

City Of Tshwane



Strategy for Environmental Education and Training for Municipal Employees

Compiled by: Environmental Resource Management

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Explanation of abbreviations used

A	Awareness
CTMM	City of Tshwane Metropolitan Municipality
ECA	Environment Conservation Act
EMS	Environmental management system
IDP	Integrated development Plan
J	Job specific training
LA21	Local Agenda 21
LGWSETA	Local Government and water services sector education and training authority
NEMA	National Environmental management Act
NQF	National Qualifications Framework
NWA	National water Act
P	Inclusion in existing training programs
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
TIEP	Tshwane integrated environmental policy

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Executive Summary

Recent activities on the environmental agenda indicated a need for environmental education and training of employees of the CTMM, especially the Tshwane Integrated Environmental Policy (TIEP).

The strategy investigates the strategic environmental skills and knowledge requirements by analyzing relevant legislation, the city scorecard, the environmental strategy and the TIEP. The needs thus isolated are compared with the results of the institutional analysis executed in 2003. (The institutional analysis is a high level summary of departmental activities and how these activities impact on the environment.) The objective of this exercise is to relate the strategic training requirements to specific departmental training needs.

The strategic training needs are grouped into modules and needs to be further developed into awareness and training programs.

The departmental training needs however, have to be related to specific job categories and for this the population of an occupational classification matrix per department is proposed.

The strategy concludes with specific roles and responsibilities related to the further deployment of the strategy.

The strategy has been circulated to the following divisions for input:

- ✘ Human resource development
- ✘ Waste management
- ✘ Parks and horticultural services
- ✘ Environmental planning
- ✘ Nature conservation and resorts
- ✘ Cemeteries
- ✘ Disaster management
- ✘ Support Services: Housing, City Planning and Environmental Management
- ✘ Environmental Health Services
- ✘ Training and Development: Primary Health Care Services
- ✘ Roads and Storm water
- ✘ Museum Park (Section 21 company of the CTMM)

Annexure B sets out an overview of the process.

Background and Purpose

Various initiatives regarding environmental management were undertaken within the CTMM during 2003/2004. These include a state of the environment report, various environmental audits and an assessment of the Tshwane 2020 Integrated Development Plan.

The findings of these assessments indicated that environmental education and training for municipal employees are required, and is indeed essential for greater corporate environmental responsibility and the promotion of environmental sustainability.

The Tshwane integrated Environmental Policy (TIEP) was approved during January 2005 by Council. The adoption of the TIEP is a significant milestone for the environmental agenda within Tshwane. In terms of environmental education and training, the TIEP devotes a whole policy goal to this issue. It states specific objectives for the training of municipal employees and councilors related to issues of the TIEP, such as corporate environmental responsibility. The TIEP further lays down good practice guidelines related to:

- ✦ Being culturally and gender sensitive
- ✦ Being responsive to the needs of the target audience
- ✦ Education and training that are delivered via an effective needs analysis process
- ✦ Takes life long learning, adult education principles and outcomes based education into account
- ✦ Partnerships

This strategy is therefore an effort to unpack the TIEP environmental education and training goal towards practical implementation.

Environmental Education has been defined by the United Nations Environmental Programme (1977) “*as a process aimed at developing a world population that is aware of, and concerned about, the total environment and its associated problems and has the knowledge, attitudes, skills, motivation and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones.*”

The need for environmental education and training is further supported by various pieces of legislation, such as:

- National Environmental Management Act, no 1207 of 1998
- National Skills Development Act
- White Paper on Education and Training
- The White Paper on Integrated Pollution and Waste Management for South Africa
- White Paper on the Conservation and Sustainable use of South Africa's biodiversity
- Environmental Management Policy for South Africa

The Human Resources Development Strategy of the CTMM for the period 1 July 2003 – 30 June 2008 points out the necessity of appropriate skills development to fit in with the new developmental role of Local Government, as well as with relevant demands in the external environment, whether legislative or community driven.

One of the most important developments is the Tshwane Integrated Environmental Policy (TIEP), which was compiled through extensive community participation.

The TIEP has various objectives devoted to environmental education, with specific reference to municipal employees.

The TIEP states the following: "To promote environmental education and awareness that enhances the understanding of environmental rights, responsibilities and the appreciation of the environment."

The TIEP further states in the first objective:

To build capacity and skills that enhances environmental literacy on an ongoing basis. This objective will be achieved by –

- i) developing and implementing an environmental education strategy for all political decision-makers, officials and communities in Tshwane to support the objectives of the TIEP;
- ii) educating councilors to understand the links between the delivery of basic services and environmental resources, thereby improving their ability to make informed decisions on environmental matters;
- iii) undertaking appropriate high-quality training and awareness interventions for municipal staff to enable them to integrate environmental considerations into decision-making and to display effective duty of care;
- iv) providing formal training and skills development, where necessary, in the CTMM to empower officials to undertake new environmental management functions;
- v) monitoring levels of environmental education and awareness through effective evaluation programs;
- vi) promoting awareness of the legal requirements in terms of the environment and activities that are undertaken, and regarding the environmental rights of communities and individuals;

Currently environmental education and awareness activities within the municipality are limited in scope, generalized and undertaken with limited resources.

An Environmental Education and Awareness Strategy is therefore required to address the current gap and to fulfil the requirements of the TIEP.

The purpose of the strategy is:

- To integrate environmental education and training efforts with the Human Resources Development Strategy
- To incorporate environmental education and training initiatives into other current education and training initiatives
- To provide a framework for environmental education and training
- To delegate responsibility for environmental education and training
- To create an institutional framework for environmental education and training
- To promote and provide quality environmental education and training to municipal employees
- To promote targeted and cost-effective environmental education and training interventions.

1. Preparation of an Environmental Education and Training Strategy

The following process will ensure that the environmental education and training strategy is scientifically based and address relevant aspects within a municipal environment:

1. Establish the municipality's strategic environmental skills and knowledge requirements
2. Define the education and training required for achieving the strategic environmental skills and knowledge requirements
3. Establish the type of training programmes suitable for addressing skills and knowledge requirements identified during the strategic analysis phase in terms of the following:
 - *awareness*
 - *Job specific training*
 - *Information or modules to be included in existing programs*

- *specific and targeted training programs*

4. Develop an Occupation Classification matrix
5. Populate the Occupational Classification Matrix
6. Undertake a needs analysis for each of the Occupational Classes where indicated in order to determine the need for job specific training
7. Identify existing courses where an environmental module can be included
8. Identify suitable existing environmental courses or awareness programs or compile training material/awareness programs according to results of needs analysis, inclusive of evaluation measures
9. Define the number and characteristics of training beneficiaries that will be trained per year
10. Compile a training programme
11. Define the quality assurance measures for the training program
12. Undertake a gap analysis in terms departmental training and trainer capacities in terms of training programme implementation
13. Develop and implement train- the-trainer programmes where required
14. Implement the training programme
15. Monitor and evaluate the training program

2. Establishment of the municipality's strategic environmental skills and knowledge requirements

The following will provide guidance in terms of the strategic environmental skills and knowledge:

- Legislation
- City Scorecard
- City Development Strategy
- Draft Tshwane Integrated Environmental Policy
- Tshwane environmental strategy

2.1 *Legislative Overview*

Constitution of the Republic of South Africa (Act 108 Of 1996) – ("The Constitution")

The Constitution is the supreme law of South Africa and as such all other legislation must be consistent with its principles and provisions.

The Constitution contains a Bill of Rights, which sets out inalienable rights applicable to every South African, which includes both natural and juristic persons. These rights include substantive rights such as the right to an environment that is not harmful to their health or well-being and everyone has the right to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development, access to water as well as administrative rights, such as the right of access to information and the right to administrative justice, that assist in the enforcement of the substantive rights.

Chapter 7 of the Constitution deals with local government (municipalities). A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation. The objects of local government are to -

- provide democratic and accountable government for the local community;
- **ensure the provision of services to communities in a sustainable manner;**
- promote social and economic development;
- **promote a safe and healthy environment;** and

- encourage the involvement of communities and community organisations in the matters of local government.

In addition Premier's Proclamation 35 of 1995 the Constitution provides the following powers and duties to Metropolitan Councils:

- Bulk supply of water.
- Bulk supply of electricity.
- Bulk sewage purification works and main sewage disposal pipelines for the metropolitan area.
- Metropolitan Spatial Planning, Metropolitan Transportation Planning, Metropolitan Bulk Infrastructure Planning, Metropolitan Development Planning and the Co-ordination of these aspects within and between Metropolitan areas.
- Arterial Metropolitan Roads and storm water drainage.
- Passenger transport services.
- Traffic matters.
- Abattoirs.
- Fresh produce market.
- Refuse dumps.
- Cemeteries and crematoria.
- Ambulance and fire brigade services.
- Hospital Services.
- Airports.
- Civil defense.
- Metropolitan libraries.
- Metropolitan museums.
- Metropolitan recreation facilities.
- Metropolitan environment conservation.
- Metropolitan promotion of tourism.
- Metropolitan promotion of economic development and job creation.
- The establishment, improvement and maintenance of other metropolitan infrastructural services and facilities.
- The power to levy and claim the regional services levy and the regional establishment levy and levies or tariffs from any transitional metropolitan substructure in respect of any function or service, and in addition, the power to levy and claim an equitable contribution from any Transitional Metropolitan Substructure based on the gross rate income of Transitional Metropolitan Substructure.
- The receipt, allocation and distribution of intergovernmental grants.

- The power to borrow or lend money, with the prior approval of the Premier, for the purpose of or in connection of the existing exercise or performance of any power or duty.

The Local Government: Municipal Structures Act 117 of 1998 ('the Structures Act')

The Local Government: Municipal Structures Act 117 of 1998 ("the Municipal Structures Act") came into effect on 1 February 1999. The main objective of the Municipal Structures Act is to provide for the establishment of municipalities, in accordance with the categories and types of municipalities; for the division of powers and functions between certain categories of municipalities as well as for the electoral system to be applied in the local sphere of government.

In terms of Section 84 of the Municipal Structures Act, a district municipality has the following functions and powers: - integrated development planning; the bulk supply of water and electricity; sewage purification works and main sewage disposal; solid waste disposal sites; municipal roads; regulation of passenger transport services; municipal airports; municipal health services; fire fighting services; the establishment, conduct and control of fresh produce markets and abattoirs; the establishment, conduct and control of cemeteries and crematoria; promotion of local tourism; municipal public works; the receipt and allocation and distribution of grants made to the district municipality and the imposition and collection of taxes, levies and duties.

The Local Government: Municipal Systems Act 32 of 2000 ('the Systems Act')

The objective of the Systems Act is to give effect to the country's vision of "developmental local government", as envisaged in the Local Government White Paper. The Municipal Systems Act elaborates the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment and ensure universal access to quality services that are affordable to all, concepts that are enshrined in the Constitution. The Systems Act establishes a simple enabling framework for the planning, performance management, resource mobilisation and organisation, which underpin the notion of developmental local government.

The Act regulates the powers and functions of municipalities, which have been established in terms of the Structures Act. The Act furthermore, provides that a municipality must, within the municipality's financial and administrative capacity -

- exercise the municipality's executive and legislative authority and use the resources of the municipality in the best interests of the residents and communities in the municipality;
- **ensure the provisions of the municipal services to all residents and communities in a financially and environmentally sustainable manner;**
- promote development in the municipality;
- **promote a safe and healthy environment in the municipality; and**
- **together with organs of state in the other spheres of government, assist in the progressive realisation of the fundamental rights contained in the Constitution (Section 4).**

The National Environmental Management Act (Act 107 of 1998) - "NEMA"

NEMA essentially gives effect to section 24 of the Constitution, which is the environmental right. It is overarching legislation in that it sets out the general principles for dealing with environmental matters regardless of which organ of state is exercising jurisdiction in any given matter. The Act therefore also contains co-operative governance provisions and procedures for co-ordinating environmental functions exercised by the various organs of state.

The Act lays down principles that organs of state must take into account when making decisions affecting the environment. The underlying principle is that development must be socially, environmentally and economically sustainable and that environmental management must address human needs. The section then sets out various considerations that must be taken into account to enable sustainable development and these include the need to protect ecosystems, the polluter pays principle, the precautionary principle, the preventative principle, waste minimisation and public participation, to mention a few.

NEMA also imposes a duty of care, which places a positive obligation on any person who has caused, is causing, or is likely to cause damage to the environment to take reasonable steps to prevent such damage. The Act also sets out the type of steps to be taken as well as who may be held liable for breach of this duty. The list includes owners, those responsible whether directly or indirectly, anyone in control of the land, and anyone with a duty to prevent damage occurring.

As mentioned above NEMA's main purpose is to provide an overarching integrated environmental management framework, which is underpinned by the concept of sustainable development.

Chapter 5 of NEMA deals with Integrated Environmental Management. Integrated environmental management is a philosophy which prescribes a code of practise for ensuring that environmental considerations are fully integrated into all stages of the development process in order to achieve a desirable balance between conservation and development.

The general objectives of the chapter are contained in section 23, which states that the purpose of the chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities.

Section 23 provides that the general objective of integrated environmental management is to identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, as well as the risks, consequences, alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management. It goes on to state that the objective is also to ensure that the effects of the activities on the environment receive adequate consideration before actions are taken in connection with them.

Section 24 deals with the implementation of the general objectives of integrated environmental management. Subsection 24(1) provides that:

"In order to give effect to the general objectives of integrated environmental management, the potential impact on the environment, socio-economic conditions and cultural heritage of activities requiring authorisation by law and which may significantly affect the environment, must be considered, investigated and assessed before they are implemented and reported to the organ of state charged by law with authorising, permitting or otherwise allowing the implementation of the activity".

Environment Conservation Act (Act 73 of 1989) ("ECA")

The ECA was the first Act to introduce the requirement to undertake an Environmental Impact Assessment ("EIA").

Section 21 of the ECA provides that the Minister may identify, through promulgating appropriate regulations, those activities that may have a substantial detrimental impact on the environment, within specified categories.

The Minister has, in terms of regulations promulgated under section 21 of the ECA (Regulations 1182 and 1183 promulgated on 5 September 1997 and amended by Regulations 670 and 672 promulgated on 10 May 2002), identified certain activities as activities that are considered substantially detrimental to the environment. The regulations have subsequently been amended (GN R 670)

In terms of establishing the relevant environmental authority Section 22 of the ECA states that the undertaking of the above identified activities is prohibited, unless written authorisation from the competent authority in each province is granted, which authorisation will only be issued after reports concerning the impact of the proposed activities (in other words, an EIA) have been considered.

Environment Conservation Act - GN Directions 91 of 1/02/2002

The abovementioned directions provides for the control and management of general communal and general small waste disposal sites. These directions are relevant to the CTMM since one of the municipality's functions is to regulate waste disposal. Direction 2(1) states that a person or body who wishes to establish, develop, operate, close and rehabilitate a general communal or a general small waste disposal site (hereafter referred to as "the Site") with a negative water balance must register the Site in the format as set out in Annexure A of this Direction.

The planning, design, construction, commissioning, operation, monitoring, closing and rehabilitation of the Site shall be in accordance with the Minimum Requirements for Waste Disposal by Landfill. Direction 5(2) states that the registered person for the disposal of permissible waste thereof may only use the Site or any portion if the Site or any portion thereof has been constructed or developed according to the conditions set out in Direction 5(4).

Atmospheric Pollution Prevention Act (Act 45 of 1965)

The Act is currently the central piece of legislation regulating air pollution in South Africa. It covers various aspects of air pollution including noxious gases, smoke, dust and vehicle emissions. With regard to noxious gases, it provides that the Minister of Environmental Affairs and Tourism may declare controlled areas and where such areas have been declared, no person may carry on scheduled processes listed in the Act without having first obtained a registration certificate. The Minister has declared the whole of the Republic of South Africa to be a controlled area. Scheduled processes include the incineration of waste. The Act also empowers local authorities to issue abatement notices where it receives complaints regarding nuisance caused by smoke.

It should also be noted that in terms of schedule 4B of the Constitution, air pollution is a local government matter over which national and provincial governments exercise concurrent legislative competence. At present, it is primarily the Chief Air Pollution Control Officer who is appointed in terms of the Act that issues the registration certificates discussed above. Currently the CTMM has a duty to monitor air quality in its jurisdiction and may issue abatement notices where it receives complaints regarding nuisance caused by smoke or other noxious or offensive gases. This responsibility will become more prominent when the new act is promulgated since it will mean that municipalities will be under pressure to perform their monitoring duties better because the provinces will measure their performance.

The Act is currently being reviewed and is scheduled to be repealed and replaced by the Air Quality Management Act.

 **Mineral and Petroleum Resources Development Act (Act 28 of 2002)**

This Act repealed the Minerals Act of 1991 and is applicable in as far as mining activities take place in the CTMM's jurisdiction. The CTMM will be regarded as an interested and/or affected party and will have the opportunity to provide input in respect of any proposed mining activities in its jurisdiction. This Act also regulates prospecting and mining as well as petroleum exploration and mining. The Act is more stringent than the Minerals Act and contains numerous environmental provisions.

 **The National Water Act, No. 36 of 1998 (NWA)**

A number of municipalities are responsible for the treatment and purification of sewerage at a designated Water Care Works ("WCW") facility. After the water has been treated it is usually pumped into dams, spruits and rivers in the catchment area. It is therefore important for CTMM to be aware of the legislation that directly or indirectly governs the prevention of water pollution and CTMM's environmental responsibility in terms of these Acts. It is also important to indicate what CTMM's potential liability for environmental damage relating to the pollution of water resources during the operation of water care works or any other activity where the CTMM is the supplier of water in terms of the Water Services Act could entail.

The NWA replaces and repeals all previous legislation pertaining to water, and should be seen against the legislative background of the Water Services Act (Act 108 of 1997). It is concerned with the overall management, equitable allocation and conservation of water resources in South Africa. To this end, it requires registration of water users and licenses to be obtained for water use except for certain limited instances set out in the Act. These instances include domestic use, certain recreational use, where the use occurs in terms of an existing lawful use or where the Department of Water Affairs and Forestry (DWAF) has issued a general authorisation that obviates the need for a permit. The Act further provides for the establishment of catchment management agencies for the integrated management of all aspects of water use in South Africa.

Before the Water Act, No. 54 of 1956 was repealed by the NWA a licence in terms of sections 12A and 26 of the Water Act, No. 54 of 1956 was needed for the purification, treatment and disposal of effluent. Many of these licences are still in existence at municipal level and need to be replaced by new licences in terms of section 40 of the NWA.

Central to the new water license regime introduced by the NWA, is the control of “use of water” (section 21). The use of water is closely connected to the “entitlement to water” (section 4), which sets out the general regime for water use.

The phrase “water use” is widely defined to include a broad range of activities, which accordingly fall under the control regime, and *inter alia* includes:

- Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduct;
- Impeding or diverting the flow of water in a watercourse;
- Engaging in a controlled activity contemplated in section 37 (irrigation of land with waste or water containing waste generated through any industrial activity or by waterworks, an activity aimed at the modification of atmospheric precipitation, a power generation activity which alters the flow regime of a water resource or the intentional recharging of an aquifer with any waste or water containing waste);
- Disposing of waste in a manner which may detrimentally impact on a water resource;
- Disposing in any manner of water which contains waste from, or which has been heated in, any industrial process;
 - Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people;
 - Taking water from a resource;
 - Storing water and;
 - Using water for recreational purposes

It is clear that the term “water use” also includes polluting activities.

A municipality can be held liable for environmental damage and degradation caused by it in operating any WCW.

Waste Discharge Charge System Bill

The Waste Discharge Charge System Bill, which is currently being drafted, has been devised to address the problem of poor water quality in South Africa. It will put in place a framework for charging for the discharge of waste into water resources and as such must be considered by the CTMM. The CTMM will face increased fees for any discharge of waste into a water resource. All indications are that this Bill will be pushed through, and may come into effect in 2005. It would be beneficial to CTMM if it starts to introduce proper systems and solutions to minimise its waste discharge.

The National Environmental Management: Air Quality Management Bill

The National Environmental Management: Air Quality Management Bill, will change the framework for air pollution prevention in South Africa. It is of the utmost importance that CTMM takes these new developments into consideration when formulating their strategic plan relating to pollution control and their Integrated Air Quality Management Plan as part of the Policy process.

The national framework may also establish national standards for the monitoring by provinces and municipalities of ambient air quality, and point and non-point emissions. In addition the framework may establish standards by which provinces should monitor the performance of municipalities in implementing the Bill. This means that municipalities are now under pressure to perform their monitoring duties because the provinces will measure their performance. This situation will result in more pressure on organisations to comply with the new Act and the air quality standards, due to stricter monitoring by the municipalities and the provinces.

The national framework may establish national standards for the collection and management of data necessary to assess compliance. The framework may also set standards for the assessment of compliance with ambient air quality and emission standards and the performance of organs of state in respect of air quality management plans.

Air quality management plans must *inter alia* give effect to "best practice" in air quality management. It is unclear if the words "best practice" refer to the "best practicable means" (BPM), or to the "best practicable environmental options" (BPEO). The APPA contains a definition of BPM.

Metropolitan and district municipalities are charged with implementing the atmospheric emission licensing system and must for this purpose perform the function of the licensing authority.

The National Environmental Management: Biodiversity Bill (NEMBA)

The NEMBA provides for the management and conservation of South Africa's biodiversity as well as the sustainable use and fair and equitable sharing of benefits arising from use of indigenous biological resources. It provides for co-operation between government organs and compels all organs of state at all spheres of government to prepare invasive species monitoring, control and eradication plans. The CTMM will therefore have to incorporate a strategy for invasive species monitoring, control and eradication.

Legislative Overview: Implications for skills development

The legislation mentioned above provide many pointers for what the CTMM personnel have to be educated and made aware off.

These include:

Topic	Top Management	Middle Management	Professionals	General personnel	Workers
Environmental legislation and the duties these impose	☑	☑	☑		
National Environmental Act: Principles and the integration there-off in strategies and policies of Council	☑	☑	☑		
Environmental Impact Assessment		☑	☑		
Water Pollution		☑	☑	☑	☑
Air pollution		☑	☑		
Soil Pollution		☑	☑	☑	☑
Underground water pollution		☑	☑		
Duty of Care	☑	☑	☑	☑	☑
Bio-diversity		☑	☑		
Mining		☑	☑		
General Environmental Awareness	☑	☑	☑	☑	☑

2.2 City Scorecard

The City Scorecard indicates the following key priorities:

- Developing and Enhancing our natural resources
- Managing and developing our infrastructure
- Enhance our image as the Capital City
- Developing our economy
- Ensuring Community Safety
- Building Sustainable and integrated communities
- Build our institution and govern well

The implications of the above mentioned is:

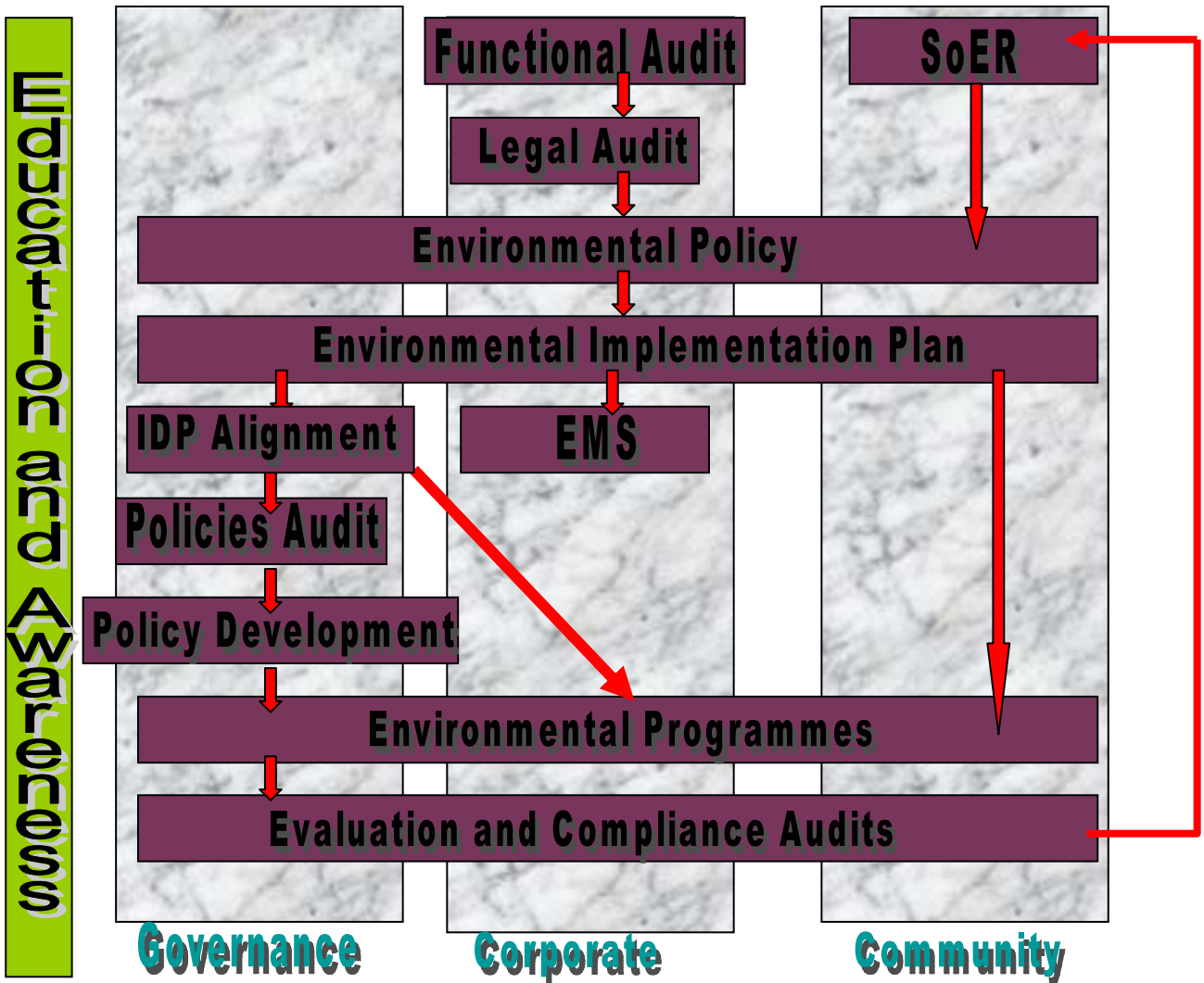
- The necessity of integration of the economic, social and environmental components contained in the city scorecard to ensure the delivery of services in a sustainable manner
- The impact of infrastructure delivery on the environment, and enhancing infrastructure development through the provision of greener infrastructure
- Local Agenda 21
- Environmental Best Practice
- Green incentives related to economic development
- Environmental Information and indicators
- Environmental Resource Management

Implications of the above for training content are:

Topic	Top Management	Middle Management	Professionals	General personnel	Workers
Local Agenda 21	•	•	•		
Green infrastructure		•	•		
Green incentives	•	•			
Environmental Indicators		•	•		
Resource Management		•	•		
Strengthening sustainability in the IDP	•	•	•		

2.3 Tshwane Environmental Strategy

The Tshwane Environmental Strategy is as follows



The implications of the strategy for strategic training priorities are:

Topic	Top Management	Middle Management	Professionals	General personnel	Workers
State of the Environment Reporting	•	•	•		
Environmental Auditing	•	•			
Integrated Tshwane Environmental Policy	•	•	•	•	
Environmental Management Systems	•	•	•	•	
IDP Alignment	•	•	•	•	
Environmental Education			•		
Environmental programs	•	•	•		

2.4 Tshwane Integrated Environmental Policy

Key issues contained in the Tshwane Integrated Environmental Policy are as follows:

- Waste Management
- The need for the maintenance and protection of open spaces and nature reserves
- Illegal dumping and littering
- Environmental education
- Environmental Governance
- Poverty
- The role of business concerning environmental education
- Housing
- Sustainable agriculture
- Development Planning
- Air Quality










- Water quality and quantity
- Biodiversity management
- Cultural heritage

The policy is based on the following principles:

1. **Sustainable development** – development must be socially, environmentally and economically sustainable. This includes the sustainable use of renewable and non-renewable resources.
2. **Environmental justice and equity** – people and their needs must be placed equitably on the forefront of concerns and the environment is held in public trust for the people. Environmental justice must be pursued.
3. **Participation and transparency** in environmental decision-making and governance
4. **Empowerment** of communities and organisations through environmental awareness and education programmes
5. **Co-operative governance** – the CYMM shall comply with and effectively enforce relevant environmental legislation.
6. **Ecological integrity and minimisation of environmental impacts** – the avoidance of environmental impacts that threatens ecological integrity, and where environmental impacts are unavoidable, to minimise the impact thereof through effective management systems and rehabilitation
7. **Reducing the ecological footprint of the city** – reducing the bio productive space used for producing the resources consumed within the city and absorbing the waste produces
8. **Integration of environmental considerations into decision-making** – environmental protection shall constitute an integral part of all development processes and cannot be considered in isolation from it.
9. **Best practice environmental solutions and management**
10. **Continual improvement** – to enhance environmental management systems and strategies to achieve improvements in environmental performance on a continuous basis
11. **Precautionary approach** will be applied when uncertainty exists despite the available information, whether the environmental impact of a proposed activity will be detrimental
12. **Internalisation of environmental costs and the consideration of full environmental costs** – management processes will be structured in a manner to ensure that the producer of costs related to environmental impacts, will be carried by the producer throughout the life-cycle of the project/product
13. **Shared responsibility** – all individuals and organisations in the CTMM area have a shared responsibility towards the sustainable use of the environment

The TIEP will require the following training interventions:

Topic	Top Management	Middle Management	Professionals	General personnel	Workers
Applying the precautionary principle		✔	✔		
Life cycle analysis	✔	✔	✔		
Ecological Footprint	✔	✔	✔	✔	
Sustainability Criteria	✔	✔	✔		
Urban Agriculture	✔	✔	✔		
Air quality	✔	✔	✔		
Water quality	✔	✔	✔		
Bio diversity	✔	✔	✔		
Waste management	✔	✔	✔		
Green business	✔		✔		
State of the Environment Reporting	✔	✔	✔	✔	
Overview: Integrated Tshwane Environmental Policy	✔	✔	✔	✔	✔
Corporate Environmental responsibility	✔	✔	✔	✔	✔
IDP Alignment	✔	✔	✔		
Environmental Education			✔		
Spatial development planning			✔		

Environmental Cost Accounting					
Sustainable Energy					
Cultural resources					
Economic Development					

3. Summary for education and training required for achieving the strategically required environmental skills and knowledge, coupled to the type of training programmes suitable for addressing skills and knowledge requirements identified during the strategic analysis phase.

Efficiency in terms of delivery necessitates that the varying “depths” of knowledge levels required be recognised. This will necessitate the division of the knowledge requirements into awareness levels, job specific training and the inclusion of information into existing programs.

This division of methodology also recognises the wide variety of functions within the municipality, but also the fact that a broad overview of certain topics is advisable for most employees.

It will also support the fact that the municipality employs levels of personnel from professional to workers.

Legend
<i>A = awareness level</i>
<i>J = Job specific training/awareness</i>
<i>P = include in other Programs</i>

	Topic	Top Management	Senior and Middle Management	Professionals	General personnel	Workers
1.	TIEP Contents	A, P	A, P	A	A	A

	Topic	Top Management	Senior and Middle Management	Professionals	General personnel	Workers
2.	Applying the precautionary principle	A	A	A		
3.	Life cycle analysis			A		
4.	Ecological Footprint	A	A	A	A	
5.	Sustainability Criteria	A	A	A		
6.	Urban Agriculture			A		
7.	Air quality	A	J	J	J	J
8.	Water quality	A	J	J	J	J
9.	Bio diversity	A	J	A, J		
10	Waste management	A	A	A,J	A,J	A
11	Green business	A	A	J		
12	Local Agenda 21	A	A	A	A	
13	Green infrastructure	A	A	A, J		
14	Green incentives	A	A	A		
15	Environmental Indicators	A	A	J,A		
16	Corporate Environmental responsibility	A	A	A	A	A
17	Strengthening sustainability in the IDP	A,P	A,P	J		

	Topic	Top Management	Senior and Middle Management	Professionals	General personnel	Workers
18	Environmental legislation and the duties these impose	A,P	A,P	A,P	A	
19	Spatial development and Environment			A		
20	Environmental cost Accounting	A	A	J		
21	Soil Pollution		J	J	J	J
22	Underground water pollution		J	J	J	J
23	Sustainable Energy			J		
24	Mining impacts			J		
25	Environmental Auditing	A	A	A	A	
26	Cultural resources	A	A	A		
27	Environmental Management Systems	A,P	A,P,J	A,P,J	A	
28	Economic Development and Environment	A	A	A		
29	Executing environmental Education programs			J		

	Topic	Top Management	Senior and Middle Management	Professionals	General personnel	Workers
30	State of the environment Reporting	A	A	A,J	A	

4. Relating the Strategic Training requirements to Environmental Aspects and Impacts of the different CTMM departments and divisions

Municipal environmental aspects are listed, to indicate the link between departments and their associated environmental impacts.

According to SABS ISO14001, environmental aspects refer to an element of an organisation's activities, products or services that can interact with the environment. Environmental Impacts refers to any change in the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services

Environmental Aspects associated with Departments

Environmental Aspects	Departments						
	Housing, City Planning and Environmental Management	Social Services	Metro Police	Emergency Management Services	Service Delivery	Office of the COO	Economic Development
Medical waste Disposal		*		*			
Use of extinguisher materials				*			
Handling of accidents related to hazardous materials				*			
Petrol and diesel storage tanks	*		*	*	*		*
Offices	*	*	*	*	*	*	*
Construction of new general facilities	*	*		*	*		
Storm water drainage systems					*		
Road Construction (paved and unpaved)					*		
Operation of stores			*				
Auction Yard							
Vehicle fleet		*	*	*	*		*
Water distribution system					*		
Sewage purification sites					*		
Sludge handling and disposal					*		
Transformer oil spillages					*		
Power generation					*		
Street lighting					*		
Sanitation and water provision strategies				*			
Construction of					*		

Environmental Aspects	Departments						
	Housing, City Planning and Environmental Management	Social Services	Metro Police	Emergency Management Services	Service Delivery	Office of the COO	Economic Development
bridges							
Traffic Light Control System			*		*		
Spruit channel improvements					*		
Maintenance of natural water courses					*		
Asphalt and Concrete manufacturing					*		
Quarries					*		
Sport facilities		*					
Clinics		*					
Pharmacies		*					
Shooting Ranges			*				
Horse Stables			*				
Dog Kennels			*				
Airports							*
Borrow Pits					*		
Public transport and facilities					*		
Landfill sites	*						
Cemeteries	*						
Resorts and nature reserves	*						
Swimming pools	*						
Parks	*						
Depots (Storage of chemicals etc)	*			*	*		*
Housing provision	*						
Fresh Produce market							*

Municipal Aspects with its associated environmental impacts.

(See matrix below)

	Training Required	Departments	Soil pollution	Air Pollution	Water pollution	Underground water Pollution	Resource use	Soil erosion	Noise pollution	Biodiversity Loss	Ecosystem disturbance
Use of extinguisher materials	7,8,21	Emergency Services	y	y	y						
Handling of accidents related to hazardous materials	2,7,8,9,21,22	Emergency Services	y	y	y					y	y
Petrol and diesel storage tanks	7,8,21,22,27	Emergency Services, Transport, Economic development, Metro police, Service delivery, Housing, Electricity	y	y	Y	y					
Offices	10,5,3,20,23,4	All					y				
Construction of new general facilities	1,2,3,5,13,16,18,23,27	All	y	y	y		y	y	y		y
Storm water drainage systems	8,9,2,13,16,18	Roads and Storm water			y			y			y
Road Construction (paved and unpaved)	2,9,13,16,18,24,27	Roads and Storm water	y	y	y		y	y	y		y
Operation of stores	3,5,10,11,16,20,23,4	Procurement, Metro police, Housing, Emergency Management Services, Service Delivery, Electricity					y				
Auction Yard	10,16,18	Procurement	y								
Vehicle fleet	3,5,7,8,10,16,18,21,22,23,27	Procurement, Metro police, Housing, Emergency Management Services, Service Delivery, Electricity, Economic Development	y	y	y		y		y		
Water distribution system	2,4,5,8,9,13,16,18	Water and Sanitation					y				y
Sewage purification sites	2,7,8,9,10,13,16,18,21,22,23,27	Water and Sanitation	y	y	y	y					y
Sludge handling and disposal	2,7,8,9,10,13,16,18,21,22,23,27	Water and Sanitation	y		y	y					
Transformer oil	2,8,9,10,16,18,21	Electricity	y		y	y					
Power generation	2,3,7,8,9,10,13,16,18,20,21,22,23,27	Electricity	y	y	y	y	y		y	y	y
Street lighting	10,23	Electricity					y				Y
Sanitation and water provision strategies	2,3,4,8,9,13,16,18,19,21,22,29	Water and Sanitation	y		y	y	y				y
Construction of bridges	2,9,13,16,18,8,27	Roads and Storm water	y		y		y	y	y		y
Traffic Light Control System	7	Transport, Metro Police		y			y		y		
Spruit channel	2,9,13,16,18,8,27	Water and Sanitation,			y			y		y	y

	Training Required	Departments	Soil pollution	Air Pollution	Water pollution	Underground water Pollution	Resource use	Soil erosion	Noise pollution	Biodiversity Loss	Ecosystem disturbance
improvements		Roads and Storm water, Nature Conservation and resorts									
Maintenance of natural water courses	8,9,2,16,18	Water and Sanitation, Nature Conservation and Resorts			y					y	y
Asphalt and Aggregate manufacturing	2,3,4,7,8,9,10,16,18, 21,22,23,24,27	Roads and Storm water	y	y	y		y		y		y
Quarries	2,3,4,7,8,9,10,16,18, 21,22,23,24,27	Roads and Storm water		y	y		y	y	y	y	y
Sport facilities	3,4,5,10,13,16,18,19, 23	Sport and Recreation	y				y		y		
Clinics	10,16,18	Health, Occupational Health	y				y				
Pharmacies	10,16,18	Health, Occupational Health	y		y		y				
Shooting Ranges	18	Metro Police							y		
Horse Stables	8,10,16,18	Metro Police			y						
Dog Kennels	8,10,16,18	Metro Police			y				y		
Airports	2,7,8,9,10,16,18,19, 21,22,23,27	Economic development	y	y	y	y	y		y		y
Borrow Pits	7,8,9,2,16,18,19,24, 26,27	Roads and Storm water Housing		y				y	y		y
Public transport and facilities	2,3,4,7,8,9,10,16,18, 19,21,22,23,27	Economic development	y	y	y	y	y		y		
Landfill sites	2,7,8,9,10,16,18,19, 21,22,23,27	Waste Management	y	y	y	y				y	y
Cemeteries	2,9,16,18,19,22	Cemeteries	y			y					
Resorts and nature reserves	2,8,9,10,13,16,18,19, 23,27	Nature Conservation and Resorts							y		y
Swimming pools	4,8,10,16,18,23	Nature Conservation and Resorts		y	y		y				
Parks	2,4,7,8,9,10,16,18,21 ,27	Parks and Horticultural Services	y		y		y				y
Depots (Storage of chemicals etc)	3,4,8,10,16,18	Procurement, Metro police, Housing, Emergency Management Services, Service Delivery, Electricity		y	y		y				
Housing provision	2,4,5,6,7,8,9,10,13, 16,18,19,21,23,27	Housing			y		y	y	y	y	y
Fresh Produce market	4,5,6,7,8,10,16,18,23 ,27	Fresh Produce Market		y	y		y				

Environmental Impacts associated with specific departments

Environmental Impacts	DEPARTMENTS						
	Metro Police	Housing	Social Services	Emergency Management	Service Delivery	Office of COO	Economic Development
Soil Pollution	*	*	*	*	*		*
Water Pollution		*		*	*		*
Underground water pollution	*	*		*	*		*
Resource use	*	*	*	*	*	*	*
Air pollution	*	*	*	*	*		*
Soil erosion					*		
Loss of biodiversity		*			*		
Noise Pollution	*	*	*	*	*		*
Disturbance of ecosystems		*			*		

All training aspects are indicated per department/division:

Department	Legend
Corporate Services	1.
Local Economic development	2.
Transport development	3.
Tourism	4.
Agricultural Trading	5.

Electricity	6.
Emergency Management Services	7.
Finance department	8.
Housing	9.
City Planning	10.
Environmental Management	11.
Legal and Secretarial Services	12.
Marketing	13.
Tshwane metropolitan police	14.
Roads and Storm water	15.
Water and Sanitation	16.
Health care	17.
Educational services	18.
Integrated Community Development	19.

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TIEP Contents																			
Applying the precautionary principle																			
Life cycle analysis																			
Ecological Footprint																			
Sustainability Criteria																			
Urban Agriculture																			
Air quality																			
Water quality																			
Bio diversity																			
Waste management																			
Green business																			
Local Agenda 21																			
Green infrastructure																			
Green incentives																			
Environmental Indicators																			
Corporate Environmental responsibility																			
Strengthening sustainability																			

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
in the IDP																			
Environmental legislation and the duties these impose																			
Spatial development and Environment																			
Environmental cost Accounting																			
Soil Pollution																			
Underground water pollution																			
Sustainable Energy																			
Mining impacts																			
Environmental Auditing																			
Cultural resources																			
Environmental Management Systems																			
Economic Development and Environment																			
Executing environmental																			

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Education programs																			
State of the environment Reporting																			

5. The Occupational Classification Matrix

The occupational classification matrix will be developed according to the different business functions of the municipality. This will be superimposed on the summary matrix of the institutional analysis of environmental aspects associated with different departments and the respective training required (above). The occupational classification matrix will be developed in cooperation with the skills development officers of each department.

The matrix will correspond with the following table (example) and targets will be set for the delivery of training and awareness programs as follows:

Department of Housing, City planning and Environmental Management	Top Management	Senior and Middle Management	Professionals	General personnel	Workers
Number of officials	4	50	100	500	1000
Program One					
Number of trainees year one	4	30	50	100	500

Number of trainees year two	x	x	x	x	X
Program Two	Etc	Etc	Etc	Etc	etc

In terms of job-specific training, specific relevant individuals have to be identified in conjunction with the skills development officer of departments.

6. The identification of existing courses where an environmental module can be included and development of additional training and awareness programs

6.1 Existing Courses

The following existing courses have been identified:

- 🌱 Executive, Middle and Junior management Courses
- 🌱 The Environmental Representatives Course

The management courses currently have no modules related to any of the training identified, while the environmental representatives course has the following applicable modules:

- 🌱 The concept environment and the environmental crises
- 🌱 The environment as an open system
- 🌱 Environmental pollution
 - Solid and hazardous waste
 - Air pollution
 - Water pollution
 - Soil pollution
- 🌱 Environmental laws
- 🌱 Environmental Management Systems

The course should be extended to include the following:

- 🌱 The TIEP
- 🌱 The precautionary principle
- 🌱 Life cycle analysis
- 🌱 Ecological Footprint

- ✦ Sustainability Criteria
- ✦ Bio-diversity
- ✦ Corporate Environmental Responsibility
- ✦ Environmental Cost Accounting
- ✦ Sustainable Energy

Management Courses should include the following:

- ✦ The TIEP
- ✦ Corporate Environmental responsibility
- ✦ Environmental Cost Accounting
- ✦ Environmental legislation
- ✦ Sustainability Criteria
- ✦ Strengthening sustainability in the IDP

The course material above can be used as basis for the development of awareness programs relating to the above.

6.2 The regulatory framework for improving Qualifications: SAQA, NQF and the Skills development and Skills Levies Act

The SAQA Act provides a regulatory framework for the establishment of the National Qualifications Framework (NQF) and a National Education and training qualifications authority (SAQA)

The act also makes provision for national standards (referred to as unit standards) relating to outcomes based education and training curricula and learning programmes.

Learning programmes should consist of formal unit standards or NQF building blocks, registered with SAQA.

According to Etienne A Ernst (2000:23 – 24) the registration of an NQF qualification must comply with the following criteria:

1. It must represent a planned combination of learning outcomes
2. Each learning outcome must have a defined purpose intended to provide qualifying learners with applied competence and a basis for further learning
3. It must enable the qualifying learner to attain particular status, recognition, credentials and licensing
4. It must also improve the qualifying learner's marketability and employability and provide access to more advanced education and training

5. It must provide benefits to society and the economy through enhancement of citizenship, improvement of social and economic productivity, elimination of skills shortages and redressing legacies of past inequality
6. it must be internationally comparable
7. It must appropriately incorporate an integrated assessment methodology, which contains a variety of both formative and summative assessment, which will successfully ensure that the purpose of the qualification is achieved
8. It must contain rules that govern the award of the qualification and these rules must indicate if the qualifications may be achieved in whole or in part through the recognition of prior learning

Unit standards have to be registered with the National Standards Body before a qualification can be registered on the NQF.

The Skills development Act provides a regulatory and financial framework for the promotion of learning within the labour sector.

It establishes Sector Education and Training Authorities (SETA's) and makes provision for the payment of levies under the Skills Development Levies Act – a levy financing scheme (or levy grant scheme) to encourage employers toward the skills development of amongst others, their employees.

Employers must contribute towards the fund and can claim back grants for the implementation of approved skills development plans.

Skills development plans are evolving in their complexity and indications are that grants will only be paid for employer learning programmes leading to registered qualifications.

It makes financial sense to claim the maximum grant from the SETA, in the case of the CTMM, the Local Government and Water Services SETA (LGW SETA).

Ideally education and awareness programmes that is to be developed under this environmental education and awareness strategy for CTMM employees, should comply with the legislation framework, to enable the allocation of maximum grants.

However, the development and registration of unit standards are slow and the development of unit standards by the municipality itself would take considerable time and effort.



It is however advisable that a formal curricula be developed complying with the prescribed format as far as possible and incorporate as many registered unit standards as possible. This will enable

the CTMM to develop existing curricula by smaller adjustments to enable registration when feasible.

6.3 *Development of additional training and awareness programs*






6.3.1 Training and awareness material has to be developed for the following, and clustered into appropriate programs, or where cost effective and feasible, utilising the services of external service providers:

Topic	Training Module	Awareness Material/program
TIEP Contents		
Applying the precautionary principle		
Life cycle analysis		
Ecological Footprint		
Sustainability Criteria		
Urban Agriculture		
Air quality		
Water quality		
Bio diversity		
Waste management		
Green business		
Local Agenda 21		
Green infrastructure		
Green incentives		
Environmental Indicators		
Corporate Environmental responsibility		
Strengthening sustainability in the IDP		
Environmental legislation and the duties these impose		
Spatial development and Environment		

Environmental cost Accounting		
Soil Pollution		
Underground water pollution		
Sustainable Energy		
Mining impacts		
Environmental Auditing		
Cultural resources		
Environmental Management Systems		
Economic Development and Environment		
Executing environmental Education programs		
State of the environment Reporting		





The following clustering of modules within programs is proposed:

1. Environmental Resource Management, consisting of:

-  Air Quality
-  Water Quality
-  Bio-diversity
-  Soil Pollution
-  Underground Water pollution
-  Cultural Resources

1. Waste Management




2. Corporate Environmental Responsibility










-  The concept of Corporate Environmental responsibility
-  Environmental legislation and the duties these impose
-  Strengthening sustainability in the IDP
-  Applying the precautionary principle

3. Mining Impacts

4. TIEP contents

5. Economic development and Environment

-  Impact and concept
-  Green incentives
-  Green business

6. Executing Environmental education programs
7. Environmental management Tools
 -  Green infrastructure
 -  Ecological Footprint
 -  Life cycle analysis
 -  Sustainability Criteria
 -  Environmental Indicators
8. Local Agenda 21 (inclusive of the targets related to the Johannesburg plan of implementation)
9. Urban Agriculture
10. Environmental Cost Accounting
11. Spatial development and Environment
12. Sustainable Energy
13. State of the Environment Reporting
 -  Concept
 -  Environmental Indicators
14. Environmental Management
 -  Environmental management Systems
 -  Environmental Auditing

6.3.2 Training programme development

- 6.3.2.1 Training programs will have to be tailor-made for each category of the occupational classification matrix, e.g. for workers as opposed to management, must take the skills development regulatory framework into consideration and will consist of the following:
- a. A description of the target group
 - b. A selection of appropriate unit standards where available and clear learning objectives
 - c. Description of learning objectives in terms of desired emotional, cognitive or behavioural impact
 - d. Learning content relevant to the target group
 - e. Learning and awareness material
 - f. Pilot testing and review
 - g. Tracking and monitoring of the training program
 - h. Quality assurance
 - i. A description of integrated assessment and evaluation methodology
 - j. Description of delivery methodology (e.g. pamphlets, industrial theatre)
 - k. Description, Identification and if applicable training of trainers/facilitators
 - l. Implementation plan

6.3.2.2 Training programmes have to be incorporated in the portfolio of PREMOS, as the accredited training provider

6.3.2.3 Environmental education and awareness have to be incorporated in the formal workplace skills plan of the CTMM

6.3.3 Organisational capacity for implementation

The responsible agent for the implementation of the strategy is ultimately Environmental Resource Management.

However, the section currently has one personnel member responsible for both personnel training and community training.

When compared to other departments, such as the Health Services Department, the Environmental resource management section is grossly understaffed. (Health services department: 3 trainers for 450 personnel = 150 per trainer and 3 community trainers. Environmental resource management: 1 trainer for 13 000 employees + community)

Capacity building at the section has to be investigated as a matter of urgency.

7. Recommendations

The following specific actions need to be implemented:

Action		Responsible persons/teams
7.1)	Identification of departmental skills development facilitators or utilising the existing departmental skills development facilitators	Environmental Resource Management Human resource development
7.2)	Establishment of environmental skills development task team	Environmental Resource Management Human resource development

7.3) Population of occupational classification matrix per department	Environmental Resource Management Departmental skills development facilitators
7.4) Identification of priority training and awareness programs	Environmental Resource Management Departmental skills development facilitators
7.5) Identification of individuals which is to undergo job specific training	Environmental Resource Management Departmental skills development facilitators
7.6) Developing of applicable training and awareness programs or modules as indicated (also for inclusion in existing programs), with reference to the section on the legislative framework under 6.2 of this document	Environmental Resource Management and Co-optives Human resource development
7.7) Incorporation of training programs into the PREMOS portfolio	Environmental Resource Management Human Resources Development
7.8) Setting of annual departmental training targets	Environmental Resource Management Departmental skills development facilitators
7.9) Incorporation of targets into municipal workplace skills plan where applicable	Environmental Resource Management Human Resources Development
7.10) Compilation of implementation schedule	Environmental Resource Management Departmental skills development facilitators
7.11) Implementation with reference to the training programmes, inclusive of integrated evaluation and record keeping	Environmental Resource Management Human Resources Development

7.12)	Provide annual feedback on progress	Environmental Resource Management
7.13)	Ongoing training programme development, with reference to the availability of registered unit standards.	Environmental Resource Management
7.14)	All training initiatives in this regard have to adhere to the official education and training policy of the CTMM, as compiled by the Personnel Development Section	All

- 7.15) The strategy be implemented according to priorities as indicated by Departments on the occupational classification matrix
- 7.16) Where cost effective and feasible, the services of external service providers can be utilised, especially for specialised training
- 7.17) That Departments contribute 50% financially towards the execution of the strategy as related to their requirements
- 7.18) That the possibility of appointing 2 additional trainers at Environmental Resource Management as per the approved organisational structure be investigated as a matter of urgency in order to empower the subsection to execute the strategy
- 7.19) Target Dates can only be given once the strategy has been commented on, and certain actions have been completed. It is therefore suggested that more detailed action plans (Example: annexure A) be developed once the skills development task team (consisting of all role-players) has been established.

For more information, please contact:

Adri Venter

Environmental Resource Management Section

Tel 358 8714 or e-mail adriV@Tshwane.gov.za

Annexure A

Example of Priority list

Topic	Number indicated on occupational matrixes of Departments	Priority	Year to be addressed
Topic A	2000	1	Year one
Topic B	1000	2	Year one
Topic C	500	3	Year two










Example of Action Plan

Topic	Delivery Methodology	Target Group	Responsible person	Target Date	Quality Indicators	Target number of employees current year
Ecological Footprint	Internet exercise to determine individual footprint	Computer literate personnel	Thabo Tebogo	40 January 3006	Number of hits Feedback from test run	500
	Pamphlet	All literate personnel	Sannie van der Merwe	40 January 3006	Feedback from pilot testing Number of pamphlets distributed Sample testing of knowledge by calling a sample of 25 municipal employees	6000

Example of Train-the trainer requirements for Job-Specific training

Topic	Department	Number of trainers required	Numbers of trainers available	Numbers of trainers to be trained	Names of trainers to be trained	Date of training
Topic A	Water and Sanitation	5	4	1	Piet Molefe	1 April 3008

Example of Preferred Service provider for environmental training programmes:

Topic	Internal	External
TIEP Contents		
Applying the precautionary principle		
Life cycle analysis		
Ecological Footprint		
Sustainability Criteria		
Urban Agriculture		
Air quality		
Water quality		
Bio diversity		

Annexure B

Strategy Process

