DEPARTMENT OF TRADE
AND INDUSTRY

DEPARTMENT OF TRADE AND INDUSTRY
POLICY SUPPORT PROGRAMME

The Study to profile the South African Environmental Industry and Identify Strategies to increase its Competitiveness

Code: A.3.002

SWOT ANALYSIS

APPENDIX C

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EXECUTIVE SUMMARY

Strength, weakness, opportunity and threat (SWOT) analysis was done on the basis of the profile of the local environmental industry, response from the survey and interviews, and the international case studies on Australia, Brazil, Malaysia, Netherlands and United Kingdom.

Strengths of the South African environmental industry are:

- World-class specialised consulting services in certain niche areas such as impact assessments on par with developed countries
- Advanced water and wastewater expertise due to strict water regulations, as SA is often referred to as a water scarce country. Water resources therefore have to be protected and conserved for use by developing new, and modifying existing, technologies
- The quality and performance of environmental goods and services
- Specialised R&D in niche areas tertiary education and research institutes
- Competitive pricing internationally due to relatively inexpensive manpower costs and favourable exchange rates
- Differentiated products and services in niche markets
- Abundant labour available for solid waste and recycling.

The **weaknesses** of the South African environmental industry were identified as the following:

- Fragmentation of the environmental industry
- Lack of organisation within the industry
- Low awareness within the environmental industry of available support measures
- Monopolies in certain fields inhibit competition and growth. For example hazardous waste disposal permits

The **opportunities** for the South African environmental industry were identified as the following:

- South Africa as gate way to rest of Sub-Saharan Africa being geographically close to a potential emerging market, and through donor funding requirements
- Growing need for environmental services and equipment in South Africa as well as Sub-Saharan Africa
- Export potential of environmental services to other countries
- World-class environmental legislation
- Recycling initiatives of selected resources and products have not been fully exploited yet
- Constant new local and global environmental issues increasing in priority

The **threats** to the South African environmental industry were identified as the following.

- Potential shortage of available technical and professional employees for high-skilled service sectors due to brain drain
- Environmental reporting is not compulsory

- No direct export support for local environmental services
- Cumbersome and weak process of business support for SMMEs
- Weak enforcement of legislation
- Slow economic growth in South Africa
- A relative slow, but emerging environmental awareness and slow acquisition of technical knowledge
- Lack of capacity within governmental departments
- Insufficient dissemination of relevant information by government departments
- Donor funding requirements especially tied aid
- Lack of co-operative governance and insufficient collaboration between government departments

The various SWOT elements were categorised according to the action required as summarised in the table below.

Competitive advantage - protect	1.	world class specialized consulting services
	2.	advanced water and waste water expertise
	3.	close proximity to rest of sub Saharan Africa
	4.	growing need for environmental services and equipment in sub Saharan Africa (eg via donor funding criteria)
	5.	quality and service performance
	6.	world class environmental legislation
	7.	competitive pricing internationally due to relative inexpensive manpower cost
	8.	specialised R&D within niche areas at tertiary education and research institutes
Monitor	9.	technical, professional and skilled staff are required
Improvements required – basis for recommendations	10.	fragmentation of the industry
	11.	lack of organisation within the industry, limited role of associations in trade and R&D
	12.	non compulsory environmental reporting
	13.	low export support for local services and low import duties on equipment
	14.	monopolies in certain fields inhibit competition and growth
	15.	recycling initiatives not fully exploited yet
	16.	low awareness level of available support measures
	17.	new local and global environmental issues and changing priorities
Priorities - action required	18.	cumbersome process of financial support for SMME's
	19.	weak enforcement of legislation
	20.	slow acquisition of technical knowledge and environmental awareness
	21.	slow economic growth in SA
	22.	insufficient dissemination of information by government departments
	23.	donor funding requirements as tied aid
	24.	lack of co-operative governance and collaboration between government departments
	25.	Lack of capacity within government departments

1. INTRODUCTION

Owing to the increasing international demand for environmental services, technology and equipment, the environmental market offers an opportunity to expand trade, investment and growth. This is widely seen as a

new growth sector, potentially generating wealth and creating jobs, as well as playing a major role in the transition of economies towards sustainable development.

In order to facilitate the Department of Trade and Industry's (DTI) assistance to the South African environmental industry, the industry must be defined and the local and global market profiled. The CSIR, together with the TNO, executed this profiling study for the DTI. The study is financed by the European Union.

This report is the fifth deliverable of this project and is based on the draft profile study and survey results. The content of the SWOT analysis was presented and discussed at the second workshop, scheduled for 6 July 2000.

According to the Project Implementation Plan (PIP) this report should seek to carry out the SWOT analysis, taking into account the industry survey, and determining the industry's strengths and weaknesses, as well as its opportunities and threats (SWOT) against the international markets. The SWOT analysis should:

- Identify and inform the DTI of realistic opportunities for accelerating growth of a competitive SA environmental industry
- Note and define action to deal with identified strong threats to the industry
- Identify environmental requirements by current and potential importing countries, such as eco-labelling and environmental certification.

This report will address these issues.

2 SWOT ANALYSIS

2.1 SWOT methodology

Analysis of the external environment and analysis of the internal capabilities is done via a SWOT analysis of strategy, a tool developed in the 1960's. The strategy is formulated in relation to four sets of considerations: Strengths, Weaknesses, Opportunities, and Threats. While strengths and weaknesses relate to the resources and capabilities of the firm, opportunities and threats relate to the external environment (Ghemawat, 1999). This is shown schematically in Figure 1.

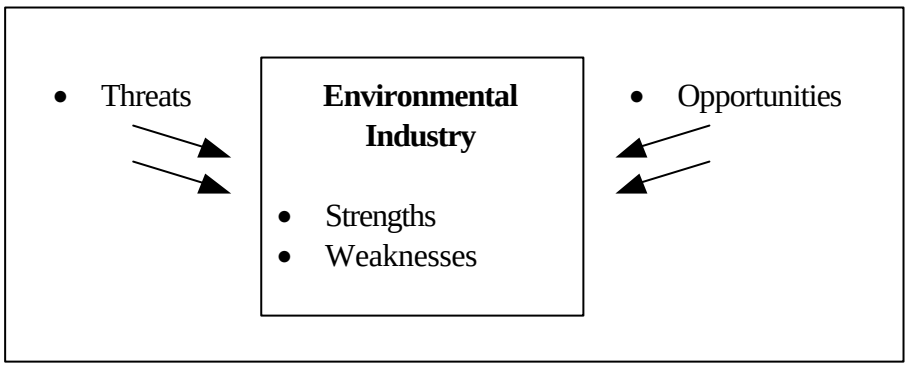


Figure 1: Schematic representation of SWOT analysis

The industry survey, interviews with selected role players, and international case studies were used as the primary input to identify the relevant issues in the environmental industry. The issues were correlated and verified against issues identified in studies on cleaner technologies in South Africa (Peart, 1999), a survey of South African environmental competitiveness (Hounsome, 1998), Foresight project on the environment sector (DACST, 1999), the survey of environmental reporting in South Africa (KPMG, 1999) and the global environmental goods and services industry (OECD, 1996). The strengths, weaknesses, opportunities and threats to the industry were identified and described below.

2.1.1 Strengths

The strengths of the South African environmental industry were identified as the following:

World class specialised consulting services in certain niche areas such as impact assessments

Certain specialised or niche-consulting services within the South African environmental industry are seen to be world class. An example of such a world-class specialised consulting service is the execution of Environmental Impact Assessments (EIA). The quality of environmental impact assessments in South African has improved significantly since being enforced by legislation.

Advanced water and wastewater expertise due to strict water regulations as SA is a water scarce country

Another area of specialised expertise in South Africa is the water and wastewater treatment field. This is mainly due to the country's limited water resources – South African is often referred to as a water scarce country, so water resources have to be protected and conserved for use by developing new, and modifying existing technologies (eg. the Bardenpho process, developed locally, to remove nitrates and phosphates from domestic wastewater).

Quality and performance of environmental goods and services

Strength of the local environmental goods and services industry is seen to be the good quality and performance specifications of the goods/equipment and services.

R&D within tertiary education and other research institutes

Specialised research and development within the South African environmental industry is carried out at various industrial (limited to however larger companies with research divisions eg. Sasol, Eskom, etc.), institutional (eg CSIR and SABS) and educational facilities (universities and technikons). This means that the industry can be self-sufficient in terms of developing new and improved environmental technologies. An example of this is the potentially environmentally preferable BioCOP copper recovery process developed by Billiton (previously Gencor).

Pricing level – reduced labour costs on an international scale

In comparison with international companies, South African labour (skilled and un-skilled) costs are generally lower, and deliver for environmental services in general on a high quality standard. This makes the local industry more attractive on an international scale, and has allowed local companies to compete for international projects.

Focused strategic choices – differentiated products in niche markets

Many companies in the environmental industry operate within a narrow field of expertise, (eg. wastewater treatment, air pollution, etc.). This has allowed companies to have focussed strategies and develop niche markets. See section 4.2.3 of the database and profile report for the discussion on company strategy, structure and rivalry within the environmental industry.

Abundant labour for waste handling

Waste handling and recycling do not require specialised skills (see section 4.2.1 of database and profile report) and abundant labour is available if programmes or initiatives were implemented.

2.1.2 Weaknesses

The weaknesses of the South African environmental industry were identified as the following:

Fragmentation of the environmental industry – not integrated

The environmental industry is seen to be fragmented and lacks integration. From the survey results 70% of the companies have less than fifty employees (see section 4.2.3 of

the database and profile report for detail around company size and employment distribution)). Most of these small companies operate on their own and in an uncoordinated manner. These companies compete vigorously with each other for business within various niche areas in the environmental field in South Africa.

Lack of organisation within the industry

The environmental industry is also seen to lack a formal organisation or association that coordinates the industry by being a key player in governmental and industry decision-making. Such an organisation will also assist in monitoring the growth of the industry, and the facilitation of the industry in South Africa. It must be noted that certain associations/organisations do exist (eg. NACA, IWM, etc.), but they address specific environmentally related areas (eg. air pollution, waste management, etc.), whereas a more encompassing association/organisation is needed. Industry associations currently play only a limited role in trade and R&D.

Low awareness within the environmental industry of available support measures

From the survey, it can be concluded that there is a lack of awareness within the environmental industry on support measures available to them. Companies faced with problems within the industry (eg. import tariffs) have not approached governmental departments to discuss these problems and find, and use, support measures.

Monopolies in certain fields inhibit competition and growth. For example hazardous waste disposal permits

Monopolies exist within certain areas of the environmental industry in South Africa (eg. hazardous waste disposal). By being monopolies, companies inhibit competition and growth within these fields. This results in un-healthy, closed markets.

2.1.3 Opportunities

The opportunities for the South African environmental industry were identified as the following:

South Africa as part of Sub-Saharan Africa being geographically close to a potential emerging market through donor funding requirements

By being part of Sub-Saharan Africa, the South African environmental industry can market their services and goods to these countries. As travel barriers within SADC are eased and/or removed South African companies will be able to operate more freely in these countries. This is confirmed with the survey that the majority (60%) of exports, including both goods and services, are into African countries.

Growing need for environmental services and equipment in South Africa as well as Sub-Saharan Africa

Due to the increased awareness (in industry and local communities) of environmental issues in South Africa and Sub-Saharan Africa, there appears to be a growing need for environmental goods and services. International donor funding (e.g. EU, DANCED, etc.) has allowed for environmental work to be carried out in countries that have environmental issues but lack funding to address these issues. Projects funded by donor funding

agencies (e.g. new processing plants, dams, bridges, etc.) also require that environmental impacts be described, assessed and mitigated. This provides further opportunities to the local environmental industry. Respondents on the survey reported an average growth of 10 to 15% of their respective environmental business.

Export potential of environmental goods and services to other countries

As indicated above, due to the relatively low labour rates in South Africa, goods and services are cheaper on an international scale. This creates significant opportunities for the local environmental industry to export goods and services. Although the majority (60%) of companies that currently export, have Africa as export destination, the spread of exports throughout the rest of the globe seem to be equeal. See section 4.2.2 in the database and profile report for detail about the demand conditions and export destinations.

World-class environmental legislation

South African environmental legislation is generally seen to be world-class (Arthur D. Little and Foresight Study for the Environment). Local policymakers have been able to assess environmental legislation in developed countries and were able to modify this legislation to suit the unique South African situation. Environmental legislation such as the EIA regulations and new Water Act are seen to be world-class in terms of their fundamental policies and application. Legislation that are currently insufficient such as for example on the air pollution are on the Law Reform Programme.

Some end users of environmental services and equipment see benefits and importance

The end users of environmental goods and services in South Africa are seeing the importance and benefits of improved environmental performance. In many cases, the importance relates to complying with regulations, but the benefits include savings on raw materials, waste disposal costs, etc. The local chemical industry is an example of an end user that is seeing the importance and benefit of improved environmental performance.

Recycling initiatives of resources have not been fully exploited

Certain recycling initiatives in South Africa have not been fully exploited (eg. PET recycling). Other countries have exploited these initiatives; resulting in additional jobs being created, increased revenue generation, and environmental protection. This has therefore allowed the environmental industry to grow. An example of a successful recycling campaign in South Africa in the *Collect-a-Can* initiative. In the UK and Malaysia the government initiated recycling programmes to reduce the increasing waste volumes, stimulate innovation and create employment opportunities.

New local and global environmental issues

Environmental sciences are constantly evolving, identifying new environmental issues that may impact on the environment, both on local and global scales. In addition, the priorities of the environmental issues do change with time. This means that as new issues are being raised, the environmental industry must be able to become informed on them and offer related goods and services locally.

2.1.4 Threats

The threats to the South African environmental industry were identified as the following:

Potential shortage of available technical and professional employees for high-skilled service sector

The future availability of trained and professional staff in the environmental industry is seen to be of concern. This is mainly due to the small number of people being trained in environmental related areas, and trained staff leaving the country. However, a number of tertiary institutes are offering training in the environmentally related areas and the Environmental Education Association of South Africa has a committee on curriculum development. Although the quality of the training is high, the quantity of trained people is below the projected need of the industry, based on growth rate.

Environmental reporting is not compulsory

The presence of clear and strong standards accompanied with a significant and credible penalty system does send appropriate signals to the regulated community, which responds with a lowering of polluting emissions. Public disclosure of environmental performance such as environmental reporting creates additional and strong incentives for pollution control. If environmental reporting becomes compulsory, companies would have to prepare these reports with the assistance of the environmental industry, thus allowing the industry to grow.

No export support for local environmental services

The current support measures are non-specific and cumbersome. Although the South African environmental services and, to a certain extent specialised environmental goods, have export potential, they do not benefit from the currently available support measures. Governmental assistance is primarily needed in the promotion of and information dissemination around the opportunities for the local environmental industry (e.g. information on World Bank preferred supplier criteria).

Cumbersome and weak process of business support for SMMEs

From the industry surveys, it was seen that many of the companies operating in the environmental industry fall within the SMME category. In many cases, these companies need business support; including financial aid, identification of training requirements, marketing strategy, evaluation of export strategy and readiness, and quality system implementation. Of these needs, financial support is not necessarily the main concern, however current supply side measures are generally structured primarily around financial support. On the demand side, the low interest loan Cleaner Production scheme, administrated by the IDC, is not a strong incentive scheme. The scheme was developed in 1997 and no applications have been made to date. Promotion of the current support measures, active help lines and simple clear procedures could optimise the usefulness of the current support measures.

Weak enforcement of legislation

As indicated previously, the South African environmental legislation is seen to be world-class. Strong, clear standards combined with a significant, credible penalty system send the right signals to industry as a whole, which typically responds by lowering pollution emissions. However the current weak enforcement of legislation and standards does not

provide an incentive to improve environmental performance, thereby reducing opportunities of increasing industry's competitiveness and growing the local environmental industry.

Slow economic growth in South Africa

The slow economic growth in South Africa is a threat to industry as a whole, including the environmental industry. Good economic growth will result in new projects and expansions in industry, thus resulting in additional work for the environmental industry. As economic activity slows down, companies postpone investment in upgrading of capital, e.g. equipment and infrastructure, and reduce perceived unnecessary expenditures such as environmental studies and improvements.

S*low environmental awareness and acquisition of technical knowledge*

The average South African is not as environmentally conscious as his European or American counterpart. The littering problem in South Africa may serve as an example. The major driving force that creates a demand for environmental goods and services is environmental legislation. At this stage it seems that there is, on average, strong growth in the demand for environmental goods and services due to the high awareness of the above-mentioned legislation. The expectation exists that this legislation will increase the importance of environmental issues on the strategic agenda of companies.

However, to complicate matters, environmental issues and problems are constantly changing (13 years ago there was no concern around CO_2 emissions, today the Kyoto protocol exists). Awareness of these changing issues and priorities is essential within industry, the environmental industry and government. Market development and market promotion should therefore have a strong educational facet. Acquisition of technology, especially cleaner technology, is based on perceived need, and environmental awareness together with potential non-compliance could assist decision makers. Promotion of proven technology for developing country applications is needed.

Lack of capacity within governmental departments

Related to the weak enforcement of legislation is the limited or small capacity within governmental departments (national, provincial and local). Reduced budgets to departments have resulted in a limited number of people executing institutional responsibility (e.g. permit approvals, etc.). Competence to interpret the quality of the documents submitted to meet legal requirements is essential. For example, granting permits based on low quality environmental impact assessment reports will seriously reduce the drive for continued improvement and benchmarking against foreign competitors.

Insufficient dissemination of information by government departments

Companies have indicated that they are not aware of the information and support schemes available at governmental departments. This is mainly due to information not being easily and readily available to companies. In addition, communication from the various sources is not integrated. The types of information needed include, for example, procedures for permit application, government–industry initiatives being undertaken, trends, market information and relevant policies. The current DTI website does not seem to meet the information need of industry.

Donor funding requirements, and tied aid

International donor funding has been made available for addressing environmentally related issues in South Africa and in SADC. However export promotion policies such as export credit schemes and tied aid could induce distortions in trade in environmental products and services (e.g. EU funding stipulates that European consultants be used). South African suppliers of goods and services sometimes have difficulty in winning tenders, even though tender prices are competitive and quality of work is the same.

Bilateral agreements in the environmental area are seen as an export strategy for developed countries. For industries within developing countries, it is an opportunity to obtain knowledge and affordable equipment. These agreements do however not benefit the local environmental industries. Environmental goods and equipment are more affected by competition with foreign goods and equipment than environmental services or construction.

Lack of co-operative governance and collaboration between government departments

The responsibility for environmental matters falls within the jurisdiction of several government departments at all levels of government. It is therefore important that DTI coordinate its activities with other government departments to ensure that

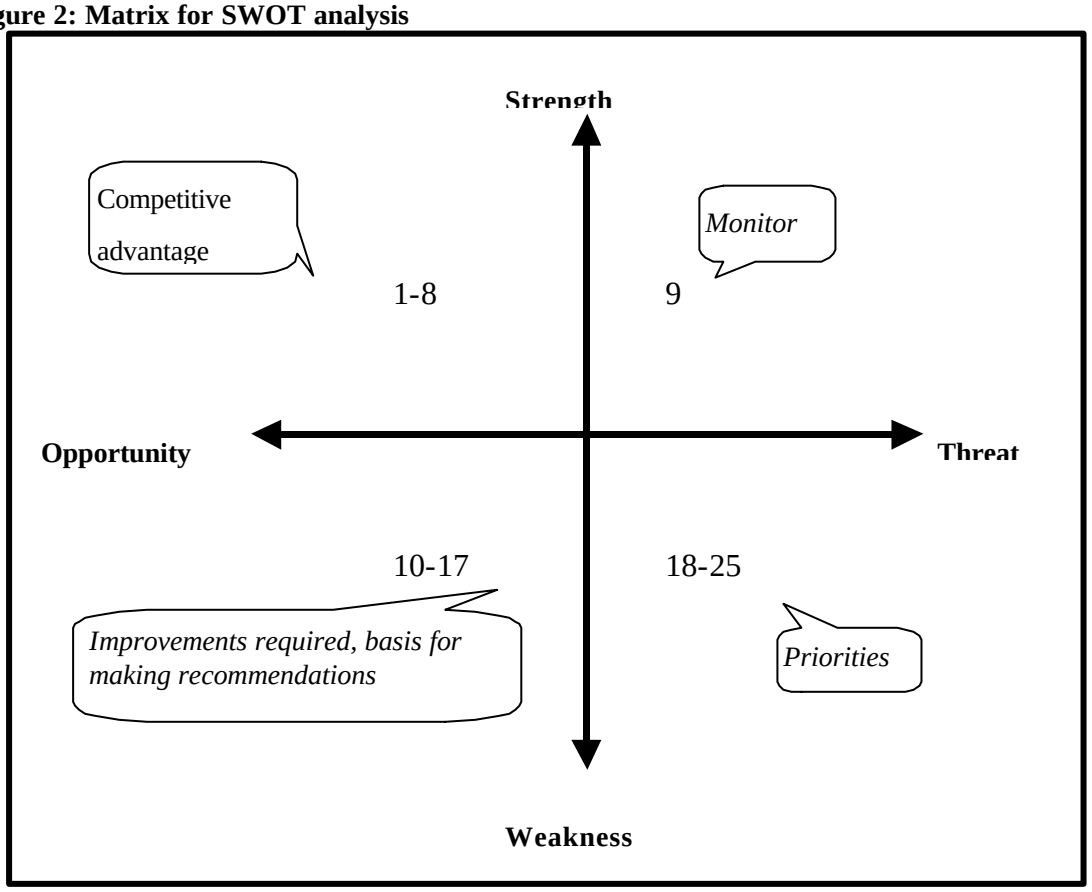
- there is consistency in approaches between the different departments,
- DTI initiatives do not conflict with the requirements of other lead departments, and
- opportunities for joint implementation are explored and maximised.

2.2 SWOT analysis on the South African environmental industry

The issues identified in Section 3.1 were plotted on a SWOT matrix according to the strengths, opportunities, weaknesses and threats to the local environmental industry. This is shown in Figure 2. The quadrants between the axes give an indication of how the issues should be dealt with to assist or support the local environmental industry.

- The quadrant between the Strengths and Opportunities axes: *competitive advantage of the local industry.*
- The quadrant between the Strengths and Threats axes: *issues need to be monitored.*
- The quadrant between the Threats and Weaknesses axes: *issues that should be addressed as priorities.*
- The quadrant between the Weaknesses and Opportunities axes: *issues are used as basis for making recommendations.*

Figure 2: Matrix for SWOT analysis



The numbers indicated in the quadrants are consistent with the numbers in Table 1.

The various SWOT elements were categorised according to the action required as summarised in the table below:

Table 1: Relevant issues for the South African environmental industry

Competitive advantage – protect	1. world class specialized consulting services
	2. advanced water and waste water expertise
	3. close proximity to sub-Saharan Africa
	4. growing need for environmental services and equipment in sub Saharan Africa (eg via donor funding criteria)
	5. quality and service performance
	6. world class environmental legislation
	7. Competitive pricing internationally, relative inexpensive manpower cost
	8. specialised R&D within niche areas eg waste water, groundwater modelling
Monitor	9. technical, professional and skilled staff are required
Improvements required – basis for recommendations	10. fragmentation of the industry
	11. lack of organisation within the industry
	12. non compulsory environmental reporting
	13. low export support for local services and low import duties on equipment
	14. monopolies in certain fields inhibit competition and growth
	15. recycling initiatives not fully exploited yet
	16. low awareness level of available support measures
	17. new local and global environmental issues and changing priorities
Priorities - action required	18. cumbersome process of financial support for SMME's
	19. weak enforcement of legislation
	20. slow acquisition of technical knowledge and environmental awareness
	21. slow economic growth in SA
	22. insufficient dissemination of information by government departments
	23. donor funding requirements as tied aid
	24. lack of co-operative governance and collaboration between government departments
	25. Lack of capacity within government departments

As indicated in Figure 2, issues 1-8 from Table 1 show the competitive advantage of the local environmental industry. If possible, these issues should be further facilitated, but measures must not be put in place to hinder or obstruct the functioning of these issues.

Issue 9 is an issue that needs to be monitored. If this issues starts to become a threat, measures must be taken to change this trend and make it into a strength of the market.

Improvements are required for issues 10-17 and these issues will be used as a basis for making recommendations to the DTI to assist the local environmental industry. These issues should be focussed on and addressed.

Issues 18-25 are the high priority issues. These issues need to be addressed as they present threats to the local environmental industry, thus preventing the industry from growing and if continued will reduce the size and competence of the industry.

3 ENVIRONMENTAL REQUIREMENTS FOR SOUTH AFRICAN EXPORTERS

A telephonic survey was done on the respondents that indicated that they are exporting goods or services. This telephonic survey on companies exporting environmental goods or services was conducted to supplement the results from the industry survey on the requirements of importing countries. This telephonic survey was performed on thirty companies, as that was the survey response reporting export activities by the time of finalization for the study. For detail on export destinations see section 4.2.2 of the database and profile report.

In general the respondents found that environmental requirements are country and company specific. The majority of exports (60%) had SADC or African destinations. Companies exporting environmental goods and services to African countries indicated that neither the companies nor the countries do have any environmental requirements.

Australia requires all packaging material to be fumigated. Although this is not a requirement such as eco-labelling or environmental certification it does relate to the introduction of alien species to a country's environment and was seen by exporters as an environmental requirement.

Thailand also has a packaging related request. One Thai company requested that the amount of packaging materials used be minimised, and the packaging be optimised to reduce waste volumes.

In the UK environmental requirements, if any, are company specific. Only one company recalled some specific supplier environmental performance requirements relating to Environmental Management System, recycling facilities and use of CFC's in the production process.

European companies in general have a basic requirement for ISO 9000, some companies do request environmental management systems certification (eg. ISO14000). It was also noted that a number of South African exporters were already adopting environmental management systems, mainly ISO14000, even though it is not a client requirement yet. However the companies expect that this will soon become a standard requirement from most receiving companies especially Europe, and they are implementing the standard proactively.

Many local companies already have quality systems, mainly ISO9000, and have indicated that this is a standard requirement from many companies. There are also expectations that a revised ISO standard (merging ISO9000 and ISO 14000) due in about five years will change requirements. This will result in many industries requiring environmental management systems within the next five years, in order to maintain their export positions.

4 CONCLUSIONS

The SWOT analysis has been carried out and the issues facing the South African environmental industry have been grouped in terms of strengths, weakness, opportunities and threats. These have been further categorised in terms of being priority issues, recommendation issues, monitoring issues and competitive advantage issues.

The recommendations to DTI on facilitating the functioning of the environmental industry, thus allowing for growth in the industry, will be based on the SWOT analysis and other inputs.

The next report will look at the competitiveness of the South African environmental industry in comparison with the environmental industries of other countries.

Acknowlegements

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REFERENCES

1) DACST, National Research and technology Foresight Project – Environment Sector, 1999
2) De Villiers, C , Green reporting by listed companies in South Africa: a five year history, Department of accounting and finance University of Pretoria, 1999
3) Ghemawat P, Strategy and the business landscape, Harvard business school publishing, 1999
4) Hounsome R, Hatch G, A survey of South African Environmental Competitiveness, CSIR Environmentek 1998
5) KPMG and UP, Survey of environmental reporting in South Africa, Sixth edition, 1999
6) OECD, *The Environmental Goods and Services Industry, Manual for data collection and analysis*, 1999
7) Peart, R., An investigation into factors influencing the adoption of cleaner technology by South African firms, University of Natal 1999
8) Porter, M.E. , The competitive advantage of nations, MacMillan press, 1992