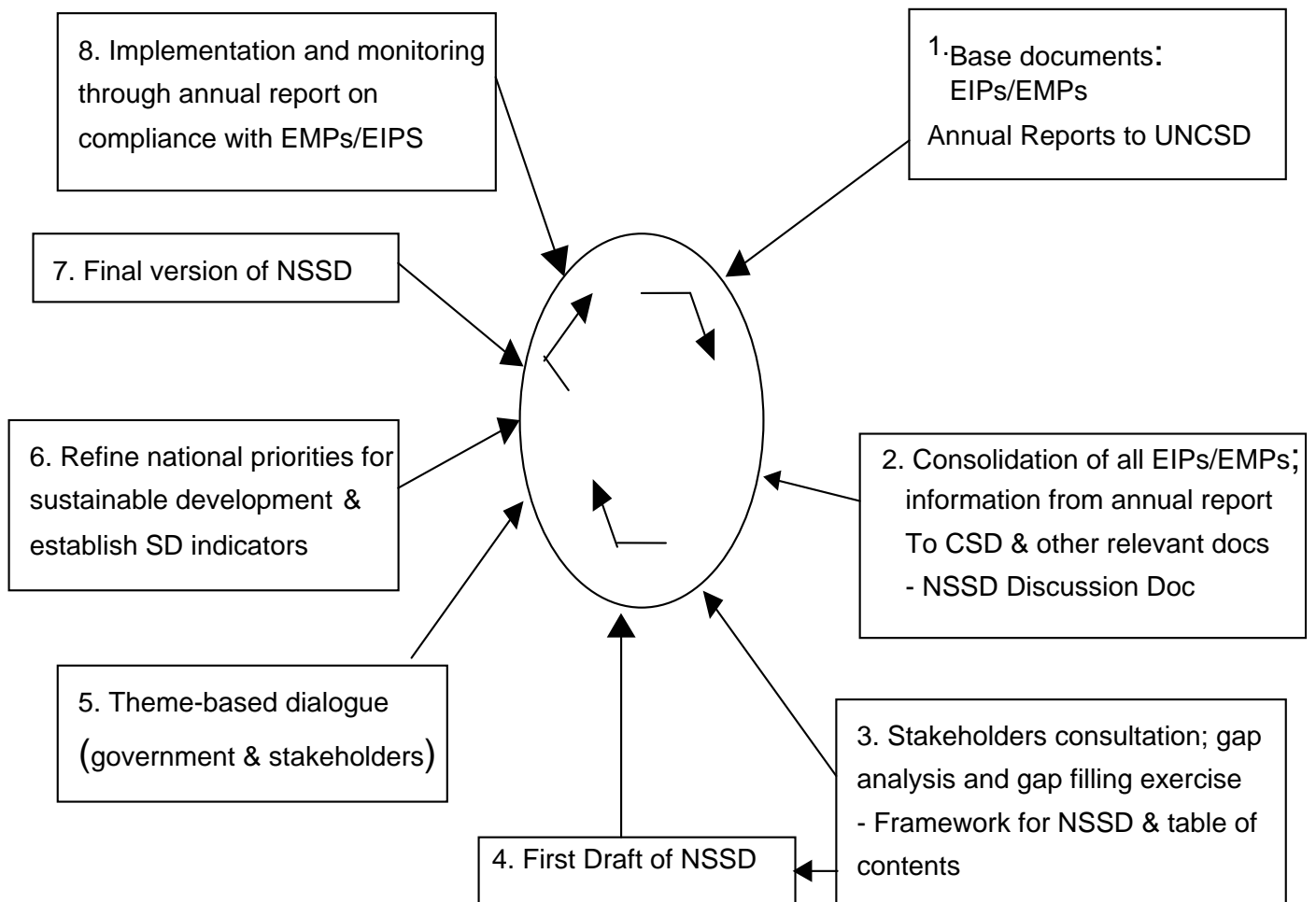


Figure 7.1: Proposed Annual Reporting Process to United Nations Commission for Sustainable Development

7.2.10 Interdepartmental Disaster Management Centre (IDMC)

The Interdepartmental Disaster Management Centre forms part of the new National Disaster Management Act, which established a national disaster management plan for the Department of Provincial and Local Government. The Centre's mission is to improve knowledge, awareness and understanding of disasters and coordinate and facilitate access to information and resources in order to promote and support comprehensive, integrated and effective disaster management in South Africa.

National Disaster Management Act, Act no. 57 of 2002

The purpose of this Act is to provide for the following:

- an integrated and co-ordinated disaster management policy that focuses on preventing or reducing the risk of disasters, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery;
- the establishment of national, provincial and municipal disaster management centres;
- disaster management volunteers; and
- matters incidental thereto.

For further information refer to Chapter 4, Section 4.4.7.

Working Committees

Working committees have been established which focus on specific emergencies. One of these working committees deal with environmental disasters that could potentially be caused by chemicals, however, this committee is currently inactive.

Further information can be obtained from www.sandmc.pwv.gov.za.

7.2.11 Ministers and MEC Coordination Committee (MINMEC)

According to DEAT, this is a non-statutory committee, being the final decision-making committee for certain environmental issues. It relies on the Ministers Technical Committee (MINTECH) to review the details of environmental proposals. The committee consists of Senior Government Departmental Managers and Senior Managers of the Provinces.

MINTECH uses the following working groups:

- Pollution and waste management
- Law reform

MINTECH meets every three months and is a good decision making process for environmental management. It has the opportunity to be well focused, but the committee itself needs to have a greater opportunity to compile its own long-term business plan. A good process is followed whereby all issues are converted to a business plan and put on the agenda. Progress is then reported upon.

The long-term business plan comes from DEAT officials and not the working group itself and this results in it being unfocused at times.

MINTECH provides the opportunity of coordinating practical implementation issues at the provincial and national level.

7.2.12 Law Reform Program under NEMA

Various departments are linking up through their involvement with the law reform process. In future, much more extensive cooperation between departments is necessary for effective environmental management to be achieved in South Africa.

7.2.13 National Economic Development and Labour Council (NEDLAC)

Background

On 18 February 1995, the National Economic Development and Labour Council (NEDLAC) was launched, ushering in a new era of inclusive decision-making and consensus-seeking in the economic arena. Although not specifically relevant to the management of chemicals NEDLAC has an important coordinating function that brings together key roleplayers that amongst others are operating in chemical industry.

NEDLAC's origins lie in the struggle against apartheid, against unilateral decision-making, and in the calls from all sectors of society for decisions to be taken in a more inclusive and transparent manner.

It emerges out of a recognition of the importance of seeking consensus on major economic, social and development policies to ensure their success, and out of an awareness, as President Mandela remarked at its launch, "that our democratic gains will be shallow and persistently threatened if they do not find expression in food and shelter, in well-paying jobs, and rising living standards".

Overview

At NEDLAC, Government comes together with organised business, organised labour and organised community groupings on a national level to discuss and try to reach consensus on issues of social and economic policy. This is called "social dialogue".

NEDLAC's aim is to make economic decision-making more inclusive, to promote the goals of economic growth and social equity.

The main Government department is the Department of Labour, out of which NEDLAC is funded, but the Departments of Trade and Industry, Finance and Public Works are also centrally involved in NEDLAC. Other departments attend when there is an issue which relates to their portfolio.

The overall convenor for Government in NEDLAC is Rams Ramashia, the Director-General of Labour. The minister of labour coordinates the government delegation in NEDLAC, and NEDLAC is funded from the Department of Labour's budget.

Organised business is represented by Business South Africa, which is an umbrella body for 19 different employer organisations, such as the Chamber of Mines, the South African Chamber of Business, the Banking Council and the Steel, Engineering and Industries Federation of South Africa. Professor Raymond Parsons is the overall convenor for Business in NEDLAC.

Organised labour is represented by the three main labour federations in South Africa: Cosatu, Fedusa and Nactu. The Overall Convenor for Labour in NEDLAC is Ebrahim Patel, General Secretary of Sactwu.

Organised community is represented by the South African Youth Council, National Women's Coalition, South African National Civics Organisation, Disabled People of South Africa and the National Co-operatives Association of South Africa. The Overall Convenor for Community is Khulu Mbongo, of the South African Youth Council.

NEDLAC's most senior body is the Executive Council, which consists of Ministers and senior officials of Government; General Secretaries and senior office bearers of Labour; captains of industry and senior officials of employer organisations; and senior representatives of the NEDLAC Community Constituency. It meets four times per year and discusses key strategic issues facing South Africa's economy.

Once per year, NEDLAC holds an Annual Summit, which provides an opportunity to review the work conducted during the year and give direction for the coming year.

International Assistance

NEDLAC draws on international experience in tripartite decision-making, as well as on the experience of its predecessors, the National Economic Forum and the National Manpower Commission. But it also has unique features aimed at meeting the particular needs of the South Africa situation: it includes not only the traditional social partners - government, business and labour - but also organisations which represent community interests in our country. And among its structures is an annual summit which brings together 300 delegates from all walks of life to receive feedback and give input on its activities.

Objectives

The NEDLAC Act, passed in 1994 after being agreed to unanimously by all political parties, says NEDLAC shall:

- Strive to promote the goals of economic growth, participation in economic decision-making and social equity.
- Seek to reach consensus and conclude agreements pertaining to social and economic policy.
- Consider all proposed labour legislation relating to labour-market policy before it is introduced in Parliament.
- Consider all significant changes to social and economic policy before it is implemented or introduced in Parliament.
- Encourage and promote the formulation of coordinating policy on social and economic matters.

Fund for Research into Industrial Development, Growth and Equity (FRIDGE)

In 1995, the Japanese Government made a grant of approximately R8.1 million through the International Bank for Reconstruction and Development to the Department of Trade and Industry. This money was used to establish the Japanese Grant Fund (JGF) as a sub-committee of NEDLAC's Trade and Industry Chamber. Funds were used to facilitate research aimed at making South African industries more competitive.

In late 1998, the Japanese Grant funds were exhausted. However, the success of previous research initiatives resulted in the Department of Trade and Industry making additional funds available to continue to the work of the JGF, under a new body known as FRIDGE.

FRIDGE's objectives and manner of operation are the same as those that were developed under the JGF.

Objectives

- Improve competitiveness
- Be implementable
- Inject international and local expertise
- Build individual and institutional capacity among key stakeholders
- Contribute to collaboration on policy and development issues.

Operations

Research is managed by a counterpart group composed of NEDLAC constituencies (business, labour and government). This has had two positive effects:

- NEDLAC's constituencies exposed the consultants undertaking the research to a range of information sources and ideas. This manner of expanding the knowledge available to researchers and consultants ensured high quality research products.
- This consultative form of managing research ensured that consensus building was an integral part of the policy formulation stage. This laid the foundation for programmes that were accepted and endorsed by NEDLAC's constituencies.

Through this process, South Africa has seen the development of the following important documents:

- The Socio-Economic Impact of the Phasing-Out of Asbestos, funded through the FRIDGE
- The Globally Harmonized System of Classification and Hazard Communication (GHS), initiated by FRIDGE and co-funded by UNITAR, and the development of a National Strategy for GHS implementation in South Africa. (The Implementation Strategy was developed in 2004).

The Socio-Economic Impact of the Phasing-Out of Asbestos

Asbestos has been identified worldwide as a public health and environmental hazard. In 1986 the International Labour Organisation (ILO) promulgated Convention 162 which recommends the total or partial ban of the use of asbestos when it is necessary to protect worker's health and when it is technically possible to do so.

By 1993, only a few countries, including South Africa, were still producing asbestos. South Africa accounts for 8.2% of the world's asbestos reserves, 2.3% production and 4.3% for exports in 1996.

The extent of the current usage of asbestos in South Africa is largely unknown. What is missing particularly is the use of asbestos in the informal sector.

It was thus felt that research needed to be conducted into the socio-economic impact of phasing out asbestos in South Africa, covering the following aspects:

- Policy approach to asbestos in SA
- Potential cost and other implications for investors and employees
- Socio-economic transitional measures for the phasing out period
- Product substitution and alternatives to asbestos
- A code of best practice for SA users of asbestos in manufacturing and construction.

The Globally Harmonized System of Classification and Hazard Communication (GHS)

The study comprises three phases:

- Compilation of a Situation Analysis, to identify and assess infrastructure and available national expertise
- A Gap Analysis, to identify areas where intervention is required and what the socio-economic implications of these interventions would be
- Development of an Implementation Strategy.

Additional information can be obtained from www.nedlac.org.za/about/index.html.

7.2.14 South African International Council of Science Secretariat

The South African International Council of Science (ICSU) Secretariat (see Chapter 10, Section 10.1.13) serves the South African scientific community and most of the ICSU unions and affiliates to which South Africa adheres. The Secretariat is

administered by the NRF as part of its science liaison activities. Its role is to promote and maintain close links between South African scientists and members of the worldwide community of the International Council for Science (ICSU), through the local national committee structure. The structure, policy and procedures of the SA ICSU Secretariat are based on the universal character of science, irrespective of race, gender or creed. Although not specifically set up for management of chemicals the secretariat plays an important role regarding certain aspects thereof in particular in terms of chemical impact assessment.

Background

South Africa is a founder member of ICSU, which was established in 1931 to promote international scientific activity in the different branches of science and their applications for the benefit of humanity. (For further details see Chapter 10.1.13)

The SA ICSU Secretariat administers South African membership of ICSU and in 1992 the ICSU National Board of SA was appointed to advise the former FRD, as the national adhering organisation to ICSU, on matters pertaining to international cooperation with ICSU and ICSU bodies with the goal of promoting effective South African involvement in the organisations of the ICSU family.

South Africa is also a national member, via the NRF, of nineteen of the twenty-three full ICSU Unions, many of which predate the creation of ICSU, as well as of a number of the ICSU Associates. ICSU family general assemblies are held at regular intervals and the South African national delegates appointed to these are full voting members of the assemblies. South African membership of many of the Associates is directly through South African professional societies, without the involvement of the NRF, but the Secretariat endeavours to keep the ICSU National Board informed of this involvement.

Activities

At present South Africa participates actively in a number of the ICSU Special or Scientific Committees, the most recent one being the Special Committee for the International Geosphere-Biosphere Programme (IGBP).

The office of the South African ICSU Secretariat provides secretarial services to the ICSU National Board of SA and the SA National Committees of the following ICSU bodies which direct or indirect relevance to managing chemicals:

- Committee on Data for Science and Technology (CODATA) (*CODATA - SA National Committee)
- International Union of Food Science and Technology (IUFoST)
- International Union of Forestry Research Organisations (IUFRO)
- International Union of Microbiological Societies (IUMS)
- International Union of Pure and Applied Chemistry (IUPAC)
- International Union of Pharmacology (IUPHAR)
- International Union of Physiological Sciences (IUPS)

Some administrative assistance is provided to the professional societies/committees involved with regard to South African membership of the International Union of Immunological Societies (IUIS), the International Council on Laboratory Animal Science (ICLAS) and to the International Association on Water Quality (IAWQ). The

Secretariat also maintains close contact with the Scientific and Special Committees, Associates and Joint Programmes such as the:

- Committee on Science and Technology in Developing Countries (COSTED) / International Biosciences Network (IBN)
- Committee on the Teaching of Science (CTS)
- International Geosphere-Biosphere Programme (IGBP)
- Scientific Committee on Antarctic Research (SCAR)
- Scientific Committee on Problems of the Environment (SCOPE)
- Scientific Committee on Oceanic Research (SCOR)

Assistance is also given to official South African delegations to General Assemblies of ICSU and the ICSU Unions/Associates. This includes financing, credential letters, compilation of national reports, and circulation of documentation as well as coordination of South African delegations where applicable.

Additional information can be accessed through www.nrf.ac.za.

7.2.15 Strategic Approach to International Chemicals Management

Adopted by the International Conference on Chemicals Management (ICCM) on 6 February 2006 in Dubai, United Arab Emirates, the Strategic Approach to International Chemicals Management (SAICM) is a policy framework for international action on chemical hazards. SAICM was developed by a multi-stakeholder and multi-sectoral Preparatory Committee .

The Strategic Approach supports the achievement of the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

SAICM comprises three core texts:

- The Dubai Declaration, which expresses the commitment to SAICM by Ministers, heads of delegation and representatives of civil society and the private sector.
- The Overarching Policy Strategy, which sets out the scope of SAICM, the needs it addresses and objectives for risk reduction, knowledge and information, governance, capacity-building and technical cooperation and illegal international traffic, as well as underlying principles and financial and institutional arrangements. The ICCM adopted the Overarching Policy Strategy which together with the Dubai Declaration constitutes a firm commitment to SAICM and its implementation.
- A Global Plan of Action, which sets out proposed “work areas and activities” for implementation of the Strategic Approach. The ICCM recommended the use and further development of the Global Plan of Action as a working tool and guidance document.

In addition, the ICCM adopted 4 resolutions on implementation arrangements, the Quick Start Programme, a tribute to the Government of the United Arab Emirates and on the Intergovernmental Forum on Chemical Safety. The resolutions are annexed to

the report of the first session of the ICCM, which was held in Dubai from 4 to 6 February 2006.

7.3 Comments / Analysis

South Africa has a number of statutory mechanisms in place which are instrumental in bringing effect to requirements of national legislation relevant for managing chemicals which invariably was introduced or adapted to give effect to the countries international agreements. As new international requirements are negotiated, the relevant organisational structures, being either a specific department or statutory body, are tasked with the responsibility of advising on the ratification and implementation of relevant mechanisms. The most important of these are:

- Department of Health – for registration of Hazardous Substances
- Registrar of Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies
- Non-Proliferation Council
- Advisory Council for Occupational Health and Safety

Of concern is that there is no overarching mechanism to manage hazardous chemical substances in the country. This leads to a fragmented approach in dealing with such substances, which in turns increases the risk of certain chemical management aspects “falling through the cracks.” The plans for implementation of SADEA by DEAT spring from this realisation. To be noted is that although the title for INDAC suggests such an overarching mechanism, this is not the case as the mechanism specifically deals with chemical remedies applied in the Agricultural and related sector.

It is recommended that the state consider the introduction of a mechanism with the responsibility to coordinate all of South Africa’s responsibilities regarding chemicals management. One way of doing so would be to implement a statutory mechanism for the management of hazardous substance, possibly introduced through revision of the Hazardous Substances Act. The responsibility of such a mechanism should at least be the convening of meetings of all the relevant key role players that have responsibilities in dealing with hazardous chemicals. A tripartite arrangement should be considered. This structure should also be tasked with evaluating the countries overall management of chemicals measured against a set of indicators and criteria.

It is noteworthy that although there is presently no coordinating mechanism dealing with Persistent Organic Pollutants (POPs), DEAT, as a Focal Point of the Stockholm Convention, is co-ordinating a project (launched in January 2003) to develop a National Implementation Plan (NIP) on POPs. Further information on this initiative is provided in Section 4.5.2 of Chapter 4.

DEAT as a focal point of most Multilateral Environmental Agreements (MEAs) will be hosting a Secretariat for the implementation of MEAs, including coordination of the Strategic Approach to International Chemicals Management (SAICM).

CHAPTER 8

DATA ACCESS, DATABASE CUSTODIANSHIP AND USE

The purpose of this Chapter is to provide an overview of the availability of data for chemicals management and the related infrastructure, and to analyse how information is used for national and local chemical risk reduction.

CHAPTER 8

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8 DATA ACCESS, DATABASE CUSTODIANSHIP AND USE

8.1 National Policy on Public Access to Government Information

“Access to information” is one of the basic rights every South African has in terms of the Bill of Rights included in the Constitution of South Africa, namely, Section 32:

- (1) *“everyone has the right of access to*
 - a. any information held by the state; and*
 - b. any information that is held by another person and that is required for the exercise or protection of any right.*

- (2) *National legislation must be enacted to give effect to this right, and may provide for reasonable measures to alleviate the administrative and financial burden on the state.”*

This right is included in other Acts. The National Environmental Management Act (NEMA) includes the following specifications concerning access to information in Section 31:

- (1)(a) *“every person is entitled to have access to information held by the State and organs of state which relates to the implementation of this Act and any other law affecting the environment, and to the state of the environment and actual future threats to the environment, including any emissions to water, air or soil and the production, handling, transportation, treatment, storage and disposal of hazardous wastes and substances.*

- (b) *organs of state are entitled to have access to information relating to the state of the environment and actual and future threats to the environment, including any emissions to water, air or soil and the production, handling, transportation, treatment, storage and disposal of hazardous wastes held by any person where that information is necessary to enable such organ of state to carry out their duties in terms of this Act or any other law concerned with the protection of the environment or the use of natural resources.”*

8.2 Availability of Data for National Chemical Management

Table 8.A: Availability of Information

Date Needed for / to:	Pesticides (agricultural, public health and consumer use)	Industrial Chemicals	Consumer Chemicals	Chemical Wastes
Import and Export Data	X	X	X	X
Priority Setting	-	-	-	-
Assess Chemicals Impact under Local Conditions	-	-	-	-
Risk Assessment (environmental / health)	-	-	-	-
Classification / Labelling	X	X	-	-
Registration	X	-	-	-
Licensing	X	-	-	-
Permitting	-	-	-	-
Risk Reduction Decisions	-	-	-	-
Accident Preparedness / Response	-	-	-	-
Poisoning Control	-	-	-	-
Emissions Inventories	-	-	-	-
Inspections & Audits (environmental / health)	-	-	-	-
Information to workers	-	-	-	-
Information to the public	-	-	-	-
Others	-	-	-	-

¹ X - Information is available for the tasks listed in the left hand column.

8.3 Location of National Data

Table 8.B: Location of National Data

Type of Data	Location(s)	Data Source	Who has access?	How to gain access	Format
General Statistics and information	STATS-SA, Stats in Brief -- sib 2000 Bulletin.pdf Government Communication and Information System. SA Yearbook 2001	Gov statistics	Public	www.statssa.gov.za www.gcis.gov.za	Web files.
Production Statistics	STATS-SA, Stats in Brief -- sib 2000 Bulletin.pdf Census of Manufacturing 1996. Report No. 30-01-01 (1996) Manufacturing Stats Chemicals Petroleum and others. Stats SA release P3051.3 Feb 2002 AVCASA, SAPIA, Fertilizer Society, Chemdata*	Chemical Industry	Public	On request (certain info considered confidential) www.statssa.gov.za	Paper files Database PDF Files Web files.
Import Statistics	DTI, Chemdata DEAT SARS C&E	IDC	Public	On request	Paper files Database Excel Files
Export Statistics	SARS, Chemdata DEAT SARS C&E	Border Stations	Public	On request (handling fee)	Paper files Database Excel Files
Chemical Use Statistics	STATS-SA, Manufacturing production and sales. February 2002. Stats SA release P3041.2 AVCASA, SAPIA, Fertilizer Society	Chemical Industry	Public	On request (certain info considered confidential)	Paper files Database Web files.
Industrial Accident Reports	DOL Compensation	Chemical Industry	Public	On request	Paper files Database

Type of Data	Location(s)	Data Source	Who has access?	How to gain access	Format
	Commissioner				
Transport Accident Reports	STATS-SA, RFA Dept of Transport	Chemical Industry Transport Industry	Public	On request (certain info considered confidential)	Paper files Database
Occupational Health Data (Agricultural)	Nat Dept of Agriculture	Farmers	Public	On request	Paper files
Occupational Health Data (Industrial)	Dept of Labour	Compensation Commissioner	Public	On request	Database
Poisoning Statistics	Dept of Health	Doctors	Public	On request	Paper files
Pollutant Release and Transfer Register	Not available	Not available	-	-	-
Hazardous Waste Data	Dept of Water Affairs and Forestry	Chemical Industry	Public	On request	Paper files Database
Register of Pesticides	National Dept of Agriculture	Chemical Industry	Public	On request	Database
Register of Toxic Chemicals	Dept of Health, SABS	Chemical Industry	Public	On request (handling fee)	Database
Inventory of Existing Chemicals	Chemical Industry	In-house Info	Public	On request (certain info considered confidential)	Database
Register of Imports	DTI, SARS	Industrial Development Corporation	Public	On request (handling fee)	Paper files Database
Register of Producers	CAIA, CSIR, AVCASA, SAPIA, Fertilizer Society, Chemdata	Chemical Industry	Public	On request	Paper files Database
PIC Decisions	DEAT	Chemical Agriculture	Public	On request	Paper files

8.4 Procedures for Collecting and Disseminating National / Local Data

8.4.1 Stats South Africa

See Chapter 5, Section 5.2.8.

8.4.2 South African Data Archive (SADA)

Introduction

The South African Data Archive serves as a broker between a range of data providers (for example, statistical agencies, government departments, opinion and market research companies and academic institutions) and the research community. The

archive does not only preserve data for future use, but all adds value to the collections. It safeguards datasets and related documentation and attempts to make it as easily accessible as possible for research and educational purposes.

Existing research data can be an invaluable source for further studies. Such data are, however, currently scattered throughout the country. By preserving this research information in a single resource centre like SADA, unnecessary and costly duplication of research are decreased while the quality of the research findings are enhanced by using data from experienced researchers both locally and internationally.

Objectives of SADA

- To acquire and catalogue survey data and related information.
- To preserve such data against technological obsolescence and physical damage.
- To provide originators or depositors of data with necessary information in order to ensure high standards of data documentation.
- To re-disseminate such information for use by other researchers, for re-analysis of data, longitudinal and comparative studies, research training, teaching and policy-making decision purposes.
- To formulate policies for the scope and content of data and data preservation.
- To promote the optimal use of data.

Value Adding

SADA adds value to its collections in the following ways:

- The datasets received undergo a variety of checks and cleaning procedures to ensure their integrity.
- Comprehensive machine-readable codebooks are developed, which include an abstract, sampling methodology and questionnaire.
- The datasets are catalogued and made accessible through electronic search and retrieval systems.
- Datasets from various sources are often integrated in order to produce easy to use information products, for e.g. on-line databases and CD-ROMs.

Data Catalogue

SADA's data holdings are from a wide range of areas, such as censuses and household surveys, omnibus and international studies, demographic and health related studies, Substance abuse, Crime, Income and poverty, inter-group relations, labour and business, education and training, and political perceptions and attitudes.

The expansion to other sciences and the anticipated establishment of virtual archives will increase the benefits to the research community. SADA also hopes to reflect the government's core priority themes in its holdings, for e.g. HIV/AIDS studies. View the data catalogue is available for viewing.

Advantages of data archiving

- Data archives ensure that the depositors' work is protected from extinction, and whenever depositors need to make use of it, they would simply request it from the archive, which stores the data in an orderly and compact manner.
- Data that has been archived can also be used to test or develop new theories, generalize or extend findings and/or answer new questions.
- Archiving leads to data sharing across disciplines, and this often results in new methodologies and theories being developed.
- Research students in particular, often have a limited time frame within which to complete their programmes. It would not be feasible to undertake a reasonably good project conducting primary research within such a limited time. In this respect, a data archive would provide an answer, matching research quality, costs and time.

Membership

Empirical research often encompasses national, regional and international comparative studies - a field that has grown rapidly in recent years. Through its extensive network, SADA can channel data and information stored in its databases to interested researchers worldwide. Through its computerised system, SADA can also obtain data from outside the country for interested researchers in South Africa.

SADA's access to the collections of other data archives is facilitated by its membership of organisations such as the International Federation of Data Organisations (IFDO), the Council of European Social Science Data Archives (CESSDA) (of which it is an associate member), the Inter-University Consortium for Political and Social Research (ICPSR) and the International Association for Social Science Information Service and Technology (IASSIST).

Current and Future Developments

In June 1999, SADA participated in an introductory training course on the use and implementation of the NESSTAR software system at the UK Data Archive. Training for advanced users was provided in June 2000, at which SADA was also represented. After some discussion, it has been decided to implement the NESSTAR system at SADA, in order to make the catalogues and data available via the Internet.

SADA has adopted the World Wide Web to expand its range of online services, including the implementation of the Adobe Acrobat Portable Document Format (PDF) for producing electronic documentation. To make this facility more user-friendly, SADA has released most of its codebooks, which were previously available only in hardcopy, in MS Word format and PDF for download via our web site. This is a significant development in providing information quickly and effortlessly to the users.

Further information can be obtained from www.nrf.ac.za/sada

8.4.3 Libraries at Various Research Institutions and Universities

South Africa's numerous research institutions and universities are maintaining independent and interlinked libraries. Most of these are maintaining recognised international standards and are in general well equipped with modern infrastructure. Also libraries are in general accessible to all citizens often without the requirement for

admission fees. Besides for certain specific confidential research projects most information is available on request.

8.4.4 Database Systems at various Government Departments

Databases on various aspects of chemicals management are maintained at various government departments. However many of these databases are inadequate as they are often difficult to access, outdated, inconsistent, and poorly designed and poorly coordinated.

There are also various gaps in important information, e.g. waste disposal, chemical spills, industrial poisonings and accidents that would be required for monitoring and assessing the effectiveness of chemicals management in the country.

These problems hamper efforts to obtain an overview on the present status which future chemical management strategies could be based.

8.5 Availability of International Literature

Tables 8.C and 8.D provide an overview of key international literature and databases on chemical management, which are available in South Africa.

Selected international literature such as the WHO Environmental Health Criteria Documents and Health and Safety Guidelines are available in hard copy form from DEA&T on request. However, with the advent of electronic information exchange and the internet, the bulk of international information on chemical management is most easily accessed in electronic format via the internet.

Key sites such as the 'Chemical Safety Information from Intergovernmental Organisations' site provide access to international literature as well as a 'resource hub' with links to many of the key chemical databases such as the International Programme on Chemical Safety (IPCS) INCHEM and INTOX Databases.

On-line access to these databases provides up-to-date information on chemical management, safety/toxicological information, laboratory test methods and practice etc. In many cases access to databases is available free of charge via the internet. However, select sites require payment of a subscription fee for the maintenance and regular up-dating of information on the database.

Table 8.C: Availability of International Literature

Literature	Location(s)	Who has access?	How to gain access
Chemical Safety Information from Intergovernmental Organizations	Internet	Public	http://www.inchem.org/
Environmental Health Criteria Documents (WHO)	DOH National Dept of Agriculture	Public	On request
	Internet	Public	http://www.who.int/dsa/cat98/zehc.htm
Health and Safety Guidelines (WHO)	DEA&T Nat Dept of Agriculture	Public	On request
IPCS INCHEM: Environmental Health Criteria Monographs (EHCs)	Internet	Public	http://www.inchem.org/pages/ehc.html
Decision Guidance Documents for PIC Chemicals (FAO/UNEP)	Dept of Health DEA&T NDA	Public	On request
OECD Guidelines for the Testing of Chemicals	Not available in SA		
	Internet	Public	http://www.oecd.org/doc/M0002700/M00027693.doc http://www.epa.gov/oppead1/harmonization/docs/E425guideline.pdf
Concise International Chemical Assessment Documents (CICADs)	Internet	Public	http://www.inchem.org/pages/cicads.html
IPCS Health and Safety Guides (HSGs)	Internet	Public	http://www.inchem.org/pages/hsg.html
IPCS INCHEM International Agency for Research on Cancer (IARC) - Summaries & Evaluations	Internet	Public	http://www.inchem.org/pages/iarc.html
IPCS International Chemical Safety Cards (ICSCs)	Internet	Public	http://www.inchem.org/pages/icsc.html
IPCS INCHEM Joint Expert Committee on Food Additives (FECFA) – Monographs and Evaluations	Internet	Public	http://www.inchem.org/pages/jecfa.html
IPCS Joint Meeting on Pesticide Residues – Monographs & Evaluations	Internet	Public	http://www.inchem.org/pages/jmpr.html
Pesticide Data Sheets	Internet	Public	http://www.inchem.org/pages/pds.html

Literature	Location(s)	Who has access?	How to gain access
INCHEM Poisons Information Monographs	Internet	Public	Http://www.inchem.org/pages/pims.html
IPCS INCHEM Screening Information Data Set (SIDs) for High Production Volume Chemicals	Internet	Public	http://www.inchem.org/pages/sids.html
IPCS Chemical Incidents and Emergencies	Internet	Public	http://www.who.int/pcs/chem_incid_main.html
Good Laboratory Practice Principles	Various libraries in SA	Public	On request
EPA Guidelines for the Testing of Chemicals	Internet	Public	http://www.epa.gov/oppfead1/harmonization/docs/E425guideline.pdf
OECD's Work on Good Laboratory Practice (GLP) and Compliance Monitoring	Internet	Public	http://www1.oecd.org/ehs/glp.htm
The European Commission - Good laboratory practice The GLP directives	Internet	Public	http://europa.eu.int/comm/enterprise/chemicals/glp/legisl/dir/dir.htm
The United Kingdom Good Laboratory Practice Monitoring Authority (UK GLP MA)	Internet	Public	http://www.mca.gov.uk/ourwork/ensurequalmed/inspectlabs.htm
NIOSH – CISS, IDLH, NMAM, MEDTEST, NASD, eLCOSH, ICSF, CEL, NPG, NIOSHTIC-2	Internet	Public	http://www.cdc.gov/niosh/databas e.html
Chemical Industry.com resource page	Internet	Public	http://www.neis.com/
NIH National Toxicology Program – Chemical Health and Safety Data	Internet	Public	Http://ntp-server.niehs.nih.gov/Main_Pages/Chem-HS.html

8.6 Availability of International Databases

Table 8.D: Availability of International Databases

Database	Acronym	Location	Who has access?	How to gain access
US EPA Integrated Risk Information System	IRIS	Internet	Public	On-line: http://www.epa.gov/iris/
Agency for Toxic Substances and Disease Registry (ASTDR) Toxicological Profiles, MRLs & HazDat Database	ASTDR....	Internet	Public	On-line: http://www.atsdr.cdc.gov/hazdat.html#A3.1.2

Database	Acronym	Location	Who has access?	How to gain access
Comprehensive Environmental Response, Compensation, and Liability Information System database	CERCLIS	Internet	Public	On-line: http://www.epa.gov/enviro/html/cerclis/cerclis_query.html
US NIOSH Registry of Toxic Effects and Chemical Substances	US NIOSH RTECS	Internet	Public (by subscription)	On-line: http://www.cdc.gov/niosh/rtecs.html Contact: Robert A. Taft Laboratories 4676 Columbia Pkwy. Cincinnati, OH 45226
Toxicological Data Network	TOXNET	Internet	Public	On-line: http://toxnet.nlm.nih.gov/
Health Effects Assessment Summary Tables	HEAST	Internet	Public	On-line:
International Labour Organisation: International Occupational Safety and Health Information Centre	ILO CIS	ILO Office SA	Public	On request
		Internet	Public	On-line: http://oracle02.ilo.org/dyn/cisinst/osh.search
International Programme on Chemical Safety INTOX	IPCS INTOX	DEAT	DEAT Officials	On request
		Internet	Public (need to subscribe)	On-line: http://www.intox.org Contact Canadian Centre for Occupational Health and Safety Client Services 250 Main Street East, Hamilton, Ontario, Canada L8N 1H6
UNEP Pollutant Release & Transfer Registers (PRTR)	UNEP PRTR	Internet	Public	On-line: http://www.chem.unep.ch/prtr/Default.htm
International Registry of Potentially Toxic Chemicals	IRPTC	DEA&T	DEA&T Personnel	On request Contact:
		Internet	Public	On-line: http://irptc.unep.ch/
Chemical Abstract Services Database		CSIR	Public	On request
		Internet	Public (need to subscribe)	On-line: http://www.cas.org/ Contact: help@cas.org
Global Information Network on Chemicals ²	GINC	Internet	Public	On-line: http://www.nihs.go.jp/GINC/
Scientific and Technological Information Network		CSIR	Public	On request
			Public (need to subscribe)	On-line: http://stnweb.cas.org Contact: help@cas.org
Information Exchange Network on Capacity Building for the Sound Management of Chemicals	INFOCAP	Internet	Public	On-line: http://www.who.int/ifcs/infocap/ Contact: infocap@who.int

8.7 National Information Exchange Systems

There is no established mechanism for exchange, but government bodies do communicate and interact through various co-ordinating mechanisms (see Chapter 7) and information mechanisms. Most such information exchange mechanisms are achieved through Memoranda of Agreements between government agencies.

However this could be much improved through the establishment of an overarching chemicals management co-ordinating mechanism that could have one of its functions to co-ordinate relevant information exchange.

It is envisaged that by the completion of the National Chemical Profile, a web portal will be established for this purpose.

8.8 General Comments

8.8.1 Data Availability

Whilst in the process of compiling the National Chemical Profile the project team had great difficulty in obtaining the information against which the status and efficiency of chemical management of the country could be measured. In numerous occasions information was found to be not readily available, outdated, inconsistent, contained gaps and/or in an inadequate format. Often it was difficult to establish the appropriate source of information and custodianship.

It should be noted that not all the sources indicated in the tables of this chapter were confirmed and it was not established to what extent the information was indeed available and/or useful to the public. Therefore, the objective of this chapter was not achieved, namely, to analyse how this information is used for national and local chemical risk reduction due to gaps in information.

The data that has been gathered in this report has come mainly from the following sources:

South African Revenue Services (SARS): Customs & Excise

SARS provided very high-quality import and export data at a detail level of the compound concerned, the tonnage, the value and date. The data was grouped according to the Customs & Excise tariff book. It was provided in Microsoft Excel format which was however not user-friendly.

SARS provided all the import and export data shown in Chapter 2.

The Government Communications and Information System

The GCIS produces the publication South Africa Yearbook. The whole book is on the internet and contains very large amounts of information and statistics covering all aspects of South Africa. It provided some of the information and data in Chapter 2.

To see the book go to www.gcis.gov.za

Statistics South Africa

Stats SA provides huge amounts of information and data also covering all aspects of South Africa. The data and information is provided on the internet and in hardcopy in what are termed statistical releases and reports. Stats SA provided all of the production and use data in Chapter 2.

For more information see www.statssa.gov.za

Chemical Sector Information System for Southern Africa. (ChemISSA)

ChemISSA is an Internet based information system that covers the trade, manufacturing and consumption of all categories of chemical products in the 14 member states of the Southern African Development Community or SADC.

ChemISSA is an initiative of the Department of Trade and Industry, (DTI) and The Council for Scientific and Industrial Research (CSIR). It provides basic data as well as in-depth chemical trade analysis. It is web based and current.

There is however a substantial charge for its use, which makes it inaccessible to the public.

For more information see www.chemissa.co.za

8.8.2 Data Analysis

Although the availability and adequacy of information required to effectively manage chemicals has not been analysed in detail, the following observations were made:

- No tracking or audit system exists in the country where chemicals are tracked from production or import to secondary use and final disposal. This limits the effectiveness of the current controls.
- A lack of information and discrepancies in information regarding disposal of chemical wastes exist. Of particular concern, is the lack of information regarding industrial waste disposed of on site (see Chapter 2, Section 2.3.1).
- No coherent approach to the rehabilitation and registration of contaminated sites has been established. A national inventory of the location of contaminated sites has not been undertaken, however, with the African Stockpile Program and project under the Stockholm Convention, sites contaminated with pesticides will be documented in an inventory.
- Emissions inventories are presently outdated and inadequate, with limited or insufficient data currently available. Reportedly, DEAT plans to update the inventory in the near future under the new NEM: Air Quality Act, 2004 (see Chapter 2, Section 2.3.2).

As already highlighted in Chapter 3, Section 3.4, the lack of sufficient, accessible and user-friendly information on chemical production, import, export and use is perhaps one of the most significant obstacles to establish an integrated chemical safety management system.

CHAPTER 9

TECHNICAL INFRASTRUCTURE

The purpose of this Chapter is to provide an overview of the technical infrastructure in the country related to the management of chemicals.

CHAPTER 9

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9 TECHNICAL INFRASTRUCTURE

9.1 Introduction

This chapter provides a broad-based, generic overview of the available technical infrastructure in the country. This report does not provide a detailed analysis of the available infrastructure that supports chemicals management and assessment of its strength and weaknesses; as such a study was not readily available at the time of compiling this document.

The overview provided covers the following:

- Laboratory and Accreditation Infrastructure
 - Government Information Systems / Computer Capabilities
 - Technical Training and Education Programmes
-

9.2 Overview of Laboratory and Accreditation Infrastructure

Laboratories that provide services regarding the research and management of chemicals are operated within the various research institutions (described in Chapter 6, Section 6.1), universities and other higher education training centres, the South African Bureau of Standards (SABS), industries and private service sector.

South Africa is self sufficient for a large proportion of its laboratory and analytical equipment needs but does rely on use of overseas laboratories for certain speciality analysis.

South Africa has a national laboratory accreditation system, which is known as SANAS (See 9.2.1 below). An ever increasing number of laboratories apply for accreditation and the SANAS organisation provides a list of accredited laboratories together with their location and the discipline of its services (see Annexure 9.A).

9.2.1 South African National Accreditation System (SANAS)

(SANAS) is recognised by the South African Government as the single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers and Good Laboratory Practice (GLP) test facilities are competent to carry out specific tasks. The formal recognition is by means of a SANAS certificate.

SANAS is responsible for the accreditation of Certification Bodies to ISO/IEC Guide 62, 65 and 66 (and the IAF interpretation thereof), and laboratories (testing and calibration) to ISO/IEC 17025. Inspection Bodies are accredited to ISO/IEC/17020 standards. GLP facilities are inspected for compliance to OECD GLP principles.

The Need for Accreditation

The global trend is towards a free market with no economic trade barriers, allowing for free movement of goods and interchange of services. Such a situation can only be consummated when technical barriers to trade are also eliminated.

The World Trade Organisation and the European Union (EU) both have noted that the lack of acceptance of test results and certification, are the most significant non-tariff barriers to trade.

Accreditation of laboratories/inspection bodies and certification bodies, using common standards and practices is seen as the most effective way of defeating these barriers. To this end major trading countries have established independent and internationally credible accreditation bodies.

At the apex of the world accreditation pyramid is the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF), both of which SANAS is a member.

History of the National Accreditation System

Accreditation in South Africa dates back to 1980 with the formation of the National Calibration Service (NCS), later the National Laboratory Accreditation Service (NLA). In 1994 the NLA became an independent Section 21 company (non-profit company in terms of the Companies Act, 61 of 1973) in line with international requirements pertaining to autonomy.

The government through the Department of Trade and Industry (DTI) had recognised the need to create a single national accreditation system and during 1995 the newly independent NLA was contracted to manage the establishment of this system, to be called the South African National Accreditation System (SANAS). NLA then ceased to operate as an accreditation body and today addresses generic issues concerning accreditation.

SANAS became fully operational during 1998 with two divisions in place, one for accreditation of laboratories/inspection bodies and the other, handling the accreditation of all certification bodies.

About SANAS

SANAS is operating under its own constitution. It is an independent non-profit Section 21 company. SANAS is directed and legally represented by a Board of Directors whose members are appointed by the stakeholders and the Department of Trade and Industry.

SANAS operates in accordance with the requirements, criteria, rules and regulations laid down in the following documents:

- The Memorandum of Association, detailing the basic legal requirements to be complied with by SANAS.
- The Articles of Association, detailing the rules and regulations of SANAS.
- The requirements of the international standard ISO/IEC 17011, General requirements for bodies providing assessments and accreditation of conformity assessment bodies.

- The requirements as stipulated in the various Memorandums of Agreement with the international bodies and the national regulatory bodies.

Approval Committees make decisions concerning the granting and continuation of accreditation and GLP compliance.

Organisations accredited by SANAS become stakeholders in SANAS and are entitled to use the appropriate SANAS logo on the certificates they issue, their letterheads, business cards and promotional material. SANAS accreditation benefits accredited organisations through an impartial feedback by experts on their performance.

SANAS participates and is currently represented on the major committee in the accreditation arena and also participate in the assessments of other national and regional accreditation Bodies.

The system offered by SANAS covers compliance monitoring according to OECD Principles of Good Laboratory Practice.

SANAS represents South Africa in all matters related to accreditation in conformity assessment and in the broader area of international acceptance of the tool of conformity assessment. After completion of extensive peer evaluation formalities over a number of years, SANAS was invited to become a founder member of the Multi-Lateral Recognition Arrangements of both IAF and ILAC.

Why Accreditation

The World Trade Organisation and the European Union (EU) both have noted that the lack of acceptance of test results and certification, are the most significant non-tariff barriers to trade.

Accreditation of laboratories and certification bodies, using common standards and practices is seen as the most effective way of defeating the economic barriers. To this end major trading countries have established independent and internationally credible accreditation bodies.

At the apex of the world accreditation pyramid is the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF), both of which SANAS is a member.

This objective is being accomplished through the establishment of a world-wide network of national accreditation bodies, which will through Multilateral Agreements (MLAs) eventually ensure that the competence of certification bodies and laboratories (testing and calibration) are assessed on the same principles, regardless of where in the world they are located. These assessments are based on the harmonised ISO standards.

Another trend is towards the creation of regional groupings, similar in concept to the long established European Union (EU). The countries within these assemblies harmonise their own standards and establish MLAs through a single body. The first moves were taken during 1996 to establish a grouping in Southern Africa through the creation of three Southern African Development Community (SADC) forums, representing standards, metrology, and accreditation. A longer-term objective may be the formation of a SADC Accreditation Cooperation.

Database of Accredited Organisations

SANAS maintains and publishes a database of all accredited organisations. This allows potential customers of the accredited organisations to have access to the services provided by the accredited organisations.

Accredited organisations included in the database are available in the following categories:

Accredited Laboratories:

- Testing Laboratories
- Medical Laboratories
- Calibration Laboratories
- Veterinary
- Pharmaceutical
- Legal Metrology

Bodies:

- Inspection Bodies
- Certification Bodies
- Proficiency Testing

Compliant Facilities:

- GLP and GCP

The database is available at <http://www.sanas.co.za/bodies.php>. A complete list of present accredited organisations is included in Annexure 9.A.

The SANAS website allows for keyword searches to be conducted on the names of organisations/laboratories/bodies as well as their location and disciplines. Examples of such keyword searches are provided in Annexure 9.B.

SANAS is presently in a process of upgrading the database to include accreditation schedules and relevant search functions to in future allow for more specific searches based on which analytical and testing methodology is used.

Services Offered By SANAS

1. Laboratory Accreditation

A calibration laboratory is accredited to measure specific parameters at certain accuracy as demonstrated by the best measurement capability (BMC) which appears on its schedule of accreditation. Testing laboratories are accredited for specific test methods or techniques.

These capabilities must be periodically demonstrated by measurement, using the philosophies contained in ISO/IEC 17025. This serves to maintain confidence in the laboratory's ability to perform accurate measurements.

2. *Certification Body Accreditation*

- Quality Management Systems (QMS)

SANAS accredits certification bodies to certify management systems (QMS) of organisations against ISO Guide 62 and the IAF interpretation for the quality management systems ISO 9001 and 9002.

- Product Certification

SANAS accredits certification bodies to certify product certification of organisations against ISO Guide 65 and the IAF interpretations.

- HACCP

SANAS accredits certification bodies to certify organisations within the food sector to HACCP requirements.

- Environmental Management Systems (EMS)

SANAS also accredits environmental management systems (EMS) of organisations to ISO 14000 and the IAF interpretation of this standard.

3. *Inspection Body Accreditation*

SANAS is in a process of expanding its activities into the area of accreditation of inspection bodies. This will cover the quality management system and technical competence of such bodies to offer certification of certain products and services, such as vessels under pressure, safety and other valves, and food hygiene.

These bodies would be accredited in terms of national and/or international codes of practice. This will include, but will not be restricted to, the certification schemes and Codes of Practice of the SABS.

4. *Training*

At present SANAS offers various suites of courses pertaining to laboratory accreditation.

Courses provided by SANAS include:

- Laboratory Systems Course (ISO 17025)
- Internal Auditing Course
- Inspection Bodies Systems (ISO 17020)
- Overview of Accreditation
- Documenting Your System
- Certification (ISO Guide 62, 65, 66)
- Trade Metrology System (ISO 17025 & SABS 0378)

- ISO 17025 Conversion

Additional information can be obtained from <http://www.sanas.co.za>.

OECD working groups and South Africa's participation

South Africa is the first non-member country to sign on to the OECD's Mutual Acceptance of Data (MAD) in the assessment of chemicals, and as a result will accept data from OECD countries generated under MAD conditions. South Africa is also now able to take part in the OECD Chemicals Committee meetings.

This removes a potential non-tariff trade barrier between South Africa and OECD countries for marketing chemicals that would have been caused by different standards and verification procedures. It also opens up the possibility for producers in OECD countries to have safety tests for their chemicals undertaken in South Africa.

The participation of South Africa in the OECD activities on chemicals provides opportunities for SANAS to strengthen its technical skills in the area of GLP and MAD, thus contributing to the competitiveness of industries which use this type of service.

Other benefits include the chemical safety programme which is directed by the Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology, which meets twice a year.

9.2.2 The National Laboratory Association (NLA)

The NLA continues to exist in the form of a voluntary association of laboratories.

The NLA addresses generic issues concerning accreditation, such as interpretation of accreditation requirements, identifying generic national accreditation needs and resolving issues that are not covered by SANAS STCs, with the objective of making representation to SANAS on behalf of the association of laboratories.

As such the NLA continues to play a vital role in the laboratory community, with the functions and goals of the association including the following:

- nomination for members of SANAS STC's when requested
- identify specialists as lecturers for relevant training courses
- develop courses geared towards supporting metrology and test laboratories
- manage the intellectual property of the NLA through the transfer of knowledge and encouragement of questions on the NLA website <http://www.nla.org.za> and the media
- organise a register of courses and co-ordinate the presentation of them (See <http://www.nla.org.za/cmetsa>)
- represent the local laboratory community nationally (through SANAS, SABS and other bodies) and internationally (through ILAC, Laboratory Committee, Eurolab etc).
- promote the benefit of an impartial laboratory association to both existing and new members as well as the community at large
- create and support special interest groups

9.2.3 Independent Laboratories

An ever increasing number of laboratories realise the need to obtain accreditation through SANAS in order to remain competitive as ever increasingly legislation and their potential clients insist on the use of accredited laboratories. A number of laboratories are not yet accredited some of which operate in various services and industrial organisations. Lists of these laboratories are not available.

9.2.4 Assessment of Laboratory Infrastructure

The information that is currently available on the SANAS database does not lend itself to detailed evaluation and assessment of whether South Africa has the capacity to analyse and test for hazardous or banned substances. No other database is known to collate South Africa's laboratory data.

Any search for laboratories that conducts analysis for specific substances, eg PCBs or specific pesticides, is thus done manually through contacting likely laboratories and networking. Also not readily available is information on courier and laboratory services offered in support of communities that are situated in rural areas.

Strength and weaknesses of the laboratory infrastructure for management of chemicals should be assessed once SANAS has included the accreditation schedules into their database, as this would allow for establishing capacity for analysis of specific substances.

Where South African laboratories have a lack of capacity in terms of specific analyses, eg analysis for dioxins and furans, people that require the analysis have to courier the samples overseas for analysis at laboratories with the appropriate capacity.

With many Multilateral Environmental Agreements (MEAs), for example, the Stockholm Convention, Rotterdam Convention, the Globally Harmonized System for Hazard Communication and Labeling, and the Strategic Approach to International Chemicals Management (SAICM) encouraging the strengthening of national capacity to manage chemicals safely, South Africa has conducted workshops to identify its laboratory capacity to meet its obligations under these MEAs.

Further information can be found on <http://www.sanas.co.za>.

9.2.5 Laboratories at Universities and Research Institutions

Research laboratories at the various training and research institutions are in general well equipped to support the various research projects (see Chapter 6 for description of such institutions and relevant research projects). The National Research Foundation (NRF) and the Department of Science and Technology have assisted universities to build capacity of laboratories in universities in their quest to establish Centres of Excellence in Research and Development in the country.

9.3 Overview of Government Information Systems / Computer Capabilities

During the past couple of years numerous South African government departments have opened up websites allowing access to information on the workings of their departments as well as topics and data related to their field of jurisdiction. Most of these websites provide relevant contact details and means to provide comment and raise queries electronically.

Most national, provincial and local government departments have access to Email and the Internet connected nationally and internationally. Generally governmental computer networks are compatible.

Some government departments have retained their own information technology (IT) sections. The government is however in a process of pooling resources and expertise into organisations thus effectively outsourcing these functions. Examples of such organisational structures are the Government Communication and Information System (GCIS) and the State Information Technology Agency (SITA).

9.3.1 Government Communication and Information System (GCIS)

Following a lengthy investigation by a team of experts and the involvement of a large number of institutions of civil society as well as individuals from academia, media and the advertising world, GCIS was established in 1998. The GCIS has the mandate to communicate on behalf of government. This mandate is primarily drawn from Section 16 of the Bill of Rights, which guarantees citizens freedom of speech. The consequence of this is their right not only to receive information about government, but also for citizens to communicate their views and activities.

The GCIS is envisaged as a system of government communications headed by a Secretariat characterised as:

- A strategising body located in the Presidency dealing with issues of government message, communications strategy, and corporate image.
- A body to integrate, coordinate and rationalise the work of all communications structures in government, including training relevant to communications.

GCIS Priorities

The following are the key priorities presently identified by the GCIS Secretariat:

- **Development communications:** The aim of this is to ensure that all South Africans are empowered to know their rights and to take full advantage of the socio-economic opportunities. In this regard GCIS expects to play an important role in servicing tele-centres and multi-purpose community/information centres.
- **Streamlining the government communications system**
- **Training:** One of the immediate proposals that GCIS was to attend was the establishment of a National Training Board for government communication with the aim of servicing the whole of government.
- **Building partnerships with the Media**

- **Better utilisation of Internet Technology:** It is envisaged that the GCIS Website shall provide a single entry point for government information, with all government departments being encouraged to develop their own websites.
- **Bua (Speak out) - the right to know.**

Further information can be obtained from <http://www.gcis.gov.za>.

9.3.2 State Information Technology Agency (SITA)

SITA is an Information Technology (IT) company providing IT and related services. Although the Government is the sole shareholder and the rights attached to the shares are exercised by the Minister on behalf of the State, SITA is managed as a private company. It was registered with the Registrar of Companies as "State Information Technology Agency (Pty) Ltd" on 29 January 1999.

The company came into operation on 4 April 1999 as a result of the SITA Act (Act 988 of 1998). Although it is a very young company, its predecessors, CCS (a Chief Directorate of the Department of State Expenditure), Infoplan (of the Department of Defence) and SAPS IT (of the South African Police Service), had a long history of IT/IS service provision to the SA Government. The rest of the other departments will be incorporated on a phased basis. All/most departments could be taken up within five years.

Reason for SITA

The primary reasons for the creation of SITA were the government's difficulty in -

1. recruiting, developing and retaining skilled IT personnel;
2. managing IT procurement and ensuring that the government gets value for money;
3. using IT to support transformation and service delivery;
4. utilising effectively expensive IT resources; and
5. integrating IT initiatives.

In short, SITA was established to consolidate and co-ordinate the State's IMST interests.

Mandate

The mandate defines SITA's client base as inclusive of:

- i. All Government national departments
- ii. Provincial and local governments and
- iii. All Organs of State

Further information can be accessed through <http://www.sita.co.za>.

9.4 Overview of Technical Training and Education Programmes

South Africa has 22 universities and 13 technicons as well as a number of other higher education institutions that offer a wide range of courses, modules and qualifications that have some relevance to managing chemicals. Unisa is the largest university in South Africa and one of the largest distance education institutions in the world. A list of all South African universities and links to their websites is provided in http://www.gov.za/sa_overview/sa_webs.htm.

For many years a number of the universities and technicons have offered courses in chemistry and chemical engineering in support of the chemical, mining and manufacturing industries as well as relevant research functions and institutions. Over the years courses were increasingly supplemented with subject modules on cleaner production, environmental and occupational health science, management and legislation. Professional organisations such as South African Chemical Institute (SACI), South African Institute of Chemical Engineers (SAIChE) and Engineering Council of South Africa (ECSA) respectively support and promote the chemical science and engineering profession by accreditation of learning institutions to ensure that education is in line with international best practices. (See Chapter 6, Section 6.3 for more information on the professional organisations).

Certain legal faculties offer courses in environmental law. South Africa has a number of lawyers and law firms that practice environmental law.

Today certain institutions offer stand-alone courses in environmental science that deal with the practical aspect of application, compliance and management of environmental legislation and good environmental practices. Environmental scientists are employed in industry, health sector, government departments and consultancies.

Professional organisations such as South Africa Society of Occupational Medicine (SASOM), South Africa Society of Occupational Nursing Practitioners (SASOHN) (See Section) and South African Institute for Occupational Hygiene (SAIOH). (See Chapter 6, Section 6.3.3, 6.3.4, 6.3.5 respectively) support education relevant to various aspects of human health are provided at various institutions. Occupational health and safety modules are included in some of the Environmental Science courses. Occupational Hygiene has become a profession and sufficiently qualified practitioners can register with the Department of Labour as 'Approved Inspection Authorities'. For many years, SASOM has been advocating that occupational medicine be recognised as a speciality.

Certain universities' health science faculties offer courses relevant to forensic medicine and toxicology.

Many industries, which include the major chemicals producers, have developed and offer in-house training on environmental management, hazard and operability studies/risk assessment and procedures, occupational health and safety management and the like. Some industrial organisations however outsource such training to companies that provide such specialist training.

9.4.1 South African Qualifications Authority (SAQA)

The South African Qualification Authority (SAQA) is a body of 29 members appointed by the Ministers of Education and Labour tasked with the development and implementation of a National Qualification Framework (NQF). Identified national stakeholders in education and training nominate members.

The functions of the Authority are essentially twofold:

- To oversee the development of the NQF, by formulating and publishing policies and criteria for the registration of bodies responsible for establishing education and training standards or qualifications and for the accreditation of bodies responsible for monitoring and auditing achievements in terms of such standards and qualifications;
- To oversee the implementation of the NQF by ensuring the registration, accreditation and assignment of functions to the bodies referred to above, as well as the registration of national standards and qualifications on the framework. It must also take steps to ensure that provisions for accreditation are complied with and where appropriate, that registered standards and qualifications are internationally comparable.

National Qualification Framework (NQF)

In short, the NQF is the set of principles and guidelines by which records of learner achievement are registered to enable national recognition of acquired skills and knowledge, thereby ensuring an integrated system that encourages life-long learning.

The objectives of the NQF as outlined in the SAQA Act No.58 of 1995 are as follows:

- To create an integrated national framework for learning achievements
- Facilitate access to, and mobility and progression within education, training and career paths
- Enhance the quality of education and training
- Accelerate the redress of past unfair discrimination in education, training and employment opportunities
- Contribute to the full personal development of each learner and the social and economic development of the nation at large

Standards Setting and Quality Assurance

SAQA has two 'arms' ie Standards Setting and Quality Assurance. The sub-structures in the standards setting arm are the National Standards Bodies (NSBs) and the Standards Generating Bodies (SGBs), while the sub-structures in the quality assurance arm are the Education and Training Quality Assurance bodies (ETQAs).

SAQA may choose to appoint moderating bodies if it deems it necessary. The functions of SAQA are set out in the SAQA Act and have already been outlined above. The functions of the NSBs and SGBs are set out in the Regulations under the South African Qualifications Authority Act (Act No. 58 of 1995): NSBs, Government Gazette No. 18787 (28 March 1995) while the criteria for accreditation and the functions of the ETQAs as well as providers of education are set out in the Regulations under the South African Qualifications Authority Act (Act No. 58 of 1995): ETQAs, Government Gazette No. 19231 (8 September 1995).

In the NQF all learning is organised into 12 fields. SAQA has established 12 NSBs, one for each organising field. The 12 organising fields are as follows:

- NSB 01: Agriculture and Nature Conservation
- NSB 02: Culture and Arts
- NSB 03: Business, Commerce and Management Studies
- NSB 04: Communication Studies and Language
- NSB 05: Education, Training and Development
- NSB 06: Manufacturing, Engineering and Technology
- NSB 07: Human and Social Studies
- NSB 08: Law, Military Science and Security
- NSB 09: Health Science and Social Services
- NSB 10: Physical, Mathematical, Computer and Life Sciences
- NSB 11: Services
- NSB 12: Physical Planning and Construction

The National Learners' Records Database (NLRD) is an electronic management information system to facilitate the management of the National Qualifications Framework and enable the South African Qualifications Authority to report accurately on most aspects of the education and training system of South Africa.

The NLRD provides the following information:

- SAQA and its sub-structures, including National Standards Bodies (NSBs) and Standards Generating Bodies (SGBs) and their areas of competence and member details
- Standards and qualifications registered on the NQF including exit level outcomes and assessment criteria
- Accredited Education and Training Quality Assurance bodies (ETQAs) and the standards and qualifications for which accreditation has been granted
- Accredited providers and registered assessors
- SAQA-appointed Moderating Bodies
- The records of learners who achieve the outcomes of standards or qualifications registered on the NQF and their achievements.

9.4.2 Southern African Auditors and Training Certification Association (SAATCA)

SAATCA provides a framework under which quality management systems of suppliers of commodities and services could be assessed and audited.

It implements, administers and controls a scheme for the certification of quality system auditors and lead auditors. Two sub-committees were also established:

- The Training Panel, responsible for establishing and controlling procedures for the practical training of auditors, the accreditation and monitoring of organisations offering Quality System Auditor training courses with associated monitoring of the syllabus of training courses.
- The Evaluation panel, responsible for the establishment and control of written examinations to determine competency of auditors and lead auditors, grading

and re-grading quality system auditors and lead auditors and the appointment of certification boards.

9.4.3 Council on Higher Education (CHE)

The Council on Higher Education is an independent statutory body established in May 1998 in terms of the Higher Education Act, No 101 of 1997, and the White Paper: A Programme for the Transformation of Higher Education of 1997.

Mission

The mission of the CHE is to contribute to the development of a higher education system characterised by quality, responsiveness, equity, and effective and efficient provision and management. The CHE seeks to make this contribution

- by providing informed, considered, independent, strategic advice on higher education issues to the Minister of Education
- through the quality assurance activities of its Higher Education Quality Committee (HEQC)
- through the publication and dissemination of information on developments in higher education, including an annual report to parliament on the state of higher education.

Responsibilities

CHE exercises its responsibilities in accordance to a Programme for the Transformation of Higher Education of 1997, which includes:

- Advise the Minister on all higher education issues on which the CHE's advice is sought
- Design and implement a system for quality assurance in higher education and establish the Higher Education Quality Committee
- Develop means for monitoring and evaluating whether, how, to what extent and with what consequences the vision, policy goals and objectives for higher education defined in the White Paper on higher education are being realised
- Promote the access of students to higher education
- Provide advice to the Minister on the proposed new Education Management Information System for higher education
- Formulate advice to the Minister on stimulating greater institutional responsiveness to societal needs, especially those linked to stimulating South Africa's economy such as greater higher education-industry partnerships¹¹. Establish healthy interactions with higher education stakeholders around the CHE's work
- Produce an Annual Report on the state of higher education for submission to Parliament
- Participate in the development of a coherent Human Resource Development framework for South Africa in concert with other organisations.

Private Higher Education in South Africa

A major achievement thus far has been the establishment of the interim Higher Education Quality Committee involving all the key stakeholders.

Registration for Private Higher Education Institutions

In accordance with the Higher Education Act (1997), Private Higher Education Institutions are required to register with the Department of Education. The courses that these institutions offer are accredited by the Council on Higher Education (CHE).

The Department of Education, the Council on Higher Education and the South African Qualifications Authority continue to process applications from private institutions that wish to be recognised as private higher education institutions.

Additional information can be obtained from the following websites:

- <http://education.pwv.gov.za>
- <http://www.saga.org.za/>

9.4.4 Centre for Higher Education Transformation (CHET)

CHET is a non-governmental organisation that strives to develop transformation management capacity and skills throughout the higher education system by integrating skill development training processes with new knowledge production, debates and information dissemination. CHET pursues its aims within a framework of co-operative governance, the promotion of institutional, regional, national and international co-operation and the flexible mobilisation of expertise.

The Centre for Higher Education Transformation mobilises trans-disciplinary skills for specific projects by tapping available expertise in the national and international higher education sector. A non-hierarchical, flexible management style, modern information technology, and a heavy reliance on consultants and steering committees affords CHET the unique capacity to respond to higher education needs with only a limited number of full time staff.

CHET's activities are divided into three program areas within the broad framework of higher education transformation. The Management program promotes leadership and management capacity development for specific higher education constituencies, including: senior administrators, students, women, council members, and student services staff. The Debates program provides a forum for the exploration of current issues in higher education, with a specific focus on curriculum restructuring and individual case studies of institutional change. The Research & Evaluation program consists primarily of a Transformation Index Project that is developing indicators to measure and assess change at selected institutions. Diversity, conflict resolution and gender are three cross-cutting issues which underpin CHET's work in all three program areas.

CHET also provides a forum for interaction between the different structures, stakeholders, and constituencies in higher education. To this end, CHET is currently collaborating actively with the Ministry of Education, the Committee of University Principals, the Committee of Technikon Principals, Committee of College Education Rectors South Africa, and the National Centre for Student Leadership. International collaborators include the American Council on Education, the Association for African

Universities, the Commonwealth Higher Education Management Services, and the Centre for Higher Education Policy (Netherlands).

Additional information can be accessed through <http://star.hsrc.ac.za/chet/chet.html>.

9.4.5 Technology & Human Resources for Industry Programme (THRIP)

The Technology and Human Resources for Industry Programme (THRIP) is a joint venture between industry, research and education institutions and government that was established in 1991 and is organised by the National Research Foundation (NRF).

The programme supports the development of technology and appropriately skilled people for industry to improve South Africa's global competitiveness. THRIP performs this task by providing resources and mechanisms in support of collaborative research in the areas of science, engineering and technology (SET).

THRIP Objectives

The objectives of THRIP are:

- To contribute to the increase in the number and quality of people with appropriate technological skills for industry.
- To promote increased interaction among, and financial support of researchers and technology managers in industry, higher education and Science, Education and Technology Institutes (SETIs), with the aim of developing skills for the commercial exploitation of SET.
- To stimulate industry to increase its investment in research, technology development and innovation promotion.

In promoting the objectives of THRIP, the following thrusts receive high priority:

- Support for an increased number of black and female students who follow technological and engineering careers.
- A focus on the promotion of technological know-how within the small, medium and micro enterprise (SMME) sector.
- Facilitation and support of multi-company projects in which companies collaborate and share in the project outcomes.

THRIP Funding Criteria

THRIP will consider contributing R1 for every R2 invested by the private sector in SET research projects of which the project leader and project are based at a higher educational institution or Science Engineering and Technology Institutions (SETI), according to a defined set of criteria.

9.4.6 Problems and Concerns Regarding Provision of Technical Skills and Expertise

Despite the Provision of reasonable higher education and technical skills training offered through South African institutions, the country faces problems that impact on the sustainment of sufficient numbers of technically skilled people and experts and their level of training. Such problems include the following:

- The loss of technical skilled individuals and experts – reasons being the emigration (high crime rate in the country and better employment opportunities elsewhere in the world are often given as reasons) and aids
- High level of illiteracy
- Degraded schooling systems and use of inadequately trained teachers in certain areas
- Poor numbers of enrolment in mathematics and sciences across all levels of education

Being concerned about these issues the Department of Education has set the Major Strategic Priorities for the Next Five Years as follows:

- Making our provincial system work by making co-operative government work.
- Breaking the back of illiteracy among adults and youths in five years
- Developing schools as centres of community life
- Ending conditions of physical degradation in South African schools
- Developing the professional quality of our teaching force
- Ensuring the success of active learning through outcomes-based education
- Creating a vibrant further education and training system to equip youth and adults to meet the social and economic needs of the 21st century
- Building a rational, seamless higher education system that grasps the intellectual and professional challenges facing South Africans in the 21st century
- Dealing urgently and purposefully with the HIV/AIDS emergency in and through the education and training system.

9.5 General Comments

(a) Laboratory and Accreditation Infrastructure

In SANAS South Africa has an accreditation system that is recognised by the South African Government as the single National Accreditation Body for laboratories, certification bodies, inspection bodies and proficiency testing scheme providers and Good Laboratory Practice test facilities. Furthermore SANAS is a member of Multi-Lateral Recognition Arrangements of the international community through IAF and ILAC.

SANAS thus is instrumental in achieving a coordinated approach in managing laboratory and similar facilities in the country. Increasingly legislation and facility clients insist on the use of accredited facilities. It is encouraging that increasingly facilities apply for SANAS accreditation.

It is of concern that the information currently available on the SANAS facility database does not lend itself to detailed evaluation and assessment of whether South Africa has the capacity to analyse and test for hazardous or banned substances. It is also difficult to establish which laboratories test for specific chemicals and could provide other relevant services e.g. sample collection. No other database is known to collate South Africa's laboratory data.

Strength and weaknesses of the laboratory infrastructure for management of chemicals should be assessed once SANAS has included accreditation schedules into their database. This would allow for establishing capacity for analysis of specific substances

South Africa is self sufficient for analysis of a wide range of chemicals however relies on overseas laboratories for testing of specific chemicals such as dioxins and most POPs.

(b) Government Information System/Computer Capabilities

It is encouraging that most national, provincial and local government departments have access to Email and the Internet connected nationally and internationally and that generally governmental computer networks are compatible.

Pooling of information technology resources and expertise leads to effectively outsourcing these functions to organisational structures such GCIS and SITA. This could provide the basis for a more integrated approach and for improved access to information.

Whether the available infrastructure is sufficient to adequately cater for the needs of improved database establishment has not been established.

(c) Technical Training and Education Programmes

South Africa's many universities, technicons and other training facilities offer a host of degrees and courses relevant to chemicals management throughout the chemicals life cycle. Over the years courses were increasingly supplemented with modules on topics such as:

- Cleaner production
- Environmental impact assessment
- Occupational health science
- Substances Management
- Legislation relevant to occupational and environmental health management

Professional Institutes render support to the training centres and play an important role in ensuring a high quality in education and training.

However there is a general problem of illiteracy and lack of education amongst some population groups which affects the level of training amongst workers and consumers. Although the South African Government is investing heavily in increasing the level of education in the population, especially at the workplace, it will take a number of years to achieve levels of developed countries.

CHAPTER 10

INTERNATIONAL LINKAGES

The purpose of this Chapter is to describe national participation and involvement in international organisations and agreements concerned with the management of chemicals and to identify opportunities for an integrated approach at the national level

CHAPTER 10

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10 INTERNATIONAL LINKAGES

10.1 Co-operation and Involvement with International Organisations, Bodies and Agreements

Table 10.A : Membership in International Organisations, Programmes and Bodies

Note: The first contact for the International Bodies is always The Department of Foreign Affairs.

International Organisation / Body / Activity	National Focal Point (Ministry / Agency & Primary Contact Point)	Other Ministries / Agencies Involved	Related National Activities	Ref. to sub-section
Intergovernmental Forum on Chemical Safety (IFCS)	DEAT	<ul style="list-style-type: none"> • Dept of Health • Dept of Foreign Affairs • DEAT 	National programme on chemicals management	10.1.1
UNEP Chemicals	DEAT	<ul style="list-style-type: none"> • Dept of Transport • Dept of Health • Dept of Labour • Dept of Trade and Industries • Dept of Agriculture 	Participation in international negotiations	10.1.2
IE/PAC-Cleaner Production Centre	Dept of Trade and Industry & DEAT	<ul style="list-style-type: none"> • Industry Associations • Dept of Health • Dept of Trade and Industries 	Responsible Care	10.1.3
IPCS	Dept of Health	<ul style="list-style-type: none"> • DEAT 	Hazardous Substances Act	10.1.4
WHO	Dept of Health	All line Ministries	Chemical poisoning; STOP, Pesticides (eg DTI)	10.1.5
FAO	Nat Dept of Agriculture	All line Ministries	Voluntary Procedure see Table 10B	10.1.6
UNIDO	Dept of Trade and Industry	All line Ministries	No particular action.	10.1.7
ILO	Dept of Labour	All line Ministries	Labour relations and human rights	10.1.8
GEF and World Bank	<ul style="list-style-type: none"> • Dept of Finance 	All line Ministries	Financing and resourcing POP project	10.1.9
OECD	Dept of Foreign Affairs	All line Ministries	Numerous	10.1.10
Regional Economic Commissions (specify)	Dept of Foreign Affairs	All line Ministries		10.1.11
OPCW	Dept of Trade and Industries	Dept of Trade and industries	Implementation of the Chemical	10.1.12

International Organisation / Body / Activity	National Focal Point (Ministry / Agency & Primary Contact Point)	Other Ministries / Agencies Involved	Related National Activities	Ref. to sub-section
	The South African Council for the Non-Proliferation of Weapons of Mass Destruction.		Weapons Convention.	
ICSU	NRF		International Science Liaison.	10.1.13

10.1.1 Intergovernmental Forum on Chemical Safety (IFCS)

The Intergovernmental Forum on Chemical Safety, known as IFCS or the Forum, was established by the International Conference on Chemical Safety held in Stockholm in April 1994.

The Forum is a non-institutional arrangement whereby representatives of governments meet together with intergovernmental organisations and non-governmental organisations with the aim of integrating and consolidating national and international efforts to promote the objectives of Chapter 19 of Agenda 21.

While particular attention is devoted to Chapter 19, the IFCS also addresses linkages with other areas of Agenda 21, such as hazardous waste and human health.

Although the IFCS places a strong emphasis on full participation by all relevant parties, only governments have the right to vote. The IFCS has neither the mandate nor the resources to implement recommendations; rather this responsibility is left to governments and other participants.

WHO serves as the administering organisation for the Forum and its secretariat, whose expenses are covered by contributions from governments and other IFCS participants.

Bahia Declaration on Chemical Safety. October 2000.

This declaration expresses the participant's commitment to the future direction of the IFCS.

Key goals are those specified in the Priorities for Action Beyond 2000, and include:

- Expanding and accelerating international assessment of chemical risks
 - Organisations participating in the International Programme on Chemical Safety (IPCS) and the Inter-Organisation Programme for the Sound Management of Chemicals (IOMC), should ensure the adoption of recommendations pertaining to terminology, cancer, reproductive and developmental toxicology, immunotoxicology, endocrine disruption and ecotoxicology by 2004 (wherever possible)
 - Chemical hazard assessments should be carried out in accordance with internationally recommended methodologies by 2004, and the resulting information made available to the public.
- Harmonisation of classification and labelling of chemicals

- All countries are encouraged to implement the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals as soon as possible, with a view to having the system fully operational by 2008
- Information exchange on toxic chemicals and chemical risks
 - By 2005, at least five countries in each region, and by 2010, most countries should have fully operational arrangements in place for the exchange of information on hazardous chemicals
 - All countries are encouraged to ratify or accede to the Rotterdam Convention with a view to its entry into force as soon as possible, preferably by Forum IV in 2003
 - By 2004, most countries should have procedures in place to ensure that any hazardous material put into circulation is accompanied, at a minimum, by appropriate and reliable safety information consistent with the safety data sheets of the 1990 International Labour Organisation Chemical Convention (No 170) and taking into account GHS as it develops
- Establishment of risk reduction programmes
 - By 2004, most countries should have in place integrated and ecologically sound pest management strategies.
 - By 2004, countries should have established relevant action plans, and at least two countries in each region should have commenced with the implementation of their National Action Plans with respect to disposal of obsolete stocks of pesticides and other chemicals (particularly polychlorinated biphenyls (PCBs)).
 - By 2002, 70 or more countries should have implemented systems aimed at preventing major industrial accidents and for emergency preparedness and response.
 - By 2002, poison centres should have been established in 30 or more countries that do not have such centres, and further strengthened in 70 or more countries where they already exist
 - By 2004, at least two additional countries in each region should have established a Pollutant Release and Transfer Register (PRTR)/emission inventory, and countries without a PRTR/emission inventory should consider the initiation of a PRTR/emission inventory design process involving all affected and interested parties
- Strengthening of national capabilities and capacities for management of chemicals
 - By 2002, National Profiles, based on a multi-stakeholder process, should have been developed by most countries
 - By 2002, all countries should have designated an IFCS National Focal Point and established an intersectoral co-ordinating effort
 - By 2005, national policies with objectives, priorities, strategies and action plans with targets for improving the management of chemicals should have been developed in most countries and regions
- Prevention of illegal international traffic in toxic and dangerous products
 - The Forum requests that organisations participating in the IOMC establish a working group on illegal trafficking. This working group shall build on

ongoing activities within the IOMC and shall assess illegal traffic in toxic and dangerous substances, review measures to detect and prevent illegal traffic, and make recommendations as to how its participating organisations may advance, add value to and help integrate the work undertaken by Interpol, the Organisation for Prohibition of Chemical Weapons and the World Customs Organisation. These assessments and recommendations shall be considered by Forum IV in 2003.

Additional information can be sought from <http://www.who.int/ifcs>.

10.1.2 United Nations Environmental Programme (UNEP)

DEAT is participating, as a member of the UNEP governing council.

DEAT is implementing the following UNEP GC resolutions:

- Development of the APELL system in accordance with the requirements of chapter 19 of agenda 21.
- Development of the Pollution Release and Transfer Registers (PRTR) in accordance with the requirements of chapter 19 and 20 of agenda 21. The waste information system (WIS) is currently being initiated as the basis of establishing a PRTR in South Africa.
- Global Mercury Assessment Project. DEAT is a member of this global assessment group.
- Programme on the Assessment of Potentially Toxic Substances. DEAT participates in this programme.
- Strategic Approach to International Chemicals Management

10.1.3 IE/PAC- Cleaner Production Centre

The Department of Trade and Industry (DTI) coordinates this from the trade aspect and DEAT from the environmental aspect.

The CSIR is hosting the Cleaner Production Centre on behalf of DTI.

10.1.4 International Programme On Chemical Safety (IPCS)

The IPCS, launched in 1980, is a joint collaborative programme of the International Labour Organisation (ILO), United Nations environment programme (UNEP), and the World Health Organisation (WHO). WHO is the Administrating Organisation of the Programme.

The two main roles of the IPCS are to establish the scientific health and environmental risk assessment basis for safe use of chemicals (normative functions) and to strengthen national capabilities for chemical safety (technical corporation).

The national focal point is the Department of Health's Environmental Health (Presently responsible is Qaphile Ntsele, Deputy Director, 012 312-0597). Other Government Departments involved are the Department of Environment Affairs and Tourism, Department of Transport and Department of Labour.

Related national activities are:

- Revision of the Hazardous Substances Act in collaboration with DEAT. Application to IPCS for funding has been made.
- The INTOX project, which has the purpose of training environmental health officers on handling hazardous chemicals. The project has had little activity but IPCS and the Department of Health is considering reviving it.

The following issues are of relevance:

- A project that will establish the linkage of the IPCS with the Department of Health is being considered at this time.
- There is coordination between DEAT, the Department of Health, the Department of Labour and the Department of Transport with regard to the revision of the Hazardous Substances Act.
- The Standing Interdepartmental Advisory Committee for the Safeguarding of Man against Poisonous Substances (INDAC) coordinates the National Department of Agriculture, Department of Health and Department Water Affairs and Forestry.

Ms Ntsele was of the opinion that the IPCS should do more in identifying issues and giving more guidance. She also felt that, although there were coordination meetings between the different government departments, there was scope to increase this collaboration.

10.1.5 World Health Organisation (WHO)

Again the national focal point is the Department of Health's Environmental Health. Other Government Departments involved are the Department of Environment Affairs and Tourism, Department of Transport, Department of Labour, Department of Agriculture and Department of Mineral and Energy Affairs.

Related national activities are:

- Safety Towards Our People (STOP) which is an education system for schoolchildren for handling of domestic chemicals.
- WHO provides funding for health projects. The organisation has an office in Pretoria.
- WHO provides numerous documents on various health related subjects.
- WHO provides funding for the health care waste management/national strategy project. The initial workshop on this subject will be held later in 2002 incorporation with DEAT.

Ms Ntsele was of the opinion that WHO gave good guidance readily and was easy to contact. She is however of the opinion that the work of WHO is not well integrated into a comprehensive national programme at this stage. Although there were coordination meetings between the different government departments there was scope to increase the interaction.

10.1.6 Food and Agriculture Organisation (FAO)

The national focal point is the National Department of Agriculture. Other ministries involved are the Department of Environment Affairs and Tourism, Department of Health, Department of Water Affairs and Forestry, the Endangered Wildlife Trust and the Poison Working Group.

National activities are:

- Providing statistics of pesticides
- Liaison with, cropLife International for the FAO.
- The Standing Interdepartmental Advisory Committee for the Safeguarding of Man against Poisonous Substances (INDAC) coordinates the National Department of Agriculture, the Department of Health and the Department Water Affairs and Forestry. This includes the reporting system in database form on chemical poisoning

10.1.7 United Nations Industrial Development Organisation (UNIDO)

UNIDO is a business-orientated organisation that encourages development from an economic perspective. The organisation has an interest in the growing of the economy.

SA joined UNIDO in October 2000. Projects in SA and the region are still being developed. It is still in the early stages, and there is little in place by way of co-ordination procedures for those responsible for the protection of health, safety or the environment.

South Africa interest in UNIDO as the organisation has little by way of resources to offer South Africa although they are the core funders of the Cleanup Production Centre based at the CSIR.

10.1.8 International Labour Organisation (ILO)

South Africa has a long history of firm international relationship that have been founded on the grounds of the International Labour Organisation's (ILO) principles of tripartism. The Department of Labour (DOL) has been a member of the ILO since South Africa's re-admission in 1994. It had been a member previously since 1964.

It is a member of the Labour organisations that fall under the Organisation of African Unity (OAU) and the SADC, and has served on certain committees to do with ensuring that legislation and standards within the South African context are in keeping with those promoted internationally.

The South African DOL has ratified the core conventions of ILO. These core conventions, and other conventions that have been ratified, are followed very closely and incorporated into law where possible. (Core conventions that have been ratified and have relevance to chemicals management are provided in Chapter 4, Section 4.5.5)

There is considerable contact with the ILO and a permanent presence with the ILO in Geneva. South Africa attends the annual conferences, and is a deputy member of the governing body.

The Department approaches the ILO for services to do with Labour relations, human rights and other related issues. The ILO provides services to both small informal investigation and for more expensive study or project for which a mission would be established.

The ILO has a presence in Pretoria (Tel (012) 341 2170).

South Africa is continually applying for ratification with ILO conventions e.g.:

- Convention 174 "the prevention of major industrial accidents 1993" is presently being evaluated.
- Convention No 155 "occupational safety and health and the working environment 1983" is awaited to be passed by Parliament.

Government responsibilities vests with the Department of Labour (Executive Manager International Relations.)

The DOL will involve any government department that in their opinion is best suited for the particular convention e.g. for a pesticides convention the National Department of Agriculture, Department of Health and DEAT is involved. In this way all government departments are involved.

Further related national activities include the developed of continual labour and related issues in collaboration with the ILO.

The DOL participates in the SADC-ELS regarding all Labour Market issues. Specifically, DOL participates in the Technical Subcommittee on Social Security and Occupational Health, as well as Employment and Productivity TSC. The aim of this sub-committee is to harmonise OHS activities within the regions and to share scarce OHS resources.

South Africa has however not ratified the ILO in terms of ILO 170, the chemicals convention of 1990. Being a major international chemicals producer South Africa has however appropriate legislation in the form of the OHS Act and others. Only nine countries have ratified this particular convention, and none of them are notable chemical producing countries.

The only concern that was expressed was the problems with coordination of the various aspects of the ILO conventions across the various government departments.

10.1.9 World Bank and Global Environmental Facility (GEF)

According to the Senior Environmental Specialist, World Bank, Country Office in South Africa, the World Bank has resources of knowledge and information, abilities are raising and distributing funds, from The Global Environmental Facility (GEF) and implementing projects for South Africa (IBRD below commercial rate). The Department of Foreign Affairs is involved in negotiating international treaties.

The national focal point, particular for the POP project (the eliminating of obsolete pesticides: Stockholm Convention) is DEAT. Other ministries involved are the Departments of Health, Labour, Trade and Industry and Foreign Affairs.

Also see section 10.2.1 Multilateral agreements.

10.1.10 Organisation for Economic Community Development (OECD)

South Africa is an observer in the OAECD Committee on the testing of chemicals.

10.1.11 Regional Economic Commissions.

10.1.12 Organisation for the Prohibition of Chemical Weapons (OPCW)

An international body, the Organisation for the Prohibition of Chemical Weapons (OPCW) based in the Hague, oversees the implementation of the Chemical Weapons Convention (See section 10.1.23) and undertakes verification inspections. 145 Countries are members of OPCW and 41 are members of the Executive Council of State bodies including South Africa.

The vision of the organisation is of a world both free of chemical weapons and in which cooperation in chemistry for peaceful purposes for all is fostered and its ultimate aim is to contribute to international security and stability, to general and complete disarmament and to global and economic development.

To this end the organisation propose policies for the implementation of the Convention to the Member States of the OPCW and develop and deliver programmes with and for them. These programmes have four broad aims: to ensure a credible, transparent regime to verify the destruction of chemical weapons and prevent their re-emergence in any Member State, while also protecting legitimate national security and proprietary interests; to provide protection and assistance against chemical weapons; to encourage international cooperation in the peaceful uses of chemistry; and to bring about universal membership of the OPCW by facilitating international cooperation and national capacity building.

The organisation has two fundamental principles underline their approach. The first is the centrality of the Convention's multilateral character. The second is the equal application of the provisions of the Convention to all States Parties.

Inspections

The implementation of the Chemical Weapons Convention's (CWC) verification regime is done by means of inspections. These inspections are carried out by 181 inspectors from 53 countries. All member countries are inspected on a regular basis.

According to the provisions of the CWC, eleven types of inspections can be conducted, as follows:

- **Military Sites:**
 - At former Chemical Weapons Production Facilities;
 - At Chemical Weapons Storage Facilities;
 - At sites of Old Chemical Weapons;
 - At sites of Abandoned Chemical Weapons;
 - Continuous monitoring of destruction of chemical weapons at Chemical Weapons Destruction Facilities.

- **Industrial and Research Sites:**
 - Facilities dealing with the chemicals listed in the Annex on Chemicals of the CWC as Schedule 1 chemicals. These chemicals are the most dangerous ones and they are used as chemical weapons. These facilities are called Schedule 1 Facilities;

- Facilities which produce, consume or process the chemicals listed in the Annex on Chemicals of the CWC as Schedule 2 chemicals. These chemicals can be used as precursors of chemical weapons;
 - Facilities which produce the chemicals listed in the Annex on Chemicals of the CWC as Schedule 3 chemicals. These chemicals have been used in the past as chemical weapons, like phosgene for instance, or they possess such lethal or incapacitating toxicity that could enable them to be used as chemical weapons. They also may be produced in large commercial quantities for purposes not prohibited under the CWC.
 - Other chemical production facilities. These are facilities that produce unscheduled discrete organic chemicals more than 200 metric tons per year, or produces unscheduled organic chemicals containing phosphorous, sulfur and fluorine, called PSF chemicals, more than 30 metric tons per year.
- Other Inspections:
 - Challenge inspections;
 - Investigation of alleged use of chemical weapons.

Verification

Verification is the process by which the OPCW checks that its member countries are fulfilling their obligations under the CWC.

The OPCW does this by:

- assessing declarations made by its member countries on a regular basis-this amounts to thousands of pages of documents in six languages;
- conducting regular on-site inspections of declared military or industrial sites and/or facilities to check (i.e. verify) the accuracy of the declarations made;
- conducting challenge inspections; and
- investigating any report that chemical weapons have been used.

10.1.13 International Council of Science (ICSU)

The National Research Foundation (NRF) is representing South Africa in International Science Liaison. This Liaison aims to forge and maintain strategic and intellectual alliances between individuals, institutions and organisations in the science research communities nationally and internationally to support the international competitiveness of the country.

The NRF states: “A free flow of ideas and information is vital to the process of scientific enquiry, and in turn, to our ability to address economic, environmental and social development issues both nationally and globally. Science crosses international boundaries to provide strong, positive connections between individual scientists, institutions and nations. Such exchanges contribute to the expansion of the global knowledge base to which we are linked.

It is in our national interest to participate in international scientific activities when one considers the relatively low level of spending on research and development (R&D) in

the country. Furthermore, internationally the escalating cost of R&D forces countries to use scarce resources and institutional infrastructure effectively. International collaboration maximises these outputs.”

The objectives of International Science Liaison are to:

- Make contact and remain in contact with the International Council for Science (ICSU) and other similar bodies to facilitate South African participation in relevant and important international scientific activities.
- Enter into and service bilateral agreements aimed at accessing expertise not available locally in order to strengthen the research base in South Africa.
- Facilitate international linkages to strengthen the research base in South Africa to ensure the socio-economic development of the country.
- Through the Africa Interaction Programme expand scientific cooperation between scientists in South Africa and their counterparts in the rest of Africa.
- Enhance the skills and capabilities in scientific research in the country through targeted international linkages and to access funding for such collaborative research programmes.

The South African ICSU Secretariat serves the South African scientific community and most of the ICSU unions and affiliates to which South Africa adheres. (See Chapter 7, Section 7.2)

Table 10.B: Participation in International Agreements / Procedures Related to Chemicals Management

International Agreements	Primary Responsible Agency	Relevant National Implementation Activities ²	Ref. to sub-section
IUPAC - International Union of Pure and Applied Chemistry	SACI	NRF	10.1.14
Agenda 21 – UN Commission for Sustainable Development. Chapters 19 and 20.	DEAT	National sustainable development strategy	10.1.15
UNEP London Guidelines (voluntary procedure) ¹	Replaced by Rotterdam Convention	PIC Convention ((DEAT) will be DNA)	10.1.16
FAO Code of Conduct (voluntary procedure) ¹	May be replaced by Rotterdam Convention or new code produced.	PIC Convention ((DEAT) will be DNA)	10.1.17
Montreal Protocol	DEAT	Implementation of Protocol	10.1.18
ILO Conventions relevant to the management of chemicals:	Department of Labour	.	10.1.19
<ul style="list-style-type: none"> ILO 170 - Chemicals Convention 		ILO 170 has not been ratified but it is covered by RSA legislation	
<ul style="list-style-type: none"> ILO 174 - Prevention of Major Industrial Accidents 1993 	Department of Labour	Presently being Evaluated	
<ul style="list-style-type: none"> ILO 155 - Occupational Safety and Health in the working Environment. 1983 	Department of Labour	Awaiting to be passed by Parliament.	
UN Committee for the Transport of Dangerous Goods	SABS	SABS Codes of Practice, and National Transport Act.	10.1.20
Basel Convention	DEAT Dept of Trade and Industry	Approval of import/export permits	10.1.21
London Convention	DEAT (Sea Fisheries)	Permitting system	10.1.22
Chemicals Weapon Convention	Dept of Trade and Industry	Ratified 13 September 1997	10.1.23
Biological Weapons Convention	Dept of Trade and Industry		10.1.24
Stockholm Convention	DEAT	DTI, SARS (C&Ex)	10.1.25
Rotterdam Convention	DEAT	DTI, SARS (C&Ex), NDA	10.1.26

¹ The DNA(s) for the PIC procedure should be identified.

² International agreements usually imply the need for significant national implementation activities. Therefore, complimentary information should be provided for each relevant international agreement on the corresponding national activities.

Further information can be accessed through <http://www.nrf.ac.za/>

10.1.14 International Union of Pure and Applied Chemistry (IUPAC)

The IUPAC is an association of bodies formed in 1919 by chemists from industry and academia who recognised the need for international standardisation of weights, measures, names and symbols in chemistry.

Almost 1 000 chemists throughout the world are engaged on a voluntary basis in the scientific work of IUPAC, primarily through its 37 Commissions, which are components of the following seven Divisions:

- Physical and Biophysical Chemistry
- Inorganic Chemistry
- Organic and Biomolecular Chemistry
- Macromolecular
- Analytical Chemistry
- Chemistry and the Environment
- Chemistry and Human Health

Standards

The IUPAC is well known for publishing definitive and up-to-date data such as:

- International thermodynamic tables of the fluid state (a recent volume in this series provides data on methanol)
- Solubility data series (over 70 volumes already published)
- Stability constants (contains nearly 25,000 pieces of data on metal-complex stability constants)
- Enthalpies of vaporisation of organic compounds
- Thermodynamic and transport properties of alkali metals
- Recommended reference materials for achievement of specific physicochemical properties
- Evaluated kinetic and photochemical data for atmospheric chemistry.

The IUPAC is also widely involved in establishing standard methods for use in analytical, clinical, quality control and research laboratories.

Environment

The various Commissions and Committees of IUPAC have undertaken an extensive array of environmental projects, some of which include:

- Environmental analytical chemistry
- Environmental particles
- Polymer recycling
- Determination of trace elements in the environment
- Gas kinetic data for atmospheric chemistry
- Pesticides in surface water

Chemical Research Applied to World Needs (CHEMRAWN)

IUPAC sponsors a continuing series of conferences which focus on topics in chemistry that have socio-political impact, such as the availability of raw materials, food chemistry and environmental matters.

Current projects resulting from these conferences include:

- Chemistry, Sustainable Agriculture and Human Well Being in Sub-Saharan Africa
- Chemistry for Cleaner Energy
- Fresh Water: Contribution of Chemistry to Quantity and Supply – Can the fresh water supply be sustained?

South African Context

South Africa participates in the Affiliate Membership Program through the South African Chemical Institute (SACI). The National Research Foundation also represents South Africa as one of 45 National Adhering Organisations.

Additional information can be obtained from the South African mirror site <http://sunsite.wits.ac.za/iupac/general/about.html>.

10.1.15 Agenda 21 – United Nations Commission for Sustainable Development

One of the objectives of the United Nations Commission for Sustainable Development (UN CSD) is to develop tools to measure progress towards sustainable development for all countries. A sustainable development indicator programme has been established by the UN CSD to create a viable and flexible system for monitoring progress on sustainable development, strategies, policies and activities. Regular reporting is, however, required from countries to assist the UN CSD in their assessment and evaluation of the usefulness of the indicator programme in this regard.

The Department of Environmental Affairs and Tourism (DEAT), as the lead agent for the environment in South Africa, is responsible for providing the UN CSD with an annual report on sustainable development. Many countries in the world have already developed strategies for the implementation of Agenda 21, mainly through structures such as national councils for sustainable development.

The DEAT reports to the UN Commission for Sustainable Development of Agenda 21 on an annual basis. It has a work programme of five years reporting on certain chapters of agenda 21.

It has developed a programme of indicators of sustainable development linked to the chapters 19 and 20 of agenda 21. The Forum is presently testing the indicator process developing a core of indicators to use for reporting purposes.

This core set of indicators will reflect on the effectiveness of chemicals management.

As a requirement under NEMA, DEAT reports annually on Government activities to the United Nations Committee for Sustainable Development.

The various government departments assist DEAT with the compilation of the reports through the compilation of the departmental Environmental Management Plans. (See Chapter 7, Section 7.1)

10.1.16 UNEP London Guidelines (voluntary procedure)

These have been replaced by the Rotterdam Convention.

10.1.17 Food and Agriculture Organisation (FAO) Code of Conduct (voluntary procedure)

The Agricultural Remedies, Stock Remedies, Farm Feeds and Fertilisers Act No 36 of 1947 is being reviewed. The Agricultural Production Enhancement Agents Bill has been drafted, and the FOA Code of conduct related to handling and use of pesticides will be incorporated into the new Act.

International trade in pesticides will be controlled by the Rotterdam (PIC) Convention and replace that part of the Code of Conduct.

This convention is currently managed by the FAO and UNIP as the Secretariat.

The work of the FAO and the FAO voluntary procedure are integrated into South African agricultural legislation.

Main concerns are communication and coordination of activities with the various government departments and communication of information from the FAO to AVCASA.

10.1.18 The Vienna Convention for the Protection of the Ozone Layer 22 March 1985 and Montreal Protocol on substances that deplete the Ozone Layer, 16 September 1987

The purpose of this convention (see also Chapter 4, sub-section 4.5.7) and its protocol is to protect human beings and the environment from the harmful effect of activities, which modify the ozone layer. It requires the parties to cooperate, according to their means, in research and legislative measures and to formulate agreed standards, procedures and measures in the form of protocols and annexes.

The 1987 Montreal Protocol sets out a timetable for the reduction of controlled substances, which deplete the ozone layer. It establishes a formula for determining calculated levels of consumption and production of controlled substances, based on the ozone-depleting potential of each substance. Although the convention has been ratified, no specific domestic legislation or regulation has been passed in this regard.

South Africa has however embarked on a voluntary program to phase out CFC's and there is provision in the import legislation for a levy.

10.1.19 The United Nations Institute for Training and Research (UNITAR)

The United Nations Institute for Training and Research (UNITAR) was established in 1965 as an autonomous body within the United Nations with the purpose of enhancing the effectiveness of the Organization through appropriate training and research. UNITAR is governed by a Board of Trustees and is headed by an Executive Director. The Institute is supported by voluntary contributions from

governments, intergovernmental organizations, foundations, and other non-governmental sources

UNITAR has the following functions:

- To conduct training programmes in multilateral diplomacy and international cooperation for diplomats accredited to the United Nations and national officials involved in work related to United Nations activities.
- To carry out a wide range of training programmes in the field of social and economic development.
- To carry out result-oriented research, in particular, research on and for training and to develop pedagogical materials including distance learning training packages, work books, as well as software and video training packs.

To establish and strengthen cooperation with other inter-governmental organizations, faculties and academic institutions, in particular for the development of research on and for training.

Projects Supported by UNITAR in South Africa.

Development of the Globally Harmonised System (GHS)

The development of an implementation strategy for the Globally Harmonised System for the Classification and Labelling of Chemicals (GHS) in South Africa – including on-the-ground training – is coordinated by the National Economic and Labour Council (NEDLAC), a tripartite statutory body established to address key issues of economic and social development in South Africa involving government, labour and business. The project is financially and technically supported by UNITAR/ILO with financial resources provided by the Government of the Netherlands. In 2002, a situation analysis was initiated and a gap analysis and the GHS implementation strategy will be completed in 2003. Complementary to these activities, a comprehensibility testing project will be implemented involving some 400 industrial and agricultural workers and consumers. Based on the ILO comprehensibility methodology and with input from the University of Cape Town, the project will review and test the comprehensibility of the hazard information provided and examine what additional measures are required to undertake effective chemical hazard communication. The results of this project activity will be the basis for developing labelling and hazard communication requirements and complementary training material in order to ensure that GHS information will be comprehensible to the concerned target audience.

Development of a National Chemical Management Profile, Priority Setting and Webpage Portal

In the context of the UNITAR/IOMC Project for National Profile Preparation, Priority Setting and Information Exchange for Sound Chemicals Management, supported by the European Commission and Government of Switzerland, a key project component is to develop a National Chemical Safety Website Portal This follows Chapter 19 of Agenda 21, which calls for the creation of national chemical information systems in developing countries and improved access to existing international systems of information exchange.

A way is to develop a National Chemical Safety Website which:

- provides a portal on the internet that provides links to key national and international information relevant to chemical safety;
- includes the National Profile, Report of National Priority Setting Workshop list of members of the Coordinating Committee, links to national institutions, etc.; and
- is developed and “owned” by key ministries and stakeholders involved in chemical safety.

A design and a template for its content can be provided by UNITAR.

African Stockpiles Programme (ASP)

African Stockpiles Programme (ASP) is a partnership between many international organisations including UNITAR, NGOs, governments, industry and multi-lateral funds to eliminate obsolete stocks of crop protection products from Africa and prevent further accumulation.

10.1.20 UN Recommendations for the Transport of Dangerous Goods In Progress

Primary Responsible Agency for coordinating the implementation of the recommendations is the National Department of Transport. The National implementation activities concern the implementing of relevant new legislation.

The UN recommendations also known as "The Orange Book" and the associated European ADR regulations have been converted to SABS Codes and included in South African legislation. There has been modification in some areas to suit local conditions. For example there is no legislation for inland waterways. In addition the United Nations recommendations have been used to produce the National Traffic Act of 1996 promulgated in 2000 (See Chapter 4, Section 4.4.3 (a)). Chapter 8 on 'Transport of Dangerous Goods' was given extra time to be implemented.

All regulations have now been put in force with the exception of the following:

- Chapter 5 part 4 D: Professional driving permit and certification of the training body.
- Training of traffic officers in enforcement of penalties.

10.1.21 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

The Basel Convention (March 1989)(see also Chapter 4, sub-section 4.5.3) strictly regulates trans-boundary movements of hazardous waste and imposes obligations on its parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.

The Basel Convention on the control of trans boundary movements of hazardous waste and their disposal was adopted in 1989 and entered into force on May 5th 1992. The Convention is the response of the international community to problems caused by the annual worldwide production of 400 million tonnes of wastes that are hazardous to people or the environment because they are toxic, poisonous, explosive, corrosive, flammable, eco-toxic, or infectious.

DEAT is both the focal point, and the competent authority for the Basel Convention. It reports to the secretariat of the Basel Convention about the implementation of this convention on an annual basis.

South Africa hosts the Basel Convention training centre for all English-speaking countries in Africa.

10.1.22 London International Convention for the Prevention of Pollution from Ships 1973, and its Protocols.

This convention and its protocols are concerned with setting standards developed by the International Maritime Organisation for tankers and other large vessels as well as waste disposal to sea. It is incorporated into South African law in the Marine Pollution (Prevention of Pollution from Ships Act (No.2 of 1986)), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).

The London Convention is incorporated in the Dumping at Sea Control Act. The primary responsible agency is the DEAT Sub Directorate of Marine and Coastal Pollution Management. Most of its work is occupied by issuing permits for dredge spoils and sinking of old vessels. It occasionally issues permits for ships in trouble, typically grounded, to release their cargo into the sea.

Further information is included in Chapter 4, Section 4.5.6 (b).

10.1.23 Chemicals Weapon Convention (CWC)

The Convention on Prohibition of the Development, Production, Stockpiling, Use of Chemical Weapons and of their Destruction was opened for signature in January 1993. South Africa ratified the CWC 13 September 1995 and was the 37th state body to do so. As of 21 June, 2002. 145 Countries are States Parties to the Chemical Weapons Convention through their membership with OPCW and 41 are members of the Executive Council of State bodies including South Africa.

South Africa promulgated the Non-proliferation of Weapons of Mass Destruction Act No 87 in 1993, and later in 1997 incorporated the Chemical Weapons Convention into South Africa legislation in its entirety. (Government Notice 754 of 1996) The South African Council of Non-Proliferation of Weapons of Mass Destruction (see Chapter 7, Section 7.2.6) was formed by regulations 704 and 705 of the act on 23rd May 1997. This body was appointed by the Ministry of Trade and Industry and had representatives from Departments of Foreign Affairs, Defence, Mining in Energy, South African Nuclear Energy Council, and representatives from the chemicals, biological, nuclear, and aeronautical industry. The Department of Trade and Industry provide the infrastructure.

The principle of the Convention and the legislation is to issue permits for three schedules of chemicals, discrete organic chemicals, and PSF chemicals. The definitions of these are as follows:

- Schedule 1 Chemicals: The actual active component in the chemical weapon.
- Schedule 2 Chemicals: Potential chemical weapon agents or precursor chemicals, produced in small quantities.

- Schedule 3 Chemicals: Potential chemical weapon agents or precursor chemicals, produced in large quantities.
- Discrete Organic Chemicals: Any compound of carbon which is identifiable by chemical name.
- PSF Chemicals: discrete organic chemicals containing phosphorus sulphur or fluorine.

New regulations are being drafted to cover other chemicals.

Not all chemical weapons are controlled by this legislation. Narcotics are not covered neither are explosives which are controlled by the police.

The South African Council of Non-Proliferation of Weapons of Mass Destruction, issues permits for the above chemicals and sometimes organises inspections of chemical producing factories. Most inspections however are carried out by the OPCW.

As already mentioned in Chapter 7, according to Mr A Boetcher, DTI, the council functions well. Its main concern being the inadequacy of current customs control of scheduled chemicals as the current six digits Harmonised System Customs Tariffs Codes is insufficient to allow control. To provide for adequate coding a 12 or even 14 digit system is required.

Further information can be obtained from the following sources:

- The Chemicals Weapons Convention: General Information for Industry. Published by South African Council for Nonproliferation.
- Newsletter to the Chemical Industry: Published by South African Council for Non-proliferation.

10.1.24 Biological Weapons Convention.

Incorporated into South African legislation by government Proclamation R16 of 2002 (28th February 2002)

10.1.25 Stockholm Convention – on Persistent Organic Pollutants (POPs)

In 1997 UNEP established an international negotiating committee to prepare a legally binding instrument aimed at reducing or eliminating environmental problems caused by persistent organic pollutants (POPs).

The POP Convention aims to prohibit the production and use (and possibly import and export) of ten identified POP substances. In addition the POP Convention aims to prevent, reduce and as far as possible, eliminate emissions of two identified POP byproducts. These 12 substances are all persistent in the environment; transported long-distance as far from their source, and bioaccumulate in the majority of living organisms. The 12 POPs that had been identified for global initiative under the convention are: aldrin, chlordane, dieldrin, DDT, endrin, HCB, heptachlor, mirex, PCB, toxaphene, dioxins, and furans.

The first International Negotiating Committee (INC) took place in 1998, and South Africa hosted INC5 in December 2000. The Convention was signed by South Africa at a diplomatic conference in Stockholm in 2001.

One of the main issues of the Stockholm Convention is the problem with Polychlorinated Bi Phenyls (PCBs). There is an increase in awareness amongst users of PCB contaminated transformers, oil recyclers and waste disposers on the issue and the procedures required to effectively phase out and dispose of PCB contaminated oils. This awareness could however be improved.

DEAT is both the focal point, and the competent authority for the Stockholm Convention. It reports to the secretariat of the Stockholm Convention about the implementation of this convention on an annual basis.

10.1.26 Rotterdam Convention - Prior Informed Consent (PIC)

The PIC Convention requires exchange of information on certain banned or severely restricted hazardous pesticides and industrial chemicals. Export can take place only with the Prior informed consent of the authorities of the importing country. The objective of the Convention is to promote shared responsibility between exporting and importing countries. The 31 chemicals presently included in the PIC Convention are listed in the attachment and include most of the chemicals listed in the Stockholm Convention.

DEAT represents SADC on the chemicals review committee.

The Rotterdam Convention is also a DEAT focal point and DEAT is a Competent Authority with the function reporting to the Chief Directorate of Environmental Quality and Protection.

The Rotterdam Convention is also not in force yet, because only 17 countries have signed up. South Africa is one of those signatories. When there are 50 signatories to the Rotterdam Convention it will come into force. In the meantime the convention functions by means of Intergovernmental Negotiations Committees (INC) which meet annually. Eight meetings have been held so far (INC 1 -- 8).

South Africa has not ratified this convention at this point, although it does plan to do so.

Future developments of this convention will focus upon the following:

- Reduction of the use of identified PIC chemicals.
- Identification of new PIC chemicals
- the line participation in the Chemical Review Committee

South Africa represents SADC in the Chemical Review Committee whose agenda includes management of chemical and hazardous waste.

10.2 Participation in Relevant Technical Assistance Projects

TECHNICAL ASSISTANCE PROJECTS; MULTILATERAL; BILATERAL; REGIONAL AND SUB REGIONAL AGREEMENTS

Regarding International Liaison and Coordination there are two levels of technical agreement projects:

10.2.1 Multilateral agreements

National contact point (GEF) -- DEAT International Liaison and Coordination.

There are two kinds of Bilateral or Multilateral agreement:

- (a) Technical cooperation agreements. eg. information exchange; capacity building projects.
- (b) Development Cooperation. ie. funded programmes such as projects with corporations.

National contact point - the appropriate IDC group of the National Treasury

Funding of projects would typically be by co-financing, 80 percent bilateral: 20 percent multilateral (GEF).

Multilateral Programmes

Multilateral programmes almost entirely involve the multilateral financing mechanism of the Global Environmental Facility (GEF), with for example the World Bank or the United Nations Environmental Programme (UNEP), as agencies

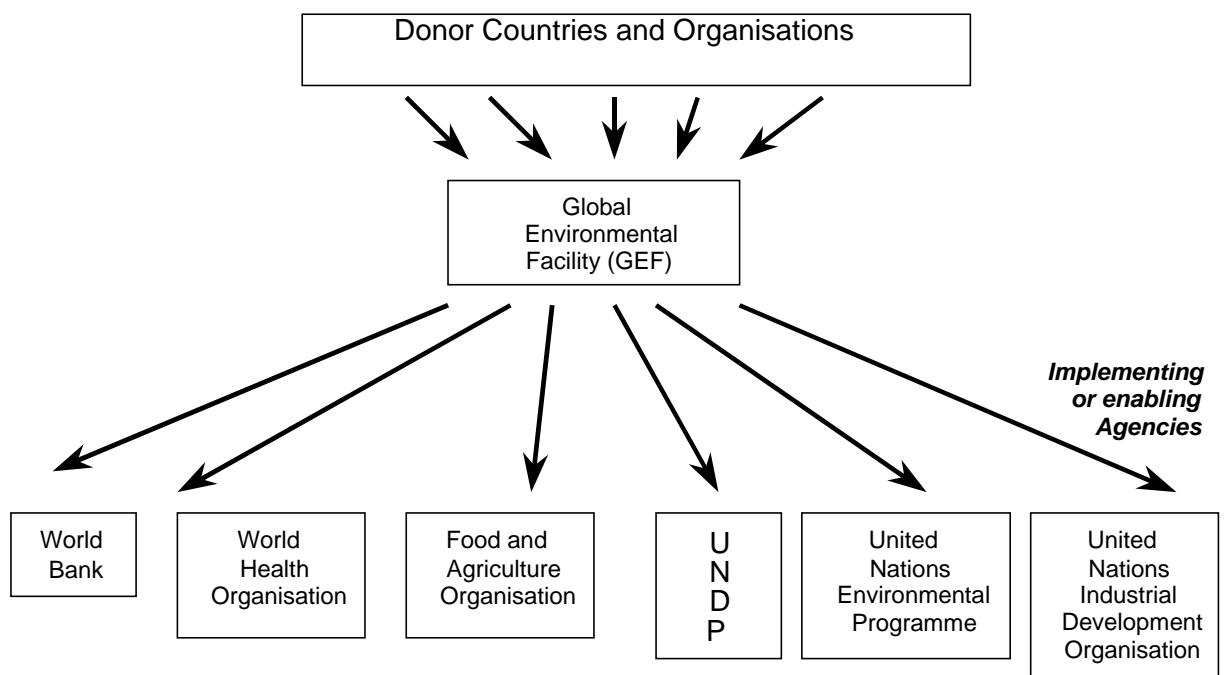


Figure 10.1 Multilateral Financing Mechanism

10.2.2 Bilateral programmes

Bilateral programmes involve South Africa and another country, and focus on specific areas. They are summarised in the two documents:

- (a) Donor Corporations - Environmental Affairs and Tourism.
- (b) Summary of Bi-National Commissions, Joint Bilateral Commissions and Partnership Forums between South Africa and Other Countries. This document

also covers regional agreements, but there is nothing that is significant in the management of chemicals.

Programmes

The programmes that involve management of chemicals are as follows:

1. Denmark -- Implementation of National Waste Management System.
 2. Denmark -- National Air Quality Management System.
 3. Germany -- Waste Management.
 4. Germany -- air pollution.
 5. Germany -- climate change.
 6. Germany -- rehabilitation of contaminated sites.
 7. Norway -- pollution and waste management.
 8. USA -- hazardous waste management, and capacity building.
 9. USA -- pollution prevention and cleaner production and climate change.
-

10.3 General Comments

Problem Areas

1. Lack of capacity notably at the provincial level. The national aspect of the programmes can be implemented but there are problems passing them forward for implementation which would normally be carried out at the provincial level.
2. There is little progress in developing sub elements of programmes. This is in the area of making them self-funding, or by seeking synergy with other programmes and activities.
3. Government is starting to function as a business, but there is little qualification or capacity of government officials to look to and implement business initiatives from the programmes.
4. There is a lack of drive by government departments with regard to the programmes, they tend to be donor driven, although the GEF programme is being put together by government, generally however there is no capacity for strategy.
5. Donor countries favour South Africa and they and the World Bank have a lot to gain from giving assistance to South Africa. South Africa is in a position to welcome the donor countries, but on her terms. To do this requires capacity building to reduce our technical dependence. In this way the specific projects can move towards assistance programmes, where South Africa has more control.
6. A problem that is now emerging is the financing of donor countries assistance. In Europe there is a move to the right which is manifesting itself in countries becoming more insular and cutting their donation budgets.
7. There is scope to increase the coordination and communication between Government Departments.

CHAPTER 11

AWARENESS / UNDERSTANDING OF WORKERS AND THE PUBLIC

The purpose of this Chapter is to provide an overview of the mechanisms available to provide information to workers and to the public concerning the potential risks associated with chemical production, import, export, handling, use and disposal.

CHAPTER 11

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11 AWARENESS / UNDERSTANDING OF WORKERS AND THE PUBLIC

11.1 Worker Awareness/Understanding

Workers awareness and understanding of matters relating to chemicals is promoted through a number of mechanisms that are include and commented on. These include:

11.1.1 Legislation

(a) Occupational Health and Safety Acts

The Occupational Health and Safety Act of 1993 and its regulations (see 4.4.8) and the Mine Health and Safety Act of 1998 (see 4.4.9) protect workers who are exposed to or who work directly with chemicals in terms of their health and safety. This includes placing the responsibility on:

- Employers to ensure safe and healthy working environments and to cause every employee to be made conversant with health and safety requirements relevant to their work including hazardous chemical substances.
- Employees to follow their employer's health and safety procedures and instructions.
- Employees to establish specified structures through which employees have representation at the workplace. (Health and Safety Committees are to be established for workplaces with more than 20 employees.)
- Employees to report to worker representatives and/or H&S Committees of any incident in the designated workplace.
- An employer to ensure that appropriate, relevant safety and hazard signage is displayed.
- Suppliers of hazardous substances for use at work to ensure that adequate information is provided according to specified standards about the use of the substance, risks to health and safety associated with the substance and any restrictions or control of its use, including exposure limits (Labelling & MSDSs).
- Inspectors from the Labour Department to conduct routine on site inspections to ensure that the legislation is being enforced and that the workers are aware of the implications to their health and safety.
- Employers to consult and involve Health and Safety Representatives before and during undertaking Major Hazardous Installation Risk Assessments.

(b) Provisions of Material Safety Data Sheets (MSDSs)

Information requirements for the MSDS are specified in the legislation and the SABS ISO 11014-1:1994 (Safety data sheet for chemical products Part 1: Content and order of sections) [[Http://www.sabs.co.za/standardsearch2](http://www.sabs.co.za/standardsearch2)]. The SABS information presents the compilation of a standard safety data sheet under a number of headings. A short fall of this system is that chemical compatibility information is not required and synergistic effects of chemicals are not thoroughly investigated.

Also of concern is the literacy level in understanding the contents of such safety data sheets. It is the responsibility of industry to ensure that workers and employees understand the MSDS and the chemical labels.

However, according to the "Assessment of Current Activities on Capacity Building in the Field of Safe Management of Chemicals" completed in February 2002 on behalf of CAIA, it is an issue of concern that MSDSs are designed for people in industry and are not user-friendly for the general public.

Specific suggestions around MSDS are thus:

- The information contained in these forms must be made more accessible to the general public;
- In addition to the MSDS an additional document must be supplied where the MSDS information is simplified for the comprehension of the public.

(c) Transportation of Dangerous Goods - Emergency Information System

SABS 0232, Code of Practices for the requirements of emergency information system requirements during transportation of dangerous goods, as included in the Regulations Relating to the Transportation of Dangerous Goods and Substances by Road as promulgated under the National Road Traffic Act, 1996 has relevance to worker and public awareness.

(d) National Environmental Management Act (NEMA,)

Section , of NEMA (Act 108 of) gives workers the prerogative to refrain from working in dangerous conditions, while section provides protection to whistleblowers if the conditions are not below standards and not in line with safety regulations.

While this legislation is empowering for workers, due to high unemployment rate, most workers continue to work in hazardous conditions to save their jobs, sometimes with dire consequences. Furthermore, most workers do not know about this safety provision in the legislation.

11.1.2 Government

(a) Department Labour Health Inspectorate

The Department of Labour through the setting up of provincial offices and through Approved Inspection Authorities (AIA) ensures that workers can log complaints with the Department which can then be followed up with a number of appropriate actions (see Chapter 5, Section 5.2.5 for more detail). In addition to this it becomes the Departments responsibility to note any non-compliance with the OHS Act and in turn submit recommendations or notices to that organisation.

(b) CHIETA

New legislation has been promulgated with regards to skills development and *curricula*. The Chemical Industries Education and Training Authority (CHIETA) is initiating education modules that deal with Health and Safety issues in the workplace.

The Chemical Industries Education and Training Authority (CHIETA) is a statutory body established by the Skills Development Act (1998), through the Department of Labour. There are 25 sector education and training authorities (SETAs) in South

Africa. They are responsible for promoting economic and social development through learnerships and skills development programmes.

CHIETA exists to establish and maintain a system to deliver world-class education training for the Chemical Industries Sector. The challenge for industry is to allow employees time to attend these courses as this interferes with production lines. Furthermore, small and medium enterprises have not taken full advantage of developing skills of their workforce thus increasing the potential risks associated with chemical production, storage and handling.

11.1.3 Industry

(a) Responsible Care

The chemical industry through the voluntary Responsible Care initiative is being encouraged to form awareness panels and committees to enable relevant information (i.e. safety issues and risk potential) to be disseminated to government, labour and the general public (See Chapter 4, Section 4.9.2 for more information).

Since this is a voluntary initiative, small and medium enterprises do not practice responsible care as there are no incentives and no legal obligation to do so. Bigger chemical industries and those that belong to CAIA are encouraged to practise responsible care. While this can be used as an effective tool to assist industry to manage chemicals safely, this information is not shared with the general public and its effectiveness is undermined.

(b) Training by Employer

Training by the employer, is covered by national skills development legislation, however, most companies have in-house training for new employees. For small and medium sized industry, the situation is significantly different. The key thing here is that this legislation places an obligation on organised business and organised labour to make sure that the education and training in the sector is appropriate and for this South Africa has very sophisticated legislation in this regard and its implementation by small business remains a challenge.

Currently there are already chemical management training and awareness programmes available to the company work forces. However, this is not the norm and is typically found in the larger companies rather than in the smaller companies. In addition to this there is limited training from both industries and government in terms of the classification and labelling of chemicals.

There are problems associated with both the provision of training and awareness of contract labour who are not typically included in safety programmes, thus compromising safety and increasing the potential risk associated with chemical production, storage and handling.

There is also a need to increase awareness in the chemicals industry as to the global trends in terms of compliance with international conventions and legislation.

The perception in industry is that those training courses provided by industry are focussed towards compliance rather than creating an awareness amongst workers of a chemical risk.

The Environmental Impact Assessment (EIA), which is undertaken before any new industry is established, forms an important forum for raising public awareness and understanding of the hazards of chemicals in the proposed establishment. Also, many companies make brochures available about their processes and the MSDSs for all chemicals are available, though they are perhaps not suitably clear for the general public. For already established chemical industries this information is only available on request, and stringent access is maintained to avoid release of confidential business information.

(c) South African Qualifications Authority (SAQA)

SAQA is a statutory body established in 1995, doing work on behalf of the Ministers of Labour and of Education. SAQA, via the National Qualifications Framework (NQF), ensures that South African qualifications are of the highest quality, and internationally comparable.

The NQF is a set of principles and guidelines in which records of learner achievement are registered, to enable national recognition of acquired skills and knowledge, thereby ensuring an integrated system that encourages lifelong learning. The NQF also attempts to move the measurement of achievement in education and training away from input towards outcomes.

The functions of the Authority are to oversee the:

- development of the NQF by formulating and publishing policies and criteria for the registration of bodies responsible for establishing education and training standards or qualifications, and for the accreditation of bodies responsible for monitoring and auditing achievements in terms of such standards and qualifications;
- implementation of the NQF by ensuring the registration, accreditation and assignment of functions to the referred bodies, as well as the registration of national standards and qualifications on the NQF.

SAQA's Centre for the Evaluation of Educational Qualifications determines the equivalence between foreign and South African qualifications in the South African context. The integration of a seamless system is achieved through the development of the NQF.

Thirty-one Education and Training Quality Assurance Bodies have been accredited, including 25 Sector Education and Training Authorities (SETAs).

11.1.4 Labour Unions

South African Unions do not only play an important role in representing the view of the workers and making sure that the worker's interests are taken into account during policy making and updating of legislation but also play a key role in worker awareness and understanding of the potential risk at the workplace. (See Chapter 6, Section 6.6 for listing of Unions involved in Industrial sectors in which chemicals are dealt with).

11.1.5 Additional training programmes

Chemical management educational programmes have been set up by the following organisations/institutions:

- CAIA (industrial chemicals);
- AVCASA (pesticides);

- Occupational & Environmental Health Research Unit: University of Cape Town (i.e. also producing educational training material with regards to pesticides);
 - National Department of Health through the Department of Education's – National Environmental Education programme.
-

11.2 Public Awareness/Understanding

11.2.1 Legislation

Through South Africa's Constitution its citizens have the right to transparency and access to "any information held by the state" as well as any information that is held by another person and that is required for the exercise of its rights. This right has also been included in a number of relevant legislation to give effect to this right. Such regulatory mechanisms include:

(a) EIA Regulations

Through the EIA Regulations in NEMA specifies and ensures that developments, which includes those for processing and handling of most hazardous chemicals, are managed and that interested and affected parties participate in the process. This provides the public with the opportunity to get involved in the planning phase of projects for various developments. DEAT only grants approval to scheduled developments once the department is convinced that the interested and affected parties have been given satisfactory opportunity to participate. This public participation process is applicable to new proposed developments, while old ones are not covered by this legislation.

(b) Major Hazardous Installation (MHI) Regulations

Although promulgated under an occupational health and safety act these regulations provide for the protection of the public. Companies that intend to develop a potential MHI need to embark on a public participation process, address concerns before authorities will consider granting approval for the development. Companies already operating installations classified as MHI installations conduct a MHI risk assessment to determine its potential impact on the public. This information remains with the company or relevant government authorities and is never shared with the public. The public need to be informed of the assessments, its findings and the emergency response procedures that are required. Appropriate signage is usually displayed at MHI installations. The effectiveness of this signage has not been evaluated.

(c) Labelling of Hazardous Substances

The Hazardous Substances Act regulates the labelling of scheduled substances. A specific layout and signage is used for medicines, insecticides and pesticides. Most consumer products found in the market may not follow this layout, thus making risk communication of dangerous substances a challenge. Furthermore, imported products have little or no translation of labels to local languages, thus compromising safety and increasing potential risks to end-users.

To address this potential risk, Agenda 21 identifies the Globally Harmonized

No legislation exists as yet to include the GHS.

(d) Transportation of Dangerous Goods - Emergency Information System

Not only does this display of information on vehicles used for transporting of hazardous substances inform workers and emergency services but it provides a warning to public members.

(e) Labelling and Advertising of foodstuffs

Regulations promulgated under the Foodstuffs, Cosmetics and Disinfectant Act regulate the labelling and advertisement of foodstuffs.

11.2.2 Government

(a) Government Communication and Information System (GCIS)

Although the public is able to access information directly from relevant Departments, Departments have available the services of GCIS for assistance with regard to the setting up of information systems and communications strategies. (See also Chapter 9, Section 9.3.1).

One of the key priorities identified by the GCIS Secretariat is to ensure that all South Africans are empowered to know their rights and to take full advantage of the socio-economic opportunities. In this regard GCIS expects to play an important role in servicing tele-centres and multi-purpose community/information centres. Multi-purpose community centres (MPCC) have been set up particularly in rural communities to allow ease access to information in certain Departments specifically relevant to that community.

GCISs services regarding communication strategies can be deployed in emergency situations where the public at large or a specific target group needs to receive accurate information by the most appropriate and effective available means. Such services could thus be deployed should release of a toxic chemical substance occur.

(b) Access to Information

The Access to Information Act enables the public to access any information provided it can demonstrate a need.

"It is the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith"

(c) Monitoring Committees

In almost all the programmes that are related to chemicals and disasters Government Departments assist with the establishment of monitoring committees that provide for relevant expertise. They generally include representation from the public at large. Such Monitoring Committees include the following:

- 'Water Permit' Advisory Committees
- Catchment Management Agencies
- Marine Pipeline Forums
- Waste Site Monitoring Committees

These representatives play an important role in communicating the relevant state of affairs to the affected community.

11.2.3 Industry

(a) Responsible Care and other Initiatives.

As mentioned above the chemical industry through the Responsible Care initiative and other Initiatives from a variety of environmental and consumer organisations in South Africa are raising awareness and encouraging the formation of awareness panels and committees to enable information relevant to the wellbeing of the public to be disseminated to them.

(b) Information Provided by Industry

Currently there is a lack of information being provided by the chemical industry in the form of MSDS for use by the general public, especially information relating to health and environmental risks. In turn civil society must be capacitated in order to be able to participate effectively in the management of chemicals that they use. In turn there must be public places to disseminate information that is made available to the general public by both government and the industrial sector.

In addition to capacity building the chemical industry should engage with NGOs as they have an important role to play in the dissemination of information to the general public as well as to workers. A few industrial sites have however established active 'CAER Committees' that are playing an important role in ensuring that the industries act responsibly with regards to potential impacts and incidents. These Committees are also instrumental in informing the public at large.

Information that industry compiles is often predominantly aimed at the company level and is not geared towards public education.

(c) Training Initiative by Industrial Associations

Certain Industrial organisations undertake and/or support training initiatives.

Of interest is that awareness training in the farming sector is being addressed by AVCASA (Agricultural and Veterinary Chemical Association of South Africa). These are typically on going training and awareness programmes to target small-scale/emerging farmers and in turn large scale commercial farms. This is a recent initiative and as a result has not yet been implemented throughout the whole country.

11.2.4 Environmental and Consumer Organisations

Environmental and consumer organisations as mentioned in Section 6.7 provide forums in which the public exercises its right to representation. These organisations play an important role in public awareness and understanding. They include but are not limited to the following:

- Poison Working Group
- South African Consumer Union
- Environmental Justice Networking Forum (EJNF)
- Earthlife Africa (ELA)

- groundWork
- Consumer Institute of South Africa (CISA)
- WESSA
- Poison Centres

WESSA currently have existing documentation and education programmes that is being delivered to schools [www.wessa.org.za]. One of the publications that is currently available to schools on the Share-net option is 'School environmental policy and management pack'. The school environmental policy includes a statement of objectives and principles for improving a school's educational and environmental performance; one such document for improving a school's performance focuses on a healthy environment (i.e. including the effects of chemicals).

GroundWork [www.groundwork.org.za] are an NGO based in Pietermaritzburg, KwaZulu Natal Province and have a number of community-based programmes that indirectly build capacity within the communities to evaluate and react to the potential risks and hazards associated with chemicals. These programmes include:

- "Bucket" air quality monitoring system;
- Household chemical profile; and
- Greening Hospitals initiative (reduction of dioxins and furans).

11.3 General Comments

Although worker and community awareness and understanding of matters related to chemicals is promoted through a number of legislative and voluntary mechanism, the effectiveness of these initiatives in reaching the majority of civil society still remains a concern.

The following issues have been identified:

- Lack of knowledge of chemicals management amongst employers in particular of smaller industries and operation like small production facilities and dry cleaners;
- Literacy levels in understanding the contents of MSDS are of concern;
- MSDSs are designed for people in industry and are not user-friendly for the general public;
- Education and training programmes have been developed (e.g. at the workplace) but these are not extended to communities with regard to risks. Educational programmes for workers are considered to be organised training for workers aimed at compliance by industry rather than awareness of chemical risk;
- Emergency response plans do not always include clearly defined strategy for dealing with the public in the events of emergencies.

CHAPTER 12

CHEMICAL MANAGEMENT RESOURCES

The purpose of this Chapter is to provide an overview of resources available within government related to various aspects of chemicals management (including human and financial resources) and to analyse resource needs.

CHAPTER 12

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12 CHEMICAL MANAGEMENT RESOURCES

12.1 Resources Available and Needed in Government Departments

Most of South Africa's efforts, funds and resources have, since 1994, been used to further democratisation and to address the injustices of the Apartheid Era. In recent years other issues, such as the AIDS pandemic, infectious diseases, poverty, unemployment, housing and education have since taken a greater portion of government funds and resources. This has unfortunately led to reduced funding to other departments, whose needs are construed to be of lesser importance.

The process of compiling the National Chemicals Profile has identified lack of funding, resources and hence capacity to enable the effective management of the various aspects of chemicals, by the different government departments.

This chapter gives the statistics with regards to resources (human and financial) currently available within government departments for chemicals management. It also outlines additional resources that, in consultant's view would be needed by government institutions so as to fulfil responsibilities related to all aspects of chemicals management.

Table 12.A: Resources Available in Government Departments

Department / Agency Concerned	Number of Professional Staff Involved	Type of Expertise Available	Financial Resources Available (per year)
Environmental Affairs and Tourism	6	5 Chemists, 1 Environmental Manager	R5m (2002-2003)
Director-Generals		Control of emergency incidents	
Provincial Heads of Departments			
Chief Air Pollution Control Officer (CAPCO)			
Air Pollution Control Officers	10		
Water Affairs and Forestry			
Catchment Management Agencies			
Health			
Director General		Authorises production, acquisition, disposal, import or export of Group IV Hazardous Substances (radioactive) as defined in the Hazardous Substances Act	
Health Inspectors			
Agriculture			
Registrar of fertiliser,			

Department / Agency Concerned	Number of Professional Staff Involved	Type of Expertise Available	Financial Resources Available (per year)
farm feeds, agricultural and stock remedies			
Technical Advisors to the Registrar of Fertilisers		Technical advisors and analysts.	
Labour	4	3 Graduate Chemists, 1 Chemical Engineer	R 10,000,000
Regional Directors	1		
Advisory Council for Occupational Health and Safety		Advises the Minister on policies and any matter and functions related to the OSH Act and occupational health and safety in the country.	
Technical Committees for Occupational Health and Safety			
Chief Inspector and Inspectors			
Trade & Industry	13	Engineers/chemists	
Finance			
Transport			
Dangerous Goods Inspectorate			
South African Police Service			
Narcotics Bureau			
Law and Order			
Management of explosives?			
Local Municipal Fire Brigades		Administers the storage, handling and transportation of flammable gases, liquids and solids through local bylaws.	

12.2 Resources Needed by Government Institutions to Fulfil Responsibilities Related to Chemicals Management

Information and evaluation for this section is not available.

Table 12.B: Resources Needed by Government Institutions to Fulfil Responsibilities Related to Chemicals Management

Government Department / Agency Concerned	Number / Type of Professional Staff Needed	Training Requirements
Environment		
Health		
Agriculture		
Labour		
Trade / Commerce		
Industry		
Finance		
Transport		
Interior / Civil Defence		
Justice		
Customs		
Foreign Affairs		
Other		

12.3 Comments

An analysis of the different governmental institutions and departments shows that the legal framework (Acts and Statutory Instruments) necessary for the effective management of chemicals has been adequately developed. However, there is minimal enforcement resulting from inadequate human and financial resources. Further, there currently, are no formalised structures for national co-ordination of chemical production, import, export and use. Various governmental departments and institutions administer the different aspects of chemicals management and there is no overarching agency to oversee the industry.

Amongst the many issues besetting the management of chemicals the following has been noted to be of major concern:

- There is currently no tracking or audit system for chemicals, and the inadequate capacity in Customs and Excise to detect illegal chemical trade further limits the effectiveness of current controls.
- The process of banning and de-registration of banned chemicals (e.g. certain pesticides) is slow and inadequate.
- There are currently only two poison centres in South Africa, and these are inadequate for diagnosis and treatment of all chemical poisoning. In addition an emergency reference centre is also required.

- Whilst the legislative requirements for an emergency response plan are adequate, there is however, limited capacity for implementation, monitoring and enforcement, particularly in the peri-urban areas.
- Air pollution monitoring and enforcement is limited at a local government level. Only 131 of the 284 municipalities carry out any form of air monitoring, of these 131 only 97 have taken steps to ensure compliance.

It is, therefore, evident that the greatest threat to effective management of chemicals in South Africa is the lack co-ordination, funds and resources. It is thus important for South Africa to invest in setting up a national co-ordination structure and make available adequate funds and resources for enforcement of legislation pertaining to chemicals management throughout the chemical's life cycle.

ANNEX 1: ABBREVIATIONS

AQM	Air Quality Management
AVCASA	Agricultural and Veterinary Chemical Association of SA
BCRC	Basel Convention Region Centre
CAIA	Chemical Allied Industries Association
CAPCO	Chief Air Pollution Control Officer
CSD	Commission for Sustainable Development
CSIR	Council Scientific Institute for Research
CWC	Chemical Weapons Convention
DEAT	Department of Environmental Affairs and Tourism
DME	Department of Minerals and Energy
DoH	Department of Health
DoL	Department of Labour
DoT	Department of Transport
DST	Department of Science and Technology
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
FAO	United Nations Food and Agricultural Organization
GATT/WTO	General Agreement on Tariffs and Trade/World Trade Organization
GEF	Global Environmental Facility
IE/PAC	Industry and Environment/Program Activity Centre vote
IFCS	Intergovernmental Forum on Chemical Safety
ILO	International Labour Office
INDAC	Inter Departmental Advisory Committee for Safeguarding Man Against Poisonous Substances
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IP&WM	Integrated Pollution and Waste Management (Policy)
IPCS	International Program on Chemical Safety
IRPTC	International Register of Potentially Toxic Chemicals
ISG	Inter-sessional group of IFCS
ISO	The international organization for standardization
JPOI	Johannesburg Plan of Implementation
NAQMP	National Air Quality Management Programme
NEDLAC	National Economic Development and Labour Council
NGO	Non-Governmental Organization
NIP	National Implementation Plan
OECD	Organization for Economic Cooperation and Development
PIC	Prior Informed Consent; Rotterdam Convention
POP	Persistent Organic Pollutants; Stockholm Convention
RCMSA	Responsible Container Management of South Africa
SAICM	Strategic Approach to International Chemicals Management
SABS	South African Bureau of Standards
SADC	Southern Africa Development Community
UNCED	United Nations Conference on Environment and Development (Rio)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

ANNEX 2: CONTRIBUTORS TO NATIONAL PROFILE

Level of Government	Name	Department	DIRECTORATE/POSITION
National Department	Zini Manana Thembisile Kumalo Sharon Molefe	Department of Environmental Affairs and Tourism	Directorate: Chemicals and Hazardous Waste Management
National Department	Shirley Moroka Metli Motepe	Department of Environmental Affairs and Tourism	Directorate Air Quality Management
National Government Department	Sam Manikela Stephina Mudau	Department of Environmental Affairs and Tourism	Ozone Depleting Substances
National Government Department	Jimmy Mathebula	Department of Labour	Manager Occupational Health and Hygiene.
National Government Department	Qaphile Gcwensa	Department of Health	Director: Medical Natural Science
National Department	Links Mudaly	Department of Transport	Manager
National Government Department	Leon Bredenhann Dr Henry Abbot	Department of Water Affairs	Waste Management
National Government Department	Jonathan Mudzunga	National Department of Agriculture	Office of the Registrar
National Government Department	Rodney Mangaka	National Department of Agriculture	Inspector
National Government Department	Elsabe Steyn Dimakatso Mokone	Department of Trade and Industry	National Committee for Chemical Safety Management
National Government Department	Superintendent Jurie van Staden	South African Police Service	Office of the Chief Inspector of Explosives
National Government Department	Captain Murugen	South African Police Service	South African Narcotics Bureau (SANAB)

Level of Government	Name	Department	DIRECTORATE/POSITION
Provincial Government	Paul Furniss	Gauteng Department of Agriculture, Conservation and Environment	Industrial Impact Management
Local Government	Ané Bruwer	City of Tshwane Metropolitan Municipality	Disaster Management
Provincial Government	Sizwe Sokupa	Eastern Cape	DEAET
Provincial Government	Vien Koovertji	Eastern Cape	Department of Water Affairs
Provincial Government	Shauna Costley Timothy Fasheun Stewart Green	KwaZulu Natal, DAEA	Pollution & Waste Management
Provincial Government	Fikile Theledi	Mpumalanga	Department of Agriculture, Conservation and Environment
Provincial Government	E. Bonzet	Western Cape	Department of Health
Provincial Government	Mr E B Mathebula	Free State	Chief Directorate: Economic Affairs, Environment, and Tourism
Provincial Government	Sam Seate	Free State Department of Health	Assistant Manager: Pollution Control
Provincial Government	Mr O.M.R. Mokate	North West Province	Department of Health
Non Government Organisation	Jan Kleynhans Tom Mabesa	Association of Veterinary and Crop Associations of South Africa (AVCASA)	Executive Director
Non Government Organisation	Liz Anderson	Responsible Container Management Association of Southern Africa (RCMASA)	Executive Director
Non Government Organisation	Andrea Rother	University of Cape Town	Occupational and Environmental Health Unit
Industry Association	Dr Lorraine Lotter	CAIA	Executive Director
Inter-governmental Organization (IGO)	Dr John Mbogoma Nomphele Daniel	Basel Convention Regional Centre	Executive Director: Training Coordination