

**THE ESTABLISHMENT OF A METHODOLOGY FOR INITIATING AND MANAGING
WASTE MINIMISATION CLUBS**

**Report to the
Water Research Commission**

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1. Background

The Water Research Commission sponsored a project from 1998 to 2000 to investigate the feasibility of establishing waste minimisation clubs (WMCs) in South Africa to promote cleaner production to industry. This project was carried out by the Pollution Research Group (PRG) and two pilot WMCs were established – one in the Metal Finishing sector in the greater Durban Metropolitan Area, and the second one a cross-sectoral club in the Hammarsdale region. These WMCs proved to be a success, with open sharing of information and ideas amongst the club members, financial benefits to the companies and a reduction in their environmental impact. The experiences gained during the course of this project are important lessons for others who wish to establish and manage further WMCs in South Africa, and for this reason, the WRC sponsored the development of Manuals to guide future facilitators.

2. Project Aims

The primary aim of this project was to develop a sustainable method of promoting and managing WMCs. This was achieved through the development of:

- A Manual for developing and managing WMCs
- Sectoral specific self - assessment guides
- Training material for Waste Minimisation Consultants

Target groups include policy makers, authorities, consultants, industries, and funding bodies. At the Project Steering Committee meeting held in March 2002, it was agreed that there was no need to develop sector specific self-assessment guides as there are many available from other sources, but that the project team should focus on collating all sources of sector-specific guidelines and use them as reference material for the Manuals.

3. Summary of Results

This section highlights the outcomes of this project in the form of the Facilitator's Manual and the Training Manual; discusses the lessons learnt in establishing and managing WMCs; and summarises the steps that should be followed to develop a strategy to promote WMCs to ensure the sustainability of the concept.

3.1 Lessons Learnt in Establishing and Managing Waste Minimisation Clubs

Since the inception of the WMC concept in South Africa in 1998, 27 WMCs have been established. Of these 4 have ended; 4 have merged; 3 have closed; 3 failed to start up; 3 are in the start-up phase; and 11 are still running. The lifetime of a WMC is generally in the region of 18 months to 2 years, after which time it will either end, merge with other activities, or change its focus to continue operating. Those WMC that closed, did so mostly due to a lack of continued support or interest on the part of the members.

The experience gained from the development of these WMCs has provided a great deal of insight into the best method of establishing, managing, and reporting on WMC, and have been used in the Facilitator's Manual to provide guidance to future WMC facilitators.

The success factors to establishing and managing a WMC include:

- A good awareness-raising meeting to highlight benefits of waste minimisation.
- A well-run recruitment programme where company managers are approached.
- The support of the local authority which provides an added incentive for companies to join the WMC.
- Easy access to funding to subsidise the cost of running a WMC.
- Charging a membership fee which ensures commitment to the WMC.
- The commitment from the WMC members to attend meetings and share information.

- Mutual site visits by WMC members to one another sites.
- A well defined constitution outlining the role of the members, facilitator etc. and the “rules” of the WMC.
- Training the WMC members in waste minimisation techniques in a step-by-step manner.
- Access to students to assist companies in determining waste minimisation opportunities.
- On-site assistance by the facilitator (or other consultant) to highlight areas for improvement.
- Frequent dissemination activities such as newsletters, web site, case-studies etc. such that the results are made known to a wide audience.
- An enthusiastic project champion within each WMC member organisation.
- Detailed record keeping of savings achieved by each WMC member, both in terms of financial savings, and environmental savings. This is important information for case studies and for selling the concept to funding organisations.

This experience has also highlighted what is still required to promote the WMC further within South Africa. These include:

- A good marketing campaign on a National, Provincial and Local level.
- Co-ordination between all organisations with an interest in WMC, such that all work together with a common goal.
- The setting of targets for WMC, such that requirements are set for reporting, etc.
- The need for a method of ensuring the quality of the training material provided, and that facilitators are competent in running a WMC. This can be in the form of an accredited training course.
- The need for a strategy to promote the WMC concept.
- The introduction of funding schemes that can be accessed by a WMC.

Many barriers are experienced in the establishment and running of a WMC. These are barriers that are encountered both on the part of the facilitator in terms of getting companies involved and ensuring their participation, and also on the part of the company in implementing waste minimisation initiatives within their organisations. It is important for the facilitator to realise the types of problems that can be encountered such that they can be addressed within the WMC. This aspect of identifying and overcoming barriers is covered in detail in the Facilitator’s Manual.

3.2. Facilitator’s Manual and Training Manual

The aim of the Facilitator’s Manual is to provide guidance to those who wish to establish and manage WMCs in South Africa. It is divided into 11 Sections and 24 appendices, which contain supporting information and documents.

Each of the Sections address an aspect of forming and managing a WMC, with examples from closed and current WMCs to demonstrate certain points. Case study information is also provided. Each section concludes with a checklist of key points to serve as a summary for the facilitator, and a list of recommended reading. **Table 1** provides a list of each Section title.

Table 1: List of sections in the Facilitator's Manual

Section	Title
1	Improving the Bottom Line through Waste Minimisation
2	Working together in a Waste Minimisation Club
3	Motivating by Meeting – Raising Awareness; Recruitment; Organisation for Action
4	Barriers and Drivers
5	Results through Action – Audits and Implementation
6	Lessons Learnt – Analysing and Disseminating Club Results
7	Creating Momentum through Training
8	Funding a Waste Minimisation Club
9	Where to now?
10	Legislative Support for Waste Minimisation Clubs
11	Where to go for Help

A Training Manual has been prepared from the material developed by Enviro Consulting and transferred to the WRC through the pilot WMC project. This material has been collated into a number of workbooks that have been divided into sections or modules. One module is provided at each WMC meeting and homework tasks set for the members. A CD containing all the Power Point presentations, the workbooks, exercises, and answers to the exercises have been created. In order to assist the facilitator in training club members, references to other training manuals have been provided and also references to sector-specific waste minimisation guidelines.

It is important to ensure that there is some form of *quality control* system in place with respect to the facilitators of WMCs. One method of providing this quality control is through the development of a compulsory training course for WMC facilitators. This training course would be outcomes-based and a suggested syllabus is provided in Table 2 along with the criteria that could be used to assess whether or not the facilitator undergoing the training course had achieved the required outcomes. This course could be run as a 4 to 5 full-day course such that all aspects of waste minimisation are covered. It would also be useful for the facilitator to be able to enter a factory to undertake an audit as part of the qualification. It is suggested that this training course be accredited under the National Qualifications Framework.

Table 2: Suggested syllabus for waste minimisation club facilitators

Module	Topic	Outcome	Assessment criteria
1	Introduction to Waste Minimisation and Waste Minimisation Clubs	Broad understanding of the WM procedure An understanding of the WMC concept	Individual and group exercises
2	Setting up a WMC	Understanding of each stage in setting up a WMC Identification of the barriers How to determine costs associated with setting up and running a WMC	Participants to provide a proposal for the development of a WMC, how they would approach the recruitment, and the costs that would be involved
3	Running a WMCs	Understanding each stage in running a WMC Identification of barriers What to do when the WMC ends	Participants to provide an action plan of how they would run the WMCs identified in Module 2.
4	Undertaking a preliminary WM audit	How to determine the potential savings How to construct a process flow diagram How to identify costs associated with inputs and wastes	Individual and group exercises Preliminary audit undertaken in a factory situation
5	Providing training to WMC members	Be able to present the training course as provided in the Trainers Manual Able to identify needs of the WMC members and adapt the training course material as required	Individual and group exercises for each section in the training manual Participants to present an aspect of the training course to the group

3.3 A Strategy to Promote Waste Minimisation Clubs

If the WMC concept is to be used as one of the primary means of promoting cleaner production to industry in South Africa, there needs to be a strategy put in place that will provide the aims and goals of implementing WMCs and outline the responsibilities of the various stakeholders. There are a number of steps that are involved in establishing a strategy and these include:

Step 1: Identifying a Vision and Setting Goals

Identify a vision and a goal for the strategy within the context of social, environmental and economic sustainability. The definition of a WMC must be made clear at this point.

Step 2: Setting Targets

Sets targets that need to be achieved by the strategy. At this stage, it is also important to identify the possible barriers that may be experienced. Outcomes need to be identified based on the goals that were set and some monitoring and measuring system needs to be implemented to ensure that the targets are met

Step 3: Identify Implementing Instruments

Identify the implementing instruments. In other words, how are WMCs going to be implemented? Some examples of tools that are available are regulatory; economic; awareness etc.

Step 4: Stakeholder Analysis

Undertake a stakeholder analysis where tasks and responsibilities are set for the relevant government departments, on a local, provincial and national basis.

Step 5: Creating an Action Plan

Create an action plan. Put together a Gantt chart which outlines the time required for implementation.

The concepts of waste minimisation / source reduction / pollution prevention are included in a number of Acts with South African legislation. For example, the National Water Act and the National Environmental Management Act both include reference to the importance of source reduction. The National Waste Management Strategy specifically mentions WMCs as a method of promoting cleaner production to industry. In some cases, local permitting requirements request proof of waste minimisation procedures.

Other initiatives that have either been implemented, or which are planned include the initiatives under the Danida funding; the establishment of the National Cleaner Production Centre (NCPC); funding through DWAF for WMCs; the proposed Cleaner Production Centre in the Durban region; the development of a Cleaner Production Strategy for South Africa; and the initiatives underway on a provincial and local area in some regions.

This support, as well as the fact that waste minimisation is enforced through legislation and regulation, indicates that there is support for a strategy to promote the uptake of WMCs in South Africa.

4. Discussions and Recommendations

The WMC concept is one that has proved to be successful in South Africa and an appropriate method of promoting waste minimisation to industry and business in general. If WMCs are to continue, some form of strategy needs to be developed as to how this is going to be achieved. The experiences gained both in the WMCs already established in South Africa and those established in the UK, can be used to ensure that this proposed strategy is sustainable.

The two output documents, namely the Facilitator's Manual and the Training Manual, provide all the necessary documentation for the establishment and management of WMC in South Africa. A large amount of technology transfer activities and capacity building has taken place during the course of this Project and it can therefore be stated that the primary aim of this Project, i.e. *the development of a sustainable method of promoting and managing waste minimisation clubs in South Africa*, has been fulfilled. The Web page developed under the Project will also assist in disseminating the WMCs concept and ensuring that the information generated through the two WRC projects (973 and 1171) will continue to be used.

The following recommendations can be made from this report:

- A clear strategy needs to be developed to promote WMCs in South Africa. This needs to happen on a National and Provincial level, with capacitation of local government to implement the actions.
- Targets for the establishment of WMCs in South Africa need to be set and an awareness campaign needs to be initiated.
- Funding schemes to support WMCs need to be implemented to ensure the continuation of the concept.
- A training course, based on the facilitators manual, needs to be developed and accreditation for this course needs to be approved by a suitable SETA, such that participants receive a certificate / credits to prove competency. Similarly for the training material in the Training Manual.
- The Web page needs to be transferred to an organisation that is able to regularly update the information and store the Manuals, reports, case studies, newsletters, etc. that are generated.

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Cleaner Production	The continuous application of an integrated preventive environmental strategy applied to processes, products and services to increase eco-efficiency and reduce risks to humans and the environment.
Club member	A company who belongs to a waste minimisation club.
Cross-sectional club	A waste minimisation club whose club members come from different industrial sectors.
Project champion	The person within the club member site that has the responsibility of managing the waste minimisation programme.
Project team	A team of people formed under the project champion to undertake waste minimisation activities on site.
Sector-specific club	A waste minimisation club whose members come from the same industrial sector.
Waste minimisation	A systematic approach to reducing waste at source.
Waste Minimisation Club	A group of companies, either within the same industrial sector or geographical area, working together to reduce waste and save money through the implementation of waste minimisation.

List of Abbreviations

CP	Cleaner Production
CSIR	Council for Scientific and Industrial Research
CTELC	Clothing and Textile Environmental Linkage Centre
CTPP	Cleaner Textile Production Project
DAEA	Department of Agriculture and Environment Affairs
DANCED	Danish Co-operation for Environment and Development
DANIDA	Royal Danish Ministry of Foreign Affairs
DEAT	Department of Environment Affairs and Tourism
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EPA	Environment Protection Agency
ETQA	Education and Training Quality Assurance Bodies
FM	Facilitators' Manual
KZN	KwaZulu-Natal
MAC	Mess Action Campaign
NCPC	National Cleaner Production Centre
NQF	National Qualifications Framework
NWMS	National Waste Management Strategy
PMB	Pietermaritzburg
PRG	Pollution Research Group
SA	South Africa
SAQA	South African Qualifications Authority
SDA	Skills Development Act
SETA	Sector Education and Training Authority
SMME	Small, Medium and Micro Enterprises
TM	Training Manual
UK	United Kingdom
UNEP	United Nations Environment Programme
UNIDO	United Nations Development Organisation
US	United States
WC	Western Cape
WMCs	Waste Minimisation Clubs
WRC	Water Research Commission

This chapter provides background information on the project, the project aims and approach, and an outline of the final report.

1.1 Background

The Water Research Commission sponsored a project from 1998 to 2000 (WRC Project 973 - *Applicability of Waste Minimisation Clubs in South Africa: Results from Pilot Studies*) to investigate the feasibility of establishing Waste Minimisation Clubs (WMCs) in South Africa to promote cleaner production to industry. This project was carried out by the Pollution Research Group (PRG) of the University of Natal, Durban (on 1 January 2004, the University was renamed the University of KwaZulu-Natal) and two pilot WMCs were established – one in the Metal Finishing sector in the greater Durban Metropolitan Area, and the second one, a cross-sectoral WMC in the Hammarsdale region. These WMCs proved to be a success, with open sharing of information and ideas amongst the WMC members, financial benefits to the companies and a reduction in their environmental impact. The experiences gained during the course of this project are important lessons for others who wish to establish and manage further WMCs in South Africa, and for this reason, the WRC have sponsored a follow-up project to develop a methodology for establishing and managing WMCs.

In order to fulfil the requirements for this project, a detailed Facilitator's Manual has been developed, which is aimed at a person / organisation that wishes to initiate a WMC and requires some form of guidelines as to the methodology of undertaking such a project. It addresses aspects such as how to form a WMC, call meetings, determine the level of contributions from companies, identify the problems that can occur, and explains the various roles of the people involved. It also provides sample letters and presentations, and provides sources of information. This Manual draws on the experiences gained in the previous project and also that gained from facilitators of other WMCs in South Africa.

Training is essential for a successful waste minimisation project, and for this reason, a second manual is also available which provides the basic material required to train WMC members in waste minimisation. This is in the form of a Training Manual, which contains a CD with power-point presentations and workbooks, notes to the trainer and solutions to exercises. This Training Manual provides information on waste minimisation in general, how to conduct a waste minimisation audit, how to identify waste minimisation options, guidelines on conducting a feasibility analysis, and the importance of monitoring and targeting. In order to assist the facilitator in training WMC members, references to other training manuals have been provided and also references to sector-specific waste minimisation guidelines.

In addition, a suggested outline for a training course for Facilitator's themselves has been developed and various approaches as to how it could be implemented has been provided.

1.2 Project Aims and Outputs

The primary aim of this project was to develop a sustainable method of promoting and managing WMCs. This was achieved through the development of:

- A manual for developing and managing WMCs
- Sectoral specific self-assessment guides
- Training material for waste minimisation consultants

Target groups include policy makers, authorities, consultants, industries, and funding bodies.

At the Project Steering Committee meeting held in March 2002, it was agreed that there was no need to develop sector specific self-assessment guides as there are many available from other sources, but that the project team should focus on collating all sources of sector-specific guidelines and use them as reference material for the Manuals. A web page was to be established and a brochure on waste minimisation prepared.

1.3 Project Approach

A literature survey and Internet search was carried out to obtain sources of information on WMCs and the manner in which they were initiated and run; and any sector-specific waste minimisation guides. Questionnaires were sent to other waste minimisation facilitators in South Africa to determine the barriers experienced in the running of their WMCs, and the success factors. Two workshops were also held with these facilitators to obtain their input. This information was collated and used in the development of the guidelines in the Facilitator's Manual.

Information on other waste minimisation / cleaner production courses offered by organisations such as the United Nations Environment Programme and the US Environmental Protection Agency was collected and, together with the courses used in WRC Project 973 provided by Enviros Consulting, was used to develop the Training manual.

Numerous industrial sector-specific guides exist which provide information on pollution from the various sectors and suggestions for pollution prevention. These guides were collected and used as reference material for the Trainer's manual.

In June 2003, the Project Leader for this project was given permission to postpone the completion of this project in order to take up a position as Project Co-ordinator on the Danish-funded Cleaner Textile Production Project (CTPP). The reason for this was to capture the experiences of the CTPP and include them in the WRC report. Additionally, at this time the City of Cape Town was funding the development of 7 WMCs (facilitated by BECO-Institute for Sustainable Business) and it was important to be able to capture the experiences within the Manual.

1.4 Outline of the Final Report

This Final Report summarises the results of the WRC project by providing information on, and lessons learnt from running WMCs in South Africa. Suggestion for a strategy to promote the WMC concept is also provided in order to ensure sustainability of the concept.

Chapter 2 provides some background information on WMCs; **Chapter 3** provides an outline of the development of the Guidelines; **Chapter 4** discusses the strategic planning and methodology for implementing WMCs; and **Chapter 5** describes what other cleaner production initiatives underway in South Africa (as of January 2004) that support the WMC concept. The conclusions and recommendations from the project are given in **Chapter 6**. A capacity building report and a list of technology transfer actions are provided in separate documents.

The Facilitator's Manual and Training Manual are provided as separate output items.

Chapter 2

The Waste Minimisation Club Concept

This chapter will cover some background information on the development of WMCs; their management; where they fit into the bigger picture of sustainable development; and the problems that can be experienced in running WMCs. A full literature survey will not be undertaken here as further information can be found in the final report prepared for the pilot WMC project, WRC Project No. 973 (Barclay and Buckley 2002(a)).

2.1 Introduction to Waste Minimisation Clubs

Waste minimisation clubs (WMCs) can be defined as a group of companies coming together to share information, advice and experiences in implementing waste minimisation practises. These Clubs generally consist of between 7 and 15 companies (WMC members), from either the same industrial sector, or the same geographical area. Meetings are held every 2 months and these are facilitated by an organisation that has experience in waste minimisation procedures and is able to transfer this information to the Club members.

2.1.1 Development of the Waste Minimisation Club Concept

The WMC concept was first introduced in Europe in the late 1980s. Similar initiatives have been introduced in India (waste minimisation circles) and New Zealand. Within the United Kingdom, more than 100 WMCs are in existence (Envirowise website). In most cases, these WMCs were initiated due to poor environmental performance of industry and the visible effect of their pollution.

In 1998, the WRC sponsored a project to investigate the feasibility of using the WMC approach in South Africa to promote waste minimisation to local industry. Under this project, two pilot WMCs were established in KwaZulu-Natal and managed by the Pollution Research Group. The results from these pilot WMCs is well documented in the Project Report (Barclay and Buckley, 2002 (a)) and indicated that WMCs were a successful approach to use in South Africa. A number of WMCs have since been established in South Africa and it is a concept that is slowly growing and gaining support from government. A summary list of WMCs that have been initiated in South Africa is provided in Table 2.1. A more detailed list is given in **Appendix 1, Table A1** as provided by BECO- Institute for Sustainable Business (BECO, 2004).

2.1.2 Defining a Waste Minimisation Club

In order to ensure that the focus of WMC is on reduction at source and not end-of-pipe treatment, it is important that some guidelines exist to assist in the definition of a WMC. After consultation with WMC facilitators, the following questions were noted:

- Is the group of companies being educated in good waste management practices?
- Is each WMC member investigating source reduction techniques?
- Is some form of skills transfer in waste minimisation taking place?
- Is information on a structured approach to waste minimisation being transferred?
- Are there at least 5 active members in the WMC? (where active means that they are implementing waste minimisation and reporting results)
- Are there meetings at least every 8 weeks?

If there is positive support for each of these questions, then it can be accepted that the group of companies is a WMC.

Table 2.1: Summary list of Waste Minimisation Clubs in South Africa

Club name	Status
Hammarisdale Waste Minimisation Club	Ended
2 nd KZN Metal Finishing Waste Minimisation Club	Ended
The Pietermaritzburg Waste Minimisation Club	Ended
City of Cape Town Waste Minimisation Club for the Car Repair industry	Ended
Nelson Mandela Metropole Metal Finishers Waste Minimisation Club	Closed
City of Cape Town Waste Minimisation Club for Blue Route Shopping Centre	Closed
Sasol in-house	Closed
City of Cape Town Waste Minimisation Club for the Convention Centre Construction	Failed
Waste Minimisation Club for the Paarl region.	Failed
Waste Minimisation Club for the Printing industry	Failed
City of Cape Town Waste Minimisation Club for the Meat processing industry	Merged with food WMC
KZN Metal Finishing Waste Minimisation Club	Merged with MFA
Gauteng Metal Finishing Waste Minimisation Club	Merged with MFA
Cape Metal Finishing Waste Minimisation Club	Merged with MFA
Waste Minimisation Club for Large Companies in Western Cape	Running
City of Cape Town Waste Minimisation Club for the Plastics Industry	Running
City of Cape Town Waste Minimisation Club for the Cape Town Civic Centre	Running
City of Cape Town Waste Minimisation Club for the Atlantis industrial area	Running
Waste Minimisation Club for Wine farms in the Breede river valley	Running
Waste Minimisation Club for the food and beverage industry	Running
Waste Minimisation Club for Mogale city	Running
Waste Minimisation Club for Rosslyn industrial area	Running
Waste Minimisation Club for Parow industrial area	Running
Waste Minimisation Club at a Medical Facility	Running
Waste Minimisation Club for the Bellville South industrial area	Running
Waste Minimisation club for large companies in the West Rand area	Start-up phase
Waste Minimisation Club For Mining Industry	Start-up phase
Waste Minimisation Club for the Gauteng Plastics Industry	Start-up phase

In addition, it was felt that it was necessary for some requirements on the side of the WMCs members to be met in order to participate in a WMC. These included:

- Companies must be prepared to share information (although some may take longer than others to join in this sharing. They should not be forced, but rather encouraged to take part).
- Club members must attend Club meetings and there may be a minimum attendance set (e.g. must attend 4 out of 6 meetings in one year).
- The Club members must undertake at least a pre-assessment during the lifetime of the Club so that they have identified where the main wastes are occurring.
- If a membership fee is charged, all members are required to pay these in full and on time.

- Club members should be prepared to report their results / savings to the facilitator for dissemination purposes (the facilitator in turn must be prepared to ensure confidentiality).

It is important that these requirements are made clear at the start of the WMC so that all members are aware of what is expected of them. These conditions may also be included in the constitution of the WMC.

2.2 Waste Minimisation Clubs, Cleaner Production and Sustainable Development

This section very briefly highlights some aspects of sustainable development and cleaner production to enable the concept of WMCs to be seen within these contexts. A more detailed analysis of these aspects is provided in the final report of the pilot WMC project (Barclay and Buckley 2002(a)).

The Brundtland report has defined sustainable development as (World Business Council for Sustainable Development):

Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

This report also called for economic and technological growth in a new social context, i.e. the upliftment of poorer nations through the introduction of new technologies. This would ensure that development would occur in a sustainable manner and that natural resources would be conserved for future generations.

One method of promoting sustainable development to industry is through Cleaner Production. The term Cleaner Production was coined by UNEP IE/PAC (United Nations Environment Programme) when it launched the Cleaner Production Programme in 1989. The definition that has been adopted by UNEP is (UNEP, 1994):

Cleaner Production is the continuous application of an integrated preventive environmental strategy applied to processes, products, and services to increase eco-efficiency and reduce risks to humans and the environment.

- *For Production processes this means conserving raw materials and energy, eliminating toxic raw materials, and reducing the quantity and toxicity of all emissions and wastes.*
- *For Products this means reducing negative impacts along the life cycle of a product, from raw materials extraction to its ultimate disposal.*
- *For Services this means incorporating environmental concerns into designing and delivering services.*

Previously, solutions to waste focussed on end-of-pipe treatment, followed by disposal. In other words, a reactive response to the problem. Cleaner Production, on the other hand, is proactive thinking, where elimination of the problem in the first case is the most preferred option. Figure 2.1 illustrates this difference between proactive and reactive thinking leading to sustainable development. It must be noted that recycling can be considered as both reactive and proactive. Only on-site recycling is considered to be Cleaner Production.

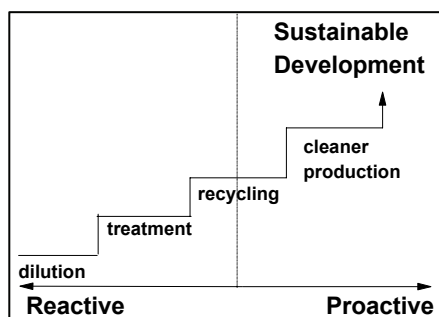


Figure 2.1: Reactive and proactive thinking in relation to cleaner production and sustainable development (UNEP, 1996)

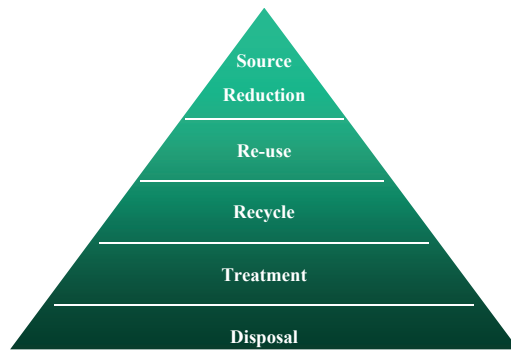


Figure 2.2: Waste management Hierarchy (BECO, 2004)

Cleaner production generally follows the waste management hierarchy (Figure 2.2) where reduction at source is the most preferred option. This source reduction can be achieved through the implementation of *waste minimisation*.

There are a number of definitions of waste minimisation, but it is generally accepted that it involves the application of a continuous strategy to reduce the generation of waste at source.

Waste minimisation is achieved through the implementation of a number of steps. This is shown in Figure 2.3. The first steps include obtaining commitment to the programme from senior management, appointing a project champion to manage the programme and selecting a project team to assist in data collection.

All process within the factory are then investigated and data collected on all inputs and outputs in terms of quantity and value. At the end of this phase, the project team should target those processes, operations or waste streams that require more detailed assessment. Targeted processes can be based on the hazardous nature of the waste, the value of the waste, the large volumes of water consumed or the use of excessive energy

These areas can then be assessed in more detail and options for improvement identified. A feasibility analysis is then conducted to determine if the option is economically, technically and environmentally feasible. Those options that are found to be feasible can then be implemented. It must be remembered that waste minimisation is not a once off activity and the programme should be continuously monitored and targets reassessed and reset at regular intervals.

Often the terms waste minimisation and cleaner production are used interchangeably and are generally accepted to have the same meaning, although strictly speaking cleaner production involves more than just reduction at source.

WMCs are one method of promoting waste minimisation (and therefore cleaner production) to industry and the use of WMCs, or similar concepts, has been a successful approach in the United Kingdom, the Netherlands, India, and now South Africa.

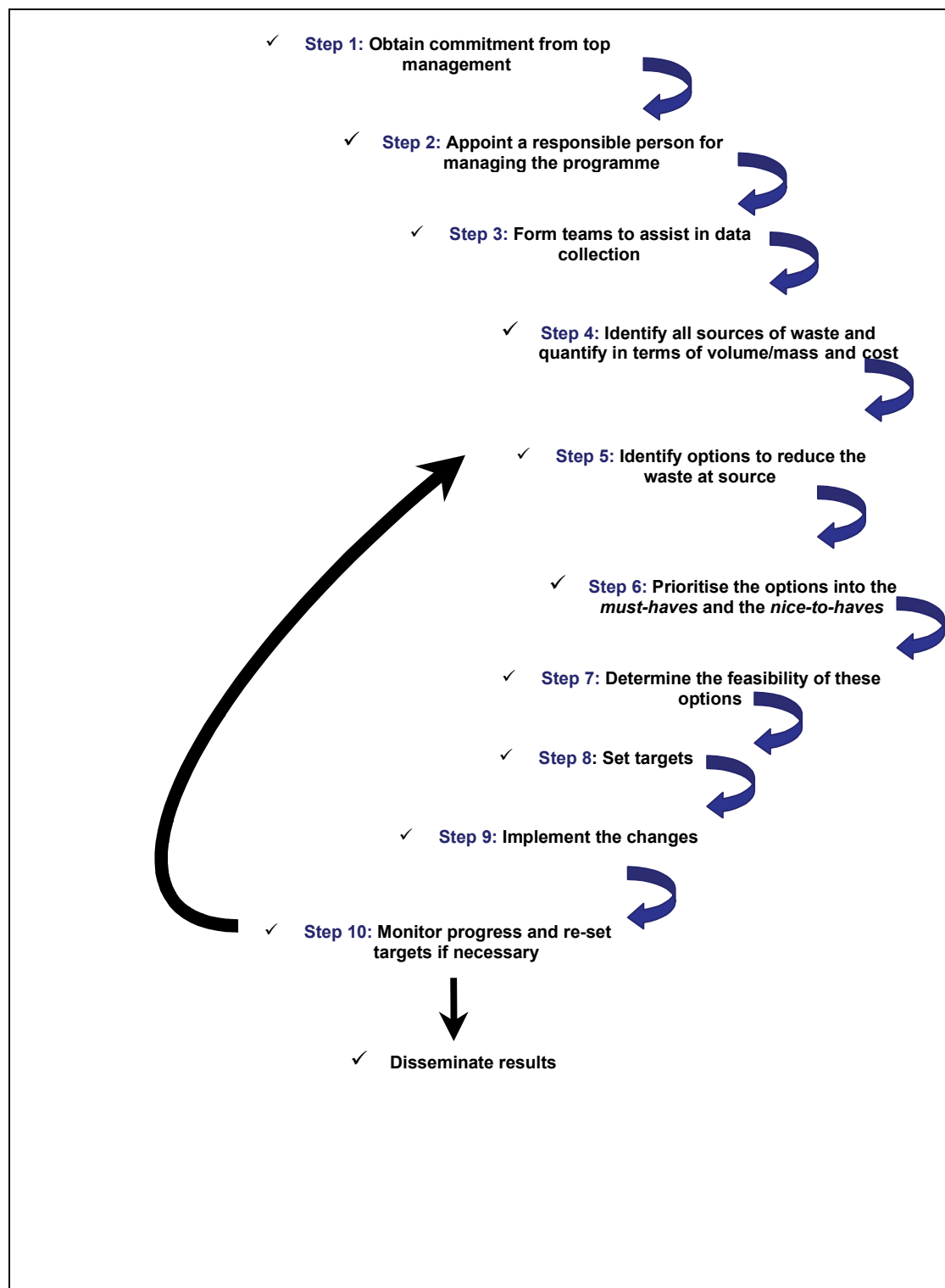


Figure 2.3: Step by step approach to implementing a waste minimisation programme

2.3 Establishing and Managing Waste Minimisation Clubs

The accepted stages in establishing and running a WMC are provided in Figure 2.4. As indicated, there are generally 7 main stages, which are followed. In some cases, these stages may be combined, or overlap with one another. For example, recruitment may take place at the same time as awareness raising if companies are enthusiastic and want to join immediately. Additionally, the assessment stage and the implementation stage often occur at the same time, as companies will implement options that have been identified in the assessment stage. Dissemination and training activities occur at a number of stages in the lifetime of a WMC and these are highlighted in Figure 2.4. More information on the stages involved in establishing WMCs can be found in the Facilitator's Manual.

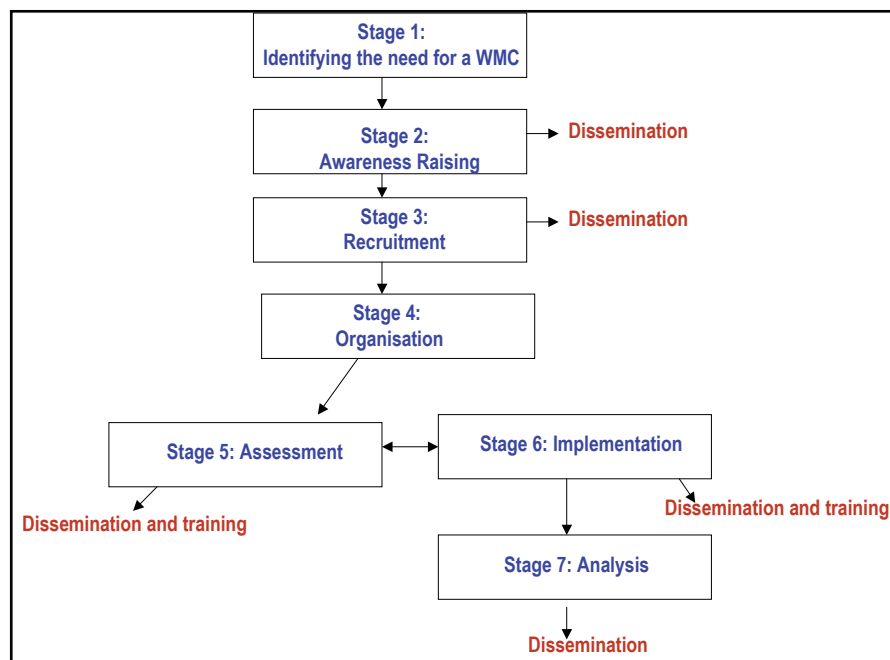


Figure 2.4: Outline of stages involved in establishing and managing WMCs

Within South Africa, most WMCs established followed this flow diagram, with awareness raising taking place first, followed by recruitment and organisation and so on. In some cases, the awareness raising and recruitment stages were combined, but this only happened in one or two cases where the proposed WMCs were very specific and targeted.

Once the companies have been recruited into the WMC, the WMC structure is determined and the role of the facilitator and the WMC members is explained such that all members are aware of what is required of them. A constitution is drafted which outlines the roles of the various organisations. The WMC then meets every 2 months or so to exchange information and experiences in waste minimisation, and to receive training in how to implement waste minimisation within their own organisation.

In order to determine the cost of running a WMC, there are a number of aspects that need to be taken into account. These are listed in Table 2.2. In general, the cost to run a WMC for one year, is in the region of R 120 000 per annum. This covers:

- Facilitation of 6 meetings
- 3 days on-site assistance per company (a membership of 8 companies)
- 2 newsletters
- Provision of training material etc.
- Supervision of students

Table 2.2 Summary of items that need to be taken into account when determining the cost to run a Waste Minimisation Club.

Item	Considerations
Facilitator's time	• Preparing agendas • Emailing / faxing / phoning companies • Organising the venue • Organising speakers • Facilitating the Club meeting • Site work • Preparing newsletters • Writing of minutes • Preparing training material • Collating results • Dissemination of results
Phone calls, postage and faxes	• cost of calls • paper costs • postage costs
Other assistance	• cost of students • cost of other consultants (e.g. for site work or training) • additional training • additional site work
Lecture / training aids	• photocopying of any notes • cost of overhead transparencies • sourcing training material
News letters	• paper • postage
Venue and catering	• hiring costs • cost of refreshments per WMC member

It does not include the students salary or any travel costs. More information on the cost to run a WMC is provided in the Facilitator's Manual.

These costs therefore make it necessary for some sort of subsidisation, especially if the companies are SMMEs. It has however been found that charging a membership fee is very important to the success of the WMC, even if this fee is relatively small. This financial commitment assists in ensuring that members continue to attend meetings.

Another successful approach to running a WMC is to have the meetings at the member's sites on a rotational basis. This lowers the running costs as a venue does not have to be hired for the meetings, and also allows the members to undertake a short site visit of that company. This often results in new ideas being provided for waste minimisation opportunities.

The training that is generally received by WMC members is divided into a number of modules based on the UNEP waste minimisation structure (i.e.: Planning and Organisation; Pre-assessment; Detailed Assessment; Feasibility Study; Implementation), and tasks were set at the end of each meeting, which were to be undertaken by the WMC member before the next meeting. An indication of the type of training provided is given in Table 2.3. In some cases these modules could be split into smaller modules and run over 2 meetings rather than in one training session depending on the needs of the WMC members.

Under the Danida CTPP, a similar concept to the WMCs concept was developed as a result of running a waste minimisation auditor-training course. The intention of the training course was to train consultants and textile companies in waste minimisation such that they could either assist textile companies in implementing waste minimisation options, or implement an in-house waste minimisation programme. The training course was advertised through posters at a local conference, and also by sending information to textile companies participating in the CTPP. The course was offered free of charge to the participants. In this case, awareness of the training course and recruitment of the companies was undertaken at the same time.

The courses were run over a period of 5 to 6 months; with a one-day lecture module being held, followed by a two to three week break for the participants to implement what they had learnt. The course was divided into either 8 or 10 lecture modules, each of which covered an aspect related to undertaking a waste minimisation audit in a textile factory. "Homework" tasks were set at the end of each module.

Materials used to develop the course were a self-assessment guide for the textile industry which was developed by the PRG under a Water Research Commission (WRC) Project in 1997 and 1998 (Barclay and Buckley, 2002(b)) as well as training modules developed by Enviro Consulting. The training modules followed a similar outline to the training offered at the WMCs meetings, but it was in more detail and focussed on the textile industry (see Table 2.3).

Table 2.3: Training offered at the Waste Minimisation Club meetings and through the Danida training course

Module	WMCs Training	Danida Training
1	Introduction to waste minimisation	Introduction to waste minimisation
2	Data Gathering	Planning and organisation
3	Identification of Opportunities	Pre-assessment
4	Structured Problem Solving	Detailed assessment with respect to textile processing
5	Project Evaluation	Energy aspects with respect to textile processing
6	Project Management	Monitoring and targeting
7	Sustaining the Programme	Identifying waste minimisation options
8		Feasibility analysis
9		Implementation
10		Maintaining the programme

The lecture modules under the CTPP followed a similar format to that used in running a WMCs where participants were asked to provide feedback on their progress and problems in implementing waste minimisation on-site. In this way, the participants could learn from one another and exchange information and experiences in waste minimisation. These feedback sessions often resulted in a large amount of discussion and assistance between companies.

During the course of the CTPP, 4 of these training courses were run with a different degree of success. Two courses were run in Durban and two in Cape Town. The main difference in these courses were the personality of the people attending, and the level at which they were employed in the company.

One of the main barriers in running a WMC is the lack of progress on site, and this is mainly due to a lack of time on the part of the Project Champion. In all the WMCs that have been established, the use of students in assisting companies in undertaking assessments has been essential for any progress to be made. It was however found, that this was not necessarily true for the CTPP training course. In most cases, 2 participants from each company attended the course, and these participants worked as a team in undertaking assessments and implementing changes. In the first training course, these participants were mostly from supervisory level and focussed on selecting a process for assessment and following a project through to the end. In the second training course, the participants tended to be a supervisory level person and a management level person, who had the authority to make decisions regarding minor investments. In this case, these participants focused more on integrating waste minimisation into their company culture. In most cases, the companies that participated in these training courses managed to undertake assessments, identify options for improvement and make savings without the assistance of students. In other cases, no progress was made, and it is felt that the main reason for this was due to the personality of the person attending the course, and also a lack of real commitment from company management. In some cases those companies that participated in the Danida training course went on to become members of a WMC and have reported benefits from the use of students to undertake the more detailed and time consuming work.

It can therefore be summarised, that the success of a waste minimisation programme at a company, whether it be implemented as a result of a WMC or a training programme, depends on:

- Commitment from top management
- An enthusiastic and motivated project champion
- The use of students to undertake detailed and time consuming investigations (not for all cases)

It is therefore difficult to assess the *best* method of establishing and managing a WMC. Each WMC requires its own format and type of training. It is very dependant on the companies that are participating and the progress that is made. The outcomes of this Project can only provide guidance as to the way in which WMCs can be formed and managed, but no one set format can be applied.

2.4 Analysing the Results of Waste Minimisation Clubs

There are a number of aspects to discuss when analysing the results of WMCs, in terms of the WMC concept itself, and also in terms of the results achieved by the members of a WMC.

2.4.1 Assessing the status of Waste Minimisation Clubs

It is important to analyse the reasons behind both the success of some WMCs, and the failure of other WMCs. With reference to Table 2.1 where the WMCs in South Africa are listed, the last column highlights the status of each WMC as of February 2004. It can be noted that since the inception of the WMC concept, 27 WMCs have been established. Of these:

- 4 ended
- 4 merged
- 3 closed
- 3 failed
- 3 are in the start-up phase
- 11 are still running

Ending of Waste Minimisation Clubs

In this context, ended means that the WMC ran its course and closed according to plan (see Table 2.1). These WMCs include the Hammarsdale pilot WMC, the Pietermaritzburg WMC and the second metal finishing WMC in Durban. In some cases the activities of the WMCs were continued through other forums (e.g. Hammarsdale Industrial Conservancy), and in others the club members made no further plans to meet on a regular basis (e.g. the Pietermaritzburg WMC).

Merging of Waste Minimisation Clubs

The pilot WMC for metal finishers ended through the establishment of the KZN Metal Finishing Association (MFA). Waste minimisation activities are discussed at each meeting and therefore the WMC continues in this forum. The Cape and Gauteng metal finishing WMCs operated as a MFA from the beginning. There has also been one other merger of a WMC, where the meat industry WMC was incorporated into the Food industry WMC in Cape Town.

Closure of Waste Minimisation Clubs

Closure of a WMC refers to the closing of WMC either due to a lack of progress in the WMC, or having the WMC's activities incorporated into other existing structures. Three WMCs have closed for these reasons:

- **The Nelson Mandela Metropole Club** - some meetings were held in the first year, but lack of attendance resulted in closure. The champions of the WMC also emigrated and the industry lost interest.
- **The Sasol in-house WMCs** - the WMC was closed and the activities of the club incorporated into their other forums within the company.
- **WMCs for Blue Route Shopping Mall:** This WMC started out successfully, but after a few meetings it became clear that it was not an approach that could be used in a shopping centre. The main reason for this is that the tenants in the centre do not see a cost benefit in reducing their water and energy use, since the rent charged by the centre management remains the same, as the smaller shops generally subsidise the rent of the larger, *anchor*, shops. This led to disagreements and the centre management made the decision to end the WMC.

Failure of Waste Minimisation Clubs

There are only a few cases where it can be reported that the WMC approach failed. These include:

- **WMC for the Paarl region:** this WMC could not be established due to lack of support from the local authority. It was reported that at the awareness-raising meeting companies were being discouraged from joining the WMC by the local authority representative as they feared a loss in revenue.
- **WMC for the Convention Centre Construction:** This WMC was not established due to complete lack of interest on the part of the construction companies.
- **WMC for the Printing Industry:** Due to the highly competitive nature of the printing industry, the companies were not prepared to share any information and therefore the WMC could not be established.

Waste Minimisation Clubs in the start-up phase

This refers to the possible establishment of WMCs. Interest has been received in the concept and some awareness raising has taken place.

Waste Minimisation Clubs still running

The number of WMCs that have been successfully established and managed out-number those that closed or failed. It is felt that the successful WMCs, or the ratio of successful WMCs, will increase over the years as the lessons learnt from each WMC are used to improve upon the process. It is therefore important to capture the successes and problems of each WMC.

In general the success of these WMCs can be attributed to:

- Enthusiastic member companies
- Support of the local authority
- Financial subsidisation

The companies involved must be motivated to attend meetings and share their experiences. The interaction of the companies and the resultant discussions are a very important aspect of the WMC approach as the companies learn from one another, and it is important that the WMC members are able to contribute.

Support of the local authority is also very important to ensuring the success of the WMC as companies need to know that they are not going to be penalised for implementing waste minimisation due to the increased concentration of contaminants in their effluent due to lower water use (and therefore effluent production volumes). In addition if there is government support, this lends an aspect of the *big stick*, where companies will feel more inclined to attend WMC meetings and make improvements on site.

Financial subsidisation of the costs of a WMC is also a factor in the success of the WMC approach. The costs involved in managing a WMC can be high (in the region of R120 000 per annum for 8 companies) and these costs have to be covered by the WMC members. Often the costs are a deterrent to the members and subsidisation can make a difference between a WMC being established and not being established. The majority of WMCs have received subsidisation from one or another external source (see Table A1 in Appendix 1), except for the Mogale City WMC where the club members are covering the total costs. In this case, there are only 5 members as other companies cannot afford the costs. Unfortunately, there are limited sources of subsidisation for WMCs in South Africa, and this is an aspect that needs to be addressed if the WMC approach is to be continued.

2.4.2 Reporting on Waste Minimisation Clubs

It is important to capture the success of a WMC to enable the dissemination of the results such that the concept is promoted and more WMCs are established. If the successes are continuously made known, it may open up more avenues for external subsidies.

The success of a WMC can be assessed in terms of:

- Financial savings to the companies
- Environmental savings (e.g. water saved, energy saved etc.)
- Social aspects
- Barriers and drivers
- Savings achieved by the authorities in reducing compliance monitoring and reducing their waste water treatment costs

It is difficult to collate this information and often very time consuming. Financial savings are often the easiest to collect as it is this type of information that is most important to a company. These savings can sometimes be converted into environmental savings, but this is not always very straight forward and does not accurately reflect the savings that have been achieved.

In order to make this collation procedure easier, the WMC members should be made aware of the requirement for this data from the start of the WMC, and possibly sheets for recording this information be handed out. Additionally, it could be made the responsibility of the student to collect this information.

Social benefits are also important to record as this aspect is what makes the WMC approach unique. The relationships between the club members should be assessed and interviews held to determine the benefits of being part of a WMC for each member.

It is also important to keep a record of the barriers that were encountered in the running of a WMC and in implementing waste minimisation within a member company.

There are a number of ways of collecting and recording this information such as through the use of questionnaires, phone calls, or conducting interviews. A combination of each of these has been found to be the best approach. **Section 6** in the Facilitator's Manual discusses the collation of results in more detail and provides examples from the pilot WMCs.

Financial and environmental savings

BECO –Institute for Sustainable Business ensures that all members of a WMC have at least undertaken a pre-assessment of their site during the course of a WMC. This involves assessing the potential savings through preliminary mass balances and brainstorming sessions. This results in a number of waste minimisation options being identified, and an estimation of the potential savings. The results of 11 WMCs (and 113 companies) pre-assessments have been collated by BECO and the results are provided in **Figures**

2.5 and 2.6. The total identified savings for these WMCs is in the region of R70 million / year. Identified water savings amount to 2.6 million kl / year, and a reduction of 63 tons / year of chemicals to drain is possible through implementing waste minimisation.

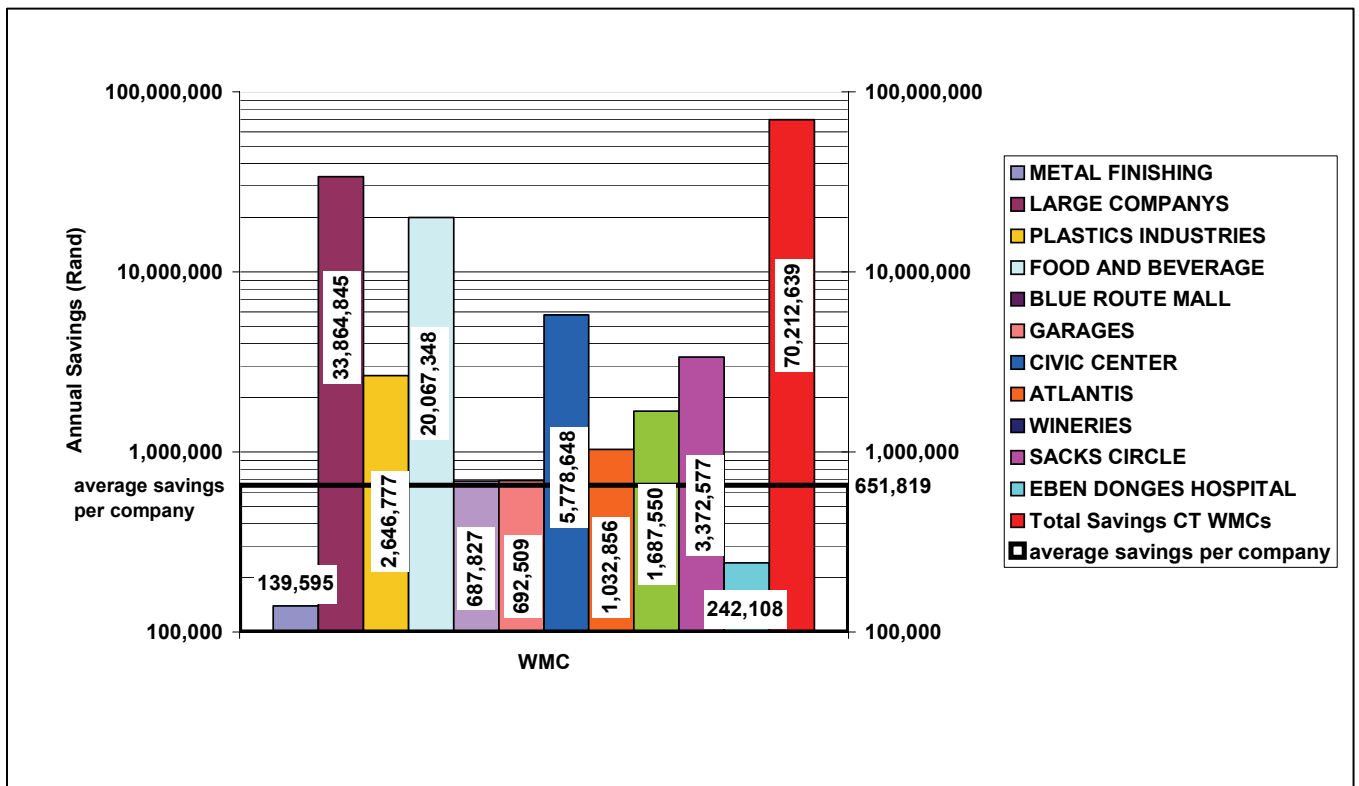


Figure 2.5: Summary of identified savings from 11 WMCs (BECO, 2004)

Some WMC members have provided BECO with actual savings, but as mentioned earlier, this can be difficult due to lack of response to questionnaires and unwillingness to share this type of detailed information.

This difficulty in obtaining the required data highlights the need for there to be some form of guiding body (be in government / private sector) that can set guidelines for the type of reporting that is required as an outcome of a WMC.

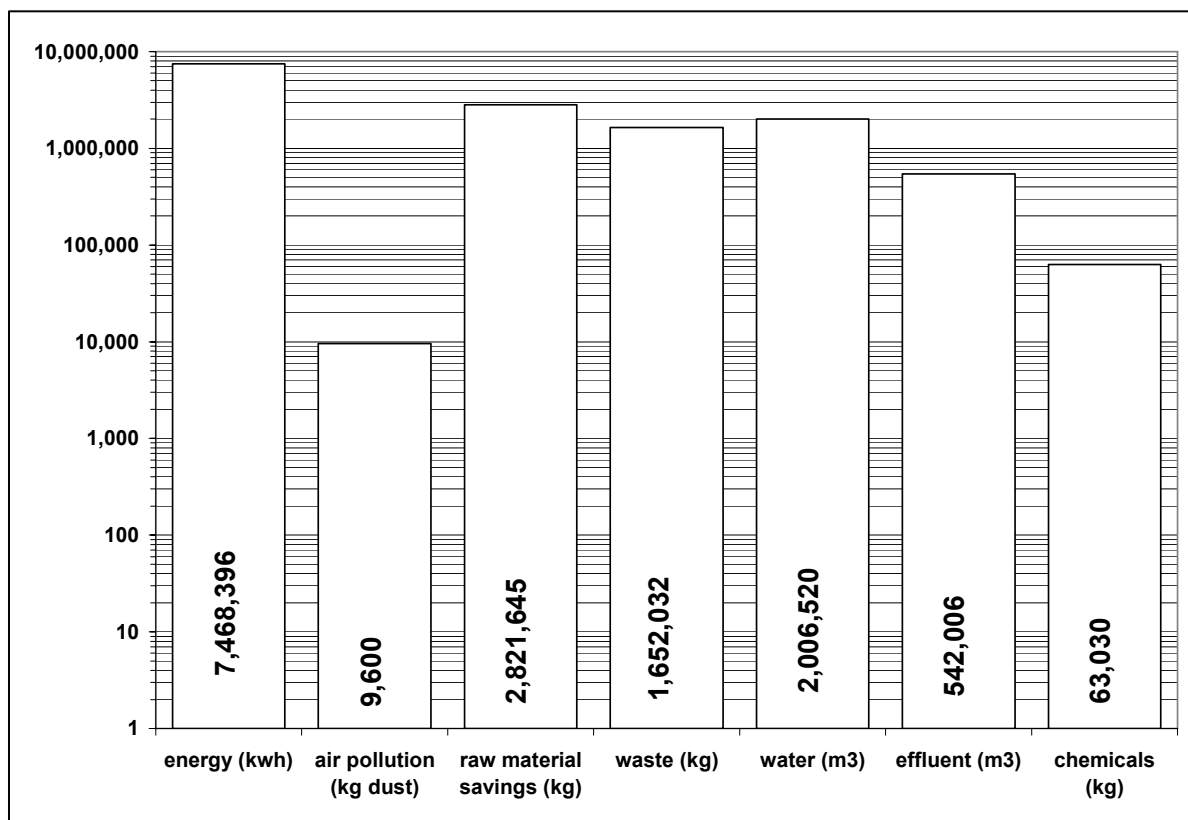


Figure 2.6: Summary of identified environmental savings for 11 WMCs (BECO, 2004)

Note: In Figure 2.6, water savings reflect only incoming water; and effluent savings are only recorded for a few WMC members and not for all members.

Social aspects

To date, the social aspects of the existing WMCs have not been assessed in detail, although the fact that these WMCs are still in existence and meeting regularly, indicates that the companies are benefiting from the social interaction. Some suggestions as to how to measure this aspect are provided in Section 6 of the Facilitator's Manual.

Some WMCs have started interaction with the local communities. One example of this is the Atlantis WMC, which was awarded the Top Club Award in 2003 by the City of Cape Town, partly due to them developing a recycling programme with the local school which has been very successful (BECO, 2004).

Identifying Barriers

Within the WMCs there are number of barriers which will be experienced – both in running the WMC and internally within WMC members. This aspect is dealt with in great detail in **Section 4** of the Facilitator's Manual and suggestions provided as to how to overcome these barriers.

From discussions within this report, it is evident that the main barrier in running WMCs is the availability of funding. This is an issue that needs to be addressed urgently if WMCs are to become the accepted manner of promoting waste minimisation to industry.

2.4.3 The importance of dissemination

As mentioned in **Section 2.4.2**, it is important to make the results of the WMCs known in order to promote the concept, and thus ensuring the continuation of the process. There are a number of ways in which this can be carried out, such as:

- Newsletters
- Web site
- Case studies
- Workshops / conferences
- Brochures / CDs / videos

Newsletters:

It is important for each WMC to have a newsletter, which provides them with information on activities relevant to them, and general waste minimisation guidance. Case studies can also be included in these newsletters. The cost of producing these newsletters is included in the total WMC fee. These newsletters should be short and easy to read. They can also be used to promote the WMCs concept.

Web Site

A WMC website has been established by the PRG. This web site provides information on the WMC concept; waste minimisation in general; all publications and guides produced under the WMC project; an outline of each WMC in South Africa; and links to other related sites. Since the WRC project has now come to an end, there is the need to ensure that the information placed on this web site is not lost. Some suggestions for continuation of this site are provided in **Sections 5.1 and 6.2**.

Case Studies

It is very important for successful local case studies to be prepared and distributed. The excuse is often given by companies that waste minimisation successes in other countries are not relevant in South Africa, but with local success stories, this argument can no longer be used. Case studies have been prepared on all the companies that participated in the pilot WMCs, and also those companies that participated in the WMCs established under the City of Cape Town's Mess Action Campaign. Further case studies need to be prepared and made available to all interested organisations.

Workshops / conferences

A number of workshops have been held to train various organisations (local and provincial government; industry; consultants) in how to establish WMCs and the principles of waste minimisation. Additionally, a number of presentations have been given at conferences on this topic. The use of these types of forums is important in disseminating the success of waste minimisation and WMCs. A detailed list of these activities is provided in the Technology Transfer Report.

Brochures / CDs / videos

An effective method of disseminating the success of WMCs is through the use of brochures, CD's / videos. A number of these media have been produced and are detailed in the Technology Transfer report. It is interesting to note that the Western Cape Provincial Government funded the development of a video and brochure on WMCs, which was aimed primarily at local government to educate them in the concept and encourage them to support these initiatives.

2.5 Discussions and Recommendations

A report detailing the results of a workshop held in the UK by the Environment Agency and Envirowise for facilitators of WMCs provides some important insight into ways in which this approach can be improved (Envirowise, 2002). These suggestions can be used to assist South African facilitators in improving the manner in which WMCs are run.

Based on the outcomes of this workshop, it is clear that facilitators in the UK are facing the same challenges as those in South Africa, even though WMCs have been in existence for more than 10 years in the UK and is still a relatively new concept in South Africa (introduced in the late 1990s). These issues include:

- What support is there for WMCs and how can this be improved?
- What are the challenges facing WMC facilitator's and how can these be overcome?
- What is the future for WMCs?

2.5.1 Support for Waste Minimisation Clubs

Within the UK, the WMCs concept has support from Envirowise and the Environment Agency in terms of information, technical advice, publications and so on. This support is provided free of charge to industry and is funded by the government. It was also discussed that the Environment Agency could assist WMCs by providing strategic direction and coordination, data and information on national, regional and local environmental issues, and support for project and funding bids. In return for their support and assistance, the Environment Agency would like WMC facilitators to align their programmes with high priority issues for their area, and to measure the performance of the WMCs.

A similar programme is not yet in place in South Africa, although this may be a role that the National Cleaner Production Centre (NCPC) could fulfil. Information on environmental issues is also a very important aspect for WMC facilitators in South Africa. There is still a large degree of confusion regarding the environmental regulatory requirements at national, provincial and local level and if this could be clarified for facilitators and have them made aware of the issues relevant to the area in which they are operating, this could assist in the marketing and running of WMCs. As identified by this UK workshop, measurement of success is very important for the preparation of business plans, which can be used to approach funding organisations. However, it is often difficult to obtain an indication of the savings (both economic and environmental), and also very time consuming. However, if this monitoring and measurement became a requirement from, for example, the Department of Environmental Affairs and Tourism (or even on a Provincial level), procedures would have to be in place to ensure the collation of these results.

On a National level within South Africa, the DEAT supports the concept of WMCs through the National Waste Management Strategy (DEAT, 1999) and the proposed Cleaner Production Strategy. There is also support for cleaner production / pollution prevention / waste minimisation in Acts such as the National Water Act and the National Environmental Management Act. On a Provincial level, there are programmes in place to assist in the implementation of waste minimisation initiatives; and on a local level, the municipalities are able to include cleaner production / waste minimisation aspects into their regulations and permitting requirements. A WMC facilitator needs to be made aware of these issues so that they can be utilised to the greatest extent.

It was also suggested at the UK Workshop, that one of the best ways in which government could show their support for environmental issues was for them to implement an environmental management system themselves to demonstrate that they are not only telling industry what to do, but are doing it themselves. An example where this has taken place in South Africa is in the City of Cape Town, where a WMC within the Cape Town Civic Centre has been established. It is important that the results of this WMC are disseminated to industry and other government departments, not only within the Western Cape, but also on a National level.

2.5.2 Challenges facing Waste Minimisation Clubs

The biggest challenges facing facilitator's in South Africa are recruitment of companies and funding. These same challenges were identified by the UK facilitators.

Recruitment

It is very difficult to recruit companies to become members of WMCs, and it is essential that a strong marketing campaign be put in place to encourage companies to join. The support of local regulation in this regard is very important. There needs to be a programme in place to promote the concept of WMCs and highlight the benefits. From experiences in initiating WMCs in South Africa, it has been found that the best way to market the concept is through emphasising the financial benefits to companies. Marketing WMCs as a green concept is not sufficient. The same was found to be true for the WMCs in the UK. It is only after companies realise the financial benefits that they can start identifying with the environmental benefits. Marketing by government is also important. This has begun in some provinces in South Africa, where, for example, the Western Cape Department of Environmental and Development Planning (DEA&DP) as well as the City of Cape Town, have prepared videos and brochures encouraging companies to join WMCs. Similar initiatives need to occur in all provinces and possibly also on a National level.

Involvement of trade / business associations in the recruitment stage is also very important. One-on-one meetings with senior management of the companies are essential. The use of flyers and pamphlets is also important. Recruitment involves a large amount of hard work and it is important to have the back up of government to assist in encouraging companies to join a WMC.

Funding

Funding for WMCs is becoming more difficult in South Africa. The 2 pilot WMCs in KwaZulu-Natal were totally funded by the South African WRC, but subsequent WMCs have had to find their own funding. Many have been funded through the Department of Trade Industry (the DTI) under the Sector Partnership Fund, but this programme is now coming to an end. Some have been funded by local and provincial government (e.g. the City of Cape Town and the Western Cape Provincial Government), and others through Danida and the Department of Water Affairs and Forestry (DWAF). In all cases, companies also contributed in the form of a membership fee. Within the UK, most WMCs are free of charge and funding has to be raised from other sources. The most important requirement for obtaining funding is to have a good business plan, and measurement of results is essential for this approach. It is suggested that there be a central organisation that has access to various sources of funding and who could assist in preparing bids for WMC facilitators.

2.5.3 The Future of Waste Minimisation Clubs

At the conclusion of the UK workshop, it was agreed by all delegates that there is no other viable alternative to WMCs for promoting cleaner production. WMCs were a successful approach as they provided a forum for networking and the exchange of information and ideas. Some suggestions as to improvements to the approach were provided, and these are included below together with discussions as to how they could be implemented in South Africa. Additionally, some suggestions as to how the quality of WMC facilitators in South Africa can be assured is provided.

Improved coordination

There needs to be improved coordination between government organisations with an interest in WMCs. In South Africa this would include the Department of Trade and Industry, Department of Water Affairs and Forestry and Department of Environment and Tourism; as well as the local and provincial governments. Possibly the NCPC, and involved universities and/or consultants could be included in this coordination body. This should lead to better communication between these government departments such that there is clear plan as the way forward for WMCs in South Africa. This plan should then be distributed to all provincial and local governments such that there are no mixed messages.

Setting of targets

National (or provincial / local) targets and standards should be set such that WMCs facilitators have a clear understanding of what should be measured. If facilitators were made aware from the start as to what is required as an output from the WMCs, it would assist in setting the goals of the WMCs.

Branding of the Waste Minimisation Concept

Branding of the WMCs concept should be improved so that all stakeholders (industry, government, NGOs etc.) understand what is meant by waste minimisation. A lot of confusion and misinterpretation of the term waste minimisation still exists; for example, in many cases waste minimisation is seen to refer to the minimising the volume of solid waste produced, such as compaction etc., rather than as investigating all methods of reducing the generation of waste (in all forms) at source. It may be best to investigate another term that would describe better what the WMCs are aiming to achieve. An example that has been given is *Resource Efficiency Clubs* (Envirowise, 2002). If this new branding were to take place, a good marketing campaign would need to be implemented.

Facilitator accreditation

Implementation of a standard for WMC facilitation is a concern that was raised at the start of the WMC project in South Africa. It was felt that there might be the possibility of organisations wanting to initiate WMCs with the aim of promoting their own product, and also without having the right level of knowledge or training themselves. Two scenarios were proposed to overcome this; namely, (i) the concept of a franchise, and (ii) a compulsory SETA accredited training course for WMC facilitators.

Franchise concept: The *Franchise* model is a proposed commercialisation route of the WMC project. It could be termed the *Macdonald's hamburger store* model. The WRC product and Waste Minimisation Club trademark is licensed to the *Management Company* who in turn would appoint, train, audit and support local *Franchise Holders*. In this way the Management Company would be able to maintain consistent standards throughout the various WMCs. Local people will be supported to manage WMCs. The Management Company would be continuously improving the system, providing additional information to the WMCs, initiating special studies and setting up management systems. In return, the Franchise Holder would be required to send case study information back to the Management Company on a regular basis. All franchise holders would be expected to make use of the material developed under this project.

A draw back of this system is that there needs to be a Management Company that would develop the material that is to be used by the facilitators. This is a time consuming and would require a large staffing. It is a model that is in some ways similar to the Envirowise centre in the UK, which develops guides, and material that is used by WMC facilitators on a National level.

SETA accreditation: The second concept is one of accreditation through the National Skills Development Strategy. A course would be developed to train WMC facilitators in establishing and running a WMC, including how to train the club members, undertake audits etc. The facilitators would receive a certificate and possibly credits, for attending this course, and in this way the club members are assured that the facilitator is appropriately trained. Further discussions on this accreditation process are provided in **Chapter 3, Section 3.6.**

Chapter 3

Development of Guidelines

This chapter provides a brief description of the Facilitator's and Training Manuals. The collation of sector-specific guides is also discussed as well as the accreditation process within the National Qualifications Framework (NQF).

3.1 Facilitator's Manual

During the course of WRC Project No. K5/973, it became evident that there was need for a guide on how to establish and manage WMCs. On conclusion of Project K5/973, the WMC concept was still in its infancy in South Africa, and it was felt that it would be useful to follow the progress of new WMCs and draw on these experiences in formulating guidelines. Additionally, the information and experience gained through other projects such as the Danida Cleaner Textile and Cleaner Metal Finishing Projects could be used to add to this document. For these reasons, the WRC funded the development of the Facilitator's Manual.

3.1.1. Outline of the Facilitator's Manual

The aim of the Facilitator's Manual is to provide guidance to those who wish to establish and manage WMCs in South Africa. It is divided into 11 Sections and 24 appendices, which contain supporting information and documents.

Each of the Sections address an aspect of forming and managing a WMC, with examples from closed and current WMCs to demonstrate certain points. Case study information is also provided. Each section concludes with a checklist of key points to serve as a summary for the facilitator, and a list of recommended reading. **Table 3.1** provides a list of each Section title. A more detailed table of contents is provided in **Appendix 2** to this report.

Table 3.1 List of sections in the Facilitator's Manual

Section	Title
1	Improving the Bottom Line through Waste Minimisation
2	Working together in a Waste Minimisation Club
3	Motivating by Meeting – Raising Awareness; Recruitment; Organisation for Action
4	Barriers and Drivers
5	Results through Action – Audits and Implementation
6	Lessons Learnt – Analysing and Disseminating Club Results
7	Creating Momentum through Training
8	Funding a Waste Minimisation Club
9	Where to now?
10	Legislative Support for Waste Minimisation Clubs
11	Where to go for Help

It must be remembered that the Facilitator's Manual is only a guide for WMC facilitator's, and that the establishment of each WMC is unique to that particular mix of companies and participants. The Manual has aimed to provide sufficient information for a facilitator to be able to assess the best manner in which to establish and run a WMC, and provides a range of examples from existing WMC, which can be used to aid in making decisions.

A 10-page summary manual has also been prepared which provides a basic outline of a WMC, and which can be used as a handout to promote the WMC concept. A full list of the documents produced are provided in the Technology Transfer report.

3.1.2. Facilitator's Workshops

A draft version of the Facilitator's Manual was made available in April 2002. It was circulated to other Club Facilitator's for comment and a workshop was held with these facilitators at the offices of BECO-Institute for Sustainable Business in Cape Town in April 2002. The aim of this workshop was to obtain input from these facilitators as to what information they felt would be useful to include in the Manual, and for them to provide constructive criticism of the draft Manual. The majority of the participants at this workshop had not as yet had experience in running Clubs and were either in the initial stages of raising awareness, or had held one or two meetings. The main outcomes of this workshop were:

- The development of criteria to define a WMC
- The development of criteria which must be met by WMC members
- Further suggestions for material to be included in the Manual Appendices
- Suggestions for inclusion in the facilitator check lists
- Additional barriers that had been experienced in the start-up phase and ways in which these had been overcome

These suggestions were then used for inclusion into the Manual.

A second workshop was held at the offices of BECO-Institute for Sustainable Business in Cape Town in October 2003. At that time BECO had initiated more than 15 WMCs and was still actively running 12 WMCs in Gauteng and the Western Cape. It was felt that the experienced gained by these facilitators in the year and half since the first meeting would be useful to include in the Manual, and enable completion of the Manual. The main outputs of this workshop were:

- An understanding of barriers experienced on the part of the facilitator (as opposed to those experienced by the WMC members)
- A discussion on the manner in which WMCs were managed and the advantages and disadvantages of the different approaches
- The manner in which the facilitators assessed the results of the WMCs
- The problems in obtaining funding
- An better understanding of the role of the facilitator in running a WMC
- A discussion on how to close / extend a WMC as some of the WMCs were coming to this stage.

These aspects have all been included in the final version of the Facilitator's Manual.

3.2 Training Manual

A Training Manual has been prepared from the material developed by Enviros Consulting and transferred to the WRC through the pilot WMC project. This material has been collated into a number of workbooks that have been divided into sections, or modules. One module is provided at each WMC meeting and homework tasks set for the members. A CD containing all the Power Point presentations, the workbooks, exercises, and answers to the exercises have been created. Within the Training Manual reference is made to other sources of information and sector specific guidelines that would be of use to the facilitator.

A list of the various modules is provided in Table 3.2. These modules are presented at each WMC meeting and homework tasks set for the project champion based on the information provided in the lecture. The results of this work are then fed back to the WMC at the next meeting.

Table 3.2: Outline of training modules provided in the training manuals.

Module	Title	Content
1	Introduction to Waste minimisation	- What is waste minimisation? - Identifying the potential savings - The role of the project champion - Setting up project teams - Identifying barriers
2	Data gathering	- Preparing process flow diagrams - Identifying sources of waste - Calculating the cost of waste - Collecting new data
3	Identification of opportunities	- Mass balancing - The importance of measuring and monitoring - How to set targets - Interpreting data
4	Identifying waste minimisation options	Techniques used to identify waste minimisation options
5	Feasibility analysis	Undertaking a technical, economic and environmental feasibility analysis
6	Implementation	Project management techniques
7	Maintaining the programme	- How to keep the momentum going - Raising staff-awareness

3.3 Facilitator's Training Course

As mentioned in **Section 2**, it is important to ensure that there is some form of *quality control* system in place with respect to the facilitators of WMCs. One method of providing this quality control is through the development of a compulsory training course for WMC facilitators. The majority of this course would follow the same training modules outlined in **Section 3.2** for the Training Manual, as the facilitator would need to be trained in waste minimisation procedures him/herself before being able to train WMC members. However, there would be the additional requirement that they be trained in how to set up and manage a WMC, using the Facilitator's Manual as the source material.

This training course would be outcome-based and a suggested syllabus is provided in Table 3.3 along with the criteria that could be used to assess whether or not the facilitator undergoing the training course had achieved the required outcomes. This course could be run as a 4 to 5 full-day course such that all aspects of waste minimisation are covered. It would also be useful for the facilitator to be able to enter a factory to undertake an audit as part of the qualification.

It is suggested that this training course be accredited under the National Qualifications Framework and this is discussed in more detail in **Section 3.6**.

Table 3.3 Proposed outcomes-based syllabus for a Facilitator's Training Course

Module	Topic	Outcome	Assessment criteria	Ref. Sections
1	Introduction to Waste Minimisation and Waste Minimisation Clubs	Broad understanding of the WM procedure An understanding of the WMC concept	Individual and group exercises	FM - 1 TM - 1
2	Setting up a WMC	Understanding of each stage in setting up a WMC Identification of the barriers How to determine costs associated with setting up and running a WMC	Participants to provide a proposal for the development of a WMC, how they would approach the recruitment, and the costs that would be involved	FM – 2; 8
3	Running a WMCs	Understanding each stage in running a WMC Identification of barriers Assessing results of a WMC What to do when the WMC ends	Participants to provide an action plan of how they would run the WMCs identified in Module 2.	FM – 3; 4; 6; 9
4	Undertaking a preliminary WM audit	How to determine the potential savings How to construct a process flow diagram How to identify costs associated with inputs and wastes	Individual and group exercises Preliminary audit undertaken in a factory situation	TM – 1; 2; 3 FM - 5
5	Providing training to WMC members	Be able to present the training course as provided in the Trainers Manual Able to identify needs of the WMC members and adapt the training course material as required	Individual and group exercises for each section in the TM Participants to present an aspect of the training course to the group	FM - 7 TM – 4; 5; 6; 7

Note: FM = Facilitator's Manual; TM = Training Manual

3.4 Sector-specific Guidelines

Initially, one of the outputs of this Project was the development of sector-specific waste minimisation guidelines. However, due to the vast number of guides already available, it was agreed that this output would be limited to the collation of existing guides. These would then be used as reference documents for the Training Manual to assist the facilitator in providing examples relevant to the WMC membership. The industrial sectors for which Guides have been sourced are listed in Table 3.4. A full list of the sourced material is provided in the Training Manual. Internet references are also provided.

Table 3.4: Sectors for which waste minimisation guides have been sourced and reference in the Training Manual

Sector	Number of guides
General waste minimisation (including workshops; water reduction; raw material reduction etc.)	22
Energy minimisation	5
Monitoring and targeting	3
Textiles and leather	17
Metal Finishing	8
Retail	4
Chemical	5
Pulp and Paper	2
Food and drink (including dairy and breweries)	9
TOTAL	75

3.5 How to use the Manuals

The Manuals are designed to be user friendly and easily adaptable to the needs of the person making use of them. They are available in hard copy format, or on CD where the necessary links are in place to take the reader to the relevant area of information. The use of the CD format makes storage of the large amount of information in both the Facilitator's and Training Manual more accessible.

3.6 The Accreditation Process

This section will provide a very brief overview of the legislation relating to the accreditation process such as the South African Qualifications Authority Act, the Skills Development Act, and the Skills Development Levies Act. This information is needed to provide an understanding of the procedures involved in becoming accredited through a Sector Education and Training Authority. The procedure that must be followed in order to obtain accreditation is also described. This information is taken from the Department of Labour's Leadership Pack, 2001.

3.6.1 The South African Qualifications Authority Act

The South African Qualifications Authority (SAQA) Act, passed in 1995, aims to end the split between *education* (received at Universities) and *training* (practical experience gained at Technikons and on-the-job). The Act says that both are recognised forms of learning and sets up a method of ensuring a high quality of both education and training through the development of the National Qualifications Framework (NQF). Different qualifications fit into this framework according to their focus and level of difficulty. The level of qualification is based on the exit level – in other words – what the learner will know and do when he/she finishes the qualification. This therefore measures the learner's abilities, rather than putting an emphasis on how or where the qualifications were obtained. There are 8 levels within the NQF, which gives an indication of the degree of difficulty of the qualification. A qualification is made up of standards, each of which carries a number of credits (worth about 10 hours of learning). Credits are earned by either following a course, or by showing that there is already the required skills through prior learning.

These standards are set by the Standards Generating Body (SGB) who then send the agreed qualifications and standards to their National Standards Body (NSB) to register with the NQF. There are 12 NSBs each covering a different area of learning and which are made up of representatives of government, organised business, organised labour, education and training providers, community and learner organisations, and other groups.

Once standards are agreed, there must be a method of ensuring that they are achieved. SAQA therefore approves, or accredits institutions as Education and Training Quality Assurance Bodies (ETQAs). Each ETQA applies to a particular set of qualifications and standards (e.g. a specific industrial sector) and provides learners who achieve the standards and qualifications certificates. It also checks provider's courses and accredits them if they can demonstrate that they have the staff and systems in place to support successful learning.

3.6.2. The Skills Development Act

The Skills Development Act (SDA) was introduced in 1998 and aims to improve the working skills of all South Africans through the introduction of learnerships and skills programmes. The emphasis has moved towards *demand-led* training, which requires a knowledge of the skills that are required in the workplace. One way of making this link was through the development of Sector Education and Training Authorities (SETAs).

Under the SDA, all employers, worker and government departments working in a sector must register with a SETA to ensure that this change can be made. These SETAs replace the old industry training boards as key promoters of training, and are organised according to sectors, rather than industries. In March 2000, there were 25 SETAs. Some examples include:

- Services Sector Education and Training Authority
- Textiles Sector Education and Training Authority
- Local Government, Water and Related Services Sector Education and Training Authority

The main tasks of these SETAs is to:

- Develop sector-skills plans (i.e. identify strengths, weaknesses and opportunities);
- Identify where learnerships are required, design these learnerships and market them;
- Act as an ETQA for standards and qualifications in this sector;
- To disimburse money from the National Skills Development Levy;
- To provide information about the sector to employment services.

In order for a company to claim money for training, they must submit a workplace skills plan, which outlines the skills that are required, who needs these skills, how this will be achieved and the costs involved.

3.6.3 The Skills Development Levies Act

The Skills Development Levies Act was passed in 1999 and outlines how the skills development strategy will be funded through levies paid by employers.

All employers who pay R 25 000 or more in wages / salaries, and who pay income tax, must pay the levy. If these employers develop and implement a workplace skills programme, they can claim money back. From March 2001, this levy amounted to 1% of the total payroll.

This money is paid to the South African Revenue Service (SARS) who sends the money to the Department of Labour. Of this money, 20% is paid into the National Skills Fund and the remaining 80% is divided between the 25 SETAs according to the amounts paid in by those companies within that SETA.

Of this money paid to the SETA, 10% is used to cover their administrative costs, and the remaining 70% is used to pay grants to companies. There are two kinds of grants:

- **Levy grant:** If an employer submits a workplace skills programme the SETA will pay back 15% of the levy. If the plan is implemented, 45% of the levy can be claimed.
- **Discretionary grants:** These are cash grants that can be paid to an employer and which are not linked to the levy that has been paid. These can be paid for learnerships; skills programmes and other priorities that may have been set by the SETA.

An outline of this procedure is given in Figure 3.1.

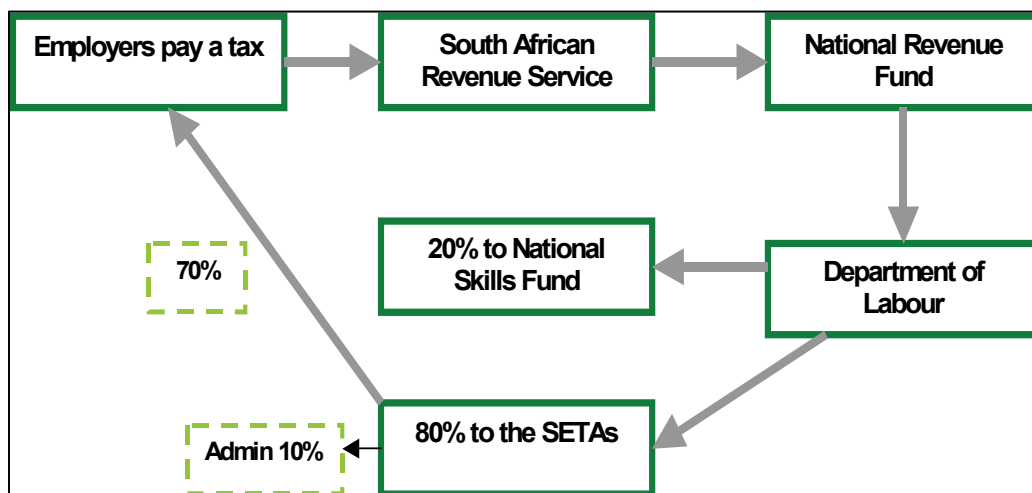


Figure 3.1: Outline of the procedure for levy payments (Dept. Labour, 2001)

3.6.4 Education and Training Quality Assurance Bodies (ETQAs)

Every standard and qualification registered in the NQF, and all the learning and assessment that takes place is subject to a quality assurance process. The main responsibilities of the ETQA are to:

- Accredit the education and training provider and monitoring and evaluating the quality of provision
- Register assessors
- Certify learners
- Evaluate assessment and moderation
- Recommend new standards and qualifications

Each ETQA must have a primary focus and SAQA can accredit an ETQA as a quality assessor only for specific standards and qualifications on the NQF. In many cases, the SETAs are also accredited as ETQAs.

3.6.5 Accreditation as a Training and Education Provider

An ETQA accredits providers of training and education whereby it formally recognises that an organisation or person is able to provide education and training of a high standard. This accreditation will refer to specific qualifications or standards on specific levels of the NQF. In order to achieve accreditation as a training and education provider, the following steps must be followed:

- Must be registered as a provider in terms of applicable legislation
- Have a quality management system (i.e. have assessment and evaluation processes for the learning programme)
- Be able to develop, deliver and evaluate learning programmes for specified NQF qualifications and standards
- Have the necessary financial, administrative and physical resources
- Have policies for staff selection, appraisal and development
- Have necessary reporting procedures
- Have the ability to achieve the desired outcomes using available resources and procedures

If all these requirements are not met initially, a provisional accreditation can be applied for while the provider undergoes a programme of development to assist them in meeting all these requirements.

In other words, it is not the course that get accredited, but rather the provider that is accredited for certain qualifications and standards. As an accredited provider, application can also be made to the ETQA for accreditation of additional qualifications and standards that fall outside of its main focus. If this is approved, then the accreditation certificate will be changed to include their additional qualifications and standards.

Every five years, a report must be submitted to the ETQA to provide the results of the activities in the previous 4 years and stating the reason why accreditation should be retained.

The procedure for becoming accredited as a provider is summarised in Figure 3.2.

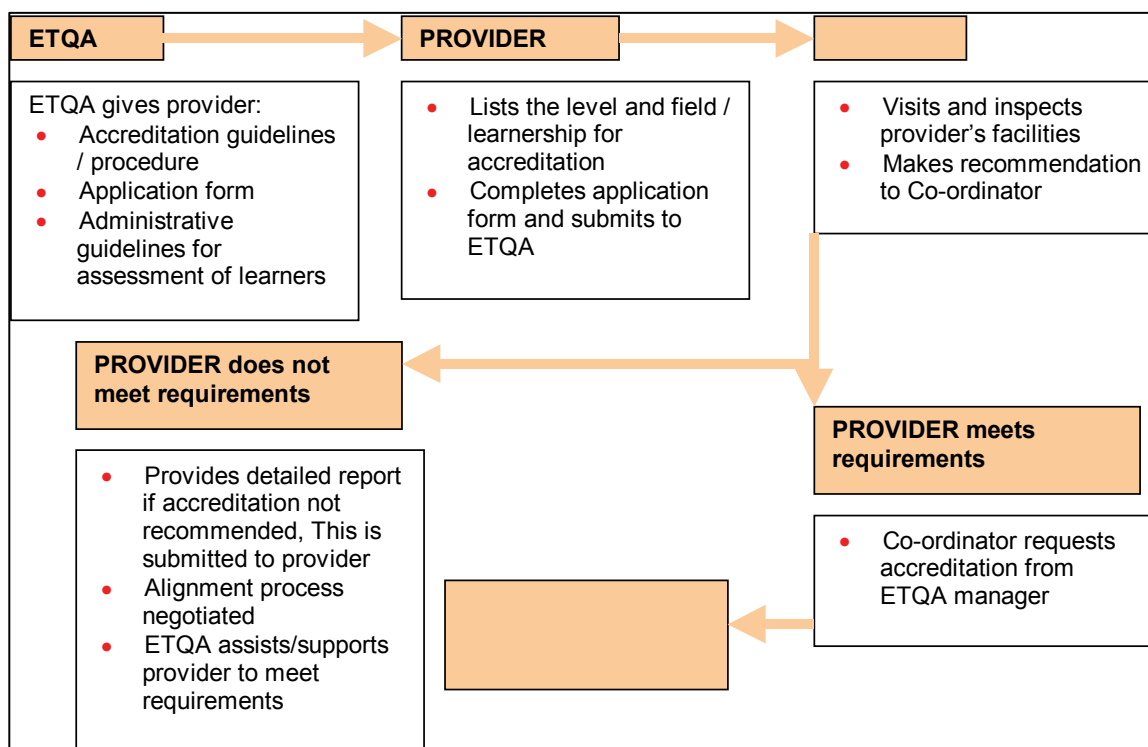


Figure 3.2: Procedure for accreditation of providers (Department of Labour, 2001)

Each learner needs to be assessed against the specified qualifications and standards and independent assessors are used if the provider is unable to undertake the assessment. It is now a requirement for an accredited provider to be trained as an assessor. These assessors must have the necessary skills to know how to assess, and what to assess. The assessor does not necessarily need to have the actual qualification they are assessing, but must have a thorough knowledge in that area. A database of registers assessors in kept by the relevant SETAs.

3.6.6 The Way Forward

Based on the information provided in **Sections 3.6.1 to 3.6.5**, and from experience obtained in attempting to obtain recognition for the waste minimisation auditor-training course developed under the Danida CTPP, there are a few options available to obtain recognition for the training material provided in the Training Manual, and the Facilitators Training Course. A number of steps must first be followed, including:

- The provider must be a legal entity (in the case of the CTPP, a closed corporation was registered)
- The provider must decide which ETQA to approach. In most cases this is also the SETA. For example, for the waste minimisation auditor-training course, the Textile SETA was approached. However, for cross-cutting issues such as waste minimisation, the Services SETA may be the most appropriate ETQA.
- The provider must apply to the ETQA for accreditation by completing an application form, which ensures that the provider fulfils the requirements outlined in Section 3.6.4. This form is quite complex and lengthy and also requires that the course is aligned with set qualifications and standards. Within the application, the courses that are to be offered must be included.

- The provider must also show that they have the ability to train and in some cases it may be requested that they undergo a train-the-trainer programme. In most cases this may not be required if it can be shown that the provider has prior experience.
- The provider may also be required to be accredited as an assessor and undergo a training course to achieve this. In the case where the provider is a company with a number of employees, only one employee is required to be accredited.

Therefore in order to obtain recognition for the training material developed under this project it is recommended that recognition for the material in the Training Manual; and the development of a training course for the Facilitators; be sought under an already accredited provider such that the whole accreditation process is circumvented.

3.7 Summary

The Manuals that have been developed as an output to this WRC project should be used as a **guide** to establishing and managing WMCs. Each WMC is different and the members often require different guidance and training. There needs to be a system in place to ensure that WMC facilitators are accredited to ensure quality control, and one way of achieving this is to develop a course that is accredited by a SETA. The training material that is delivered to the WMC members should also hold some form of accreditation so that companies can claim benefits from attending this type of training.

It is clear that there are many waste minimisation guides and manuals available from a number of different sources, and WMC facilitators must ensure that they make use of this information to keep up-to-date with new developments and technologies. The list of Guides provided in this Chapter and in the Training Manual is by no means exhaustive, and aim to only provide a starting point for gathering further information.

Similarly, the information in the Training Manual provides a basis for a training course that can be used by a Facilitator running a WMC. Information will need to be updated, added and changed as required to fit a particular WMC profile.

Chapter 4

Strategic Planning and Methodology

In order for the WMC approach to be implemented across all provinces and sectors within South Africa, a strategy as to how this is going to be achieved needs to be formulated. This Chapter will outline some ideas for a WMC strategy based on the experiences gained in the establishment and management of the WMCs in South Africa.

In order to develop a strategy there needs to be a clear understanding of the goals and objectives of the strategy, how these are going to be met, how will they be implemented, and who should be responsible. These issues will be addressed in this Chapter.

4.1 Why do we need a strategy to promote Waste Minimisation Clubs?

Worldwide, industry is facing the challenge of sustainable development. Industry, and business in general, needs to investigate the manner in which they operate such that the social, environmental and economic aims of sustainable development are met.

South Africa is a water-scarce country with less than the world average annual rainfall. Many industrial processes are water intensive, with the resultant effect of high water demand on the limited supply. This large water consumption also leads to large volumes of effluent being produced, which then needs to be treated before being discharged. In many cases, this treatment is not sufficient, leading to detrimental downstream effects.

Additionally, industrial activity involves large amounts of energy (in all forms); and varying types of chemicals being utilised, all of which have environmental impacts, whether it be emissions to air, land or water. Landfill sites are rapidly becoming full with fewer areas available for the development of further waste dumps.

All of these issues emphasise the need for industry to investigate methods of reducing waste generation at source, through reducing their consumption in the first place, and thus, reducing their environmental impact. WMCs are one method of promoting source reduction, and encouraging companies to move towards sustainable development. The success of the WMCs established within South Africa, prove that the concept works, that industry benefit from the input from both one another and the external expertise, and that both financial and environmental savings have been achieved. It is a cost effective approach to promoting waste minimisation to industry, as the industry are trained as a group, rather than requiring one-on-one input from the local authority.

4.2 Support for Waste Minimisation Clubs

The concepts of waste minimisation / source reduction / pollution prevention are included in a number of Acts with South African legislation. For example, the National Water Act, and the National Environmental Management Act both include reference to the importance of source reduction. The National Waste Management Strategy specifically mentions WMCs as a method of promoting cleaner production to industry. Local bylaws within the eThekweni Municipality now include the necessity for companies to prove the implementation of cleaner production and continuous improvement in order to obtain a permit for discharge. More details on this support through legislation and regulation are provided in the Facilitators Manual.

The fact that waste minimisation is enforced through legislation and regulation indicates that there is support for a strategy to promote the uptake of WMCs in South Africa.

Other initiatives that have either been implemented, or which are planned include the initiatives under the Danida funding; the establishment of the National Cleaner Production Centre (NCPC); funding through DWAF for WMCs; the proposed Cleaner Production Centre in the Durban region; the development of a Cleaner Production Strategy for South Africa; and the initiatives underway on a provincial and local area in some regions. These are discussed in more detail in **Chapter 5** of this report.

4.3 Development of a Waste Minimisation Club Strategy

There are a number of steps that are required in the development of a strategy. These are outlined in Figure 4.1, and explained in more detail in **Sections 4.4 to 4.7**.

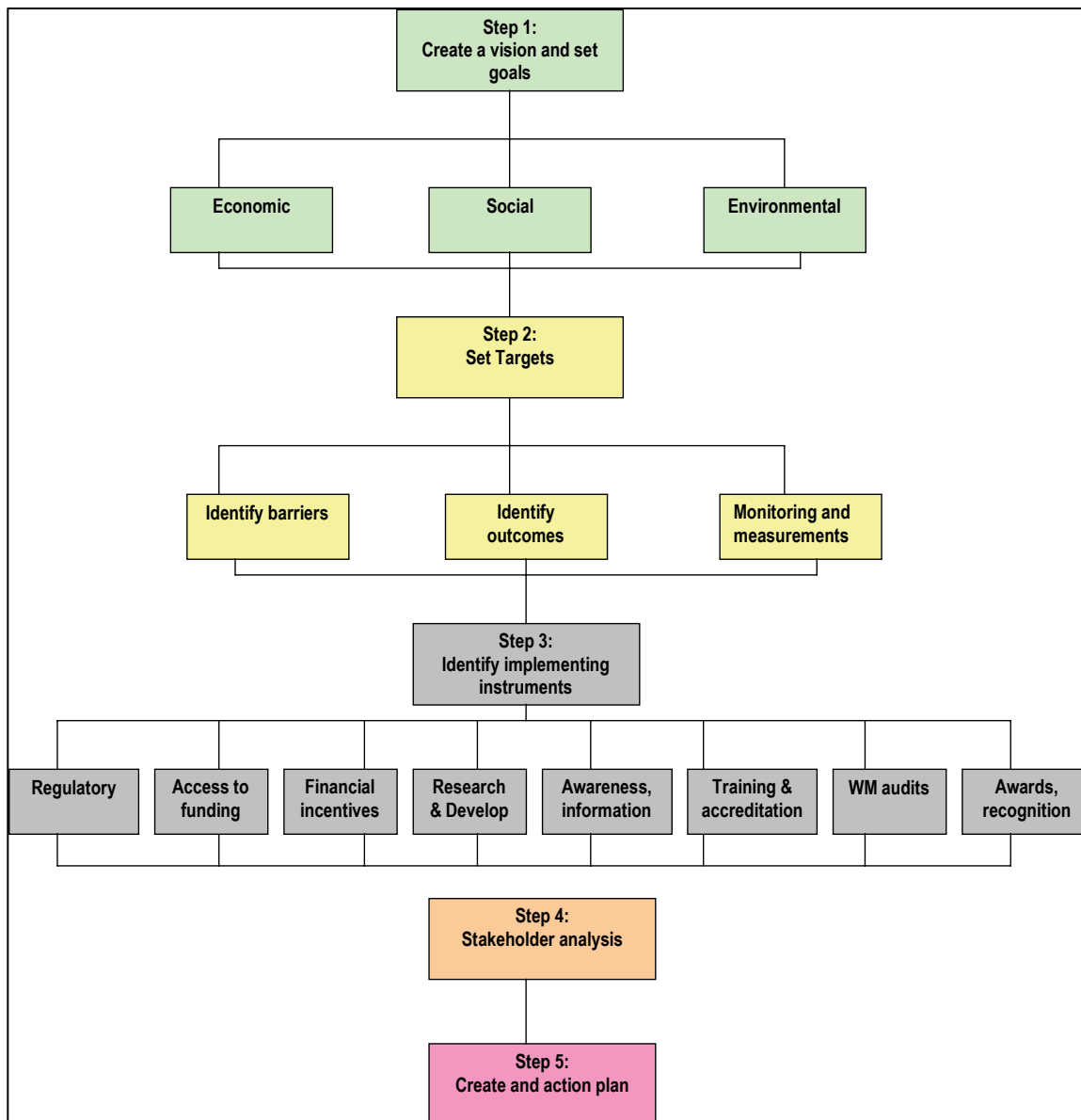


Figure 4.1: Steps to developing a strategy for WMCs in South Africa

Step 1: Identifying a Vision and Setting Goals

Identify a vision and a goal for the strategy within the context of social, environmental and economic sustainability. The definition of a WMC must be made clear at this point.

Step 2: Setting Targets

Sets targets that need to be achieved by the strategy. At this stage, it is also important to identify the possible barriers that may be experienced. Outcomes need to be identified based on the goals that were set, and some monitoring and measuring system needs to be implemented to ensure that the targets are met

Step 3: Identify Implementing Instruments

Identify the implementing instruments. In other words, how are WMCs going to be implemented? Some examples of tools that are available are regulatory; economic; awareness etc.

Step 4: Stakeholder Analysis

Undertake a stakeholder analysis where tasks and responsibilities are set for the relevant government departments, on a local, provincial and national basis.

Step 5: Creating an Action Plan

Create an action plan. Put together a Gantt chart which outlines the time required for implementation.

4.4 Creating a Vision and Setting Goals

The vision for the strategy could include aspects such as:

- To promote implementation of WMCs in South Africa
- The definition of a WMC
- To train all levels of government in waste minimisation and WMCs
- Encourage the reduction of waste at source
- Encourage the reduction in resource use
- To enable a reduction in the undesirable effects of industrial activity on the environment
- To promote a cleaner, healthier environment and profitable businesses

Goals should then be set within the social, economic and environmental aspects of sustainable development. In other words, what are WMCs going to achieve within these 3 areas?

Some examples include:

Economic:

- Financial savings for participating companies resulting in profitable business and less job losses

Social:

- A healthier environment due to less chemicals being used (and therefore discharged)
- Better operating practices lead to less safety hazards
- Improved environmental awareness at all employment levels

Environmental:

- Less consumption of limited natural resources (e.g. water and coal)
- Less waste being discharged to land, air and water

4.5 Setting Targets

Examples of targets include:

- The number of WMCs that need to be established within a certain time period and in which province (e.g. 10 WMCs in KZN in the next 10 years)
- The industrial / business sectors (if any) that should be targeted. For example, WMCs should be established in the chemical manufacturing sector due to their high consumption of chemicals that are potentially toxic.
- The area that should be targeted if necessary. For example, WMCs need to be established in the Klip River area due to pollution of the river

- A target reduction figure for water / electricity / coal etc. use for the WMCs to achieve. These can be set per WMC or per area / province
- A target reduction figure for waste produced; e.g. tons solid waste disposed to landfill, or tons of carbon dioxide emitted. These can be set per WMC or per area / province.
- The type of results expected from a WMC; the reporting format; and the frequency of reports
- The number of awareness-raising activities that need to take place
- The number of local municipalities that need to be trained

Possibly some of these targets need to be set on a National level, with the provincial government being responsible for their implementation on a provincial level. Local government should then be responsible for encouraging industry to join WMCs and implement source reduction, as it is the local government who monitors and measures the industry regularly and who can include requirements for waste minimisation in the permit applications. However, this can only take place if the provincial government has educated and trained the local authorities in waste minimisation activities. This therefore implies that there may be the need to set targets on a provincial level regarding the training and education of the municipalities which fall under their jurisdiction.

4.5.1 Identifying barriers

There has been a large amount of data captured on the barriers that can be experienced in running a WMC, and also in the uptake of waste minimisation by business in general. There are well documented in the Facilitator's Manual, Section 4. When developing a strategy for WMCs, it is important to realise that there is going to be reluctance from industry / business to join WMCs, and that consideration must be given to how these barriers are going to be overcome. Many can be solved through improved awareness and information of the benefits of waste minimisation, and the use of case studies to prove that being a member of a WMCs is both financially and environmental beneficial. Some of the tools that can be used to encourage membership of WMCs are discussed in **Section 4.6**.

4.5.2 Identifying outcomes

Based on the goals set, what are the expected outcomes of the strategy? For each goal that was identified in Section 4.4, the expected outcome can be determined, assuming that all the targets identified in Section 4.5 are met. An example of how this could be presented is provided in Table 4.1.

Table 4.1: Example of Projected outcomes by 2014 (assuming a 10-year period has been set in the target)

Goal	Outcome
Goal 1: Profitable business	▪ More profitable businesses through improved process efficiency achieved by training in a WMCs and communication with other businesses
Goal 2: Improved health	▪ Health benefits achieved through reduced emissions to land water and air
Goal 3: Reduced water use	▪ Demand on limited water resources reduced through improved operating practises

4.5.3 Monitoring and Measuring

Systems should be put in place by government to enable the effectiveness and efficiency of the measures implemented to promote WMCs and to be able to sustain this process.

There needs to be a system to record the success and lessons learned from each of the WMCs that are established. This can only be carried out if there are clear outlines provided from the beginning as to what the required reporting outcome is of a WMC. It must detail the type of information that must be captured by the facilitator, where this information must be sent; the frequency at which this information must be made

available (e.g. annual reports / biannual etc.) and must ensure that no confidentiality aspects are overlooked. Again, there needs to be systems in place on the local, provincial and national levels.

4.6 Identifying Implementing Instruments

How can the strategy be implemented in South Africa? There are a number of tools that can be used to promote the uptake of waste minimisation through WMCs. Some of these are discussed in this Section. A list of other implementing instruments is provided in Figure 4.2.

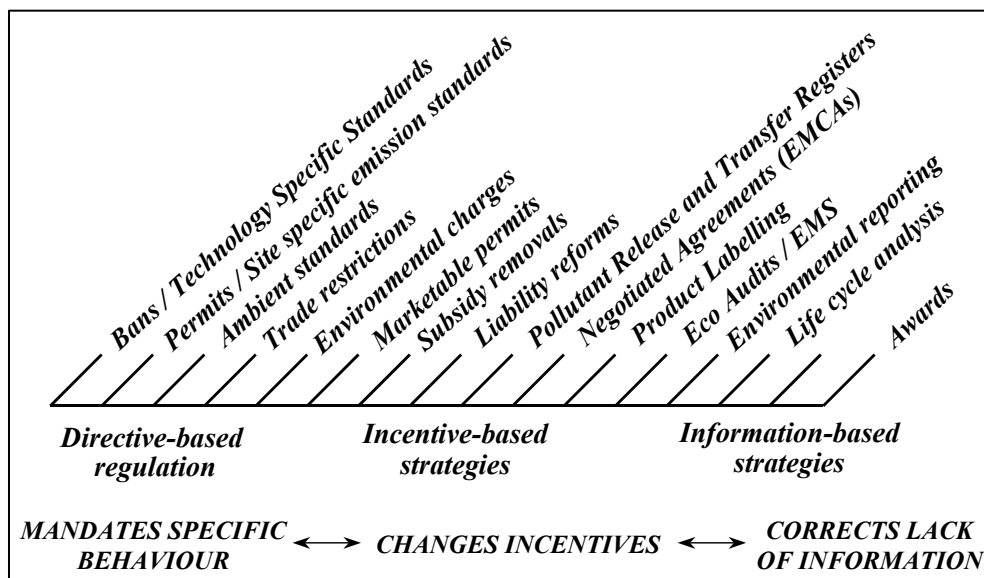


Figure 4.2: List of policy instruments (UNEP, 2000)

4.6.1 Awareness and information

This is one of the most important tools of promoting WMCs. There needs to be a marketing campaign introduced to promote the benefits of being a part of a WMC (see also Section 2.6.3). The concept needs to be well branded with a name that everyone can understand and identify with, and an appropriate logo developed. The logo shown in Figure 4.3 and name **Waste Minimisation Clubs** has been used with all the WMCs initiated to date, but there is still confusion regarding the definition and meaning of waste minimisation. This needs to be addressed in the awareness campaigns. A recommendation of WRC Project No. 973 was that there needs to be a centre established where industry, government, and other interested parties can obtain information on waste minimisation in general. This has in part been fulfilled by the development of the NCPC and the Clothing and Textile Environmental Linkage Centre (CTELC) (see Chapter 5), but there is possible the need for similar initiatives on a local level.



Figure 4.3: Logo for WMCs developed under WRC Project No. 973

The use of the WMC web page would also be beneficial as well as the CDs, brochures and reports already generated through the WRC projects. Further marketing tools can be based on this existing information.

4.6.2 Regulatory

This is a powerful implementation tool. If it becomes a requirement for a company to implement waste minimisation in order to obtain a permit to discharge, this will encourage them to become members of a WMC. For example, in the new permits within the eThekwin Municipality, there is a requirement to show continuous improvement through cleaner production.

4.6.3 Financial Incentives

If a company is provided with financial incentives if they achieve a certain level of improvement in their waste emissions, this will encourage them to work towards minimising their waste at source. An example of this approach is being implemented in the eThekweni Municipality in KwaZulu-Natal, where metal finishing companies who are implementing waste minimisation have a lower frequency of sampling (which is charged to the company) than a metal finishing company who is not implementing any programme of source reduction.

4.6.4. Waste minimisation audits

It could be set as a minimum requirement for permits that all companies require a waste audit (or pre-assessment) to be carried out. This is one of the requirements of being a WMC member, and if part of a WMC, the costs of this audit would be included in the membership fees. These audits can be carried out by the facilitators, trained students, or by the industry themselves.

4.6.5 Awards / recognition

An awards programme could be implemented on a provincial and / or national level where the most successful WMC (or WMC member) receives an award for their achievements. This type of recognition will encourage other companies to take part in similar programmes.

4.6.6 Training and Accreditation

Additionally, as discussed in **Section 4.5**, there needs to be awareness and training within the local governments such that they can promote the concept to industry. This has already been initiated in the Western Cape, where the provincial department of environment and planning has developed a brochure and CD to raise awareness within the local municipalities.

A training course needs to be developed for WMC facilitators to ensure that there is a standard procedure in the establishment and running of WMCs.

4.6.7 Access to Funding

As discussed in **Section 2.6**, one of the biggest problems facing WMCs in South Africa is the lack of access to funding to form and manage these Clubs. The costs involved can be prohibitive to a company looking to become a member of a WMC, especially for the SMEs. If the government wants to promote WMCs to industry, there needs to be a mechanism in place to provide financial support for WMCs. The DTI did have a number of schemes, such as the Sector Partnership Fund, which was used for the establishment of a number of WMCs. This fund has now ended and no new fund has been established. This presents a large barrier to the formation of further WMCs and this issue needs to be addressed if WMCs are going to be promoted on a national level.

4.6.8 Research and Development

Another tool that can be used is research into new technologies to promote waste minimisation to members of WMCs.

4.7 Stakeholder Analysis

In order to implement a WMC strategy, it is important to identify who the stakeholders are and what role they should play in the process. A draft stakeholder analysis has been prepared in Figure 4.4 outlining some of the aspects that need to be taken into consideration (adapted from DME, 2004). Stakeholder relationships are shown against each implementing instrument, or focal area, in terms of primary stakeholders and secondary stakeholders. Primary stakeholders may be broadly defined as those whose main functionality deals directly with the associated focus area. Secondary stakeholders may be described as those whose responsibilities partly overlap with a particular focus area, or where their involvement would be of an *ad hoc* nature. Note that this matrix is meant as an **example** only of how a stakeholder analysis should be undertaken and does not reflect the final picture.

This matrix can also be used to identify who should be consulted during the developmental process.

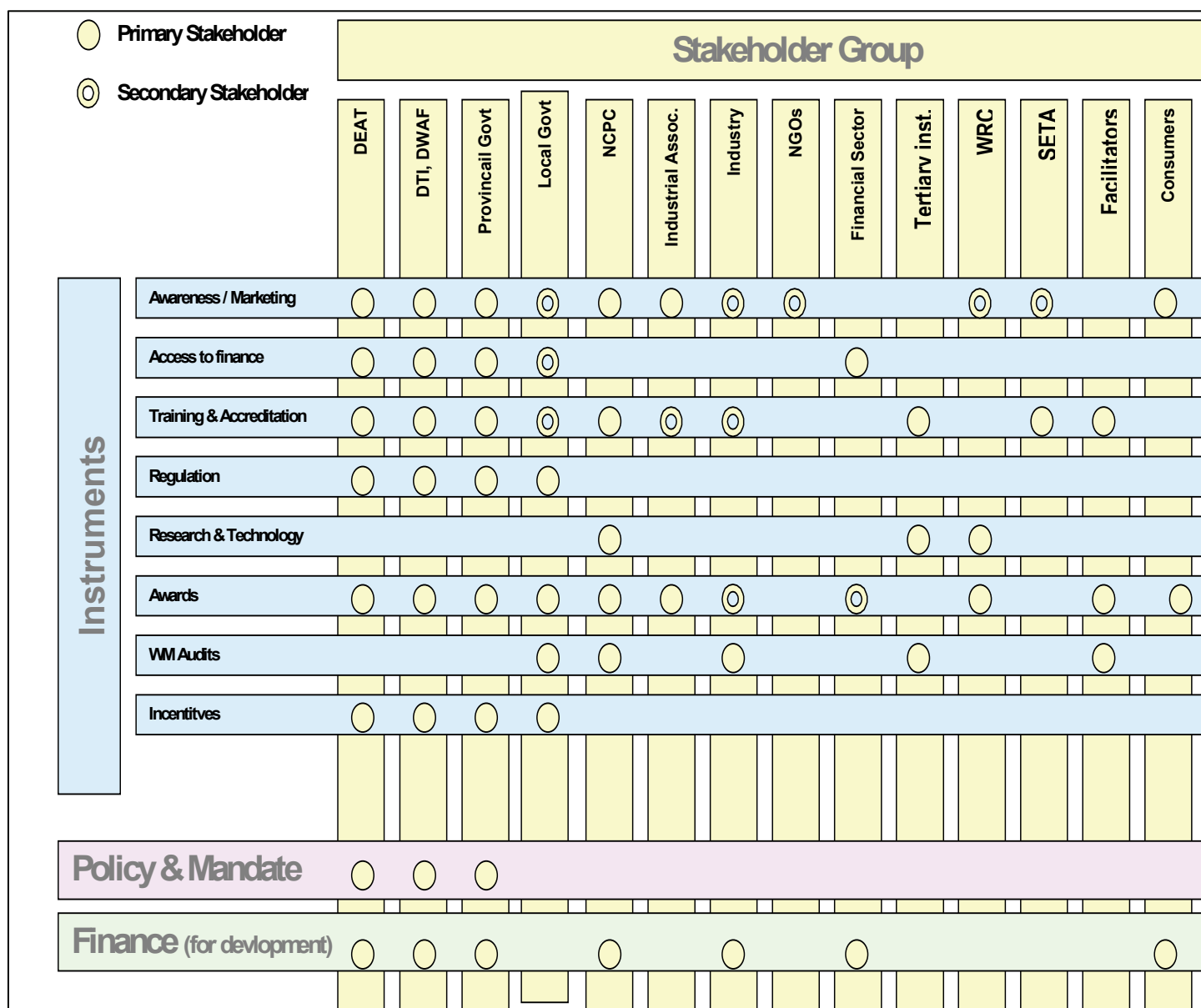


Figure 4.4: Example of a stakeholder analysis outlining the respective responsibilities

4.8 Development of an Action Plan

Once the stakeholders and their roles have been identified, it is important to put together an action plan as to what will happen when and who is responsible for this action. The best approach in this case is to identify all the outputs and the required actions, and put a time frame to these in the format of a Gantt chart. Responsible persons should be listed next to each action item. In order to develop this action plan, it is important to be clear on the required targets and the outputs. An example of an action plan is provided in Table 4.2.

Table 4.2: Example of some items for an action plan for implementing a Waste Minimisation Club strategy

Output activity	Measures	Time Frame	Responsibility
Awareness raising	Research how this is carried out internationally	Within the first year	National and provincial government;
Development of a marketing campaign for WMCs	- Develop a branding that will be recognised - Identify target groups (government, industry, NGO etc.)		research organisations; WRC
Setting of standards	Research existing methods of reporting	Within the second year	National government
Standards to be set for structure, reporting and outcomes of WMCs	- Identify what requirements need to be met in terms of reporting - Communicate needs to provincial level		

4.9. Summary

This Chapter has aimed to provide some guidelines for the development and implementation of a strategy to promote WMCs with South Africa. It is evident from the experiences gained during the course of the WRC projects, that there is the need for some targets to be set on National and Provincial Level, and that local government needs to be capacitated to be able to implement actions (see Figure 4.5). At each stage, there should be a feedback mechanism to ensure that targets are achieved. There are a number of tools available to promote the WMC concept, and there is support from both a legislative point, and from other cleaner production / waste minimisation initiatives in South Africa.

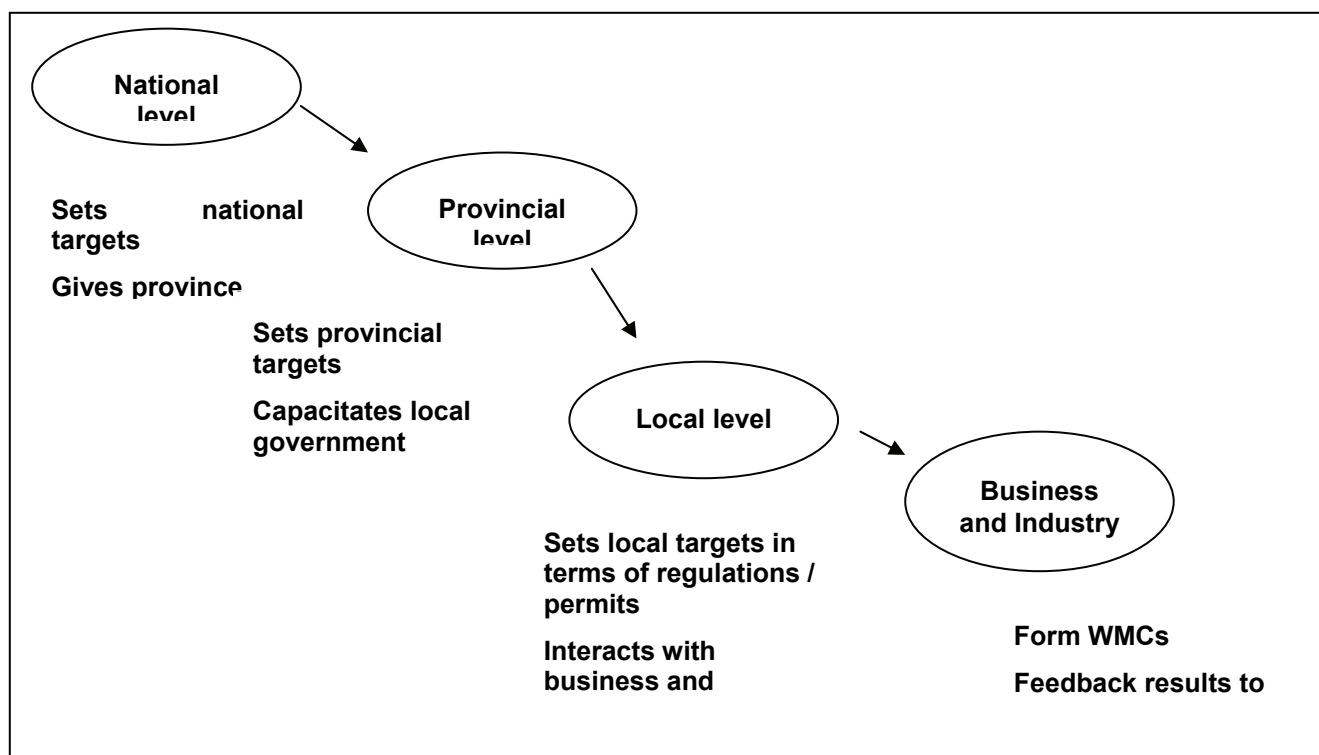


Figure 4.5 Summary of the proposed process for implementing a strategy for WMCs

Chapter 5

Support for waste minimisation clubs

As mentioned in Section 4.3, there are a number of initiatives that have either already been implemented, or which are planned, which can support the concept of WMCs. The legislative aspects will not be included here as these are covered in detail in the Facilitators Manual, and have been outlined in Section 4.3.

5.1 The Waste Minimisation Club Web page

Whilst the development of the WMC web page does not strictly fall under support initiatives, it was felt that it was important to include it here as it plays an important role in disseminating the successes of the concept, thus assisting in the sustainability of WMCs.

The WMC web page was developed under the University of KwaZulu-Natal's web page at the address: www.nu.ac.za/wasteminclubs. Input for the web page was provided through the WRC project, as well as from BECO-Institute for Sustainable Business. A student was used to upload the data. Access to information on each of the WMCs in South Africa, case studies, reports, manuals, etc. can be obtained from this site. Links are also provided to other related web sites both locally and internationally. Based on feedback from local and international sources, it was evident that this site was accessed regularly and the information was found to be very useful. It was not however, very well marketed and more use could have been made of it if it had been promoted further.

It is felt that a WMCs web site is important in ensuring that links be maintained between all the WMCs in South Africa, and also with the other initiatives that are discussed below. However, in order to keep this information useful, it needs to be continually updated, and since Project 1171 is at its conclusion, this can no longer be continued through the PRG. Some other method of sustaining this site needs to be investigated, such as:

- Be taken over and maintained by the WRC. This will require that updates be obtained from those organisations that are running WMCs
- Be taken over and maintained by an independent organisation such as BECO-Institute for Sustainable Business, who has access to most of the information. In this case, care must be taken to ensure that the WRC is recognised for its support in the development of the Manuals etc. This may involve the need for minor funding to transfer all the data.

5.2 The role of Consultants

It is clear from the number of WMCs that have been formed under BECO –Institute for Sustainable Business that environmental consultants have a large role to play in the promotion, development and running of WMCs. Without the active role of BECO in establishing the WMCs listed in Table 2.1, it is felt that the concept would not have continued further than the 2 pilot WMCs established under WRC Project 973. There are a number of advantages and disadvantages to having WMCs managed by consultants as opposed to other organisations such as research groups or authorities. These are listed in Table 5.1.

It is evident from this table that the benefits outweigh the disadvantages, and if there are checks in place to ensure that facilitators are trained correctly, the problem of quality control falls away. Running a WMC is costly, especially if on-site assistance is provided to the companies, but without this active input from the facilitator, progress is slow and companies do not benefit as much from the WMC. It is therefore important that some form of subsidy is available to the WMC members.

Table 5.1: Advantages and disadvantages of the input of consultants

Benefits	Disadvantages
- Companies more willing to share information with a consultant than with for e.g. an authority - Companies more open to allowing consultants on-site than for e.g. authorities - Run as a business as opposed to a research project - Easy access to information and expertise	- Could be costly due to consultant rates - Could have a hidden agenda (wanting to sell own product) - Could result in insufficient data being collected for case studies etc. as run as a business rather than a research project

5.3 National Cleaner Production Centre

The South African National Cleaner Production Centre (NCPC) was officially inaugurated on the 24th of February 2003. The Centre is a collaborative venture between the United Nations Development Organisation (UNIDO), the Swiss and Austrian government and their technical institutions, the DTI and the CSIR. The development objective of the NCPC is to enhance the competitiveness and productive capacity of national industries, primarily SMMEs, through the increased application of cleaner production techniques and the transfer of environmentally sound technologies. In doing so, the NCPC will promote dialogue between industry and government. This will in turn enhance market access for South African products by assisting the development of environmentally acceptable manufacturing processes that meet the international market needs.

The DTI will provide R3 million, while the Swiss and Austrian governments will contribute USD950,000 and USD750,000, respectively over a 3-year period. After the first three years, the programme will be evaluated to analyse its progress and possible extension for funding. In order to work towards becoming self-sufficient over the next 3 years, the NCPC will charge a fee based on direct costing for the basic services, taking into account the size and financial position of the client. Full costs will be charged for services over and above the basic.

The NCPC is based at the CSIR's Process Technology Centre in Pretoria. Regional offices will be formed in Durban and Cape Town to co-ordinate the activities in these areas. There is a director, assisted by a deputy director manages the NCPC. Other NCPC staff members include an administrative assistant, an economist or costing engineer (part-time) and three regional coordinators (part-time). The work of the NCPC will be overseen by an Executive Board which is governed by a Constitution An Advisory Board will support the work of the NCPC Director and the Executive Board. The regional coordinators will form sector specific steering committees.

The NCPC programme has a sectoral approach, focusing initially on the textile, food and chemical sectors in the three most industrialized regions of the country, Gauteng, Western Cape and KwaZulu-Natal. The NCPC will provide in-plant assessments and training programmes, promote investment in cleaner technology and provide policy advice and information. It will focus initially in the food, chemical and textile industries and subcontractors in the supply chain. The NCPC will work closely together with existing cleaner production programmes such as the DANIDA initiatives as well as initiatives from universities and other institutions.

The following are possible roles for the NCPC in supporting WMCs:

- Central source of information on waste minimisation (case studies, training material, information, advice etc.)
- Recruiting companies into WMCs
- Marketing and awareness raising
- Providing access to funding
- Undertaking waste minimisation audits
- Providing awards for WMC initiatives
- Providing training in waste minimisation for WMC facilitators and government
- Assisting in developing business plans for WMCs seeking funding

These are only suggested roles and obviously need to be discussed further to determine the sustainability of anchoring the WMC concept within the NCPC.

5.4 Danida Cleaner Production Projects

Under the Danida Cleaner Production Projects, a number of initiatives were undertaken to promote cleaner production to industry, government and a number of other organisations. Three sectors were targeted under this programme; the fishing, the metal finishing, and the textile sectors. A report highlighting the results of these projects has been produced (DANIDA, 2003).

Additionally, discussions have been provided in Section 2.3 on the similarity between the training course developed under the Cleaner Textile Production Project and the WMC approach. The Cleaner Metal Finishing Project also provided support to WMCs through the funding of some of the metal finishing WMCs in KZN, Western Cape and Gauteng.

Of interest here, is the establishment of a centre of information under the Cleaner Textile Production Project, namely, the Clothing and Textile Environmental Linkage Centre (CTELC).

This Centre was initiated in May 2003 as an extension of the Danida Cleaner Textile Production Project (CTPP) and aims to continue disseminating the lessons learnt during the CTPP as well as to promote CP further up and down the supply-chain.

CTELC is funded by the DTI (DKK495 000) and Danida (DKK2.2 Million) for 3 years. At the end of this time, it is envisaged that the centre will be incorporated into the NCPC under the regional centre in Cape Town, which is focused on the textile sector. The NCPC textile component and CTCLC will fall under the same project steering committee.

CTELC is based in Cape Town, but operates almost 50% of the time in Durban as well and there is one full-time staff member

The centre aims to promote CP along the textile pipeline, including designers, clothing manufacturers, retailers and textile manufacturers. This is achieved through awareness-raising seminars and workshops, newsletters, web page, site visits and providing sources of further assistance to clients.

The following points are possible areas in which CTCLC could support WMCs:

- Recruit members from the textile and clothing industry
- Provide information and advice
- Assist in waste minimisation audits
- Document results of WMC activities in this sector
- Provide training in waste minimisation

5.5 Proposed Cleaner Production Centre for the Durban Region

In January 2003, during a mission of the Canadian-supported Sustainable Cities Initiative (SCI) in Durban, participants identified a project notionally entitled “A Cleaner Technology (Production) Centre for South Durban Basin.” This project is coordinated by the Environment division within the eThekweni Municipality. During late 2003 and early 2004, a scooping study was undertaken to determine the views of the various stakeholder groups (industry, government, NGOs and Labour) as to need for such a centre and the services it could offer.

The response from all stakeholders has been very positive, and the project has now entered a second phase where a workshop is being called where all interested parties can discuss the objectives of the centre further. An outcome of this workshop is the nomination of a working group to develop a business plan, which can then be used to access funding for the proposed Centre.

If this Centre is established, there could be an important local role for it to play in the promoting of WMCs within the Durban area. While the focus has been identified as South Durban, other areas will have access to any information that is contained within the Centre.

Possible roles include:

- Promoting and marketing of WMCs
- Provision of information and advice on waste minimisation
- Recruitment of companies
- Facilitation of WMCs (in the long run)
- Provide information on sources of funding
- Assist in the development of business plans for WMCs seeking funding

If successful, this type of regional centre could be replicated in other provinces of South Africa.

5.6 Development of a Cleaner Production Strategy for South Africa

A Cleaner Production Strategy for South Africa is currently in the early stages of development under the Department of Environment Affairs and Tourism. This strategy could be an important tool in the promoting of WMCs. As in the NWMS, the Cleaner Production Strategy can use WMCs as an effective method of promoting Cleaner Production to industry.

5.7 Other National Government Initiatives

A business plan was drafted by DWAF in 2001 (DWAF, 2001), on how to establish and manage WMCs in the metal finishing sector in South Africa. As part of the Danced Metal Finishing project, DWAF has made available R 50 000 / year from its budget over three years (2001 to 2003) to sponsor WMCs and their activities. The sponsorship is subject to the condition that the funds are not used for the administrative costs of running a WMC, or that the funds directly benefit any private institution or business.

The second Metal Finishing WMC in Durban was co-funded through this programme.

5.8 Provincial Government Support for Waste Minimisation Clubs

5.8.1 KZN Provincial Government

The KZN Department of Agriculture and Environmental Affairs (DAEA) has approved a budget for the promotion of waste minimisation activities in KZN. One of these is the development of WMCs to encourage the reduction of waste at source. Workshops have been held with this department and discussions are underway to identify focus areas for these WMCs. Use was made of the Facilitators Manual in these workshops.

5.8.2 Western Cape Government

The Department of Environmental Affairs and Development Planning in the Western Cape has embarked on a programme to promote WMCs through the development of a brochure and CD. The department also actively funds 3 WMCs in the province.

5.9 Local Government Support for Waste Minimisation Clubs

5.9.1 Cape Metropolitan Council

Under the Mess Action Campaign (MAC) in the City of Cape Town, 6 WMCs were established by BECO-Institute for Sustainable Business. Outcomes of these WMCs include the development of a promotional video, a membership incentive competition, the circulation of newsletters, and the development of case studies and fact sheets.

Several training workshops have been held for officials from several departments of the City of Cape Town, in order to train them in waste minimisation and WMCs.

5.9.2 eThekweni Municipality

While eThekweni have not provided financial support for the development of WMCs in KZN, the municipality is very supportive of waste minimisation initiatives, and encourages companies to join WMCs in the region. Additionally, as discussed in previous sections, the new permit applications require proof that companies have a programme of cleaner production in place.

The staff members of the Water and Sanitation Department have also attended a number of workshops on waste minimisation and WMCs run under both the WRC project and the Danida CTP project.

5.9.3 Gauteng

Mogale city actively supported the initiation of a WMC in their municipality, and the City of Johannesburg and Ekurhuleni municipality have indicated serious interest in initiating several WMCs in their areas. All of these initiatives are facilitated by BECO– Institute for Sustainable Business

5.10 Summary

This Chapter highlights just some of the initiatives in place that can be used to support the concept of WMCs in South Africa. Contact needs to be kept between all these initiatives, and it is important to ensure that some system is put in place where links can be maintained, and where information can be stored. The use of the WMC web site could be a useful tool in this regard.

6.1 Conclusions

The WMC concept is one that has proved to be successful in South Africa and an appropriate method of promoting waste minimisation to industry and business in general. This report has highlighted a number of concerns regarding the future of WMCs due to the lack of formal support by government. If WMCs are to continue, some form of strategy needs to be developed as to how this is going to be achieved. Chapter 4 provides some suggestions of how this strategy can be developed, the targets that need to be set and the role that government, on a National, Provincial and local level, needs to play in the process. The experiences gained both in the WMCs already established in South Africa and those established in the UK, can be used to ensure that this proposed strategy is sustainable.

The Facilitators Manual has been developed to provide guidance to those organisations that wish to establish and run WMCs. It is envisaged that by making use of this Manual, facilitators will manage WMCs in a similar manner to one another, thus ensuring some form of quality control. As outlined in Chapter 3, it is important to make use of this Manual to develop an accredited training course for facilitators. The material contained within the Training Manual will also assist in quality control, as this can be used as the basis for all training provided to the WMC members.

The technology transfer report highlights the number of dissemination activities that have taken place during the course of this project and proves that interest in the concept has grown dramatically over the last 3 years. Workshops have been held for local and provincial government departments, showing that support for this concept is developing, but that it needs to be formalised in some manner. It also lists the requests for information from international organisations through the Web page. Unfortunately, there is no guest book or counter to total the number of hits on the Web Site, but it is felt that this is a powerful method of promoting WMCs and providing access to reports, case studies, newsletters and so on. Additionally, facilitated by BECO – Institute for Sustainable Business, the Manual has been translated for use in the development of WMCs in China.

The capacity building report provides an indication of the number of people who have been trained in waste minimisation and WMCs since the inception of the project. This also includes those people trained under the Danida CTPP as the material used for this training course was taken in part from that in the Training Manual, and also from the WRC Project K5/763 (Waste Minimisation Guide for the Textile Industry: A step towards Cleaner Production; WRC Report No. TT 140/00). It was therefore felt that it was relevant to include these training courses in the report.

In conclusion, it can therefore be stated that the primary aim of this Project, i.e. *the development of a sustainable method of promoting and managing waste minimisation clubs in South Africa*, has been fulfilled. This has been achieved by the development of the Facilitators and Training Manuals, the reference to sector-specific waste minimisation guides and the proposed development of a strategy for promoting WMCs. The Web page developed under the Project will also assist in disseminating the WMCs concept and ensuring that the information generated through the two WRC projects (K5/973 and K5/1171) will continue to be used.

6.2 Recommendations

The following recommendations can be made from this report:

- A clear strategy needs to be developed to promote WMCs in South Africa. This needs to happen on a National and Provincial level, with capacitation of local government to implement the actions.
- Targets for the establishment of WMCs in South Africa need to be set and an awareness campaign needs to be initiated.
- Funding schemes to support WMCs needs to be implemented to ensure the continuation of the concept.
- A training course, based on the facilitators manual, needs to be developed and accreditation for this course needs to be approved by a suitable SETA, such that participants receive a certificate / credits to prove competency. Similarly for the training material in the Training Manual.

- The Web page needs to be transferred to an organisation that is able to regularly update the information and store the Manuals, reports, case studies, newsletters, etc. that are generated.
- The Manuals be made available electronically. All information could be stored on a CD in the format of a web page where clicking on links would take the reader to the relevant pages / section. A hard copy format could also be made available, but this may be more costly to produce.

References

BARCLAY and BUCKLEY (2002(a)). *Applicability of Waste Minimisation Clubs in South Africa: Results from Pilot Studies*. WRC Project No. 973. Final Report. In print.

BARCLAY and BUCKLEY (2002(b)). *Waste Minimisation Guide for the Textile Industry: A Step Towards Cleaner Production*. WRC Project No. 760, TT 140/00.

BECO-ISB (2004). *Overview of Waste Minimisation Clubs in South Africa and summary of potential savings*. Internal Document.

DANIDA (2003). *Cleaner Production in South Africa: Lessons learned in environmental assistance*. Formset Printing, South Africa.

DME (2003). Draft Energy Efficiency Strategy of the Republic of South Africa

DWAF (2001). *Establishing Waste Minimisation Clubs (WMCs) for the Metal Finishing Industry*. Proposed Business Plan.

ENVIROWISE (2002). *Clubbing Together – the Way Forward*. Results of a Workshop held for facilitators in the UK, Envirowise web site.

DEAT (1999). National Waste Management Strategy, version D.

DEPARTMENT OF LABOUR (2001). *National Skills Development Strategy: Leadership Pack*.

UNEP (1994). *Journal of Cleaner Production*, vol. 4.

UNEP (1996). *Cleaner Production-A Workbook for Trainers*, Environmental Training Unit, United Nations Publications.

UNEP (2000). *Government Strategies and Policies for Cleaner Production*. United Nations Environment Programme, Division of Technology, Industry and Economics.

WORLD COUNCIL FOR SUSTAINABLE DEVELOPMENT. *Signals of Change: Business Progress Towards Sustainable Development*

ENVIROWISE HOMEPAGE: www.envirowise.gov.uk

WASTE MINIMISATION CLUB WEB PAGE: www.nu.ac.za/wasteminclubs

CTELC WEB PAGE: www.ctelc.co.za

NCPC WEB PAGE: www.ncpc.co.za

Appendix 1

List of Waste Minimisation Clubs in South Africa

(As supplied by BECO – Institute for Sustainable Business)

Table A1

Name	Place	Industry	Members	Financial support	Facilitators	Status
KZN Metal Finishing Waste Minimisation Club (now Association)	Durban	Metal Finishing only	About 29 members when initiated (metal finishers and one chemical supplier). Now 70-80 members under the association.	Water Research Commission (R1.2m.), THERMIE Programme funds two consultants	Pollution Research Group from University of Natal Durban	Started June 1998. Project closed, but continues as an industry association.
Hammersdale Waste Minimisation Club	Durban	Cross-sectoral	10 members: 6 from textile, chemical manufacturer, chicken abattoir, and local sewage works	Water Research Commission and THERMIE Programme funds two consultants	Pollution Research Group from University of Natal, Durban	Start Nov 1998, ended end of 2000.
2 nd KZN Metal Finishing Waste Minimisation Club	Durban	Metal Finishing	15 members, mainly electroplaters	Danced, DWAF, WRC	KZN Metal Finishing Association	Started Jan 2002 Finished begin 2003
Gauteng Metal Finishing Waste Minimisation Club	Gauteng	Metal Finishing	10 members: metal finishers and chemical suppliers, and water company.	Danced, DWAF, WRC	Gauteng Metal Finishing Association	First meeting Oct 2001 Merged with metal finishing association
Cape Metal Finishing Waste Minimisation Club	Cape Town	Metal Finishing and Chemical Suppliers	24 members: 17 finishers and 7 chemical suppliers	Danced, DWAF, DTI Sector Partnership Fund, WRC	Cape Metal Finishing Association (CMFA) + BECO – ISB	First meeting August 2000. 20 meetings so far. Merged with metal finishing association
Waste Minimisation Club for Large Companies in Western Cape	Cape Town	Cross sectoral	7 members, all large companies	DTI Sector Partnership Fund and NOVEM (Dutch government organisation)	BECO – ISB	First meeting November 2000. 18 meetings so far
The Pietermaritzburg Waste Minimisation Club	Pietermaritzburg	Cross sectoral	11 members from a variety of industries, service providers and regulators	Water Research Commission through Pollution Research Group	University of Natal, PMB, Chemical Technology Group	Launched October 2000. Nine meetings, closed end 2002.
Nelson Mandela Metropole Metal Finishers Waste Minimisation Club	Port Elizabeth	Metal Finishing - Might become cross sectoral	12 metal finishers. Want to include other industries w effluent problems	BHT Water Treatment funds newsletter	University of Port Elizabeth, Inst. of environmental and Coastal management.	1 st meeting March 2001. Stopped end 2002 due to moving of members.

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Name	Place	Industry	Members	Financial support	Facilitators	Status
City of Cape Town Waste Minimisation Club for the Plastics Industry	Cape Town	Plastics industry	10 plastics companies	City of Cape Town and DTI Sector Partnership Fund (*)	BECO – ISB	First meeting March 2002. 7 meetings so far
City of Cape Town Waste Minimisation Club for the Convention Centre Construction	Cape Town	Construction industry	All contractors to the site of this new convention centre	City of Cape Town	BECO – ISB	Initial start up failed due to lack of interest.
City of Cape Town Waste Minimisation Club for Blue Route Shopping Centre	Cape Town	Retail and restaurants	7 tenants of the shopping centre	City of Cape Town	BECO – ISB / City of Cape Town	First meeting March 2002. 3 meetings, closed mid 2003.
City of Cape Town Waste Minimisation Club for the Meat processing industry	Cape Town	Meat processing industry	6 slaughter houses and meat processing industries	City of Cape Town	BECO – ISB	First meeting April 2002. 4 meetings. Merged with Food ind. WMC Jan '03.
City of Cape Town Waste Minimisation Club for the Car Repair industry	Cape Town	Garages	6 garages, including 2 fleet maintenance facilities of the City of Cape Town	City of Cape Town	BECO – ISB / City of Cape Town	First meeting March 2002. 6 meetings so far, closed end of 2003
City of Cape Town Waste Minimisation Club for the Cape Town Civic Centre	Cape Town	Office departments	8 departments in the Cape Town Civic Centre	City of Cape Town	BECO – ISB / City of Cape Town	First meeting February 2002. 7 meetings so far.
City of Cape Town Waste Minimisation Club for the Atlantis industrial area	Cape Town	Cross sectoral	8 companies in the Atlantis industrial area	City of Cape Town and DTI Sector Partnership Fund (*)	BECO – ISB / City of Cape Town	First meeting February 2002. 9 meetings so far.
Waste Minimisation Club for the Paarl region.	Paarl	Cross sectoral	7 industries in Paarl	n.a.	BECO – ISB	Start up failed due to lack of interest and lack support by municipality.

(*) Application submitted

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Name	Place	Industry	Members	Financial support	Facilitators	Status
Waste Minimisation Club for Wine farms in the Breede river valley	Robertson	Winemakers	10 wine makers in the same valley	Western Cape Provincial Government + DTI Sector Partnership Fund	BECO – ISB	First meeting January 2002. 10 meetings so far.
Waste Minimisation Club for the food and beverage industry. Monthly regional meetings alternately in Cape Town or Boland area.	Cape Town	Food and beverage industry	8 Food and beverage industries	DTI Sector Partnership Fund	BECO – ISB	First meeting August 2002, 10 meetings so far.
	Boland	Food and beverage industry	9 Food and beverage industries			First meeting October 2002, 11 meetings so far
Waste Minimisation Club for Mogale city	Mogale city	Cross sectoral	5 industries in Mogale, a.o. leather tanning, abattoirs and meat processing	Frysian water Alliance (**),	BECO – ISB	First meeting in April 2003, 5 meetings so far
Waste Minimisation club for large companies in the West rand area	West Rand, Greater Johannesburg	Cross sectoral	6-8 large companies in the West Rand area	Rand water (*), Mogale city (*),	BECO – ISB	Start up phase, first meeting expected in end of 2004
Waste Minimisation Club for Rosslyn industrial area	Rosslyn, Tshwane	Cross sectoral	8 Industries in the Rosslyn industrial area (Tshwane)	DTI Sector Partnership Fund (*)	BECO – ISB	First meeting in July 2002, 9 meetings so far.
Waste Minimisation Club for Parow Industrial area	Cape Town	Cross sectoral	6-8 industries in Parow Industrial	Parow Industrial City Improvement District	BECO – ISB	First meeting May 2003, 5 meetings so far
Waste Minimisation Club at a Medical Facility	Cape Town	Hospital (in house)	7 different departments	Western Cape Provincial Government	Fairest Cape Association, BECO – ISB / Western Cape government DEAD&P	First meeting August 2003, 6 meetings so far
Sasol in-house	National	Petrochemical (in house)	27 business units within Sasol, a large petrochemical company.	Sasol	Sasol	Meeting in February 2001. WMC integrated with existing structures.

(*) Application submitted

(**) Application in preparation

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Name	Place	Industry	Members	Funding	Facilitators	Status
Waste Minimisation Club for the Bellville South industrial area	Cape Town	Cross sectoral	7 companies in the Bellville South industrial area	Western Cape Provincial Government	BECO – ISB / Western Cape Provincial Government DEA&DP	First meeting January 2003, 8 meetings so far
Waste Minimisation Club For Mining Industry	Gauteng	Mining industry	+/-7 mines	Water Research Commission	BECO – ISB	Start up phase, first meeting expected mid 2004.

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